

## EFFICIENCY OF AGRARIAN ORGANISATIONS

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### Abstract

The goal of this paper is to incorporate achievements of the New Institutional and Transaction Costs Economics to analysis of efficiency of agrarian organizations in transitional economies. That modern framework for analysis of agrarian organizations is based on their role to govern transactions between individual agents. Since governing (coordination, organization) of transactions is associated with significant costs (for finding best prices and partners, for negotiation and contracting, for monitoring and enforcement of contract terms, for adjustment and re-negotiation according to changed conditions of exchange, for dispute resolutions etc.), the economic efficiency of agrarian organizations has to assess not only their capacity to minimize the production costs, but their potential to economize transacting costs as well.

Initially, main kinds of transactions of the managers of agrarian transactions (farms entrepreneurs) are clarified as land, labor, service, inputs, and finance supply; marketing; and collective actions. After that, the alternative market, non-market, and mixed modes for organization of different types of agrarian transitions are identified. Next, various types of costs associated with each form of transacting are determined. And then, the comparative efficiency of different governance structures is estimated according to (minimum) transacting costs criteria.

One direction for evaluation of comparative efficiency of governing structures is based on direct assessment of items of costs for transaction in different organizations. However, that manner is often restricted since: difficulties (or impossibility) to measure absolute level of transaction costs; opposite dynamics of different items of costs in various organizations; great use of complex (and interlinked) rather than pure modes in transitional agriculture; and not existence (missing) of alternative form for organization (the base for comparison).

Another direction is through comparative structural (qualitative) analysis of alternative governing forms. Firstly, critical factors of transactions in particular institutional environment are identified. These factors affect transaction costs variation, and they are associated: with behavioral characteristic of agrarian agents (bounded rationality, tendency for opportunism, building of reputation, risk aversion, level of trusts); and with economic dimensions of individual transactions (frequency, uncertainty, assets specificity and appropriability).

Secondly, assessment is made on effective potential of alternative organizational modes to: minimize bounded rationality of agrarian agents and uncertainty associated with transacting; to appropriate and protect private investments from possible opportunism; to recover long-term investments for organizational development through high recurrence of transactions between same agents; to exploit economy of size and scale on specific for relationship with a particular partner capital etc.

Third, principal matrix of generic organizational modes is build for effective governance of transactions with different combination of critical dimensions: free market mode is effective to carry out transactions with high appropriability and low assets specificity; the special contract form is appropriate for transactions with high frequency, and increased uncertainty and assets specificity; the internal integration can manage effectively repeated transactions with high capital dependency and big uncertainty; the hybrid and public modes are the most effective forms for occasional transactions with low appropriability and high assets specificity.

Finally, effective horizontal and vertical boundaries of every specific form within each generic modes could be determined through comparison of their potential to explore economy of size (scale) on

specific or (and) specialized assets, and their comparative efficiency to minimize bounded rationality and to control opportunism of counterparts.

**Key words:** agrarian governance, efficiency of agrarian organizations, new institutional and transaction costs economics

## **Introduction**

Problems associated with criteria and approaches for evaluation of efficiency of agrarian structures and organizations have been among the most debated in economic theory and business practices. There has been especially topical issues since the beginning of transition in Eastern European countries. During the course of fundamental reforms the question of efficiency has been often "politicized" as unilateral priority has been given to a particular type of economic organization - free market, private farming, family farm, cooperative, etc.

In recent years some profound analyses of efficiency of different farm structures have also appeared (Kaneva). They are mostly based on estimates of productivity of resources use in various types of organizations. At the same time, these publications do not give answer to the fundamental question: why twelve years after beginning of transformation there are still widespread "inefficient" organizations - unproductive self-sufficient farms, production cooperatives with profitability several times lower than in market oriented private farms etc<sup>1</sup>.

New Institutional (Transaction Cost) Economics is a new developing methodology which tries to explain the economic reason for existence and efficiency of economic organizations with their role to minimize transaction costs (Furuboth and Richter, Williamson). Following this new logic transitional farms, agro-firms, various contractual, organizational and market modes, all they have been considered as alternative governance, rather than production, structures for relationships (transacting) between different agrarian agents (Bachev and Tsuji 2001a).

The goal of this paper is to incorporate achievements of that new developing concept into analysis of efficiency of agrarian organizations. This paper is only a first attempt to work out a modern framework for evaluation of different governing structures in transitional agriculture. It aims to put grounds rather than complete the approach for adequate analysis of agrarian governance modes. Without development of a modern approach for understanding and assessment of efficiency we can neither analyze comparative efficiency of agrarian organizations nor to design appropriate policies for its improvement.

## **The traditional approach**

Broadly applied traditional approach for evaluation of efficiency of economic organizations in farming is based only on assessment of efficiency of production costs and productivity of employed agrarian resources. Accordingly, a great number of indicators are also used to express efficiency of organizations through determining the level of use of factors (land, labor, capital), rate of return (pay-back, profitability) of current and long-term expenditures etc.

