

EUROPEAN INTEGRATION, TRANSACTION COSTS AND THE EFFICIENCY OF ECONOMIC PROCESSES

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It has been a long time since the transaction costs concept appeared in Economics. From the very beginning, transactions costs were perceived as a factor driving efficiency of allocation of scarce resources. Lower transaction costs environment may be achieved by redesigning an institutional framework. The question how to do it is however not simple to answer. It requires not only to recognize transactions costs properly, but also to measure them to use this category as a criterion for evaluating reforms and their total influence on the efficiency of economic processes. The aim of the paper is to present a theoretical model for presenting interaction of transaction costs and administrative costs of an institutional framework. This allows to recognize how the costs are related to the general efficiency of agents interacting within the framework composed of a market and of its legal framework.

Keywords: *transactions costs, efficiency of allocation, Coase Theorem, AC/TC model, cost of regulation.*

Introduction

There is no doubt that the term ‘transaction costs’ is one of the most abused and misunderstood in economics. It is also a very strange category because of its association with the Coase’s Theorem, which many try to prove void, tautological or erroneous. One can find many “hits” when we search scientific databases for proofs of Coase Theorem invalidity. However, a careful reading and examination reveals always some hidden, implicit or disguised ill-assumptions, which, together with a twisted reasoning, allow for an explicit discrediting Coase’s observation of mechanics of the world. This paper takes a quite opposite approach to this topic and offers a new perception of the transaction costs and a new employment for the whole idea. This is achieved by introducing a formal model of a decision-supporting framework based on a one-way trade-off between two different categories of costs.

The idea of achieving a ZTC world to facilitate allocation efficiency of scarce resources has been missing a guidance. In every real-life setup agents face some kind of an institutional framework and a variety of markets. Decisions about allocation of resources (property rights to resources) may be made either by the former or by the latter channel (a state or a market). Pure competition reserves itself the right for the optimal allocation and the full state allocation (centrally-planned economy) are the two extreme cases, between which the real world operates. Despite the transaction costs are bear by private agents and the administrative costs are on state institutions, an equilibrium solution has to consider them jointly.

To present the model for this decision-making framework several issues have to be explained. First, due to the fact that it is applicable to both perceptions of transaction costs (property rights school and neoclassical school), these categories are once again elaborated. This shall allow for a better understanding of the proposed idea of a one-way trade-off between administrative costs (AC) and transaction costs

(TC) in agent’s interactions that result in the final allocation. This allocation should be perceived as the optimal solution, maximizing total utility of all agents, no matter the term (short, medium, long) considered. Then the AC/TC model is presented.

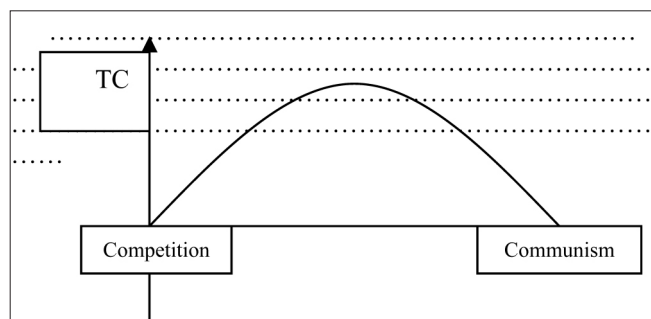


Figure 1. States of the world and transaction costs level
(Author)

The model itself rests on the standard microeconomic method for deriving demand and supply curves, employed in this case to achieve a graphical presentation of administrative costs (AC) and transaction costs (TC) curves. There is however no interaction between AC and TC, as in microeconomics, to set an equilibrium “price” and “quantity”. In general, the model allows for setting a limit for any attempts aimed at state intervention and substituting for market solutions. The framework allows for answering basically every question referring to the share of two alternative ways of achieving an optimal solution when private negotiations are an alternative to state (or institutional) solutions. In particular, it may be employed in the law and economics to provide guidelines about the trade-off between precision of act-based law and the freedom left to judicial system in specifying the law in each particular case, with a binding precedent.

There is a dichotomy in of transaction costs definitions. There are two approaches: the neoclassical and the neoinstitutional school of thought. The neoclassical school focuses on the friction on the capital market and foreign exchange market. The neoinstitutional theories of transaction costs began with the advent of Ronald Coase's 1937 article *The Nature of the Firm*. Coase is regarded by many as the founding father of transaction cost economics. Coase's analysis of transaction costs began as a ground zero for other economists and thinkers like Oliver Williamson, Armen Alchian and Harold Demsetz. The economics of transaction costs is a curious study combining law, economics and organization. All three separate areas of analysis are intertwined to define the nature of transaction costs and their attributes. Both schools of thought are somewhat antagonistic towards one another.

