

**Does the Incentives Structure Matter for the Design of
Large-Scale Privatization in Ukraine?
A Case-Study of Arsenal**

by

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B.S., Statistics
Kiev Economic University, 1991

Submitted to the Department of Urban Studies and Planning
in Partial Fulfillment of the Requirements for the Degree of

MASTER OF CITY PLANNING
at the
Massachusetts Institute of Technology
May 1995

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Abstract

The focus of the thesis is a gradual collapse of the incentives structure over the last twenty years at a large-scale manufacturing enterprise *Arsenal* in Kiev (Ukraine). The major question in this case-study is the following: "Does the incentives structure matter in the design of a large-scale privatization program in Ukraine?" The answer to this question in the thesis is positive. It is also argued that restructuring of the enterprise through fragmentation should proceed before its privatization. Such sequence of the enterprise reform could allow for a new incentives structure to emerge, and could stop further deterioration of *Arsenal's* work force, now heavily subsidized from the state budget.

Despite monetarization of exchange in the economy, at *Arsenal* incentives for higher productivity and innovation do not emerge. A major reason for this is that the old governance structure of the enterprise does not live up to the realities of liberalizing economy. Deterioration of skills, disappearance of the on-the-job training, and the spread of hidden unemployment are among the consequences of the Soviet-style management. In face of potential unemployment, top managers provide employees with basic job security and subsistence-level wages and in exchange the employees agree to ally with top managers in the course of the enterprise's privatization. However, according to the high-skilled workers and middle managers a mere privatization of *Arsenal* will not solve the problems of incentives.

These problems today are partially resolved through informal arrangements, which essentially allow less efficient workers and units to survive on the expense of more efficient ones. A fragmentation of the enterprise would help its more viable units not only to survive the transition but also grow and become more attractive to investors. Although the fragmentation is not an ideal solution to *Arsenal's* problems, it seems to be more feasible under the current macro-economic conditions.

Acknowledgments

My thinking about political, economic, and social transformation in Ukraine and Russia has changed dramatically since I came to study at the Harvard Ukrainian Research Institute in the summer of 1992. A course in social anthropology taught at that time by Professor Oksana Grabowicz had a significant impact on me. It is through my continuous dialogues with her in the last three years that I have become among others interested in the study of labor. I would like to dedicate this thesis to her.

I am also greatly indebted to Professor Michael Piore, whose books and lectures helped me to think in a new way about production, individualism, and economic history. I am very grateful to Professors Karen Polenske, Martin Rein, and Bish Sanyal for their understanding, advice and encouragement allowing me to understand better problems of development and to master my planning profession.

I also want to thank the Harvard Ukrainian Research Institute, particularly its Director, Professor George Grabowicz, whose generous moral and financial support was crucial to me since 1992. I would like to express my thanks to the Department of Urban Studies and Planning at MIT for the financial assistance; the Ukrainian-American Professional and Businesspersons Association of New Jersey, and Mr. Bohdan Vitvistky for the scholarships; the Center for European Studies at Harvard University for the thesis grant; and Alex Gamota, who introduced me to the MCP program at MIT.

I am especially grateful to my mother, who encouraged me to become a third-generation social scientist, and to my father who spoke English to me when I was a child. I also want to thank my friend Alex Pivovarsky from Harvard for sharing ideas, doubts, and challenges of American life, as we both came to Cambridge from Kiev in 1992.

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Introduction

It is ironic to note ... that major changes in centrally planned economies never took place according to a "central plan." There is a Chinese adage which talks of "crossing the river by touching the stones." The reform process in socialist economies conformed exactly to this image: whole societies proceeded to cross the deep water without accurate knowledge about the final destination by a process of moving from one stone to another.

János Kornai¹

My studies in the United States became possible because Ukraine opened to the West. I hope this was not just a small window of opportunity for a few of my generation. In my view, a continuity of this openness will depend in large measure on the success of economic reforms in my country. The economic reforms, already introduced in Ukraine, have so far improved the quality of life of a relatively small number of people. Since many political constraints are removed, why then do the majority of people still remain economically passive? Why are private businesses emerging so slowly, and why so little foreign capital is attracted to Ukraine or Russia? Of course, these are very general questions, but in the same time in both countries they are in the center of a current policy analysis and decision-making .

On my way to Ukraine in January 1995, I became involved in a conversation with a German entrepreneur. He was going to Ukraine to cancel a contract he signed with a Ukrainian radio-technical manufacturer two years ago. Apparently the Ukrainian manager he dealt with, had not fulfilled a single obligation of the contract, and the state also interfered with the project, making it even more difficult to implement. In addition, lawyers from abroad were unable to help him to find a way out of the legal confusion he found in Ukraine. The businessman's life was threatened by an anonymous group that demanded that he deliver a promised investment. "How can one do business in a country like this," he said, "It's not even a Third World. There, at least people work if you pay them well. Slavs will never get the work done, it's probably in their culture."

¹ Kornai, János. 1991. "The Affinity Between Ownership Forms and Coordination Mechanisms: the Common Experience of Reform in Socialist Countries." The Reemergence of Civil Society and Liberal Economy in the Post-Communist World, ed. by Kazimierz Poznanski. Westview Press, p. 99.

I was not sure how to react to such comments. Obviously, I have always identified with this part of the world. "Is this in my culture, indeed?" It was not the first time I asked myself this question. I have heard similar comments from other Western businessmen during my three-years as an interpreter in the United States. In one case, the city administration did not want to give "the green light" to a hotel renovation in the capital's downtown, in another, workers of a manufacturing enterprise did not want to work for \$100, although it was ten times higher than their official monthly wage. Until now I was unable to understand why such paradoxes exist, what is the matter with our people, or with the companies and institutions they represent.

Going to Ukraine as a would-be planner to conduct a research for my thesis I was not still clear about the question which I had to answer. My conversation with the German businessman confused me even more. On one hand, he blamed the Ukrainian managers and the state, on the other, he was blaming the whole culture for the failure of his project. Actors he did not mention, however, were the workers of the enterprise. When I brought them into the discussion, the businessman looked at me with suspicion. I became aware that if I continue he would see me as a hopeless Marxist.

This encounter influenced my decision to do a case-study. I believe such a study could help Western businessmen and policy-makers (whose framework of thinking excludes important actors from their projects) to narrow a gap in understanding of the economic problems Ukraine is facing. For example, in the restructuring on a micro-level the state as an actor is usually excluded in the stabilization and privatization programs advocated by Western economic consultants, and the workers do not figure as actors in the projects of Western businessmen.

I realized that whatever the problems of a Ukrainian enterprise might be (whether they are related to the obsolete and illogical accounting system, or to the managerial rent-seeking, or to the state intervention into enterprises' foreign deals), they have to be presented in such a way as to be of practical significance to both individual and institutional foreign investors. In attempting a case-study I wanted to find out what makes most of the Ukrainian enterprises today dysfunction; and the majority of their employees unproductive, and what could be done about it.

Since there were very few studies in the West on the history of Russian and the Soviet firms,² and none dealing with the Ukrainian firms, I found it necessary to place the subject matter in some historical context. With some background knowledge of the Soviet industry from my undergraduate research at the Kiev Economic University, I decided to interview workers, managers, state bureaucrats. I also interviewed grass-roots activists, foreign consultants and businessmen.³

In 1991 the Soviet system of centralized economic planning began to disintegrate in Ukraine. Since then the country's industrial production and real wages have decreased by roughly fifty per cent, its open and hidden unemployment accounted for about twenty five per cent of the work force, and the inflation soared by more than 10,000 per cent in 1993 alone. At the same time, according to the most conservative estimations, almost half of country's GNP is produced in the underground, or shadow economy.⁴

Implementation of the IMF stabilization program for Ukraine began in January 1995, and the large-scale privatization is a central part of it. This includes the privatization of about a hundred of the large-scale monopolistic enterprises (so-called "red giants"), located mostly in the eastern and central Ukraine. When this privatization will be implemented is a question in itself, but even more important question is *how* it is going to be implemented in view of continuing absence of a legal structure in Ukraine.

Several students of transition economies (Amsden (1994), Yavlinsky (1994), and others) have warned that the IMF and the World Bank programs essentially assume that privatization will make enterprises more efficient and will help the economy to "get the prices right." The authors have argued that clever industrial policies are needed to de-monopolize economies of Eastern Europe, and to allow for a new incentives structure to emerge. Unfortunately, very few decision makers in Ukraine (both on the "conservative," communist side, and on the "liberal," reformist side) believe that industrial policy is a priority.

² The most comprehensive of them were done by Berliner (1957, 1976) and Tugan-Baranovsky (1938).

³ With the grant support from the center for European Studies at Harvard University, I was able to conduct fifteen one-hour interviews.

⁴ From an interview with Olexander Savchenko, the EBRD Executive Director, and his report presented at the JFK School of Government, Harvard University, on March 17, 1995.

To answer the question what makes the enterprise dysfunctional, one has to analyze the evolution of its governance structure, and to answer what makes the employees passive, one has to examine the evolution of the incentives structure.⁵ Thus, the major question of the thesis reverses a question asked by Stiglitz (1994): "Does ownership matter for the design of incentives structure?"⁶ The case-study presented here, demonstrates that there is a dialectical relationship between the form of ownership and the incentives structure.

The argument in the thesis is that privatization by itself may not bring the expected efficiency and higher productivity. To allow for a new incentives structure to develop, the state needs to restructure its large-scale enterprises before privatizing them. Arguments against restructuring come mostly from the top managers ("red directors" as the media calls them), who want to secure their power and control over the assets. They claim that restructuring will cause mass unemployment, and will destroy a "human capital" that accumulated over the decades.

Thus, the research part of the thesis is devoted to two questions. First, what were *Arsenal's* employees' incentives before the transition, particularly in the 1970s and 1980s. Secondly, how these incentives are changing in the 1990s with the monetarization of the economy. I try to answer these questions by developing a typology of *Arsenal's* employees first, and it includes high-skilled workers, low-skilled workers, middle managers, and the top managers. Subsequently, I study these groups' incentives under the changing technological, budgetary, and market constraints over the last twenty years.

First I discuss a problem of the deterioration of the old incentives structure at *Arsenal*, a typical phenomenon for the post-Soviet industry as a whole. I link this deterioration to a military-technological competition between the USSR and the US during the Cold War, as well as to increasing openness of the Soviet society to the West and the scientific and technological progress. Thus, I try to establish a relationship between the incentives structure of the Soviet-type enterprise and its governance

⁵ My definition of an incentives structure includes three components: material compensation for one's work (both monetary and non-monetary), a social status which a given job provides, and the meaning, or vocation, which an individual finds in his or her work. As we will see later, because material compensation was often provided for merely holding a job rather than individual performance, the role of the two other incentives in a socialist system was crucial.

⁶ Stiglitz, Joseph. 1994. Whither Socialism? Cambridge: MIT Press, p. 81.

regime, including working class Marxist-Leninist ideology and the value system.

In the second chapter I discuss a gradual collapse of the incentives structure along with erosion of the governance regime. The discussion is divided into three parts: (1) the context in which large-scale enterprises in Ukraine functioned until recently, (2) the goals and the implications of the 1973 industrial reform, (3) the goals and the implications of the 1986 wage reform. To facilitate innovation, the industrial reform significantly increased the size of the enterprise, and narrowed down the wage differentials among the different employment groups. To increase productivity, the wage reform in turn, delegated more authority from the state to the top managers, and widened the wage differentials.

The third chapter is devoted to the problem of employees' incentives under the transition. Here I argue that from the perspective of the middle managers and the high-skilled workers, both reforms failed to solve the problems of incentives. The primary reason for these failures was that an accounting of the individual units' performance remained centralized on the level of the state (after the first reform), and on the level of the enterprise (after the second reform).

In this context, an emergence of managerial paternalism and subsequent "informalization" of incentives might be seen as a consequence of these failures. I argue that today the top managers capitalize on workers' helplessness,⁷ an outcome of their socio-economic, political, and personal dependence on their employers. If in the past, the lack of incentives made workers dependent on the state and the Communist Party, now this dependence became more informal, and more difficult to change.

