

**Russian-European Centre for Economic Policy**

**WORKING PAPER SERIES**

**«THE DYNAMICS OF INDUSTRIAL  
ORGANISATION IN ECONOMIES IN TRANSITION:  
THE EXAMPLE OF THE RUSSIAN GAS  
INDUSTRY»**

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The question of the emergence of a new organisational model based on the firm is at the heart of the reform in the Russian energy sector, as it is at the heart of the structural changes that the planned economic systems are undergoing. The reform has given rise to one main observation: the firm, as currently defined in Western economic writings, does not exist because of the essentially non-monetary nature of the planned economic systems.

The aim of the reform implemented has thus been to organise the Russian gas industry (which we shall take by way of an illustration) on the basis of the vertically integrated private company : an organisation that combines a logic of decentralisation based on independent units (organised into profit centres) with a hierarchical structure. The company Gazprom, which is the financial holding company, partially privatised, that manages the production and transport sector of the Russian gas industry is therefore the fruit of an ownership rights reform and the definition of new boundaries of planned organisations.

Eight years after the creation of Gazprom, however, one can be asked questions about the organisational model that has actually emerged. It is evident that the reform in ownership rights that was its initial objective has not created a private enterprise, even though the reform arose in a modification of ownership rights. Gazprom, given the essentially non-monetary economic relations amongst which it finds itself, remains in essence an organisation that is not subject to a “hard budget constraint”. Instead of the private enterprise, we have an original and stable type of organisational model that has still to be fully defined. This model is the rather strange product of profound changes in the formal institutions (at the top of which are ownership rights), a reorganisation of the boundaries of organisations, and a very slow change in the informal institutions ; all of these have ensured economic behaviour and co-ordination patterns more closely aligned to the attribution mechanisms of the planned economy than to the relations of a market economy.

This specific “vertical integration” model is the model that allows the distinctive characteristics of the Russian economic environment to be managed best, whether they be non monetarisation of exchange and the salaried contract inherited from the planned economy. Some aspects of which have been retained in the post-communist transformation. In the case in point, this model shows that the firm is an organisation but also much an institution, a place where various interests and conflicts are managed.

## **I – Attempts at defining a new organisational model through the reform in ownership rights**

The main aim of the reform implemented was to create an enterprise by defining “new ownership rights” (or more specifically, by reallocating ownership rights<sup>1</sup>) through the emergence of private shareholders. The reform refers principally to the approaches that view the firm as an organisation, that is, as a place and mechanism of co-ordination of agents. Moreover, it is written essentially in the context of a contractual approach to the firm. In this approach the firm is seen above all as a “nexus of treaties ”.

In particular, the aim of privatisation has been to attempt to implant the Western type of private firm (similar to the Anglo-Saxon model). We are looking at a model in which the Corporate Governance

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<sup>1</sup> Joskow (P.), Schmalensee (R.) « privatization in Russia : what should be a firm ? » in Ménard (C.) ed *Transaction Cost Economics : Recent development*, Edward Elgar, 1996, p. 86-126.

structure ensures the “sovereignty” of shareholders together with institutional conditions, including competitive work and capital markets<sup>2</sup>.

### 1.1. Defining the boundaries of the firm : the example of Gazprom

Defining the boundaries of a firm is an important factor to obtain clear definition of ownership rights, as it allows the assets held to be identified. An organisation that is structured model can thus be defined clearly in terms of identifiable boundaries<sup>3</sup>. The industrial organisations in the energy sector of a planned economy were complex hierarchies that were very highly centralised. So it is important to know at which level in the hierarchy the boundaries of the firm to be privatised must be defined<sup>4</sup>. Until 1989, the Russian gas sector is in the hands of the Gas ministry. Organised at the level of the Soviet Union, the Gas Ministry covers twelve associations or production unions. There are generally established on a regional basis, directly managing technical production units covering distinct gas fields. These units, directly responsible for current production, are entirely subordinated to production associations. In spite of some characteristics, the production associations cannot be assimilated to the « enterprises » of the gas industry. It is to be remembered that they do not have the traditional functions of a market economy enterprise. They do not control (or imperfectly) the allocation process of their resources, in particular concerning investments. They have no overview right on exports and sales, a screen between consumers and producers, between internal and external markets, being created by the Gosnab and the "purchase centres". The production association is only the intermediate link of an administrative structure. Economic and decisional power is in the hands of the ministry which is under the authority of Gosplan and the State. The main coordination mode of this type of organisational scheme is the attribution regime<sup>5</sup> which is carried out through two essential mechanisms: centralised financing of investments by budgetary allowance and centralisation of input provisions. These ensure overall coherence of the system.

- **Attempts at defining “decentralised hierarchies” in the power industry**

The definition of the « boundaries » of the firm implies to take into account efficiency considerations : the aim is to define « optimal boundaries ». With the break up of the soviet hierarchies, the aim is also to promote competition<sup>6</sup>.

In addition, the reorganisation of the organisational models inherited from planned economies should allow the decision-making structure to be decentralised, in order to allow the information

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<sup>2</sup> Aoki (M.) « Controlling Insider Control : Issues of Corporate Governance in Transition Economies » in Aoki (M.), Kim (H-K), Ed.- *Corporate Governance in Transitional Economies : Insider Control and the Role of Banks*.- The World Bank, Washington, D.C, 1995, p. 5.

<sup>3</sup> Add to this the specific co-ordination mechanisms and internal objectives according to the definition given by C. Ménard. Ménard (C) - *L'économie des organisations*.- Repères, La Découverte, No 86, 1997, page 13.

