ASSESSMENT OF SUSTAINABILITY OF BULGARIAN FARMS

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Abstract

The New Institutional and Transaction Costs Economics framework is incorporated to transitional Bulgarian agriculture, and level of sustainability of dominating subsistent farming, production cooperatives, small-scare commercial farms, and large agro-firms assessed. New framework for assessing sustainability of farms and for governing of sustainable development is suggested taking into account: role of specific institutional environment, comparative efficiency of various market, private, public and hybrid governing modes, transaction costs and critical factors (frequency, uncertainty, asset specificity, and appropriability) of farm transactions. Analysis of sustainability of different types of Bulgarian farms is made, and further domination of subsistence farming, cooperatives, large agro-firms, and some part of small commercial farms projected.

Keywords: sustainability of farms, governing of agrarian sustainability, Q12, Q13

Introduction

Assessment of farm sustainability is among the most topical issues in academic, business, and policies debates around the world. In recent years, it has become a part of the broader problem of evaluation of different aspects (economic, social, environmental etc.) of sustainability of agricultural systems, and governing of sustainable rural development in general. Despite the enormous progress in that respect, the process of development of an efficient system for assessing sustainability of farms and agrarian structures is far from complete. To a certain extent, that is a result of domination of Neoclassical ("institutions neutral", "transaction costs free") approach in agricultural economics and policies. That framework has proved to be especially inappropriate for East-European countries where a fundamental transformation has taken place and a great variety of new (specific) structures evolved in the area. High sustainability of subsistent and part-time farming, cooperative and over-integrated forms, numerous informal and interlinked modes, which have been dominating since the beginning of transition now, can be hardly evaluated with commonly suggested indicators for profitability and productivity.

The New Institutional Economics overcomes the shortcomings of the traditional approach, and helps better estimate factors for development and comparative efficiency of various governing modes. Incorporation of that new methodology into analysis of Bulgarian agriculture would allow evaluating efficiency and prospects of development of different farms and agrarian organizations in the specific transitional environment. Moreover, it would let access the comparative efficiency of existing and other feasible governing (market, private, hybrid, public) forms for achieving the goals of sustainable development. *The aim of this paper is to adapt the principles of that new powerful concept, and assess the sustainability of farms and farm structures in Bulgaria.*

Framework for assessing farm sustainability

Farm as a governing structure

Sustainability of a farm characterizes its *ability to maintain (continue) over time.* Since no economic organization would exist in a long-term if it were not efficient (otherwise it would be replaced by more efficient one), the problem of assessment of sustainability is directly related to estimation of factors and level of farm efficiency. Traditionally farm is presented as a "production structure" and analyses of efficiency are restricted to production costs (optimization of technological factors according to

marginal rule). This approach fails to explain why for a long period of time there exist so many farms with different levels of efficiency. In Bulgaria for instance, profitability and productivity in cooperative farms has been 5 times lower than in private farms. Besides, there are more than a million highly sustainable subsistence and non-profit making farms in the country.

In addition to production costs farming activity is also associated with significant *transaction costs*. There are enormous costs for finding best partners and prices, negotiating conditions of exchange and for contract writing, for enforcing and disputing agreements, for protecting property rights, etc. Rational agents will seek, chose or develop the most effective mode for organization of their transactions that minimize their bounded rationality, and safeguard their investments from hazard of opportunism. In the *long run*, only effective governing structures maximizing benefits and minimizing costs of transacting will tend to dominate (sustain) in agriculture.

If transaction costs were *zero* then it would not be of economic importance whether agricultural activity is carried out by one-person or family farms, cooperatives or agro-corporations with different size, or by a single nationwide company ("Coase Theorem", Coase, 1960). All information for the effective potential of transactions (exploration of technological opportunities, satisfying demands) would be costlessly available, and individuals would costlessly trade (exchange) resources in their mutual benefit until exhausting possibilities for increasing productivity, maximizing consumption, and sustainable development (there is principle agreement for global sustainable development). However, when transaction costs are high they could block otherwise effective transactions, and restrict farm size far bellow the technologically optimal level. In other instances, existing potential to economize on market transacting costs cause a vast extension of farm size through backward, lateral or forward integration. Thus in the world of positive transaction costs, farms and other agrarian organizations have a significant economic role to play. They are not only production but also major *governing structures* – forms for organization of transactions and for minimization of transacting costs. Therefore, sustainability of farms cannot be correctly estimated without analyzing their comparative production *and* governance potential.

"Institutional aspect" of sustainability

Institutions ("rules of the game") determine individuals' rights in society and ways these rights are enforced. Formal and informal institutions affect human behavior and eventually determine the type of social development (North, 1990). *Institutional framework* is a critical factor for farm and agrarian sustainability. For examples, cannabis farms are highly sustainable in one institutional environment and quite unsustainable in another type of environment. Level of sustainability of farms is quite different depending on: existence of public support programs; introduction of strict quality, labor, and environmental standards; permitted legal modes for transacting; efficiency of Laws and contract enforcement, etc. Moreover, operational goals and mechanisms of sustainable development are institutionally determined. Socially acceptable norms for use of labor (employment of children, safety standards, minimum wages), plant and livestock (animal welfare, preservation of biodiversity, usage of GM crops), and environmental resources (water use rights; permissions for polluting air, water, and soils), all they could differ even between various regions of the same country. All these institutional restrictions are important parameters within which any farm must be *economically viable*. On the other hand, governing of supply of food and non-food (clean nature, beautiful countryside) farm products could be left to free market, private actions, or organized through hybrid or public modes depending on prevailing development policy.

Level of individual and overall transaction costs is greatly determined by institutional environment. If state of Law, trust, good will, and stability dominate in a society then costs for protection and exchange of private rights (contract preparation, adjustment, enforcement, disputing) would be insignificant. Alternatively, if private rights are not well defined, (enforced) that would limit

transactions and optimization of farm. Indeed rights on certain resources are often not defined (e.g. rights on quiet and clean air, clean water) and that creates big difficulties in effective allocation of resources (unsolvable disputes between polluting farmers and neighborhood). Consequently, less sustainable modes are applied, and some transactions are not carried at effective scale.