Although at *Arsenal* the old incentives structure (including the system of social benefits) collapsed, it was not replaced by the formal changes in the organizational structure of the enterprise. There are no formal changes in the employment relations between the three groups of employees: high-skilled workers, low-skilled workers, and middle managers. The top managers' relations with the state were not affected as well.

The fourth chapter of the thesis contains recommendations for the enterprise reform, based on the preceding analysis. Here, I argue that the

⁷ Amsden, Alice and Jacek Kochanowicz, Lance Taylor. 1994. The Market Meets Its Match: Restructuring the Economies of Eastern Europe. Cambridge: Harvard University Press, p. 200.

incentives structure can only be changed when the governance structure of the enterprise is changed. This change I believe, can be attained through fragmentation – splitting the enterprise into the smaller units.

The fragmentation in my view, would benefit the high-skilled workers and the middle managers in the civilian and to some extent defense-related units. Most of the employees are now virtually unemployed. Despite their subsistence-level earnings, the middle-aged workers are not eager to leave the bankrupt enterprise to compete for jobs in the private sector, represented now for the most part by commerce and services. Their flexible skills and the commitment, however, could help them significantly to survive the transition.

Here, the policy implication is that only after *Arsenal's* fragmentation its fully autonomous and accountable units (i.e., plants or even shop-floors) could be privatized. Such a strategy would help its more viable units not only to survive the transition, but also grow in the future. Today the profits of the more viable units are used to subsidize the production of the inefficient ones. Thus, the fragmentation can be a crucial pre-condition for a new incentives structure, and help the macro-economic reform as well.

1. Labor Under Transition: a Theoretical Framework

[In a socialist enterprise] chronic labor shortage forms the basis of workers' bargaining with management
David Stark⁸

The mainstream discussion of the post-socialist transition in Eastern Europe and the former Soviet Union has centered around the neo-classical models of macroeconomic stabilization. It is not surprising since these models provide the basis for the IMF and the World Bank stabilization programs in those countries.

A general neo-classical framework for analyzing the effects of economic reforms on labor markets and its central problems – unemployment and wages, was developed by Blanchard (1993). It presents the following argument: In the course of reforms, the old public sector

⁸ Stark, David. 1986. "Rethinking Internal Labor Markets: New Insights From a Comparative Perspective." *American Sociological Review*, 51: 494.

gradually erodes, a private sector (providing new incentives to employees) is growing, and large-scale enterprises give a way to the medium- and small-scale ones. As a result of changes in the ownership structure and of overall economic decline (including heavy-industrial conversion, enterprise closures, etc.), state firms are shedding labor, creating unemployment in the process of these reallocations.

There can be two views in interpreting these processes. The first one, more pessimistic, would stress that if the private sector grows slower than the public one collapses, and subsequently if there is lagging in the reallocation of the work force, the unemployment may rapidly become a large stagnant pool. This pool is associated with high economic and social costs, because it can place at risk the whole reform process.

The second, more optimistic view, is that the private sector has a comparative advantage before the public sector and it "steals" workers from the state enterprises, and by that forces the latter to reorganize. Unemployment is seen as a healthy by-product of privatization and liberalization, and even if the unemployment pool is large, it has a high turnover necessary for an efficient restructuring.

Neither of these two scenarios is realized (at least now) in the post-socialist economies, where stagnant unemployment pools are relatively small. What is happening in Ukraine, for example, is that labor is being "suspended" between the public and private sector (i. e., most employees find themselves in a state of "limbo" when they don't work in the public sector, although formally they keep their jobs there). A clue for understanding this phenomenon is in the relationship between the workers and the top managers.

This type of relationship was discussed in a relatively small number of studies, mostly sociological: Burawoy (1993), Flitzer (1994), Stark (1994, 1986), Szelenyi (1988), Walder (1986), and others. These authors, drawing upon the work of Kornai (1980) on one hand, and the theory of internal labor markets, developed by Doeringer and Piore (1971), on the other, argue that until recently competitive labor markets did not exist in the socialist economies, as well as markets for capital and land. Chronic shortage of the factors of production, and especially labor, was closely associated with the command principle, around which the whole socialist institutional structure was organized. Full employment, artificially maintained through labor hoarding, was a characteristic feature of over-centralized economies.

Walder (1986) suggests that to understand a real dynamic of post-socialist transition, one has to look at the large-scale enterprises and the incentives structure of their employees. This structure will be quite different from that of a typical Western firm because it is formed under a set of fundamentally different factors: labor in a large socialist firm is a fixed rather than variable, capital; its employment does not fluctuate according to the demand for a firm's products; wages and conditions of employment are not subject to formal bargaining; labor and management are not recognized as separate parts; wage scales are set by the state, etc.⁹

The authors suggest that one cannot model the behavior of the work force in the post-socialist economies on the neo-classical assumptions. One of the reasons for that is a deep link between the incentive structure and the working-class ideology. Although the authors do not provide an explicit analytical framework for the analysis of the incentives structure, their diagnosis of the social conflicts and economic inefficiencies in the post-socialist states points to the relationship between the incentives and the ownership structure in the large-scale firms.

Most large-scale enterprises in post-socialist economies were owned and controlled by the state. They employed more than third of the work force in many post-socialist economies, and especially in Ukraine and Russia. In the past, a "soft budget constraint," and a self-perpetuating macro-economic shortage of the major factors of production, including labor, forced these enterprises to develop informal internal mechanisms to adjust to the uncertainties produced by the Soviet-type hierarchies:

Analysis of systemic uncertainties and the organizational responses of workers and managers yields a comparative model of mirrored opposition: in economies in which the firm operates in a market environment, systemic uncertainties regarding labor are reduced through internal bureaucratic rules operating according to a classificatory logic. In the socialist economy, by contrast, where systemic uncertainties are produced by a bureaucratic environment, the firm responds through internal market transactions based on affiliative ties.¹⁰

There were at least two major reasons for the emergence of the informal, market-type relations between workers and managers at the

⁹ Walder, Andrew. 1986. Communist Neo-Traditionalism. Work and Authority in Chinese Industry. Berkley: University of California Press, p. 11.

¹⁰ Stark, David. 1986. "Rethinking Internal Labor Markets: New Insights From a Comparative Perspective." American Sociological Review, 51: 492.

large-scale industrial enterprises.¹¹ First, the chronic shortage of supplies gave rise to a peculiar socialist practice – "storming" (*shturmovshchina*). It was characterized by a slow work at the start of a production cycle (month, quarter, or year), followed by a rush to meet the plan target at the cycle's end, when supplies suddenly became available. Although workers agreed to work overtime, this unwritten concession gave them a bargaining power on the important issues (especially social benefits). That eventually led to the emergence of informal institutions within the enterprise.

Secondly, the enterprises were unevenly mechanized. Production shops were more highly mechanized than auxiliary operations, which formed bottlenecks and soaked up a larger part of the work force. Another bottleneck was the shortage of spare parts, fastenings, and small tools. The shortage of these items and their non-standardization compelled the enterprise to manufacture them in its own workshops under labor-intensive and highly wasteful and costly conditions. This particular shortage was directly related to a disproportionately high auxiliary sector.

Workers in auxiliary operations performed numerous tasks only indirectly related to the production, such as internal transport, loading and unloading, packing, warehousing, quality control, cleaning, maintenance, etc. Most of these jobs were low-skilled, and much harder to control because of their mostly manual or crude technological level. These jobs involved almost half of the work force in many large enterprises. The need to retain large numbers of low-skilled workers created a perpetual labor shortage, which in turn also provided these workers with a bargaining power.

Stark (1986) and Burawoy (1993) suggest that some elements of the labor market have developed at the large-scale enterprises, job competition is one of them. What workers were competing for if the centralized system of wages tried to keep wage differentials minimal?¹² The goal of competition among the core workers (directly involved in production) and auxiliary workers (indirectly involved in production) was the same – to establish solid personal informal relations with managers. However, the modes of this competition among the two groups of workers were quite different.

¹¹ See Filtzer (1994).

¹² For example, a wage ratio between the general manager and a trainee worker was about 3:1.

Shortages of raw materials and equipment required much more diverse skills from the core workers than those specified in the formal job descriptions. For example, the core workers had to be able to make tools that were not in supply, or even redesign a product, or some part of it when the drawings were faulty.¹³ Making oneself an "irreplaceable" core worker with the unique and often firm-specific skills, constituted means of establishing informal relation with managers, and getting a quicker access to the enterprise's "non-monetary," or "social" benefits such as housing, healthcare, consumer services and products that were in deficit.

In contrast, auxiliary workers' competition was centered around informal exchange activities. A low technical level of these workers' labor made job evaluation very difficult, and some other mechanism had to be developed instead. Indeed, managers heavily relied on certain workers, who could provide some basic discipline and achieve a basic level of productivity. On one hand, the selection of these workers, was based on countless political criteria – membership in a communist party, trade union, etc. On the other hand, it was based on trust, because it usually involved an informal exchange of favors, especially the material ones.

In other words, the formal incentives structure present at the large-scale enterprises has never been fully satisfying for both categories of workers. One of the consequence of this was the evolution of specific trust relations between the managers and the employees. Trust was developed in the course of a long-term relationship between workers and managers. Understandably, the latter tried to keep the best of the workers in their places, in the same time limiting their mobility. Rewards for this limited mobility were usually provided in the course of individual bargaining. For example, for a worker to establish such a relationship with a manager, a mere membership in the political organization was not enough. He or she had to have important "higher-place" connections outside of the enterprise, or to know someone, who socialized with his or her manager. In other cases a long term job commitment had to be demonstrated.

Thus, there were at least two quite different modes of adjustment to the so-called "forced equality" and to the counter-effective organization of production. One was based on a "patron-client" principle of reciprocity, and second – on a principle similar to that of supply and demand. Workers who have chosen skills-oriented competition had a somewhat

¹³ Such practice could develop because of organizational mis-matches between the productive and auxiliary work.

different value system than those for whom the competition was essentially a participation in the informal exchange transactions. However, both categories of employees developed informal relations with managers based on trust. This trust still plays a crucial role under the transition, because it provides an opportunity for the top managers to establish a new "social contract" with the employees.

In the period of transition, when the system of "non-monetary" benefits is collapsing, the described customs come into conflict with employees' spontaneous actions toward re-organization of the enterprise. For example, the high-skilled employees and managers of the units involved in the production for export try to disconnect their units from those with low-quality production, designed for domestic markets. The same could be said about employees involved in civilian production as opposed to defense-related production.

In this place one would ask a question: what about the low-skilled auxiliary workers, whose job choices were motivated largely by a desire to move from rural to the urban areas? In Ukraine now, most of them are on the long-term unpaid administrative leaves (but not officially unemployed), and spend most of their leisure time working in the villages where their relatives live. The top managers do not want to lose these workers because they can use them as a leverage in bargaining with the state for credits.

Some authors conclude that it is still unclear whether it is the state or the top managers who retain auxiliary workers at their jobs, and the informal exchange networks in their place. The informal bonds between the top management and their employees may play a destructive role for the economy, contributing to the hidden unemployment, corruption, and political lobbying.

2. Employees' Incentives Before the Transition

The failure to provide incentives is generally viewed as a central reason for the failure of the Soviet system.

Joseph Stiglitz¹⁴

2. 1. Soviet Enterprise in Ukraine: a Background

Ukraine's large-scale manufacturing enterprises were created in the 1920s and 1930s as a result of the rapid industrialization policies adopted in Russia. By 1991 they constituted the core of the economy, producing up to seventy percent of its material product and employing up to thirty percent of the work force. Large-scale enterprises were monopolists on the domestic (Soviet) market. Most of them combined civilian and defense-related production under the jurisdiction of the all-union ministries in Moscow.¹⁵ These ministries (on behalf of the state) owned and controlled the enterprise, planned its output, employed its work force, and purchased its products.