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<sup>1</sup> Some estimates show that rate of profitability of Bulgarian cooperatives is 5 times lower than in private farms - namely 4.7% against 26.5% in surveyed non cooperative farms (Kaneva p.95).

In more sophisticated models of traditional (Neoclassical) economy criteria for assessment of efficiency of organization is derived from the equilibrium condition of entire economic system - when marginal benefits are equalized with marginal costs<sup>2</sup>. These organizations which use resources with different (higher or lower) from the marginal productivity are inefficient. For instance, if a farm has a higher productivity than the social level (since it is employing resources more effectively than other organizations) but it does not further invest additional resources to explore the effective internal potential - then it is inefficient. Contrary, if a farm is performing with lower (than the social) productivity, it means that it integrates more resources than it can effectively manage (and which could be more effectively used in other organizations), and therefore it is inefficient.

However, the traditional approach for evaluation of economic organizations can not give an answer to the question: why there exist so many organizations with different productivity of resources utilization. If efficiency of a particular organization is low, there will always be a strong private incentive or social mechanism (competition, central planning) for reallocation of resources to more effective application - optimization, specialization, extension, or liquidation of the organization. In a foreseeable long run (say 5-10 years) there will exist only "effective" organizations, which govern resources on (or close to) the socially acceptable level of efficiency.

Besides, the traditional approach estimates and compares the efficiency level in different organizations without even looking for an answer to the question: why there exist so big variety of types of economic organizations in agriculture (one-person farms, group farms, registered cooperatives and firms of different kind, joint ventures, self-sufficient farms, small and large farms etc.).

Therefore, within the narrow framework of the traditional approach, restricting efficiency of economic organizations to production costs, it can neither be understood the economic reason for existence of different types of agrarian organizations nor to be evaluated their comparative efficiencies.

### **The new approach**

The new developing methodology of Transaction Cost Economics explains existence of different agrarian organizations in their role to govern transactions between individual agrarian agents (Bachev and Tsuji 2001a, Sporleder). Usually carrying out of individual transacting (land supply, labor supply, finance supply, marketing etc) is associated with significant transactions costs - for finding out the best prices and partners; for negotiation and renegotiations; for contract writing and registration; for enforcement of contracted terms; for resolution of disputes between parties including through a third party (e.g. court) involvement etc. Therefore, economic efficiency of agrarian organizations should take into account not only their capacity to minimize production costs, but also their ability to economize on transaction costs. In this regard Dahlman writes: "Indeed it is obvious that once there is shift from a

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<sup>2</sup> Such definition of efficiency (firstly formulated in the beginning of last century from Artour Pigou) today can be found in all textbooks in Economics. In that relation Eggertsson points out "It is a central characteristic of welfare economics that economic outcomes derived from the basic neoclassical model are used as a criterion of efficiency. Outcomes that deviate from outcomes in model based on fully defined exclusive rights (in property) and costless transactions are called "inefficient" (Eggertsson, p. 21).

"frictionless" universe scarce resources have to be used to effect transactions, protect property rights and so on. This means in turn that the system's total resource endowment can no longer be devoted solely to the production of normal commodities" (Dahlman, p.150). Moreover, both (current) costs for using of transacting forms and long-term costs for their development (organizational initiation, modernization, liquidation etc.) have to be taken into account (Bachev 2000, p.9).

If execution of transactions was not associated with costs ("zero" transaction costs) then the mode of their organization would have no economic importance. Agrarian agents would manage their transactions with the same (equal) efficiency though free market (market prices movements), and through private organizations of different types (contracts, firms), and through collective decision making (cooperative, association), and in a nationwide hierarchy (single private or state company). Then technological opportunities for economies of scale and scope (maximum productivity of resources) would be easily achieved. All information for the effective potential of transactions (for optimization of utilization of resources, for satisfying new demands etc.) would be costlessly obtained by everybody, and individual agents would costlessly trade (exchange) available resources in their mutual benefit until exhausting the potential for increasing productivity (and reaching to the state of "equilibrium" in the Neoclassical economic model<sup>3</sup>).

However, very often the high transaction costs make difficult or even block otherwise efficient (mutually beneficial) for all parties transactions. For instance, despite of great pay-off of investments in agrarian research and innovation, market and private agents do not organize such transactions because of their high uncertainty and low (market and private) appropriability (Bachev and Labonne, p.12)<sup>4</sup>.

Since carrying out of individual transactions is connected with costs, the rational agrarian agents will seek, chose, and develop such modes for organization of their exchange of different kinds which minimize their costs of transacting. The type of organization is crucial since various governing structures give unequal possibilities for participants to coordinate and adapt transactions, to stimulate acceptable behavior of contragents, to control and protect their investments from unwanted expropriation etc. Therefore, in the long-run inefficient forms will be abandoned and only effective modes for organization of agrarian transaction will dominate.

