Economics Education and Research Consortium
Working Paper Series

Wage-Setting and Employment Behavior of Enterprises during the Period of Economic Transition

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Working Paper No 01/04

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Shakhnovich R.M., Yudashkina G.V. Wage-Setting and Employment Behavior of Enterprises during the Period of Economic Transition — Moscow: EERC, 2001. — pp 1 – 74.

Based on the dynamic labor demand model, we investigate wage-setting and employment behavior of enterprises during the period of transition. Using panel data on large-sized and medium-sized enterprises in the Novosibirsk region (1993–1998), we make an effort to identify the type of enterprises' behavior and to determine specific factors that affect it. We found that the type of behavior exhibited by these enterprises corresponds to the "right to manage" model's prediction, *i.e.*, the contract curve coincides with the labor demand curve. We also found that wage-setting and employment behavior of enterprises was influenced by the dominant group of owners during the first period of transition (1994–1996). According to our analysis, workers appropriate some of the enterprise-specific rents in their wages, and the amount of this rent decreases if managers are the dominant group of owners.

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CONTENTS

NON-TECHNICAL SUMMARY

The process of transition has resulted in the formation of new relations in the sphere of labor demand, *i.e.*, in wage-setting and employment behavior of enterprises. The usual approach to analyzing the behavior of enterprises in this sphere is based on the comparison of the bargaining power of managers and trade-unions and also on the identification of the specific goals of trade-unions.

When the goal of a trade union is to guarantee adequate wages for its members, and when the enterprise, which maximizes its profit, has complete control over employment, the contract curve corresponds to the labor demand curve (*i.e.*, wages are equal to the marginal product of labor). This is the "right to manage" model. In the other cases, the contract curve[1] does not correspond to the labor demand curve (*i.e.*, wages are not equal to the marginal product of labor). There are three models of behavior, based on the assumption that the goal of a trade-union is not only wage levels but also employment. The model of "efficient allocation of labor" corresponds to the situation when the objective of a trade-union is to maintain employment. The situation when wage and employment move in the same direction corresponds to the "efficient bargaining model." In the third situation (intermediate model), the contract curve has a negative slope but the wage level is higher than the marginal revenue product of labor (the employment level is higher than the level that an enterprise would choose if trade-unions lost their influence). Hypothetically, one more situation is possible, the "cost of labor turnover hypothesis", when the firm transfers the costs of turnover to the employees and fixes the wage level lower than the marginal revenue product of labor as a consequence of the weak bargaining power of trade-unions. All the above-mentioned models allow for the possibility that workers appropriate some of the enterprise-specific rents in their wages. The structure of the bargaining process during economic transition is more complicated because government and inside owners (employees) have an impact on this process as do managers and trade-unions.

The objectives of this research are to determine the model of enterprises' behavior during transition using empirical analysis and to analyze

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[1] The contract curve is the set of all socially efficient "deals" between employer and employee. A "deal" is not socially efficient (it does not belong to the contract curve) if one party's welfare can be increased without reducing the other party's welfare.

how this behavior varies with the change in economic system and to identify different enterprise-specific factors such as the form of owner-ship, the industry, trade-union activities, the domination of some groups of owners, *etc*., that influence behavior.

We use panel data on large-sized and average-sized enterprises in the Novosibirsk region. Our analysis covers a large time interval: 1992 – 1998. All estimations are done for three periods: 1992 – 1995 — early transition; 1994 – 1996 — period of dynamic reforms; 1996 – 1998 — postprivatization period.

The main results of our research are as follows.

We failed to determine the model of wage-setting and employment be-havior of enterprises at the beginning of transition (1992 – 1993). According to our analysis the "right to manage" model was formed only by 1994.

As for such firm-specific factors as the form of ownership, the domina-tion of one or another group of owners, the influence of trade-union or collective contract we found that they have an influence on the behavior of enterprises during only some periods (as a rule during early postpri-vatization period — 1994 – 1996).

Employees systematically appropriate some of the firm-specific rents in their wages. The domination of managers in the group of enterprise owners is the main factor which restrains this process.

Our results have policy implications. The adjustment of enterprises to the changes in demand becomes better over time. The growth of employ-ment elasticity with respect to sales means that enterprises will reduce employment more intensively in response to a fall in output. Conse-quently conditions exist for the growth of current unemployment (natural rate of unemployment) and state authorities must be prepared that the unemployment level will increase.

Our analysis shows that the wage level, fixed on the base of industrial agreements, is the guiding line for wage behavior for both unionized en-terprises as well as non-unionized ones.

We found that workers appropriate some of the firm-specific rents in their wages. Thus enterprises are losing internal resources for further in-vestment. In order to restructure enterprises, the government does not have to yield to the pressure of trade-union seeking to increase wages while bargaining with employers and unions.

1. INTRODUCTION

The formation of employment and wage-setting behavior of enterprises became one of the main problems in the Russian economy after economic liberalization because wages as well as the labor force were under government control in the centrally planned economy with soft budget constraints. Managers of large-sized enterprises were aimed at the growth of employment and, as a consequence, wage fund maximization because this raised their status in the managers' hierarchy during socialism. Local government authorities were also interested in job growth because their status was also determined by the size and the number of enterprises located in their region. And finally, unions, in spite of their formal and limited rights in the planned economy, were also interested in the growth in the number of employees regardless of the financial results of enterprise because the amount of social benefits for employees depended on the size of an enterprise. Thus a tripartite consensus was formed during the time of the planned economy: employment had to rise and wages must also increase, providing the necessary labor force for enterprises under the condition of a labor force deficit.

The only opponent to the interests of the above-mentioned groups (managers, unions, local authorities) in the planned economy was the government which was faced with hard budget constraints at the macroeconomic level and tried to transfer these constraints to the enterprise (microeconomic) level. This situation looks opposite to the one suggested by Shleifer and Vishny (1994) because in the planned economy politicians (government) were aimed at labor force containment while managers were trying to increase the number of employees.

Employment and wage-setting enterprise behavior during transition, especially after mass privatization and toughening of budget constraints, is the result of the bargaining process between several groups (partners): 1) employers; 2) employees; 3) inside owners (employees); 4) outside owners; 5) government. These interests are combined in different ways depending on the variant of privatization. At the same time, some enterprises have no freedom to decide whether to go private or not and what variant of privatization to choose.

The structure of interests in transition is a great problem also because the interests of employees are represented not only by unions but also by those employees who are co-owners of an enterprise (insiders). During transition, state regulation on the enterprise level is stronger than in the market economy no matter who the owner of an enterprise is.

The main problem confronting researches is the analysis of enterprise employment and wage-setting behavior and how this behavior varies with changes in different enterprise-specific factors as well as with changes in the economic system over time. New enterprise behavior develops during transition when there is a recession, but employment and wages adjust to the changes in output with some lag. The study of these tendencies is useful for the formation of industrial and social (employment) policy.

Our analysis covers a significantly large time interval — six years — and thus captures early transition (1992 – 1995) and also the post-privatization (1996 – 1998) changes in enterprise behavior. This allows us to estimate qualitative changes in labor demand and also solves the problem of lagged variables in our empirical work. We also take into account some factors typical for the Russian economy and for the Novosibirsk region.

The structure of Novosibirsk region's industry is similar to that of the regions of Ural and Siberia, as their labor markets are also not very mobile. That's why the results of our research should be useful for other regions as a preliminary estimation of firms' behavior.

During forty-five years of intensive researches in the labor demand sphere two different approaches have been developed.

Some Russian authors (Aukutsionek, 1994, 1997; Aukutsionek and Kapeliushnikov, 1996) use the methodology based on the analysis of systematic questionnaires and interviewing managers. The traditional western approach is to analyze labor demand using the dynamic labor demand models and bargaining models.

The first studies on the problem of dynamic labor demand were published in the 1960s (Brown and de Cani, 1963). Since the 1970s, the number of studies has grown (*e.g.*, Hamermesh, 1976; Sargent, 1978). The studies of McDonald and Solow (1981) and Nickell (1984) are probably the most influential. The former contains a fundamentals of analysis of the behavior of wage rates during fluctuations in output and employment in the bargaining model. The latter contains the derivation of the most common specifications resulting from cost minimization under rational expectations, based on a model of a representative firm and the corresponding econometric methodology. From the middle of the 1980s, the number of studies estimating labor demand parameters on firm-level panel data has grown. At the same time, as the result of analyzing union behavior, the studies of wage levels and employment, which were based on different types of bargaining models, were developed.

The most interesting studies of labor demand are by Hamermesh (1986), MaCurdy and Pencavel (1986), Brown and Ashenfelter (1986), Nickell (1986), Machin *et al*. (1993), and of union behavior are by Eberts and Stone (1986), Farber (1986),and Creedy and McDonald (1991). The former group of authors studies different modifications of criterion function of the firm, which optimizes its behavior on the unionized labor market. The later group focuses on the criterion function of trade unions and on the optimization of their behavior on the labor market.

Some researchers have paid great attention to the problems of econometric methodology and to the analysis of the advantages of different methods of estimation and hypothesis testing. The studies of Svejnar (1986), Hamermesh (1989), Nickell and Wadhwani (1990), Singer (1996) developed different procedures of econometric simulation trying to approximate the choice of estimation method to the type of the data used by authors.

From the beginning of the 1990s some research devoted to micro-level labor demand analysis during transition has been done. Some researchers have focused on the behavior of participatory firms in Yugoslavia (Estrin and Svejnar, 1993; Prasnikar *et al*., 1994). Basu *et al*. (1997) accomplished a comparative analysis of employment and wage behavior of enterprises in some transitional countries (Poland, Hungary, Czech Republic, Slovakia) and Singer (1996) conducted detailed research using panel data from the Czech Republic. The analysis of wage level setting and employment rate in a transitional economy using data from Hungary is represented by the work of Commander *et al*., (1995), and an analysis using Russian data can be found in the work of Commander *et al*., (1996). These studies have drawn some conclusions about the first period of formation of a new type of enterprises' behavior during early transition. But because of short time period for analysis the above-mentioned researchers were unable to estimate the dynamics of enterprise behavior formation.

Our research is derived from the main ideas of the dynamic labor demand model and bargaining models. It is based on the models developed by Prasnikar *et al*. (1994), Singer (1996); and Basu *et al*. (1997), and takes into account some factors typical for the Russian economy. This approach helps us to define the type of enterprise behavior that depends on how the firm adjusts employment in response to changes in wages. It is also allows us to make between-counties comparisons of enterprises' behavior during transition.

The next section is devoted to the methodology of our research. We present the model in Section 3 and describe the data in Section 4. The

results from our work are presented in Section 5 and conclusions are drawn in the last section.

2. METHODOLOGY

The formation of enterprise employment and wage-setting behavior is influenced by the conflict of interests of the firm (profit and revenue) and its employees (wages and employment).Managers represent the interests of the firm, unions and other nonunion groups of workers represent the interests of employees.

The traditional approach to the analysis of firm behavior in a market economy suggests that unions have some monopolistic power in the labor market and the firm has some market power (control over the price of its product). This means that the firm can have some positive economic profit. The distribution of this profit is the subject of bargaining. If the firm does not have any market power and if wages are competitive, any attempts to increase wages or employment will led to its bankruptcy (see *e.g.*, Filer *et al.*, 1996). At once, it was supposed that interacting groups take into account the interests of their opponents and achieve some compromise (the point of contract); otherwise, the process of production would be impossible. For the Russian transitional economy, this approach needs some corrections.

First, the object of redistribution is not profit but value added. It includes account profit generated by the firm. We also need to take into account that under the conditions of soft budget constraints some part of the value added may be redistributed between firms. Thus, in a transitional economy, one firm may get some "extra money" from other enterprises.

Secondly, some employees became co-owners (inside owners) of their enterprise after privatization, thus they gained the right to bargain through other means than solely through unions. The weight placed on wage and employment depends on the share of inside owners out of the total number of employees.

If the share of insiders of the total number of employees is not great (concentrated insider's ownership), they will be interested in increasing wages with no emphasis on employment because their status may protect them from being discharge at the time of employment cut backs. But if the share of insiders is great (dispersed insider's ownership), they will stand for maintaining full employment.

Thirdly, the objectives of the other participants in the bargaining process (not employees) must be reformulated.

The principal goal of the manager is firm revenue maximization (which is connected with his/her private revenue) and his/her career progression. But the fulfillment of this objective, in turn, depends on the priorities of the firm's owners. The income maximizing goal is in consensus with outside owners' interests, which gives support to managers. But when the share of inside owners of the authorized capital stock is great, the manager's goal may also be wage setting if the main source of the insiders' income is wages and may also be employment if the number of inside owners is significant. The intention to maintain the employment level is also connected with some paternalistic tendencies and the status of manager because the greater the number of employees, the greater status the enterprise manager has.

The government's goals are employment and budget revenue. But under conditions of social tension, government authorities will make efforts to keep employment, placing no emphasis on profit, by using state ownership rights or formal methods (legislative acts, tax allowances, *etc*.) as well as informal ones (personal recommendations, verbal contracts, *etc*.)

Under the influence of the bargaining power of the above-mentioned groups, different combinations of employment-wage levels corresponding with different output levels become possible. It is necessary to realize that the main bargaining groups are the employees (organized groups of workers or trade unions) and the managers. All other participants in the bargaining process can only realize their interests by influencing the position of direct members in the bargaining process

The point of short-run labor demand equilibrium in the competitive labor market is taken as a starting position to classify possible types of enterprise behavior. At this point, wages are equal to marginal revenue of labor product under the conditions of profit maximization (cost minimization). The minimum acceptable level of wages and corresponding employment rate characterizes this situation.

The existence of several bargaining groups, pursuing their own goals and obtaining different bargaining power may lead to different types of firm behavior. These different types of behavior are as follows.

1. The first type is situation of wages increasing and employment decreasing under the condition of a short-run labor demand equilibrium that corresponds to the labor demand curve. This is the right-to-manage model (see *e.g*., Filer *et al*., 1996). Here the subject of bargaining between the firm and the union is wage levels, allowing the employer complete discretion over employment.

In a transitional economy this situation may be generated by the unions' behavior according to the "right-to-manage" model. It corresponds to

the existing practice in which a labor contract is based on an industry tariff agreement. As usual, an industry tariff agreement fixes the wage level but does not require that managers keep the employment rate. Another reason for this behavior is concentrated inside ownership, *i.e.*, the low number of inside owners in the labor force. In such a case, the government does not have any active impact on the bargaining process.

2. Another type of behavior is a "socially efficient set of outcomes" (contracts), corresponding to the "efficient allocation of labor" (Basu *et al*., 1997) or "strongly efficient contract" (Borjas, 1996). In such a case, the constant employment level accompanies wage increases (and corresponding profits decrease).

Such behavior in transitional economies looks like the situation when a lot of employees own shares of their enterprise (dispersed inside ownership). At the same time, unions, government authorities (trying to prevent unemployment) and managers (seeking owners' support) are interested in maintaining the employment level. The unions' ability to influence the employment level depends on the strength of the particular union, especially on its opportunities to include the point about labor level maintenance in an agreement and to force managers to fulfill this point of the contract. Technological aspects determine this type of behavior (*i.e.*, fuel and energy industry, chemical industry); sometimes the volume of production may be changed without any significant changes in the number of employees.

3. The third type of behavior occurs in the situation in which wages and employment move in the same direction, which corresponds to the "efficient bargaining model" (see *e.g.*, Filer *et al*., 1996). Here the subject of bargaining between managers and unions are both employment levels and wage rates.

As for transitional economies, such a situation occurs when the consolidate power of unions (or other nonunion groups) and government authorities is used not only for bargaining on wage rates, but also on the employment level. Managers may use this situation to increase the status of their firm because the social importance of an enterprise and its ability to press on local government seeking some privileges depend on the number of employees.

All three cases suppose that any wage-profit combination, including negative profit, exists under the conditions of soft budget constraints. The government's solution whether to subsidize an enterprise has an impact on the wage rate, independent from the employment level and enterprise value added.

4. The fourth type of behavior corresponds to the situation in which the firm reduces employment in response to wage increases, but the wage

level is lower than the marginal revenue product of labor. In the literature, this situation is defined as the "cost of labor turnover hypothesis" (see Prasnicar *et al*., 1994). It can be interpreted as the firm's opportunity to pass on to employees the costs of labor turnover which results from the firm's great bargaining power in comparison with employees' (or unions) power

5. Finally it is possible to emphasize one more type of behavior (the fifth type — intermediate between the first and second types of behavior), when the enterprise reduces employment in response to wage increases, but the wage level is higher than the marginal revenue product of labor. Thus the point of contract lies to the right of the labor demand curve. This situation shows the great bargaining power of workers (unions) which secure the growth of wages together with the decrease of employment but employment goes down more slowly than it is supposed according to the labor demand curve.

Our conceptual framework is depicted in Fig. 1.[2] Here we can see two iso-profit curves: maximum profit and zero profit and also the standard labor demand curve L^D.

Point A is the point of the short-run labor demand equilibrium in the
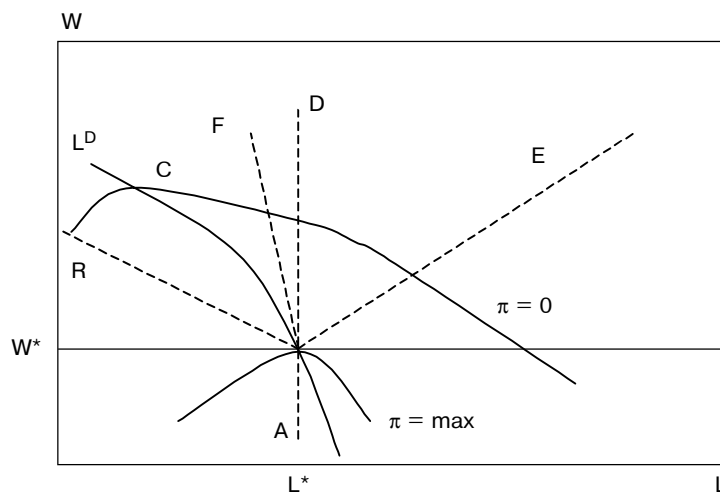
Fig. 1.

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[2] Such types of figures are often used in the analysis of firm behavior (McDonald and Solow, 1981). Here we use figures from Prasnikar, Svejnar *et al*. (1994) and Basu, Estrin , and Svejnar (1997) with some modifications.

competitive labor market when the competitive wage equals the marginal revenue product of labor under the conditions of profit maximization (cost minimization). The minimum acceptable level of wages W* and corresponding employment rate L* characterize this situation.