As a result of this situation, transactions between the state and the large-scale enterprises and among the latter were based on barter. It was a sheer necessity because the state paid for products that were not yet produced, while the production process had to be maintained from one payment period to another. The virtual absence of the monetary exchange in classical socialist system made money simply an unit of account in presence of the non monetary exchange with government planning:

Money acted as a simple bookkeeping tool, while the distribution of resources was decided by state planning agencies. The famous soft budget constraint was nothing more than a simple reflection of this fact. Physical plans must be fulfilled at any cost, and money does not matter.¹⁶

As prices were liberalized in 1991, and the economy became more open to international markets, money started to perform its three major functions (a store of value, a medium of exchange, and a unit of account).

¹⁴ Stiglitz, Joseph. 1994. Whither Socialism? Cambridge: MIT Press, p. 68.

¹⁵ There were three levels of jurisdiction for the enterprises – all-union, republican, and local. The so-called "strategic" large-scale heavy industries (machinery, metalwork, etc) were subordinated to nine all-union ministries in Moscow. Light industry and construction was subordinated to the republican ministries, while services and small-scale food processing – to the local administrations.

¹⁶ Yavlinsky, Grigory and Serguey Braguinsky. 1994. "The Inefficiency of Laissez-Faire in Russia: Hysteresis Effects and the Need for Policy-Led Transformation," Journal of Comparative Economics, 19: 98.

Today, when the real value of resources is widely recognized, the raw materials and the means of production originally viewed by managers just as sources of physical output, now are perceived as important sources of private capital formation.

The soft budget constraint, easily sustained in closed socialist economy with the limited role of monetary exchange, led to inflationary pressure in the conditions of liberalizing economy. Monopolies immediately increased prices for their products, and since the state was no longer paying for them, enterprises accumulated debts both to the central bank and to each other (as they were unable to pay for the supplies).

The state also no longer plans enterprises' production, investment, and distribution. The only concern which the state has is the fate of enterprises' employees, whose wages are still subsidized from the state budget. In this situation, the top managers start to play an especially crucial role as intermediaries between the state and the employees. This position of "middlemen" provides the top managers with an opportunity to acquire power and control over the enterprises' physical capital.

Before the transition, growth of the enterprises was "extensive," primarily due to the increase in inputs such as capital, labor, and natural resources. This is in contrast to "intensive" growth through innovation, improvement of product quality, exploitation of gains from international trade, and constant cost reduction.¹⁷ As many social scientists pointed out, the collapse of the Soviet system in the late 1980s proved that in the long run "extensive" growth could not be sustained.

In the present day situation, large-scale enterprises and the state (as their absolute owner in the past and potential share-holder in the future) must undergo several transitions at once: (1) transition from the state to the private form of ownership; (2) transition from the barter to the monetary form of exchange; (3) transition from the military to the civilian production; (4) transition from an "extensive" to an "intensive" pattern of growth (from the "soft" to the "hard" budget constraint); (5) transition from monopolistic to competitive economy; (6) transition from "closed" to "open" economy; and (7) the transition from the Marxist-Leninist ideology of the working class to a new kind of ideology, which must accommodate the ideas of private property and

¹⁷ Winkler, Georg. 1992. Central and Eastern Europe Roads to Growth, ed. by Georg Winkler, Washington: IMF and Austrian National Bank, p. 5.

individual responsibility.¹⁸ All of these seven transformations, in our view, mirror the transformation of the governance regime of the enterprises.

Under the Soviet system large-scale heavy-industrial enterprises were called "strategic" not only because their production was defense-related, but because the production of means of production (as Stalin's "Law of Planned Proportional Development" emphasized) was the main source of the socialist economic growth and not the production of consumer goods or services.

Among the consequences of such thinking about growth and development were "path dependent" (*ot dostignutogo*), cost-based¹⁹ planning, and the accounting system unable to deal with the concept of amortization:

Once accumulation was embodied in a material asset such as a machine, it was hard to accept that over time the material embodiment had become obsolete and should be scrapped, even though it was still working at or close to its design capacity... As a result, large quantities of technically obsolete machines were kept in operation, holding back productivity levels and causing diminishing returns to investment.²⁰

The third consequence of such approach to planning were barriers to innovation and decreasing productivity. The latter created problems for the top managers rather than for the state. On the one hand, the top managers had to fulfill the technical, industrial and financial plan (*tekhpromfinplan*), broken into annual, quarterly and monthly output targets according to "main assortment" indicators (*nomenklatura*). On the other hand, the top managers had to fight for a soft budget constraint.

Enterprises' adjustment to bureaucratic environment took place through manipulation of the approved and true production figures. Under the conditions of constant uncertainty, the top managers would either conceal additional incomes (if there were any) or, more often, would not report the true enterprises' inventories:

¹⁸ The slowness of the last transition is central to understanding why the emergence of the new formal incentive structure lags behind the informal arrangements which are being established at the enterprise.

¹⁹ Prices were calculated on the basis of costs (*zatratnyj printsip*), rather than profits.

²⁰ Allen, Mark. 1992. "IMF-Supported Adjustment in central and Eastern Europe." In *Central and Eastern Europe Roads to Growth*, ed. by Georg Winkler. Washington: IMF and Austrian National Bank, p. 31.

This means that Soviet managers had incentives to innovate provided that they could choose the rate at which the effects of those improvements were made known to the state.²¹

Such informal arrangements were detrimental for the enterprises' work force, especially for the engineering and technical personnel and high-skilled workers. Their jobs often did not reflect their skills, and starting in the 1970s, their wages leveled and approximated those of lower-skill employees. Under the transition, the lack of incentives forced a large number of the skilled employees to quit their jobs for a growing private sector.

Ukrainian industrial enterprises have more hidden jobless rate than any other country in Central and Eastern Europe. According to a recent survey by the International Labor Organization an open unemployment is likely to soar in 1995 as the IMF and the World Bank's stabilization program is being implemented.²² The survey, covering 348 manufacturing enterprises that employ over 372,000 workers, suggests that the true unemployment rate in Ukraine is already exceeding twenty percent compared with the official Ministry of Labor rate of one percent of the work force.

In addition, some twelve percent of workers are on long-term unpaid "administrative" leaves, a few more are on partially-paid leaves, and a large number of other workers are on compulsory short-term working leaves. ILO also indicates that there is growing under-group of poor workers paid much less than their counterparts, partly due to a "tax-based incomes" policy adopted by Ukraine under pressure from the IMF for loan qualification. Because the policy involves a punitive tax on average wage rises, managers are lowering wages for some groups to allow for a higher pay for privileged workers.

2. 2. Industrial Reform of 1973 and Narrowing of the Wage Differentials

In 1969 the US astronauts landed on the moon, and this event overshadowed the space achievements (and associated with them military technological superiority) of the Soviet Union. To stay in the competition with the U.S. the Communist Party at that time decided to speed up research and innovation by combining institutes, design bureaus and

²¹ Pejovich, Steve. 1990. "A Property Rights Analysis of Perestroika." Communist Economies, 2(2): 162.

²² ILO-CEE Report on Ukraine, 1994. Geneva and Prague.

enterprises into amalgamated associations that would reduce organizational barriers for what was known in Russian as *NTP* (scientific and technical progress). This decision of the elites raised many objections, and debates continued until 1973 when industrial centralization was finally accomplished. The agreement for US-Soviet space cooperation signed during the visit to the USSR of President Nixon in 1972 facilitated the adoption of this reform in many ways.

This 1973 reform was especially important for Ukraine, where more than eighty percent of the aero-space, missile and other advanced machinery production of the Soviet Union was located. *Arsenal*, one of the major defense contractors of the all-union subordination, became one of the first of Ukrainian enterprises to be transformed into an *NPO* (scientific-production association). Many small- and mid-size plants and design bureaus of different profiles and subordination were associated under the "roof" of *Arsenal*.

In part as a result of this reform, and to some extent because of the growing labor shortage (a demographic outcome of the W.W.II and the 1930s Stalin's famine in Ukraine), wages of the so-called *ITR* (engineering-technical workers) leveled, and as never before began to approach those of the skilled manual workers. As a consequence of that, many experienced masters (foremen) abandoned their work for managerial positions (it should be noted that managers were not trained professionally at that time). As these workers report in the interviews, although a managerial job did not provide a much higher wage than a foreman's job, it did provide a quicker access to the social benefits, such as housing, for example.²³ This was very disappointing for younger workers for whom the foremen were also their mentors (*nastavniki*).

There were several reasons for disappointment. Younger workers came to the enterprise in the late 1950s–early 1960s and were trained by the older masters who worked in *Arsenal* since the 1940s. For majority of the masters their work was their life, their calling (*prizvanije*). They could have not imagine themselves without their shop-floor and their tools. At that time to be a master meant that one had to be acquainted with (and to be able to perform) various jobs on the shop-floor, from carpenting and plumbing, for example, to major tool operations and machine repair.

²³ Employees' compensation was composed of the two elements – monetary earnings and benefits in kind. The monetary part included the basic wage and a premium bonus, and occupied approximately a half of employees' total compensation.

As characteristic of the post-war time there was a shortage of supplies from raw materials to spare parts, and workers had to be quite self-sufficient and inventive rather than narrowly specialized. To learn many different crafts one had to be fully committed to his job. Many workers were leaving because of this, and the older workers referred to it in the interviews as a process of "natural selection". Those who stayed in the plant completely relied on their masters and trusted them. They believed that one day they themselves will replace them. Their job was rather well paid, and there was enough food and rudimentary clothes to buy in the stores to satisfy their basic needs and requirements, and to fulfill their sense of a decent life.

Major shifts and changes begin to occur on the shop-floors in the early 1970s. Up to now, as it was already mentioned, for both younger and the older generation of workers their work was really a *prizvanije*. As a consequence of long indoctrination, they truly believed that by the virtue of living in the "workers' state," they were the "avant-garde", the "hegemon," the "backbone" of the Soviet society. All that slowly began to erode and they felt betrayed (*predany*). On the shop-floors, masters' decisions became frequently challenged by younger engineers, the party and the union leaders, but the most frustrating for the masters was that the wage differentials among the different groups of workers started to narrow, and position, experience, etc. were not longer a distinguishing criterion. When the old masters left, their former apprentices took over, but without much enthusiasm.

As the enterprise expanded significantly in 1973, so did the demand for mechanized work. At that time in general, younger people became very reluctant to search for jobs in the industry. The top managers used all possible ways to attract them to the enterprise. Most of those who came and filled low-skilled jobs at the enterprise were *limitchiki*, or *limita*, workers. They came to the city from the rural areas (and more recently from the Caucasian and other republics), driven not by *prizvanije*, but hoping rather to trade their unfavorable working conditions in the plant for the housing permits (*propiska*) in the capital city.

Thus, the core workers faced a situation when wage differentials between them, *ITR*, and those of the low-skilled maintenance workers narrowed down. The core workers realized that the Soviet dream, including a package of "happy life," i.e., a modest apartment, a summer cottage (*dacha*), and a car, will always remain for them just a dream.

Although their salaries were steadily rising, there was not much to buy in the stores anymore. In the workers' opinion this marked a beginning of the collapse of the work ethic and the trust they vested in the state. The state, as workers explained, failed to give them a deeper motivation for their work and to secure their status and earnings to which they were used to in the post-war period. A famous joke: "Let Lenin do the work, he is immortal," became quite popular. Being a worker was no longer perceived as a privilege, but as fate. This is how a fifty-years old worker described the "social contract" of the 1970s: "We depended on the state, but the state also depended on us. Thus, the state pretended it paid us, and we pretended that we worked."

Young people were not willing any longer to go into vocational training after the eighth grade, because the institutions, called *PTUs*, acquired a bad reputation as "schools for delinquents." At the same time, not all tenth-grade graduates could have been accepted to Universities, and had to work at the enterprises. This was the law (employment was still compulsory and one could have been prosecuted for being unemployed). Most of these compulsory "new workers" considered their work as temporary. Men anticipated to be drafted to the Soviet Army, and after the service they could enter University without entrance exams. Women were expected to marry and shortly after giving birth move to some other job. If they did stay at the enterprise, they had to work on the second or third shift because of the seniority system.

