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SPECIFICITY OF ASSETS AND CONTRACTUAL RELATIONS: THE CASE OF A THERMAL POWER PLANT

The article discusses the findings of a study concerning the contractual relations between a thermal power plant and its suppliers of raw materials and services and the buyers of the energy produced by the enterprise. The primary objective of the study was to test the fundamental hypotheses of transaction cost economics with regard to enterprises operating in an environment of the systemic transformations of the Polish economy. Due to the fact that the hypotheses of transaction cost theory refer to a developed market economy, in Polish conditions they can be neither confirmed nor invalidated. Nevertheless, the basic concepts and the research method of transaction cost economics would seem useful in the analysis of the phenomena occurring in the Polish economy.

I. INTRODUCTION

Contracts are one of the basic analytic categories of the new institutional economics (Williamson 1990). The analysis of contracts at the level of the enterprise falls within the scope of property rights theory (Alchian and Demsetz 1972), agency theory (Fama and Jensen 1983a, 1986b) and transaction cost theory (Coase 1937; Williamson 1979, 1985). Generally speaking, the above-mentioned theories are concerned with the study of various aspects of contracts concluded within the enterprise and between enterprises, and, consequently, certain similarities and differences in the applied research methods and in the formulated hypotheses may be pointed out. These issues are not discussed in this article as its chief objective is to present the findings of a study whose theoretical basis was constituted by Williamson's (1985) transaction cost theory.

Williamson's transaction cost theory analyses relations between persons occurring in the form of transactions. Transactions may be organised in various ways, from one-off independent market transactions, through relatively long-term contractual relations, to internalised transactions coordinated administratively (hierarchically) within an enterprise. According to Williamson, the manner in which transactions are organised is dependent on savings in transaction costs.

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Below I will briefly present the main notions and assumptions utilised by the author to construct the above general hypothesis and the partial hypotheses pointing to the interdependence of transaction characteristics, transaction costs and the manner in which transactions are coordinated.

In Williamson's theory transactions are connected with the transition of a good through successive technological stages until it becomes a consumer good, and they regard the transfer of the factors of production both within an enterprise and between enterprises.

Conducting a transaction requires that its participants bear certain costs. *Ex ante* costs are costs paid prior to concluding a transaction, connected with finding a contract partner, negotiating contract terms and concluding the contract. *Ex post* costs are costs borne after a transaction has been concluded, connected with renegotiating earlier arrangements, and monitoring and enforcing the implementation of the contract.

Thus, transaction costs are the costs of contractual relations that regulate an agreement between the parties as a transaction. In some cases transaction costs may be insignificant, in others they may be very high. Thus, the factors affecting the amount of transaction costs must be determined. Williamson distinguishes two groups of such factors:

- 1) factors relating to the characteristics of persons entering into transactions: their motivation, skills and abilities,
- 2) factors relating to the characteristics of transactions.

The author assumes that persons engaging in economic activities are characterised by limited rationality and opportunism.

Limited rationality means that although every person pursues their own interests maximising usefulness, because of their limited ability to collect and process information they do not take into consideration all objective interdependencies and remain under the influence of subjective information restrictions. Limited rationality creates a situation where contemplation and inclusion in the contract of various events which may occur in connection with a given transaction require that the transaction participants bear certain costs. These costs increase *ex ante* costs, which precede the conclusion of the transaction. The costs may be so high that transaction participants may decide not to take any steps to consider and/or introduce into the contract provisions concerning various possible events.

Therefore, the conclusion of complete contracts (considered by agency theory) involving exclusively *ex ante* costs is often impossible. Transaction participants will also pay *ex post* costs when in connection with the occurrence of unforeseen circumstances (ones which were not provided for in the contract) it becomes necessary to renegotiate contract terms and conditions. In this way, we come to the other behavioural assumption introduced by Williamson – opportunism.