<sup>4</sup>P. Joskow, R. Schmalensee, 1997, op. cit., p. 101.

<sup>5</sup>An attribution economy is defined as "an economy in which industries or groups are recognised as "having acquired" their goods through a decision of their superiors called "distributors", and in which they acquire these goods on the basis of orders addressed to the goods suppliers (producer or distributor) by the superiors of the good suppliers". in : Bensimon (G.)- *Le processus d'attribution et la monnaie dans une économie zinovievienne*.- Grenoble : CNRS - ROSES, 1990.

<sup>6</sup>P. Joskow, R. Schmalensee, 1997, op. cit., p. 104.

issuing from the productive units in the organisation to be used as “efficiently” as possible<sup>7</sup>. It should therefore be remembered that in the dominant theories, the firm is firstly (and sometimes uniquely) seen as an “information exchange structure”, to use the terminology developed by M. Aoki<sup>8</sup>. In this way, its behaviour “(...) can be deduced from the information signals detected by it in its environment”<sup>9</sup>.

In order to fulfil this aim, the organisational reform in the Russian energy sector has attempted to define “decentralised hierarchies” instead of the centralised hierarchies of the planned economy. With this in mind, the dominant reorganisational model in the Russian energy sector has become the financial holding or “joint stock” company. These holding companies are bringing together a number of independent economic units through a system of vertical integration ; that is, a structure that initially could be compared to an “M-shaped” organisational form. It combines a decentralised organisation consisting of independent units and a hierarchical structure with a general management, these being among the principal characteristics of an “M” shape<sup>10</sup>. According a classical process, the joint stock companies emerge on the basis of the corporatisation-transformation of the production, refining, transportation and distribution associations, according to the 1992 law on privatisation. In theory, therefore, these units are the basic economic units, the firms of the energy sector in which the profit centres should be established.

#### *A monopoly integrating production and transport in the russian gas sector*

In this way, the restructuring of the Russian energy sector has preserved the integration of the gas system in a monopoly, in order to preserve the gas industry chain in its production and transportation sector. Also the reorganisation defines profit centres at the level of the old production associations, which are transformed in shareholding companies.

The re-organisation of the russian gas sector with the creation of the « concern Gazprom » (under M. Gorbachev) prefigures the very centralised organisation that will be developed by the future Joint stock company Gazprom. On the one hand the creation of the Gazprom concern leads to the definition of the limits of activities which will constitute the centre of the holding Gazprom including enterprises directly implicated in the Unified Gas Supply System of the Soviet Union. The second group of enterprises more or less related to the unified gas supply system will be considered as auxiliary enterprises (this criterion will in particular establish the difference between the enterprises held 100% by Gazprom and those in which the participation of Gazprom is not total, but of at least 51%)<sup>11</sup>. By the presidential decree of the 5 November 1992, the shares of the

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<sup>7</sup> Aoki (M.) « An evolving diversity of organizational mode and its implications for transitional economies ».- *Journal of the Japanese and International Economies*, Vol 9, 1995, p. 330-353.

<sup>8</sup> This concept is at the centre of Aoki’s analysis relating to firms. It allows him to draw a comparison between Firm A (represented in this case by the American firm), characterised by a hierarchical information structure, and Firm J (representative of the Japanese firm), characterised by a horizontal information structure. The objective is to compare the efficiency of these two information structures.

Aoki (M) : “Horizontal vs. Vertical Information Structure of the Firm”, *The American Economic Review*, December 1986, pages 971-983.

<sup>9</sup> Cohendet (P.), Llerena (P.) « La conception de la firme comme processeur de connaissances ».- *Revue d’Economie Industrielle*, n° 88, 2<sup>ème</sup> trimestre 1999, p. 211.

<sup>10</sup> Coriat (B.), Weinstein (O.).- *Les nouvelles théories de l’entreprise*.- Paris : le livre de Poche,1995, p. 70.

<sup>11</sup> Kryukov (V.), Moe (A.).- *The new Russian corporatism? A case study of Gazprom*.- Post-Soviet Business Forum, The Royal Institute of International Affairs, 1996, p. 8-9.

production associations<sup>12</sup>, the shares of the transport company, Transgaz, and the shares of the export company, Gazexport, were transferred to the holding Gazprom.

The creation of the holding company Gazprom has, however, been the subject of lively debate (which is ongoing) about the organisational model to be developed in the gas industry. It went against those in favour of integration and centralisation through a vertically integrated monopoly with a liberal outlook of the “reformers” (the Anglo-Saxon idea). They aimed to de-integrate the gas industry along the lines of the British model. In the first approach, the technological interdependence of the gas chain, together with the specific nature of the assets (according to the transactional approach) justify the vertical integration of production, transport and distribution, while increasing returns, on the basis of scale economies, define conditions for functioning in a natural monopoly. However, in the maturity stage, the decrease of the specificity of assets means that the previous organisational model will be questioned, particularly with regard to its vertical integration properties<sup>13</sup>. In this way, for those in favour of de-integration, the aim is to stimulate a degree of competition, by ending the production monopoly in the gas industry by creating different production companies based on the production associations on one hand, and by opening up the transport sector on a “Common Carrier” basis according to the model for reform in the British gas industry on the other hand. According to this logic, Gazprom would have maintained control over the gas pipeline network but would have functioned as a transmission company, transporting the gas on the basis of a system of tariffs.