Throughout the 1970s, there were several attempts on the part of *Arsenal's* administration to improve working conditions. Thousands of rubles were spent on the "labor protection." New shop-floors were decorated with bright colors; music was played there during the working hours, workers were provided with white robes and access to the recreation centers, tea rooms, etc. In fact, they were drinking *vodka* in these tea rooms (as they told me), and they still continue to drink now.

Along with the changes in wage-determination occurring throughout the 1970s, the system of "on-the-job training" was also collapsing. Younger workers did not want to learn from the older ones and the latter did not want to teach the former. The production process became extremely wasteful, quality was declining (since some youths, particularly women, were given low-paid "non-productive" jobs in quality-control sections), and in addition to the external supply shortages there developed internal ones, because "new workers" just did not do their work on time.

In contrast, during the 1950s and the 1960s if some spare parts were missing, workers were trained to produce them themselves, but already in the late 1970s in similar situation the production process would have stopped for hours. At that time more experienced workers began to use the "lost time" for their own needs to supplement their own incomes by taking side orders, for example. These were the first signs of expanding informal (second) economy.

Old masters who were promoted to managerial positions, tried to use their knowledge of production as best as they could, although today many of them realize that this knowledge was not enough. Their only concern was that the production (technological) process was kept going. Thus, in their view, if there was a shortage of one kind of spare parts, and an excess of other, it was considered normal, it was familiar to them from their shop-floor experience. The obvious decision was to exchange (trade) the excess as soon as possible to keep the production process going (in a way this was reflected later in the preoccupation with volume production rather than efficiency).

Arsenal's top managers had special persons, expeditors (*tolkach*), who had to "push through" needed supplies using barter, personal (including family connections), and bribery. Because shortages started to be seen as something natural in all the branches of the economy, top managers did not have to rely on inputs from their official suppliers (i.e., "assigned" to them by the Ministries), but were developing their own networks usually based on their own as well as expeditors' connections. These informal networks of barter exchange were based on the principles of reciprocity and trust (*doverie*). The trust, as an old manager reported, was built for decades. For example, some of his partners might have been his friends, "comrades" from the W.W.II with whom he "went all the way from Moscow in 1942 to Berlin in 1945."

The problem of shortage was solved, however, through these networks only on the level of spare parts (*zapchasti*), tools, and some unique materials. Shortage of raw materials (*syr'ye*) was too big an issue to solve through the inter-enterprise barter. Usually it was the responsibility of the Ministry to deal with this issue, the latter had no other choice because it had to pay the enterprise *before* the product was even produced.²⁴

²⁴ Therefore, when the command system collapsed in the 1990s, *Arsenal* had to stop many of its shop-floors and send workers on unpaid leaves. This hidden unemployment had nothing

As shortages (particularly of raw materials and energy) accumulated, and more equipment was standing idle, the response paradoxically was not to cut employment but to hire more workers. Some workers believe that this was associated with policies directed towards further increase in the scale of the enterprise. The state was allocating money that had to be spent (*osvojeny*), otherwise these funds had to be cut in the next planning period. Most of the hired workers were counted as labor safety specialists, quality controllers, chauffeurs, warehouse keepers, but their parallel jobs (*po sovместitel'stvu*) were in the union, Young Communist League (Komsomol), or Party organizations. To justify the existence of those "ballast" people, managers reported work not carried out (*pripiski*) to the upper hierarchy, *Glavk*. Bureaucrats at *Glavk* were well aware of *pripiski*, but have chosen to close their eyes because they did the same when reporting to the Ministry.

Because of *pripiski* norms were kept low on the shop-floor level and the higher norms were technically impossible to achieve because of the constant shortage uncertainty. To deal with this problem, enterprise administration began to move workers around alternating their assignments in an attempt to resolve possible conflicts that could arise between those more and those less productive ones. This sort of disassociation of workers from their jobs was possible due to a very bureaucratized system of wage determination.

A socialist wage scale differentiated workers' wages according to six parameters: the length of time worked, the level of skills, the region, the industry, the enterprise, and working conditions. The wage system was the following: in each industrial branch (*otrasl*) a base rate (*stavka*) – the basic wage of the lowest paid grade was established (most industries had six grades, or *razryad*). Then on the basis of a tariff grid (*tarifnaya setka*) wages of the higher-grade were calculated as percentages of the lowest-grade rate with special coefficients for each of the six parameters (the region, the industry, the enterprise, etc.)

Workers could be moved to higher or lower grade levels, but were paid according to the skill level of the work they performed. All other payments (premium bonuses and extra-payments for night work or years of service) were paid at the skill grade of the worker.²⁵ Thus, a skilled

to do with the initial goal of restructuring through technological and organization modernization of production.

²⁵ Filtzer, Donald. 1994. *Soviet Worker and the Collapse of Perestroika*. Cambridge University Press, p. 65.

worker assigned to a simple task could overfulfil the norm and surpass the low skill grade rate, or the low skill worker could be assigned to a higher grade job falling short its requirement. However, while working in the lower grade, one was not allowed to overfulfil the norm more than twenty five percent. This was an informal compromise between the higher and lower skilled workers and the administration.

The practice of rotating workers brought even more unfairness and injustice to the shop-floor. Workers less and less trusted each other. Cases of alcoholism, absenteeism, and the small-scale theft, or "siphoning" (*nesunstvo*) became more common. As one worker recounted: "I considered the day wasted if I had not stolen something, even some bolt which I did not really need." The worker added that later he was able to exchange or sell stolen materials (spirits, lenses, powders) and tools. Initially it was done only out of frustration – workers were buying alcohol for the money they would receive from these illegal transactions. One worker said that this was a "special" kind of money which he would usually spend immediately, and would never report "even to his wife."

A growing alcoholism among the workers contributed not only to the problem of absenteeism, but also affected the quality of production. Workers became extremely sensitive to the changes in prices of alcohol and saw it as a threat. The first step to deal with the issue of alcoholism was undertaken in 1985 by Gorbachev when came to power. Gorbachev's infamous anti-alcohol campaign resulted, among others, in destruction of the well established, famous vineyards in the Crimea and Caucuses (this, needless to say, did not affect the rate of alcoholism at all). The other consequence of this anti-alcohol campaign was enormous reduction in tax revenues. Workers associated it with the beginning of the inflation in the mid 1980's. "If they want to keep me sober (*trezvyi*) they have to stand behind the machine themselves," one worker said, pointing probably to the money-printing press.

2. 3. Wage Reform of 1986 and Widening of the Wage Differentials

Until the late 1970s, most production workers were paid on a piece-rate basis. In the mid 1980s, this arrangement began to be replaced by a brigade system of payment based on the collective piece-rate. Gorbachev's wage reform in the fall of 1986 attempted to solve the problems of incentives by widening wage differentials between *ITR* and manual

workers. Workers described this reform as a mere reshuffling (*utraska*) because many of them were put into the lower skill grades. The differentials between the skilled and unskilled workers widened from 1:1.5 to 1:1.8. The output quotas were raised together with basic wage rates (up to forty percent for the high-skilled workers). A share of quality and other bonuses was increased to account for almost half of the monetary compensation.

Workers' earnings were tied up to the production results of their brigade with each worker's wage estimated on the basis of *KTU* (coefficient of labor participation). The formula, however, was so complicated that neither workers nor managers were able to understand it. Even accountants could barely work with it. As a senior accountant reported in the interview, each month she had to consult with the local committee on wages to do the calculations in a right way.

Gorbachev's reforms only exacerbated inequalities which accumulated on *Arsenal* over the years. Firmly established supply networks represented a significant obstacle for the introduction of new technology, and that could have caused in turn disruptions into the routine patterns of production. Between the mid-1970s and the mid-1980s high-skilled workers who remained in *Arsenal* were no longer performing the tasks specified in their job descriptions. Progressively they became engaged in planning and monitoring activities and formed part of the enterprise's bureaucracy. Equipment they serviced in the 1970s was taken over by the low-skilled workers, and the new one was not installed, because this required new supplies and subsequently creation of the new networks.

A new generation of the top managers, as workers pointed out, was unable to build these networks. Top managers who came to *Arsenal* in early 1980s were appointed by the state, and they had to prove their loyalty to the Ministry that "employed" them. They had a different career paths than the top managers of the 1970s.²⁶ To put it bluntly, they were administrators from ideology with a vague idea about supply bottlenecks, and little concerns about productivity on a shop-floor level. They were more interested in securing steady increases in productivity of the enterprise as a whole through further centralization of the decision-

²⁶ Core workers' had less and less chances for upward mobility, for example, of moving into management positions as in the early 70s. Occupations such as human resources, finance, and accounting as opposed to those in production became viewed as more appropriate backgrounds for management.

making process. The vertical integration of *Arsenal* in the 1980s was achieved via unions, Komsomol, and Party organizations.

The workers, however, were quite skeptical about the slogans of *perestroika* (restructuring) and *glasnost* (freedom of expression) propagated by these organizations. It might have been partially related to the fact that Gorbachev's renewal (*obnovlenije*) came together with his unpopular anti-alcohol campaign and almost five-fold increase in prices of wine²⁷ and *vodka*. As problems of labor and the Soviet economy in general multiplied, managers of *Arsenal* and other large enterprises demanded the introduction of a wage reform.

Several scholars have argued that the last blow to the collapsing Soviet economic system was the 1986 wage reform, the third Soviet wage reform in the postwar years. Its major goal was to increase productivity through a new incentives structure. As a part of reform, for the first time since industrialization in the 1930s, wage-determination was partially decentralized, and the decision-making upon the monetary compensation moved from the Ministries to the enterprise-level. Wage differentials have been widened, a significant departure from the two previous reforms which tended to reduce differentials. The decile ratio of earnings of industrial wage earners fell from 3.36 in 1956 (after the first postwar reform was introduced) to 2.63 in 1972, when the second wage reform had been completed.²⁸

Basic wage rates of wage earners were raised on the average by thirty percent, with the larger increases for more skilled employees. Basic salary rates of managerial and engineering-technical personnel were raised by average thirty percent, with especially high increases for designers and process engineers, directly involved in R&D. Grade 1 rates were related to the minimum wage, raised to eighty rubles per month compared to seventy rubles in 1975 and forty rubles in 1962. For the first time, higher wages were given to workers engaged in creating new techniques or mastering a new technology, including machine tool makers, machine operators, etc.

Substantial wage increases were given to the managerial and engineering-technical personnel, whose earnings exceeded those of wage earners by almost seventy percent in the mid-1950s, but since then, by the

²⁷ Price increases were directly related to the sharp fall in the supply of alcohol due to the destruction of the vineyards.

²⁸ Chapman, Janet. 1988. "Gorbachev's Wage Reform." *Soviet Economy*, 4: 339.

mid-1980s equalized with the latter. For the first time, managers and *ITR* were differentiated into "managerial staff" and "specialists," to reflect changes in promotion procedures and on job ladders. The "specialists," in turn, were differentiated into "designers," "technologists," and "scientists." Also a new, separate category of "quality controllers" was introduced.

Formerly, there was a single job ladder, i.e., an engineer could have been promoted from ordinary engineer to senior engineer, but after that the only possible advancement was to an administrative position. Now there were four categories of engineers instead of two.²⁹

Salaries of managers were built up from a salary of foreman, and the salary of the latter was built up from the Grade 6 wage, which in turn was determined from the Grade 1 wage, and ultimately related to the minimum wage (see Table 1).

Table 1. Minimum Wage and Salaries of Managers and Engineers in Machinery Industry, 1975 and 1988, rubles.

	1975	1988
Occupation		
Minimum wage	70	80
Grade 1 wage	95	105
Grade 6 wage	124	157
Foreman	155	220
Engineer, beginning	115	140
Engineer, top rate	165	230
Director (manager)	300-330	400

The 1986 wage decree called for two normative methods of wage formation and distribution of "cost-accounting income." Under the first method the wage fund was determined according to the norms of output and productivity calculated by a ministry. Payments to the budget were made from profits, and on the basis of ministry-set normative applied to profit, the residual profit retained by enterprise was divided into the production development fund, the social development fund, and the bonus fund. The four funds constituted the enterprise's "cost-accounting income."