Finally, if formal institutions "do not work", individuals develop and use more effective informal (or even illegal) modes to govern their exchanges. Therefore, assessments of sustainability of farms have to be always done in the *specific institutional* rather than in unrealistic (normative, desirable) *context*. Nevertheless, the institutional aspect is commonly missing in most of suggested and used systems for assessing agrarian sustainability. Accordingly, ideal norms rather than feasible alternative arrangements are used as criteria – e.g. EU model of farming, perfectly defined and enforced property rights, effective governments, situation without public intervention (subsidies) etc.

Defining economic sustainability

Generally, every farm related transaction could be governed through a great variety of *alterative forms*. For instance, for production of forage a farmer can use own or family labor; he can hire workers on daily, seasonal or permanent base; he may cooperate with other farmers in production; he could purchase related services; he can get necessary forage from own cooperative; he can buy it from market or apply a long-term supply contract. In the same way, farm output could be consumed by household or exchanged with relatives; used as input for another farming activity; directly sold at farmer or wholesale markets; marketed through a spotlight, longer-term or interlinked contract; sold out through an own cooperative; processed at the farm; or integrated into other activity of the farmer (such as agro-tourism, restaurant, retail trade). Extreme but real cases are when a farm entrepreneur governs all transactions via free market (lease-in farmland and long-term material assets, purchase of services for cultivation and harvesting, sell out entire products on market) or close internal organization such as one-person or group natural farm. Between these polls there is a *spectrum of feasible modes* for governing of transactions such as contract forms, cooperation, formal organizations (firms), hybrids, etc.

Different governance modes are alternative but not equal modes for organisation of transacting. They give individuals dissimilar opportunities to coordinate and control transactions, protect private investments from opportunistic expropriation, and profit from specialisation and exchange (Williamson, 1996). *Free market* ("price movement") has big coordination and incentive advantages (invisible hand, power of competition), and provides "unlimited" opportunities to benefit from specialisation and exchange. However, market governance could be associated with high uncertainty, risk, and costs due to price instability, great possibility for facing opportunistic behaviour, "missing market" situation, etc. *Special contract form* ("private ordering") permits better coordination, intensification, and safeguard of transactions. However, it may require large costs for specification of contract provisions, adjustments with constant changes in conditions of exchange, enforcement and disputing (trough an expensive court system) of negotiated terms, etc. *Internal (ownership) organisation* allows greater flexibility and control on transactions (direct coordination and adaptation, internal dispute resolution). However, extension of internal mode beyond family boundaries may command significant costs for development (initiation and design, formal registration, restructuring) and current management (collective decision making, control of opportunism of members of coalition, supervision and motivation of hired labor etc.).

Exchanges let more profitable use of resources but require additional costs. Farmers, resource owners, consumers will tend to govern their relations though the *most effective forms* – that which maximise benefits and minimised their costs. Thus, the effective form and size of a farm will be determined through optimisation of *total* (production *and* transacting) *costs*, and trade-offs between increase (gain) in the productivity (benefits) and growth (gain) in transacting costs. Very often the high costs

for market trading (e.g. for finding credit, marketing output) and/or internal governance (e.g. deficiency of low transacting costs labour) may limit the farm to miniature (subsistent farming) or family borders).

Farm will be efficient if it manages transactions in the most economical for owner(s) way – that is the situation when there exist no additional transaction which could be carried out with net benefit. If a farm does not govern transactions effectively, it will be unsustainable since it experiences high costs (difficulties) using institutions and carrying transactions *comparing* to other feasible organisation. In that case there will be strong incentives for exploring existing potential (adapting to sustainable state) through reduction or enlargement of size, or via reorganisation or liquidation of farm. Thus either alternative farm (non-farm) application of resources; or farm expansion through employment of additional resources; or trade instead of internal use of owned land and labor; or taking-over by another farm. Transacting *modes* and acceptable *net benefits* will vary according to individual's preferences, entrepreneurship, risk aversion, opportunity costs of resources, etc. Expected benefits could be: (in)direct income; profit; pleasure of self-employment (family enterprise) or agricultural (environment preservation) activities; increased leisure time: desire for preservation of farm for future generation.

Major *types of farm transactions* are associated with *know-how* supply, *innovation* supply, *land* supply, *labor* supply, *inputs* supply, *finance* supply, *insurance* supply, and *marketing* of services and products. Therefore, firstly an analysis is to be made on *comparative efficiency* of organisation of *every* major transaction of the farm. If significant costs (difficulties) of some type of transacting in relation to a really possible alternative is in place then farm is to be considered as non-sustainable. Given that an alternative form often diminish one type while increasing other kind of costs, and widespread application of complex modes (interlinking credit with inputs supply or marketing), the overall *internal* and *external* transacting costs of the farm has to be taken into account.

Next, farm's *potential* (incentives, ability) *for adaptation* to evolving environment through effective changes in governing forms (saving on transacting costs) and production structure (exploring technological possibilities for growth in productivity) is to be estimated. Thus if a farm does not have potential to stay at or adapt to new more sustainable level(s) it would be either liquidated or transformed into another type of farm. For instance, if a farm faces enormous difficulties meeting institutional opportunities and restrictions (e.g. new quality and environmental standards); or it has serious problems supplying managerial capital (as it is when an aged farmer does not have a successor), or supply of needed farmland (big demand for non-agricultural use of land), or funding activities (insufficient own finance, impossibility to sell equity or buy credit), or marketing output (changing demand for certain products, strong competition with imported products), then it would not be sustainable despite its high historical or current efficiency.