The coming of Viktor Chernomyrdin, the former Minister for the Soviet Gas Industry, to a leadership position in the Russian government bears out the “centralist” vision, which also allows to avoid the thorny question of the heritage of long-term gas contracts signed by the Soviet Union with European countries. This debate is far from over, because Gazprom’s organisational structure has not been greatly altered, but following in particular the requests of the FMI, the Russian government has attempted to set up an operation in “Common Carrier”. Even though the principles of such an operation are accepted today, they are going unheeded as no new producers independent of Gazprom are able to emerge. We should remember, in fact, that when the holding company Gazprom was constituted, all the gas reserve development licences were transferred purely and simply to the holding company without payment of any fees<sup>14</sup>. The emergence of new producers could be favoured by the effective implementation of a tender procedure set up for the purpose of awarding licences to develop new deposits, as the law relating to natural resources requires.

## 1.2 Attempts to define a new organisational model through privatisation

The decree concerning the creation of Gazprom implied, in a second time<sup>15</sup>, a juridical reform with a distribution of rights to assets. The aim with the definition of private property rights is to induce « new behaviors » which are oriented by the search of efficiency. The classics of the property rights literature underline the importance of well-defined property rights for efficient allocation and

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<sup>12</sup>Two production associations, Yakutgazprom et Norilskgazprom, are outside of Gazprom.

<sup>13</sup>Quast (O.).- *Les fondements des modèles successifs d'organisation de l'industrie gazière :analyse des conditions d'introduction de la concurrence dans une industrie de réseau.*- Thèse de doctorat, IEPE, Université Pierre Mendès France, Grenoble, 29 novembre 1997, p. 111-115.

<sup>14</sup>Kryukov (V.), Moe (A.).- *The new russian corporatism ? A case study of Gazprom.*- Londres : Post-Soviet Business Forum, The Royal Institute of International Affairs, 1996, p . 13.

<sup>15</sup>P. Joskow, R. Schmalensee, 1997,op. cit., p. 102.

economic growth<sup>16</sup>. The relationships between property rights and economic decision making are at the centre of the analysis.

Ownership rights are in effect determining factors in the incentive system put into practice within the firm, this system being, in the neo-classical theory, an optimum condition of the same nature as the system of co-ordination through competition and the market<sup>17</sup>. By extending the analysis, the neo-institutionalist theory more specifically views ownership rights as institutions<sup>18</sup> (formal rules) amongst others that as such fashion the incentive system (structure) and therefore dictate economic behaviour. In this way, the economic analysis of a firm rests on two major presuppositions. The behaviour of the decision-makers depends on the incentives structure put in place, a structure that is itself determined by existing ownership rights<sup>19</sup>.

The observation made concerning the state owned property in planned economies, and more generally ill-defined ownership rights, leads to a system of incentives and controls that according to this school of thought is insufficient and therefore inefficient. In particular, in the context of public ownership, there has been failure to respect at least one of the essential attributes of ownership rights – the issue of transferability<sup>20</sup>. Moreover, ownership rights theory insists in particular on the importance of an ownership rights regime that draws a clear difference between the State and the economic “actors” involved in production<sup>21</sup>. In consequence, the aim of reform is to introduce a new system of incentives through the emergence of new clearly defined ownership rights, which as such guarantee the three aspects of the right to ownership of an asset: the right to use the asset (usus), the right to earn income from an asset (usus fructus), and the right to alienate an asset (abusus)<sup>22</sup>. This ownership rights system is that of private ownership, which in particular presupposes the exclusive nature of possession and transferability of rights in the context of existing institutions. It is the system adapted to stimulate economic behaviour based on maximising the value of the resource, taking account of the relations that can be drawn up between ownership rights and economic behaviour<sup>23</sup>. As each system of incentives is associated with a control structure, we are therefore looking at changing both the internal and the external control structures of the enterprise, in order to define a structure that will be efficient<sup>24</sup>.

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<sup>16</sup> « (...) such a regime must embody at least three features : 1. Property rights must be lodged in the hands of actors with purely economic responsibilities, (...), 2. A neutral third party must enforce them (...) ».

Brabant (J.)- *Privatizing Eastern Europe : The Role of Markets and Ownership in the Transition*.- Kluwer Academic Publishers Dordrecht, Boston, Londres 1992, p. 105.

<sup>17</sup>Hirschhausen (C.)- *Du combinat socialiste à l'entreprise capitaliste : une analyse des réformes industrielles en Europe de l'Est*.- Paris : L'Harmattan, 1996, p. 36.

<sup>18</sup>North (D.C.)"Institutions".- *Journal of Economic Perspectives*, Vol 5 n° 1, 1991, p. 97-112.

<sup>19</sup>Pejovich (S.)-*The Economics of Property Rights : Towards a Theory of Comparative Systems*.-Kluwer Academic publishers, Dordrecht, Berlin, Londres, 1990, p. 54.

<sup>20</sup>A. Shleifer, op. cit., p. 94.

<sup>21</sup>J. Brabant, op. cit., p. 104.

<sup>22</sup>Andreff (W.) « Techniques et expériences de privatisation : La "success story" des privatisations en France et les besoins actuels des pays d'Europe de l'Est ».- Communication à la Research Conference on *Economics of decontrol and marketization in Europe : the experience and prospects of Eastern Europe*., Davos, 22-26 septembre 1990, p. 5.

<sup>23</sup>S. Pejovich, op. cit., p. 27-28.

<sup>24</sup>A. Shleifer, op. cit., p. 93.