²⁹ In the machinery industry, the old system provided for "engineers (with a salary range of 115-150 rubles per month) and for "senior engineers (with a range of 140-180 rubles). The new scheme set the salary for "engineers" at 140-180 rubles, for "engineers of category II" at 160-200, for "engineers of category I" at 180-220, and for "leading engineers" at 190-230 rubles.

Under the second, "more progressive" method, payments to the budget were made from net revenue (gross revenues less material costs other than wages) leaving the enterprise's cost-accounting income. The residual (*ostatok*) along with the normative payments to the production development fund and social development fund, formed the wage and material incentive (*pooschrenije*) funds.

In the first two years of the reform, enterprises began to put their individual units (plants, shop-floors, and even individual brigades) on self-financing. This was done through the introduction of internal subcontracting (*podryad*), when the units were contracting essentially with the top management. Responsibilities of the latter included the provision of necessary supplies, the distribution of the products, and financial decision-making (the setting up of the units' budgets and wage-funds).

Leasing arrangements (*arenda*) introduced in the 1990s, shifted the three functions (previously executed by the top management) to the unit level, but this still has not resolved problems of productivity and the work ethic. Leasing payments (and after 1991 – taxes) were set up so high that they almost equaled the old mandatory payments to the budget (part of which was used to subsidize less efficient enterprises).

The 1986 wage reform was designed on the assumption that the partial differentiation and decentralization of wages would increase productivity and improve work ethic. The assumption proved to be wrong. As it turned out, workers could not increase productivity even if they worked really hard because equipment in some units was, perhaps, as old as workers themselves. A new equipment was standing idle in the enterprise's warehouses for reasons that were discussed earlier.

Summary

The post-war period was a "golden age" for the Soviet industry and the workers. In the early 1970s, to remain competitive in the sphere of space exploration, and to speed up innovation, the state reformed the industry by amalgamating territorially scattered plants into scientific-production associations. The rapid growth of the associations created a shortage of labor in the cities, and the top managers had to attract low-skilled labor from the rural areas in exchange for housing permits and higher wages.

Wage-leveling among the core workers, engineering and technical personnel and auxiliary workers was a major source of frustration and

unhappiness on the part of the core workers. Their compensation (monetary and non-monetary), social status, and vocation, were undermined. Subsequent spread of alcoholism, absenteeism and turnover, have slow down productivity from about six percent annual increase in 1971-75 to about two percent in 1981-85. The reluctance of the top managers to introduce new technology and equipment also contributed to the productivity slowdown.

Gorbachev's *perestroika*, which started with an anti-alcohol campaign, brought even more frustration to the core workers. The 1986 reform tried to solve the problem of low productivity and working discipline by widening wage differentials and gradually decentralizing the system of wage determination. The state, however, has continued to control wages through a rigid system of tariffs with wage ceilings for different job categories. Wages were build up from the minimum wage, and were more the attributes of jobs rather than employees who held them.

In the 1980s, a new generation of the top managers came to *Arsenal* with bureaucratic (*apparatnyj*) rather than technical background. They had to exercise loyalty to the state who "employed" (appointed) them. They saw themselves as executives of *perestroika* at the enterprise, and were quite enthusiastic about the new mechanisms of cost-accounting and wage determination introduced in the late 1980s.

With the overall economic decentralization, the state started to view problems of the 1980s (alcoholism, absenteeism, turnover, recruiting, and conflicts over retirement) as *Arsenal's* "internal" problems. In reality, these "internal" problems were consequences of the macro-economic management of the early 1970s.

As the state delegated more economic authority to the managers in solving labor problems, it also demanded from them "new thinking" (*novoje myshlenije*), a term coined by Gorbachev himself. With the eroding ideological base of the Soviet society, the state delegated part of its authority to the top managers. As a result of this, a new form of paternalism have developed within the enterprise. Managerial paternalism was more personalized than that of the Communist Party, and served economic rather than political functions.

In 1991, after Ukraine declared its independence from the Soviet Union, *Arsenal's* broke up with its supervising ministries in Moscow. The Ukrainian government liberalized trade, and the Ukrainian

monopolies, including *Arsenal*, have significantly increased prices for their products. This resulted in more than 10,000 percent inflation in 1993 alone. The real wages fell by half of the 1987 level. However, despite the macro-economic crisis, less than one percent of unemployment was registered by the official statistics. There was no major lay-offs in *Arsenal* despite a sharp decrease in the levels of output. This time the top managers seem to struggle with labor shortage rather than with over-employment.

Although the National Bank continues to subsidize wages, many employees (especially the younger generation) have left *Arsenal* to seek jobs in commerce and services. The rest of the employees, now less dependent on the state and increasingly dependent on the top managers (who lobby wages in the parliament), began to rely more on the individual rather than collective bargaining in addressing their numerous problems. Now, after their experiences in the 1970s and the 1980s, workers almost totally distrust the state and the communist unions, and turn to the top managers as the only "protectors" from hardships of the emerging market.

The top managers are capitalizing on the workers' dependence. Their deals include selling of *Arsenal's* new equipment (previously staying idle because of the supply and labor shortages), renting of the office space (central location of the enterprise becomes quite important here). The managers also register small commercial structures (*Arsenal's* "pockets"), which buy raw materials from the enterprise, and then sell it on commodity exchanges, or directly on the foreign markets. Creation of the "pocket" structures is achieved through a "double accounting," and this later becomes one of the reasons why these new structures can not attract foreign investors to start the production.³⁰

Workers are well aware of these transactions, but they perceive them as part of the enterprise's reform. Today, it is more important for them to receive their wages, although they receive them now only once in two months. The managers also allow more skilled workers to take orders "on the side" to supplement their incomes, while former *limitchiki* are given the opportunity to use part of their working time in the villages.

These informal arrangements allow the workers to preserve their current employment status and to "survive" the official wages. Such dualism could be viewed as a temporary socio-economic compromise between the state, the top managers, and the workers, perhaps inevitable

³⁰ The latter as a rule require audit reports. Top managers are usually against such "interventions" as an interview with an audit company in Kiev evidenced.

under the transition from one form of ownership to another. The problem with these arrangements is that their economic and social costs can be too high in the long run. As it is going to be discussed in the next chapter, both older workers' and managers' incentives under the transition are directed towards a short-term survival rather than growth and development.

Arsenal as an entity survives today largely due to the subsidies from the state. However, such policy will continue only until the enterprise is privatized. *Arsenal's* employees, however, are very skeptical of privatization. In their view, the major problem of the enterprise lies not in the form of ownership, but in the specialization. The employees stress that since 1991, i.e., after the break-up of the Soviet Union, the enterprise as a whole lost its purpose, because only the products of certain units are demanded by the market.

3. Employees' Incentives Under the Transition

... it is worth stressing that unemployment in the (defense) sector, given the high skill level of its employees, involves huge opportunity costs, while the chances for mass redundancy and political dislocation are enormous.

*Alice Amsden*³¹

After the interviews with the employees it became evident that there are four major actors in *Arsenal's* privatization: high-skilled workers (represented mostly by second and third-generation urban residents), low-skilled workers (mostly first-generation urban residents), the middle managers, and the top managers. Each of these groups has a different set of incentives, important for understanding of a possible interplay between the actors during *Arsenal's* privatization.

3.1. Top Managers

As it was mentioned in the previous chapter, until the 1970s *Arsenal's* labor shortages were caused mainly by demographic and other factors, "external" to the enterprise (policies of the state regarding the

³¹ Amsden, Alice and Jacek Kochanowicz, Lance Taylor. 1994. The Market Meets Its Match: Restructuring the Economies of Eastern Europe. Cambridge: Harvard University Press, p. 10.

expansion of *Arsenal*, for example). Finding a solution to these problems was up to the state and the Communist Party.³²

In the 1980s, when the enterprise was not longer expanding at the typical rate of the 1970s, *Arsenal* had to deal more and more with "internal" shortages caused by increasing labor turnover and absenteeism (monthly and seasonal), recruitment, and employment conflicts. Finding a solution to these "internal" problems was delegated by the state to the top managers. Such delegation of decision-making power also marked a transition from paternalism of the Communist Party (more than thirty percent of *Arsenal's* employees were its members) to paternalism of the top managers. Thus, managerial paternalism in my view, had three interrelated sources. The first was related to the labor discipline, the second to the labor shortage, and the third to the absence of the detailed employment contracts.

First, because the state continued to allocate funds for the enterprise despite its performance, the top managers chose to close to ignore problems of alcoholism and absenteeism. Wages used to be paid twice a month – usually around the fifth (eighty percent of the monthly salary) and the twentieth of the month. The daily records show that attendance fell sharply between fifth and ninth of the month, then increased until twentieth, and fell again between the twentieth and twenty fourth of the month. An identical case of absenteeism was analyzed in the context of a Japanese enterprise:

*the fact that work on the twentieth day of the month was paid for fifteen days later, while work on the twenty-first was paid for thirty more days later, made the psychological cost of work on the twenty-first day much higher than that of work on the twentieth day.*³³

In case of *Arsenal*, absenteeism was closely related to alcoholism, and the registered cases of which coincided with days of the wage payments.

Seasonal absenteeism and the subsequent turnover had different roots. It was rather related to the fact that most of auxiliary workers who were hired as *limitchiki* who preserved their ties with relatives in the villages and were able in a way to continue their former life style. As their living standard began to decline, they spent more and more time in the

³² The Party congresses developed the five-year guidelines of macro- and micro-economic development.

³³ Tajra, Koji. 1970. Economic Development and Labor Market in Japan. Columbia University Press, p. 120.

villages, particularly in the spring and the fall to farm the land. In fact, in the last three years of transition farming for this category of workers became more important than their work at the enterprise.

Secondly, recruitment was becoming more and more difficult. In the 1980s the top managers had to face not only a shortage of low-skilled labor (as they did in the 1970s), but also a shortage of young specialists to fill junior engineering positions. In the first case, the top managers were unable to attract workers from the rural areas as easily as before, because of shortages of housing in Kiev (which in the 1980s already became acute). Thus, the top managers were forced to hire work force from the city itself. Main incentives for urban workers were higher wages and a quick membership in the Communist Party. Thus, wage differentials between the high-skilled and low-skilled workers began to narrow down again, despite the provision of the 1986 reform.

In the second case, young specialists were leaving the enterprises after the three-year mandatory assignment (*raspredelenije*) after their graduation, since human resources managers were reluctant to hire them preferring more "loyal," older candidates to prevent the turnover.

Third, there was no detailed employment contracts in *Arsenal*. A hired worker had to fill a brief form basically "agreeing" to work at the enterprise. Increasing employment conflicts (especially about retirement provisions) were usually resolved informally.

Today, when the macro-economic reforms and especially the liberalization of prices "went too far," as one top manager put it, this group develops incentives which are not just political as before, but more and more economic. For the first time they can call themselves "managers," and "businessmen," borrowing both words from English.³⁴ Most of them hold parallel positions in the private firms or banks in addition to their formal jobs.

The top managers occupy a position of middlemen between the employees and the state and their incentives are twofold. On one hand, they try to use employees' dependence on the management and keep them at the enterprise. For the managers retaining the workers is strategically important since support of the latter is crucial for them in gaining control over the enterprise during its privatization. On the other hand, the top managers themselves continue to be dependent on the state. But the state

³⁴ A partial explanation for this borrowing is that the Ukrainian word *pidpryjemets'* or the Russian word *predprinimatel'* had a negative ideological connotation in the past.

in turn, is also dependent on them. Although the budget constraint has "hardened," the state still heavily subsidizes *Arsenal*, especially the wages. The fear of unemployment is reflected in the present-day policy responses that are automatic rather than active³⁵ and soaring inflation is the best evidence of this. Because of enterprises' monopolism and inter-enterprise financial indebtedness, the top managers can easily decide not to return the credits to the state, and eventually establish a powerful lobby in the parliament.

