

# **On the nature of Bulgarian subsistence agriculture**

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## **Abstract**

In most countries of Central and Eastern Europe the process of transition to market economy resulted in an increasingly subsistence type of agriculture. The extent of subsistence farming varies from one country to another, but the phenomenon is universally present. The very existence, yet expansion of subsistence agriculture has been perceived as a paradox. It is sufficient to remind that it simply does not fit the definition of transition, which is viewed as a process that has to bring about the market into economy, the same market that went missing in agriculture. The latter would incline one to consider subsistence agriculture as a temporary phenomenon that will perish as transition advances. The basic textbook economic theory views subsistence agriculture as implicitly irrational and contradicting the sound economic logic and principles. This is also the prevailing opinion on the nature of subsistence agriculture in transition economies, as well as in general. This paper challenges this viewpoint and argues that subsistence agriculture is not only logical consequence from the worsened economic conditions at individual level, but it contributes to the overall market stability. Developing the argument with regard to Bulgaria, which is a country with a large share of subsistence agriculture, as an illustration, it dismisses the claims that subsistence causes waste of production resources and loss of overall welfare. Conversely, it is demonstrated that subsistence agriculture increases both production and consumption.

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## **Non-technical summary**

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## **Introduction**

In most countries of Central and Eastern Europe the process of transition to market economy resulted in an increasingly subsistence type of agriculture. The extent of subsistence farming varies from one country to another, but the phenomenon is universally present. The very existence, yet expansion of subsistence agriculture has been perceived as a paradox. It is sufficient to remind that it simply does not fit the definition of transition, which is viewed as a process that has to bring about the market into economy, the same market that went missing in agriculture. The latter would incline one to consider subsistence agriculture as a temporary phenomenon that will perish as transition advances. The basic textbook economic theory views subsistence agriculture as implicitly irrational and contradicting the sound economic logic and principles. This is also the prevailing opinion on the nature of subsistence agriculture in transition economies, as well as in general. This paper challenges this viewpoint and argues that subsistence agriculture is not only logical consequence from the worsened economic conditions at individual level, but it contributes to the overall market stability. Developing the argument with regard to Bulgaria, which is a country with a large share of subsistence agriculture, as an illustration, it dismisses the claims that subsistence causes waste of production resources and loss of overall welfare. Conversely, it demonstrates that subsistence agriculture increases both production and consumption.

### **1. Efficiency**

The lower technical efficiency of small scale subsistence farms is sometimes interpreted as economic inefficiency. This is however a dangerous and misleading approach. The historical tendency towards greater mechanisation and substitution of capital for labour in Western agriculture over the last century is seen as unqualified technical progress synonymous with efficiency. Even the basic economic textbooks, however, say that the substitution between factors of production is dependent upon their relative prices. In other words mechanisation is nothing more than a reflection of the underlying increase in real wages, that is in the relative price of labour. In a transition economy, one consequence of the dramatic economic reforms is the declining price of labour. Therefore efficiency should lead to a process of substitution of labour for capital and, in terms of agriculture, to increased importance of labour intensive technologies such as those employed in subsistence farming. One can however question the extent to which this regressive technical change is needed and given "overshooting" in the use of labour, accept the "inefficiency" of subsistence production, which is more labour intensive and smaller scale than in the commercial sector. Such a view may be "tested" using opportunity cost calculations and the "degree of inefficiency" can be estimated. It is

evident that such calculations should apply at the aggregate level, because it is impossible to test for individual utility orderings. The latter means that for any type of economic behaviour one can define a "utility function" that has been maximised by this behaviour. Only by trying to "objectivise" some implicitly subjective notions such as opportunity costs can such calculations be meaningful. But by doing so we lose the original economic meaning of the opportunity cost concept. To illustrate this let us look at one characteristic of current subsistence farmers in Bulgaria - they are aged persons. Sarris et al. (1999) report an average age of 62 years. The "objectivised" opportunity cost to labour employed in subsistence farming may be an average wage, which can then be used to "prove" that subsistence farmers are inefficient and therefore irrational. The subjective opportunity cost to a pensioner, who also can be considered the most common type of subsistence farmer, is the income that he or she "sacrifices" to work on the small farm. Bearing in mind the unlikely prospects for such a person finding any employment, one could say that in monetary terms the opportunity cost of his labour employed in subsistence production is zero. The other type of opportunity cost is the sacrificed leisure. Given the income situation of a pensioner (the average pension in Bulgaria in 1997 was equal to 25% of the average wage, that is around \$25 per month), one can conclude that this opportunity cost is commensurable to the previous one or in other words virtually does not exist. If we further assume that labour is the only production input in this subsistence farm, there is no way that production could be inefficient in economic terms. The farm described above is however not some hypothetical assumed farm, but the typical subsistence farm in Bulgaria. Therefore subsistence farmers are economically rational and efficient. The "objectivised" opportunity cost calculations are misleading because, if they "discover" inefficiency, then this would suggest that these farmers act irrationally, because they could be better off. One can thus see the controversy: in a situation when none of them could have done any better, there is still the possibility for them to do better as a whole.