## A model dominated by “insiders”

The “non-standard privatisation” methods (in particular the privatisation coupon or “voucher” method, set up in Central and Eastern European economies and in the CIS<sup>25</sup> have led, in essence, to control by “insiders”, that is, by employees and managers. The Russian gas industry has not deviated from this principle, even though it is established only thinly and in a few specific places. In fact, the implication of the State in Gazprom’s capital has remained significant, even dominant. By 1998 the State, with almost 40% of the shares<sup>26</sup>, was still the principal shareholder in the holding company. The employees held 15% of the shares, 5.2% had been given to the inhabitants of the Yamals-Nenets region, 10% had remained with Gazprom’s management, and 28.5% had been sold to the population and to the production associations using the voucher method. In total, 35% of the shares are now controlled by “insiders” (employees and managers).

In theory, the structure of Gazprom’s capital leads to the conclusion that the problems of Corporate Governance, linked to a fragmented shareholding, dominated by “insiders”, are less important than in other privatisation schemes initiated in the Russian industrial sector. We should remember that the studies relating to privatisation by “insiders” have on numerous occasions emphasised their negative effects on the efficiency of enterprises (in particular on organisational efficiency in terms of decision-making structures<sup>27</sup>). According to the principal-agent theory, the result is an inefficient Corporate Governance structure. “(...) the “insiders” must show themselves to be ineffective owners, as they do not have the incentive necessary for undertaking a strategic restructuring of the private enterprises and especially of the enterprises that have fallen under the control of the employees and the workers”<sup>28</sup>. If one holds to the principal-agent model, “four ideal types” of ownership, each giving rise to different forms of corporate governance structure, can be defined. In order of increasing efficiency, the following classification can be established: State-owned enterprises (the least efficient form of corporate governance structure, because one is in a situation of poorly-defined ownership rights), private enterprises controlled by “insiders” (employees and/or managers), and private enterprises controlled by “outsiders”, which may be banks, institutional investors, foreign investors or individuals<sup>29</sup>. In addition, the decision-making processes are more costly when there is heterogeneousness of employees (because of the difficulty that may exist in reaching an agreement<sup>30</sup>, cf. Box 1).

### **Box 1 : Some characteristics concerning the control by “insiders”**

It should be noted first of all that this term can define several different institutional forms, according to the relations between the firm and the State, and the manner in which the ownership rights are exercised (which voting right confers possession of a share, what are the conditions for exchanging shares, and in particular, are they freely exchangeable? etc).

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<sup>25</sup> Andreff (W.) « Privatisation et gouvernement d’entreprise dans les économies en transition : une évaluation critique ».- *Economie internationale*, CEPII, N° 77, 1<sup>er</sup> trimestre 1999, p.104.

<sup>26</sup> Since then, 2.5% of the shares held by the State have been purchased by Ruhrgas.

<sup>27</sup> Earle (J.), Estrin (S.) « Employee Ownership in Transition » in Frydman (R.), Gray (C.), Rapaczynski (A.).- *Corporate Governance in Central Europe and Russia*.- Vol 2, Central European University Press, 1996, p. 6.

<sup>28</sup> W. Andreff, 1999, op. cit. p ; 103.

<sup>29</sup> Andreff (W.) « Privatization and Corporate Governance in transition countries : beyond the principal-agent model » in Rosenbaum and Macmillan ed.- *Privatization, Corporate governance and the emergence of markets in Central-Eastern Europe*.- à paraître

<sup>30</sup> J. Earle, S. Estrin, 1996, op. cit., p. 6.

In addition, it is likely that the problems of incentive linked to a control structure dominated by “insiders” will be resolved by alternative government mechanisms like banking institutions<sup>31</sup>, but also by the existence of competition markets, which are also factors liable to restrict the behaviour of the shareholders. In this way, the European capitalist systems combine a shareholder structure dominated by “insiders”, a financing by banks and a corporate governance structure based on bankruptcy mechanisms<sup>32</sup>. We should remember that two other “major families” of capitalism can be clearly identified in Western economies, that is, the Anglo-Saxon model of capitalism and the Japanese model of relational capitalism<sup>33</sup>.

Secondly, the various studies carried out on the Russian industry sector up until now have shown very different results on this subject, which means that in most cases it is actually impossible to determine whether it is privatisation that has led to higher performance levels, or whether it was previous good performance that favoured privatisation, particularly through easier access to outside shareholders<sup>34</sup>. (It is undoubtedly easier to attract foreign investors for privatising currency-generating hydrocarbon industries than for the coal or electricity industry!). Thus, apart from the question of the political and social acceptability of this form of privatisation, a question which remains crucial<sup>35</sup>, some “economic” arguments can be put forward in its favour. In particular, an ownership structure dominated by “insiders” would mean that employees were more likely to adhere to a large-scale restructuring, and would thus favour an improvement in the efficiency of firms. This result would appear to bear out some studies conducted on the Russian industry sector<sup>36</sup>.

Finally, apart from this continuing controversy on the performance of firms whose ownership structure is dominated by “insiders”, it is important to emphasise that the reforms applied have not allowed the “bank-insider” model to be implemented consistently or fully. Several factors have not permit to successfully implementing this model at top level, including difficulty in applying the bankruptcy law; all forms of control of businesses have thus been rendered inoperative, especially through the financial discipline mechanism laid down by the bank credit facility. In addition, alternative government mechanisms (competition from markets for example) that are likely to restrain (discipline) the behaviour of enterprises, play a very minor role in the context of Russia’s current economy and cannot therefore overcome the problems of control linked to an ownership structure dominated by “insiders”<sup>37</sup>. In particular, the banks, especially because of their limited financial capacity, have exerted only a marginal influence over the behaviour of the enterprises. (Most bank credit granted has been short-term, therefore banks can only make a minor contribution to the finance necessary for any form of restructuring<sup>38</sup>).

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<sup>31</sup> M. Aoki, 1995, op. cit., p. 15-19.