3.2. Middle Managers

Professionally, the group is largely represented by the people with technical, particularly engineering background. Most of them were promoted to their current positions from the high-skilled jobs they once occupied. This group's orientation is also twofold. On one hand, middle managers are subordinated to their "bosses," i.e., top managers. On the other, they socialize (and identify themselves) more with the high-skilled workers from their units.

Middle managers view the lack of incentives as a major reason for the virtual collapse of production in *Arsenal*. A manager of a defense-related unit was especially bitter about it: "we could produce mirrors for the motor vehicles, but we were ordered to stay where we are. As a unit manager I have very little power to change anything – all major decisions are being made on the top. Thus, my workers are being paid according to what they produce, meaning nothing."

From the middle managers' perspective, privatization of *Arsenal* will hardly change the situation. One of the managers, a forty-years old man with a degree in electric engineering, was quite disappointed with the current privatization scheme. He manages a unit which produces consumer cameras. The products are in high demand, but the unit does not benefit from this, because it does not have strategic planning and accounting of its own, and as a consequence does not control the profits it makes.

When I asked him about the logic behind *Arsenal's* privatization, he took from his table a book by Lewis Carroll "Through the Looking-Glass" and read from it: "You don't know how to manage Looking-Glass cakes,

³⁵ From interviews at the round-table discussions organized jointly by the Ukrainian Government and the World Bank mission in Ukraine.

the Unicorn remarked. Hand it round first, and cut it afterwards." The manager noted that the current privatization scheme attempts exactly to do the same with *Arsenal* : to hand the enterprise' property, and only then to cut it. "This does not make any sense from either political, or economic point of view, he continued, because it would be much easier to privatize my unit, and find investors for it, if it was cut off from *Arsenal* first. But the top management will never go for it, they still live according to the Soviet absurd thinking."

Other middle managers also believe that among the reasons for *Arsenal's* poor performance is an inability of their individual units to plan their own production. Some of them point out that partially planned and partially spontaneous decentralization of decision-making, which started in the late 1980's, provided power only to *Arsenal's* top managers. At the same time, the decision-making on the level of individual units was not liberalized at all.

Some older middle managers who began as workers in the 1970s and witnessed the industrial reform of 1973, think that the present day situation in *Arsenal* echoes problems such as barriers to innovation and productivity which the state tried to resolve through the reform. This time, however, these barriers can be removed by returning the units to their pre-1970s state.

3. 3. High-Skilled Workers

The high-skilled workers identify themselves with their labor collective and treasure its craft traditions from the earlier era. However, they have very few opportunities to transfer their skills to a younger generation, since most of the younger workers left the enterprise after 1991. Today, these workers' major incentive is to preserve their labor collective by all possible means, for the reason they view it as their second family and a source of moral support.

These workers defend their Soviet values and tastes, and on the one hand blame Gorbachev, and Ukrainian "nationalists" on the other, for destroying the Soviet Union. They speak Russian and by that identify themselves consciously with the Soviet culture, they view Ukrainian independence as a "political spectacle directed by the "nationalist" forces with the support of the West." The whole idea of transition is also unclear

to them. As one of the workers put it, "Transition to where, and what for?"

Thus, the workers see their mounting problems as a consequence of Ukraine's independence. As of now, no one explained to them what are the real advantages of Ukraine's and *Arsenal's* independence from Moscow, and what are the goals and future benefits of privatization. Workers fear their possible unemployment and early retirement, because there is no formal or informal safety net for them outside of *Arsenal*. Many of them continue to live close to the center of Kiev, where the costs of living are rising rapidly. At the same time, they cannot move to the periphery because of the continuing shortage of housing and the bureaucratic complexities associated with exchanging or selling apartments.

From the beginning of the century until 1991, the workers' families spent about half of their incomes on food, but in the last two years, according to the interviews, food takes away almost eighty percent of their income. Workers try to supplement their official wages by taking side orders or occasionally exchanging spare parts and materials for other goods, or simply selling them. One worker even asked me during an interview, "what is the difference between a free market (*rynok*) and a flea market (*tolchok*)?" With a sharp decrease in the real wages (see Appendix 2), workers' total earnings might just be barely sufficient to keep them alive.

For those workers who live in the enterprise's dormitories, the situation is even more frustrating. A letter of thirteen *Arsenal's* workers to the editors of the newspaper *News from Ukraine* can illustrate their living conditions and point to the true nature of the social benefits system at *Arsenal* (see Appendix 3).

With respect to the working conditions, the situation does not look much better. Workers long time ago stopped complaining about constant violations of the safety norms. It is clear from the interviews that the enterprise administration does not seem to care about workplace safety when even more severe violations such as Chernobyl do not evoke any preventive measures on the part of the state.

When asked why do they stay at the enterprise if both living and working conditions are so unbearable, workers said that they are patient, and believe that the state will eventually take care of their problems. When I insisted and asked what happens if the state will not help them, they could not quite understand the question. "The state should care about us as parents should care about their children," one worker responded.

The state for many workers is represented by the top management of the enterprise. The decisions of the top management essentially establish a norm to such practices as side orders (payments) and use of equipment and materials for private purposes.

3. 4. Low-Skilled Workers

Low-skilled workers are represented mostly by the first-generation urban residents, or *limita*. These workers preserve strong ties with their families, relatives, and friends in the rural areas. There, they spend all of their leisure time and about quarter of their official working time. Their links with the village are not only economic, but also social.

Most of the low-skilled workers live on the peripheries of Kiev, and these can hardly give the residents any sense of community or security because of the street design with the uniform housing projects and absence of cultural or social life. Many low-skilled workers speak *surzhik*, a form of language which is neither Ukrainian, nor Russian, a lexical mixture of both.

Low-skilled workers don't have a strong identification with a labor collective as high-skilled workers have. Former *limitchiki* stay at their job only because it gives them an opportunity to have an additional source of income. It is important to note that *limitchiki* are often mentioned by the state planners as a major potential source of unemployment. However, considering that since 1991, the workers supplemented their official wages with the informal activities in the villages, the state planners perspective could be fundamentally flawed:

Where people who lack wage jobs are, over long periods, sustaining themselves through "informal" income earning arrangements, and where the typical low-income wage earner may also be supplementing his earnings by a variety of other activities, the whole unemployment issue ... loses its salience. Instead, the question of poverty and income levels in general becomes more relevant than the definition of underemployment.³⁶

Low-skilled workers support the top managers because the latter allow their mobility between the city and the village. In contrast to the high-skilled workers, this group seems to adjust more easily to the severe

³⁶ Peattie, Lisa. 1987. "An Idea in Good Currency and How It Grew: the Informal Sector." *World Development*, 15 (7): 852.

conditions of the transition period. Low-skilled workers do not have much solidarity with the high-skilled workers. The latter envy these "peasant-workers" their external sources of support, disrespecting them in the same time for lack of skills and ability to perform high-quality work.

Summary

Individual adjustment strategies of the four major groups of *Arsenal's* employees emerge as a spontaneous response to the collapse of the Soviet-type incentives and governance structure at the enterprise. Everyday actions of *Arsenal's* top managers and the employees could be interpreted as attempts to survive the transition by establishing and maintaining dual "affiliative ties" to use Stark's (1986) term. Top managers and low-skilled workers seem to have these ties both within and outside the enterprise, while middle managers and high-skilled workers have these ties only within the enterprise.

Top managers are maneuvering between the state and the employees to preserve their positions until privatization will make them legitimate owners of the enterprise. They usually hold parallel jobs in the commercial structures or banks. Middle managers are maneuvering between the top managers and the high-skilled workers. Some of them also hold parallel jobs, but the majority does not have a permanent second source of income.

High-skilled workers keep the attachment to their jobs and the labor collective, despite substandard working and living conditions, and only occasionally supplement their incomes by taking side orders. Low-skilled workers, although not attached to their jobs, are forced to combine them with work in the villages.

4. Reasons for Arsenal's Fragmentation

...Macroeconomic stabilization need not be the precondition for, and may indeed be a result of reorganization of productive assets.

Charles Sabel and Jane Prokop³⁷

Arsenal's production has decreased by almost half over the last three years. At the same time, there has not been any lay-offs or significant attempts to re-organize production on the part of the top managers. On one hand, the present-day labor-management relations are characterized by ambiguity in both employment and property arrangements at the enterprise. On the other hand, there is an extreme dependence of workers on the top managers. Under such circumstances, the latter might acquire unprecedented powers in the course of *Arsenal's* privatization.

The issues of employment and wages are in the center of the top managers' bargaining with the state and the workers over the distribution of *Arsenal's* shares. Although the workers formally remain state employees, decisions upon these issues are now made by the top managers. Workers do not have much bargaining power of their own, since the old Soviet-type unions are now under the management's control:

The collapse of the Party has driven the union even more firmly into the arms of management because the union no longer has any higher authority to which to appeal. The union is unable to appeal to its members for support because in their eyes it is simply an arm of administration. The official unions are so discredited that most workers do not see any need for a union at all.³⁸

Moreover, the management is also opposing the penetration of the Free Trade Unions (*Nezalezhni Profspilky*) on *Arsenal*, arguing that the union organization already exists there.³⁹

Under the current privatization scheme, *Arsenal's* ownership has to be divided among the state, the top managers, the employees, and the

³⁷ Sabel, Charles and Jane Prokop. 1994. Stabilization Through Reorganization? Some Preliminary Implications of Russia's Entry Into World Markets in the Age of Discursive Quality Standards. Paper presented at the World Bank conference "Corporate Governance in Central Europe and Russia." Transition Economics Division, p. 27.

³⁸ Clarke, Simon and Peter Fairbrother. "After the Coup: the Workers' Movement in the Transition to a Market Economy." In What About the Workers? by Michael Burawoy, Simon Clarke, Peter Fairbrother and Pavel Krotov. London: Verso, p. 194.

³⁹ From an interview at the Kiev office of the Free Trade Unions Institute (USA).

public (the "outside" investors) in such a way that neither group would have the absolute control over the enterprise, that is more than half of its shares. However, if the employees trade their shares to the top managers (at least they plan to do this, according to the interviews), then the latter would be able to get such a control. Today this control over the state-owned *Arsenal* is established informally.

According to the existing legislation, a foreign partner who establishes a joint-venture with one of *Arsenal's* units, formally establishes a joint-venture with *Arsenal* itself. It turns out that even when property in a joint-venture with *Arsenal's* unit is divided half-and-half, the ultimate control over it remains in the hands of *Arsenal's* top managers.

For example, as early as 1991, one of the civilian units (shop-floor of about fifty workers) established a joint venture with a Polish firm to produce medical equipment. About forty percent of shares were held by the Polish partner, another forty percent were held by *Arsenal's* top managers, and twenty percent were held by employees of the venture (i.e. workers and middle managers). However, wages of the venture's employees are only slightly higher than wages of workers in other units. In addition, when the enterprise experiences electricity or fuel shortages, the joint venture's workers stay idle as well.

With changing relative prices, civilian production units could have better prospects in terms of profits in comparison to their defense-related counterparts. However, they cannot fully use opportunities of the opening market to their benefit. Although spontaneous decentralization of the enterprise, (which followed the collapse of its supervising hierarchy in Moscow) gave more autonomy to its individual units, defense-related units are still subsidized from the profits of the civilian ones. As a result, wages of the high-skilled workers across the units remain equally low.

Within the units, core productive workers with high flexible skills could earn higher wages as compared to auxiliary low-skilled workers. However, the dependence of both core and auxiliary workers on the top managers, workers' deep distrust of each other and of the state, and subsequent deterioration of the old unions, make employees' bargaining with the top managers more and more informal. As a result, neither high-skilled, nor low-skilled workers are laid-off.

All these dependencies in my view, contribute significantly to *Arsenal's* dysfunctioning. They are inherited in part from the old regime, and are cultivated by the top managers. One of the strategies to overcome

these pathological dependencies⁴⁰ is to divide the enterprise into smaller units, or, in other words, to fragment it.