Transacting costs

Some transaction costs are easily specified – management, information, security, and marketing costs; fees for registrations, certificates; compensations for intermediaries; payments for lawsuit; bribes. However, a significant part of transacting costs is very difficult (impossible) to determine – costs for finding partners, negotiations, controlling and enforcing contracts, organizational development, interlinked transacting, unrealised (failed) deals. Subsequently, assessments of farm efficiency could be merely based on traditional (accounting, statistical) data, and rarely done by precise calculation (comparison) of transaction and production costs. All these "measurement problems" make it also impossible to extend the Neoclassical models simply by adding a new "transacting" activity (Furuboth and Richter, 1998).

Defining the absolute level of transaction costs is not always possible but we could determine which mode commands *relatively least* costs. Since different governing modes differ in "discrete structural way" the *discrete structural* (rather than "marginal") *analysis* is more suitable for evaluating the efficiency of alternative organisational forms (Williamson, 1996). In the specific institutional environment, the most efficient forms for farm transacting will depend on *specific characteristics* of each transaction. Frequency, uncertainty, asset specificity, and appropriability have been identified as "critical dimensions" of transactions and factors responsible for *variation* of transaction costs.

When *recurrence* of transactions *between same partners* is high, then both (all) sides are interested in sustaining and minimizing costs of relations (avoiding opportunism, building reputation, setting adjustment mechanisms). Besides, costs for developing a special mode for facilitating bilateral (multilateral) exchange could be effectively recovered by frequent transacting. When *uncertainty*, which surrounds transactions increases, then costs for carrying and secure transactions go up (for overcoming information deficiency, safeguarding against risk). While certain risk could be diminished by production management (stock keeping, reallocation, diversification) or a special market mode (e.g. purchase of insurance), governing of most of transacting risk would require special private forms – e.g. trade with origins; using guarantees; employing share rent or output-based compensation; providing economic hostages (collateral); participating in a risk pooling, inputs supply or marketing cooperative; internal organization.

Transaction costs gets very high when *specific investments for relations with a particular partner* are to be made. Several forms of assets specificity have been identified – physical, human, site, dedicated assets, and brand name capital (Williamson, 1996). Relation specific investments are "locked" in transactions with a particular buyer or seller, and cannot be recovered through "faceless" market trade (in case transaction does not take place or it is terminated before the effective life-span of invested capital). Therefore, if a transaction requires significant highly specific assets the farm has to safeguard dependant investment with a special form (such as long-term contract, interlinking, hostage taking, joint investment, ownership integration). Otherwise, specific investments would not be made, and transactions either take no place or occur without (or loss in) comparative advantages in respect to productivity and quality.

Transacting is particularly difficult when *appropriability* of product or service is low (Bachev and Labonne 2000). "Natural" low appropriability have most of the 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 externalities are to be included in this group. Here costs and benefits are independent for individual participants. For such transactions possibility for unwanted (market or private) exchange is great, and costs for protection of private ownership, for detecting cheating, and for disputing rights - extremely high. Farmers would either over produce (negative externalities) or under organize such transaction (e.g. provision of environmental goods) unless they are governed by an efficient private or hybrid mode (trade secrets, cooperation, strategic alliances, or public order). For instance, since there is not an effective system for protection of rights on organics products in Bulgaria (independent certification and control; special marketing channels etc.) farmers have no incentives to invest in organic production despite existing consumer demand and potential profitability.

Governing of agrarian and farm sustainability

Operationalization of the Transaction cost minimizing concept is 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, 1996). In the specific institutional environment, according to combination of specific characteristics of each transaction,

there will be different the most effective and sustainable form for governing of farm transactions. *Principle* modes for effective (sustainable) organization of farm transactions are presented at Table 1.

Table 1. Sustainable Modes for Governing of Farm Transactions

Generic modes*	Critical dimensions of transactions								
	Appropriability								
	High**								Low**
	Assets Specificity								
	Low				High				
	Uncertainty								
	Low		High		Low		High		
	Frequency								
	High	Low	High	Low	High	Low	High	Low	
M									
SCF									
IO									
TPI									
PI									

* M – free market; SCF – special contract form; IO – internal organization; TPI – necessity for a third-party involvement; PI – necessity for public intervention

** Only extreme levels (high-low) of factors are presented. In the real economy there is a big variation of critical dimensions and thus of effective governing forms (including mixed modes).

Transactions with high frequency, big uncertainty, great assets specificity (dependency), and high appropriability, have to be organized *within the farm* (ownership mode). For instance, managerial and technological knowledge is quite specific to a farm and its supply has to be always governed through a permanent labor contract and coupled with ownership rights. Long-term investments in land (orchard, irrigation, building) are to be made on owned or long-leased rather than rented land (site specificity). Dairy farm would never leases but owns cows, and all "critical" to farm material assets will be internally organized (production of forage for animals; important machineries; water supply for irrigated farming). Moreover, universal capital could be effectively financed by market (loan, bank credit) form, while highly specific investments can be only made through internal (own funding, equity) funding (Williamson, 1996). Depending of the personality of resource owners and costs of their coalition, different *type of farm* will be preferred - one-person farm (firm), family farm (firm), group farm or partnership (firm), cooperative farm, and corporative farms. In the specific institutional environment (legal framework, support policies, tradition, level of transacting costs) various types of farm will have quite different effective (*horizontal* and *vertical*) *boundaries*.

If specific capital cannot be effectively organized within the farm (economy of scale and/scope explored, funding made), then an effective governing form *outside farm-gates* is to be used - group farming, cooperative, lobbying for public intervention. Very often transacting costs for initiating and maintaining such "collective organization" is great (big number of coalition, different interests of member, "free-riding" problem) and that creates obstacles for sustainability of individual farms (missing markets, monopoly situation, impossibility to "induce" public intervention etc.).