<sup>32</sup> Mesnard (M.) « Emergence des groupes et Corporate Governance en Russie ».- *Economie Internationale*, CEPII, N° 77, 1<sup>er</sup> trimestre 1999, p. 131-160.

<sup>33</sup> Groenewegen (J.) « Institutions of capitalisms : American, European and Japanese systems compared ».- *Journal of Economic Issues*, Vol XXXI, n°2, june 1997, p. 333-347.

<sup>34</sup> W. Andreff, 1999.

<sup>35</sup> Roland (G.) « Political Economy Issues of Ownership transformation in Eastern Europe », M. Aoki, H-K. Kim ed, op. cit ; p. 31-57.

<sup>36</sup> Earle (J.) « Post-Privatization Ownership Structure and Productivity in Russian Industrial Enterprises ».- *ACES-ASSA*, janvier 1998, p. 5-20.

<sup>37</sup> J. Earle, 1998, op. cit., p. 23 et J. Earle, S. Estrin. 1996, op. cit., p. 21.

<sup>38</sup> Akamatsu (N.) « Enterprise governance and investment funds in russian privatization » in M. Aoki, H-K. Kim, ed, op. cit., p.121-183.

However, despite Gazprom's capital structure, the problems linked to an ownership structure dominated by "insiders" are not totally absent. The reforms have not created a clearly defined system of ownership rights, which was however its main objective. We have therefore ended up with the existence of a formal transfer of ownership rights that does not lead to a similar change in the structures of the Corporate Governance<sup>39</sup>. The State, as a dominant shareholder, remains a largely passive actor, unable to exercise its right of control, which is however an essential aspect of ownership rights. For proof of this, one only has to look at its inability to recover a sizeable portion of income from gas. Of the \$16,000 million that Gazprom earned in two years from its exports, only \$3,400 million was paid to the State. Gazprom has confiscated most of the foreign currency to its advantage.

On the other hand, the managers have a significant level of controlling power<sup>40</sup> (which could however significantly lessen the agency problems linked with an ownership structure dominated by "insiders")<sup>41</sup>. The model of privatisation adopted, the conditions of privatisation and the legacy of the planned economy are also factors that have allowed managers to assert their economic power with a minority of shares at their disposal. As they have not changed much, the managers are without doubt the only people who can, given their knowledge of the networks and the economic relations in the context of which the planned economy organisations were set, ensure the survival of the firm. By their informal relations and mutual knowledge, they have allowed the establishment of common behaviour rules that are essential for maintaining relations between firms. These characteristics are witness to significant inertial factors (according to the terminology used by W. Andreff<sup>42</sup>) in the transformation of the planned economies.

## II – Gazprom : the post communist organisationnal model

The characterisation of Gazprom's organisational model cannot however be seen only in the light of ownership rights reforms. Even though their importance cannot be denied, it is important to go beyond the analysis of the firm as an organisation, that is, a place where agents' individual decisions are co-ordinated, and to take account of its institutional dimension. Firms are at once both organisations and institutions (that is, places where various interests are shared and places where conflicts are managed). Organisations such as Gazprom, therefore, can be seen as the product of two contradictory evolutions. They are the result of a radical change in formal institutions (change to the allocation of ownership rights)<sup>43</sup> which however did not allow a private enterprise to be created. But, the joint stock companies are the result of slow changes in the informal institutions (customs, routines, norms, training born of individual practices<sup>44</sup>) inherited from the old system. Two reasons for this state of affairs can be put forward. On one hand, institutional change is very

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<sup>39</sup> J. Earle, S. Estrin, op. cit., p. 6.

<sup>40</sup> Blasi (J.), Shleifer (A.) « Corporate Governance in Russia » in Frydman (R.), Gray (C.), Rapaczynski (A.).- *Corporate Governance in Central Europe and Russia*.- Vol 2, Central European University Press, 1996, p. 78-108.

<sup>41</sup> J. Earle, S. Estrin, op. cit., p. 6.

<sup>42</sup> Andreff (W.) « Facteurs inertiels et effets de sentiers (« path dependency ») dans l'analyse théorique de la transition ».- Contribution au XLVe Congrès de l'Association Française de Science Economique, septembre 1996, 37p.

<sup>43</sup> Following the works of T. Veblen, J. R. Commons and institutional trends, a distinction can be drawn between formal and informal institutions. This distinction has been adopted widely by neo-institutionalist thinking, and particularly by D. North. On this point, reference can be made to Rutherford (M.).- *Institutions in economics: the old and the new institutionalism*.- Cambridge University Press, 1994, p. 51-80.

<sup>44</sup> COREI (T.).- *L'économie institutionnaliste : les fondateurs*.- Paris : Economica, 1995, 112p.

dependent on past practices (the “path dependency”<sup>45</sup>). On the other hand, informal institutions tend to reproduce themselves because of the deep-rooted uncertainty born of the systematic transformation of the planned economies<sup>46</sup>. No actor is able to make a proper assessment of the result of new behavioural rules, such as the efficiency of new forms of organisation; this leads to the tendency for each economic agent to extend and reproduce the known behavioural rules. The informal institutions, in this way, are laying down the foundations for behavioural inertia in the post-socialist transformation.

