ADVERSE EFFECTS OF TRANSACTION COSTS IN EAST EUROPEAN ECONOMIES

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Abstract. *At a given level of technology the gross aggregate production function lies above the net aggregate production function where the difference represents the aggregate transaction costs in the economy. Transitional economies facing serious institutional impediments to creating a smoothly functioning market mechanism are faced with sizable transaction costs. We use a net production function model enhanced by Furubotn and Richter and apply it conceptually to the case of transitional economies. We find that at a particular level of a community isoprofit line much less output will be supplied compared to developed market economies with mature market institutions. The aim of the paper is to trace the falling output and the deep structural problems of East European economies to the effect of transaction costs and institutional building. The more rapidly transaction costs grow, the less the firms would be willing to pay for inputs. Furthermore, we find that certain markets tend to disappear in emerging economies due to the adverse effects of transaction costs. As a safeguard to precontractual opportunism and prevention to ex post transaction costs, ex ante transaction costs would play a more vital role in East European societies.*

Key words: *transactions costs, transition economies, aggregate production function, opportunism*

Introduction

Coase (1937) introduces the term transaction costs in his pathbreaking work "The Nature of the Firm." He uses the concept of transaction costs to explain the existence of firms as alternatives to market organization. Then in "The Problem of Social Cost" Coase (1960) examines two situations involving interfering businesses: that of the ideal world of zero transaction costs and that of the real world of nonzero transaction costs. Coase uses zero transaction costs merely to illustrate the meaning and effect of transaction costs in reality. He (1988, p. 174) believes that the real costs of using the market mechanism are nonzero and regrets the fact that zero, rather than positive, transaction costs have received so much attention in the academic world (Coase, 1994). Williamson (1979) also claims that there are and always will be transaction costs. According to Williamson (1989, p. 227), Coase uses the zero-transaction cost condition merely for reference purposes and not only do all transactions incur some transaction costs but,

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more importantly, the costs of governing contractual relations differ among the different forms of economic organization. The comparative institutional analysis of economic organization is meaningful only with positive transaction costs. They are important because they explain the different modes of economic organization. Eggertsson (1999, p. 102), Furubotn & Richter (2000, p. 85) also believe that transaction costs are positive in the real world.

Once positive transaction costs are introduced in economic analysis, obtaining market information becomes costly and individuals are boundedly rational (Williamson, 1979, 1985). Their ability to acquire information is limited, which causes their knowledge of the market system to be only partial. The concept of positive transaction costs becomes of primary importance in societies where the costs of transacting are prohibitively high and institutional backwardness blocks the functioning of the market mechanism. A group of scholars emphasizes just these negative effects of transaction costs on economic development. In his article "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism", Akerlof (1970) describes well the mechanisms by which transaction costs, asymmetric information and contractual opportunism extinguish markets. Prior to him Banfield (1958) argues that lack of trust is one of the causes of economic underdevelopment. Eggertsson (1999, p. 40) believes that negotiation costs and other transaction costs may block the reassignment of rights. Thus, how property rights are defined may have important consequences for the aggregate output of an economy and can affect an entire macroeconomic system leading it to growth or stagnation.

Some new institutionalists study political transaction costs, i.e., the "costs of running and adjusting of the institutional framework of the polity" (Furubotn & Richter, 2000, p. 43). These are the costs of sustaining the formal and informal political organization of a system as well as of running a polity. They arise in the context of law and represent the costs of running the state as a social arrangement. In contrast to them are market transaction costs, the costs of search and information, bargaining and enforcement, using the market. When political transaction costs exceed the costs of using the market, the latter would be a preferable way of allocating resources. When the market transaction costs are greater than the costs of centralized control and decision-making, then the state becomes a preferable instrument (Coase, 1960).

A group of economists discuss transaction costs in the context of economic transition. Glaeser et al. (2001, p. 854) analyze the transaction cost effects and efficiency of the court system in Eastern Europe. To minimize the costs of market transacting and, thus, enforce property rights, judges must be able, and more importantly willing, to read, verify and interpret complicated contracts. Glaeser et al. (2001) find that in many emerging markets courts are underfinanced, unmotivated, unclear as to the applications of law, unfamiliar with economic issues, and even corrupt. The lack of resources or incentives to enforce the law often leads to the postponement of decisions in cases of noncompliance or a complete lack of justice. In studying the process of transition new institutionalists like Furubotn & Richter (2000, p. 22) find that disregard for

the relationship between political processes and economic development by western economic advisors is the reason for the slow transformation of the post-communist economies. Riker & Weimer (1995, p. 94) suggest that emerging economies face severe problems in establishing the credibility of their systems of property rights due to the unpredictability of government policy and the lack of deep understanding of the role that private property plays in market economies. In his Nobel Prize lecture Coase (1991) concludes that the attempts to establish a market economy in Eastern Europe make clear the importance of institutional factors. "These ex-communist countries are advised to move to a market economy, and their leaders wish to do so, but without the appropriate institutions no market economy of any significance is possible" (Coase, 1991)[1]. Coase (1991) thinks that the West would have done a better job advising the emerging market economies if it knew more about its own economy.