Opportunistic behaviour is understood by Williamson as self-interest seeking behaviour with guile consisting mainly in hiding and distorting information. Opportunistic behaviour is often strategic behaviour, whose purpose is to maximise usefulness while limiting the contract partner's information and knowledge. Opportunistic behaviour of parties to a contract is particularly frequent where an imperfect contract is being renegotiated. In such circumstances the partners are exposed to a temptation not to perform the previously agreed contract provisions or to introduce such changes that will result in increasing the gains of one of the partners at the cost of the other. This gives rise to various types of transaction costs: *ex ante*, in the form of protections for the principles of the contract, and *ex post*, in the form of the costs of acquiring additional information, negotiating new contract terms and monitoring the implementation of the contract.

Among the various forms of securing contract principles, the most obvious one would seem to be the legal protection of property. However, according to Williamson, the following other forms of protection are essential:

- 1) cash or collateral security, which is subject to forfeiture to the advantage of the injured party in case of nonperformance of the contract,
- 2) those connected with a potential loss of good reputation,
- 3) those involving the creation of special structures for the resolution of disputes.

It has to be noted that the fact that Williamson gives more prominence to other forms of protecting contract principles than the legal protection of property is the result of his attitude to the effectiveness of the legal regulation of the principles of contractual relationships. As stressed by the author, in most studies of exchange it is assumed that contract law is effective. In particular, it is assumed that well-defined individual laws of conduct in an economic order based on private property make the introduction of additional principles regulating the resolution of disputes superfluous. Hence, the settling of conflicts could be left to courts or other authorities appointed within the existing legal system. According to Williamson, this is a belief belonging to the tradition of 'legal centralism', which is not borne out by reality. In practice, in the author's opinion, the decisive role in the process of the formation of contractual relations is played by principles established (within the operating law) by the parties to the contract, i.e. the so-called private order (Williamson 1985, pp. 27-29).

Limited rationality and opportunism are virtually of no significance in the case of classical transactions, which may become effective immediately. Consequently, of prime significance are not only the behavioural characteristics of transaction participants but also the characteristics of transactions. Williamson enumerates three aspects or attributes of transactions that influence the

amount and type of transaction costs: uncertainty, transaction frequency and the specificity of assets (subject-matter of transaction).

Uncertainty is connected with limited rationality, and its extent depends to a large degree on the complexity of the environment in which the parties to the contract operate, which makes future events concerning the contract impossible to determine earlier. Apart from this natural uncertainty, Williamson also distinguishes behavioural uncertainty resulting from the contract partner's opportunistic conduct.

Transaction frequency does not affect the absolute amount of costs, but rather the relations among costs incurred in connection with conducting a given transaction. Thus, if transactions between parties are regularly repeated, the participants in an exchange may create an effective organisational mechanism with a view to coordinating the transactions. Because such a coordination of operations costs money, it will be established if its cost is lower than the costs incurred as a result of the repeated conduct of transactions. In the case of sporadic transactions the creation of special coordination structures is not reasonable if the subject-matter of the transactions is nonspecific.

The specificity of the subject-matter of a transaction (assets) is of special importance in Williamson's theory. The term comes from Marshall and denotes a factor of production generating a high quasi-rent because the opportunity cost of using the factor is very low. It follows from the examples of specific factors discussed by Williamson that the higher the specificity level:

- the lower the opportunity cost of using the factor,
- the higher the proportion of quasi-rent in income,
- the stronger the dependence of the owner of specific assets on contract partners,
- the greater the danger of the rent being intercepted by the contract partner as a result of opportunistic behaviour.

Taking into account the transaction characteristics discussed above and the resulting amount of transaction costs, the issue which still has to be examined is the form of coordinating the transaction participants' actions that would enable the minimisation of transaction costs. For this purpose Williamson proposes a classification of transactions according to the degree of specificity of the assets involved in the transaction (nonspecific, fairly specific, and highly specific) and according to transaction frequency (sporadic and regularly recurring).

If assets are nonspecific then, according to Williamson, no special form of coordination of the transaction participants' operations is required. Even if the cooperation is of a relatively regular nature, it may be coordinated by a sequence of short-term contracts, because competition in the market will

protect the transaction participants against the parties' opportunism and attempts to intercept their partner's benefits. Transactions will be conducted under the so-called classical contracts, in which all terms and conditions of the transaction may be fully specified *ex ante*.

