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CHARACTERISTICS OF TRANSACTIONS: A NEW APPROACH

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Abstract

Transaction is the main concept of the New Institutional Theory (NIT). According to specialists (R. Coase, O. Williamson etc.), transactions can be described by the following characteristics: asset specificity, uncertainty, frequency, transformation costs and transaction costs. Obviously, these characteristics can be divided into two groups: internal characteristics (asset specificity, uncertainty and frequency) and cost characteristics (transformation costs and transaction costs). In my opinion, this approach has three problems: there is no place for investments (of course, they may be perceived as a part of transformation costs, but it seems to be over simplistic), there is no direct correspondence between internal characteristics and cost characteristics (one may say that there is no need for such a correspondence, but it would be logical to expect that this correspondence does exist) and these characteristics are not used as a measure of integration. I propose to consider investments as an independent cost characteristic of transaction and to establish the following correspondence between internal characteristics and cost characteristics: Asset specificity depends on investments; Uncertainty is reduced by transaction costs; Frequency is linked to transformation cost as transformation cost is based on scaling effect. Therefore, I propose to include investments into cost characteristics of transactions as a separate characteristic. Uncertainty and frequency can be used as indicators of integration of economic agents. An ordinal measure of uncertainty can be constructed on the basis of pricing mechanism used by two companies – the bigger is the share of free market factors within this mechanism, the higher is the level of uncertainty (and the lower the degree of integration).

Key words: transactions, New Institutional Theory, investments, uncertainty, degree of integration

1. INTRODUCTION

Transaction is the main concept of the New Institutional Theory (NIT). According to specialists (R. Coase (Coase 1937), O. Williamson (Williamson 1985) etc), transactions (which can be defined as transfer of the property rights from one economic agent to another) can be described by the following characteristics: asset specificity, uncertainty, frequency, transformation costs and transaction costs. Definitions of these terms are given in the professional literature (Furubotn, Richter 2000) so I will not discuss the question of their economic and organizational nature.

Obviously, these characteristics can be divided into two groups:

- Internal characteristics (asset specificity, uncertainty and frequency). Internal characteristics (one may also describe them as technical or organizational characteristics) define the institutional organization of transactions between two (or more) economic agents (Williamson 1985), (Williamson 1986), (Williamson 1989), (Williamson 1991);

- Cost characteristics (transformation costs and transaction costs). These characteristics define how much the parties should pay for their cooperation.

Representation of characteristics of transactions in two groups leads to the following questions:

- These characteristics of transactions do not include investments. Of course, they may be perceived as a part of transformation costs, but it seems to be oversimplistic. First of all, in some situations investments are not included in the price the customer must pay (it means that they are excluded from transformation costs). Second, investments do not necessarily lead to actual transactions, that is, they do not always generate transformation costs and represent frozen capital instead.

Interestingly enough, in many sources specific assets are referred to as specific investments (see, for example, (Rokkan, Heide, Wathne 2003); Williamson also talks about specific investments (Williamson 1985)), so one may think that this list of characteristics of transactions does include investments. But from the methodological point of view these terms are not synonyms – investments represent money and time spent in order to achieve a long-term result, while assets represent this long-term result, and the NIT analyzes the specificity of assets, not the specificity of investments. In other words, this is an attempt to use a cost characteristic as an internal characteristic.

This exclusion of investments is not logical because the amount of investments is one of the main characteristics of business projects. This is why I think that it is important to find a way to include investments into the list of characteristics of transaction;

- There is no direct correspondence between internal characteristics and cost characteristics. One may say that there is no need for such a correspondence, but it would be logical to expect that this correspondence does exist as one can hardly think that these characteristics are completely independent because they reflect different aspects of the same phenomenon (for example, this correspondence exists within the group of internal characteristics – asset specificity and uncertainty are closely related to each other as more specific assets require lower uncertainty). In addition, one should note that according to specialists there is a correspondence between uncertainty and transaction costs as transaction costs is paid to reduce uncertainty. So the idea of correspondence between internal and cost characteristics of transactions is implicitly present in economic literature, but, most probably due to this implicit character, it was not elaborated;

- There is no measure of integration of economic agents based on evaluation of these transaction characteristics. Williamson says that the degree of integration (or, rather, the institutional organization of transactions – market with no integration, hybrids with smooth cooperation and hierarchies with rigid integration) depends on asset specificity, uncertainty and frequency, and the model of institutional organization is chosen in order to minimize transaction costs. However, Williamson did not propose an ordinal measure of degree of integration. Neither did he say which transaction characteristic can be used as an indicator of integration. Existing classifications of integrated organizations are phenomenological (Webster 1992) which is inconvenient from the methodological point of view.