The labor demand curve (we are moving from point A to point C) represents the first type of firm behavior. This is the right-to-manage model. Here the subject of bargaining between the firm and the union is wage levels, allowing the employer complete discretion over employment.

The contract curve AD represents the second type of firm behavior, when constant employment level L* accompanies wage increases (and corresponding profit decreases).

The third type of firm behavior, when the subject of bargaining between managers and unions are both employment levels and wage rates, corresponds to the contract curve AE.

All three cases suppose any wage-profit combination, including negative profit under the conditions of soft budget constraints. In other words, the concrete point of contract could lie anywhere in the area $A - C$, $A - D$, $A - E$ and also above the iso-profit curve $\pi = 0$.

The fourth type of behavior, when the firm reduces employment in response to wage increases, although the wage level is lower than the marginal revenue product of labor, is represented by the contract curve AB.

The fifth (intermediate) type of behavior, when the enterprise reduces employment in response to wage increases, but the wage level is higher than the marginal revenue product of labor, corresponds to the contract curve AF.

Based on this approach, our task is to define what type of enterprise behavior was formed during transition and to estimate its changes over time. We also will try to estimate the degree of influence the following factors have on this behavior: form of ownership, variant of privatization and corresponding structure of ownership, the size and the location of an enterprise, *etc*.

We suppose to verify the following hypothesis:

a) the hypothesis about changes in enterprise behavior over time:

- over the process of time, enterprises of any form of ownership and legal form will demonstrate better adjustment of their employment to shifts in production;

- the employment and wage-setting behavior of enterprises with various legal forms and forms of ownership will differ from each other in

the beginning of transition, but over the process of time these differences will become smaller;

b) the hypothesis about the correlation between enterprise characteristics and their behavior:

- the following types of enterprises will aim to maintain the employment level:

- enterprises with the a great share of state ownership;

- privatized enterprises with a great share of insider's ownership;

- enterprises with strong influence of unions;

- enterprises which are located in areas where the opportunities of industrial employment are restricted and alternative employment may be housekeeping or working on an individual farm.

3. MODEL

The problem of constructing a model for estimating the type of behavior is connected with the choice of model used for estimating the wage-setting and employment behavior of enterprises in the Russian economy. Schaffer and Luke (2000) note that the choice of model is a difficult problem because there are not enough empirical data which allow one to estimate whether bargaining about employment and not only about wages take place. At the same time such a process as labor hoarding may be interpreted not only in the framework of an effective bargaining model, but also using the "right to manage" model if high elasticity of wages are assumed. The authors says that both above-mentioned models come to similar final equations and refer to the opinion of Booth (1995) who says that there are no precise criteria which allow one to distinguish the difference between these models. In our empirical work both models are used.

We estimate the following equations, based on the standard theory of dynamic labor demand with adjustment costs. Probably the most commonly estimated model begins with the minimization of discounted future costs (see *e.g.*, Singer, 1996).

$$\text{Min } E_t \sum_{\tau=0}^{\infty} \frac{1}{(1+r)^{\tau}} \left[c_{t+\tau} K_{t+\tau} + w_{t+\tau} L_{t+\tau} + p(\Delta L_{t+\tau})^2 + e(\Delta K_{t+\tau})^2 \right], \tag{1}$$

given that production equals demand.

$$Q(K_{t+\tau}, L_{t+\tau}) = Q_{t+\tau}, \quad \forall t, \tag{2}$$

where E is the expectation operator, r denotes the economy-wide interest rate, K denotes the capital, L denotes labor, c denotes the firm's capital costs, w denotes wages, p denotes costs of adjustment of labor, e denotes the costs of adjustment of capital, and Q denotes the output demand (production volume).

The model thus assumes that the firm faces quadratic costs of changing employment and capital. The adjustment cost function is assumed to be additively separable in hires and investment so that we focus solely on employment decisions (see *e.g.*, Machin *et al.*, 1993). The symmetry of adjustment costs is really an unrealistic assumption that is easily criticized (see *e.g.*, Hamermesh, 1989), but our sample does not contain data on hires or fires, so we assume that firms cannot fire and hire simultaneously and $\Delta L = L_t - L_{t-1}$.

The equation derived under these assumptions is (Singer, 1996):

$$\ln L_t = \mu \ln L_{t-1} + \xi \sum_{\tau=0}^{\infty} \psi^{\tau} \ln L_{t+\tau}^{*}, \tag{3}$$

where L denotes labor, L^* denotes the expectation of the long-term equilibrium level of labor, and μ, ξ, ψ are parameters.

The expression for the expected long-term equilibrium of employment is usually formulated as the log-linear form of the expectations of demand and the ratio of wages and costs of capital (interest rate) and a time dummy, proxying technological change and other time-specific factors. If the logs of labor and the ratio of wages and capital costs both follow an AR(1) process, the typical equation derived in terms of observable variables is

$$\ln L_t = \mu \ln L_{t-1} + \alpha \ln Q_t + \beta \ln \left(\frac{w}{c} \right)_t + \gamma D_t + \delta + \omega_t, \tag{4}$$

where D denotes a vector of time dummies, ω is an error and μ, α, β, γ, δ are parameters to be estimated.

The equation (4) may be specified as

$$\ln L_{i,t} = \mu_1 \ln L_{i,t-1} + \mu_2 \ln L_{i,t-2} + \alpha_0 \ln Q_{i,t} + \alpha_1 \ln Q_{i,t-1} + \dots +$$
$$+ \beta_0 \ln w_{i,t} + \beta_1 \ln w_{i,t-1} + \gamma D_{i,t} + \delta_i + \omega_{i,t}. \tag{5}$$

Since we estimate the model on panel data, we use subscript i to denote firms. We test for exogeneity using the Hausman test.

Since the data on the capital costs are unavailable, we approximate the capital costs with time dummies following Singer (1996) and Basu *et al*. (1997), and thus vector $D_{i,t}$ includes $c_{i,t}$. Then, our theoretical model supposes the heterogeneity of labor. At the first stage of our research we suppose that the firm does not treat labor as homogenous, so more lagged values of labor should be put into the equation. In the typical case of two groups of workers, the equation derived by aggregating labor over the two categories also involves the second lag of the dependent variable (Nickell, 1984, 1986). At the first stage of research, we have introduced in (4) a general dynamic framework by allowing the left-hand side variable and the right-hand side variables to enter into the current, one year and two year lagged forms. But the results of our analysis indicated the insignificance of the second lag. We use the second lag of the dependent variable as an instrumental variable.

Our dummies are as follows.[3]

Ownership. We divide our sample depending on the share of different groups of owners. We already defined these groups of owners as partners in the bargaining process: employers (managers); inside owners (employees); outside owners and the government. Since the main legal form of an enterprise is a joint-stock company, we group enterprises according to some critical shares of capital, which give each stockholder different opportunities to affect the enterprise's behavior according to the existing legislation.

It is common knowledge that if the group of owners holds less than 1% of shares, it cannot affect enterprise behavior without an agreement with other stockholders. On the contrary when the share of the group is more than 50%, this group can make decisions without other owners, including reorganization and liquidation of the enterprise. As the first-hand data on ownership structure of the majority of enterprises are inaccessible for us, we construct this variable based on some indirect indicators, such as legal form, chosen variant of privatization, *etc*., in the following way:

a) We define the enterprise as insider-dominated (dummy variable "INS") if it was privatized by workers buy-outs or it is a producer's cooperative. The insider share is also significant when the total number of employees is less than 1,000 and the enterprise was privatized using the second variant of privileges.

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[3] For a list of regression variables — see Appendix A.

b) We define the enterprise as manager-dominated (dummy variable "MAN") if the number of employees is less than 300 and this enterprise was privatized using the first or the second variant of privileges.

c) It is an outsider-dominated enterprise (dummy variable "OUT") if this enterprise employs more than 300 people and was privatized using the first variant of privileges and also if it is a large-sized enterprise (more than 1000 employees) with no emphasis on the variant of privatization.

d) We segregate state enterprises into the following groups: joint stock companies with a 75 – 100% state share (dummy variable "G100"); enterprises where the state share in capital is more than 50% but less than 75% (dummy variable "G50 – 75"); enterprises with a "gold share" which gives the state the right of veto (dummy variable "ZOL"). We also aggregate all the above-mentioned groups into the one variable – "enterprises with great state influence" (dummy variable "GVL").

Unions' activity. Here we use information about the existence of a strong trade-union organization at the enterprise (dummy variable "UN"). We also account for the signing of a labor contract between employers and employees at the enterprise (dummy variable "DOGOVOR").

The size. We divide enterprises into different groups based on the total number of employees at the beginning of transition (1991) (dummy variables "S1 – S4").

Enterprise location (dummies "REG – REG4").

REG — Novosibirsk,

REG1 — areas located not far from Novosibirsk (about 2 hours by electric train),

REG2 — areas located far away from Novosibirsk,

REG3 — industrial cities in the Novosibirsk region,

REG4 — areas located in the far backcountry areas of the Novosibirsk region.

That kind of stratification allows us to find the features of enterprise wage-setting and employment behavior depending on the characteristics of the local labor market. On the one hand, it determines the opportunities for finding a new job for redundant workers; on the other hand, it defines the enterprise's ability to recruit new employees.

Industry. We define the principal industries according to the two-digit branch-wise classification (OKONH) and all other industries – according

to three-digit classification. Here we are trying to capture industry specific characteristics (dummies "OT1 − OT12").

State support. We define an enterprise as a state supported one if during the some period it got some kind of privileges from state authorities: reduction of energy payments, tax remissions (dummy "GOS").

Excess wage tax. We suppose that the excess wage tax sometimes prevented mass lay-offs during 1993 − 1995 (dummy "TAX").

Privatization characteristics. We also suppose that employment is affected by the amount of time passed after privatization (dummies "P1 − P7") and the variant of privatization (dummies "V1 − V4", where V1 − V3 corresponds to the variant of privileges, according to the Russian program of privatization and V4 — means an employee buy-out). We also constructed a dummy named "SVPR", which is equal to one if the enterprise is free in its decision to go private and to choose its variant of privatization, and zero otherwise. According to the Russian privatization program, if a state enterprise had more than 199 employees and less than 1000 employees as well as fixed assets valued more than 1000 Roubles and less than 50000 Roubles before privatization, then it had the right to choose the variant of privatization.

Wage arrears. We treat the indicator of wage arrears[4] (variable "K" is the ratio of wage arrears to annual wage fund) as a "negative" wage. On the one hand, the value of wage arrears is connected to the local labor market conditions; on the other, in the framework of our analysis, the level of wage arrears may be treated as the outcome of the bargaining process. Subject to the situation in the local labor market, managers and outside owners may use wage arrears as a tool for decreasing costs and increasing profits or as a mean to solve some other problems which are not necessary connected with the enterprise activities. In order to keep the number of working places, employees and unions also accept wage arrears mainly because of the local labor market conditions. Insiders who have a relatively great share of enterprise ownership may benefit from this situation. We treat this parameter as an endogenous variable and instrument it with the lag variable of wage arrears.

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[4] Our hypothesis about the influence of wage arrears on enterprise behavior is based on the results of research made by Earle and Sabirianova (1998), and Leman *et al.* (1999).

Then our equation looks like

$$\ln L_{i,t} = \mu_1 \ln L_{i,t-1} + \mu_2 \ln L_{i,t-2} + \alpha_0 \ln Q_{i,t} +$$
$$+ \alpha_1 \ln Q_{i,t-1} + \beta_0 \ln w_{i,t} + \beta_1 \ln w_{i,t-1} + \gamma D_{i,t} +$$
$$+ \eta_1 \ln K_{i,t} + \eta_2 \ln T_{i,t} + \delta_i + \omega_{i,t}, \tag{6}$$

where K is the variable of wage arrears, and T is the period after privatization (for the privatized enterprises). We shall use the price index of the appropriate sector of industry during the examining period as a deflator.

The coefficient η_1 may be interpreted as a correction to the short-term and long-term elasticities of employment with respect to the wage.

Equation (6) is a relatively general model. We test the various restrictions by using the Hausman test. We also test the hypotheses about endogeneity of variables using IV estimations.

The results of our analysis permit us to estimate the traditional labor demand model which supposes that wages are the subject of bargaining, allowing employer complete discretion over employment using the criterion of cost minimization. Thus we shall test the "right-to-manage" model (the first type in the above-mentioned classification).

The second stage is connected with estimating the "efficient bargaining" model. Using the bargaining models (Prasnicar *et al.*, 1994; Basu *et al.*, 1997) and supposing that there is constant elasticity of substitution technology, we are able to derive the following employment equation, which from the econometrical aspect is a relatively straightforward extension of the basic labor demand model.

$$\ln L_{i,t} = \lambda_0 + \lambda_1 \ln Q_{i,t} - \sigma(1-\xi)\ln w_{i,t} - \sigma\xi \ln w_t^a +$$
$$+ \lambda_2 D_{i,t} + \lambda_3 \ln T_{i,t} + \lambda_4 \ln K_{i,t}, \tag{7}$$

where w^a is the alternative (reservation) wage, σ is the constant elasticity of substitution between labor and capital in production, and ξ is the weight that the firm places on employment relative to wages.

The analysis of our results is based on the estimation of ξ.

$\xi = 0$ corresponds to the situation in which the firm places no weight on employment, the coefficient of the alternative wage is zero and the specification reduces to the standard labor demand equation (6) and the first type of firm behavior in our classification.

When the firm places equal weight on wages and employment ($\xi = 1$), the coefficient on its own wage is zero and employment is driven by the

alternative wage. It is consistent with the second type of behavior — socially efficient labor allocation (strongly efficient contract).

For $\xi > 1$, one obtains a positive coefficient for the wage variable and a negative one for the alternative wage variable — this is the third type of behavior ("efficient bargaining model").

For $\xi < 0$, the coefficient for the alternative wage is positive and for the firm's own wage — negative, so employment rises together with an increase in own wage and an increase in the alternative wage. This situation corresponds to the monopolistic position of the firm on the local labor market when the bargaining power of the firm is relatively higher in comparison with the bargaining power of other groups. This is the hypothetical fourth type of behavior.

$0 < \xi < 1$ correspond to the intermediate type of enterprise behavior, between the first and second types.

Specification of the alternative wage is formulated as a function of some variables in several studies (Basu *et al*., 1997), and also as an index (Prasnicar *et al*., 1994; Commander *et al*., 1996).

We use both approaches.

1) We directly derive this index taking into account the existence of arrears not only in wages but also in unemployment benefits. Thus specification of the alternative wage equation will be as follows:

$$w_t^{a_r} = (1 - \rho_t^r) w_{e,t}^r + \psi_t^r \rho_t^r w_{e,t}^r , \tag{8}$$

where w_e^r is the average monthly wage for the corresponding area of Novosibirsk region, ρ^r is the probability to losing one's job (the share of unemployed in the given area), correspondingly $(1 - \rho^r)$ is the probability of being employed; and ψ_t^r is the share of wages which are paid during the year as an unemployment benefit taking into account the delay of such payments (see Appendix D#[5]).

2) In order to obtain the comparable data, we also use the indirect estimation of an alternative wage thereby postulating that the alternative wage is an inverse linear function of local unemployment and industry dummy variables (Basu *et al*., 1997).

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[5] All information marked # is available on the EERC Web site http://www.eerc.ru/publications.

We also include the value of capital and circulating assets of the firm in the beginning of transition (1991) as an explanatory variable because we assume that during the transition, the assets that planners allocated to enterprises influenced employment behavior.

In this part of analysis our approach differs from that used by Basu *et al*. (1997), where one-year lagged capital assets of the firm were used as an explanatory variable. This difference is caused by the features of Russian reappraisals of capital assets which have distorted the data of subsequent years.

We estimate equation (6) in the following form:

$$
\begin{aligned}
\ln L_{i,t} = {} & \mu_1 \ln L_{i,t-1} + \mu_2 \ln L_{i,t-2} + \alpha_0 \ln Q_{i,t} + \alpha_1 \ln Q_{i,t-1} + \\
& + \beta_0 \ln w_{i,t} + \beta_1 \ln w_{i,t-1} + \gamma D_{i,t} + \eta_1 \ln K_{i,t} + \eta_2 \ln T_{i,t} + \\
& + \nu_1 \rho_t^r + \nu_2 A_i^{1991} + \delta_i + \omega_{i,t},
\end{aligned}
\tag{6a}
$$

where A_i^{1991} is the average annual capital and circulating assets of the enterprise i in the beginning of transition (1991); ν_1, ν_2 are coefficients.

Finally in the third stage of our research which follows the work of Basu *et al*. (1997), we estimate jointly a wage and employment equation. Using equation (7) and supplementing it with a wage equation allows for the possibility that workers appropriate some of the enterprise-specific rents in their wages. We must test the hypothesis that in addition to exogenous factors, wage may depend on enterprise characteristics (Basu *et al.*, 1997). The employment equation is as follows:

$$
\begin{aligned}
\ln w_{i,t} = {} & \phi_0 + \phi_1 \ln w_{i,t-1} + \phi_2 \ln(Q/L)_{i,t} + \\
& + \phi_3 \ln(Q/L)_{i,t-1} + \phi_4 D_{i,t} + \phi_5 M_{i,t},
\end{aligned}
\tag{9}
$$

where Q/L is sales per employee, and M is the vector of relevant variables that may affect wages in a given firm. The variables of vector M may be as follows: the ratio of enterprise receivables to sales and inclusion in the list (registry) of monopolists according to the data regional Antitrust committee.

Unlike for Basu *et al*. (1997) the data on the firm market share is inaccessible for us. So we use a dummy variable that is equal to one if the enterprise is registered in the list of monopolists according to the data from the regional Antitrust committee as a proxy of significant market power.

Instead of using the variable for export share in production, we use the ratio of receivables to the volume of production. Less than 1% of the

enterprises in our sample are exporters and our explanatory variables indicate the market power of the firm — the lower this ratio the more successful is the firm in its attempts to make its partners to fulfill contracts. .

We estimate our wage equation using the local employment rate in order to test if local demand and supply of labor affect wages. This "wage curve" hypothesis (Blanchflower and Oswald, 1995) is used to determine if such a connection exists in the Russian case or not.

The endogeneity of labor productivity must be tested the same way as in equation (6). The following parameters will prove the validity of our hypotheses:

- the value of parameter ξ: its variation, especially in the interval [0, 1], will reveal changes occurring in the emphasis on wages and employment in enterprise behavior;

- the values of parameters α_0, β_0, φ_2 in equations (6) and (9) which characterize the short-run elasticity;

- the values of the coefficients of dummies and explanatory variables.