An increase in the specificity of assets (the subject-matter of transactions) brings about an increase, from the point of view of lowering transaction costs, in the role of nonstandard contractual relations, i.e. so-called trilateral and bilateral contracts and hierarchical transaction coordination within the enterprise. The specificity of assets creates a temptation to renegotiate the original contract terms. The owner of specific assets may, for instance, attempt to obtain a higher price for the supplied product or service, whereas the buyer may seek a reduction of the price in comparison with the amount specified originally in the contract. Thus, mutual dependence created as a result of concluding a contract may give rise to the transaction participants attempting to intercept the quasi-rent. A limitation of the parties' opportunistic behaviour and, consequently, a reduction in transaction costs may be brought about by the introduction of long-term contractual relations or, in the case of highly-specific assets, by vertical integration.

In the case of the occurrence of specific assets, *ex ante* competition with numerous participants is replaced *ex post* by a monopoly situation (Williamson 1985, p. 61). Williamson calls this process the fundamental transformation.

Undoubtedly, the assumptions and hypotheses of transaction cost theory discussed above refer to a developed market economy, for which it may be assumed that:

1. There exist developed markets for goods and factors of production and, hence, the allocation of resources to various uses is primarily governed by market mechanisms;

2. The economy is dominated by private enterprises, operating under the conditions of actual and/or potential competition, which endeavour to stay in the market in the long term. To such companies the development of a competitive strategy based on efforts to lower production and transaction costs becomes an issue of considerable importance;

3. The institutional environment within a given time horizon does not change, and, hence, the principal types of uncertainty encountered by persons engaging in economic activities are the natural and behavioural uncertainty specified by Williamson;

4. Private and legal forms of protecting contracts have formed as a result of a long-term process of adaptation on the part of transaction participants and have evolved in the course of the implementation of contracts according to the 'learning by doing' principle.

It is not difficult to demonstrate that the above-specified features are not

characteristic of the Polish economy. Furthermore, because of the current process of transformation, the Polish economy shows peculiarities not observed in market economies. Without attempting to present a fully comprehensive description of the economic environment in Poland, it may be stated that after over six years of changes the situation is as follows:

1. Markets are insufficiently developed and, consequently, market mechanisms do not function properly, which may be attributed, among others, to the slow progress of the privatisation of state-owned enterprises.

2. There is widespread microeconomic regulation by the state, especially in industries dominated by state-owned enterprises (e.g. sugar industry, mining industry, power generation industry, thermal power plants).

3. There exists an institutional dualism, i.e. the country has institutions typical of a centrally-planned economy and it is also introducing new institutional solutions, characteristic of market economies. Using the distinction, proposed by Davis and North (1971, pp. 6-7), between the institutional environment and the institutional arrangement, it may be concluded that Poland's institutional dualism concerns both the general institutional framework (the political system, the principles of government operation, the legal regulations governing the protection of property and the principles of concluding contracts) within which the economic process takes place and the principles of cooperation and competition among economic entities which are taking shape under the influence of the general framework. The consequences and symptoms of institutional dualism are diverse. The most important, from the point of view of the issues discussed here, include the following:

- Additional types of uncertainty in Poland: uncertainty connected with the changeability and the formation of new institutional constraints and, with reference to state-owned enterprises, privatisation uncertainty relating to the extent of the operation of market mechanisms and competition;

- A relatively short horizon of enterprise operation and the use of a 'hit and run' strategy facilitated by legal loopholes and *ad hoc* regulations;

- The lack of permanent contract protections. The instability of private protections is the result of an insufficient period of time that has passed since the initiation of the transformation process for the emergence of standards of cooperation between transaction participants conducive to the emergence of a market order. The instability of legal protections is the result of the changeability of legal regulations, the practice of introducing laws for the purpose of resolving short-term problems of a particular group of enterprises, often at the cost of others. As an example one can mention the Restructuring of Enterprises and Banks Act (*Ustawa o restrukturyzacji...* 3 February 1993) which limited the rights of some creditors of enterprises undergoing restructuring to recover their receivables.