Farm transactions with good appropriability, high certainty, and universal character of investments (partner can be changed anytime without significant additional costs) could be effectively carried *across free market* (spotlight or classical contract). Here organization of transactions with a special form or within the farm would only bring extra costs without producing any transacting benefits. Recurrent transactions with low assets specificity, high uncertainty and appropriability could be effectively governed through a *special contract*. Moreover, *relational* contract has been invented when detailed terms of transacting are not known at outset (high uncertainty) and a framework (mutual

expectations) rather than specification of obligations is practiced. Partners (self)restrict from opportunism and are strongly motivated to settle emerging difficulties (situation of frequent bilateral trade). Besides, no significant risk is involved since investments could be easily (costlessly) redeployed to another use or users (since no assets dependency exist). A special contract forms is also efficient for rare transactions with low uncertainty, high specificity and appropriability. Dependent investment could be successfully safeguarded through contract provisions since it is easy to define (enforce) relevant obligations of partners in all possible contingencies (no uncertainty surrounds transactions). Here the occasional character does not justify internalization of transactions.

However, serious problems arise when condition of assets specificity is combined with high uncertainty, low frequency, and good appropriability of transactions. Given that elaboration of a special governing structure for private transacting is not justified, specific investments are not made and transactions fail to occur at effective scale (market *and* contract failure). Similar difficulties are also encountered for rare transacting associated with high uncertainty and appropriability. In these cases, *a third part* (private agent, Government) *involvement* in transactions is necessary (through assistance, arbitration, regulation) in order to make them more efficient or possible at all. For instance, when State establishes (enforces) quality standards for farm inputs and produces, or certify providers of agrarian services, or regulate employment relations, or guarantee minimum prices for farmers, all that considerably facilitates and intensifies transactions and increases farm sustainability.

When appropriability associated with a transaction is low, there is no pure market mode to carry such transactions effectively. Transactions could be still governed by "good will" (private initiatives, voluntary actions), or through a private mode if high frequency (pay-back of investment is possible) and mutual assets dependency (incentive to cooperate) exists. In these cases trade secrets, interlinking, bilateral or collective agreements, close-membership cooperatives, codes of professional behavior, alliances, internal organization etc. are used. However, emerging of special large-members organizations for dealing with low appropriability would be very slow and expensive, and they unlikely be sustainable in a long run ("free riding" problem). Thus, there is strong need for *a third-party public* (Government, NGO, international assistance) *intervention* in order to make transaction possible or more effective. For example, supply of environmental goods by farmers could hardly be governed through private contracts with individual consumers because of low appropriability, high uncertainty, and rare transacting (high costs for negotiating, contracting, charging potential consumers, disputing). A third-party mode with a direct Government involvement would make transaction effective: on behalf of consumers Government agency negotiates with farmers "contracts for environment conservation (improvement) service", coordinates activities of various agents (including direct production management), provides public payments for compensation of farmers, and controls implementation of negotiated terms.

There are a big variety of possible *forms for public intervention* in market and private transacting. Comparative advantages and costs of alternative modes are to be assessed and the most efficient one selected. Calculation is to include direct tax payer contribution, transacting costs of bureaucracy (coordination, stimulation, reorganization), individuals' costs for using public modes (time and efforts spent, payments of fees and bribes). Low appropriability is often caused by unspecified or badly specified private rights. In some cases, the most effective intervention would be to introduce (enforce) *new private property rights* (rights on biological and environmental resources; intellectual property; tradable quotas for polluting). In other instances, the most economical will be to put in place *regulations* for utilization of resources (water user rights) and reducing negative externalities – limits for comfort diminution (noise, odor); norms for contamination of water, soil, and air; rules for using GM crops; taxes for polluters. Often providing *public information*, *education*, or *support* (assistance in organization formation, public funding, tax relieve) to private, collective or community organizations would be the best solution. In some cases *pure public organization* (in-house production, provision) will be the most effective (agrarian research and education, agro-market information, agro-meteorological forecasts). In other instances *hybrid* (public-private) *modes* would be more efficient given coordination, incentives, and control advantages. Commonly, involvement of farmers in supply

of non-food services (preservation of biodiversity, landscape, cultural heritages) is the most economical form giving farmers' information superiority, strong interlinks with food production activity (economy of scope), high assets specificity to the farm (competence, specificity of investments), and spatial interdependency (need for cooperation), and farm's origin of externalities.

And finally, there are transactions, which are to be initiated or governed by *international* (regional, EU, worldwide) *organizations* due to strong necessity for trans-border cooperation or consistent (national, local) "government failures". In any case, if there is strong need for public involvement but an effective government intervention is not introduced in a due time, development of farms and farm structures would be substantially deformed. In Bulgaria there have been a great number of bad Government interventions, and primitive (uncompetitive) small-scale farming; over-integrated and personalized exchanges; ineffective agrarian bureaucracy; blocking out of all class of agrarian transactions (innovation and extension supply, long-term finance supply, infrastructure development, supply of environmental goods), all they have come out as a result.

Evaluation of sustainability of different farms

Sustainability of small and subsistence farms

Small-scale and subsistence farming has been one of the immanent features of transitional Bulgarian agriculture. According to different data subsistent farms comprise 0,64-1,5 million accounting for 94% of all farms in the country and cultivating around 15% of total agricultural land. Consequently, a significant portion of entire output of vegetables, fruits, and vine is for "own consumption". Besides, more than 97% of livestock farms are miniature "unprofessional farms" breading 96% of goats, 86% of sheep, 78% of cattle, and 60% of pigs in the country (MAF, 2004).

New farm structures evolved after 1989 when agricultural land was restituted, and assets of large public farms distributed or privatized. Agrarian reform has turned most of households into owners of farmland, livestock, equipment, etc. Internal organization of available household resources in an own farm has been an effective way to overcome great institutional and economic uncertainty, and minimize costs of transacting. Private rights on most of farmlands were not entirely restituted until 2000 making market trade with land very difficult or impossible. Besides, there was "oversupply" of farmland and the effective demand was not immense. Many Bulgarians lost their jobs as a result of privatization of public farms and industrial companies. Starting up an own farm was the most effective (or only) mode for productive use of available resources (free labor, land, technological know-how). Large portion of people was at pre-retired or retired age and had no other job alternatives. For others farming was stable "temporary" or second employment in conditions of high insecurity of job market. Diversification into farming has taken place and now farming is "sole or major employment" only for a quarter of "engaged persons in agriculture" while for almost 1 million Bulgarians it is an "additional source of income" (MAF, 2005).