In order to determine the bargaining power of different partners and the model of behavior, we estimate equations (6) − (9) for the subsamples according to the following criteria:

- whether or not a labor contract between managers and employees of the enterprise was signed;

- whether or not the enterprise obtained state support during the examining period;

- what group of owners dominated the enterprise — state, managers, outside owners or inside owners.

The values and variations of the coefficients of short-run elasticity and parameter ξ will allow us make some conclusions about the tendency of different bargaining partners to follow one of the above-mentioned models of behavior and about their abilities to achieve their goals.

4. DATA

The industry of the Novosibirsk region has undergone significant changes during the last six years. The basis of the regional industry has been formed by large-sized machine-building enterprises and other enterprises in the military-industrial field of production while other enterprises (metallurgy, power engineering industries *etc*.) only supplied military industrial complex.

The share of machine-building industry out of the total region's production volume was equal to 38.5% in 1990. For the examining period, 1994 – 1998, the total output decline was more than 50%: the volume of production in 1998 made up 46.5% of the volume in 1992. As for the volume of machine-building production in 1993 – 1998, it declined more than four times: the 1998 production level was equal to 24.2% of the 1992 volume of production

The collapse of internal production demand in the Novosibirsk region was not compensated by any increase in external demand. Only four or five enterprises of the Novosibirsk region currently export their products. At the same time the total number of industrial employees in the Novosibirsk region has been reduced by 1.85 times and the employment in machine-building has been reduced by more than twice. Thus a new type of wage-setting and employment behavior has occurred under the conditions of a severe exogenous shock caused by recession.

The object of study is the data on the industrial enterprises. The time interval for analysis is 1994 – 1998. The data has been obtained from the Novosibirsk Regional Committee of State Statistics, Novosibirsk Regional Property Fund, Novosibirsk Regional Committee of State Ownership, Novosibirsk Regional Antitrust Committee, and Federal Department of Employment Service of the Novosibirsk Region. Our sample includes old enterprises of different legal and ownership forms (state, cooperatives, privatized enterprises) which existed before transition as well as new private ones.

Large-sized and medium-sized enterprises of the Novosibirsk region produced more than 80% of the aggregate production of the Novosibirsk region and employed more than 85% of the region's industrial labor force in 1994 – 1998. For most of the industrial sectors, these values vary between 60 – 98% for production as well as for employment. Thus, one can say that the behavior of large-sized and medium-sized enterprises has a great impact on the behavior of the Novosibirsk region's industry as a whole. The exceptions are the milling and grain industry, where the number of small-sized enterprises is traditionally great, and industry that includes "other sectors of industry."

Our sample characterizes the behavior of the majority of large-sized and medium-sized enterprises of all industrial sectors of the Novosibirsk region. In our sample, the share of large-sized and medium-sized enterprises in industrial production and industrial employment is more than 2/3: from 66.7 to 100%. The exception is the engineering industry, where military-industrial enterprises were eliminated from the sample.

Table C1# shows that the decrease in the average number of employees may be explained by the total production recession and the corre-

sponding decrease in industrial employment, while the number of enterprises declines at a slower rate.

The amount of wage arrears and other non-payments sharply decreased after the Russian financial crisis in 1994, but after this year one can observe a stable growth of the ratio of receivables to sales as well as the ratio of wage arrears to wage fund. The ratio of wage arrears increases regardless of whether local unemployment rises or not.

One can also find two opposite tendencies. On the one hand, the differences in sales, receivables and wage arrears between enterprises become stronger; on the other hand, there is some stabilization in the variation of the number of employees and wage level over time.

5. RESULTS

We made estimations and obtained results for the following periods: 1992 − 1993, 1994 − 1996, 1997 − 1998.

From the point of formation of enterprise wage-setting and employment behavior, the first period corresponds to the pre-transition stage, the second period covers the stage of intensive economic reforms (early transition), and the third one is the period of enterprises' functioning after forming a new ownership structure.

1992 − 1993. We failed to estimate the IV equations because our data did not allow us to create lagged variables that were used as instruments in other equations. So we used OLS. Thus it will not be completely correct to compare the obtained results with the following ones, but at least we can show a general estimation of enterprises' behavior during 1992 − 1993 (see Tables C4 − C6#).

The main factor affecting the level of employment is the level of employment in the previous period. Sales and wages in the previous period have a significant but weak influence on employment. We reject the hypothesis about the formation of the "right to manage" model because we did not find that an enterprises's own wage level influences employment.

Verifying the hypothesis about an effective bargaining model of behavior, one can see that the coefficient of an enterprise's own wage level is insignificant as is the coefficient of local unemployment (the indicator of the alternative wage level). Thus employment is determined neither by its own wage level nor by the alternative wage level.

Verification of the effective bargaining model hypothesis using equation (7) gives a zero (insignificant) value for σ, and ξ,. But at the same time,

the coefficient of the enterprise's own wage level become significant. This provides some evidence that the behavior of enterprises corresponds to the "right to manage" model.

The level of labor productivity affects the wage level during this period of time, but the corresponding coefficient is rather small in comparison with the other periods.

The following conclusion seems to be the most motivated. In the early stage of transition, the employment level was determined neither by an enterprise's wage level nor by an alternative wage level. The level of employment, sales and wages in the previous period determined the employment level in the current period. Thus it is impossible to make a conclusion about the formation of any particular model of enterprise wage and employment behavior during 1992 – 1993.

The analysis of enterprise behavior after the beginning of real economic reforms (1994) is in the focus of our research.

Unbalanced panels. Basic employment equation (6) is represented in the Table B1 appendix B.

The given variables show higher explanatory power in comparison to those specifications of equation which include groups of enterprises according to the state share of capital, to the legal form, and to the division of enterprises into old ones and newly created ones.

The elasticity of employment with respect to sales is the starting point of our analysis.

We obtain slow growth of short-run elasticity of employment with respect to sales from 0.1 to 0.3. One possible explanation is the positive role of the abolishment of the excess wage tax.

Our results are in consensus with those obtained by other researchers, with some variation in short-run elasticities at the initial period of transition. Commander *et al*. report 0.03 elasticity (Commander *et al*., 1996) and Basu *et al.* estimate the elasticity for Russia to be equal to zero (Basu *et al.*, 1997).

Basically the shifts in short-run elasticity of wages with respect to sales support the hypothesis about some positive changes in the adjustment of the firm's behavior while the absolute value of the coefficient remains relatively low and indicates that the degree of employment adjustment to sales is very low. According to Basu *et al* (1997), the elasticities of employment to sales of Czech firms, which initially (1990 – 1991) was as low as in our sample, grew to 0.5 – 0.6 two years later.

Higher but unstable short-run elasticities were obtained in the more market-oriented countries such as Poland and Hungary — respectively 0.4 and 0.5 − 0.7.

The long-run elasticity of employment with respect to sales remains stable at the 0.6 − 0.7 level during the whole time period. Other postsocialist countries (Poland, Hungary, Czech Republic, Slovakia) also show relatively stable, but higher coefficients — 0.9 − 0.95.

Our second point of interest is the elasticity of employment with respect to wages. This indicator also shows the gradual adjustment of enterprises in our sample to the changes in the economic environment. At the initial period the sign was negative and equal to −0.17, then its absolute value rose to −0.35.

Our results show that firms adjust employment to wage changes more than to sales changes. But looking at the corresponding indicators for the Czech Republic, Slovakia, Hungary and Poland (Basu *et al.*, 1997), we can conclude that the degree of adjustment of enterprises in the Novosibirsk region is lower. The short-run elasticity of employment with respect to wages in these countries is expected to be from −0.6 to −0.96. The only exception is Slovakia where in 1992 this coefficient was equal to −0.25, but it was not highly significant. Slovakia is very close to Russia in its traditions of a centrally planned economy and the structure of the Slovakian industry is also very similar to the Novosibirsk region's industry because of the high share of large-sized machine-building enterprises.

The distinctive feature of long-run employment elasticity with respect to wages is its positive sign in the beginning of transition that reflects the specificity of the previous period when employment and wages moved in the same direction. But this coefficient is unstable. We can say that in other transition countries, long-run elasticities are also unstable: for example, the Czech indicator LRE varied from −1.2 to 0 (statistically insignificant). These data show that enterprises adjust behavior to the changes in wages more than to the changes in sales.

We obtain stable and significant coefficients for the dummies, which characterize the time passed since privatization of the enterprise; thus the time of privatization has an impact on enterprises' wage-setting and employment behavior during the early transition period but this influence disappears later on.

Our dummies also show that during 1994 − 1996, the employment behavior of enterprises located not far away from Novosibirsk differ from the behavior of Novosibirsk ones. We can suppose that the potential opportunities to get a job for workers from these not very distant from the Novobirsk areas are high because they have a chance to find another job

in Novosibirsk, while enterprises' opportunities to employ qualified workers from Novosibirsk are relatively low. That's why enterprises hoard labor.

Behavior of enterprises owned by managers statistically differs from the behavior of enterprises owned by insiders (not managers). It is not unusual because without any restraints from other owners, managers will strive to increase their own income and to reduce excess labor. Manager-dominated enterprises have 6 − 7.5% less employees in comparison with insider-dominated enterprises.

The employment level in the enterprises with 100% state ownership was higher in comparison with enterprises with insider ownership during 1994 − 1996. However, we failed to find any impact of state support upon employment behavior. The effect of a union's bargaining power was obtained only in 1994 − 1996, but its absolute value is rather small −0.05.

Balanced panel. Our balanced data set contains only privatized enterprises and state enterprises prohibited from privatization. The total number of enterprises in this sample is about half of those from the unbalanced panel[6].

This number of enterprises in the balanced and unbalanced panels displays not only the process of enterprise turnover (breakups, spinoffs and other forms of entry and exit). Some enterprises were excluded from the sample because of changes in composing statistical accounts. For example, the changes in legislative norms regarding the number of employees which comprise a small-sized enterprise lead to changes in the established order of the statistical accounts, and therefor much information became unavailable. Also in the early transition period (1993 − 1995), some enterprises existed but did not file the necessary statistical information with the Regional Committee of State Statistics

Nevertheless, the balanced panel allows us to estimate features of behavior of "old" enterprises that existed before transition and survived during the first seven years of transition. A comparison of the corresponding short-run and long-run elasticities of employment with respect to sales and elastisities of employment with respect to wages of the balanced panel with those of the unbalanced panels shows that these coefficients do not differ systematically.

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[6] For example: Basu *et al*. (1997) formed a balanced panel only for one quarter of the total number of Czech firms, one third of the total number of Slovak firms, and about 80% of Polish firms.

Some dummy variables have a higher absolute value in comparison with the unbalanced panel in the first period (1994 – 1996): we found that the signing of a labor contract by strong unions has a greater positive influence on employment and a greater negative correlation between employment and domination of managers as owners. But these differences disappear during the next period (1997 – 1998). Thus, it confirms our hypothesis about the smoothing of the differences in wage-setting and employment behavior over time.

Table B2 represents the estimation of equation (6a). Here we estimate the elasticity of employment with respect to wages and local employment level (in different areas of the Novosibirsk region and in Novosibirsk). As it was mentioned above, unemployment serves as an indirect indicator of alternative wages.

Similarly to equation (6), we obtain negative and statistically significant wage coefficients. At the same time unemployment coefficients are statistically insignificant. That is, the contract curve is the standard labor demand curve. Thus, the model of enterprise behavior corresponds to the "right to manage" model and $\xi = 0$. These conclusions are true both for the unbalanced and balanced panels.

Some studies of wage-setting and employment behavior in transition (Basu *et al.*, 1997) also determined the "right to manage" model as the basic model. These researchers provide evidence that wage-setting and employment behavior in the Czech Republic and Poland at the start of transition was close to the "effective bargaining" model, but this model has changed into the "right to manage" model later on.

Effective bargaining model. The estimations of coefficients of the effective bargaining model — equation (7) — are reported in Table B3. Here we use the specification of alternative wages, represented in equation (8). Coefficients on the enterprise's own wages and on alternative wages are the main indicators of enterprise behavior here.

We obtain a negative and significant coefficient for the firm's own wage and a insignificant coefficient for the alternative wage both for the unbalanced and balanced panels. That is $\xi = 0$, and our contract curve is the labor demand curve; thus, our model is the "right to manage."

We estimate wage elasticity with respect to sales per worker in Table B4 (equation 9). Some researchers (*e.g.*, Commander, Dhar, and Yemtsov , 1995) treat this parameter as a proxy of the firm's ability to pay. Our estimation shows that the short-run elasticity of wages with respect to sales per employee has high, positive and statistically significant coefficients. These coefficients increased from 0.62 (1994 – 1996) to

0.86 (1997 – 1998) in the unbalanced panel and were stable during 1994 – 1998 in the balanced panel: from 0.69 to 0.67. This proves the fact that employees systematically appropriate some of the firm-specific rents in their wages. Probably the greater absolute value of this parameter for the unbalanced panel is the cause of the unstable financial position of some enterprises in this panel.

At the same time the ratio of receivables to sales has some impact on wages, but the sign of the corresponding coefficient is positive and significant. So we obtained unexpected results because we supposed that a lower value of receivables from customers indicates effective sales management that raises the firm's ability to pay off wages. Thus, the high value of receivables from customers may be treated as an indicator of high demand for enterprise production, while a low value shows that the enterprise has no market for its products and thus doesn't have enough money to pay off wages.

We also define some of the effects of state support. In 1994 – 1996, state supported enterprises paid wages which were 13.3% higher than others. We can draw the conclusion that state financial support was spent for increasing wages and not for maintaining employment.

Our results differ sharply from other studies in this case. The results obtained by Commander, Dhar, and Yemtsov (1995) estimate that the elasticity of wages with respect to sales per employee in 1993 – 1994 for Russia is equal to 10.2%, while the research of Basu *et al*. (1997) shows statistically insignificant coefficients of the corresponding elasticity for Russia. The short-run wage elasticities with respect to sales per worker for other transition countries are essentially lower: 0.1 – 0.4.

An important part of our research was the verification of the "wage curve" hypothesis. We failed to find any effect of local unemployment upon wage outcomes because the corresponding coefficients are statistically insignificant. Among other transition countries, the wage curve hypothesis receives support only in Poland.

Equation (7) was estimated jointly with equation (9) (Table C3#). We obtain quite a similar estimation of principal coefficients, so our results are considered to be reliable.

In order to determine the influence of state financial support on enterprise performance, we estimate equations (6) – (9) separately for state supported enterprises and for the non-supported ones.

The same analysis is carried out in order to explore the influence of trade unions on enterprise behavior. In this case we divide our sample into enterprises where a labor contract was signed and those where one was not.

We are also trying to find some specifics of enterprise behavior which are dependent on the dominant group of owners – state, outsiders, insiders, managers. Thus we estimate equations (6) – (9) for every each group of owners.

This analysis allows us to determine how some bargaining groups influence (directly or indirectly) the formation of the model of enterprises' behavior.

We also take into account the endogeneity problem, *i.e.*, that the dominant group of owners can influence an enterprise's opportunities to get state financial support and also the opportunities to sign a labor contract between employers and employees. We estimate the probability of obtaining state support depending on the dominant group of owners, and also the probability to sign a labor contract depending on the dominant group of owners (Table C7#). The analysis shows that we cannot make a conclusion about the existence of a stable correlation between any group of owners and the opportunities to get state financial support or to sign a labor contract.

Union's influence. The results of our estimations are represented in Tables B5 – B8.

The estimation of equation (6) for the unbalanced panel shows that enterprises where a labor contract was signed have a higher absolute value of short-run elasticity of employment with respect to sales and short-run elasticity of employment with respect to wages during both time periods.

The estimations of equation (6a) for 1997 – 1998 give a negative and significant value of the wage coefficient and an insignificant value of the local unemployment coefficient. This corresponds to the "right to manage" model and is confirmed by the estimation of equation (7) further on.

The difference between enterprises with a labor contract and enterprises without a labor contract existed in the first period (1994 – 1996). The "right to manage" model corresponds to the behavior of enterprises with a labor contract. As for the enterprises without a labor contract, one can not make definite conclusions because according to equation (6a), the insignificant coefficient of local unemployment and the significant coefficient of wages correspond to the condition of $\sigma < 0$, which does not satisfy the initial conditions of the analysis, but at the same time equation (7) supports the "right to manage" model.

Equation (9) represents the higher elasticity of wages with respect to labor productivity for the enterprises with a labor contract (0.81 vs. 0.61).

Thus, a signed labor contract leads to higher opportunities for employees to appropriate firm-specific rents in their wages.

Estimations for the balanced panel show greater differences in the model of behavior for enterprises with a labor contract and enterprises without a labor contract. Enterprises without a labor contract show zero elasticity of employment with respect to wages; the value of parameter $\xi < 0$, *i.e.*, the model of behavior corresponds to the "cost of labor turnover" hypothesis when the contract curve is moved to the left from the labor demand curve during 1994 − 1996. In the same time period, the behavior of enterprises with a labor contract corresponds to the "right to manage" model and thus their $\xi = 0$.

Enterprises without labor contracts behave according to the "right to manage" model during the period 1997 − 1998. The contract curve of enterprises with labor contracts during the corresponding period shows the tendency of moving to the right from the labor demand curve — $\xi = 0.23$ ($0 < \xi < 1$), but the significance level of this coefficient is 10%. The coefficient of local unemployment in equation (6a) is insignificant but positive. Hence there is a tendency to change the model of behavior from the "right to manage" model to the intermediate type of behavior (between the "right to manage" model and "socially efficient labor allocation").

The conclusion is that the union's objectives for signing a labor contract correspond to the "right to manage" model, *i.e.*, most attention is paid to wages. The greater transfers of firm-specific rent compensate the employees. Unions of those enterprises that have survived during the first stages of transition have gained some experience interacting with managers and now they try to bargain about wages and employment simultaneously.

Influence of state financial support. Tables B9 − B12 represent the results of our estimations for the enterprises which have state financial support and which do not have any state financial support. According to the analysis of the unbalanced panel, the model of behavior corresponds to the "right to manage" model for both groups of enterprises. However there are some differences in the short-run elasticity of employment with respect to sales, in the short-run elasticity of employment with respect to wages, and in the short-run elasticity of wages with respect to labor productivity.

During the period 1994 − 1996, enterprises with state financial support had a higher absolute value of short-run elasticity of employment with respect to sales, but a lower short-run elasticity of employment with re-

spect to wages in comparison with the other enterprises. And during 1997 – 1998, state supported enterprises had higher values of all the above-mentioned elasticities, but non-supported enterprises had a higher value of short-run elasticity of wages with respect to labor productivity.