Because of these differences between economic conditions in Poland and in countries with well-developed market economies, it seems interesting to test the hypotheses of transaction cost theory in the Polish economy. The problem is especially intriguing because similar case studies conducted in market economies have confirmed the hypotheses of transaction cost economics (Joskow 1985; Monteverde and Teece 1982).

2. SUBJECT-MATTER OF THE STUDY

The subject-matter of the study conducted in the years 1994-1996 were the contractual relations between a thermal power plant and its customers and suppliers. The analysed contracts were concluded in the years 1991-1996, when the enterprise operated as a single-member company of the State Treasury. The following subset of contracts made by the thermal power plant with its customers and suppliers was analysed:

- contracts with the buyers of thermal energy, the principal product of the studied enterprise (accounting for approx. 60% of the sales),
- contracts with the suppliers of coal and other primary commodities and materials,
- contracts with suppliers of services.

A detailed analysis of the contracts concluded by the thermal power plant with the buyer of electric energy turned out to be useless as the terms of the 'contracts' were unilaterally imposed by the national buyer, i.e. the Polish Electricity Grid (PSE). As a result, the amount of electricity supplied by the analysed thermal power plant depended on the demand indicated by PSE; the price of energy was also established by the buyer.

It is worth noting that although the study was conducted only in one thermal power plant, its results may be regarded as representative for the whole industry as changes occurring in Polish thermal power plants are made according to a uniform programme of restructuring and privatisation.

3. CONTRACTS OF THE THERMAL POWER PLANT WITH BUYERS OF THERMAL ENERGY

In the analysis of the relations of the analysed enterprise with its customers in terms of transaction cost economics I sought to resolve two research problems.

First, I wanted to establish whether the specificity of goods being the subject-matter of transactions and the specificity of the factors of production used by contract partners affected the character of the contractual relations.

Secondly, I wished to find out whether the thermal power plant attempted to organise transactions in such a manner as to minimise transaction costs.

As an introduction to the discussion of the analysed issues it must be observed that the plant's factors of production are highly specific, hence a limited opportunity to modify their use. Also the product made by the enterprise, thermal energy, must be treated as a highly-specific good regularly supplied to the buyers. In such circumstances, in accordance with the hypothesis of transaction cost theory, relations between the plant and energy buyers should be excluded from market coordination and should assume the form of bilateral coordination or vertical integration.

The hypothesis is confirmed in the case of the enterprise under consideration, because it has relations with all thermal energy buyers through bilateral contracts renewed annually or every several years. However, certain differences between existing contracts and some proposed changes are worth noting.

The sale of thermal energy produced by the power plant is regulated by the following contracts:

- a) long-term contracts concluded with smaller customers (a hospital and industrial enterprises) who buy approx. 10% of the plant's output,
- b) annual contracts concluded with one customer (Municipal Thermal Energy Enterprise, MPEC) buying approx. 90% of the energy produced by the plant.

The existing differences in the contract renewal cycle are interesting, as one would tend to assume that regularly recurring transactions between companies should be conducted on the basis of long-term contracts. Such contracts might indicate that the parties obtain communication benefits. In such situations a specialised language and institutional and personal trust relations develop, and any problems may be resolved as they arise. Such an integration may cause parties to a contract to behave opportunistically.

The studied enterprise seems to derive such benefits from the long-term contracts with the smaller buyers of thermal energy. The absence of opportunistic behaviour in contacts between the parties to such contracts may be explained not only by the long-lasting cooperation and mutual trust but also by the limited room for such behaviour to occur. This is the result of the fact that the plant cannot vary the quality of the supplied product because of its homogeneity. It also cannot, although it is a monopolist, impose payment terms advantageous to itself due to the fact that the price of thermal energy is fixed by the state. The customers do not seek any other sources of the product, because the costs of implementing such plans would be prohibitive. The customers' opportunism may manifest itself only through their failure to pay in time, which was tolerated by the power plant in the previously existing

situation of economy-wide 'payment backlogs'. However, at present the thermal power plant has at its disposal more options to apply sanctions in the form of stopping energy supply, which probably limits the buyers' potential inclination to behave opportunistically.