Property rights approach to transaction costs

Property rights approach to transaction costs started with the Coase's (1937) paper. There are some specific features of this school of thought. The first and the most important is that all allocation mechanisms involve costs and offer benefits. The mechanisms do not work for free and no single solution dominates all other ones. As formulated by Allen (1999, p. 895), all allocation mechanisms are 'second best'. The property rights literature focuses on 'rules', 'organizational forms' and 'methods of payments' analysis. And the third feature is that positive transaction costs are necessary and sufficient for an explanation of a firm. In addition, there is a relationship between property rights and wealth. As long as we define trade as an exchange of property rights, there can be no trade without property rights. According to Coase Theorem, when property rights are perfectly defined, gains from trade are maximized. This relationship is monotonic and the gains increase with better definition of property rights. Allen (1999, p. 899) formulates the principle: *'Other things equal, individuals prefer better defined property rights to poorer defined ones because they prefer more wealth to less.'*

Three ways to increase one's property rights is to steal an item, privatize an item or start a cooperation with others to create a new item and divide it according to some kind of a scheme. When property rights are perfectly defined, no theft can take place and this way theft is ruled out. As pointed out by Cheung (1974), this situation means no costs to protect property rights, because there is no need for that.

As long as property rights are not perfectly defined, individuals start initiatives to increase their wealth by capturing some of the existing or by creating new property rights. These attempts may be zero-sum games or wealth-generating solutions. Individuals are supposed to engage in two activities. First, they have to protect their property rights currently owned. And second, they attempt to establish new property rights to increase their wealth. As a consequence, transaction costs are defined as those costs that are necessary to establish and maintain property rights. Therefore, as long as property rights are protected (by any means) – transaction costs exist. This formulation is credited to Allen (1991, 1999).

The central question in this approach is: what explains the distribution of property rights? For a proper recognition of the meaning of this question, one should remember that "the property rights distribution" covers all institutional, formal

and informal frameworks within one operates. Then, in each distribution of property rights, there is a set of production costs and transaction costs. The optimal distribution of property rights is the one, which maximizes net gains from trade. Due to the original observation that there is no single property rights allocation mechanism that dominates, this approach does not offer any policy recommendations. As long as there are circumstances, in which prices are not a vehicle for allocation, 'market failure' is meaningless. In all cases, in which allocation happens via the market mechanism one can refer to as 'a state failure' or 'a firm failure' cases. Organizational problems may be approached from two sides: property rights and transaction costs. The transaction costs approach deals with private incomplete contracts, while the property rights approach deals with grand private environmental rules (Allen 1999).

Ronald Coase to some extent shared the version of institutional insight into economics endorsed already by Commons. Coase introduced the distinction between two kinds of transactions: a bargaining one and a managerial one. The former should be perceived as a market exchange and the latter as an artificial vehicle, such as a firm or a state. The role of transaction costs in this framework was associated with a concept that initial allocation of rights is irrelevant, when one operates in the world of Zero Transaction Costs (ZTC). There are several important consequences of the ZTC assumption, including perfect information. One may conclude, that since, the current allocation scheme in the world is not optimal, in the real life we do not face frameworks that match characteristics of the ZTC setup. As a consequence, allocation of rights and effects of economic behavior is strongly influenced by a variety of transaction costs. One may suggest that the proper conclusion concerning allocative efficiency of any economic process is that the lower the transaction costs, the higher the overall (aggregated) efficiency. The way to achieve an economy closer to the ZTC is to design two frameworks: legal and institutional. This must be done in such a way, that they substitute for market solutions. However, in the same time, the cost of the redesign must be lower than the current level of transaction costs faced by private agents interacting via private negotiations (markets). Only then the overall efficiency is improved. In law and economics the normative Coase theorem states that judges making any decisions should be aware of their economic implications in the broad meaning. The Chicago school plainly states that law should be based on efficiency calculations. In fact normative Coase theorem does not offer a basis for such unanimous and straightforward interpretation.

One would be mistaken, thinking that Coase was proposing full liberalisation and limitation of transaction costs by virtue of freedom of contract, liability rules and protection of property. Such an approach is not in line with basic ideas of welfare economics. There was another way suggested by Coase to reduce transaction costs. Originally, it was via substituting the market by the firm. When we try to generalize, it is obvious that the alternatives for market solutions are based on institutional frameworks, with their own hierarchy of power of decision-making in allocation of resources. This kind of solution involve however administrative costs of designing, creating and operating the whole institutional framework. Therefore, the procedures that lead to the final

allocation of property rights generate an alternative kind of cost that could be divided into two parts:

- a) administrative costs of initial design and creation of the institutional framework,
- b) administrative costs of operations, depending on the intensity of use of the whole system.