The goal of this paper is to try to give answers to these questions. The importance of these questions is not completely theoretical; they have a clear practical application as according to Oliver Williamson (Williamson 1991) asset specificity, uncertainty and transaction costs have a direct impact on institutional structure of an economic organization, while investments are a key parameter of all business projects. A transparent measure of integration is also very important as it could help us to build up a classification of economic organizations based on firm economic ground (which may be useful, for example, from the point of view of taxation).

2. CORRESPONDENCE BETWEEN INVESTMENTS AND ASSETS

Obviously, the goal of investments is to set up a pool of assets necessary for business activity. According to the NIT, the main characteristic of assets is their specificity. So the question is if the specificity of assets depends on investments.

The answer is yes. First of all, despite the fact that there is no direct correlation between the amount of investments and the specificity of assets (as

Williamson pointed out, investments can be specific, unspecific and mixed (Williamson 1985)), bigger investments generally produce assets with higher specificity (for example, with higher productivity which requires bigger orders and cannot be used for small customers). So one can say that the increase of investments can lead to increase of specificity of assets. Second, asset specificity cannot be ensured without investments – simply because assets cannot be set up without investments.

This is why I propose to consider investments as an independent cost characteristic of transactions and to establish the following correspondence between internal characteristics and cost characteristics (see Table 1):

Table 1

Correspondence between different characteristics of transactions

Internal characteristics	Cost characteristics	Commentary
Asset specificity (as relative effectiveness of assets within specific transactions)	Investments (as money and time spent to set up a pool of assets)	Investments are required to set up a pool of specific assets (assets adapted to specific requirements of target customers) in order to ensure competitiveness of the company
Uncertainty	Transaction cost	Transaction cost is necessary to reduce uncertainty and to ensure effective cooperation
Frequency	Transformation cost	Transformation cost is based on scaling effect and depends on the frequency

This distinction between asset specificity as an internal characteristic and investments as a cost characteristic is, in my opinion, very important. Investments show the amount of money (and time) spent to set up a pool of assets, while asset specificity represents the profitability of assets within different transactions, or, better, the ability of assets to generate additional revenue in comparison with unspecific assets. This distinction can be described mathematically as follows – let us use the following symbols:

I_u – unspecific investments (amount of money spent to set up a pool of unspecific, standardized assets);

I_s – specific investments;

R_u – unspecific revenue (revenue obtained thanks to unspecific assets);

R_s – specific revenue (revenue that cannot be obtained without specific investments).

The degree of specificity of investments S_I can be calculated as follows:

$$S_I = \frac{I_s}{I_u + I_s}. \quad (1)$$

Respectively, the formula for the specificity of assets S_A is:

$$S_A = \frac{R_s}{R_u + R_s}. \quad (2)$$

Profitability of assets P can be calculated as follows:

$$P = \frac{R_u + R_s}{I_u + I_s}. \quad (3)$$

The indicator A can be used as a measure of importance of specific investments for company's effectiveness:

$$A = \frac{dP}{dI_s}. \quad (4)$$

Obviously, if $A > 0$, then specific investments are effective (one may say that the specificity of investments is positive for this transaction because these investments produce positive specificity of assets). If $A = 0$, then the specificity of investments is neutral (investments into specific assets do not generate positive asset specificity – company's income does not grow), and if $A < 0$, then the specificity is negative (it means that specific investments are not necessary for this transactions, as specific assets based on these investments will not generate additional income, they will reduce company's revenue). Neutral specificity arises when customers are interested in standardized products and are not ready to pay a premium for the adaptation of products to their requirements (because they either do not have any, or these requirements are not important for them). Negative specificity of investments may appear when the company misunderstood the requirements of its customers and invested into assets that produce non-standardized products that are not suitable for customers.

These examples clearly show the difference between specificity of investments and specificity of assets.

One may object that investments are usually intended to ensure business activity in general, not an isolated transaction, so considering investments as a characteristic of a transaction can be incorrect from the methodological point of view. However, it is very important to remember that all characteristics of transactions listed above can describe an isolated transaction as well as a series of homogenous transactions (for example, frequency is rather a serial characteristic). In addition, investments sometimes can be necessary for one unique transaction.

Another objection may be that not the full amount of investment is used to ensure the specificity of assets – a part of investment can be used to form a core non-specific part of assets (for example, equipment), while the second part is used to make these assets transaction-specific (for example, to adapt standard

equipment to customer's requirements). But the same is true for transaction cost – while it is often highlighted that transaction cost is necessary to reduce uncertainty, not all transaction cost actually reduce uncertainty, which is well known fact in economics. In other words, as Williamson indicated (Williamson 1985), assets are based on investments and specific assets are based on specific investments.