We could imagine that there may be economic sectors or activities where transaction costs are negligible so that private bargaining is easy in the ideal "Coasian" world of zero transaction costs. But what matters more for economic analysis are situations of prohibitively high transaction costs, i.e., activities or societies in which transaction costs are so remarkably high that they cause the disappearance of some markets and block the economic development of some countries. While there may be societies and economies where transaction costs are negligible, individuals in East European societies are more prone to limited information, bounded rationality, opportunism and uncertainty than the citizens of western developed countries, their knowledge of the economic system being much more limited.

We have studied the roots of transaction costs in transitional economies previously (Todorova, 2004, 2007). We trace those roots to the opportunistic behavior of economic agents at the time of socialism when opportunism was inherent in the large socialist firm. Furthermore, transaction costs originate from the fact that newly emerging democracies have to build their markets from scratch. In socialism there was no market but just one centralized state-owned firm. The market mechanism that transitional economies have recently adopted resembles new machinery that has not been tested and experiences strong friction. It is this friction that hampers the economic development of East European societies and that represents transaction costs.

In this paper we shall argue that the dramatically high transaction costs in transitional economies lead to a lower net aggregate output than in their western counterparts. Transitional economies facing serious institutional impediments to market exchange experience sizable transaction costs that lead to a substantial divergence between the gross and the net aggregate production function at a particular level of technology. The less efficient the coordination of economic activities in society and the higher the costs of using the market mechanism, the lower the net output supplied in the economy.

[1] In addition, Coase (1991) states: "It makes little sense for economists to discuss the process of exchange without specifying the institutional setting within which the trading takes place since this affects the incentives to produce and the costs of transacting. I think this is now beginning to be recognized and has been made crystal-clear by what is going on in Eastern Europe today."

The aim of the paper is to relate the lower output and the deep structural problems of East European economies to the effect of transaction costs and institutional build-up. Production is hampered, on the one hand, by a lower technological level and, on the other, by high transaction costs. The prescriptions of classical economics on efficiency and general market equilibrium do not work in East Europe and new institutional economics helps explain the impediments to its economic development. Furthermore, we argue that *ceteris paribus* firms in Eastern Europe would tend to pay less for inputs as a result of higher transaction costs. Finally, the breakdown of transaction costs into *ex ante* and *ex post* transaction costs and their role in high-transaction cost and low-transaction cost societies seem to show that *ex ante* safeguards that prevent precontractual opportunism in commercial transactions are more important in the East European case.

The paper starts with introduction and literature review. Part 1 discusses the "transaction" firm in the context of the activity "transaction" as an analog to the activity "production." Part 2 shows the difference in gross and net production output resulting from transaction costs at the firm level. Part 3 expands the analysis to high- and low-transaction costs economies. Part 4 discusses the role of *ex ante* and *ex post* transaction costs in the two types of economies. The paper ends with a conclusion.

1. The transaction firm

In their model of the transaction firm Furubotn & Richter (2005, p. 65) equate the activity "transaction" to the activity "production" in its conventional classical meaning.[2] A given commodity can be traded between a producer and a consumer. In order to identify each other, conclude the deal, monitor and enforce the agreement the two parties incur transaction costs the amount of which is measured in a net loss of that commodity. Similar to the classical production function the activity "transaction" may be presented by a "transaction function."

$$Y_C = F(Y_P),$$

where the transaction output depends on the production function and, therefore, replicates its form. Y_P is the amount of the goods promised to be delivered by the producer, while Y_C is the amount promised to be accepted by the consumer.

The distance *OA* is the amount of the commodity sold by the producer or the "transaction input." The consumer does not receive this entire amount, only the distance *AB* or the "transaction output." The distance *DB* then represents the transaction costs and can be noted as $K = Y_P - Y_C$ where *OC* = *CD* = *AB* and *DB* = *BC* – *AB* = *K*. If positive transaction costs are assumed, the transaction function must lie below the

[2] Furubotn & Richter (2005) refer to Foley (1970), who includes transaction costs in the standard model of perfect competition by adding the activity "transaction" to the system as if it is equivalent to the activity "production."

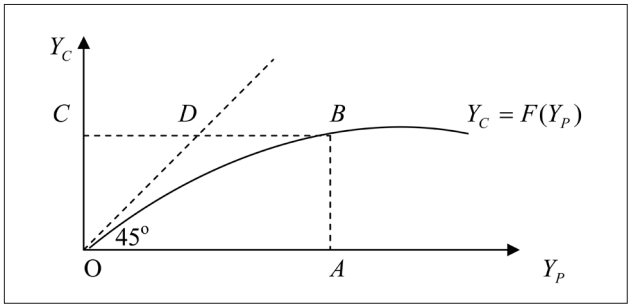

FIGURE 1. **The Transaction Function**
Source: Furubotn & Richter (2005)

45° line. There will be zero transaction costs, if B coincides with D (the transaction function is on the 45° line) and $DB = 0$. Alternatively, if the transaction function intersects the 45° line, transaction costs must be negative, which is an improbable situation. As transaction costs are positive in the real world, some of the transaction input is always wasted and the transaction output is less than the input.