One may note that the former category (a) is a typical microeconomic fixed cost and as a unit fixed cost it is a decreasing function of the number of “cases” served by the institutional system. With the number of cases moving to infinity, the initial unit fixed administrative costs tend to zero (figure 2). In the theoretical AC/TC model, the initial endowment on creation of the alternative solution system for market allocation sets the interception of AC curve with the vertical axis.

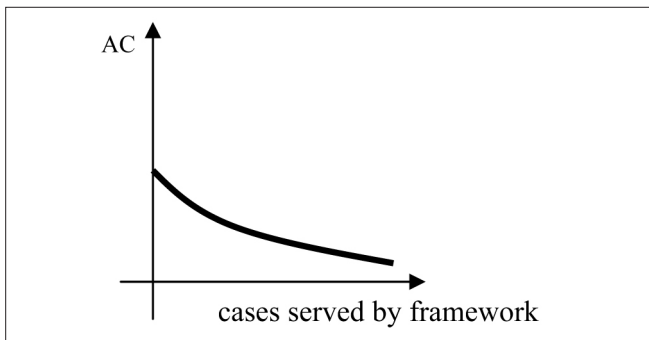


Figure 2. Unit fixed costs of an institutional framework
(Author)

The other category, administrative costs of current operations (b), is reflected in the slope of the AC curve (figure 7). They increase with the number of cases served. In the same time the pace of increase depends on the quality of the initial institutional design. The better the institutional framework, the slower the increase in total administrative costs, with the number of cases served. Any reforms that improve this form of solution result in changes in the slope of the AC curve.

Both factors contribute to the creation of the administrative costs function for the institutional framework. This function is assumed to be continuous and differentiable over its whole domain.

Neoclassical approach to transaction costs

It was already Hicks (1935, p. 6), who observed that there are costs of transferring assets and these costs represent a significant friction in an economy. All latter work on transactional demand for money perceived transaction costs as an important element (Baumol 1952, Tobin 1956). An attempt to generalize the neoclassical approach resulted in the following definition of transaction costs (Allen 1999): as the costs resulting from the transfer of property. This perception dominates in finance and economic theory. As a consequence, the intra-firm enforcement costs are not transaction costs. This category appears only in interactions between firms or individuals in the process of market exchange. As long as there is no market exchange and no agents to engage in market exchange – there are no transaction costs. However, the centrally planned economy is not a case to consider. This

extreme case is, with no private ownership and no market exchange at all. This is conflicting with the gist of Coase’s idea of the ZTC world. The Theorem was implying a special frictionless market mechanism and not a total lack of it, as a reason for zero transaction costs.

Modeling transaction costs of the market mechanism is done by means of a transaction function in the framework of the neoclassical production function (equation 1).

$$TC = f(A,B) \quad (1)$$

There are multiple formulations, assuming different economies of scale together with fixed and variable elements. Analytically, transaction costs in this framework are similar to transportation costs (Niehans 1971) with associated features and consequences for prices, demand and supply. It is apparent that neoinstitutional transaction costs are very much different from that of the neoclassical financial transaction costs.

For the proposed analytical framework, the neoclassical approach delivers a transaction costs (TC) curve that is monotonic and describes the theoretical relationship between efficiency of allocation and the costs of exchanging property rights. There are some necessary explicit assumptions. First, when transaction costs are zero, the efficiency is at its maximum, defined on the $<0;1>$ interval. Second, the domain for the transaction costs is defined on the interval $<0; V>$, where V is the value of the property right, subject to trade. Transaction costs higher than V rule out any considerations about transferring property rights, because it is immaterial to spend more on something that is worth less. Nobody’s interested. The DEF curve is convex because it depends in a similar way, as the standard demand curve in microeconomics on preferences and “a budget” constraint. Therefore, the DEF curve one could perceive as a representation of demand for an optimal market solution in a non-zero transaction costs world.

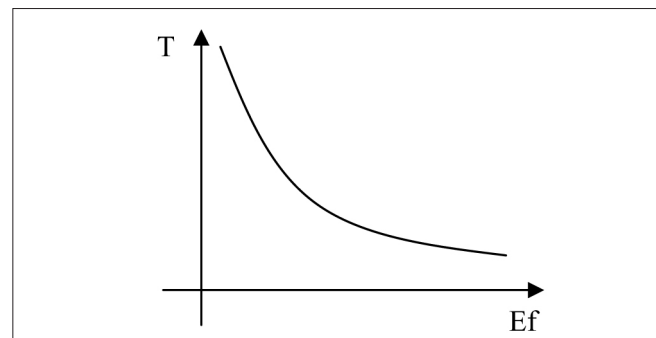


Figure 3. DEF curve (Author)

An individual is faced with a decision problem of choosing a way of allocating property rights of an initial value V between private negotiations and institutional/legal framework. The former requires to bear transaction costs (TC) and the latter is associated with externalized administrative costs (AC). With the increase in efficiency of this allocation, one achieves higher level of utility.