The organisational models in the Russian energy sector are an example of this through some of their characteristics. Some major co-ordination mechanisms that played an important role in the planned economy are still there (at the top level, including barter), thus illustrating a heavy “path dependency”. This dependence is at the root of specific behaviour patterns far removed from the high-efficiency performance that should result from privatisation<sup>47</sup>. The analyses that can be carried out on the Russian gas company therefore show that the logics used within them, are specific. There is only a formal transposition of the western organisational models. These models are not, for all that, mere hybrid organisations (that is, halfway between the old model of centrally planned economic organisation and the capitalist model of private firm). They appear as original organisational and institutional forms that allow to cope with the non-monetarisation of exchanges that has marked the transformation of the planned economic systems. There is therefore a co-evolution between various institutional forms and organisational models<sup>48</sup>. With regard to the specific features of the Russian environment, the determining factors are the “survival logics” that are the organising force behind the “energy joint stock companies”.

## 2.1. The continuous nature of the non-monetary co-ordination mechanisms

The process of economic transformation in Russia is characterised above all by the difficulty being experienced in “monetarising” economic transactions at a time when one of the key factors in this transformation is precisely the development of a monetary economy<sup>49</sup>. The institution of “money” is an essential condition for a market economy both as a means of regulating production and exchanges and as a means of co-ordinating the plans of economic agents<sup>50</sup>.

### The non monetarisation of exchanges

The progressive and significant increase in non paiement, inter-entreprises credit and the many and complex forms of barter, are currently testimony to this phenomenon. Recent studies have shown

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<sup>45</sup> Baslé (M.) « Le changement institutionnel et organisationnel : y a-t-il quelques voies ouvertes par l’approche évolutionnaire du droit et de la réglementation ? ».- *Economie Appliquée*, tome L, 1997, N° 3, P. 151-174.

<sup>46</sup> Magnin (E.) .- « Une approche évolutionnaire et institutionnelle de la transformation en Europe centrale et orientale ».- *Journée d’études du ROSES*, Grenoble, 26 novembre 1997, p. 6.

<sup>47</sup> According to M. Baslé, the institutions are highly dependent on the “path”, especially because in the field of co-ordination, they are bringing in “(...) prediction systems that are very sensitive to initial conditions”. M. Baslé, 1997, op cit., page 164.

<sup>48</sup> Magnin (E.) « Une approche évolutionnaire et institutionnaliste de la transformation en Europe centrale et orientale ».- *Journée d’études du ROSES*, 26 novembre 1997, Grenoble, 27p.

<sup>49</sup> Poser (J.) « Monetary Disruptions and the Emergence of Barter in FSU Economies ».- *Communist Economies and Transformations*, Vol 10, N° 2, 1998, p. 157.

<sup>50</sup> Maucourant (J.) « Institutions et monnaie ».- *Revue d’économie politique*, mai-juin 1998, p. 396.

that in 1997, half of industrial production had ceased to be subject to any kind of monetary regulation<sup>51</sup>. This process is particularly well developed in the energy sector, with a major increase in non-payments. In 1996, 72% of gas sales were paid for, a figure which sank to a mere 45% in 1997, with only 6% paid for in cash in 1996 and 1997. In 1996, 51% was paid for by barter, with a total of 39% in 1997<sup>52</sup>. However, the energy sector is distinct in that it bears more non-payment than it creates<sup>53</sup>.

The development of this kind of non-monetary co-ordination is an illustration of the inertial factors in the transformation of planned economies, as it must be remembered that barter was a significant form of economic relation in the planned economy<sup>54</sup>. In terms of enterprises, the logic applied in maintaining such relations is one of survival in an high uncertain economic environment.

- **Consequences of the non monetarisation of exchanges**

*A coordination of energy markets by the quantities*

Against a background of increased non-monetarisation of exchanges, regulations in the Russian energy sector remain essentially quantitative. The energy markets of Russia remain subject to a production-based management that is outside the monetary criteria of profitability, cost and price. The monetary contract has little meaning. Especially in the case of gas and electricity, breaks in supply can occur at times not provided for in the contract, and according to decisions of the dispatching centre at Gazprom or at the Russian Electricity Company (RAO-EES Rossii). The energy markets are fundamentally the object of regulation through quantity or even through “shortages” which is a typical situation of the planned economy. Energy is essentially supplied and not sold. Especially in the case of gas, production has only partly adapted to the changes in solvent demand<sup>55</sup>.

*The strategies of production maximisation*

More specifically, in a context of large-scale, general development of barter, joint stock companies may be encouraged to produce in order to respond to insolvent demand and participate in barter exchanges. Barter is therefore an integral part of their production strategy and does not in any circumstances act as a brake on production<sup>56</sup>. Therefore, although the director of each firm is concerned with the survival of his business, he will be equally concerned with the survival of his suppliers and clients if he wishes to secure supplies and outlets, which justifies the firms’ tacit acceptance of this form of payment. The strategies of the joint stock companies in the energy sector are still therefore more geared towards a production-based logic (in order to find a place in the

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<sup>51</sup> Aukutsionek (S.) « Industrial Barter in Russia ».- *Communist Economies and Economic Transformation*, Vol 10, N° 2, 1998, p. 186.

<sup>52</sup> Bagratian (H.), Gürgen (E.) « Payments Arrears in the Gas and Electric Power Sectors of the Russian Federation and Ukraine ».- *IMF Working Paper*, 1997, 20. et Stern (J.).- *Competition and Liberalization in European Gas Markets*.- The Royal Institute of International Affairs, 1998, p. 159.

<sup>53</sup> Zlotowski (Y.).- *La crise des paiements en Russie : expression d’un consensus social ?*.- Les études du CERI, N° 43, août 1998, p. 18.

<sup>54</sup> Aglietta (M.), Sapir (J.) « Inflation et pénurie dans la transition » in V. V. Ivanter et J. Sapir, Eds *Monnaie et Finance dans la transition en Russie : un dialogue franco-russe*, Paris : Editions de la MSH et l’Harmattan, 1995, 304p.