Market or contract trade of household's capital (land, labor) was either impossible or very expensive (high uncertainty, asymmetry of information, and risk; big possibility for opportunism in time of hardship). Moreover, low payoff of outside trading (high inflation; non-payment or delayed payments of pensions, wages, rents) was combined with an increased share of food costs in household budgets. Therefore, internal organization turned to be the most effective way to protect and get return on resources, and to secure stable income. Long-term tradition with "personal plots" during communist period, and insignificant costs for acquiring specialized knowledge (information, training, learning by doing experience) has made initiation and development costs for own farm accessible for everybody. In addition, there has been a great (price, quantity, quality) uncertainty associated with market supply of basic foods (many new suppliers, no reputation built, poor assortment, insufficient enforcement of

quality standards). For lots of consumers an internal organization (own production) has been an effective mode to guarantee cheep, stable, safe, and high quality delivery of food. Besides, for many Bulgarians farming activities happened to be a preferable full-time or free-time occupation.

Governing of small-scale and subsistent farms is not associated with significant transacting costs. These farms rely entirely on own land, finance, and family labor. Costs for coordination and organization of activities are insignificant because primitive technologies are applied; (internal) demand and potential are known; and common goals, high confidence, and no cheating behavior dominates between family members. Small collective organization is also practiced for some activities (group pasture of animals, common guarding of yields), which allows partial exploration of economy of scale or make part-time farming practically possible. This form is cost-effective since transactions are not complicated and easily controlled. Besides, group members are usually close friends, neighbors, or relatives, and mutual trust and self-restriction of opportunism govern relations.

Occasional outside supply of some inputs (seeds, chemicals) and services (veterinary) is not connected with significant costs since they are highly standardized and not farm-specific (many suppliers). On the other hand, highly specific to farm transactions (feed supply for animals, mechanization services) are effectively secured through a joint ownership mode such as cooperative (group) farming. "Marketing" of output is not associated with considerable costs because most of produces are for internal household consumption or processing. Exceeds are exchanged with relatives and friends, or sold at local (farmers, street) market or to a processor (e.g. milk). In any case, low volume, high frequency, and personal character of transactions (clientalization) minimize the costs of marketing.

There has been significant diminution of institutional uncertainty in recent years. However, most of the factors that brought to existence subsistent farming persist – high economic insecurity and unemployment, low income and purchasing power of households, uncertainty associated with market supply of food (freshness, safety, quality, price). Furthermore, specialized investments required for own farming have been made (technological knowledge and learning by doing experience accumulated; best production structure found; good relations with suppliers and buyers built), and management and operation costs minimized. At the same time, most of these farms have no intention to extend size because of other major occupations (income sources), limits of household demands and resources, advanced age etc. Transaction costs to enlarge farms through outside supply of additional land, labor, and finance, and marketing would be extremely high (no entrepreneurial capital). In addition, further extension of farms will be restricted by vast costs for studying and respecting institutional restrictions (Laws, regulations; quality, veterinary, environmental, anima welfare etc. standards), and establishing "relations" with agrarian bureaucracy (registrations, certifications, paper works). On the other hand, there will be practically impossible for Government to enforce official standards in that huge informal sector of the economy. Besides, there will be strong political pressure to relax application of EU rules in non-market farm transacting (respect voters interests). What is more, some subsistence farms will be eligible for CAP direct payments and see their "profitability" increased. Therefore, majority of subsistent farms will be highly sustainable in years to come.

Sustainability of production cooperatives

Production cooperation is another "phenomenon" of transitional Bulgarian agriculture. After 1991 there have emerged more than 3000 new production cooperatives with an average size of 600 ha. They cultivate more than 40% of utilized agricultural land, and concentrate a half of cereals and oil crops, and major part of orchards and vineyards in the country (MAF, 2005).

Long-term cooperative tradition has been an important factor for cooperative development. However, the cooperative has often been the single form for farming organization in the absence of settled rights

on main agrarian resources and/or inherited high interdependence of acquired by individuals assets. More than 2 millions Bulgarians have got individual stakes in the assets of liquidated ancient cooperatives. In addition to their small size, a great part of these shares were in indivisible assets (large machinery, buildings, processing and irrigation facilities). Therefore, new owners had no any alternative but liquidate (sales, consumption, distortion) or keep them up as a joint (cooperative) ownership. In many cases, ownership on farmland was restituted with adjoined fruit trees and vineyards, and much of activities (mechanization, plant protection, irrigation) could be practically executed solely in cooperation. Most of landowners happened to live away from rural areas, have other business, be old of age, or possess no skills or capital to start own farms. In the absence of big demand for farmlands and/or confidence in emerging private farming, new evolving cooperatives have pulled land plots of more than 40% of novel proprietors.

The cooperative rather than other formal collective (e.g. firm) mode has been mostly preferred. It allows individual members easy (low costs) entree and exit from coalition, preservation of full control on a major private resource such as land, and democratic participation in (and control on) management ("one member-one vote" principle). Besides, cooperative form gives some important tax advantages such as tax exemption on sale transactions with individual members and on received rent in kind. Also there are possibilities for organization of transactions which are not legitimate for other modes such as credit supply, marketing, and lobbying at nation-wide scale (Double-taxation and Antimonopoly Laws). Moreover, most of cooperatives develop along with or after emergence of small-scale and subsistent farming. Namely, "non-for-profit" character and strong member (rather than market) orientation attracted membership of many households. Production coops have been perceived as an effective (cheap and stable) form for supply of highly specific to individual farms inputs and services (production of feed for animals; mechanization of major operations; storage, processing, and marketing of farm output etc.), and/or food for household consumption.