Here are only two things in the model that affect the optimal choice: costs (transaction and administrative) and the value V . Ex ante V is the same as the budget an individual has at his disposal. Ex post V is just the ex ante V that is decreased by the amount of all transaction costs bear in the process of deciding on property rights distribution in the particular case.

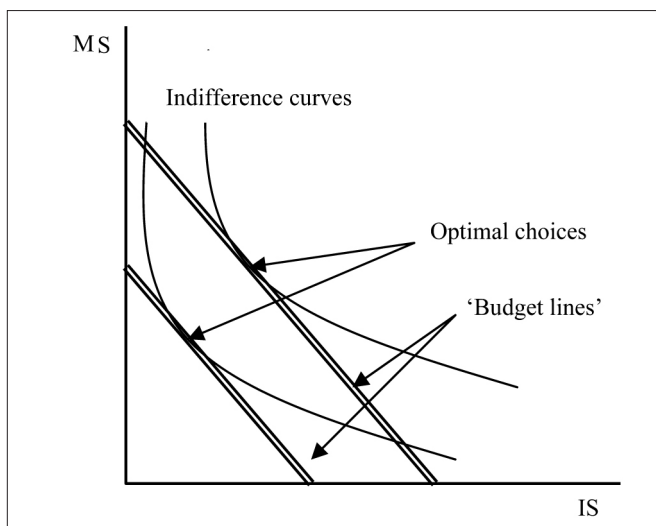


Figure 4. Choice of a proportion between private negotiations (MS) and administrative solution (IS), with an assumption of perfect substitution (Author)

Demand function for market solution efficiency (DEf) is given by equation (2):

$$D-MS = D-MS(TC, AC, V) \tag{2}$$

(-) (+) (+)

As a consequence, high transaction costs discourage private negotiations and make agents choose institutional way of distributing property rights.

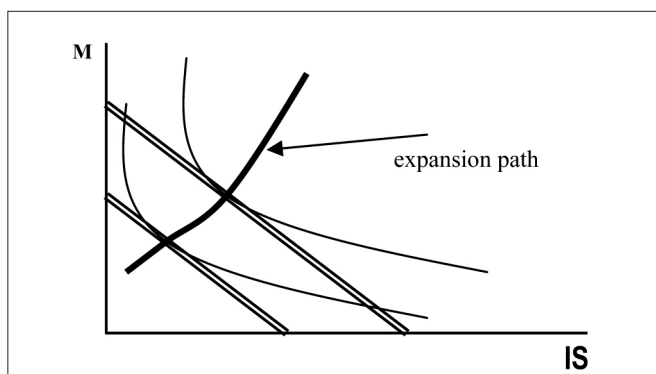


Figure 5. Value (V) of property right expansion path (Author)

$$D-MS = 0 \text{ for } TC \geq V$$

$$D-MS = \max \text{ for } TC = 0$$

Efficient solutions are obtainable from $TC=V$ to $TC=0$. Total benefit is a monotonic function, because with TC decrease, the ex post value of V increases.

“Engel” curve, as a relationship between the value of property rights (V) and the demand for a market solution shows that there is a need not only for “more market” but also for “more institutions” with the increase in wealth to be shared in the society.

Market and institutional solutions as perfect substitutes or complimentary goods?

When market and institutional solutions are perfect substitutes, then it is no matter which one an agent will use

to achieve the ex post distribution of property rights, as long as the institutional solution (IS) is not obligatory. However, the institutional solution is rarely voluntary and most often it is obligatory. Therefore, there is room for analyzing a model, in which agents are constrained with institutional and legal frameworks in their decisions about the way to achieve ex post distribution of property rights.

Efficiency of allocation in the AC/TC model

From the moment humanity commenced creation of groups, societies, states and specialized institutions, the initial transaction costs, associated with each and every transaction, started to be substituted by administrative costs of creating and imposing rules and regulations. The difference between transaction and administrative costs are multiple. The most important feature is the distribution of each kind of costs among agents in a society. Transaction costs (neoclassical) are bear only by parties involved in a particular trade and a benefit-end of transaction costs is for a third party, an intermediary, if exists. Contracting parties who exchange property rights earn no benefit of transaction costs, no matter which side covers these costs. Therefore, rational agents will strive to avoid transaction costs, if possible. In the process of formulating society, law and institutions, civilizations offered a solution for improving efficiency of allocation. By introducing institutional framework available for agents in a society, one is substituting the individually bear transaction costs with a different category. Due to the fact that costs of creating and implementing an institutional framework are imposed on all citizens, the relative administrative costs (neoclassical transaction costs) per capita are low. Even, when not all citizens make use of the available framework that offers the alternative for private negotiations, it is ready to serve them in the future, due to its permanent nature. This is in turn the next substantial feature that distinguishes (private) transaction costs and administrative costs. Transaction costs are temporary and recurring in nature. Each new transaction requires bearing transaction costs again and there is no influence on any future transaction costs. In case of administrative costs, they are contributing immediately, directly and permanently to decrease in costs of every transaction following each endowment on improving an institutional framework. With a better initial distribution of property rights to resources (as a consequence of more complete law and more efficient institutions) less is left for private negotiations to decide and the associated private transaction costs are automatically lower.