The slope of the transaction function gives the marginal product of the transaction process. It shows how many additional units of output the consumer will receive when the producer supplies an additional unit of input. As the volume of trade increases, the marginal product $MP = \frac{\partial Y_C}{\partial Y_P}$ of the transaction process decreases (the slope of the transaction function falls). This declining slope of the transaction function shows that transaction output increases more slowly than transaction input, which is the result of the increasing transaction costs. The more transactions take place, the higher the transaction costs and the greater the divergence between transaction input and output. Furubotn & Richter (2005) maintain that this situation could occur if, from a certain point onward, buyers and sellers have to search harder for exchange possibilities and monitor transactions with increasing care as the total volume of transactions increases. "Increased monitoring and enforcement effort may be needed so that the parties to the exchange can guard against opportunistic behavior, which may arise from either side of the contract" (Furubotn & Richter, 2005, p. 66). It should be noted also that the higher the transaction costs, the greater the distance between the transaction function and the 45° line of zero transaction costs and the lower the transaction function would lie below the 45° line. For East European firms the transaction function would lie much lower than the 45° line in comparison to that of western transaction firms whose transaction function would lie close to the latter. Hence, $MP = \frac{\partial Y_C}{\partial Y_P}$ is smaller for the East European transaction firm, which means that for a higher increase in the transaction input Y_P there will be a smaller increase in the transaction output Y_C. Much more of the commodity will be wasted in the form of transaction costs.

Let's assume that the activity transaction is performed by the transaction firm, which buys a given commodity from the producer at a price P_P and sells it to the consumer at a price P_C. The firm is trying to maximize its profit R subject to the transaction function:

$$\text{Max } R = P_C Y_C - P_P Y_P \qquad \text{Subject to } Y_C = F(Y_P)$$

Solving:

$$\text{Max } Z = P_C Y_C - P_P Y_P + \lambda\left[Y_C - F(Y_P)\right]$$

$$Z_\lambda = Y_C - F(Y_P) = 0$$
$$Z_{Y_C} = P_C + \lambda = 0$$
$$Z_{Y_P} = -P_P - \lambda \frac{\partial F}{\partial Y_P} = 0$$

From the last two equations:

$$\frac{P_C}{P_P} = \frac{\partial Y_P}{\partial F} = \frac{\partial Y_P}{\partial Y_C}$$

Alternatively,

$$\frac{\partial Y_C}{\partial Y_P} = \frac{P_P}{P_C}$$

Because the transaction function lies below the 45° line, then it must be that

$$\frac{\partial Y_C}{\partial Y_P} < 1$$

If follows that

$\frac{P_P}{P_C} < 1$ and $P_P < P_C$, respectively.

We can conclude that the price which the transaction firm will pay the producer for obtaining the commodity will necessarily be lower than the price it will charge the consumer. The difference can be attributed to transaction costs. We also find that for a profit-maximizing transaction firm the slope of the transaction function or the marginal product of the transaction process $MP = \frac{\partial Y_C}{\partial Y_P}$ will always be positive (due to the two positive prices P_P and P_C) but less than 1 and, hence, the concave curvature of the transaction function, which again can be attributed to the presence of transaction costs.

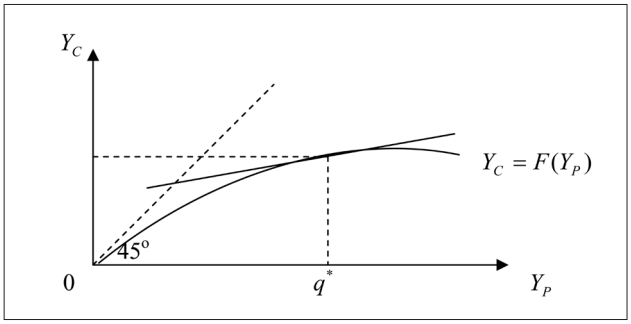

FIGURE 2. **Profit-maximizing Transaction Activity**

There exists an optimal amount of the activity "transaction" that would maximize the profits to the transaction firm.

Studying the profit-maximizing behavior of the transaction firm we can observe that some highest isoprofit line must be tangent to the transaction function at the profit-maximizing point q^*, as can be seen from Figure 2. For the East European transaction firm the fact that $MP = \frac{\partial Y_C}{\partial Y_P}$ is very small shows that the price P_C that the consumer is being charged is substantially higher than the price P_P the producer will receive for the input. In the transitional context consumers and producers tend to bear the burden of transaction costs. Furthermore, having a lower transaction function the transitional transaction firm will likely achieve less profit than its western counterpart producing at a higher isoprofit line. At the optimum it will supply much less output than if transaction costs were lower. This effect will be demonstrated in greater detail in the next section of the paper.

If there are decreasing returns to scale of the activity "transaction," there exists an optimal size for the individual transaction firm. Similar to the production firm it will have its optimal size at some volume of operations where long-run costs of transacting are minimal. Left of that point will be the section of diminishing returns to scale where the transaction firm should pursue greater scale to achieve economies. Right of the optimum the firm should reduce the number of transactions to avoid diseconomies of scale. The model ignores the transaction costs incurred by the transaction firm when obtaining the commodity from the producer as well as the costs faced by the producer himself. It shows only transferring the goods from the producer to the consumer.