Each transaction has different specific dimensions which vary according to institutional environment (legislation, efficiency of public contract enforcement, other formal and informal restrictions), personal characteristics of participants (experience, built reputation, tendency for opportunistic behavior, level of risk taking), and macroeconomic conditions (stability, foreign trade regime etc.) (Furuboth and Richter, Williamson). Since there exist no a single the most efficient (and thus universal) form for organization of all agrarian transactions, depending of critical dimensions of each transactions agrarian agents will use appropriate (most effective)

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<sup>3</sup> That situation is known as «Pareto optimum» or «Pareto efficiency». Then all social resources are allocated efficiently (they are managed by users who value them the most) and all mutually beneficial transactions are carried out (nobody could improve his or her welfare without reducing wellbeing of somebody else).

<sup>4</sup> That is true not only for transitional economies but for other countries as well. All estimates shows that both in developed and developing countries there has been a constant under-investment in agricultural research and innovation keeping rate of return much higher than traditional capital investments. High costs associated with transactions in that area restrict (block) their organization in an (socially) effective scale.

mode for its governing. Hence, in any particular moment agrarian activities will be carried out (governed) through a great variety of organizational structures: some agrarian transactions will take place in market (governed by "invisible hand of market"), some of them will be carried out through a special contract mode, some of them will be managed within an hierarchy (under "visible hand of the manager"), some of them will be supported by a third party (Government, NGO`s, international assistance), some of them would require more complicated and mixed modes etc. (Bachev 2000, p. 4).

Therefore, it must be abandoned commonly used approach for evaluation of different form as "good" or "bad" for their own or in comparison with some no existed ideal (without transaction costs). Weakness of such approach has been strongly criticized by Demsetz: "The view that now pervades much public policy economics implicitly presents the relevant choice as between an ideal norm and an existing "imperfect" institutional arrangement. This nirvana approach differs considerably from comparative institution approach in which the relevant choice is between alternative real institutional arrangements. In practice, those who adopt the nirvana viewpoint seek to discover discrepancies between the ideal and the real, and if discrepancies are found, they deduce that the real is inefficient. Users of the comparative institution approach attempt to asses which alternative real institutional arrangement seems best able to cope with the economic problem" (Demsetz, p.1).

Evaluation is to be directed to finding out of comparative advantages for initiating, establishing, and using; for management, adaptation, intensification, coordination, stimulation and controlling (in short - for minimization of overall costs) of transactions, of alternative (and really possible) in specific institutional environment modes for organization of different transactions. For instance, in the condition of not entirely restituted private rights on agricultural land, and the high costs for their exchange and protection, the short-term lease and the internal integration (self-consistent farming, production cooperation) have been the most-efficient forms for organization of land supply in transitional Bulgarian agriculture (Bachev and Tsuji 2001b, p. 125).

Therefore, evaluation of efficiency of agrarian organizations has to include not only comparative "productivity" of resources, but analyses of the level and structure of comparative transacting costs. Besides, such analyses should identify factors of transaction costs in nationwide (social) scale, which eventually slow down sustainable growth of agriculture, and lead to insufficient and unsustainable use of resources, underinvestment and low productivity in production, wide-spreading of primitive technologies, lack of innovations etc. When a high level of costs for market and private transactions (which prevent or entirely block development of market and private forms) is observed then either a public intervention in agrarian transactions (through assistance, regulation, hybrid or public organization) or fundamental institutional modernization (e.g. introduction and enforcement of new private rights) should be undertaken. However, such public intervention in agrarian sphere is to be initiated only if there is a net benefit - when effects (total economized costs) are greater than overall additional costs (individual and social) for the third-party involvement.

### **Transaction the basic unit of analyses**

The new approach for analysis of agrarian organizations turns individual transaction and costs associated with transaction in the center of economic analysis (Bachev and Tsuji 2001a, Williamson). Following that new approach firstly, we have to determined major type of

transactions in which agents managing agrarian transactions (the farm entrepreneurs) participates. Secondly, we are to identify possible alternative forms for organization of diverse type of transacting. Next, we should specify various kinds of (transaction) costs associated with different type of transacting. Finally, we are to assess comparative efficiency of alternative governing structures according to the criteria (minimum) transaction costs.

Main types of transactions of the farm entrepreneur are associated with the supply of different "factors" of production and with marketing of farm output. Actually the farm manager manages not (production) technology but transactions related with production. It is not a hypothetical case when an entrepreneur is entirely engaged in managing transactions rather than participating in production activity - e.g. when he hires all labor and production managers for carrying out technological operations, and spends all his time for governing of contractual relations (finding partners, negotiation and re-negotiation, contract writing, monitoring, enforcement, disputing etc.). Thus, in general we can identify following major types of transactions in farming: linked with labor supply, land supply, finance supply, service supply, inputs supply, knowledge supply, innovation supply, and realization (marketing) of output. Besides, the farms entrepreneur takes part in a great variety of transactions ("collective actions") for inducing public (Government, local authority, international etc.) intervention in market and private transactions in his own interests (Bachev 2000, p.7).