If the above line of reasoning is correct, then it would seem justified to propose the hypothesis that in the case of the annual contracts between the thermal power plant and the principal thermal energy buyer (MPEC) the parties do not obtain any communication benefits. It is also reasonable to assume that the relatively frequent renewal of the contract creates an option to negotiate more advantageous terms at least by one of the parties. Information regarding the issue acquired in the course of the study seems to confirm the above assumptions.

It should be noted that between the power plant and the principal buyer (MPEC) there exists a bilateral monopoly in that thermal energy can be supplied by the producer to final customers only through the distribution network operated by MPEC. Theoretically, MPEC could allow other suppliers to use the network, but because of the high capital costs that would be necessary in such a situation, it is not very likely. Thus, both enterprises possess highly specific factors of production. Also the product exchanged is characterised by high specificity. The contract concluded between the enterprises specifies the amount of the product and its price, which may be negotiated only within certain limits, as it is regulated by the government. Initially, i.e. beginning in 1991, the government fixed the maximum price increase index for thermal energy. As of May 1995 the Council of Ministers froze thermal energy price increases other than due to increases of production costs beyond the producer's control. However, this does not mean that MPEC is obliged to take into account the power plant's cost situation and to agree to a higher price. Thus, an important element in negotiations between the thermal power plant and MPEC is the annual price negotiation, during which each party seeks to obtain the highest benefits and to intercept the quasi-rent. In view of the fact that the party unwilling to enter into a long-term contract is MPEC, it is that enterprise that may be assumed to have been taking advantage of the economic rent under the contracts concluded so far with the thermal power plant.

It is worth observing that the presented case corresponds to the situation in which, according to transaction cost economics, the parties have a long-term interest in mutual adaptation of the contract, and opportunism is restricted and trust is built by introducing new solutions (organisational structures) coordinating the cooperation of the enterprises. An example of such a new solution in the analysed case is the proposed introduction of an equity link between the two enterprises provided for in the thermal power plant privati-

sation programme which is being developed. According to the plans, upon the privatisation of the power plant, MPEC will be allowed to take a specified number of the shares of the plant (approx. 20%) in exchange for an equivalent percentage of the shares of MPEC given to the thermal energy producer; such equity interrelationships are also envisaged in privatisation programmes for other Polish thermal power plants.

Although such a solution may indicate that the analysed enterprise is attempting to reduce its transaction costs, it is worth noting that equity affiliation of the power plant and MPEC may result in strengthening their monopoly in the supply of thermal energy, which, when the price of the product is deregulated (in a situation when the prices of other energy carriers are still controlled by the government), will enable the enterprises to apply monopolistic practices. Such behaviour of thermal energy providers may be restricted by the simultaneous deregulation of the prices of different energy carriers (thermal energy, electricity and gas) and by removing entry barriers to the markets for those goods with a view to fostering competition.

4. CONTRACTS CONCLUDED BY THE THERMAL POWER PLANT WITH SUPPLIERS OF COAL AND OTHER PRIMARY COMMODITIES AND MATERIALS

Among the various contracts concluded by the power plant with suppliers of primary commodities and materials, of special importance are contracts for the purchase of coal, i.e. the principal raw material used to produce energy. The case under consideration may serve as an illustration of a situation where long-term contracts carried out under conditions of uncertainty and state regulation prove to be costly.