If privatization will occur before fragmentation, *Arsenal* as an entity is likely to remain formally under the control of its labor collective and informally – under the control of its top managers. In fact, the "insider" ownership becomes possible because of an informal agreement between the top managers and the employees established prior to privatization. The "insider" control over the enterprise will hardly create incentives for increasing productivity and innovation, because top managers primary goal is to preserve the *status quo*. Top managers will continue to demand subsidies from the state to pay its workers subsistence-level wages .

The fragmentation is likely to be supported by the high-skilled workers and managers of the civilian units. Today their wages are only slightly higher than wages of workers and managers of the defense-related units. However, high-skilled workers and managers in both types of units feel that they could earn more if their units became fully autonomous. At present, they do not have any incentives to increase productivity because the wages of the low-skilled workers are not that much different from theirs. Besides, they do not have parallel sources of income as the low-skilled workers or the top managers.

Managers and the high-skilled workers in the defense-related units also believe that if their units become fully autonomous, they would be able to start subcontracting from the small and medium-scale firms. Today such subcontracting is virtually impossible because the top managers require to fulfill contracts with their old clients – other large-scale enterprises, which are usually as inefficient as *Arsenal*.

The fragmentation is likely to be opposed by the top management and the low-skilled workers. Both groups hold permanent second jobs outside the enterprise: the top managers in the private firms or banks, the low-skilled workers are self-employed in the villages. Thus, the state will have to deal with the issue of unemployment of auxiliary workers. This may require for example, job creation programs in the rural areas, or in the peripheries of Kiev, where most of these workers reside.

⁴⁰ See Yudanov (1995).

Conclusion

Changes that occur in Ukraine do not follow advice and expectations of the Western observers. In the present transitional stage, customs of the bureaucratized economy are being modified to match the principles of the market. The case of *Arsenal* clearly shows that attempts of some actors to retain the *status quo* within the enterprise come into conflict with realities of liberalizing economy, and particularly with the need for a new incentives structure.

A rationale behind today's large-scale privatization program is to make enterprises more competitive, and its employees – more productive. However, in the case of *Arsenal*, a potential for competitiveness and higher productivity exists only on the level of individual units. The engineers of the current privatization scheme do not realize that the creation of a new incentive structure at *Arsenal* might be blocked by its old governance structure. Unless the re-organization of the enterprise occurs first, its privatization may not bring a desired efficiency.

Thus, the major policy implication of the thesis is that the state should divide *Arsenal* into smaller units before planning its privatization. Such fragmentation in my mind, will create new incentives for *Arsenal's* high-skilled workers and the middle managers, and will eliminate informal incentives of the top managers and the low-skilled workers. As Stiglitz (1994) points out,

*There are good reasons for postponing the privatization issue. Issues of property rights assignment are highly contentious. There is no easy solution to how you divide a pie fairly. This is particularly true when there are lingering questions about historical property rights. When the pie is growing rapidly, distribution issues become less contentious. People are (relatively) content, since they are getting a bigger piece than they ever anticipated having. However, with the imminent threat of spontaneous privatization, the issue may be not so much when to privatize but how, and who should control the process.*⁴¹

The case of *Arsenal* shows that "spontaneous" privatization occurs when the state merely follows rather than initiates changes in the governance mechanism of the enterprise. This has especially important implications for the incentives structure, because such forms of spontaneous changes in property rights as "assets stripping" by the top

⁴¹ Stiglitz, Joseph. 1994. Whither Socialism? Cambridge: MIT Press, p. 263.

managers, may have adverse consequences for distribution of wealth and long-term economic competitiveness.

In a system where historically political decision-making has always dominated economic decision-making, and where collective responsibility was always more important than the individual responsibility, the incentives structure of a firm can be very different from that in the West. At the same time, it would also differ from the structure of incentives characteristic for Asian-type firms, because the concept of individual achievement in the Soviet enterprises has developed under different historical and ideological circumstances as such concept in Japan, for example. For that reason, although both paternalism and familism could be found in a post-Soviet enterprise, they perform different functions than in a Japanese firm.

The incentive system of a Soviet enterprise combines the elements of the incentive structures found in both Western and Asian firms. In the 1920s, the Soviet enterprise have adopted (with Lenin's approval) Taylor's system of scientific management. At the same time, through its system of vocational and on-the-job training it also tried to cultivate the traditions of apprenticeship and craftsmanship, characteristic for the Japanese firms.

My argument about the fragmentation developed in an attempt to solve the first of the three principal–agency problems in the post-Soviet enterprises, which were discussed in detail by Kornai (1991) and Roemer (1993): (1) managers–workers relationship, (2) planners–managers relationship, and (3) workers–planners relationship. None of these problems was taken into account by authors of the large-scale privatization program in Ukraine.

The program's explicit assumption is that the macro-economic stabilization should provide the basis for the micro-economic restructuring, and that it will be easier to declare enterprises bankrupt after they are privatized.⁴² Such an assumption, however, may not be true in the economy where wages of the majority of employees are set internally by the large-scale enterprise such as *Arsenal*. To rephrase Doeringer and Piore (1971), competitive labor markets will replace the "internal" labor markets in the post-socialist economies only when the costs of adopting competitive labor market structure will be less than the costs of hiring and

⁴² Amsden, Alice and Jacek Kochanowicz, Lance Taylor. 1994. The Market Meets Its Match: Restructuring the Economies of Eastern Europe. Cambridge: Harvard University Press, pp. 12-14.

organizing labor according to the internal labor markets model.⁴³ The fragmentation may help to reduce these costs.

It is not the large scale of *Arsenal* that becomes a problem under the transition, but rather the idiosyncratic structure and the lack of accountability of its individual units.⁴⁴ *Arsenal's* civilian units are organizationally merged with defense-related units, and this leads to a situation when defense-related production is subsidized from the profits of civilian units. With the development of the market, changes in relative prices put high-skilled workers and unit managers in less and less favorable conditions. Their major incentive are wages, which today are not much higher than those of the low-skilled workers. The latter, however, have an opportunity to supplement their wages by work in the villages.

The fragmentation will help to break the informal incentives in the form of parallel employment arrangements, and with them – a vicious circle of hidden unemployment. Both high-skilled and low-skilled workers have little incentives to increase productivity when the top managers guarantee their employment. Besides, they are not interested in the long-term performance of the enterprise because the time horizon "is limited to the period of work at the enterprise,"⁴⁵ and many workers are close to their retirement. Thus, "insider" ownership and control of *Arsenal* will hardly help to revitalize production and to create incentives for higher productivity and innovation.

Some of the firms that will emerge as a result of the fragmentation are likely to go bankrupt, but some have good chances not only to survive, but also to grow. In contrast to the top managers of the Soviet-type enterprises, managers of these smaller firms are more likely to pursue strategies of "intensive" rather than "extensive" growth. Their high-skilled workers will be able to preserve and develop their flexible skills. Smaller firms are also likely to attract younger workers, because they would provide a set of incentives qualitatively different from those presently offered at *Arsenal*.

⁴³ See Stark (1986).

⁴⁴ Kuznetsov, Yevgenij. 1994. "Adjustment of Russian Defense-Related Enterprises in 1992-94: Macroeconomic Implications." Communist Economies and Economic Transformation, 6 (4): 473.

⁴⁵ Weisskopf, Thomas. 1993. "A Democratic Enterprise-Based Market Socialism." In Market Socialism. The Current Debate, ed. by Pranab Bardhan and John Roemer. Oxford Univeristy Press, p. 132.

The fragmentation will help the workers to return to the tradition of craftsmanship (*kustarnytstvo*). Craft production existed at the enterprise already at the beginning of the century, and at that time *Arsenal*'s products competed successfully with those of prominent German and Italian firms. Some of the managers of defense-related units, now in much less favorable situation than those involved in the civilian production, also envision the development of sub-contracting relationship between the two types of firms (i.e., those created on the basis of defense-related and civilian units).

Another advantage of the fragmentation is that objects of *Arsenal*'s social infrastructure (i.e., dormitories, polyclinics, recreation facilities, etc.), which are now used by the top management as sources of personal enrichment, could become a common ownership of the newly established private firms and the communities where the latter are located.

The fragmentation could also lead to the emergence of new unions, whose functions would be different from those of the old communist ones. As one worker said, he would like to see unions as institutions which "not only bargain for wages and organize Labor Day parades,⁴⁶ but also provide its members with high-quality training and information about the job opportunities in Ukraine and abroad." Similar views were expressed by some students of workers' problems under transition:

Many people look to Japanese enterprise unionism as a model for the future of the unions, on the basis of the superficial similarity of the Soviet industrial enterprise and the Japanese corporation. However, while this is a possible future development, it would be wrong to see ... unions as enterprise unions, because although they are in the pocket of the administration, they do not perform any of the functions normally identified as lying at the heart of trade unionism, and so are unable to perform the mediating role expected of a union, even on management's terms.⁴⁷

Although the fragmentation of *Arsenal* seems desirable from the high-skilled workers' and mid-managers' perspective, the state, the top managers, the low-skilled workers, and the old Soviet-type unions are likely to oppose it. The fragmentation is not even considered in the Ukrainian privatization program. Its architects, advised by Price Waterhouse, rejected the proposal of fragmentation (put forward by some middle managers) as politically unfeasible.

⁴⁶ Annual holiday celebrated on May, 1.

⁴⁷ Clarke, Simon and Peter Fairbrother. "After the Coup: the Workers' Movement in the Transition to a Market Economy." In *What About the Workers?* by Michael Burawoy, Simon Clarke, Peter Fairbrother and Pavel Krotov. London: Verso, p. 194.

However, the current privatization scheme, leading to the "insider" ownership and control, does not seem to be profitable in the long run, both economically and politically. It can virtually destroy the "human capital" of *Arsenal*, because, as Sabel and Prokop (1994) argue, the top managers are not likely to "re-engineer" the enterprise after its privatization:

*The property regime allows reorganization precisely because, as increasingly in the advanced countries, it operates as a mechanism for regulating the distribution of the gains and costs of adjustment, not a device for establishing an exclusive locus of control over resources. ... Managers as a group own a disproportionate and probably growing share of stock in their own companies, and it might seem that they are free to pursue their distinct interests at the expense of restructuring.*⁴⁸

A carefully planned fragmentation of *Arsenal*, in my mind, would help to avert this situation. It will not destroy the enterprise, but only its old governance structure.⁴⁹ The fragmentation would help to eliminate workers' pathological dependence on the state, perpetuated in the form of managerial paternalism, and to promote initiative and entrepreneurship among the high-skilled workers. Finally, it would mean the elimination of the Soviet institution of "full employment" when equally low working and living conditions for everyone are achieved through the repression of individual productivity and mobility.

⁴⁸ Sabel, Charles and Jane Prokop. 1994. Stabilization Through Reorganization? Some Preliminary Implications of Russia's Entry Into World Markets in the Age of Discursive Quality Standards. Paper presented at the World Bank conference "Corporate Governance in Central Europe and Russia." Transition Economics Division, p. 19.

⁴⁹ One could even interpret the fragmentation as Schumpeterian "creative destruction."

Appendices

1. *Arsenal's Profile*

Arsenal was founded in 1764 in the very center of Kiev as a rifle and artillery enterprise. It is the only industrial enterprise in Ukraine that has been established before the country became a part of the Russian Empire at the end of eighteenth century. Until recently one could find at *Arsenal* a third and even fourth generation workers, descendants of masters whose crafts were as well known in Europe as their counterparts at *Tula* in Russia.

After the socialist revolution *Arsenal* was subordinated to the all-union Ministry in Moscow. After the W.W.II it began to specialize in manufacturing optical and optomechanical devices and systems, elements of missile complexes and aircraft technology devices (i.e. gyrocompasses, tachometers, systems for azimuth orientation of lenses, dynamic infrared systems for search and shadowing, helmet control systems, etc.).