For each transaction there is a big diversity of practically possible (and therefore alternative) forms for organization. One extreme is to govern all transactions via free market through spot-market or classical contracts for inputs supply and marketing. For example, leasing-in farmland and long-term material assets, purchasing all services for cultivation and harvesting of output, purchasing all short-term material assets, selling all primary products on market. Another extreme is a close internal organization such as one-person or group natural farm - farmer(s) employ only own resources (land, labor, technological knowledge) and consume whole product<sup>5</sup>. Between these two polls there is a great arsenal ("spectrum") of feasible formal and informal modes for governing of each type of transactions: various sort of long-term contracts, association, cooperation, interlinked organization, diverse hybrid forms, firms of different kind (partnerships, corporations, complex hierarchical forms) etc.<sup>6</sup>. Identification of practically employed specific forms for transactions in different countries is an object of a special micro-economic survey<sup>7</sup>.

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<sup>5</sup> In one-person natural farm there are no transactions (any exchange of rights or products of specialised activity) taking place and therefore transaction costs are zero. However, extension of farm size and productivity are heavily restricted by owned agrarian resources and level of internal (e.g. family) consumption.

<sup>6</sup> For instance, a transaction associated with cultivation of land by a tractor can be governed in quite different ways: a farmer can buy (unified ownership), rent (rent contract) or lease a tractor (input and credit supply interlinked contract); farmer could buy cultivation service from market (contract service); number of farmers may buy a tractor (joint ownership) and to use it in a group (producers cooperative) or individually; farmer can join a cooperative providing cultivation services (non for profit organization); he may lease his land out to a tractor owner and share output (share tenancy contract); farmer can hire a tractorist to work on his farm (employment contract) and he may even sell cultivation service to market (profit making organization); cultivation service to farms could be subsidized by Government (trilateral mode), or provided by a municipality or state company (public organization) etc.

<sup>7</sup> Such attempts to identify and analyze dominant modes for land, and labor, and finance supply in Bulgarian farms have been made by Bachev (2002, 2003), and Bachev and Kagatsume.

## **"Measurement" of transaction costs**

One direction for evaluation of efficiency of agrarian organizations is the direct comparison of costs for each transaction in different forms. Organization which requires less costs for transacting is more efficient. For instance, comparison is made whether would be more economical direct (own) marketing of output or to use a marketing cooperative.

Data for some part of transaction costs can be found in traditional statistics and accountancy (e.g. management costs, marketing costs). Another part of transaction costs may be easily specified - e.g. costs for licensing and notary registration, for agro-market information, for promotion and marketing of output, for general management, for hiring lawyers and court suits, for guarding property and yields, for payment of bribes etc.

However, a significant portion of transaction costs is either very difficult (and too expensive) or impossible to be determined. In that group we can include the costs for finding best partners, for negotiation, for controlling and enforcement of contractual terms, for organizational development, for interlinked transacting, for unrealized (failed) deals etc. Besides, it is often extremely complicated to separate transaction costs from traditional production expenditures<sup>8</sup>. For example, while executing farming operations a farmer supervises hired labor; during transportation of chemicals (by own track) he negotiates marketing of output by a mobile phone; expenditures for packaging, fans etc. also have both production and transaction character.

Guess estimate for the level of transaction costs could be made by interviewing farm managers. Here it is essential to indicate the level (high, medium, low) of efforts and time devoted for governing of different type of transactions: for finding out needed labor for hiring, land and material inputs for purchase and lease-in etc.; for negotiation of terms of exchange; for monitoring implementation of contractual obligations; for current adaptation of contracts to emerging new conditions of exchange; for conflicts resolution; for memberships in professional organizations; for relationships with agrarian bureaucracy etc.

Unfortunately the component comparison of transacting costs could not always give idea for the efficiency of organizations. Very often the alternative form decreases one type of costs while increasing another type of costs of transactions. For instance, internalization of a transaction (replacement of the market with an integral mode) is associated with reduction of costs for information supply (overcoming market uncertainty), for permanent (re) negotiations along with constantly changing conditions of trade, for safeguarding of investments from an outside opportunism etc. On the other hand it enlarges costs for organizational formation, for decision making, for integral management, for supervising and motivation of hired labor etc. In our previous example with alternatives for marketing of farm output the "internal realization" (personal consumption, production "consumption", processing etc.) could be chosen as more-efficient form in comparison with the direct sell or use of marketing cooperative.