### **3. Is subsistence a negative phenomenon?**

The justification of subsistence farmers' inefficiency therefore can only be done on the basis of social welfare considerations. Lacking economies of scale and employing backwards technologies they are regarded as a restriction and "threat" to agricultural development (OECD, 1999). An important major reason for such opinions is the perceived technical inefficiency of subsistence production which results in smaller total agricultural production. This seems to justify claims for the social "unacceptability" of subsistence agriculture, because it restricts agricultural production growth. Such a view is a myopic one. Contrary to this common belief we argue that subsistence maintains and increases aggregate agricultural production.

We ask what are the net effects of the current dualistic agricultural structure in Bulgaria. At first sight it seems that subsistence decreases agricultural production, because of its lower technical efficiency and increased consumption of agricultural products. The latter stems from the fact if one has to pay for a product, a person will normally consume less, than compared to "free" subsistence production, which grows in the back yard. The point of departure for this argument is in understanding that the real dilemma in subsistence agriculture is not what to produce, but given the production, what to sell and what to consume (Kostov, 2000). This understanding is based on the opportunity cost argument that demonstrates that genuine alternatives to small-scale agricultural production, such as employment and leisure, are severely restricted.

Any effect, however, has to be estimated with regard to a hypothetical benchmark situation. It thus appears that the benchmark situation to which we are comparing is a totally commercial agriculture. In other words we have mentally substituted commercial for the subsistence farms. This is the mental construct that one would use to show the inefficiency of subsistence, because it is better image of agriculture. Is however this image possible? Let us assume that we achieve this benchmark situation in which we have magically transformed all subsistence into commercial agriculture overnight. The effect of this action would be an agricultural production surplus, resulting mainly from the new "efficient" commercial farming and partly due to the decreased consumption, because of the now vanished subsistence. This agricultural surplus can not be absorbed by the domestic market, because of the lack of effect of other economic variables such as for example incomes, or, in other words, the traditional *ceteris paribus* assumption. It must therefore go to the foreign markets. Assuming open and absorbing external agricultural product markets is however an even more heroic assumption. The Bulgarian market has experienced tomatoes production surplus as during 1998-2000 and the increased tomato exports are yet to take place. The simple and widespread assumption that markets exist is largely unhelpful. This begs the question, what is the reasonable benchmark situation against which the current agricultural structure has to be compared? The only mechanism that can eliminate the surplus is therefore price. The prices for the products of present subsistence agriculture have to fall. This would then make it difficult for commercial farming and many commercial farms would be forced out of business. The main resource for agricultural production - land would be abandoned. Thus commercial farms could not be established in place of subsistence ones if the latter were "inefficient".

The resulting situation is one of lower prices and lower production compared to the baseline situation. Unless we adopt a deterministic view of the economic changes, which would have enormous problems in explaining how and why subsistence was possible in the first place, we can not be sure what would happen with a subsistence-free agriculture by which to compare the present situation. It is however clear that, within such a comparison, subsistence is no longer an alternative to commercial farming but to abandoned agricultural land. How then can one think of subsistence as restricting agricultural production? The only requirement that subsistence agriculture has to meet

in order to increase aggregate agricultural production is to produce something, that is, to exist.

The alternative non-agricultural land use cannot change the above argument. Non-agricultural use of land is usually more advantageous and is subject to licensing and numerous other restrictions. Moreover it is independent from the agricultural conjecture and will have similar effect on both dualistic and wholly commercial agriculture. Another conceivable alternative is the less intensive agricultural production in commercial farming, which could in principle absorb some of the available free agricultural land. Such possibility, however, contradicts the argument, because it would drive total agriculture towards subsistence. It is worth noting that this is exactly the process that took place during transition. Bulgarian small scale farmers, which we now define as subsistence, were market oriented in pre-transition period (Kostov and Lingard, 2000, McIntyre, 1988) as probably it was the case in the other Central and Easter European countries (Kornai, 1992). Hence, adopting the view that less intensive land use can take place within the commercial sector will bring us back to the current dualistic agricultural structure, which we used as a point of departure.