Relatively bigger operational size of cooperatives gives them great opportunity for efficient use of labor (teamwork, division and specialization of work), farmland (cultivation in big consolidated plots, effective crop rotation), and material assets (exploration of economy of scale and scope on large machinery and equipment). In addition, they have superior potential to minimize market uncertainty ("risk pooling", advertisement), and organize some critical transactions (better access to agrarian credit; stronger negotiating positions in input supply and marketing, facilitate land consolidation through lease-in and lease-out deals; introduce technological innovations), to invest in intangible capital (reputation, brand names), etc. In situation of "missing markets", the cooperative mode has been the single form for organization of certain transactions in villages and rural areas undertaking bakery, retail trade etc. Furthermore, production cooperatives provide employment for members who otherwise would have no other job opportunities (housewives, pre-retired or retired persons). They are preferable employer since they offer relatively high job security, social and pension payments, day-offs and paid annual holidays, and opportunity for professional (including career) development.

Giving the considerable transacting benefits most of the coop members are ready to accept lower (than market) return on their resources - lower wages, inferior (or no) rent for land and dividends for shares. Cooperative activity is not difficult to manage since the internal (members) demand is known and "marketing" secured. In addition, coops concentrate on few highly standardized products (wheat, sunflower) with a stable market and good profitability. Output-based payment of labor is broadly applied which restrict opportunism and minimize internal transaction costs. There have been some adjustments of size, memberships, and production structure in cooperatives. A number of them have moved toward more "business like" governance applying profit-making goals, close-membership policy, complex joint-ventures with other organizations etc. All that has brought about for high sustainability of these farms from the beginning of transition now.

At the same time, cooperatives show certain disadvantages as a form for farm organization. Big number of coalition (averaging 240) makes individual or collective control on management very

difficult (costly). That gives great possibility for mismanagement and/or let using coops in best interests of managers (on-job consumption, unprofitable for members deals, corruption). Besides, there are differences in investment preferences of diverse members due to non-tradable character of cooperative shares. While working and younger members are interested in long-term investments and growth of salaries, income in kind, other on-job benefits, older and no working members favor current gains (income, lend rent and dividend). Given the fact that most of the members are older in (pre-retired and retired) age or non-permanent employees, incentives for long-term investment in cooperatives have been very low. Level of long-term (and highly specific) investments for land improvement (P and K fertilizing, irrigation equipment) and for renovation of outdated machinery, orchards, vineyards, has been insignificant. Fertilizer compensation of extracted nitrogen, phosphates and potassium in Bulgarian farms has been very low (85%, 11.5% and 1.8 respectively), and most of long-term assets physically amortized. Finally, many coops fall short in adapting to diversified (service) needs of members and exploring potential of inter-cooperative modes (joint ventures, associations). Accordingly, long-term comparative efficiency of production cooperatives diminishes considerably in relation to other modes for organization (market, contracts, partnerships, alliances). Not surprisingly almost 40% of all existed coops have bankrupted or ceased to exist in last 5 years.

However, most of cooperatives will sustain in years to come since they will keep their advantages to a large number of petite landowners, rural labor, small and subsistent farms. Recent public intervention (SFA, SAPARD) though subsidies and credits for farm and rural investments, and incoming EU direct payments, all they give an opportunity to overcome coops funding problem. Besides, some environmental, infrastructural, and rural development projects, which require large collective actions, could be effectively initiated, coordinated, and carried by existing cooperatives or mix (coop-private, coop-public) modes. Adaptability of cooperative to new challenges would be significantly increased through public training of their staff in business and agro-environmental management, carrying out an effective control on coops activities, and providing assistance in farm and cooperative associations.

Sustainability of large business farms

In the beginning of transition there was “boom” in creation of private farms on the base of restituted farmland and agrarian assets. Most of these new farms were highly unsustainable and there was a considerable size adjustment until 1995. Land management was transferred to large farms while other (smaller and middle-size) farms concentrated on labor-intensive activities or got subsistent character. The process of farm enlargement and modernization has not been competed yet. However, two major types of commercial farms dominate in Bulgarian agriculture for more than 10 years now – *unregistered (family) farms* and *registered entities of physical persons (sole traders)*.

Presently there are 37000 “market-oriented” non-cooperative farms in the country. Around 6% of them are registered firms averaging 340 ha and cultivating 23% of the farmland (MAF, 2003). Agro-firms are mainly in grain (wheat, sunflower) production but there are good examples in fruit, grape, greenhouse, mix crop-livestock or pure livestock (poultry, pig) operations as well. Most of these farms developed on large family resources (farmland, labor, savings) by younger generation entrepreneurs - former managers and specialists of public farms, individuals with high business spirit and know-how etc. Also there have been set up numerous small-members *farming companies* and *partnerships* between relatives and friends, including joint ventures with non-agrarian and foreign participants.

Specific management skills and combination (complementarities) of partner’s assets (technological knowledge, business ties, investment capacity etc.) let rapid extension of these farms through concentration of resources, exploration of economy of scale and size, accumulation of capital, and modernization of farm enterprises. Personal relations, “quasi” and/or entirely integrated modes have been extensively used to overcome big market and institutional uncertainty. During the long period of fundamental market adjustments, and absence (“failure”) of markets for agrarian credit and extension,

these farms managed to mobilize and invest significant resources. Domination of private (rather faceless market) governance of critical transactions, coo-financing, common (joint) ownership, integration of farming into inputs supply, processing, and marketing, all they are typical.

Large business farms are strongly profit-oriented organizations. Farmer(s) have great incentives to invest in farm specific (human, material, intangible) capital because they are sole owners of residual rights (benefits) of the farm. Owners are family members or close partners, and internal transaction costs (for coordination, decision making, motivation) are not high. Increased number of coalition (partnership) gives additional opportunity for internal division of labor and profiting from specialization - full-time engagement in production management, market relations, paper work, technological development. In addition, these farms are big employers and lease-in land intensively from tens and hundreds of proprietors. Core labor (specialists, mechanists) is usually hired on permanent basis and special forms are further used to enhance motivation - combination of time with output-based compensation, interlinking (free housing and services), social imbursements, rights on paid holidays. Farm-specific assets (critical machinery, vineyards, orchards, processing facilities, and adjoin land) are safeguarded by ownership mode. More universal transactions are easily governed through standards shorter-term (daily or seasonal labor contracts for routine and standardized work; brief rent land for one-season crops) or longer-term (service supply, lease-in) contracts. However, permanent practicing of monoculture on short-leased land creates some serious environmental problems in some regions of the country (low restoration rate of P and K intakes; soil erosion etc.).