In 1994, in the course of negotiations, it was agreed that thermal power plants would enter into long-term contracts with coal mines and the price of coal would be adjusted during the term of such contracts according to dollar exchange rate fluctuations. By a decision of the Ministry of Industry and Trade the contracts became effective as of the beginning of 1995, and the initial price of coal was fixed at 32 USD per tonne. However, already during the first months after the contracts came into force, the Polish zloty unexpectedly appreciated, and the coal mining industry obtained lower profits than anticipated. As a result of action undertaken by the coal mines with a view to changing the pricing formula, the thermal power plants decided to waive the contractual provision and agreed to pay the higher price used before until the end of June 1995. After several months the coal suppliers again attempted to

raise the price of coal above the previously agreed level. However, this time the buyers did not agree to give up the agreement, as a result of which the coal mines increased the price of coal only minimally, in line with the contract provisions. At the same time, a negotiating team was established, whose task was to reach a compromise in the dispute. Until the completion of this study no compromise was reached.

The discussed case is an example of a typical nonstandard contract and of opportunistic behaviour on the part of coal suppliers seeking to realise economic rent at the buyers' cost. To use Williamson's terminology, the adaptations of transaction participants take place within a so-called private order, but only in the sense that conflicts between parties are settled out of court. In the case under consideration, however, the term private order does not seem to be adequate, because the parties to the contract are state-owned enterprises and, thus, the relations between them and the distribution of economic rent are crucially affected by the government's policy. In such a situation the amount of transaction costs paid by transaction participants and the possibilities of reducing it are of little importance.

Thus, the study indicates that the power plant incurs *ex post* transaction costs connected with renegotiating contracts with the coal mines and with measures taken in order to protect its own interests. The substantial scale of the costs is attested by the fact that the power plant is contemplating steps that would enable it to avoid contracts with the present coal suppliers. One of such options is to import coal, which would, however, require capital investment into wharf infrastructure owing to the technically limited unloading capacity of the docks. Information obtained in the course of the study indicates that coal buyers would be prepared to jointly finance such an undertaking, but they are aware that they would not get the government's approval. Another solution could be to change the energy generation technology and to use other raw materials. However, due to the high capital costs involved, such an alternative cannot be implemented in the near future. Under such circumstances the thermal power plant under consideration, as well as other enterprises in the industry, has no other option but to maintain the existing contracts and bear the costs connected with protecting its own interests and safeguarding itself from the coal suppliers' opportunism.

An analysis of the relations between the power plant and the providers of other goods confirms the hypothesis of transaction cost economics that transactions concerning nonspecific (standard) goods, whether concluded regularly or sporadically, are coordinated by the market. The relations between the parties are then of the classical-contract nature. It may be assumed that this is the mode in which the analysed enterprise obtains some primary commodities and materials.

5. CONTRACTS OF THE THERMAL POWER PLANT WITH SUPPLIERS OF SERVICES

The basic types of services used by the power plant are: repair, transport and purchasing services. During the analysed period the manner in which transactions regarding the above-specified services were coordinated by the enterprise (as well as by other thermal power plants in Poland) changed.

Initially, i.e. until the end of 1992, the transactions were organised within one enterprise. In the years 1993-1995, in connection with the programme of restructuring implemented in the enterprise, so-called auxiliary operations including repair, transport and purchasing services were separated from the plant's organisational structure and organised into independent enterprises in the form of limited liability companies whose shareholders are former power plant employees and the power plant itself, which owns 49 of the shares of each of the newly-formed companies.

The coordination of the relations between the power plant and the providers of services is currently mixed, i.e. both:

- hierarchical, as evidenced by the existence of equity links between the enterprises, and
- market-driven, because contracts for the provision of services are awarded on the basis of competitive bidding processes organised by the power plant.

The conducted reorganisation of the thermal power plant gives rise to one fundamental question: has the change in the manner of coordinating transactions concerning the provision of services resulted in a reduction of transaction and production costs?

Due to the short period of time during which the power plant has been operating with the new organisational structure and the difficulties in calculating the costs, it is not easy to give an unequivocal answer to the above question. However, it is possible, using transaction cost theory, to attempt to draw indirect conclusions concerning the issue whether a reduction of transaction and production costs was the principal objective of the change in the manner of coordinating the discussed transactions.