The analysis of the balanced panel shows similar results, but enterprises with state support have higher short-run elasticity of wages with respect to labor productivity.

One can summarize that state support does not result in a change in the model of enterprise wage and employment behavior. Additional financial resources provided by state authorities were redistributed to maintain the wage level, at least in the first stage of economic reforms.

Influence of different groups of owners. Tables B13 – B16 represent estimations for equations (6) – (9).

Enterprises, owned by the state or controlled by the state have the highest values of short-run elasticity of employment with respect to sales and of short-run elasticity of employment with respect to wages for the unbalanced panel 1994 – 1996. Other enterprises have a very low or statistically insignificant coefficient of short-run elasticity of employment with respect to wages.

The local unemployment rate is significant and negative only for insiders' enterprises. In combination with the negative and significant wage coefficient, this means that the behavior of this group of enterprises corresponds to the "cost of labor turnover" model. Coefficient $\xi = -0,46$ ($\xi < 0$) confirms this conclusion.

The behavior of state enterprises corresponds to the "right to manage" model and the negative and statistically significant coefficient of wages and the statistically insignificant coefficient of local unemployment and $\xi = 0$ prove this statement.

The insignificant wage and local unemployment coefficients for manager-dominated and outsider-dominated enterprises are bound to mean that ξ is uncertain. But the value of ξ corresponds to the "right to manage" model for manager dominated enterprises and to the intermediate model ($0 < \xi < 1$) for outsider dominated ones.

The short-run elasticity of wages with respect to labor productivity is significant and positive for all types of enterprises, but it is higher for outsider dominated enterprises. The latter may be due to the situation that outside owners were dispersed in the first stage of transition and thus

were not able to affect the process of appropriation of enterprise-specific rent.

The analysis of the unbalanced panel 1997 – 1998 shows results which are quite similar with those obtained for the previous period. The coefficients of local unemployment are insignificant for all the groups, thus the model of behavior in 1997 – 1998 is reduced to the "right to manage" model.

There were also some changes in the short-run elasticity of wages with respect to labor productivity during 1997 – 1998. These coefficients became higher and significant for state enterprises, manager's enterprises and became insignificant for insider's and outsider's enterprises.

The balanced panel shows similar results: state enterprises had the biggest values of short-run elasticities of employment with respect to sales and with respect to wages during the first period. Coefficients of local unemployment are insignificant for all groups of enterprises, but only state enterprises have significant wage coefficients at the same time, thus only their behavior may be determined as the "right to manage" model.

The short-run elasticities of wages with respect to labor productivity are significant and rather high for all groups of enterprises. The "right to manage" model was determined to represent the behavior of state enterprises, insider's and manager's enterprises in the balanced panels 1997 – 1998.

Outsider's enterprises behave within the framework of the intermediate model. This can be attributed to the fact that outsiders own enterprises with complex production cycles (fuel and energy industry, metallurgy), where the number of employees depends mainly on technological aspects. This prevents mass lay-offs even in the case of sharp output decline. Only this group of enterprises has an insignificant coefficient of short-run elasticity of employment with respect to sales.

There are no other changes in elasticity of wages with respect to labor productivity in the manager's enterprises because their owners strive to minimize the amount of enterprise-specific rent appropriated by workers.

Enterprises with a labor contract behave according to the "right to manage" model, while the model of behavior of enterprises without a labor contract can change to the "cost of labor turnover" model under the conditions of high bargaining power of managers.

At the same time the higher short-run elasticity of wages with respect to labor productivity for the enterprises with a labor contract in comparison with the other ones allows us to conclude that unions have essential bar-

gaining power. Therefore, this bargaining power is in consensus with the objectives of the unions in the framework of the "right to manage" model. Some revision of this situation occurs only for "old enterprises" with the "old" unions as they begin to take into account not only wages but also employment; thus, the model of behavior of such enterprises shifts to the "intermediate" model.

State financial support does not change the model of enterprise wage-setting and employment behavior. And what is more, enterprises, controlled by the state, also form their behavior according to the "right to manage" model. Hence the "right to manage" model satisfies state interests and state authorities do not strive to affect enterprise behavior directly or indirectly in order to change the model of their behavior into the model which provides more employment.

Managers without a doubt are interested in using the weak bargaining power of employees and to change the enterprise behavior into the "cost of labor turnover" model, but their attempts were successful only during the first years of transition. Now they apply their bargaining power to decrease the part of rent appropriated by employees.

The enterprises with dispersed insider ownership form the significant part of insider's enterprises. This explains the stable, low and insignificant short-run elasticities of employment with respect to sales and with respect to wages. The short-run elasticity of wages with respect to labor productivity is also low. Under the conditions of an economic downturn and decreasing labor productivity, this means the intention to maintain the wage level. At the same time, inside owners are ready to restrain the nominal wage level in order to improve the financial situation of their enterprise. The model of enterprise behavior according to the "cost of labor turnover" hypothesis in 1994 – 1996 proves this.

Outside owners are often limited in their abilities to affect enterprise behavior because of production cycle characteristics. Even when under the conditions of output decline, the ability to hire workers is restricted. It would be possible to determine outside owner's influence on enterprise behavior under the conditions of economical upturn, but we do not have this opportunity.

CONCLUSION

The main objective of our research was to determine the type of employment and wage-setting behavior in the period of transition. We were trying to estimate the influence of some enterprise-specific and common economic factors. We postulate that any enterprise adjusts its behavior to the changes in production demand with a different emphasis on wages and on employment.

An enterprise can change employment and wages in the same direction or maintain employment in response to a wage increase. It is also possible that an enterprise reduces employment in response to a rise in wages and vice versa. The latter cases suppose any wage — marginal labor product combination. When wages are equal to the marginal labor product, our contract curve corresponds to the short-run labor demand curve. If the difference between wages and marginal labor product is positive, our contract curve shifts to the right of the labor demand curve; if this difference is negative, our contract curve shifts to the left of the labor demand curve.

The main results of our research are as follows:

1. At the beginning of transition (1992 – 1993), it was hard to speak about any particular model of wage-setting and employment behavior. The wage level and employment level were determined by sales, the lagged wage level, and the lagged employment level, and were not systematically connected with each other.

The model of wage-setting and employment behavior has been formed by the end of the examining period — in 1997 – 1998. According to this model, the contract curve is similar to the short-run labor demand curve and it is the "right to manage" model of behavior. The reasons for the formation of such a model are the influence of unions and the state in the sphere of wages and employment. Managers accept this model because they are interested in the coincidence of the contract curve with the labor demand curve, and also they don't have enough bargaining power to follow the "cost of labor turnover" model.

2. Over the process of time, enterprises adjust their behavior to changes in output. And in recent years, the wage level adjusts to the output decline faster than to employment (the absolute value of wage elasticity with respect to sales is higher than the absolute value of employment elasticity with respect to sales).

3. Employees systematically appropriate some of the firm-specific rents in their wages. The manager's bargaining power is seen in the decreasing of rent appropriated by the employees of the manager's enterprises.

4. Wage arrears do not influence enterprise behavior.

5. State financial support does not affect the model of enterprise behavior significantly.

6. Domination of a certain group of owners has an impact on enterprise behavior only during the first stage of transition — 1994 – 1996. Behavior of all enterprises corresponds to the "right to manage" model after that point in time.

7. The enterprise location affects its behavior systematically only if this enterprise is located not far from Novosibirsk. As in a previous case, by the end of the examining period any differences in behavior of enterprises with different locations disappears.

8. We failed to find any significant influence of the freedom to go private or to choose the variant of privatization.

9. The common tendency of wage-setting and employment behavior formation is connected with the changes in the Russian economy and the economy of the Novosibirsk region. Some factors showed statistically significant means in 1996 and that may be connected with the abolishment of the excess wage tax., but the following years eliminated this effect. We suppose that changes in the Russian economy as a whole had the greatest impact on enterprise behavior especially because 1996 was the year of presidential elections.

Between-countries comparisons. The degree of adjustment of enterprises of Novosibirsk region is lower than for the majority of other post-socialist countries — the absolute values of the short-run elasticities of employment with respect to sales and with respect to wages are lower for Novosibirsk enterprises.

Slovakia is the only exception because it has quite similar indicators (short-run elasticity of employment with respect to wages). This can be attributed to the fact that Slovakia is closer to Russia in its centralized planned economy traditions and also because the industrial structure of Slovakia with a great share of large-sized machine-building enterprises is similar to the structure of Novosibirsk region's industry.

Our results allow some policy implications. The better adjustment of enterprises to the changes in demand (growth of employment elasticity with response to sales) means that state authorities must be prepared that current unemployment will increase. The number of employees will

rise together with the growth of output, but this growth will hardly lead to the recovering of the previous employment level, even if the pre-reform level of output will be restored.

We do not find any systematic effect of union activities on enterprise behavior during the later years (1997 – 1998). Our analysis shows that the wage level, fixed on the base of industrial agreements, is the only guiding line for wage behavior of all enterprises (unionized or not) in industry. High elasticity of the wages with respect to sales per employee is evidence of the ability of the workers to appropriate some of the firm-specific rents in their wages. This situation is stable and enterprises are losing their internal resources of investments; authorities must take this fact into account while bargaining with employers and unions.

APPENDIX A

A1. Calculation of regression variables

All performance money measures are calculated in constant 1993 prices.

Source of information: Novosibirsk Regional Goskomstat.

L — number of employees;

Ln L — logarithm of the number of employees Ln $L = \ln (L)$;

Q — sales (thousands roubles, taking into account denomination);

Ln q — logarithm of sales Ln $q = \ln (Q)$

Wage — wage fund (thousands roubles, taking into account denomination);

Ln wage — logarithm of average monthly wage per employee, Ln wage = = $\ln (\text{wage}/L/12)$;

Ln ql — logarithm of sales per employee, Ln $ql = \ln (Q/L)$;

K — the ratio of wage arrears to annual wage fund, $K = $ Wage arrears / wage;

M — the ratio of an enterprise's receivables to sales, $M = $ Receivables / Q;

Assets_{91} — fixed and circulating assets in 1991;

Reg = 1, if enterprise is located in Novosibirsk, 0 — otherwise;

Reg1 = 1, if enterprise is located in one of Novosibirsk region's industrial centers (Iskitim, Berdsk, Barabinsk, Kuibishev) but not in Novosibirsk, 0 — otherwise;

Reg2 = 1, if enterprise is located not far (about 2 hours by electric train) from Novosibirsk (Novosibirsky region, Kolivansky region, Bolotninsky region, Toguchinsky region, Cherepanovsky region, the town of Ob, Moshkovsky region, Kochenevsky region), 0 — otherwise;

Reg3 = 1, if enterprise is located far away from Novosibirsk (Kargatsky region, Maslyaninsky region, Tatarsky region, Ordinsky region, Chanovsky region, Cuzunsky region, Ubinsky region), 0 — otherwise;

Reg4 = 1, if enterprise is located in the far backcountry areas of Novosibirsk region, (Karasuksky region, Kupinsky region, Krasnozersky region, Ust-Tarsky region, Severny region, Chistozerny region, Kochkovsky

region, Kishtovsky region, Vengerovsky region, Zdvinsky region, Dovolensky region), 0 — otherwise;

$Ot1 = 1$, if enterprise belongs to fuel and energy industry, 0 — otherwise (OKONH = 11...);

$Ot2 = 1$, if enterprise belongs to coal, iron and steel industry, 0 — otherwise (OKONH = 12...);

$Ot3 = 1$, if enterprise belongs to chemical and petrochemical industry, 0 — otherwise (OKONH = 13...);

$Ot4 = 1$, if enterprise belongs to engineering industry, 0 — otherwise (OKONH = 14...);

$Ot5 = 1$, if enterprise belongs to woodworking and pulp and paper industry industry, 0 — otherwise (OKONH = 15...);

$Ot6 = 1$, if enterprise belongs to the industry of construction materials, 0 — otherwise (OKONH = 16...);

$Ot7 = 1$, if enterprise belongs to light industry, 0 — otherwise (OKONH = = 17...);

$Ot8 = 1$, if enterprise belongs to food processing industry, 0 — otherwise (OKONH = 18...);

$Ot9 = 1$, if enterprise belongs to microbiological industry, 0 — otherwise (OKONH = 191...);

$Ot10 = 1$, if enterprise belongs to milling and grain industry, 0 — otherwise (OKONH = 192...);

$Ot11 = 1$, if enterprise belongs to medical industry, 0 — otherwise (OKONH = 193..);

$Ot12 = 1$, if enterprise belongs to publishing and printing industry, 0 — otherwise (OKONH = 194...);

$Ot13 = 1$, if enterprise belongs to other sectors of industry, 0 — otherwise (OKONH = 197...);

Unempl — unemployment rate in the year t.

Source of information: Register of Novosibirsk Regional Antitrust Committee.

Mon = 1, if enterprise is included in the list (registry) of monopolists in the year t, 0 — otherwise.

Source of information: Novosibirsk Regional State Property Fund and Novosibirsk Regional State Property Committee.

A2. Date of privatization

P1 = 1, if it is the first year after privatization, 0 — otherwise;

P2 = 1, if it is the second year after privatization, 0 — otherwise;

P3 = 1, if it is the third year after privatization, 0 — otherwise;

P4 = 1, if it is the fourth year after privatization, 0 — otherwise;

P5 = 1, if it is the fifth year after privatization, 0 — otherwise;

P6 = 1, if it is the sixth year after privatization, 0 — otherwise;

P7 = 1, if it is the seventh year after privatization, 0 — otherwise.

A3. The number of employees before privatization

S1 = 1, if it is an enterprise with 199 employees or less in 1991, 0 — otherwise;

S2 = 1, if it is an enterprise with 200 to 499 employees in 1991, 0 — otherwise;

S3 = 1, if it is an enterprise with 500 to 999 employees in 1991, 0 — otherwise;

S4 = 1, if it is an enterprise with more than 1000 employees in 1991, 0 — otherwise.

A4. State ownership and variant of privatization

g100 = 1, if the state share in the enterprise's authorized capital stock is 100% in the year t, 0 — otherwise;

g5075 = 1, if the state share in the enterprise's authorized capital stock is from 50% до 75%, in the year t, 0 — otherwise;

zol = 1, if the state is the owner of the "gold share" of the enterprise in the year t, 0 — otherwise;

v1 = 1, if the enterprise was privatized by using the first variant of privileges in the year t, 0 — otherwise;

v2 = 1, if the enterprise was privatized by using the second variant of privileges in the year t, 0 — otherwise;

v3 = 1, if the enterprise was privatized by using the third variant of privileges in the year t, 0 — otherwise;

v4 = 1, if the enterprise was privatized by leasing (employee buy-out) in the year t, 0 — otherwise.

A5. Dominant owners

Man = 1, if the enterprise is owned by managers in the year t, 0 — otherwise;

Man = 1, if (V2 = 1 | V1 = 1) & L < 300;

Out = 1, if the enterprise is owned by outsiders in the year t, 0 — otherwise;

Out = 1, if (V1 = 1 & L > 300) | employees>1000;

Ins = 1, if the enterprise is owned by insiders in the year t, 0 — otherwise;

Ins = 1 if V4=1 | (V2=1 & L < 1000).

Source of information: Programs of Privatization in Russian Federation.

Svpr = 1, if the enterprise is free in its decision to go private, *i.e.*, it was not prohibited from privatization in the Program, 0 — otherwise.

Source of information: Novosibirsk Regional Federation of Trade Unions.

Un = 1, if the enterprise union organization belongs to a powerful union, 0 — otherwise;

Dogovor = 1, if the enterprise union organization has concluded a labor contract, 0 — otherwise.

Source of information: Department of Finance and Tax Policy of Novosibirsk Regional Administration.

Gos = 1, if the enterprise used state support in the year t, 0 — otherwise.

Calculation of alternative monthly wage — see Appendix D#.

Ln awage — logarithm of alternative average monthly wage.

Table B1. Labor Demand Model: IV Estimates of the Basic Employment Equation.

Variable	Unbalanced Panel		Balanced Panel	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
$\ln L_{t-1}$	0.809* (0.017)	0.830* (0.039)	0.758* (0.027)	0.838* (0.050)
$\ln q_t$	0.176* (0.015)	0.271* (0.029)	0.166* (0.021)	0.210* (0.029)
$\ln q_{t-1}$	−0.058* (0.015)	−0.142* (0.029)	−0.018 (0.021)	−0.094* (0.034)
LRE_q	0.619* (0.041)	0.759* (0.072)	0.614 (0.049)	0.721 (0.088)
$\ln wage_t$	−0.165* (0.020)	−0.345* (0.031)	−0.167* (0.042)	−0.337* (0.032)
$\ln wage_{t-1}$	0.078* (0.027)	0.213* (0.036)	0.022 (0.036)	0.223* (0.039)
LRE_{wage}	−0.456* (0.108)	−0.780* (0.133)	−0.601 (0.118)	−0.704 (0.150)
Un	0.049** (0.021)	−0.013 (0.030)	0.090* (0.029)	0.018 (0.036)
K	0.146 (0.194)	−0.018 (0.023)	0.291 (0.192)	−0.040 (0.068)
Svpr	0.012 (0.023)	−0.026 (0.033)	−0.013 (0.033)	0.002 (0.033)
Gos	0.012 (0.034)	−0.023 (0.049)	−0.011 (0.043)	−0.036 (0.046)
G100	0.212* (0.036)	−0.003 (0.067)	−0.048 (0.140)	−0.054 (0.116)
G50 − 75	−0.051 (0.059)	0.042 (0.080)	−0.135* (0.081)	0.037 (0.089)
Zol	−0.086*** (0.049)	0.009 (0.068)	−0.072 (0.068)	0.043 (0.080)
Man	−0.060** (0.028)	−0.075*** (0.041)	−0.099* (0.038)	−0.054 (0.045)

Variable	Unbalanced Panel		Balanced Panel	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Out	0.051 (0.035)	0.057 (0.049)	0.059 (0.047)	0.092*** (0.055)
V1	−0.022 (0.036)	−0.056 (0.041)	−0.036 (0.050)	−0.059 (0.045)
V3	−0.157** (0.071)	−0.080 (0.094)	−0.176*** (0.085)	−0.115 (0.097)
V4	−0.038 (0.027)	−0.035 (0.038)	−0.046 (0.033)	−0.024 (0.042)
Tax	−0.087* (0.031)		−0.085** (0.042)	
Constant	−0.189*** (0.106)	−0.419* (0.153)	−0.062 (0.199)	−0.268 (0.186)
P1 − P7	Yes	Yes	Yes	Yes
Reg1 − Reg4	Yes	Yes	Yes	Yes
χ^2 First Difference	69.06* (0.000)	503.25* (0.000)	89.23* (0.000)	400.49* (0.000)
χ^2 Exogeneity	299.07* (0.000)	194.49* (0.000)	300.43* (0.000)	42.01** (0.024)
Tests	F = 830.59 Prob > F = 0	F = 413.82 Prob > F = 0	F = 399.90 Prob > F = 0	F = 311.97 Prob > F = 0
Adj R^2	0.9648	0.9588	0.9531	0.9576
Number of Observations	829	463	534	357

Dependent variable is the logarithm of the number of employees, $\ln L_f$ (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

We used the following instrumental variables: for the first lag of the number of employees — the second lag of the number of employees; for the dummy "Un" — dummy "dogovor;" for the variable "K" — the first lag of K; for the dummy "Svpr" — the size of an enterprise before privatization (s1 − s4) and the dummies for the sector of industry (Ot1 − Ot12). See text for precise definitions.