Besides, a good part of transactions in transitional agriculture have been governed not by "pure" but through complex or interlinked modes - e.g. inputs supply in a "package" with know-how, extension or (and) service supply; joint supply of inputs and credit; crediting of production against marketing of output etc. Therefore, when we assess efficiency it is important

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<sup>8</sup> All these "measurement problems" make it impossible to extend the traditional Neoclassical models simply by adding a new "transacting" activity (Furuboth and Richter 1998, p.55).

to take into consideration overall (total) costs for organization of transactions of different types - thus all external and internal transaction costs of the farm.

Furthermore, it is frequently very difficult to select a base for comparison at all in view of the fact that the high transacting costs entirely block development of an alternative organization. For instance, market for agrarian credit has recently started to emerge in Eastern Europe and for whole transitional period the internal supply (utilization of own finance, direct outside co-investment etc.) has been the only possible (single) form for finance supply of farms<sup>9</sup>. Here the comparative level of transaction costs is impossible to be determined at all and hence to appreciate the "high" efficiency of the integral mode for finance supply. In that case funding with "own means" and with "bank credit" are not real alternative at all but completely different governing structures. Therefore, broadly applied traditional indicators for estimation of comparative efficiency of investments, based on "opportunity costs" (e.g. discounting, pay-back period, internal rate of return etc.), and independent from the form of their funding, have no significant economic sense.

### **Factors of transaction costs**

Another direction for evaluation of efficiency of different agrarian organizations is the discrete structural (institutional) analysis of alternative governing forms (Williamson, p.47). Since often it is either very difficult or impossible to determine transaction costs for individual mode, assessment is made on comparative costs of alternative organizations. Besides, the quantitative approach (absolute and relative measures, marginalism) is replaced by an qualitative (structural) analysis and indirect assessment of transacting costs. And that is very logical since individual governing structures differ from each other not in marginal but in qualitative "discrete structural way". Actually, we are interested not in absolute level of transaction costs in different form, but in organization with lowest costs for a particular transaction.

Following this approach initially we have to identify critical factors of transactions in the specific institutional environment. These factors are responsible for variation of transacting costs and are associated with: behavioral characteristics of agrarian agents - bounded rationality, tendency for opportunism, reputation building, risk taking, level of trust, etc.; and with economic dimensions of individual transactions - frequency, uncertainty, assets specificity, and appropriability (Bachev 2000, Williamson).

Transaction costs have two behavioral origins: individual's bounded rationality and opportunism. Individual agrarian agents do not possess full information about the economic system (price ranges, demands, trade opportunities, trends of development) since collection and processing of such information would be either very expensive or impossible (e.g. for future events, for partners intention for cheating). In order to optimize decision-making they have to spent costs for "increasing their imperfect rationality" (for data collection, analysis, forecasting, training etc.).

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<sup>9</sup> Our large scale study of market oriented farms in Bulgaria has also proved that even presently only insignificant portion of them use bank credit for financing of their activities - accordingly 19.8% for short-term and 11% for long-term financing (Bachev and Kagatsume).



Second factor is that economic agents are given to opportunism. Accordingly, if there is an opportunity for some of transacting sides to get non-punishably an extra rent from exchange he (or she) will likely do so<sup>10</sup>. It is very costly or impossible to distinguish opportunistic from non-opportunistic behavior (because of bounded rationality). Therefore, agrarian agents have to protect their transactions from hazard of opportunism through: ex ante efforts to find a reliable counterpart and to design an efficient mode for partners credible commitments; and ex post investments for overcoming (through monitoring, controlling, stimulating cooperation) of possible opportunism during contract execution stage (Williamson, p.45).

In addition to behavioral characteristics, transaction costs depend also on "critical dimensions" of each transaction. When recurrence of transactions between same partners is high, both sides are interested in working out a special form for standardization of their ongoing relationships (e.g. building an incentive structure, adjustment mechanisms, conflict resolution devices, etc). Continuation of relationships with a particular partner and designing a special mode for transacting has a high economic value. Parties restrain for opportunism which detection is "punished" by turning to a competitor (losing future business). Besides, costs for development of a special mode could be effectively recovered for repeated transactions. When a transaction is incidental then possibility for opportunism is great since cheating side can not be easily punished (building a reputation is not of value). Transaction costs become very high (and may block transacting) when low frequency coincides with high uncertainty and requirement for large relation-specific investments.

When uncertainty which surrounds transactions increases then costs for overcoming this uncertainty go up (bounded rationality is crucial and opportunism can emerged). That is why agrarian agents will seek, develop, and use such modes of organization which diminish transaction uncertainty - internal integration, cooperation, rational (relational) contract etc. There are strong mutual incentives to develop a special form for repeated transacting when high uncertainty is combined with significant relation specific investments. When transacting between same counterparts is rare, and it is not supported by specific assets, and appropriability is high, then faceless (autonomous) market exchange is the most efficient mode. Depending on the levels of uncertainty and their risk aversion the agrarian agents will take different entrepreneurial risk and will get normal, low or extra than average rate of return from transactions.