Using this interpretation one may derive a new theory on the reasons and origins of a state and a legal system. In the ancient times, before any known civilization, human activity was subject to the highest transaction costs. As a result, it was a problem to survive due to excessively high transaction costs involved in the process of “negotiating” property rights distribution with wild animals and the surrounding natural environment itself. First forms of social life in caves were making citizens better off by bearing administrative costs of accepting the leadership of the strongest male and first forms of specialization among members of a tribe. However, transaction costs were still high enough to restrict output of those social groups and prevent trading the surplus of their production. There was an autarky, but survival was much

easier. Taming and domesticating wild animals together with advances in other agriculture production, resulted in assigning more property rights to human beings and less to the wildlife at significantly lower costs. This way less effort (transaction costs) was invested in securing food, and it opened a new way to further production specialization and trade of the surplus. The presented example shows that in the history of civilization, there is another factor that was influencing property rights distribution and in the same time, it was not associated with administrative costs. The influence of improvements in technology is very similar to improving law and institutions. However, the nature is different, because crucial inventions were mostly individually-sponsored and innovations were sometimes a result of a lucky wild guess. Technological development was initially important for transaction costs generated by “transactions” with the natural environment. Later, this element started to contribute greatly to improving efficiency of protecting property rights and enforcing law as well as institutional settings. Technology and transaction costs is not the topic of this paper and will be omitted in the following considerations.

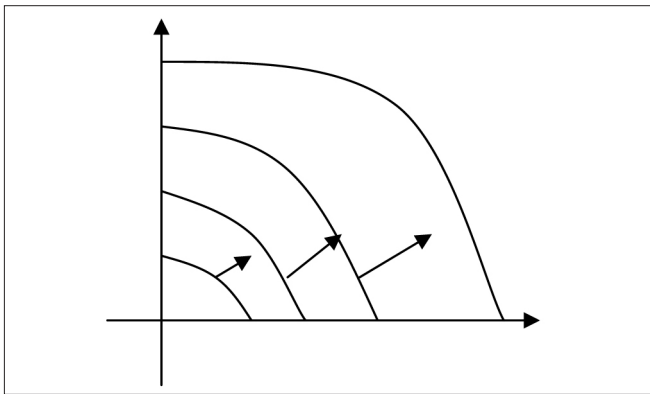


Figure 6. Production possibilities frontier expansion due to transaction costs mitigation (Author)

According to the presented view, emergence of a state, law and institutions was a response to high transaction costs. Substituting private transaction costs with collective administrative costs allowed for achieving higher efficiency of economic processes. As a consequence, recurring element decreased at the cost of a one-time endowment with an everlasting influence on property rights distribution. Increase in global output and wealth of nations was always associated with, and followed milestones of, state, law, and institutions' development.

At an early stage of development, the paternalistic system of property rights division and maintenance was concentrating both, institutional regulations and judiciary settings, in hands of one person (eg. King Salomon). A much more advanced system was present already in Mesopotamia due to formulation of Hammurabi's Code. Having it set once, the state created an environment that was for the first time protecting property rights distribution in a systematic way. This way, transaction costs, necessary to maintain property rights, decreased, releasing resources for a productive utilization.

In the historical development of state and institutional framework (including the legal system) one is able to

recognize further improvements allowing private agents to release resources for a productive utilization. Systematic increase in efficiency of economic processes should be attributed to the following trend. There was externalization of (previously) individual transaction costs. It was achieved by two main streams:

1. in a form of joint and collective one-time endowments on legal and institutional solutions substituting for private recurring costs, and
2. accepting the associated decrease in personal and economic freedom, in exchange for lower recurring transaction costs.

However, there is a phase in this substitution ($E; \mu$), in which the administrative costs become excessive and make society worse off. The overall efficiency of allocation starts to decrease, because the society spends more on something that could be achieved at lower private transaction costs. If we consider the per capita administrative costs (AC) and individual transaction costs (TC) in a simple interplay setup, it is possible to recognize the limits for $AC \Rightarrow TC$ substitution, with the efficiency of allocation as the criterion.