In comparing the transaction costs of services before and after the reorganisation of the power plant, it may be assumed that, as a result of establishing new companies, an additional transaction cost component was created relating to the tenders organised by the plant. However, in order to establish the total transaction costs it would be necessary to compare the transaction costs of organising the services within the power plant with the transaction costs of organising the services in the newly-established companies. The costs of organising transactions within the enterprise are not precisely

defined in transaction cost economics. Let us assume, then, that such costs are mainly the costs of the contractual relations between the enterprise's management and the owners of the factors of production and the costs of controlling the contracts. Taking into account the fact that the newly-established companies employ the same factors of production that were used within the power plant (the same employees and the same tangible assets, which are leased from the power plant), differences in transaction costs may be due to different costs of controlling employment contracts. Such costs may be lower in the newly-established companies, because their employees are simultaneously their owners, which may contribute to limiting their inclination to behave opportunistically by, for instance, avoiding the performance of their duties. Is this really the case in the considered enterprise? Does the potential reduction of transaction costs connected with controlling contracts of employment balance the increase in transaction costs connected with organising tendering procedures for the provision of services? The conducted analysis does not provide sufficient information to answer the above questions.

What can be compared then is the costs of production (provision of services). Considering that the services are provided using the same factors of production, it is possible to compare the average costs of providing the services before and after the power plant reorganisation, taking into account the degree of specificity of the factors of production. Treating the specificity of the factors as a variable, *ceteris paribus* it may be assumed that the average costs of providing the services in the new companies should be lower in a situation of lower specificity, because the factors of production may then be employed to provide services to many different buyers. If the factors of production are utilised only within the power plant (in a situation of low specificity) the average costs of services are higher than in the companies, as there is no opportunity to obtain the economies of scale. Thus, the greater the specificity of the factors of production, the smaller the difference in the average costs of services organised in the new companies and in the power plant.

The conducted study indicates that the degree of specificity of the factors of production employed in the companies varies. The factors utilised for carrying out repairs are highly specific, whereas a lower degree of specificity is probably characteristic of the factors used to provide the other services. This line of reasoning is based on the obtained information, which indicates that the repair companies (two companies were set up to carry out different types of repairs) provide services exclusively to the power plant, whereas the remaining companies serve other enterprises as well; such external customers account for around 20% of their business.

If the above reasoning is correct, then it is not possible to state unequivocally that the objective of the power plant reorganisation was to

reduce transaction costs and the costs of providing services. Such a conclusion, with regard to a state-owned enterprise operating in Poland, would be especially risky because of the relatively widespread practice of setting up companies subsidiary to the parent state-owned enterprise. This provides a basis for the presumption that this type of reorganisation of state-owned enterprises may be used in order for the employees of the newly-established companies to capture the economic rent generated in state-owned enterprises. However, without a deeper analysis it is impossible to establish whether such a phenomenon occurs in the thermal power plant which was the subject of this study.

6. CONCLUSIONS

The objective of the study whose results are presented in this article was to test the hypotheses of Williamson's transaction cost theory. Although the study was conducted only in one enterprise, the fact that the enterprises within the industry engage in joint activities within an association set up by thermal power plants warrants the treatment of the results of the study as representative for the whole industry. This applies especially to contracts with the principal thermal energy buyer and with coal mines as well as to the reorganisation of thermal power plants by establishing companies providing services.

The presented results indicate that in the case of certain transactions the manner in which they are organised confirms the hypotheses of transaction cost economics, whereas in the case of other transactions it is difficult to find any basis for either confirming or invalidating those hypotheses. It seems that such an outcome should not come as a surprise if two facts are taken into account.

First, the study concerned a state-owned enterprise, which cannot be implicitly attributed with the tendency to minimise costs.

Second, the process of the transformation of the Polish economy creates extremely favourable conditions for opportunistic behaviour as a result of the weakness of institutional constraints necessary for the emergence of a market order.

However, transaction cost economics does prove to be useful in the analysis of the activities of enterprises in Poland. The theory provides a method of determining whether a given manner in which a transaction is organised helps to minimise cost. The lack of confirmation of this hypothesis may constitute a starting point for analysing the objectives pursued within enterprises operating in Poland.

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