Table B2. Labor Demand Model: IV Estimates of Augmented Employment Equation.

Variable	Unbalanced Panel of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
$\ln L_{t-1}$	0.801*	0.835*	0.752*	0.828*
	(0.018)	(0.044)	(0.028)	(0.052)
$\ln q_t$	0.176*	0.248*	0.163*	0.211
	(0.015)	(0.030)	(0.021)	(0.029)
$\ln q_{t-1}$	−0.060*	−0.125*	−0.018	−0.095
	(0.015)	(0.029)	(0.021)	(0.034)
LRE_q	0.586*	0.747*	0.586	0.674
	(0.044)	(0.085)	(0.052)	(0.087)
$lnwage_t$	−0.165*	−0.331*	−0.165*	−0.338*
	(0.021)	(0.030)	(0.041)	(0.032)
$lnwage_{t-1}$	0.085*	0.209*	0.022	0.224*
	(0.027)	(0.036)	(0.036)	(0.039)
LRE_{wage}	−0.404*	−0.740*	−0.576	−0.666
	(0.108)	(0.141)	(0.115)	(0.142)
Un	0.051**	−0.007	0.096*	0.026
	(0.021)	(0.030)	(0.029)	(0.036)
K	0.099	−0.029	0.281	−0.049*
	(0.193)	(0.022)	(0.195)	(0.066)
Svpr	0.021	−0.018	−0.005	0.012
	(0.024)	(0.032)	(0.033)	(0.034)
Gos	0.021	−0.015	−0.010	−0.029
	(0.034)	(0.048)	(0.043)	(0.047)
G100	0.206*	−0.003	−0.084	−0.054
	(0.037)	(0.065)	(0.144)	(0.116)
G50 − 75	−0.063	0.037	−0.149***	0.027
	(0.060)	(0.068)	(0.083)	(0.089)
Zol	−0.081***	0.010	−0.075	0.041
	(0.048)	(0.066)	(0.068)	(0.080)
Man	−0.064**	−0.067***	−0.107*	−0.057
	(0.029)	(0.040)	(0.038)	(0.045)
Out	0.055	0.054	0.066	0.098***
	(0.035)	(0.048)	(0.047)	(0.055)
V1	−0.024	−0.061	−0.046	−0.064
	(0.036)	(0.039)	(0.049)	(0.045)

Variable	Unbalanced Panel of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
V3	−0.168** (0.072)	−0.078 (0.092)	−0.185** (0.085)	−0.120 (0.096)
V4	−0.040 (0.026)	−0.033 (0.037)	−0.048 (0.033)	−0.023 (0.042)
$Unempl_t$	−0.163 (0.154)	−0.163 (0.210)	−0.281 (0.268)	−0.288 (0.236)
$Assets_{91}$	0.0001 (0.0001)	0.0001 (0.00013)	0.00013 (0.00012)	0.00012 (0.00013)
Tax	−0.096* (0.030)		−0.085** (0.042)	
Constant	−0.094 (0.114)	−0.355** (0.152)	0.041 (0.210)	−0.190 (0.190)
P1 − P7	Yes	Yes	Yes	Yes
Reg1 − Reg4	Yes	Yes	Yes	Yes
χ^2 First Difference	59.84* (0.001)	286.05* (0.000)	101.60* (0.000)	452.18 (0.000)
χ^2 Exogeneity	467.63* (0.000)	54.96* (0.002)	144.68* (0.000)	172.17 (0.000)
Tests	F = 738.48 Prob > F = 0	F = 400.23 Prob > F = 0	F = 374.89 Prob > F = 0	F = 291.29 Prob > F = 0
Adj R^2	0.9640	0.9619	0.9534	0.9579
Number of Observations	811	445	534	357

Dependent variable is the logarithm of the number of employees, $\ln L_f$ (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

We used the following instrumental variables: for the first lag of the number of employees — the second lag of the number of employees; for the dummy "Un" — dummy "dogovor;" for the variable "K" — the first lag of K; for the dummy "Svpr" — the size of an enterprise before privatization (s1 − s4) and the dummies for the sector of industry (Ot1 − Ot12). See text for precise definitions.

Table B3. Effective bargaining model: IV Estimates of Employment Equation.

Variable	Unbalanced Panel of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
$\ln q_t$	0.699* (0.028)	0.700* (0.033)	0.699* (0.028)	0.636* (0.026)
$\ln wage_t$	−0.943* (0.080)	−0.843* (0.084)	−10.048* (0.098)	−0.701* (0.062)
$\ln awage_t$	0.065 (0.121)	−0.086 (0.080)	0.158 (0.101)	−0.038 (0.061)
σ	0.878* (0.071)	0.930 (0.084)	0.889 (0.065)	0.739 (0.063)
ξ	−0.074 (0.141)	0.093 (0.083)	−0.178 (0.119)	0.051 (0.080)
Un	0.215* (0.064)	0.092 (0.079)	0.267* (0.059)	0.259* (0.058)
K	20.444* (0.753)	0.186* (0.058)	0.301 (0.511)	0.371* (0.124)
Svpr	−0.109 (0.077)	−0.026 (0.089)	−0.048 (0.071)	0.030 (0.062)
Gos	0.046 (0.119)	0.304** (0.125)	0.058 (0.094)	0.195** (0.085)
G100	0.420* (0.112)	0.175 (0.177)	−0.273 (0.289)	0.008 (0.220)
G50 − 75	−0.524* (0.184)	−0.047 (0.212)	−0.903* (0.160)	−0.307*** (0.165)
Zol	0.046 (0.150)	−0.021 (0.179)	−0.080 (0.139)	0.092 (0.147)
Man	−0.298* (0.088)	−0.271* (0.102)	−0.249* (0.077)	−0.234* (0.080)
Out	0.159*** (0.110)	0.071 (0.132)	0.249** (0.096)	0.248** (0.103)
V1	−0.117 (0.118)	0.007 (0.107)	0.084* (0.111)	−0.047 (0.085)
V3	−0.438*** (0.225)	−0.279 (0.252)	−0.534* (0.173)	−0.446** (0.181)
V4	−0.131 (0.084)	−0.108 (0.100)	−0.053 (0.069)	−0.090 (0.078)

Variable	Unbalanced Panel of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
tax	0.091 (0.097)		−0.097 (0.090)	
Constant	−30.075* (0.828)	−10.704* (0.614)	−20.768* (0.740)	−0.974*** (0.500)
P1 − P7	Yes	Yes	Yes	Yes
χ^2 First Difference	4130.45* (0.000)	760.34* (0.000)	2120.92* (0.000)	2400.02* (0.000)
χ^2 Exogeneity	350.80** (0.032)	450.27* (0.001)	2640.51* (0.000)	120.71 (0.889)
Tests	F = 97.95	F = 71.29	F = 106.17	F = 106.05
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.6474	0.7117	0.7963	0.8488
Number of Observations	864	465	534	357

Dependent variable is the logarithm of the number of employees, $\ln L_t$ (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

We used the following instrumental variables: for the variable "a wage" — region dummies (Reg − Reg4); for the dummy "Un" — dummy "dogovor;" for the variable "K" — the first lag of K; for the dummy "Svpr" — the size of an enterprise before privatization (s1 − s4) and the dummies for the sector of industry (Ot1 − Ot12). See text for precise definitions.

Table B4. IV Estimates of Wage Equation.

Variable	Unbalanced Panel of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
LnWage$_{t-1}$	0.872*	0.719*	0.705*	0.736*
	(0.078)	(0.070)	(0.103)	(0.077)
Lnql_t	0.619*	0.856*	0.692*	0.672*
	(0.058)	(0.221)	(0.063)	(0.202)
Lnql_{t-1}	−0.459*	−0.652*	−0.396*	−0.495*
	(0.046)	(0.187)	(0.050)	(0.172)
LRE$_{wage}$	1.245***	0.726	0.999	0.669*
	(0.487)	(0.129)	(0.197)	(0.142)
Mon	0.041	0.050	0.030	0.061
	(0.056)	(0.067)	(0.066)	(0.071)
M	0.064**	0.037*	0.318*	0.025**
	(0.028)	(0.013)	(0.076)	(0.012)
Unempl	0.322	−0.347	0.541	−0.324
	(0.305)	(0.384)	(0.429)	(0.415)
Un	−0.020	−0.031	0.004	−0.011
	(0.039)	(0.054)	(0.049)	(0.058)
Svpr	−0.056	−0.025	0.006	−0.018
	(0.042)	(0.056)	(0.053)	(0.056)
Gos	0.133**	0.010	0.133***	−0.016
	(0.061)	(0.078)	(0.071)	(0.074)
G100	0.026	0.039	−0.086	−0.029
	(0.074)	(0.124)	(0.244)	(0.181)
G50 − 75	−0.136	0.099	−0.199	0.097
	(0.115)	(0.145)	(0.135)	(0.150)
Zol	−0.019	0.055	0.018	0.191
	(0.092)	(0.117)	(0.114)	(0.138)
Man	−0.016	−0.009	0.015	0.025
	(0.053)	(0.069)	(0.063)	(0.073)
Out	−0.167**	−0.008	−0.120	−0.010
	(0.066)	(0.084)	(0.076)	(0.090)
V1	0.029	−0.015	0.077	0.018
	(0.057)	(0.073)	(0.067)	(0.073)
V3	0.159	0.104	0.078	0.109
	(0.133)	(0.158)	(0.140)	(0.153)

Variable	Unbalanced Panel of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
V4	0.024 (0.049)	0.037 (0.066)	0.028 (0.055)	0.069 (0.069)
Tax	−0.327* (0.049)		−0.288* (0.063)	
Constant	−0.121 (0.224)	−0.593* (0.222)	−0.331 (0.355)	−0.564** (0.256)
P1 − P7	Yes	Yes	Yes	Yes
Reg1 − Reg4	Yes	Yes	Yes	Yes
χ^2 First Difference	1841.03* (0.00)	87.67* (0.000)	869.94* (0.000)	51.34* (0.002)
χ^2 Exogeneity	63.15* (0.000)	9.47 (0.999)	41.83** (0.045)	9.23 (0.999)
Tests	F = 70.86	F = 56.26	F = 50.75	F = 50.70
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.7096	0.7559	0.7243	0.7936
Number of Observations	797	461	534	357

Dependent Variable is the Logarithm of Average Monthly Wage, Ln Wage$_{t\ t}$ (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

We used the following instrumental variables: for the first lag of the wages — the second lag of wages; for the first lag of labor productivity — the second lag of labor productivity; for variable "Un" — dummy "dogovor;" for the variable "K" — the first lag of K; for the dummy "Svpr" — the size of an enterprise before privatization (s1-s4) and the dummies for the sector of industry (Ot1 − Ot12). See text for precise definitions.

Table B5. Labor Demand Model: IV Estimates of Basic Employment Equation.

Variable	Unbalanced Panel of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Labor Contract				
$\ln L_{t-1}$	0.724* (0.043)	0.762* (0.076)	0.694* (0.049)	0.800* (0.076)
$\ln q_t$	0.257* (0.041)	0.340* (0.077)	0.275* (0.050)	0.365* (0.096)
$\ln q_{t-1}$	−0.069 (0.043)	−0.139 (0.084)	−0.087*** (0.049)	−0.195** (0.094)
LRE_q	0.682* (0.061)	0.846* (0.093)	0.614* (0.064)	0.852* (0.114)
$\ln wage_t$	−0.422* (0.048)	−0.522* (0.069)	−0.417* (0.052)	−0.503* (0.065)
$\ln wage_{t-1}$	0.250* (0.065)	0.308* (0.086)	0.214* (0.074)	0.348* (0.081)
LRE_{wage}	−0.624* (0.149)	−0.901* (0.189)	−0.665* (0.148)	−0.775* (0.237)
Tests	F = 268.13	F = 164.12	F = 165.68	F = 133.55
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.9505	0.9529	0.9359	0.9508
Number of Observations	240	111	184	92
No Labor Contract				
$\ln L_{t-1}$	0.812* (0.031)	0.908* (0.062)	0.779* (0.044)	0.877* (0.094)
$\ln q_t$	0.198* (0.027)	0.199* (0.043)	0.189* (0.036)	0.195* (0.054)
$\ln q_{t-1}$	−0.081** (0.031)	−0.127** (0.052)	−0.036 (0.035)	−0.122*** (0.068)
LRE_q	0.622* (0.053)	0.783* (0.264)	0.692*(0.1	0.597** (0.238)
$\ln wage_t$	0.097 (0.063)	−0.305* (0.069)	0.125 (0.095)	−0.422* (0.087)

Variable	Unbalanced Panel of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
No Labor Contract				
$lnwage_{t-1}$	−0.166* (0.060)	0.284* (0.083)	−0.287* (0.078)	0.379* (0.102)
LRE_{wage}	−0.362** (0.179)	−0.231 (0.707)	−0.732* (0.196)	−0.355 (0.481)
Tests	F = 189.63	F = 109.15	F = 121.84	F = 58.39
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.9150	0.9245	0.9176	0.8991
Number of Observations	297	118	174	86

Dependent variable is the logarithm of the number of employees, lnL_t (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

Table B6. Labor Demand Model: IV Estimates of Augmented Employment Equation.

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Labor Contract				
$\ln L_{t-1}$	0.722* (0.045)	0.755* (0.077)	0.696* (0.049)	0.818* (0.076)
$\ln q_t$	0.262* (0.044)	0.383* (0.082)	0.276* (0.053)	0.358* (0.100)
$\ln q_{t-1}$	−0.066 (0.044)	−0.166** (0.082)	−0.087*** (0.050)	−0.202** (0.097)
LRE_q	0.707* (0.073)	0.885* (0.103)	0.623* (0.073)	0.856* (0.149)
$\ln wage_t$	−0.427* (0.049)	−0.537* (0.067)	−0.419* (0.053)	−0.505* (0.066)
$\ln wage_{t-1}$	0.254* (0.067)	0.307* (0.085)	0.215* (0.074)	0.366* (0.083)
LRE_{wage}	−0.622* (0.158)	−0.937* (0.188)	−0.67* (0.149)	−0.765* (0.267)
$Unempl_t$	−0.273 (0.433)	−0.182 (0.674)	−0.052 (0.512)	0.514 (0.789)
$Assets_{91}$	0.000 (0.000)	0.000 (0.000)	−0.000 (0.000)	−0.000 (0.000)
Tests	F = 216.38	F = 155.98	F =145.54	F = 114.51
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.9471	0.9587	0.9351	0.9583
Number of Observations	232	106	184	92
No Labor contract				
$\ln L_{t-1}$	0.762* (0.040)	0.835* (0.088)	0.729* (0.049)	0.827* (0.109)
$\ln q_t$	0.203* (0.030)	0.207* (0.046)	0.186* (0.036)	0.192* (0.055)
$\ln q_{t-1}$	−0.076** (0.034)	−0.102*** (0.059)	−0.033 (0.034)	−0.103 (0.072)

Variable	Unbalanced Panel of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
No Labor Contract				
LRE_q	0.536* (0.072)	0.636* (0.148)	0.564* (0.092)	0.514* (0.181)
$lnwage_t$	0.153** (0.070)	−0.304* (0.073)	0.148 (0.096)	−0.423* (0.088)
$lnwage_{t-1}$	−0.200* (0.067)	0.246* (0.093)	−0.310* (0.080)	0.359* (0.105)
LRE_{wage}	−0.244 (0.162)	−0.348 (0.305)	−0.597* (0.167)	−0.368 (0.339)
$Unempl_t$	−0.196 (0.303)	−0.097 (0.575)	−0.373 (0.380)	−0.189 (0.741)
$Assets_{91}$	0.001 (0.001)	0.001 (0.001)	0.006** (0.002)	0.004 (0.004)
Tests	F = 138.97	F = 83.14	F = 108.85	F = 50.39
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.8977	0.9172	0.9177	0.8985
Number of Observations	292	114	174	86

Dependent variable is the logarithm of the number of employees, lnL_t (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

Table B7. Effective bargaining model: IV Estimates of Employment Equation.

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Labor Contract				
lnwage$_t$	−1.065* (0.111)	−0.910* (0.123)	−0.906* (0.117)	−0.709* (0.117)
lnawage$_t$	0.001 (0.128)	−0.122 (0.131)	−0.086 (0.132)	−0.209*** (0.120)
σ	1.064* (0.082)	1.032* (0.122)	0.992* (0.086)	0.918* (0.113)
ξ	−0.001 (0.120)	0.118 (0.120)	0.087 (0.129)	0.228*** (0.119)
Tests	F = 110.74	F = 74.97	F = 75.73	F = 68.5
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.8313	0.8182	0.8062	0.8380
Number of Observations	242	113	184	92
No Labor Contract				
lnwage$_t$	−0.883* (0.149)	−0.706* (0.099)	−0.976* (0.121)	−0.635* (0.094)
lnawage$_t$	0.115 (0.166)	−0.041 (0.130)	0.386* (0.143)	0.069 (0.116)
σ	0.768* (0.114)	0.747* (0.125)	0.590* (0.115)	0.566* (0.118)
ξ	−0.150 (0.228)	0.055 (0.167)	−0.653** (0.332)	−0.121 (0.222)
Tests	F = 26.92	F = 38.36	F = 33.36	F = 34.6
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.2305	0.6794	0.6040	0.7412
Number of Observations	315	118	174	86

Dependent variable is the logarithm of the number of employees, lnL_t (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

Table B8. IV Estimates of Wage Equation.