2. Transaction costs and the individual firm

The activity "transaction" could be integrated into the production firm, the household or the consumer. To find the effect of transaction costs on the activity of the production firm we need to subtract them from the gross product achieved by the firm at a given level of technology. Thus we obtain the net production function, which would lie below

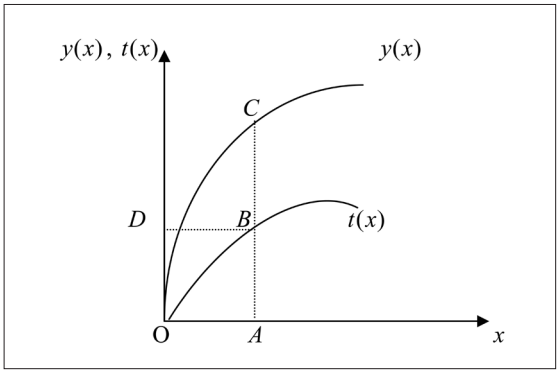

FIGURE 3. **The Gross and Net Production Functions**

the gross production function. If by x we denote the input and by y the gross output, output is a function of input given by $y(x)$.

The net production function accounting for transaction costs is $t(x)$. That of gross production $y(x)$ lies above it. The distance between the two represents the loss of output due to transaction costs at each particular volume of operations. If, for example, the producer wishes to obtain *AB* amount of output, he needs to use *OA* amount of input. The difference between the gross production function and the net production function will be the transaction costs *BC*. We see that although a lot is produced (the entire amount *AC*), very little remains at the end. Much is lost to transaction costs.

It is worth noting that both slopes are positive, that is, $\frac{\partial y}{\partial x} = MP_P > 0$ and $\frac{\partial t}{\partial x} = MP_T > 0$. The first term shows the slope of the gross production function $y(x)$ or the gross marginal product; the second one shows the slope of the net production function $t(x)$ or the net marginal product. Both the gross marginal product and the net marginal product are positive showing that gross and net output increase with input. However, $MP_P > MP_T$ which shows that gross output increases faster than net output the difference stemming from the presence of transaction costs, which increase with input. That is to say, that for total transaction costs $T(x)$ we have $\frac{\partial T}{\partial x} = MC_T > 0$ or marginal transaction costs are positive and increasing input and the scale of economic activities increase transaction costs. Put differently, output tends to increase more slowly with input when transaction costs are positive and increasing. The objective of the firm then is to maximize its net profit:

$$\text{Max } \pi = pt(x) - C(x) = py(x) - C(x) - T(x)$$

where $C(x)$ are the total production costs and $T(x)$ shows the total transaction costs in monetary terms. As was already assumed, a particular output level $y(x)$ is associated with a given input level x. Output is sold at a price p. At the optimum,

$$\frac{\partial \pi}{\partial x} = p\frac{\partial y}{\partial x} - \frac{\partial C}{\partial x} - \frac{\partial T}{\partial x} = 0, \text{ or}$$

$$\frac{\partial \pi}{\partial x} = p\frac{\partial y}{\partial x} - MC_P - MC_T = 0$$

where the total marginal cost is the sum of the marginal production cost MC_P and the marginal transaction cost MC_T. Then it must be that the value of the marginal product $VMP = p\frac{\partial y}{\partial x}$ equals the total marginal cost at the optimum.

Let us now consider a case of constant average production costs where total production costs depend linearly on the level of input, i.e., $C(x) = cx$, where c is average production cost.

$$\pi = py(x) - cx - T(x)$$

Then at the optimum we have

$$\frac{\partial \pi}{\partial x} = p\frac{\partial y}{\partial x} - c - \frac{\partial T}{\partial x} = 0$$

$$c = p\frac{\partial y}{\partial x} - \frac{\partial T}{\partial x}$$

where $\frac{\partial y}{\partial x}$ gives the marginal production product MP_P and $\frac{\partial T}{\partial x}$ gives the marginal transaction cost MC_T and both MP_P and MC_T are positive. We obtain

$$c = pMP_P - MC_T = VMP_P - MC_T \qquad (1)$$

It follows that in the world of positive transaction costs the firm would pay a smaller price for an input than if transaction costs were assumed to be zero. In transitional economies where the marginal transaction cost is higher and total transaction costs grow faster firms would opt to pay a lower price for the input. At the same time in developed market economies even a more substantial increase in the level of input would not increase total transaction costs very much so the marginal transaction cost would tend to zero. The firms would value inputs at the level of the value of the marginal product in a classical zero transaction cost situation. Because the marginal transaction costs can be prohibitively high and may exceed the gross value of the marginal product, firms will be reluctant to hire any of the input. Equation (1) only makes sense when