3. MEASURING THE DEGREE OF INTEGRATION

Economic organizations can form integrated structures if there is a large flow of transactions between them (it means, if the frequency of transactions is high) and if they are interested in reduction of uncertainty in their cooperation (Williamson 1991). It means that the lower degree of uncertainty corresponds to the higher level of integration and can be used as a measure of integration. But can one propose an algorithm of measurement of uncertainty and frequency? Interestingly enough, such algorithms, as far as I know, do not exist, while there are many different algorithms that can be used for ordinal evaluation of asset specificity ((Anderson, Coughlan 1987), (Klein, Frazier, Roth 1990), (Malone, Yates, Benjamin 1987), (Zaheer, Venkatraman 1994)).

The natural measure of frequency (as intensity of interactions) can be calculated as a share of turnover between two (or more) companies within their total turnover. The closer is this index to 100%, the higher is the degree of integration.

Uncertainty can be described as a risk not to get expected amount of income (or, better, not to get the expected profitability rate). Obviously, this uncertainty depends not only on the specificity of assets, but also on prices (if the economic agent can set the prices or has a long-term guarantee of prices, he or she will get the expected amount of income). In other words, if the specificity of assets represents the economical basis of uncertainty, the model of pricing is its visible representation. It means that the model of pricing can be used as an indicator of uncertainty – the lower is the share of market factors in the pricing model implemented by two (or more) economic agents, the lower is the degree of uncertainty and the higher is the degree of integration. To put it simply, excluding market factors from the pricing model means excluding market tools from the model of governance of interactions and drifts towards different forms of hybrids and eventually to hierarchy. One also may say that the specificity of assets (as a factor of uncertainty) will lead to "market-free" models of pricing.

I would propose the following classification of pricing models that can be used to measure the degree of integration of economic agents (see Table 2).

Table 2

Classification of pricing models

Pricing model	Level of uncertainty	Degree of integration
No price (resources are transferred from one division to another without payment)	Zero (divisions are completely free from impact of market factors: these factors have an impact on the company in general, but not on divisions)	Absolute (hierarchy). There is no transfer of property rights: resource remains within the same organization
Intra-corporate price (prices are set up by head office for taxation and accounting purposes and have a very weak correlation with market factors)	Small (market factors have a small impact on economic agents)	Strong. Divisions have some autonomy but key strategic decisions are taken by head office. Divisions may not cancel intra-corporate contracts if market price changes
Long-term contract prices	Medium (economic agents are protected from small changes of prices)	Weak. Economic agents cooperate, but are legally independent from each other. They may cancel contracts if market prices change dramatically
Market prices	Zero (no protection from market prices)	Zero (independent economic agents)

Of course, this classification is not exhaustive. However, it gives a general idea about using pricing models as a tool of measurement of uncertainty and degree of integration.

An interesting example of exclusion of market factors from pricing (or, better, pricing and payment) model is Gazprom pricing strategy. It uses prices fixed for a certain period, but in addition it applies the “take-or-pay” principle which means that Gazprom partners must either purchase the contracted volume of gas or pay for it. This behavior can be easily explained by the necessity to protect highly specific investments into such assets as gas holes and pipe lines. One may say that the “take-or-pay” principle in case of absence of actual gas purchase represents an artificial transaction where a payment occurs without property right transfer. In other words, this model eliminates risk for the supplier thanks to

4. CONCLUSIONS

The results presented above are preliminary and theoretical. But they clearly show that the investments should be analyzed as a separate cost characteristic of transactions in addition to transformation costs and transaction

costs. To put it simply, one should speak not only about the specificity of assets (as a parameter of transaction having a great impact on model of governance (Williamson 1991)), but also about the volume of investments as a key parameterthat determines effectiveness of business. I propose to distinguish the specificity of assets (which I understand as an income characteristic of transaction, that is, as the ability of assets to generate additional income) and the specificity of investments (which is a cost characteristic). Basically investments into innovations are investments into specificity (this is why they are very risky in the beginning as the degree of their specificity and uncertainty is very high, but this specificity helps to set up a unique competitive advantage that cannot be reproduced by possible competitors).

I also maintain that the pricing (pricing and payment) model used in interactions between economic agents can be used as an indicator of uncertainty and a measure of degree of integration of these agents. One may say that "no price" model corresponds to hierarchy, market price – to interactions based on market, while other pricing strategies that lay between these poles correspond to hybrids.

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