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Labor Contract				
$LnWage_{t-1}$	0.826* (0.107)	0.712* (0.074)	0.662* (0.124)	0.704* (0.090)
$Lnql_t$	0.671* (0.073)	0.556** (0.216)	0.740* (0.084)	0.404*** (0.244)
$Lnql_{t-1}$	−0.471* (0.069)	−0.385** (0.185)	−0.456* (0.076)	−0.247 (0.216)
LRE_{wage}	1.147* (0.401)	0.594* (0.134)	0.842* (0.146)	0.529* (0.159)
Tests	F = 64.66	F = 85.85	F = 47.55	F = 63.01
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.7575	0.8470	0.7412	0.8303
Number of Observations	359	222	274	184
No Labor Contract				
$LnWage_{t-1}$	0.911* (0.091)	0.829* (0.093)	0.865* (0.126)	0.890* (0.122)
$Lnql_t$	0.473* (0.074)	0.541* (0.205)	0.535* (0.083)	0.264 (0.239)
$Lnql_{t-1}$	−0.374* (0.057)	−0.441* (0.168)	−0.336* (0.062)	−0.232 (0.194)
LRE_{wage}	1.127 (0.727)	0.583* (0.038)	1.473 (1.55)	0.285 (0.593)
Tests	F = 56.62	F = 58.9	F = 41.5	F = 41.85
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.6989	0.7760	0.7199	0.7708
Number of Observations	438	239	260	173

Dependent variable is the logarithm of average monthly wage, $Ln\ Wage_t$ (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

Table B9. Labor Demand Model: IV Estimates of Augmented Employment Equation.

Variable	Unbalanced Panels of Firms		Balanced Panels of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
State Support				
$\ln L_{t-1}$	0.551* (0.089)	1.006* (0.176)	0.576* (0.107)	1.059* (0.158)
$\ln q_t$	0.318* (0.069)	0.704* (0.174)	0.245* (0.063)	0.679* (0.159)
$\ln q_{t-1}$	0.073 (0.084)	−0.650* (0.217)	0.086 (0.075)	−0.626* (0.200)
LRE_q	0.872* (0.072)	−8.698 (264.596)	0.783* (0.207)	−0.876 (4.186)
$\ln wage_t$	0.121 (0.286)	−0.742* (0.172)	−0.052 (0.317)	−0.667* (0.152)
$\ln wage_{t-1}$	−0.556** (0.244)	0.683* (0.187)	−0.378 (0.236)	0.660* (0.170)
LRE_{wage}	−0.970* (0.145)	9.374 (283.775)	−1.015* (0.127)	0.128 (2.474)
Tests	F = 94.45 Prob > F = 0	F = 46.16 Prob > F = 0	F = 118.03 Prob > F = 0	F = 58.27 Prob > F = 0
Adj R^2	0.9344	0.9300	0.9589	0.9538
Number of Observations	97	46	76	38
No State Support				
$\ln L_{t-1}$	0.833* (0.025)	0.786* (0.050)	0.772* (0.035)	0.805* (0.055)
$\ln q_t$	0.210* (0.023)	0.226* (0.044)	0.250* (0.034)	0.195* (0.042)
$\ln q_{t-1}$	−0.114* (0.026)	−0.063 (0.043)	−0.102* (0.034)	−0.056 (0.049)
LRE_q	0.574* (0.068)	0.762* (0.072)	0.650* (0.070)	0.713* (0.082)
$\ln wage_t$	−0.224* (0.035)	−0.357* (0.049)	−0.297* (0.050)	−0.395* (0.052)
$\ln wage_{t-1}$	0.175* (0.041)	0.195* (0.060)	0.160* (0.056)	0.255* (0.063)

Variable	Unbalanced Panels of Firms		Unbalanced Panels of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
No State Support				
LRE_{wage}	−0.291 (0.179)	−0.757* (0.164)	−0.603* (0.172)	−0.716* (0.187)
Tests	F = 442.78 Prob > F = 0	F = 255.71 Prob > F = 0	F = 217.55 Prob > F = 0	F = 194.72 Prob > F = 0
Adj R^2	0.9447	0.9502	0.9263	0.9489
Number of Observations	440	183	282	140

Dependent variable is the logarithm of the number of employees, $\ln L_f$ (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

Table B10. Labor Demand Model: IV Estimates of Augmented Employment Equation.

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
State Support				
$\ln L_{t-1}$	0.576* (0.088)	1.269* (0.163)	0.518* (0.109)	1.341* (0.153)
$\ln q_t$	0.309* (0.053)	0.689* (0.136)	0.256* (0.057)	0.823* (0.149)
$\ln q_{t-1}$	0.054 (0.063)	−0.723* (0.183)	0.099 (0.069)	−0.873* (0.186)
LRE_q	0.856* (0.081)	0.124 (0.325)	0.736* (0.076)	0.147 (0.245)
$\ln wage_t$	−0.144 (0.174)	−0.733* (0.136)	−0.189 (0.204)	−0.757* (0.137)
$\ln wage_{t-1}$	−0.303** (0.148)	0.779* (0.158)	−0.262 (0.157)	0.795* (0.155)
LRE_{wage}	−1.054* (0.131)	0.172 (0.382)	−0.935** (0.123)	−0.113 (0.317)
$Unempl_t$	−1.522** (0.586)	1.256 (1.538)	−1.428*** (0.745)	1.788 (1.560)
$Assets_{91}$	−0.000 (0.000)	−0.002** (0.001)	0.001 (0.001)	−0.003* (0.001)
Tests	F =139.92 Prob > F = 0	F = 68.56 Prob > F = 0	F =126.29 Prob > F = 0	F = 66.62 Prob > F = 0
Adj R^2	0.9634	0.9608	0.9660	0.9643
Number of Observations	91	43	76	38
No State Support				
$\ln L_{t-1}$	0.815* (0.027)	0.743* (0.055)	0.763* (0.038)	0.780* (0.057)
$\ln q_t$	0.214* (0.024)	0.235* (0.045)	0.249* (0.034)	0.192* (0.042)
$\ln q_{t-1}$	−0.116* (0.026)	−0.056 (0.044)	−0.100* (0.034)	−0.048 (0.053)
LRE_q	0.529* (0.070)	0.697* (0.066)	0.627* (0.077)	0.653* (0.084)

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
No State Support				
$lnwage_t$	−0.211* (0.036)	−0.360* (0.049)	−0.299* (0.050)	−0.406* (0.053)
$lnwage_{t-1}$	0.174* (0.042)	0.188* (0.062)	0.161* (0.056)	0.260* (0.063)
LRE_{wage}	−0.197 (0.172)	−0.673* (0.142)	−0.584* (0.171)	−0.667* (0.166)
$Unempl_t$	0.021 (0.233)	0.121 (0.390)	0.164 (0.378)	0.402 (0.453)
$Assets_{91}$	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Tests	F = 380.77 Prob > F = 0	F = 224.14 Prob > F = 0	F = 192.39 Prob > F = 0	F = 169.24 Prob > F = 0
Adj R^2	0.9416	0.9524	0.9259	0.9490
Number of Observations	433	177	282	140

Dependent variable is the logarithm of the number of employees, lnL_t (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

Table B11. Effective bargaining model: IV Estimates of Employment Equation.

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
State Support				
Inwage$_t$	−1.240* (0.154)	−0.712* (0.176)	−1.120* (0.162)	−0.734* (0.173)
Inawage$_t$	0.083 (0.167)	−0.270 (0.190)	0.081 (0.170)	−0.165 (0.204)
σ	1.157* (0.097)	0.982* (0.183)	1.039* (0.111)	0.899* (0.194)
ξ	−0.072 (0.147)	0.275 (0.170)	−0.078 (0.167)	0.184 (0.204)
Tests	F = 62.38 Prob > F = 0	F = 30.83 Prob > F = 0	F = 45.77 Prob > F = 0	F = 28.22 Prob > F = 0
Adj R^2	0.8441	0.8162	0.8351	0.8358
Number of Observations	99	47	76	38
No State Support				
Inwage$_t$	−0.881* (0.108)	−0.908* (0.105)	−0.952* (0.136)	−0.808* (0.101)
Inawage$_t$	0.107 (0.119)	−0.004 (0.127)	0.070 (0.146)	0.052 (0.108)
σ	0.774* (0.080)	0.912* (0.127)	0.881* (0.091)	0.756* (0.111)
ξ	−0.138 (0.161)	0.004 (0.139)	−0.080 (0.170)	−0.069 (0.147)
Tests	F = 98.63 Prob > F = 0	F = 69.31 Prob > F = 0	F = 70.07 Prob > F = 0	F = 68.05 Prob > F = 0
Adj R^2	0.6522	0.6980	0.6983	0.7676
Number of Observations	458	184	282	140

Dependent variable is the logarithm of the number of employees, $\ln L_t$ (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

Table B12. IV Estimates of Wage Equation.

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
State Support				
$LnWage_{t-1}$	0.937*** (0.491)	0.984* (0.153)	0.584 (0.408)	1.069* (0.197)
$Lnql_t$	0.577* (0.185)	0.643* (0.216)	0.607* (0.188)	0.654** (0.251)
$Lnql_{t-1}$	−0.414** (0.199)	−0.673* (0.205)	−0.221 (0.154)	−0.740* (0.233)
LRE_{wage}	2.604 (15.861)	−1.875 (24.401)	0.928** (0.392)	1.241 (1.692)
Tests	F = 14.72 Prob > F = 0	F = 22.64 Prob > F = 0	F = 11.29 Prob > F = 0	F = 18.4 Prob > F = 0
Adj R^2	0.5413	0.7754	0.5553	0.7508
Number of Observations	146	92	114	76
No State Support				
$LnWage_{t-1}$	0.869* (0.076)	0.688* (0.073)	0.711* (0.096)	0.683* (0.084)
$Lnql_t$	0.582* (0.059)	0.785* (0.219)	0.669* (0.063)	0.554** (0.242)
$Lnql_{t-1}$	−0.443* (0.047)	−0.568* (0.176)	−0.403* (0.050)	−0.356*** (0.189)
LRE_{wage}	1.059* (0.362)	0.696* (0.111)	0.920* (0.168)	0.626* (0.140)
Tests	F = 99.68 Prob > F = 0	F = 89.46 Prob > F = 0	F = 71.12 Prob > F = 0	F = 78.89 Prob > F = 0
Adj R^2	0.7342	0.7683	0.7490	0.8027
Number of Observations	651	369	420	281

Dependent variable is the logarithm of average monthly wage, Ln Wage$_t$ (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

Table B13. Labor Demand Model: IV Estimates of Basic Employment Equation.

Variable	Unbalanced Panels of Firms		Balanced Panels of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Insider-Dominated Enterprises				
$\ln L_{t-1}$	0.761* (0.029)	0.740* (0.065)	0.808* (0.030)	0.728* (0.070)
$\ln q_t$	0.205* (0.019)	0.088*** (0.049)	0.159* (0.024)	0.060 (0.050)
$\ln q_{t-1}$	−0.076* (0.025)	0.047 (0.065)	−0.061** (0.025)	−0.048 (0.218)
LRE_q	0.544* (0.056)	0.519* (0.112)	0.512* (0.073)	0.534** (0.234)
$\ln wage_t$	−0.098** (0.038)	−0.019 (0.088)	−0.010 (0.040)	−0.133 (0.229)
$\ln wage_{t-1}$	0.039 (0.042)	−0.047 (0.100)	−0.039 (0.041)	−0.317* (0.092)
LRE_{wage}	−0.249*** (0.136)	−0.255 (0.205)	−0.256 (0.156)	−0.238 (278)
Tests	F = 461.73 Prob > F = 0	F = 59.5 Prob > F = 0	F = 191.10 Prob > F = 0	F = 49.47 Prob > F = 0
Adj R^2	0.9719	0.9200	0.9586	0.9186
Number of Observations	205	70	129	59
Outsider-Dominated Enterprises				
$\ln L_{t-1}$	0.858* (0.072)	1.002* (0.087)	0.839* (0.077)	1.002* (0.108)
$\ln q_t$	0.103 (0.086)	0.264*** (0.139)	0.103 (0.093)	0.264*** (0.149)
$\ln q_{t-1}$	−0.019 (0.094)	−0.249** (0.115)	−0.001 (0.010)	−0.246*** (0.119)
LRE_q	0.595* (0.223)	−7.328 (349.611)	0.634* (0.210)	−8.017 (421.118)
$\ln wage_t$	−0.042 (0.095)	−0.059 (0.126)	−0.024 (0.099)	−0.046 (0.138)
$\ln wage_{t-1}$	−0.069 (0.136)	0.059 (0.102)	−0.127 (0.142)	0.037 (0.107)

Variable	Unbalanced Panels of Firms		Balanced Panels of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Outsider-Dominated Enterprises				
LRE_{wage}	−0.781** (0.398)	0.128 (47.070)	−0.936** (0.376)	3.836 (219.527)
Tests	F = 100.27 Prob > F = 0	F = 115.44 Prob > F = 0	F = 91.71 Prob > F = 0	F = 89.48 Prob > F = 0
Adj R^2	0.9496	0.9747	0.9457	0.9712
Number of Observations	76	34	70	30
Manager-Dominated Enterprises				
$\ln L_{t-1}$	0.739* (0.061)	0.877* (0.085)	0.654* (0.083)	0.914* (0.085)
$\ln q_t$	0.136* (0.031)	0.181* (0.055)	0.112** (0.043)	0.175** (0.072)
$\ln q_{t-1}$	−0.086** (0.037)	−0.101** (0.048)	−0.008 (0.046)	−0.102 (0.063)
LRE_q	0.194** (0.088)	0.651** (0.251)	0.300* (0.105)	0.848 (0.550)
$\ln wage_t$	−0.057 (0.051)	−0.127** (0.054)	−0.125 (0.112)	−0.197** (0.075)
$\ln wage_{t-1}$	0.086 (0.054)	0.071 (0.062)	0.041 (0.088)	0.144*** (0.072)
LRE_{wage}	0.113 (0.212)	−0.448 (0.297)	0.242 (0.218)	−0.573 (0.501)
Tests	F = 50.79 Prob F = 0	F = 86.08 Prob > F = 0	F = 17.78 Prob > F = 0	F = 72.65 Pro F = 0
Adj R^2	0.8572	0.9560	0.7632	0.9554
Number of Observations	130	59	77	49
State Enterprises				
$\ln L_{t-1}$	0.716* (0.060)	0.781* (0.126)	0.412* (0.102)	0.980* (0.214)
$\ln q_t$	0.283* (0.086)	0.532* (0.168)	0.452* (0.099)	0.330 (0.243)

Variable	Unbalanced Panels of Firms		Balanced Panels of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
State Enterprises				
$\ln q_{t-1}$	−0.060 (0.085)	−0.336*** (0.181)	0.052 (0.106)	−0.295 (0.360)
LRE_q	0.781* (0.097)	0.895* (0.160)	0.858* (0.062)	0.122 (7.634)
$\ln wage_t$	−0.491* (0.097)	−0.903* (0.128)	−0.643* (0.111)	−0.841* (0.138)
$\ln wage_{t-1}$	0.175*** (0.102)	0.613* (0.151)	−0.035 (0.127)	0.837* (0.250)
LRE_{wage}	−1.112* (0.211)	−1.322* (0.370)	−1.154* (0.147)	−0.199 (9.989)
Tests	F = 95.03 Prob > F = 0	F = 72.12 Prob > F = 0	F = 52.21 Prob > F = 0	F = 38.8 Prob > F = 0
Adj R^2	0.9286	0.9422	0.9165	0.9354
Number of Observations	110	59	72	35

Dependent variable is the logarithm of the number of employees, $\ln L_t$ (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

Table B14. Labor Demand Model: IV Estimates of Augmented Employment Equation.