The large size of these farms make them preferable partner in inputs supply and marketing deals. Besides, they have giant negotiating power and effective mechanisms (economic, political etc.) to enforce contracts. They also possess great potential to collect market information, search best partners, promote products, adjust to demand, use outside experts, prepare business projects, meet special (collateral, hostage) requirements, bear risk and costs of failures. In addition, they could explore economy of scale/scope in organization of certain deals ("package" arrangement of credits for many projects; interlinking of inputs supply with marketing). Moreover, they are able to invest considerable relation-specific capital (information, expertise, reputation, lobbying, bribing) for dealing with funding institutions, agrarian bureaucracy, and market agents at national or even at international scale. Further, they have enormous political power to lobby for Government support in their interests. All these give considerable advantages of these farms. Firm mode is preferred since it gives extra opportunity to diversify into farm related (e.g. trade, agro-tourism, processing) or independent businesses; develop firm-specific intangible capital (advertisement, reputation, brand names, public confidence) and its exploration (extension into daughter company), trade (sell, licensing), and intergeneration transfer (inheriting); overcome existing institutional restrictions (direct foreign investments on farmland; engaging in trade with cereals, vine, dairy products); have explicit rights for taking parts in particular types of transactions (export licensing, privatization deals, assistance programs) etc.

Large farms have strong incentives and potential for innovation – available resources to test, adapt, buy, and introduce new methods, technologies, varieties; possibility to hire leading experts and arrange direct supply from consulting companies or research institutes. In recent years there have appeared some new opportunities to benefit from preferential public programs for modernization of agriculture. Namely these farms have been quite successful in developing good proposals, meeting formal requirements, dealing with complicated paper work, and "arranging" selection of their projects for purchasing up-to-date machinery; building modern orchards, vineyards, and processing facilities; improving environmental performance etc. Furthermore the large farms will get the greatest share in the incoming EU direct payments (which will be based on amount of utilized land for 2007-2009 period) as around 3 % of non-cooperative farms will touch more than 76% of total subsidies for non-cooperative sector. Large agro-firms have significant comparative advantages in terms of adaptability, governance, and productivity. They will rest highly sustainable in the future when they will have greater access to EU markets, and further opportunities to benefit from huge public (EU, Government) support, rural development and environmental preservation programs.

Sustainability of small commercial farms

Majority of commercial farms are “unregistered farms” with an average size of 1.8 ha and 19% share in total land. They are mainly in labor-intensive productions (vegetables, tobacco, vineyards, berries, melons, flowers, mushrooms, medicinal and aromatic crops, livestock, sericulture, bee kipping) and natural meadows. Those are predominately individual or family enterprises, and farm size is exclusively determined by amount of available household resources (farmland, labor, finance). Greatest part or all output of farms is directed to off-farm wholesale, and contract and/or retail marketing.

Internal governing costs in these farms are insignificant because transactions are between family members or not existing at all (one-person farm). Farmer(s) have strong incentives to adapt to market demand and to increase productivity (intensification of work, investments in human and material assets) since they own whole income of the farm. Extension of farm size through outside supply of labor or services is restricted since directing, monitoring, and disputing costs are extremely high in labor demanding and spatially dispersed productions. (Transacting) costs for external financing (debt, equity sell, taking part in public programs) of farm activities have been enormous as a result of big transacting uncertainty, asymmetry of information, strong specificity (“berried in land”) and risk (“mobile character”) of investments in agriculture. Therefore, possibility for effective farm enlargement and growth in productivity (mechanization, application of chemicals, innovation) has been severely limited by the small internal investment capacity (savings, profits). As a result, outdated technologies, low productivity, and non-compliance with modern quality, labor, animal-welfare, and environmental standards, all they dominate in the majority of these farms.

Own farm enterprise has been a secure mode for providing (full or part-time) employment for family members (including retired, housewives, children). Family organization is also an effective form for intergeneration transfer of farm-specific intangible assets (know-how, learning by doing experience, reputation). In some intensive areas (e.g. off-season vegetables and fruits) small-scale farming has been quite effective in product quality and price competition bringing good income for households. Profitability of these farms has been especially big when there exist special nationwide organization for marketing (bee honey); production planning and price support (quotas and guaranteed prices for tobacco); inputs supply and marketing (sericulture). Besides, when symmetrical (capacity, quality, time of delivery) dependency was in place tight marketing or interlinked (marketing against credit, inputs, extension supply) contracts with downward partners (processors, supermarkets, exporters) have developed which govern transactions effectively (e.g. dairy, vegetables). Finally, some produces of small commercial farms enjoy increasing (national and international) demand because of the low level of intensification (reduced or no chemical use, extensive breeding of animals), and high quality and good taste of products.

However, small-scale commercial farms have little ability to meet institutional and market restrictions, to bear the risk, and protect against natural and market hazards. A great number of them face great transacting difficulties in marketing of their output. Most often they are not preferable partners for big buyers because of small volume and less-standardized character of output, and impossibility (unaffordable costs) to verify quality of products (through laboratory tests, certificates) etc. On the other hand, official wholesale markets have been inaccessible for these farms for the reason of great distance; high fees; requirements for volume, special preparation, certification, etc. Besides, farms frequently experience no accomplishment of contract obligations (non or delayed payment), huge market price fluctuation, (quasi) monopoly situation, missing markets, etc. In order to protect transacting and avoid unwanted exchanges the primitive forms for risk minimization is commonly used - investment in more universal but less profitable assets, diversification of production, informal cash and carry deals, direct retail marketing etc. With exception of tobacco producers (having significant political representation) development of effective collective organizations for risk sharing, price negotiation, marketing, or lobbying for public support have been difficult because of high

transacting costs (free riding) and diversified interests of individual farmers (old-young; larger or smaller size; specialized-diversified). For majority of small commercial farms preferential public programs have been out of reach – high costs for preparation of project proposals; for meeting formal paperwork, ownership, coo-financing etc. requirements; and for "arranging" funding.