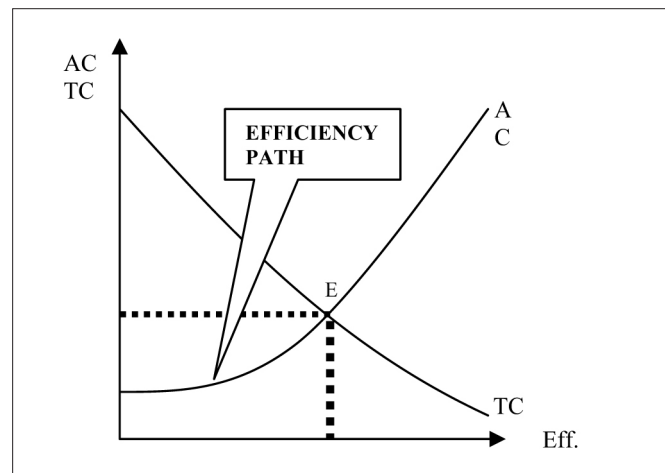


Figure 7. Efficiency path in the AC/TC model (Author)

When administrative costs (AC) per capita reach the level of individual transaction costs (TC) necessary to arrive at the final distribution of property rights, it is the limit for the improvements and advances in the state intervention. Any further limitations to individual independence and freedom results in worsening the economic situation of all interested agents. This is a result of the fact that conforming with the law and with institutional solutions is obligatory. As a consequence, agents have no choice between private negotiations (market-based) and the institutional solutions and must follow the latter one. Since this way is associated with higher costs (AC per capita) than it would be in case of private negotiations, the natural conclusion is that it is not desirable, when the objective is to maximize gains from trade.

There will be demand for institutional solutions versus market solutions, that depends on the “price” of each of the ways (AC and TC) of arriving at the final property rights distribution, and the value of the property rights in question (V).

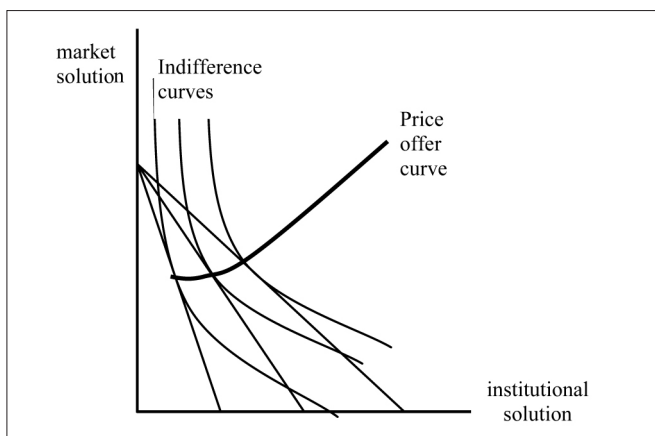


Figure 8. Price offer curve for institutional solution versus market solution (Author)

The offer curve and the demand curve show the same economic information, under assumptions that both: value of property rights in question (V) and price of one of two alternative solutions are fixed. Introducing different levels of AC , makes the “budget line” pivoting and with indifference curves one gets the price offer curve. This curve represents the bundles of market and institutional solutions demanded at different level of administrative costs.

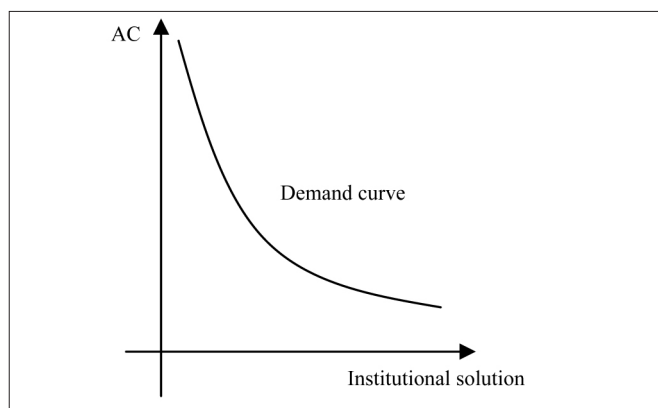


Figure 9. Demand curve for the institutional solution (Author)

The same information can be depicted in a different way. For a fixed level of the TC and the value of property right in question (V) and different levels of AC one can plot optimal level of consumption of the institutional allocation. This results in a demand curve. It is a plot of the demand function $DEf(AC, TC, V)$, holding TC and V fixed at some predetermined levels. A standard interpretation applies: when the AC increases, the demand for institutional solution will decrease. Thus the AC and the “quantity” of institutional solution (IS) demanded will move in opposite directions, which means that the demand curve will typically have a negative slope.