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<sup>10</sup> Two major forms of opportunism can be distinguished: pre-contractual ("adverse selection") - when some of the partners use "information asymmetry" to negotiate better contract terms; and post-contractual ("moral hazard") - when some counterpart takes an advantage of impossibility for full observation on his activities (by another partner or by a third party) or when he take "legal advantages" of unpredicted changes in transacting conditions (costs, prices etc.). Special third form of opportunism occurs in development of larger organizations. Here individual benefits are often not proportional to individual efforts, and everybody tends to expect others to invest costs for organizational development, and to benefit ("free riding") from the new organization.

Transaction costs are very high when some of the parties is to make specific for the transaction with a particular partner investments. In this case it is impossible to change a partner of transaction (alternative use of assets) without a big loss in value of specific capital<sup>11</sup>. Specific investments are "locked" in relationships with the particular partner (personality of partner matters) and they cannot be returned back by "faceless" market transactions. Costless redeployment (alternative use) of specific assets is not possible if transactions fail to occur, they are prematurely terminated, or less favorable conditions of exchange are renegotiated (in contract renewal time and before the end of life-span of the specific capital). Therefore, if a transaction requires significant specific investments agrarian agents will have to design a special mode to safeguard their investments from expropriation (possible opportunism) - tied-up contracts, quasi or complete integration etc.

If symmetrical assets dependency (regime of bilateral trade) exists there are strong incentives in both parties to elaborate a special private mode of governance. However, when a unilateral dependency of investments exists then dependent side (facing a mini or total monopoly) has to protect investments against possible opportunism (behavioural uncertainty) either through integrating transactions (unified organization, joint ownership, cooperative)<sup>12</sup>; or safeguarding them with some form of interlinked contract, exchange of economic hostages, development of an collective organization to outstand asymmetrical dependency (such as association for price negotiation, lobbying for Government regulations, etc).

Serious transacting problems arise when condition of assets specificity is combined with high uncertainty and low frequency of transactions. In this case elaboration of a special governing structure for private transacting is not justified since set up costs can not be recovered by occasional transactions. Specific investments are not made and transactions fail to occur. Third party involvement (e.g. local authority, Government agency, non-governmental or hybrid organization) in individual transacting (through assistance, arbitration, regulation) is crucial for smooth organization of that type transaction. Special mode for trilateral transacting such as neoclassical contract has been invented to manage transactions with high uncertainty and asset specificity, and low frequency<sup>13</sup>.

Transacting is particularly difficult when appropriability of product or services is low. In this case possibility for unwanted (unequal) market or private exchange is great<sup>14</sup>. For transactions with low appropriability the costs and benefits are independent for individual participants. Because of bounded rationality the transaction costs for protection, detection, verification, and a third-party (e.g. court) punishment of unwanted exchange (non paying consumers-opportunists) are extremely high.

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<sup>11</sup> If investment in specific capital is not made, transactions either can not take place or it could occur without (or loss of) comparative advantages in respect of productivity.

<sup>12</sup> When technological opportunities for economy on scale (scope) on specific assets can be achieved. Otherwise integration of transactions will be lost-making comparing to outside price (production costs) competition.

<sup>13</sup> It governs relationships between partners and arranges a "third party participation" - e.g. determination of grades of wine, and identity of organic products by an authorized agency.

<sup>14</sup> "Natural" low appropriability has most of agrarian intellectual products: agro-market information, agro-meteorological forecasts, a big part of new agrarian technologies and varieties, software for agriculture etc. Besides, all products (and activities) with big positive or negative extetalities (spillovers) are to be included in this group (Bachev and Labonne, p, 19).

If appropriability is low and transactions are strongly specific (for a particular customer) the only way to carry them out is to integrate transactions (in house production, trade secrets, etc.) or to elaborate an effective form for securing credible commitment (partners joint investments, interlinked transacting, etc). When recurrence of transactions between same parties is high (long-lasting partnership) then special forms for overcoming transacting difficulties has to be elaborated such as strategic alliances for innovation and marketing, joint ventures, etc.

However, serious transaction difficulties occur (and may block transacting) when they require significant specific or universal investments but they are characterized with low frequency and high uncertainty. That is when pay-back on investment requires "mass" consumption and "collective appropriation" of benefits (and risk taking). Incidental character of transactions between same agents makes the designing costs for a private "collective supply organization" very high (opportunism of "free-riding" type). Therefore, a "third party" (Government) intervention in transactions is necessary in order to make them possible or more efficient (e.g. public organisation, state funding, introduction of mandatory fees, introduction and enforcement of new property right etc.).