<sup>55</sup> Locatelli (C.).- *Energie et transition en Russie : les nouveaux acteurs industriels*.- Paris : L’Harmattan, 1998, 279p. et notamment le chapitre III « L’intégration verticale de Gazprom en réponse aux régulations non monétaires » p. 72-89.

<sup>56</sup> Y. Zlotowski, op. cit., p. 8.

barter network) than towards an efficiency or profitability logic. Incorporated in the logic of barter relations, inter-enterprise credit and quantitative management, and outside the scope of any monetary mechanism, enterprises can carry on their old behaviour patterns; in other words, they can attempt to produce without any concern for profitability.

It cannot be denied that Gazprom's current strategy satisfies this logic. It is characterised by a continued high level of production (591 billion of m<sup>3</sup> in 1998), which does not correspond to the figure for Russian solvent demand. In addition, the strategy of developing new gas areas, led by Gazprom, is an illustration of "production maximisation" logic typical of management through "taut plans". In fact, taking account of developments in gas demand in Russia and Europe, and conditions of profitability concerning gas exportations, a strict economic profitability logic would in the medium term only favour the development of the gas-producing region of Nadym-Pur-Taz in Western Siberia (cf. Box 2). Instead of that, Gazprom's managers have reaffirmed the priority given by them to developing the deposits in the Yamal area, which despite having considerable resources, is costly in terms of development. In current conditions, the profitability of such a project is a very problematic issue.

**Box 2 : Gazprom's « quantitativist strategy »**

Estimates of the development of Russian gas production for the year 2010 vary between 675 billion m<sup>3</sup> and 900 billion m<sup>3</sup>. The lower figures reflect the effects of profitability constraints and solvent demand, while the higher figures reflect the effects of more « quantitativist » principles of the extensive growth in production. Forecasts are based essentially on the continued development of the main gas producing region of Nadym-Pur-Taz, but also on the development of Yamal's gas fields.

According to Gazprom's estimates, production for the Nadym-Pur-Taz, which is currently 500 billion m<sup>3</sup>, could reach 640 billion m<sup>3</sup> by 2005 and fall slightly by 2010 (625 billion m<sup>3</sup>). This growth would be possible essentially by putting into production identified structures around the three large reserves of Urengoy, Yamburg et Medvezhe.

Yamal, with its gas reserves which have been estimated at 10 400 billion m<sup>3</sup> by Gazprom, is a priority development zone<sup>57</sup>. Plans have already been drawn up to exploit the three main reserves of Bovanenko (reserves estimated at 4400 billion m<sup>3</sup>), Kharasavey (1200 billion m<sup>3</sup>) et Kruzenshtern (960 billion m<sup>3</sup>). But ten other structures have been identified. Officially, according to Gazprom, Bovanenko (the first gas field to be developed) should start producing in 1999, the « Yamal output » reaching 88. billion m<sup>3</sup> by 2005 and 250 billion m<sup>3</sup> by 2015.

The economic viability of developing Yamal's reserves is being seriously challenged, in view of current gas prices on the European market. Gazprom does not need to develop the Yamal reserves to reach its export target and to satisfy the internal gas demand. First, with the production from Urengoy and Yamburg satellite zones, Gazprom has sufficient quantities of gas which it can export at relatively low marginal cost, since the main infrastructures have already been built for the development of Urengoy, Yamburg and Medvezhe. Second, with the present economic crisis in Russia, domestic gas consumption is tending to stagnate and even decline.

## **2.2 The post communist organisational model : a management of non-monetary relationships**

In this very specific context, enterprises develop specific integration and diversification strategies. Gazprom is a perfect example of this situation. The integration and diversification strategy of

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<sup>57</sup> « Yamal-Europe ». - Project Yamal-Europe, Gazprom 1995.

Gazprom is an answer to development problems in monetary relations between companies. The consequence is the development of « financial-industrial groups » structured around three majors poles : Energy-Industry-Banks.

- **The energy organisationnal model : internalisation logic of transactions**

The organisational model of Gazprom is based on the internalisation logic of transactions which leads to a diversification strategy both industrial and geographical. At the industrial level, it proceeds through progressive but unquestionable integration of the producers of equipment goods within Gazprom. It also proceeds through an initiation of diversification of Gazprom into the electric sector which is highly indebted to the Russian gas enterprise. At the geographical level, it leads to significant participation of Gazprom in gas companies and distribution networks in countries of the former Soviet Union. The indebtedness of a good number of the CIS countries to Gazprom allows the Russian gas producer to develop this strategy. The ambition to re-integrate into its structure crucial components of the Soviet gas industry which are today outside Russian territory is in this way clearly expressed<sup>58</sup>. Consequently, the number of enterprises directly or indirectly controlled by Gazprom is in rapid progression, drastically limiting monetary exchanges within the Russian gas industry. Market transactions between independent partners are on a constant decrease in this sector<sup>59</sup>. On the other hand, in such a context, prices are, for different reasons, not a strategic variable for the company.

The logic of vertical integration is to make the non-monetary relations between the various entities involved in an industrial chain viable. This integration, as such, represents a substitute for the development of monetary and market relations. The organisational model of the joint stock companies with internalisation of transactions is a means of securing supplies and outlets when confronted with the non-monetarisation of exchanges, while reducing the transaction costs linked with barter. It allows the preservation of the minimum level of inter-industrial relations necessary for the survival of these organisations and therefore for maintaining a certain level of industrial production. It is important to note that the basis for the vertical integration of the holding companies are the chains of barter deals and the inter-enterprise credit and not the participations in the capital of the firms.