$$VMP_P > MC_T$$

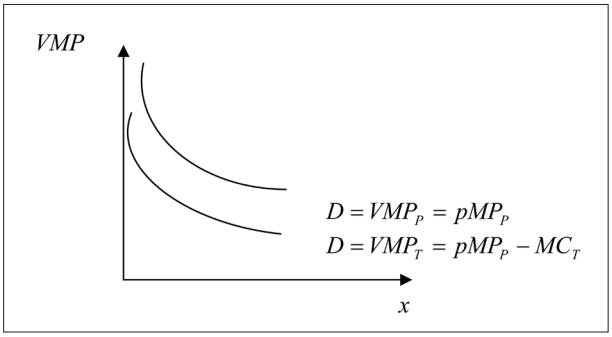

FIGURE 4. **Demand for an Input with and without Transaction Costs**

The firm will not demand any input when $VMP_P < MC_T$. This example illustrates that optimum production decisions within the firm differ in the world of classical economics and that of positive transaction costs. In reality the firm would never pay the gross value of the marginal product of its input VMP_P. It would tend to pay less for an input the faster the transaction costs of economic activity grow. It will pay more, the more slowly those costs increase. The net value of the marginal product VMP_T is the difference between the gross value of the marginal production product and the marginal transaction costs and is illustrated by Figure 4.

3. Transaction costs and the aggregate production function

At the individual firm level the model shows firms or market situations where the transaction costs outweigh productive efficiency. For example, one firm may be less productive in gross terms but much more efficient in transaction, i.e., net terms. With the same level of technology it may achieve greater final output due to reduced transaction costs.

At the aggregate level the model illustrates societies at different levels of institutional development and economic efficiency. Sizable transaction costs offset the benefits of exchange in some countries. At a particular level of technology the net aggregate production function lies below the gross production function showing the size of the transaction costs. It will lie further below the production function when aggregate transaction costs are sizable in the economy and when the coordination of economic activities is less efficient. Furubotn & Richter (2005, p. 69) point to poor legislation as an example of such inefficiency in governmental activity. Although two economic systems or countries may have the same level of technological knowledge, their governments may not be equally efficient, which will result in different net production functions. The one with the more efficient government will enjoy greater net output at any respective level of input. The transaction costs in question may be political transaction costs, the costs of setting up, maintaining and changing the formal and informal political organization of a system as well as the costs of running a polity. But the difference between gross and net aggregate output may also result from high costs in private bargaining, i.e., from high market transaction costs.

Transaction costs do matter and may offset what was achieved with the help of production efficiency. Their importance is most vivid in the case of complete market failure when transaction costs are so high they prevent market exchange. The high costs of using the market can be overcome by the formation of hierarchies within which it is less costly to organize economic activities. The managerial costs of running a firm might be lower than the transaction costs of using the market and the firm becomes an alternative to the market. A problem for East European economies has been that both market and intrafirm or managerial transaction costs seem to be excessively high and economic activity can be organized neither through the market, nor through the firm. In the extreme case of excessive transaction costs the state as a superfirm or a firm of a special kind can be the best way to organize economic activities and economize on transaction costs. The transaction costs of obtaining some commodities through the market are so high that the sum of the transaction and production costs completely discourages consumers from demanding those commodities. High transaction costs hinder and in many cases completely block the economic development of countries in transition.

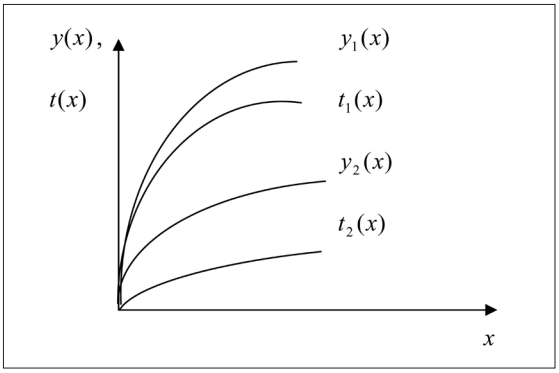

FIGURE 5. **Gross and Net Aggregate Production Function in Low- and High-Transaction Cost Economies**

In Figure 5 $y_1(x)$ and $t_1(x)$ show the gross and net aggregate production functions of an advanced, low-transaction cost economy, respectively. Analogously, $y_2(x)$ and $t_2(x)$ are the gross and net aggregate production functions of a transition economy facing a lower level of technological development but higher transaction costs. The technological advancement and productive efficiency of the advanced economy is visible from the fact that its aggregate production function $y_1(x)$ lies above that of the economy in transition $y_2(x)$. Outdated technology and inefficient organization of production contribute to the much smaller gross aggregate output of the transitional economy. Furthermore, institutional impediments and significant transaction costs yield much less net output in transitional economies.

Both types of economies face positive transaction costs and their net production functions lie below their respective gross production function. But the net production

function $t_2(x)$ of the transition economy lies much below that of the advanced economy. The difference between the gross and net production function is much greater for the transitional, high-transaction cost economy than for its advanced, low-transaction cost counterpart. This shows a greater loss to transaction costs in the transitional economy. The difference in aggregate output can be directly traced to the lack of stable and developed market institutions in Eastern Europe as the formal and informal rules of transacting. If mutual trust and ethical behavior prevailed in business relations in the region, the difference in the gross aggregate output and the technological level might have been offset by low costs of transacting. In addition to that, the legacy of public property as the prevailing type of property in transitional economies in the past contributes to the lack of proper incentives for knowledge accumulation. Private, rather than public, state-owned property provides economic agents with a direct incentive to improve efficiency and productivity and to acquire more knowledge and new techniques of production.