### **Discrete structural analysis**

Next major step is to evaluate the effective potential of alternative organizational mode: to minimize bounded rationality of agrarian agents and uncertainty surrounding transactions; for appropriation and protection of private investment from possible opportunism; to recover long-term costs for organizational development through high frequency of transaction between the same agents; to explore economy of size and scale on specific for transacting with a particular partner capital etc. Different governance forms are alternative but not equal modes for organization of transactions. They differ from one another in "discrete structural way" since they have different features to coordinate, control, and stimulate (in general to minimize costs on) transactions. Since different agrarian transactions have different "critical dimensions" and various governance forms have different comparative advantages operationalisation of the Transaction cost minimizing concept has been done by: "aligning transactions (which differ in their attributes) with governance structures (which differ in their costs and competence) in discriminating (mainly transaction cost economizing) way" (Williamson, p.52).

Limited (bounded) rationality of agrarian agents (lack of access to all information for optimal decision making, impossibility for "processing" of such information, deficiency of managerial experience etc.) increases transaction costs, and therefore there will be sleeked effective forms which diminish bounded rationality (investment for information supply, training, integration of transactions, using of special organization etc.). Possibility for opportunism of contragents (unwanted and non-punishable "exchange") also boosts transaction costs, and hence preferences would be given to forms restricting opportunistic behavior and protecting investment from unwanted expropriation (contract specification, using of economic hostages, join investment, ownership integration etc.). Built reputation (good or bad) and existence of trust between partners, reduce transaction costs making easier or blocking transactions. Finally, depending of their risk taking (high, low) the individual agents will have different transaction costs for investments connected with significant uncertainty.

In general internal structure has advantage for governing of transaction with high uncertainty and specificity (dependency) of assets, since it diminishes bounded rationality and

protects investments from outside opportunism. Contrary, transactions with high certainty (bounded rationality is not of importance) and universal character of assets (opportunism can not be realized since transaction can be executed with another "faceless" partner without significant additional costs) can be carried across free market without encountering costs for development of a special private mode.

Private organization is effective only for transactions with high recurrence between the same partners, since occasional (single) transactions do not give opportunity to recover ("pay-back" on) investment for development of a special governance mode (mechanisms for coordination, stimulation, dispute resolution etc; formal registration etc.).

Finally, markets and private forms are appropriate for transactions with high appropriability, since during the exchange they would entirely recover invested resources. For transaction with low appropriability the private rights on resources cannot be protected (unwanted exchange) or they are enforced with extremely high costs. Therefore, transactions with such features could be effectively governed either by a hybrid (mixed public-private, quasi-public) or entirely public forms for organization (Bachev 2000).

### Principle scheme

After specification of the potential of individual forms to minimize transaction costs of different type, we can build a principle scheme with generic types for governing of transactions with different critical dimensions (Table 1). For transactions with different combination of specific characteristics there would be suitable different effective forms for governing: part of agrarian transactions will be managed through free market exchange; another part will be organized through a special contract mode (s); part of transactions will be entirely internally integrated (firm), and another portion protected though a special private organization (s) outside of farm gates (cooperation, association).

**Table 1 Effective Modes for Governing of Agrarian Transactions**

Gene- ric forms	Critical dimensions of agrarian transactions									
	<i>Appropriability</i>									
	High					Low				
	<i>Asset specificity</i>									
	Low			High				High	Low	
	<i>Uncertainty</i>									
	Low		High		Low		High		High	High
	<i>Frequency</i>									
	High	Low	High	Low	High	Low	High	Low	High	High
M	☺	☺								
SC			☺			☺				
IO					☺		☺			
TP				☺				☺		
									H	PO

**M** – free market; **SC** – special contract form; **IO** – internal organization; **TP** – necessity for a third-party involvement; **H** – hybrid mode; **PO** – public organization

When transactions between same parties are occasional, but they are characterized with significant uncertainty, and they are with increasing or high specificity of assets, then there is no pure market or private mode for effective organization ("market failure", "contract failure"). Here a third part involvement (state, local authority, international assistance, private agent) is necessary to make such transactions more efficient or possible at all.

### **Economic boundaries of agrarian organizations**

Lastly, for each generic mode the range (spectrum) of feasible organization forms is to be identified. For instance, variety of "internal organization" in agriculture includes: one-person farm or firm, family farm or firm, group farm or firm (partnership), cooperative, corporation, public farm or firm, joint venture etc. Corresponding forms of "free market" are: spot exchange on local, regional etc. markets; classical contract, wholesale trade etc. The "special contract form" could be: short-term contract, long-term contract, relational contract, interlinked organization, multilateral agreement etc. In order to complete the list of alternative governance modes in each generic type a special micro-economic survey is needed.