Different fractions of these farms are with unequal sustainability. Unlike other forms of organization the life cycle of *one-person* (family) farm is greatly determined by the age of the entrepreneur. Thus, farms will be unsustainable when farmers are close to the end of working age, and they have no heir wishing to take up the farm or have more than one successor wanting to get the enterprises. Moreover, incentives for long-term investment in specialized assets for increasing sustainability will be low for older farmers since there is no secondary market for farm-specific assets (investments in human capital, good reputation, know-how, organizational modernization). For that reason a good number of small-scale commercial farms will operate at low sustainable level (at present or smaller scale) given that most of farm managers and labour are old in age (managers older than 45 and 65 are 85% and 40% accordingly). In addition, most of the *professional livestock farms* are highly unsustainable because of their low productivity and non-compliance with EU hygiene, quality, animal welfare, and environmental standards. Some of them (mostly cattle, sheep and goat farms) will increase their present size with additional specialized investments in modern technologies and environmental protection. That would enhance their ability to compete, meet strict institutional restrictions, and participate in various public support programs. These farms will continue to rely on family labor for carrying out all critical and highly specific transactions (care for animals, supply of forage etc.). Increased scale of operations will also require some stable forms for governing of marketing such as cooperation or tight contracts with dairy and meat processing industries.

Process of consolidation and modernization will be taking place in some of *horticultural* farms as well. In years to come market, contract, and institutional uncertainty will be steadily diminishing while access to public support programs augmenting with application of CAP. That will further increase sustainability of smaller-scale intensive family operations. In some cases, small partnership or group farming modes will be also used to achieve rapid concentration of capital and labor. *Tobacco* farms are concentrated in mountainous and less-developed regions with little farmland and no alternative job opportunities. They will continue to enjoy high public support (political power, preferential regional support policies), which will keep their high sustainability and bring no significant changes in modes of organizations (specialized small-scale family operations).

Strong competition will be inevitably connected with decreasing the number of small commercial farms as a result of boost of joint ventures, failures, or non-market orientation. There will be further intensification of outside market and private transactions through increasing external supply of finance, inputs and land, and escalating of marketing. Large part of agrarian inputs, technologies, and outputs will be having "mass" (standardized) character, and thus market transacting will dominate at farm gates. However, there will be a parallel tendency toward specialization into productions for "niche markets" and products with special quality (specific origins, organic products, eggs from freely-breed chicken, meat with low fat level, grape for special wines). All they will require investments with increasing or high specificity to a particular buyer(s), and "integrated" management of transacting in farming, processing industries, food chains, exporting (specification of production technologies, products quality and quantity, time of harvesting and delivery). Besides, some diversification of enterprises into related activities (trade with origins, agro-tourism) as mode for dealing with market risk should be expected. All that would bring to a life variety of special private forms for governing such as long-term contracts, collective agreements (e.g. code of professional behavior), trilateral modes (e.g. independent third-party certification and control), "quasi" or complete integration etc. Process of enhancement of sustainability of small-scale commercial farms would be considerably accelerated through a third-part public involvement in training and extension education, assisting in farm association, and increasing accessibility to various support programs (improving transparency, decreasing bureaucratic procedures, providing preferences for small-scale enterprises).

Conclusions

In the traditional framework there is single mechanism for governing of sustainable agrarian development. “Free market prices” and market competition effectively coordinate and stimulate entire activity. Accordingly all farms constantly “adapt” to price movements being equally efficient and sustainable. Rare cases of “market failures” associated with “negative externalities” are also recognized and (perfect) “government intervention” seen as a remedy. In the real agrarian economy there are additional important factors affecting individual choice and farms sustainability (namely institutions and transacting costs), and a great variety of effective governing mechanisms. Agrarian agents tend to govern available resources in the most economical way adapting to institutional environment and minimizing costs of their transacting. In relation to individual’s preferences and experience, and critical attributes of each transaction (uncertainty, frequency, assets specificity and appropriability), there will be different effective structure for organization. Accordingly, at any given period of time, farms of various type and size could persist in agriculture. Analysis is focused on assessment of comparative efficiency (potential to face institutional restrictions, for growth in productivity, and economizing on transaction costs) of a farm, and farms of different type, sub-sectors, regions etc. Moreover, direct quantitative methods are combined with indirect or pure qualitative approach for assessing sustainability level.

That new framework helps us better understand the factors for sustainable development and “Government’s role” as well. Analyses of the transaction costs identify an immense range of “market failures” associated with badly specified property rights; inefficient public contract enforcement system; high uncertainty and asset specificity, and low appropriability of transactions. Economic agents deal with market failures developing different (and highly sustainable) private forms for effective transacting. However, private sector also “fails” to organize some transactions in effective scale. Thus there is strong need for a third-party public involvement in market and private transactions. Sustainable development is significantly compromised if both market and private sector fails, and no effective public intervention takes place. Therefore, high sustainability of farms does not always mean sustainable agrarian development. Next, sustainable development does not exclude fundamental modernization of farms (enlargement, transformation into other types, etc.). Finally, different forms of public interventions are with unequal efficiency in respect to farms sustainability and sustainable development (“government failure” is possible).

The analysis of the post-communist development of Bulgarian agriculture demonstrates the high comparative efficiency of the specific structures such as subsistence farming, production cooperatives, small-scale commercial farms, and large agro-firms. Assessment of the sustainability of these farms shows that they will continue to dominate during the accession and post-accession stage to EU. However, further increase in efficiency of Government interventions is needed in order to enhance sustainability of prospective farms and sustainable agrarian development.

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