In terms of rates of change in the normal situation the following condition holds (11):

$$\frac{\Delta IS}{\Delta AC} < 0 \tag{11}$$

The problem remains, whether the market-based solution and institutional solution are substitutes or complementary goods. This is a crucial problem, because it defines the signs of the respective cost elasticities.

Assuming that the utility function for “consuming” institutional way of allocation and market-based negotiations is given by the standard representation $U(IS, MS) = IS \times MS$, it is possible to derive demand functions for both solutions. The value V of property rights in question represents the “budget” that is available. The price of market-based solution is the TC and price of institutional solution is the AC . Therefore the budget equation is: $IS \times AC + MS \times TC = V$.

The slope of the “budget” line is $-AC/TC$ and the optimal solution is when $IS/MS = AC/TC$. Therefore the demand for institutional solution (IS) is given by (12):

$$D-IS(AC, TC, V) = V / (2 \times AC) \tag{12}$$

And the demand function for the market-based solution (MS) is given by (13):

$$D-MS(AC, TC, V) = V / (2 \times TC) \tag{13}$$

This simple formulation based on a standard form of the utility function allows for several comments on behavior that is considered unreasonable. For example this is when people apply to the court for revisions of some previous settings, despite there is no hope, no reason, no chance for altering the judgment of a case. The above stated demand functions deliver a reasonable result only when V (numerator) is positive. As a consequence, the individual will choose a “boundary solution” where only one of two ways of solution is used. Otherwise, we can observe behavior that is perceived as not rational. There can also be kinks in indifference curves that result in choosing a bundle of both ways of solution at a kink.

Aside from individual demand functions for market-based and institutional solutions, there is the actual AC/TC model that explains primeval rules of interplay between state and markets. The transaction costs curve (TC) represents the relationship derived from the Coase Theorem. The lower the transaction costs, the higher the gains from trade, no matter the initial distribution of property rights. Therefore, the TC is a monotonic and decreasing with the growing efficiency.

The administrative costs curve (AC) is presented as a unit administrative cost per capita. This is a person’s share in total cost of institutional framework, within which one operates. Actually, the derivation of the AC curve is based on the microeconomic method for the supply curve derivation. This in turn, refers to the upward sloping part of the marginal cost curve for institutional framework’s “production”.

The interception of AC and TC indicates the lowest costs necessary to achieve property rights allocation that grants the highest possible efficiency. Points on the left are associated with higher transaction costs. Moving in the other direction, despite associated with higher efficiency, requires to bear higher administrative costs and is therefore not improving the gains from trade.

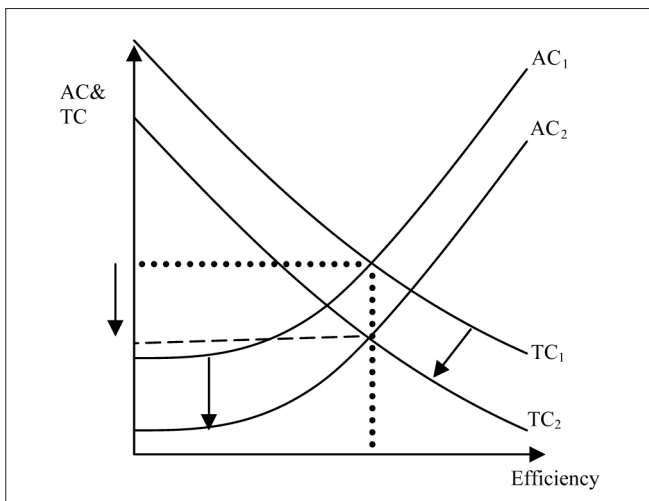


Figure 10. Deregulation as a response to lower transaction costs in the AC/TC model (Author)

Figure 10 presents a situation, in which, due to external factors (for example – technological progress), the transaction costs decrease from TC_1 to TC_2 . With the previous institutional framework in place, the efficiency of allocation is deteriorating. One could think about such a situation as an over-regulated market, in which technological improvements resulted in facilitating transactions. However, these improvements are not fully utilized due to institutional restrictions. Until some deregulation takes place, the efficiency of allocation relatively deteriorates and society benefits from the lower transaction costs and bears lower administrative costs, but the available potential is not fully utilized. When the necessary deregulation takes place, the intensity of transactions, resulting from full utilization of the lower TC environment, allows for following gains:

1. joint further decrease in costs (AC+TC),
2. improvement in the efficiency of allocation,
3. releasing resources for productive utilization.

The situation depicted in the figure 10 shows a new equilibrium at the same relative level of efficiency achieved at significantly lower costs (AC+TC). It must be stressed that the deregulation as a response to lower TC environment releases resources for a productive use not only for market participants, but also for institutional agents.