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Insider-Dominated Enterprises				
$\ln L_{t-1}$	0.865* (0.030)	0.769* (0.078)	0.765* (0.039)	0.775* (0.071)
$\ln q_t$	0.177* (0.017)	0.067 (0.052)	0.151* (0.024)	0.030 (0.052)
$\ln q_{t-1}$	−0.063* (0.002)	0.066 (0.070)	−0.057** (0.024)	0.113*** (0.067)
LRE_q	0.837* (0.127)	0.576* (0.161)	0.398* (0.073)	0.635* (0.149)
$\ln wage_t$	−0.060*** (0.034)	−0.032 (0.090)	−0.015 (0.040)	0.029 (0.088)
$\ln wage_{t-1}$	0.012 (0.037)	−0.045 (0.102)	−0.032 (0.040)	−0.114 (0.098)
LRE_{wage}	−0.354*** (0.207)	−0.334 (0.456)	−0.199 (0.131)	−0.382 (0.248)
$Unempl_t$	−0.516* (0.189)	0.518 (0.605)	−0.275 (0.260)	0.952 (0.659)
$Assets_{91}$	−0.005* (0.001)	−0.001 (0.001)	0.004*** (0.002)	−0.002 (0.001)
Tests	F = 527.36 Prob > F = 0	F = 51.11 Prob > F = 0	F = 171.49 Prob > F = 0	F = 45.58 Prob > F = 0
Adj R^2	0.9782	0.9188	0.9591	0.9214
Number of Observations	205	70	129	59
Outsider-Dominated Enterprises				
$\ln L_{t-1}$	0.844* (0.075)	1.014* (0.077)	0.811* (0.081)	1.037* (0.099)
$\ln q_t$	0.080 (0.091)	0.241*** (0.125)	0.076 (0.097)	0.237 (0.140)
$\ln q_{t-1}$	−0.007 (0.097)	−0.227** (0.103)	0.016 (0.102)	−0.231*** (0.113)
LRE_q	0.467*** (0.270)	−0.979 (10.108)	0.484** (0.236)	−0.181 (2.678)

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Outsider-Dominated Enterprises				
$lnwage_t$	−0.032 (0.097)	−0.010 (0.115)	−0.0129 (0.101)	0.031 (0.132)
$lnwage_{t−1}$	−0.075 (0.140)	−0.006 (0.098)	−0.142 (0.146)	−0.035 (0.107)
LRE_{wage}	0.687*** (0.400)	1.140 (11.038)	−0.820** (0.350)	0.095 (2.731)
$Unempl_t$	−0.593 (0.937)	−1.257 (0.814)	−0.747 (0.940)	−1.600 (0.939)
$Assets_{91}$	0.000 (0.000)	−0.000 (0.000)	0.000 (0.000)	−0.000 (0.000)
Tests	F = 84.44 Prob > F = 0	F = 110.21 Prob > F = 0	F = 77.61 Prob > F = 0	F = 83.96 Prob > F = 0
Adj R^2	0.9475	0.9774	0.9442	0.9739
Number of Observations	76	34	70	30
Manager-Dominated Enterprises				
$lnL_{t−1}$	0.698* (0.062)	0.881* (0.086)	0.636* (0.082)	0.928* (0.088)
lnq_t	0.125* (0.031)	0.177* (0.056)	0.094** (0.042)	0.183** (0.074)
$lnq_{t−1}$	−0.068*** (0.037)	−0.099** (0.051)	0.008 (0.046)	−0.111*** (0.065)
LRE_q	0.187** (0.075)	0.656** (0.268)	0.524*** (0.307)	0.999 (0.852)
$lnwage_t$	−0.048 (0.050)	−0.127** (0.055)	−0.090 (0.086)	−0.200** (0.078)
$lnwage_{t−1}$	0.059 (0.054)	0.073 (0.064)	−0.006 (0.086)	0.155** (0.075)
LRE_{wage}	0.035 (0.234)	−0.452 (0.315)	0.265 (0.200)	−0.622 (0.640)
$Unempl_t$	−0.440 (0.310)	0.250 (0.406)	−0.663 (0.503)	0.238 (0.416)
$Assets_{91}$	0.006** (0.003)	0.000 (0.003)	0.006** (0.003)	−0.002 (0.003)

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Manager-Dominated Enterprises				
Tests	F = 47.08 Prob > F = 0	F = 72.89 Prob > F = 0	F = 17.16 Prob > F = 0	F = 61.33 Prob > F = 0
Adj R^2	0.8627	0.9545	0.7785	0.9535
Number of Observations	130	59	77	49
State Enterprises				
$\ln L_{t-1}$	0.584* (0.080)	0.916* (0.186)	0.334* (0.110)	1.081* (0.250)
$\ln q_t$	0.317* (0.094)	0.488** (0.191)	0.440* (0.097)	0.347 (0.252)
$\ln q_{t-1}$	−0.067 (0.090)	−0.361 (0.218)	0.047 (0.105)	−0.342 (0.375)
LRE_q	0.601* (0.106)	1.522 (2.031)	0.732* (0.080)	−0.070 (2.512)
$\ln wage_t$	−0.542* (0.101)	−0.926* (0.132)	−0.665* (0.105)	−0.882* (0.158)
$\ln wage_{t-1}$	0.181 (0.111)	0.755* (0.195)	−0.008 (0.127)	0.929* (0.279)
LRE_{wage}	−0.868* (0.214)	−2.035 (2.784)	−0.101 (0.139)	−0.584 (1.864)
$Unempl_t$	0.012 (0.946)	0.266 (1.358)	−0.332 (1.208)	−0.0100 (2.197)
$Assets_{91}$	0.004** (0.002)	−0.002 (0.002)	0.004*** (0.002)	−0.003 (0.003)
Tests	F = 60.22 Prob > F = 0	F = 69.97 Prob > F = 0	F = 48.43 Prob > F = 0	F = 31.64 Prob > F = 0
Adj R^2	0.9133	0.9561	0.9200	0.9311
Number of Observations	97	50	72	35

Dependent variable is the logarithm of the number of employees, $\ln L_t$ (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

Table B15. Effective bargaining model: IV Estimates of Employment Equation.

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Insider-Dominated Enterprises				
lnwage$_t$	−1.044* (0.137)	−0.549* (0.138)	−0.940* (0.140)	−0.535* (0.146)
lnawage$_t$	0.331** (0.129)	0.119 (0.138)	0.428* (0.139)	0.140 (0.148)
σ	0.713* (0.114)	0.430** (0.170)	0.511* (0.124)	0.394** (0.185)
ξ	−0.464** (0.219)	−0.277 (0.398)	−0.837** (0.404)	−0.356 (0.499)
Tests	F = 60.49 Prob > F = 0	F = 13.32 Prob > F = 0	F = 16.90 Prob > F = 0	F = 10.17 Prob > F = 0
Adj R^2	0.6754	0.5234	0.4361	0.4719
Number of Observations	210	70	129	59
Outsider-Dominated Enterprises				
lnwage$_t$	−0.461* (0.172)	−0.839* (0.257)	−0.356** (0.153)	−0.741* (0.209)
lnawage$_t$	−0.482** (0.240)	−0.010 (0.252)	−0.536** (0.209)	−0.200 (0.218)
σ	0.943* (0.157)	0.939* (0.185)	0.892* (0.139)	0.213 (0.219)
ξ	0.511** (0.204)	0.106 (0.262)	0.601* (0.184)	0.941* (0.158)
Tests	F = 22.66 Prob > F = 0	F = 19.02 Prob > F = 0	F = 25.11 Prob > F = 0	F = 20.38 Prob > F = 0
Adj R^2	0.7043	0.7860	0.7570	0.8190
Number of Observations	79	34	70	30
Manager-Dominated Enterprises				
lnwage$_t$	−0.290** (0.117)	−0.347* (0.079)	−0.860* (0.221)	−0.365* (0.089)

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Manager-Dominated Enterprises				
lnawage$_t$	0.024 (0.124)	0.068 (0.116)	0.405** (0.180)	0.076 (0.113)
σ	0.265* (0.089)	0.280** (0.138)	0.455* (0.153)	0.289** (0.146)
ξ	0.092 (0.481)	−0.242 (0.515)	−0.890** (0.526)	−0.263 (0.503)
Tests	F = 24.60 Prob > F = 0	F = 23.66 Prob > F = 0	F = 5.81 Prob > F = 0	F = 19.55 Prob > F = 0
Adj R^2	0.6290	0.7466	0.2028	0.7487
Number of Observations	136	59	77	49
State Enterprises				
lnwage$_t$	−1.173* (0.136)	−1.135* (0.146)	−1.061* (0.123)	−0.989* (0.180)
lnawage$_t$	0.027 (0.186)	−0.204 (0.222)	0.028 (0.167)	0.057 (0.253)
σ	1.146* (0.123)	1.339* (0.200)	1.003* (0.135)	0.932* (0.262)
ξ	−0.023 (0.164)	0.152 (0.149)	−0.028 (0.164)	−0.061 (0.285)
Tests	F = 53.61 Prob > F = 0	F = 45.98 Prob > F = 0	F = 52.36 Prob > F = 0	F = 26.12 Prob > F = 0
Adj R^2	0.8174	0.8421	0.8766	0.8464
Number of Observations	115	61	72	35

Dependent variable is the logarithm of the number of employees, lnL_t (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

Table B16. IV Estimates of Wage Equation.

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Insider-Dominated Enterprises				
LnWage$_{t-1}$	1.027* (0.147)	0.772* (0.119)	1.031* (0.164)	0.946* (0.237)
Lnql$_t$	0.593* (0.115)	0.210 (0.611)	0.603* (0.109)	−0.339 (0.839)
Lnql$_{t-1}$	−0.509* (0.115)	−0.116 (0.461)	−0.461* (0.108)	0.209 (0.552)
LRE$_{wage}$	−3.139 (19.886)	0.412 (0.608)	−4.537 (26.174)	−2.402 (15.494)
Tests	F = 41.72	F = 31.31	F = 33.83	F = 17.05
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.6618	0.7512	0.7125	0.6289
Number of Observations	308	144	194	119
Outsider-Dominated Enterprises				
LnWage$_{t-1}$	0.904* (0.170)	0.647* (0.105)	0.809* (0.190)	0.641* (0.114)
Lnql$_t$	0.899* (0.134)	0.417 (0.367)	0.895* (0.142)	0.263 (0.397)
Lnql$_{t-1}$	−0.773* (0.144)	−0.135 (0.314)	−0.739* (0.147)	0.017 (0.336)
LRE$_{wage}$	1.314 (1.460)	0.799* (0.171)	0.817** (0.378)	0.780* (0.189)
Tests	F = 24.91	F = 40.87	F = 23.93	F = 34.72
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.7330	0.8663	0.7285	0.8627
Number of Observations	116	70	107	62
Manager-Dominated Enterprises				
LnWage$_{t-1}$	0.955* (0.171)	0.795* (0.160)	0.820* (0.196)	0.907* (0.183)
Lnql$_t$	0.421* (0.097)	0.551** (0.250)	0.440* (0.086)	0.467*** (0.276)

Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994 − 1996	1997 − 1998	1994 − 1996	1997 − 1998
Manager-Dominated Enterprises				
$Lnql_{t-1}$	−0.351* (0.088)	−0.424*** (0.223)	−0.230** (0.088)	−0.441 (0.268)
LRE_{wage}	1.565 (4.314)	0.621** (0.266)	1.165 (0.806)	0.274 (0.793)
Tests	F = 31.11	F = 30.19	F = 27.40	F = 22.56
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.7249	0.7951	0.7936	0.7694
Number of Observations	188	114	110	95
State Enterprises				
$LnWage_{t-1}$	0.818* (0.151)	0.850* (0.105)	0.403 (0.263)	0.951* (0.224)
$Lnql_t$	0.460* (0.115)	0.494* (0.163)	0.745* (0.178)	0.688* (0.187)
$Lnql_{t-1}$	−0.306* (0.038)	−0.425* (0.160)	−0.240* (0.084)	−0.663** (0.266)
LRE_{wage}	0.850* (0.312)	0.463*** (0.251)	0.846* (0.139)	0.500 (1.431)
Tests	F = 30.56	F = 56.42	F = 17.75	F = 33.23
	Prob > F = 0	Prob > F = 0	Prob > F = 0	Prob > F = 0
Adj R^2	0.7403	0.8738	0.7131	0.8730
Number of Observations	161	119	108	71

Dependent variable is the logarithm of average monthly wage, $Ln\,Wage_t$ (standard errors are in parentheses).

* — significant at the 1% test level;

** — significant at the 5% test level;

*** — significant at the 10% test level.

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Table C1

Variable	Obs	Mean	Std. Dev.	Min	Max
Enterprises in 1991					
Fixed and circulating assets	307	24.29236	88.06748	1	1339
Number of employees	307	778.8599	1435.707	20	10250
s1	307	.3941368	.4894623	0	1
s2	307	.276873	.4481837	0	1
s3	307	.1498371	.3574944	0	1
s4	307	.1791531	.3841066	0	1
svpr	307	.3778502	.4856415	0	1
1993					
Sales (Th.Rb.)	315	2777.311	10516.48	10	172393
Labor (No.Employees)	315	651.2127	1296.761	32	12849
Av.Monthly Wage, Rb.	315	.057303	.0228269	.0105364	.1576087
03 .0228269 .0105364 .1576087					
Ratio of Receivables to Sales	315	.2987879	.7244799	0	7.002458
Ratio of Wage Arrears to Annual Wage Fund	315	.3883219	4.439269	0	78.9
Local unemployment,%	315	8.291778	4.691214	2.31	25.9
Owner's Dominance					
Manager's	315	.1555556	.3630101	0	1
Outsider's	315	.1269841	.333485	0	1
Insider's	315	.3396825	.474355	0	1
State influence	315	.2007874	.4013802	0	1
State share					
g100	315	.1811024	.3858633	0	1
g5075	315	.019685	.1391898	0	1
zol	315	.0275591	.1640289	0	1
State support					
gos	315	.1732283	.3791917	0	1
monopolist	315	.0984252	.2984768	0	1
Trade union's activity					
un	315	.4685039	.4999922	0	1
dogovor	315	.4251969	.4953489	0	1
Enterprise's sector of industry					
ot1	315	.0222222	.1476401	0	1
ot2	315	.031746	.1756021	0	1
ot3	315	.0190476	.1369099	0	1
ot4	315	.2380952	.4265954	0	1
ot5	315	.0666667	.2498407	0	1
ot6	315	.1301587	.3370134	0	1
ot7	315	.0888889	.2850361	0	1
ot8	315	.3238095	.4686728	0	1
ot9	315	.0031746	.0563436	0	1
ot10	315	.0253968	.1575775	0	1
ot11	315	.0095238	.0972787	0	1
ot12	315	.0285714	.1668637	0	1
ot13	315	.0126984	.1121476	0	1
Enterprise's Location					
reg1	315	.1396825	.3472089	0	1
reg2	315	.1460317	.3536999	0	1
reg3	315	.1365079	.3438734	0	1
reg4	315	.1047619	.3067337	0	1
reg	315	.4730159	.5000657	0	1

Number of enterprises 315

1994

```
Variable                    |   Obs      Mean   Std. Dev.      Min       Max
----------------------------+-------------------------------------------------
Sales (Th.Rb.)              |   340  7146.091   22405.76       70    365997

Labor (No.Employees)        |   340  557.0118    1171.03       32     13604

 Av.Monthly Wage, Rb.       |   340  .1983314  .0903685  .0271084   .726766

Ratio of Receivables
to Sales                    |   340   .207851  .2446277        0  1.722166

Ratio of Wage Arrears
to Annual Wage Fund         |   340  .1036771  .0699759        0  .3854167

Local unemployment,%        |   340   11.1325   7.703174     5.04     30.92

Owner's dominance
              Manager's     |   340  .2352941  .4248077        0         1
              outsider's    |   340  .1529412  .3604613        0         1
              insider's     |   340  .4058824  .4917857        0         1
        State influence     |   340  .1696429  .3758785        0         1

State Share
                  g100      |   340  .1488095  .3564314        0         1
                  g5075     |   340  .0208333  .1430392        0         1
                  zol       |   340  .0267857  .1616974        0         1
State Support

                  Gos       |   340  .1577381  .3650389        0         1
              monopolist    |   340  .0803571  .2722507        0         1
Trade union's activity

                   un       |   340  .4404762  .4971847        0         1
              dogovor       |   340  .4017857  .4909903        0         1

Enterprise's sector of industry
                  ot1       |   340  .0205882  .1422106        0         1
                  ot2       |   340  .0294118  .1692067        0         1
                  ot3       |   340  .0176471  .1318589        0         1
                  ot4       |   340  .2647059  .4418267        0         1
                  ot5       |   340  .0647059  .2463687        0         1
                  ot6       |   340  .1235294  .3295289        0         1
                  ot7       |   340  .0911765  .2882842        0         1
                  ot8       |   340  .3058824  .4614593        0         1
                  ot9       |   340  .0029412  .0542326        0         1
                  ot10      |   340  .0235294   .151801        0         1
                  ot11      |   340  .0117647  .1079842        0         1
                  ot12      |   340  .0294118  .1692067        0         1
                  ot13      |   340  .0147059  .1205502        0         1
 Enterprise's Location

                  reg1      |   340  .1470588  .3546865        0         1
                  reg2      |   340  .1441176  .3517266        0         1
                  reg3      |   340  .1382353  .3456555        0         1
                  reg4      |   340  .1058824  .3081405        0         1
                   reg      |   340  .4647059  .4994879        0         1
```

Number of enterprises 340

1995

Variable		Obs	Mean	Std. Dev.	Min	Max
Sales (Th.Rb.)		358	24954.9	112989.3	44	2044264
Labor (No.Employees)		358	493.8408	1032.996	27	13201
Av.Monthly Wage, Rb.		358	.4617975	.305819	.0472441	4.415344
Ratio of Receivables to Sales		358	.1998748	.7796836	.0013369	14.46763
Ratio of Wage Arrears to Annual Wage Fund		358	.1305466	.1982818	0	2.97973
Local unemployment,%		358	11.46229	8.3511	3.94	37.15
Owner's dominance						
	Manager's	358	.2374302	.4261036	0	1
	outsider's	358	.1731844	.3789362	0	1
	insider's	358	.3743017	.4846194	0	1
	State influence	358	.1927374	.3950007	0	1
State Share						
	g100	358	.1731844	.3789362	0	1
	g5075	358	.0195531	.1386523	0	1
	zol	358	.0223464	.1480142	0	1
State Support						
	Gos	358	.1564246	.3637658	0	1
	monopolist	358	.0726257	.2598843	0	1
Trade union's activity						
	un	358	.4441341	.4975646	0	1
	dogovor	358	.4050279	.4915845	0	1
Enterprise's sector of industry						
	ot1	358	.0223464	.1480142	0	1
	ot2	358	.0335196	.1802408	0	1
	ot3	358	.0167598	.1285498	0	1
	ot4	358	.273743	.4465027	0	1
	ot5	358	.0726257	.2598843	0	1
	ot6	358	.1284916	.3351048	0	1
	ot7	358	.0865922	.2816301	0	1
	ot8	358	.2765363	.4479111	0	1
	ot9	358	.0027933	.0528516	0	1
	ot10	358	.0223464	.1480142	0	1
	ot11	358	.0111732	.1052582	0	1
	ot12	358	.0363128	.1873293	0	1
	ot13	358	.0167598	.1285498	0	1
Enterprise's Location						
	reg1	358	.1424581	.3500086	0	1
	reg2	358	.1368715	.3441927	0	1
	reg3	358	.1312849	.3381843	0	1
	reg4	358	.103352	.3048441	0	1
	reg	358	.4860335	.5005044	0	1

Number of enterprises 358

1996

Variable		Obs	Mean	Std. Dev.	Min	Max
Sales (Th.Rb.)		271	44161.85	177144.6	202	2738192
Labor (No.Employees)		271	557.8081	1040.809	26	13338
Av.Monthly Wage, Rb.		271	.7688922	.4694327	.0708155	4.603935
Ratio of Receivables to Sales		271	.2201035	.3373958	0	3.222923
Ratio of Wage Arrears to Annual Wage Fund		271	.1907147	.272073	0	3.042017
Local unemployment,%		271	.0957716	.0658978	.0325	.3065
Owner's dominance	Manager's	271	.199262	.4001845	0	1
	outsider's	271	.2214022	.4159588	0	1
	insider's	271	.302583	.4602262	0	1
	State influence	271	.2435424	.4300138	0	1
State Share	g100	271	.2214022	.4159588	0	1
	g5075	271	.0221402	.1474117	0	1
	zol	271	.0332103	.1795169	0	1
State Support	Gos	271	.1881919	.3915885	0	1
	monopolist	271	.0848708	.279205	0	1
Trade union's activity	un	271	.498155	.5009217	0	1
	dogovor	271	.4538745	.498789	0	1
Enterprise's sector of industry	ot1	271	.0258303	.1589222	0	1
	ot2	271	.0479705	.2140992	0	1
	ot3	271	.0184502	.1348215	0	1
	ot4	271	.3099631	.4633337	0	1
	ot5	271	.0701107	.2558059	0	1
	ot6	271	.1512915	.3589958	0	1
	ot7	271	.0922509	.2899152	0	1
	ot8	271	.1845018	.3886106	0	1
	ot9	271	.00369	.0607457	0	1
	ot10	271	.0147601	.1208145	0	1
	ot11	271	.0147601	.1208145	0	1
	ot12	271	.0479705	.2140992	0	1
	ot13	271	.0184502	.1348215	0	1
Enterprise's Location	reg1	271	.1512915	.3589958	0	1
	reg2	271	.1070111	.3096993	0	1
	reg3	271	.095941	.2950551	0	1
	reg4	271	.0701107	.2558059	0	1
	reg	271	.5756458	.495159	0	1