Arsenal also specializes in measuring devices used to make monobloc lasers for SS-19 intercontinental ballistic missiles, military cameras, etc. The enterprise's civil production includes equipment for banks, medical equipment, consumer cameras, ignition devices, fog headlights, mirrors for cars and motorcycles.

Arsenal's technology includes mechanical processing, molding, tooling, assembly and electrical wiring production and equipment for large and superlarge microassemblies. Recently *Arsenal* set up a joint venture with a Polish company to produce complex medical equipment.

It has also negotiated several other joint venture projects with American, German, Italian, and South East Asian manufacturers for the development and production of high-precision microscope lenses for medical instruments, blood analyzers, infrared imaging diagnostic equipment, polyprofile medical and ecological express-indicators, laser video players, optical disk memory, etc.

As a part of its assets, *Arsenal* has four dining halls, nineteen refreshment rooms, a cafe, two grocery stores, two clothing stores, and two farms. It has its own housing, a polyclinic, a preventive care center, a museum, a community center, nine kindergartens (with two under construction), seven gardening associations with a total of 1,322 country garden plots (*priusadebnyi uchastok*), and several summer resorts and children camps. In the last fifteen years its approximate employment was about 10,000.

2. Average Real Wages in the Industry, 1992-1994, per cent⁵⁰

Periods	Average Wage	CPI	Consumer Basket
1992	100	100	100
1993			
January	116	173	141
February	121	223	162
March	145	272	187
April	161	337	209
May	191	430	256
June	367	738	375
July	455	1,015	428
August	510	1,235	530
September	1,244	2,227	1,325
October	1,530	3,700	1,564
November	1,959	5,375	2,783
December	5,054	10,256	6,651
1994			
January	4,852	12,225	7,050
February	4,832	13,766	8,672
March	5,364	14,550	9,625
April	5,600	15,408	9,394
May	5,975	16,210	9,770
June	6,615	16,842	10,366
July	7,938	17,151	11,223
August	8,321	17,964	11,847
September	8,854	18,328	12,061
October	9,121	19,057	12,489
November	11,050	19,295	13,668
December	11,347	20,212	13,799

⁵⁰ Source: Central Statistical Bureau of Ukraine.

3. Letter to the Editor of the *News from Ukraine* (September, 1994)

Help!

We worked at *Arsenal* and lived in its dormitory for twenty years. In the beginning three to four of us were living in one room, including married couples with children. We are unable to rest neither during the day or at night. We coped with that, however, because we were young, healthy and idealistic. After many years of suffering we were able to settle, each in one room (some of us even moved to their own apartments). Unfortunately, it did not last long, and the living conditions were becoming more and more unbearable each month.

The plumbing system is very old, and it stays unrepaired all the time so that we don't have hot water for months. Sometimes, we don't get any water at all. Our kitchens are in terrible condition, the floor under the sinks is all rotten, parts of the ceilings are falling down, only one of four gas stoves works. The upper-floor rooms are constantly flooded when it rains.

Our dormitory has four floors. There are twenty five rooms on each floor, but only two kitchens, two bathrooms, two toilets, and one clothes drier for the each floor. And for all this we pay as much as other people pay for their well-functioning apartments.

Recently, the dormitory's administration rented our first floor and the basement to the commercial structures. They promised us that the money which they receive from renting will be used for the renovation of the building, but this still remains a promise. Now the administration without our consent decided to rent the second floor and wants to squeeze three people in one room again. They justify their actions by referring to the existing sanitary norm of six square meters⁵¹ per person. We are afraid that in a few months they will take away the third floor as well, and we will end up on the street.

We are grownups, and after all we have a right to our own privacy. We expressed our concerns to *Arsenal's* administration, to our union, to our regional deputy, and to the regional women's committee, but all these petitions except one remained without a response. *Arsenal's* administration said: "Don't even think about individual rooms."

Our salaries are much lower than the minimum rent of about 918 thousand *karbovantsi*⁵² a month elsewhere. We also don't have any guarantees that the costs of living will not increase even higher. We gave our youth and health to *Arsenal* and we believe that we deserve a better treatment.

⁵¹ About 54 square feet.

⁵² At the time the letter was written, about \$25 a month.

Selected Bibliography

- Amsden, Alice. 1994. "Can Eastern Europe Compete by "Getting the Prices Right"? Contrast With East Asian Structural Reforms." In Rebuilding Capitalism. Alternative Roads After Socialism and Dirigisme, ed. by Andrés Solimano, Osvaldo Sunkel and Mario Blejer. Ann Arbor: University of Michigan Press, pp. 81-107.
- Amsden, Alice and Jacek Kochanowicz, Lance Taylor. 1994. The Market Meets Its Match: Restructuring the Economies of Eastern Europe. Cambridge: Harvard University Press.
- Berliner, Joseph. 1976. The Innovation Decision in Soviet Industry. Cambridge: MIT Press.
- 1957. Factory and Manager in the USSR. Cambridge: Harvard University Press.
- Blanchard, Olivier and Simon Commander. 1993. Unemployment and Restructuring in Eastern Europe. Washington: the World Bank.
- Blasi, Joseph and Ron Bernstein. 1993. Employee Ownership: Can the Russian Military-Industrial Complex Be Privatized? Mimeo.
- Burawoy, Michael and Simon Clarke, Peter Fairbrother, Pavel Krotov. 1993. What About the Workers? Workers and the Transition to Capitalism in Russia. London: Verso.
- Burawoy, Michael and János Lukas. 1985. "Mythologies at Work: a Comparison of Firms in State Socialism and Advanced Capitalism." American Sociological Review, 50: 723-37.
- Chapman, Janet. 1988. "Gorbachev's Wage Reform." Soviet Economy, 4: 338-65.
- Dore, Ronald. 1986. Flexible Rigidities: Industrial Policy and Structural Adjustment in the Japanese Economy, 1970-1980. Stanford University Press.
- Doeringer, Peter and Michael Piore. 1971. Internal Labor Markets and Manpower Analysis. N. E. Sharpe.
- Flitzer, Donald. 1994. Soviet Workers and the Collapse of Perestroika. Cambridge University Press.
- 1992. Soviet Workers and De-Stalinization. (The Consolidation of the Modern System of Soviet Production Relations, 1953-1964.) Cambridge University Press.

- Frydman, Roman and Andrzej Rapaczynski. 1991. "Markets and Institutions in Large-Scale Privatization: An Approach to Economic and Social Transformation in Eastern Europe." In Reforming Central and Eastern European Economies, ed. by Vittorio Corbo, Fabrizio Coricelli, and Jan Bossack. Washington: the World Bank, pp. 253-74.
- Gábor, István. 1979. "The Second (Secondary) Economy." Acta Oeconomica 22: 91-311.
- Ickes, Barry and Randi Ryterman. 1994. "From Enterprise to Firm: Notes for a Theory of the Enterprise in Transition." In Transition in Post-Communist Countries, ed. by Gregory Grossman, pp. 83-104.
- Johnson, Simon and Heidi Kroll, Santiago Eder. 1994. "Strategy, Structure, and Spontaneous Privatization in Russia and Ukraine." In Changing Political Economies: Privatization in Post-Communist and Reforming States, ed. by Vedat Milor. London: Reinner, pp. 147-73.
- Hauslohner, Peter. 1987. "Gorbachev's Social Contract." Soviet Economy, 3: 54-89.
- 1984. Managing the Soviet Labor Market: Politics and Policymaking Under Brezhnev, PhD Dissertatiöh, University of Michigan.
- Kornai, János. 1993. "Market Socialism Revisited." In Market Socialism. The Current Debate, ed. by Pranab Bardhan and John Roemer, Oxford University Press, pp. 42-68.
- 1992. "The Affinity Between Ownership Forms and Coordination Mechanisms: the Common Experience of Reform in Socialist Countries." Constructing Capitalism. The Reemergence of Civil Society and Liberal Economy in the Post-Communist World, ed. by Kazimierz Poznanski. Oxford: Westview Press, pp. 97-116
- 1991. The Socialist System. Political Economy of Communism. Oxford University Press.
- 1980. Economics of Shortage. New York: North-Holland Publishers.
- Kuznetsov, Yevgenij. 1994. "Adjustment of Russian Defense-Related Enterprises in 1992-94: Macroeconomic Implications." Communist Economies and Economic Transformation, 6 (4): 473-513.
- Nee, Victor. 1989. "A Theory of Market Transition." American Sociological Review, 4: 663-81.

- Nee, Victor and David Stark. 1989. Remaking the Economic Institutions of Socialism: China and Eastern Europe. Stanford University Press.
- Neuber, Alexander. 1995. "Adapting the Economies of Eastern Europe: Behavioral and Institutional Aspects of Flexibility." In The Flexible Economy. Causes and Consequences of the Adaptability of National Economies, ed. by Tony Killick. London and New York: Routledge.
- Peattie, Lisa. 1987. "An Idea in Good Currency and How It Grew: the Informal Sector." World Development, 15 (7): 852-60.
- Piore, Michael and Charles Sabel. 1988. The Second Industrial Divide: Possibilities for Prosperity. New York: Basic Books.
- Roemer, John. 1993. "Can There Be Socialism After Communism?" In Market Socialism. The Current Debate, ed. by Pranab Bardhan and John Roemer, pp. 89-107. New York: Oxford University Press.
- Sabel, Charles. 1984. Work and Politics: the Division of Labor in Industry. Cambridge University Press.
- Sabel, Charles and David Stark. 1982. "Planning, Politics, and Shop-Floor Power: Hidden Forms of Bargaining in Soviet-Imposed State-Socialist Societies." Politics and Society, 11: 439-75.
- Sabel, Charles and Jane Prokop. 1994. Stabilization Through Reorganization? Some Preliminary Implications of Russia's Entry Into World Markets in the Age of Discursive Quality Standards. Paper presented at the World Bank conference "Corporate Governance in Central Europe and Russia." Transition Economics Division.
- Smith, Chris and Paul Thompson, eds. 1992. Labour in Transition. (The Labor Process in Eastern Europe and China). London: Routledge.
- Stark, David. 1986. "Rethinking Internal Labor Markets: New Insights From a Comparative Perspective." American Sociological Review, 51: 492-504.
- 1994. Recombinant Property in East European Capitalism. Paper presented at the World Bank conference "Corporate Governance in Central Europe and Russia." Transition Economics Division.
- Stiglitz, Joseph. 1994. Whither Socialism? Cambridge: MIT Press.
- Szelenyi, Ivan. 1988. Socialist Entrepreneurs: Embourgeoisement in Rural Hungary. Cambridge: Polity.

- Tajra, Koji. 1970. Economic Development and Labor Market in Japan. Columbia University Press.
- Treml, Vladimir. 1982. Alcohol in the USSR: a Statistical Study. Duke University Press.
- Tugan-Baranovsky, Mikhail. 1970. The Russian Factory in the 19th Century. (Translated from the 3rd Russian edition). Richard D. Irwin, Inc.
- 1938. Russkaya Fabrika v Proshlom i Nastoyashchem. Istoricheskoe Razvitije Russkoi Fabriki v XIX Veke. (7th edition). Moskva: Gosudarstvennoie Socialno-Economicheskoe Izdatelstvo.
- Walder, Andrew. 1986. Communist Neo-Traditionalism. Work and Authority in Chinese Industry. Berkley: University of California Press.
- Weisskopf, Thomas. 1993. "A Democratic Enterprise-Based Market Socialism." In Market Socialism. The Current Debate, ed. by Bardhan, Pranab and John Roemer. Oxford Univeristy Press.
- Yavlinsky, Grigory and Sergei Braguinsky. 1994. "The Inefficiency of Laissez-Faire in Russia: Hysteresis Effects and the Need for Policy-Led Transformation." Journal of Comparative Economics, 19: 88-116.
- Yudanov, Andrei. 1995. "Large Enterprises in the USSR: the Functional Disorder." In Global Enterprise: Big Business and the Wealth of Nations, ed. by Chandler, Amatore, and Hikino. Cambridge University Press. Forthcoming.