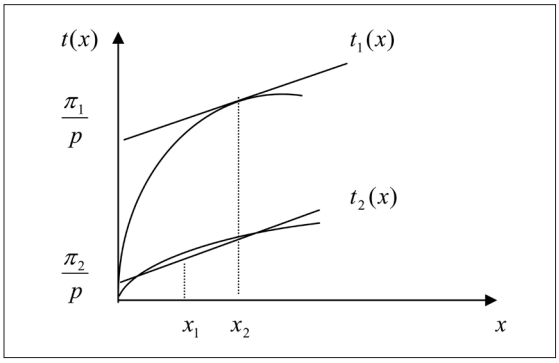

FIGURE 6. **Optimal Output Levels in a Low- and a High-transaction Cost Economy**

The net aggregate production functions of a low- and high-transaction cost economy look very different. At the same level of input x the advanced economy produces much more net output than the transitional economy. The optimum amount would depend on some highest community isoprofit line for both societies.

The slope of the community isoprofit line is given by the average input price c in the economy over the average unit price level of the aggregate output p where $t(x) = \frac{\pi}{p} + \frac{c}{p}x$. Thus for the low-transaction cost, high-output economy we obtain $t_1(x) = \frac{\pi_1}{p} + \frac{c}{p}x$ whereas for the high-transaction cost, low-output economy the isoprofit equation is $t_2(x) = \frac{\pi_2}{p} + \frac{c}{p}x$. For the same level of input and output prices in the two economies at the optimum where some highest isoprofit line touches the surface of the net aggregate production function one country will produce more than the other. Notice that the optimum for the transitional economy at the same slope of the

isoprofit line occurs at output, which is substantially smaller than that in an advanced economy facing lower transaction costs. The isoprofit line at which the transitional economy is producing is lower than the isoprofit line at which the advanced economy is producing. This shows that firms in the transitional economy achieve much lower profit so $\pi_1 > \pi_2$. Consequently, less of it will be invested in future production and the return on investment will be smaller. We can conclude that transaction costs reduce not only aggregate output of an economy but also the profits of firms in that economy.

If the economic development of a country is to be stimulated, attention must be paid to both production and organizational technique. The lack of legislation reducing transaction costs may offset any improvement based on technical progress and hence lead to the discouragement of economic activity. Legislation reducing transaction costs may increase total productivity in an economy despite the lack of substantial technological improvements. On the other hand, countries experiencing high transaction costs and having difficulty changing their legislation, should rely more heavily on the achievements of technological progress to compensate for the institutional impediments to market exchange. While it is true that institutional effectiveness is a better road to pursue, countries, which are not successful in bringing down transaction costs and creating a more efficient market economy, should rely on innovation in productive technology or product development. Yet, institutional reform is crucial to the transformation of East European economies into more productive systems of market capitalism.

4. *Ex ante* and *ex post* transaction costs

The comparative analysis of different types of economies can further be expanded to the study of the role that *ex ante* and *ex post* transaction costs play in the different economies. Theoretically, *ex ante* transaction costs are those of ensuring, defining and protecting property rights prior to concluding the contract. To Williamson (1985, p. 20) the *ex ante* costs are those of "drafting, negotiating, and safeguarding an agreement." The parties draft a complex document where numerous contingencies are recognized and appropriate adaptations are stipulated and agreed to in advance.

Ex ante transaction costs act as safeguards against precontractual opportunism, which may largely be the result of asymmetric information in sales contracts. Transaction costs are incurred prior to signing the contract because parties, pursuing their own interest, may not be wholly trustworthy. The more informed party may take advantage of the less informed party by giving incomplete or distorted information. Akerlof (1970) explains the grounds for *ex ante* opportunism in his "lemon" model. Examples of *ex ante* opportunism are sellers who misrepresent low-quality used cars as high quality products to potential buyers or job seekers misrepresenting their true abilities to a potential employer. The problems that arise at the precontractual phase are more of the principle-agent model of adverse selection where the principal cannot observe the qualities of the individual agent. Thus *ex ante* transaction costs would very much be oriented to detecting deviation from the claimed quality or promised performance and

would represent resources dedicated to measuring the right quality prior to signing the contract. According to Barzel (1985, p. 8), resources are devoted to cheating and to its prevention, which distinguishes real outcome from that obtained in the Walrasian world.