Number of enterprises 271

1997

Variable	Obs	Mean	Std. Dev.	Min	Max
Sales (Th.Rb.)	263	47583.38	204946.7	30	3184620
Labor (No.Employees)	263	522.5247	1007.41	23	13239
Av.Monthly Wage, Rb.	263	.8934029	.4920856	.0522222	3.640853
Ratio of Receivables to Sales	263	.3508484	.8210231	0	9.265306
Ratio of Wage Arrears to Annual Wage Fund	263	.2284997	.3487218	0	3.341837
Local unemployment,%	263	.0978373	.058447	.0254	.3068
Owner's dominance					
Manager's	263	.2129278	.4101575	0	1
outsider's	263	.2129278	.4101575	0	1
insider's	263	.2889734	.4541498	0	1
State influence	263	.2585551	.4386754	0	1
State Share					
g100	263	.2357414	.4252706	0	1
g5075	263	.0228137	.1495938	0	1
zol	263	.026616	.1612651	0	1
State Support					
Gos	263	.1901141	.3931391	0	1
monopolist	263	.095057	.2938529	0	1
Trade union's activity					
un	263	.513308	.5007758	0	1
dogovor	263	.4676806	.4999057	0	1
Enterprise's sector of industry					
ot1	263	.026616	.1612651	0	1
ot2	263	.0494297	.2171767	0	1
ot3	263	.0190114	.1368253	0	1
ot4	263	.3041825	.4609375	0	1
ot5	263	.0608365	.2394859	0	1
ot6	263	.1558935	.363446	0	1
ot7	263	.0912548	.2885201	0	1
ot8	263	.1901141	.3931391	0	1
ot9	263	.0038023	.0616626	0	1
ot10	263	.0152091	.1226172	0	1
ot11	263	.0152091	.1226172	0	1
ot12	263	.0494297	.2171767	0	1
ot13	263	.0190114	.1368253	0	1
Enterprise's Location					
reg1	263	.1444867	.3522529	0	1
reg2	263	.1140684	.3185005	0	1
reg3	263	.0874525	.2830356	0	1
reg4	263	.0722433	.259384	0	1
reg	263	.581749	.4942123	0	1

Number of enterprises 263

1998

```
Variable                    |    Obs        Mean    Std. Dev.       Min        Max
----------------------------+------------------------------------------------------
Sales (Th.Rb.)              |    258    46757.03    220333.1         7    3397713

Labor (No.Employees)        |    258    471.3178    960.7492         4      13028

 Av.Monthly Wage, Rb.       |    258    .9081026    .4934151         0   3.419531

Ratio of Receivables
to Sales                    |    258    .7839772    3.654712         0   53.14286

Ratio of Wage Arrears
to Annual Wage Fund         |    258    .4251157    2.345396         0   37.20513

Local unemployment,%        |    258    .1724663    .0648383     .0331      .3403

Owner's dominance
              Manager's     |    258    .2286822    .4208004         0          1
              outsider's    |    258    .2054264    .4047981         0          1
               insider's    |    258    .2790698    .4494137         0          1
          State influence   |    258    .2596899    .4393167         0          1

State Share
                  g100      |    258    .2364341    .4257176         0          1
                  g5075     |    258    .0232558    .1510078         0          1
                  zol       |    258    .0271318    .1627832         0          1
State Support

                  Gos       |    258    .1937984    .3960411         0          1
              monopolist    |    258    .1007752    .3016159         0          1
Trade union's activity

                   un       |    258    .5193798    .5005954         0          1
               dogovor      |    258    .4767442    .5004296         0          1
Enterprise's sector of industry
                  ot1       |    258    .0232558    .1510078         0          1
                  ot2       |    258    .0503876    .2191686         0          1
                  ot3       |    258    .0193798    .1381239         0          1
                  ot4       |    258    .3100775    .4634241         0          1
                  ot5       |    258    .0581395    .2344619         0          1
                  ot6       |    258    .1472868    .3550804         0          1
                  ot7       |    258    .0930233    .2910296         0          1
                  ot8       |    258    .1937984    .3960411         0          1
                  ot9       |    258     .003876    .0622573         0          1
                  ot10      |    258    .0155039    .1237857         0          1
                  ot11      |    258    .0155039    .1237857         0          1
                  ot12      |    258    .0503876    .2191686         0          1
                  ot13      |    258    .0193798    .1381239         0          1
 Enterprise's Location

                  reg1      |    258    .1472868    .3550804         0          1
                  reg2      |    258    .1124031    .3164757         0          1
                  reg3      |    258    .0930233    .2910296         0          1
                  reg4      |    258    .0736434    .2616974         0          1
                   reg      |    258    .5736434    .4955081         0          1
```

Number of enterprises 263

Table C2.

Share of the sample in large-sized and average-sized enterprises of Novosibirsk region industry, %

	Share in the number of enterprises						Share in sales						Share in employment					
	1993	1994	1995	1996	1997	1998	1993	1994	1995	1996	1997	1998	1993	1994	1995	1996	1997	1998
Total	94,35	89,80	88,52	75,20	67,76	63,25	74,94	65,55	79,69	77,59	77,80	79,07	74,15	76,89	76,87	70,78	72,46	72,25
Fuel and energetic industry	88,89	87,5	80	77,78	63,64	66,67	95,72	97,41	97,03	99,01	99,32	99,24	97,05	99,25	99,38	97,53	98,33	98,39
Coal iron and steel industry	90	90,91	81,25	92,86	100	92,86	46,4	89,50	92,79	79,48	100,0	99,89	52,91	99,72	94,86	87,48	99,79	99,75
Chemical and petrochemical industry	75,00	85,71	85,71	83,33	83,33	71,43	62,81	87,50	96,41	98,90	99,18	99,22	49,17	99,16	96,96	99,34	99,42	99,35
Engineering industry	88,89	87,27	76,43	67,94	65,35	63,36	69,95	39,27	45,73	44,48	45,29	47,43	64,91	61,41	61,49	50,45	52,14	50,30
Woodworker and cellulose industry	54,76	88,00	85,19	94,74	64,00	60,00	85,62	98,78	99,56	95,06	94,63	86,88	82,59	95,56	94,01	91,44	92,67	88,62
Industry of construction materials	95,56	93,48	85,19	85,42	85,42	75,00	69,26	91,63	98,21	95,23	95,41	93,72	90,85	97,17	99,23	94,40	94,87	93,38
Light industry	76,19	78,57	89,74	70,00	49,09	55,10	82,54	83,66	88,99	84,72	91,02	91,88	93,15	96,92	75,75	85,12	89,96	91,73
Food proceeding industry	95,41	92,86	96,30	69,44	76,92	65,79	96,04	93,20	98,65	91,95	87,53	86,65	99,62	98,23	91,73	87,49	84,69	89,11
Microbiological industry	50,00	50,00	100,0	100,0	100,0	100,0	69,64	54,79	100,0	100,0	100,0	100,0	67,11	68,24	100,0	100,0	100,0	100,0
Milling and grain industry	72,73	66,67	72,73	66,67	57,14	57,14	74,56	93,65	88,17	73,11	77,69	76,51	80,03	78,57	87,88	55,17	55,52	52,95
Medical industry	66,67	75,00	57,14	66,67	57,14	50,00	93,27	82,25	57,27	55,70	86,68	60,67	57,23	58,94	72,82	79,68	91,29	81,04
Publishing and printing industry	86,67	66,67	46,15	92,31	76,47	56,52	86,53	88,22	96,53	97,52	94,83	94,45	97,81	98,89	93,42	95,14	2,61	92,03
Other	60	71,43	83,33	71,43	33,33	29,41	78,13	85,97	37,47	68,24	64,09	44,61	95,69	86,10	37,78	96,84	79,88	56,99

Simultaneous Employment Equation and Wage Equation
(OLS Estimates for Unbalanced Panel of Firms) (standard errors are in parentheses)

Employment Equation					**Wage Equation**				
Variable	Unbalanced Panels of Firms		Balanced Panel of Firms		Variable	Unbalanced Panels of Firms		Balanced Panel of Firms	
	1994-1996	1997-1998	1994-1996	1997-1998		1994-1996	1997-1998	1994-1996	1997-1998
lnq_t	.708 * (.014)	.658* (.017)	.682* (.017)	.647* (.019)	$lnwage_{t-1}$	.369* (.029)	.494* (.033)	.325* (.039)	.456* (.039)
$lnwage_t$	-.984* (.036)	-.857* (.038)	-.918* (.042)	-.786* (.038)	$lnql_t$	.518* (.019)	.488* (.033)	.558* (.025)	.545* (.039)
$lnawage_t$	-.032 (.045)	-.007 (.047)	-.011 (.051)	.013 (.047)	$lnql_{t-1}$	-.111* (.021)	-.180*(.036)	-.103* (.027)	-.190*(.042)
σ	1.016* (.038)	.864* (.047)	.929* (.044)	.773* (.049)	LRE_{wage}	.646* (.022)	.609* (.030)	.674* (.023)	.653* (.036)
ξ	-.032 (.044)	-.009 (.057)	.012 (.055)	-.017 (.062)	Mon	-.007 (.042)	-.015 (.051)	-.0003 (.053)	-.014 (.059)
K	.022 (.088)	-.030* (.011)	-.101 (.088)	.088 (.053)	M	.024 (.020)	.013**(.006)	.137** (.054)	.012**(.006)
P1-P7	Yes	Yes	Yes	Yes	Unempl	.407***(.220)	-.032 (.277)	.623***(.346)	.007 (.337)
Un	.165* (.038)	.208* (.047)	.220* (.043)	.231* (.048)	Un	.027 (.028)	.039 (.035)	.039 (.037)	.047 (.042)
Svpr	.019 (.041)	.031 (.051)	.051 (.048)	.059 (.052)	Svpr	-.043 (.030)	-.013 (.039)	.003 (.041)	-.002 (.046)
Gos	.226* (.049)	.180* (.058)	.206* (.053)	.155* (.057)	Gos	-.031 (.036)	-.055 (.043)	-.030 (.045)	-.050 (.050)
G100	.519* (.071)	.248*** (.127)	-.266 (.250)	-.169 (.193)	G100	.252* (.056)	.175*** (.097)	.057 (.219)	.017 (.167)
G50-75	-.610* (.127)	-.128 (.152)	-.896* (.132)	-.364**(.151)	G50-75	-.244** (.096)	.135 (.115)	-.345* (.117)	.054 (.134)
Zol	.035 (.106)	-.044 (.130)	-.120 (.119)	.063 (.138)	Zol	-.021 (.080)	.064 (.099)	-.028 (.103)	.181 (.122)
Man	-.271* (.059)	-.265* (.073)	-.250* (.065)	-.235* (.075)	Man	-.058 (.044)	-.010 (.055)	-.043 (.056)	.004 (.066)
Out	.148** (.074)	.149 (.092)	.264* (.080)	.241** (.095)	Out	-.102***(.055)	-.049 (.068)	-.064 (.067)	-.053 (.081)
V1	.142** (.064)	.064 (.076)	.161** (.071)	.032 (.076)	V1	.082*** (.048)	.055 (.058)	.142** (.060)	.075 (.066)
V3	-.394** (.155)	-.391**(.178)	-.520* (.147)	-.474* (.166)	V3	.144 (.115)	.114 (.130)	.094 (.123)	.129 (.140)
V4	-.080 (.057)	-.112 (.072)	-.023 (.058)	-.077 (.072)	V4	.043 (.042)	.056 (.054)	.065 (.049)	.078 (.063)
Constant	-2.613* (.280)	-1.787* (.306)	-1.662*(.402)	-1.261*(.354)	Constant	-1.658* (.096)	-1.292*(.131)	-1.558*(.245)	-1.229* (.191)
Reg – reg4	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Number of Observ.	873	465	534	357		873	465	534	357
Tests	F=264.92 Prob>F=0.00	F=163.21 Prob>F=0.00	F= 179.84 Prob>F=0.00	F=140.81 Prob>F=0.00	Tests	F=127.67 Prob>F= 0.00	F=97.45 Prob>F= 0.00	F=79.87 Prob>F=0.00	F=70.98 Prob>F=0.00
R^2	0.8300	0.8556	0.8510	0.8724	R^2	0.7719	0.8375	0.7817	0.8320

* - significant at test level 1%;   ** - significant at test level 5%;   *** - significant at test level 10%.

Labor Demand Model: OLS of Basic Employment Equation and Augmented Employment Equation 1992-1993
Dependent variable is the logarithm of the number of employees, lnL_t
(standard errors are in parentheses)

Variable	Basic Employment Equation		Augmented Employment Equation	
	Unbalanced Panels of Firms	Balanced Panel of Firms	Unbalanced Panels of Firms	Balanced Panel of Firms
lnL_{t-1}	.919* (.021)	.906* (.026)	.918* (.022)	.897* (.028)
lnq_t	.057* (.019)	.032 (.022)	.057* (.019)	.033 (.022)
lnq_{t-1}	.001 (.019)	.027 (.020)	.001 (.019)	.026 (.020)
LRE_q	.718* (.138)	.629* (.137)	.708* (.158)	.567* (.134)
$lnwage_t$	.024 (.040)	.038 (.051)	.010 (.041)	.027 (.052)
$lnwage_{t-1}$	.085* (.026)	.052*** (.030)	.086* (.026)	.052*** (.030)
LRE_{wage}	1.345***(.723)	.957 (.710)	1.169*** (.696)	.769 (.626)
$Unempl_t$			.133 (.328)	.280 (.465)
$Assets_{91}$			.00007 (.0001)	.0002 (.0001)
Constanta	.280*** (.159)		.238 (.174)	.320 (.207)
Test	F= 546.97 Prob > F =0.00	F = 420.31 Prob > F =0.00	F= 469.37 Prob > F = 0.00	F = 382.55 Prob > F =0.00
Adj R^2	0.9831	0.9846	0.9823	0.9845
Observations	207	139	203	139

Effective bargaining model: OLS Estimates of Employment Equation 1992-1993
Dependent variable is the logarithm of the number of employees, lnL_t
(standard errors are in parentheses)

Variable	Unbalanced Panels of Firms	Balanced Panels of Firms
lnq_t	.552* (.032)	.521* (.042)
$lnwage_t$	-.774* (.103)	-.685* (.145)
$lnawage_t$	.723* (.189)	.789* (.280)
σ	.051 (.209)	-.103 (.318)
ξ	-14.247 (61.96)	7.651 (21.245)
Constant	-3.439* (.879)	-3.106** (1.272)
Tests	F = 64.19 Prob > F = 0.000	F = 41.41 Prob > F = 0.000
Adj R^2	0.8049	0.8146
Observations	246	139

OLS Estimates of Wage Equation 1992-1993
Dependent Variable is the Logarithm of Average Monthly Wage, $\ln\text{Wage}_t$
(standard errors are in parentheses)

Variable	Unbalanced Panels of Firms	Balanced Panel of Firms
$\ln\text{Wage}_{t-1}$	.232* (.044)	.183* (.051)
$\ln\text{ql}_t$	.235* (.034)	.223* (.042)
$\ln\text{ql}_{t-1}$	-.019 (.035)	.009 (.039)
LRE_{wage}	.281* (.032)	.283* (.036)
Constant	-2.102* (.146)	-2.268* (.170)
Tests	F = 10.33 Prob > F = 0.00	F = 7.70 Prob > F = 0.0000
Adj R^2	0.4991	0.5049
Observations	207	139

* - significant at test level 1%;
** - significant at test level 5%;
*** - significant at test level 10%.

Estimating the impact of ownership on labor contract (dogovor) singing
Estimating the impact of ownership on state support obtaining

Probit estimates (unbalanced panels of firms)

Independent variables	Dependent variables							
	Dogovor				State support			
	1994-1996		1997-1998		1994-1996		1997-1998	
	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|
State ownership	.359	.120	.423	.139	-.604	.134	-.545	.232
Outsider's ownership	-.287	.228	-.246	.413	.354	.364	.355	.436
Manager's ownership	-.576*	.006	-.267	.221	-1.559**	.028	-.567	.204
Log Likelihood	-235.032		-159.599		-75.205		-52.475	
Tests	chi2(2) = 249.19 Prob>chi2= 0.00		chi2(2) = 163.05 Prob > chi2 = 0.00		chi2(2) = 151.78 Prob > chi2 = 0.00		chi2(2) = 97.42 Prob> chi2 = 0.00	
Pseudo R2	0.347		0.338		0.502		0.481	
Observations	519		348		218		146	

* - significant at test level 1%;
** - significant at test level 5%;
*** - significant at test level 10%.

Note: Covariate includes region dummies (Reg - Reg4), 12 industry dummies and 4 employment size dummies. The omitted categories are as follows: Ot7 - for the group of sectors, Reg - for region dummies, s1 - for size dummies, Ins - for ownership dummies. See Appendix A for precise definitions.

Calculation of Coefficient ψ

According to existing legislation any individual who have at least one year of service is provided for unemployment benefit equal to 75 percent of his or her average annual wage on the previous work during the first three months of unemployment period, for the next four months of being unemployed the amount of unemployment benefits is equal to 60 percent average of annual wage and finally for the last five months of the year it make up 45 percent of average annual wage. We assume that one year of service criterion has been met.

Based on this approach, the share of average annual wage which is guaranteed as an unemployment benefit is equal to:

$\psi = (3/12)*0.75+(4/12)*0.6 + (5/12)*0.45 = 0.575$;

But this is true only if there is no any delay in paying off the unemployment benefits.

The share of average annual wage which individual gets as unemployment benefit during the year reduces as a result of delay of payments. The following correction of the coefficient ψ was used in order to take into account the existence of delay of payments of unemployment benefits.

Table D1.

Time period of delay of payments of unemployment benefits, in months	Coefficient ψ
12	0
11	0.0625
10	0.125
9	0.1875
8	0.2375
7	0.2875
6	0.3375
5	0.3875
4	0.425
3	0.4625
2	0.5
1	0.5375
0	0.575