- **The coordination by « attribution » : the centralised financing of investments**

The phenomena of non-payment, barter relations and quantitative management practices require decisions to invest to be centralised. This in turn implies the centralisation of their financing.

The whole organisation logic and the regulation mechanisms of Gazprom are oriented and defined in relation to this unique objective : centralised financing of the investments. It allows limitation of possible development of autonomous strategies on the part of Russian gas production companies, ensuring in this way stability of the holding in its present form. Until 1996, to ensure this aim a stabilisation fund and an investment fund have been created at the level of Gazprom. Together,

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<sup>58</sup>V. Kryukov, A. Moe, op. cit., p. 34.

<sup>59</sup>V. Kryukov, A. Moe, op. cit., p. 45-48.

these funds constitute close 76% of Gazprom investment resources<sup>60</sup>. In the case of Gazprom, they are fed by a percentage on export revenues, constituting therefore a reliable source of financing for the holding<sup>61</sup>. The funds ended in 1996, but the logic remains. Taking into consideration the internal financial situation, financing of the investments necessary to development of the Russian gas industry is closely dependent on exports towards the European market. Gazprom gets back almost all the hard currencies linked with the Russian gas exports on the European markets.

Besides their dominant role in the financing of investments, these funds form a powerful control and centralisation factor in decisions concerning allocation of resources. Indeed, financing investments for each unit constituting the Joint Stock Company depends on the financial resources of these funds, whereas internal price strategies developed within the holdings allows for production associations to be maintained in a disadvantageous financial situation. The transport company Transgas can in this way buy gas from the associations at artificially low prices in relation to their production costs<sup>62</sup>. Consequently, in terms of financing of investments, the latter are dependent on decisions in allocation (attribution) by the Gazprom holding. The use of stabilisation funds allows levelling out of differences in production costs between the different associations while ensuring financing of the investment at their level.

In practice, therefore, Gazprom is far removed from the M-shaped organisational form. The non-monetary environment of the Russian economy makes it difficult (if not impossible) to apply that kind of organisational logic.

Old attribution mechanisms that had supposedly disappeared are reproduced at a lower level in the organisation of the economic system : at the level of the holding and no longer at the administrative level represented by the ministry of the sector. The holding ensures a function of distributor of investments in the place of the ministry. On this basis, Gazprom can be analysed as an organisation in which are put into practice economic relations emanating from the attribution economy (and not through contract). Such a practice deprives Gazprom of a real analysis of the economic efficiency of the different production associations. Due to this internal price system implicitly supposing a standardised cost system, it is extremely difficult for the gas company to identify efficient and unefficient fields. Economic considerations (use of economic calculation) has limited scope in the decision process at the level of production associations (in daily management) as well as at the level of the holding in its choice of production zones.

In this particular logic, it is difficult to define economic criteria controlling distribution of investments and their financing among the different constituting elements. It is unlikely that distribution is carried out on the basis of efficiency criteria taking into consideration lack of knowledge of costs. We have already note that a strict economic rationality would induce the only development of the Nadym-Pur-Taz region. As in the past, funds received give the possibility of

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<sup>60</sup> Sorokine (I.), Eskin (V.), Wilson (J.).- *Natural gas industry of Russia : diagnostic review and discussion of policy issues.*- Prepared for the Ministry of Economy of the Russian Federation, program on natural monopolies, july 1995, 27p.

<sup>61</sup> Sorokine, V. Eskin, J. Wilson, op. cit., p. 25-26.

<sup>62</sup>The study carried out by V. Kryukov and A. Moe shows the existence of an increasing disconnection between internal price paid by Gazprom to production associations and price demanded by Gazprom to the industrial consumers. The first prices have continually dropped in relation to the second.

V. Kryukov, A. Moe, op. cit., p 20.

investments independently of their financial efficiency or of any economic efficiency evaluation of the company<sup>63</sup>.

We can advanced one hypothesis. Investment allocation logic is defined through privileging large scale projects likely to ensure greater production and make use of an important workforce. Such projects (like Yamal) fulfill the function of social regulator played by Gazprom in terms of employment, as is the case for all large Russian enterprises. It is important to remember that in planned economies, the enterprise never reduces uniquely to its economic functions, but also embraces social functions. This logic is distinctly reinforced during "transition", by delayed payment of salaries to which most Russian companies have had to resort to. Delayed paiements push companies into supplying the "equivalent" in the form of "goods". Hence, the companies endorse some social amenities that the state can no longer ensure, faced with budgetary deficit. They also ensure supply in kind to their workers. The wage is therefore no longer the only component of income for the workers<sup>64</sup>.

In consequence Gazprom, like the other holding companies in the Russian energy sector, has been given the role of social regulator inherited from the salaried contract of the centrally planned economy. It can be considered that employment is the subject of some compromise between the State and Gazprom, whose requirement is to maintain steady staff numbers in the holding companies and to seek deliveries of power in exchange for unpaid taxes, delays in payment of salaries, and to a significant extent for currency derived from exports. In this sense, these forms of organisation are a place of management of conflicts, which for now tend to maintain a certain type of salaried contract.

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<sup>63</sup> Le Houerou (Ph.).- *Investment Policy in Russia*.- Washington D.C. : The World Bank, 1995, 70 p.- (Studies of Economics in Transformation).

<sup>64</sup> Motamed-Nejad (R.) « Monnaie et travail en Russie : fondements et enjeux d'une déconnexion ».- *Revue d'études comparatives Est-Ouest*, juin 1996, p. 78.

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