The *ex post* transaction costs, on the other hand, represent the costs of enforcing, monitoring and observing a contract that has already been signed. Williamson (1985, p. 21) distinguishes between several types of *ex post* transaction costs: 1) the maladaptation costs incurred when transactions drift out of alignment, 2) the haggling costs incurred if bilateral efforts are made to correct *ex post* misalignments, 3) the setup and running costs associated with the governance structures to which disputes are referred, and 4) the bonding costs of effecting secure commitments. Postcontractual opportunism does not stem so much from asymmetric information but rather from the presence of high specificity to a transaction such as physical asset specificity, dedicated assets, site specificity or human-capital specificity. A demonstration of postcontractual opportunism is the holdup problem when one party to a transaction captures some or all of the quasi rent of the party with the greater specific investment or when parties fall hostages to their contractual relationship (Williamson, 1985, p. 79). The superior party can *ex post* change the *ex ante* agreed-upon distribution of the quasi rent from the transaction exercising power in the contractual relationship. Furubotn & Richter (2005, p. 187) equate *ex post* opportunism to redistributional power – "the expropriation of the *ex ante* agreed-upon share of the value added."

Williamson emphasizes that *ex ante* and *ex post* costs of contracting are interdependent and must be addressed simultaneously rather than sequentially. In particular, transactions that are subject to *ex post* opportunism will benefit from appropriate safeguards designed *ex ante* (Williamson, 1985, p. 48). We can hypothetically break down total transaction costs into *ex ante* and *ex post* transaction costs expressed by the sum

$$T(x) = T_1(x) + T_2\left[T_1(x)\ x\right]$$

where $T_1(x)$ are *ex ante* transaction costs that depend on the level of input such that $\frac{\partial T_1}{\partial x} > 0$. This implies that the greater the input, the higher would be the *ex ante* transaction costs of safeguarding the deal. These are safeguards against precontractual opportunism as a function of the level of input. *Ex post* transaction costs $T_2\left[T_1(x), x\right]$ depend positively on the level of input and negatively on the *ex ante* transaction costs. The first effect illustrates the influence of postcontractual opportunism that appears to be stronger the higher the stake of each party and the input in the transaction. Therefore, $\frac{\partial T_2}{\partial x} > 0$, where *ex post* opportunism reflects the noncompliance of the parties with the stipulated terms of the contract after it has been concluded. The second effect shows the interrelation between *ex ante* and *ex post* costs where the effect of safeguards prior to the

conclusion of the deal is to secure its enforcement and monitoring post fact. In other words, *ex ante* transaction costs have the effect of reducing *ex post* transaction costs so that $\frac{\partial T_2}{\partial T_1} < 0$. We try to study the overall effect of transaction costs on the price the firm would pay for an input and analyse how the firm behavior would vary in developed and transitional market economies. We obtain

$$\pi = py(x) - cx - T_1(x) - T_2[T_1(x), x]$$

At the optimum

$$\frac{\partial \pi}{\partial x} = p\frac{\partial y}{\partial x} - c - \frac{\partial T_1}{\partial x} - \frac{\partial T_2}{\partial T_1}\frac{\partial T_1}{\partial x} - \frac{\partial T_2}{\partial x} = 0$$

Expressing the optimal price the firm would pay for an input, given the presence of *ex ante* and *ex post* transaction costs,

$$c = p\frac{\partial y}{\partial x} - \frac{\partial T_1}{\partial x} - \frac{\partial T_2}{\partial T_1}\frac{\partial T_1}{\partial x} - \frac{\partial T_2}{\partial x}$$

$$c = p\frac{\partial y}{\partial x} - \frac{\partial T_1}{\partial x}\left(1 + \frac{\partial T_2}{\partial T_1}\right) - \frac{\partial T_2}{\partial x} \qquad (2)$$

As was already discussed, the result with positive transaction costs differs from that of zero transaction costs when the firm would pay more for a given input used in a production process. It is clear that the effect of *ex post* opportunism shown by the last term in the equation is to reduce the price the firm would pay for an input. The greater the amount of the input, the higher the degree of *ex post* opportunism and hence the greater the *ex post* transaction costs. Comparing advanced economies with newly emerging markets, experiencing stronger opportunism and higher *ex post* transaction costs, brings to the conclusion that *ceteris paribus* the price of the inputs firms tend to buy would be lower in transitional economies.

What is the effect of the second term in the equation? Clearly, the higher volume of operations increases the *ex ante* transaction costs similar to *ex post* transaction costs. At the same time, as was noted, *ex ante* transaction costs aim to reduce *ex post* risks so the higher the *ex ante* transaction costs, the lower the *ex post* transaction costs. How does this effect work in developed and transitional economies? In developed economies even larger levels of input would not stimulate serious increases in the size of *ex ante* transaction costs. Because the increase in *ex ante* transaction costs would be minimal, the reduction in *ex post* transaction cost would be furthermore small where the term $\frac{\partial T_2}{\partial T_1}$ shows the cost reduction effect. There would be a relatively small *ex post* transaction cost reduction effect in developed western countries.