Conclusions

The potential problem with the presented way of interpretation of the history of the world, from the transaction costs perspective, and incentives to create a state, institutions and a legal framework is that it indicates the ultimate goal of this trend. According to the view, following the substitution of private, recurring transaction costs with a one-time endowments on developing the administrative way of property rights allocation leads inevitably closer to a Zero Transaction Cost world, but with no market-based allocation. This situation is depicted in the far right end of the figure 1. However, since the real-life experience proved that communism is not a sustainable economic system option, one should ask a question about the limits for the trend. How far should institutional and legal system substitute for market solutions to maximize output (or utility) and avoid the trap of communism?

The answer is available in the proposed AC/TC model. It is providing a convenient method for solving a problem of optimal share of two ways (market-based allocation and institutional allocation) of arriving at the final distribution of property rights. It is also explaining the reasons for gains to a society resulting from an interplay of regulations and markets. What is more, the AC/TC model offers also a very good reference point for the current discussion about the causes of the global financial crisis. It should not be denied that in the process of technological modernization, the global economy arrived to a point, at which broad scope of deregulation of markets and industries took place. Many blame the lust for profits as the driving force of the mentioned liberalization (downward shift of AC in figure 10). The case presented in figure 10 suggests however that this was the most natural and the economically justified adjustment in the legal and institutional frameworks. The initial shift of the TC line was caused by significant improvements in the area of transaction costs for market-based distribution of property rights. Then, the response that was necessary to reap benefits of new technologies that were saving time & effort in transportation and telecommunication required significant multi-dimensional liberalization.

The proposed AC/TC model binds two categories of costs and the general efficiency of allocation of property rights available by two complementary or substitutive mechanisms. The concept of “efficiency path” has two different interpretations under the two possible states of the world. The core problem is whether institutional and market allocation of property rights are complementary ways or the market-based allocation is substituted by obligatory institutional allocation. However, in both cases, the optimal solution that maximizes the social welfare by imposing the lowest costs on the society as a whole is when administrative costs and transaction costs are equal. When institutional allocation substitutes for market distribution of property rights then any further endowments on institutional form of property rights distribution is relatively too costly because private negotiations are much more cost-efficient. If, however, the market and institutional ways of arriving at the final distribution of property rights are perfect substitutes, the answer for the question about the optimal solution depends on the point of view: individual choice theory versus public choice theory. According to the individual point of view, when costs of the institutional framework are distributed across and levied on the whole society, private negotiations are more and more cost effective with the increase in the administrative costs (far right end of figure 9). When the utility function is defined for the whole national economy, the total transaction costs and total administrative costs are to be minimized for the optimal solution. This happens for the $AC=TC$ with no further endowments on the institutional framework (intersection of AC and TC lines in figure 9 and 10).

In the process of developing state and institutions there are changes in the two factors that drive actual decisions about the form of distribution of property rights. With the economic growth, the value of property rights in question is growing because of the systematic output growth. The other crucial variable is the “price” that agents pay for achieving the final distribution of property rights. In this second case there are two prices to be paid. One price is for institutional distribution –

that is paid jointly by the whole society and there is rather no direct connection between the value of property rights and the individual administrative costs of distribution. This results from the fact that the emergence and existence of a state is rather irreversible and agents can't escape the regulations, in most cases. Despite this factor is relatively independent from agents, even in democracies, it is possible to influence the institutional framework to develop in a particular direction. A good argument here, supporting the claim of reversibility of regulation, could be the observed liberalization in the recent years, already mentioned above.

The other price, to be paid by agents, striving for the final property rights distribution via private negotiations, represents transaction costs (TC). Since one faces here an individual choice, the value (V) of the property right in question becomes the main decision factor. It is unreasonable to bear transaction costs (TC) that are higher than the value (V) of property right. Therefore, as long as $TC > V \rightarrow$ no market allocation takes place. The room for gains from trade appears at transaction costs from zero to V.

Zero transaction costs world should not therefore be associated with the case when institutional allocation substitutes for market allocation and lack of transaction costs is the result of the lack of market allocation. The gist of the Coase Theorem refers most probably to the situation of market allocation with complementary, and not substitutive, institutional distribution of property rights.

It was explained how important the assumption about substitutive / complimentary nature of the institutional solution (IS) and market solution (MS) is for the optimal allocation that maximizes social welfare. This is the crucial issue that should be subject of further theoretical research. At this point, it seems likely that evaluating optimal solutions

of distribution of property rights is highly case-sensitive and generalization is a great challenge. Different legal systems make it necessary to distinguish between them, but then, it should be easy to use the AC/TC model in each case to study an interplay between market and institutional solutions and efficiency of the resulting allocation.

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