Finally, we are (and able) to determine the effective (horizontal and vertical) boundaries of agrarian organizations of different type. Individual forms in each generic type should be evaluated for their potential to explore economy of scale (and size) of specialized or (and) specific capital, and comparative efficiency to minimize bounded rationality and to control the opportunism of participants<sup>15</sup>. For instance, one-person farm (firm) has zero internal transaction costs (one agent), but limited possibility for investment in specialized (specific) human and material capital. «Internal» opportunities for increasing productivity (through investments, exploring economy of scale and size) increases along with the extension of members of the coalition (group farm) but that is also associated with an enlargement of internal costs for reducing (internal) bounded rationality and for controlling (internal) opportunism. The separation of ownership from management (cooperative, corporation) gives enormous (unlimited) opportunities for productivity growth but it is connected with huge transacting costs (for decreasing information asymmetry between management and shareholders, for decision making, for controlling opportunism of hired labor and between partners etc.). The special contract form combines the potential for a greater "control" on transactions with possibility to explore advantages of further specialization of activity. The boundaries of agrarian markets extend along with development of specialization and standardization of agrarian recourses, technologies, and products, and institutional conditions for protecting of private (absolute and contract) rights.

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<sup>15</sup> Such an attempt to determine the economic boundaries of different type of farms in transitional Bulgarian conditions has been done in our previous publication (Bachev and Tsuji 2001b).

Thus that is a question of trade-off (comparison of benefits) between the increase in productivity and the growth of transacting costs, and of minimization of overall (production plus transaction) costs of farm. Such comparison not always (most often) is quantitatively measured having in mind problems associated with "measurement of transaction costs"<sup>16</sup>. However, that calculation is always made by business managers and by all (rational) economic agents. Economic science should not ignore "immeasurable" costs of transaction but to seek adequate forms for their incorporation into efficiency analysis.

At this stage of analysis it becomes clear the inadequacy of suggested indicators for productivity of production costs and resources for estimation of efficiency of the different organizations. The opposite is true - it has to be expected a significant difference in the rate of profitability on investments in an agro-firm ("profit making organization") from the "pay-back" of expenditures and resources in a cooperative ("member oriented organization"), a public farm ("non-for profit organization") or in a self-consistent farm (giving opportunity for productive use of otherwise "non-tradable" resources such as family labor, land etc.).

Traditional statistical and other data are little suitable to test and broadly apply our new approach. Here they are necessary micro-economic data for different transactions governed by various types of farms. For this purpose it has to be organized interviews with managers of different kind of farms. Questions should give information for the specific characteristics of transactions of particular type and for the level of transacting costs. Besides direct indicators (for instance "frequency of deals with the same partner", "term of contract" etc.) it should be also used appropriate proxy (indirect) indicators for expression of uncertainty of transactions, specificity and dependency of assets, etc. For instance, such indicators could be: "whether there is an alternative supplier (buyer)"; "reason for selecting a particular supplier or buyer (the best price, delayed payments, receiving supplementary service etc.)"; "identity of the partner (relative, friend, member organization etc.)"; "factors which make difficult the procurement or sell (finding a partner, high price level, non-fulfillment of negotiated terms)" etc.

The goal of such analysis is not only to check (test) adequacy of the suggested approach for economic evaluation of agrarian organizations, but also to identify transaction difficulties, and to suggest directions for improvement of agrarian policy and business strategy of farms.

## **Conclusions**

In unreal economy "without transaction costs" the theory of agrarian organization is very simple - there are no agrarian organizations (farms, firms, cooperative etc.). Here the single mechanism for governing (organizing, coordinating) all economic activities is the free market. "Situation of efficiency" is easily achieved since agrarian agents (individuals, households, firms) automatically and costlessly adapt their behavior according to movements of market prices and changes in production technologies.

In the real agrarian economy "with transaction costs" there is also place for other effective (non market) modes for optimization of resource use - group farms, cooperatives, a big variety of contract forms, public firms, hybrid and mix forms. "The old" problem of efficiency finds a "new" dimension through incorporation into analysis of the costs of transacting (in addition to

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<sup>16</sup> Moreover, the traditional production costs are also not always easily accounted as a result of "deformation" of market prices. That is why in calculations of efficiency is suggested to be used "average", "index", "shadow", "discounted" etc. prices.

the traditional production expenditures). Moreover, accent is put on evaluation of comparative efficiency of all (rather than only a part) of alternative modes for organization of agrarian transactions - "free market" as one extreme and "natural farm" or/and "complete (public or private) hierarchy" as another poll(s). It also becomes absurd both the usage of traditional approaches of "black box" in analysis of governing structures and of productivity as an indicator for efficiency of different agrarian organizations.

That new concept of efficiency is an inseparable part of the new understanding of the essence and economic role of agrarian organizations. However, transaction costs economizing is not only a modern academic concept but a real practice in the world we are living in. Here arguments such as "transaction costs are difficult to measure" and therefore "they will be ignored in assessment of efficiency" are not acceptable - not only in research works, but (mostly) in farm management and in agrarian policies design. .

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