At the same time in transitional economies the importance of the *ex ante* transaction costs would be high. Even minor increases in the input levels would stimulate higher *ex ante* transaction costs. They can further be associated with a greater reduction in the level of *ex post* transaction costs thus compensating for future opportunism. If the effect of *ex ante* transaction costs is significantly large, it may offset the cost increasing effect of a higher input, ideally leading to the second term in the equation being positive. Thus *ex ante* transaction costs may outweigh the effect of *ex post* transaction costs. While *ex ante* transaction costs would have a minor role in developed market economies experiencing weaker opportunism, *ex ante* transaction costs would be vital in emerging market economies. Parties to commercial contracts would rely much more heavily on *ex ante* safeguards prior to the deal against future opportunism and moral hazard after the deal. This analysis also helps to explain the relative similarities between input prices in the two types of economies although the similar results are achieved by different transaction costs mechanisms, the *ex ante* transaction costs playing a much more important role in the emerging markets. We illustrate the various effects from equation (2) in Table 1.

TABLE 1. **Partial Effects on *Ex Ante* and *Ex Post* Transaction Costs**

	$\frac{\partial T_1}{\partial x}$	$\frac{\partial T_2}{\partial T_1}$	$\frac{\partial T_2}{\partial x}$
Developed economies	Small	Small	Small
Transitional economies	Large	Large	Large

We have previously studied empirically some sectors in emerging market economies that demonstrate high transaction costs of market dealings, opportunism and lack of trust stemming from the high degree of asset specificity in those sectors. More specifically, in an empirical study on the Bulgarian pharmaceutical sector we have shown that the strong opportunism on the part of pharmacies and distribution chains has led the major pharmaceutical companies in the country to try to acquire those and seek schemes by which to circumvent the prohibitive laws on vertical integration. As an example of a high asset specificity, high-transaction cost sector in an emerging market the Bulgarian pharmaceutical industry has turned into a potentially good host for vertical integration (Todorova, 2010).

5. Conclusion

There is a huge discrepancy in the aggregate output produced in developed and transitional economies stemming from the presence of significantly large transaction costs in transitional economies. At the same technological level a country facing strong opportunism in market dealings and lacking transaction cost reducing institutions can supply much less output. We have shown that firms in such an economy achieve much smaller profits. They are likely to invest less in the future, pay less for inputs and

receive a lower price for their output as a final result. This way transaction costs block the economic development of newly emerging market economies lacking commercial customs, practices and formal rules of the market game. We show that with excessively high transaction costs market demand for inputs approaches zero thus leading input markets into a low-end equilibrium. As a means to prevent *ex post* transaction costs stemming from postcontractual opportunism *ex ante* transaction costs play a stronger role in high-transaction cost economies than in low-transaction cost economies. Efficiency enhancing institutions and higher levels of technology become a priority in their economic development.

REFERENCES

Akerlof, G. A. (1970). The Market for 'Lemons': Quality Uncertainty and the Market Mechanism. *Quarterly Journal of Economics*, 84, 488-500.

Banfield, E. C. (1958). *The Moral Basis of a Backward Society*. New York: Free Press.

Barzel, Y. (1985). Transaction Costs: Are They Just Costs? *Journal of Institutional and Theoretical Economics*, 141, 4-16.

Coase, R. H. (1937). The Nature of the Firm. *Economica*, New Series, 4, 386-405.

Coase, R. H. (1960). The Problem of Social Cost. *Journal of Law and Economics*, 1-44.

Coase, R. H. (1988). *The Firm, the Market, and the Law*. Chicago: University of Chicago Press.

Coase, R. H. (1991). Nobel Prize Lecture. December 9.

Coase, R. H. (1994). *Essays on Economics and Economists*. Chicago: University of Chicago Press.

Eggertsson, T. (1999). *Economic Behavior and Institutions*. Cambridge: Cambridge University Press.

Foley, D. K. (1970). Economic Equilibrium with Costly Marketing. *Journal of Economic Theory*, 2, 276-291.

Furubotn, E. & Richter, R. (2005). *Institutions and Economic Theory: The Contribution of the New Institutional Economics*. The University of Michigan Press, Ann Arbor, 2nd edition.

Glaeser, E., Johnson, S. & Shleifer A. (2001). Coase versus the Coasians. *Quarterly Journal of Economics*, 116(3), 853-899.

Riker, W. H. & Weimer, D. L. (1995). The Political Economy of Transformation: Liberalization and Property Rights. In J. S. Banks & E. A. Hanushek, (Eds.), *Modern Political Economy: Old Topics, New Directions*, (pp. 80-107). Cambridge: Cambridge University Press.

Todorova, T. (2004). Quality Aspects of Economic Transition: The Effect of Inferior Quality on the Market. *Economic Research*, Bulgarian Academy of Sciences, Sofia, 2, 59-78.

Todorova, T. (2007). The Coase Theorem Revisited: Implications for Economic Transition. *Atlantic Economic Journal*, 35(2), 189-201.

Todorova, T. (2010). Vertical Integration Trends in High Transaction Costs Sectors: The Case of the Bulgarian Pharmaceutical Industry. *Journal of Advanced Research in Management*, 1(2), 127-138.

Williamson, O. E. (1979). Transaction-cost Economics: The Governance of Contractual Relations. *Journal of Law and Economics,* 22 (October), 233–261.

Williamson, O. E. (1985). *The Economic Institutions of Capitalism*. New York: Free Press.

Williamson, O. E. (1989). Book Review for "The Firm, the Market and the Law." *California Law Review*, 77, 223-31.