Now we can turn to the question what would be the subsistence effects on total consumption of agricultural products. One can be tempted to conclude that lower prices could result in an increase in consumption, which is greater than the loss experienced due to the disappearance of subsistence. The need for decreasing prices was however just an element of an equilibrating process. After the price has declined, production would be restricted which would lead to a price increase, which would provoke the emergence of new commercial farms on the basis of the abandoned resources etc. For analytical reasons we have used the "all commercial" scenario as a point of departure in our construction of a subsistence free agriculture. This has provided us with analytical results but has ignored the path dependency and cumulative causation of economic development. The point we want to make is that the resulting market clearing price in the subsistence-free case is far from obvious. A different methodology, that regards the changes in a dynamic framework as processes, rather than final end-states is necessary for this purpose. We can however analytically "freeze" the external markets and estimate consumption effects of subsistence in this case. Fixing external trade allows us to exclude it from the analysis, which is a well known conventional economic assumption. Without loss of generality we can consider only the domestic market, because the effects of external trade will be equal in both cases we are comparing. Assuming further than the equilibrating process has finished, that is the market has cleared, we have domestic consumption equal to domestic production, with appropriate adjustments for foreign trade effects. Lower production in the benchmark scenario, therefore, means also lower consumption for agricultural products. Hence the net consumption effects of subsistence farming are positive.

#### **4. Subsistence is good - how does this help us?**

Understanding the positive aggregate effects of subsistence on total agricultural consumption and production explains another puzzle in considering subsistence farming. This is the question about agricultural commercialisation. Although the typical farm example presented earlier defines subsistence as non-contradictory to economic rationality which can be justified within the satisficing economic behaviour (Simon, 1957), many neo-classically trained economists insist on the optimisation principle. They say that if subsistence farmers adopt better production technologies, available in the commercial sector, they will improve their efficiency and therefore their incomes. With better incomes there will be no need for subsistence type of behaviour which means that subsistence behaviour is irrational. This assumes that this commercialisation and the accompanying effects are feasible. That is, it assumes the existence of the "magic stick commercial farm scenario", which we have already rejected. In other words this reasoning about the inefficiency of subsistence assumes that they can change, but only by ignoring the restrictions that prevent this. Which more specifically are these restrictions? Adam Smith stated that the size of market is the main constraint to the division of labour, which in his context was synonymous with production efficiency. One can extend this concept and incorporate in it the institutional influences. To be more precise, the size of market should not just be seen as potential placements for a given product, but as real possibilities. The real possibilities are logically lower than the potentials, because they reflect not only the general and abstract opportunities of the ideal text book market, but the restricted and imperfect realisations in existing markets. The difference between the abstract ideal market and its size and the size of the real markets is determined by the influence of the existing institutional arrangements. The most crucial of these effects is the ability of economic agents to effectively co-operate with each other. In a word of mistrust and imperfect information, and, more importantly, radical uncertainty, the optimal market size is unachievable even in principle.

Another virtue of this understanding of subsistence phenomenon is that it allows for better formulation of policy objectives and implementation of policies concerning this sector. These policies have to be aimed at removing the above mentioned restrictions rather than trying to directly improve technical efficiency.

## **5. On the likely commercialisation and its driving forces: policy recommendations**

It is clear that commercialisation is a desirable process, because of the related rise in technical efficiency. Although efficiency is usually defined in terms of output per units of input, and has meaning only if we assume that maximising production is a priority, one can assume that in the case of likely agricultural commercialisation, it is positively correlated to farming incomes.

If it is possible, commercialisation will improve the situation for present subsistence farmers. Policies therefore should attempt to make this possible. Policies towards subsistence agriculture should use of factors that determine the process of commercialisation, that is the process opposite to the one that gave birth to subsistence in transition economies. The latter is a complex issue that needs thorough investigation. We use the results of such an analysis presented in Kostov (2002) and develop our policy suggestions from these.

### ***5.1. Income policies.***

Income is a major determinant of subsistence farming. It defines the domestic demand for food products which allows a greater part of the production to be marketed when income and therefore food demand increase. Additionally improved income enables disengagement from subsistence production in alternative employment opportunities. One can see that these are two different interpretations of income. The former is concerned with the general income level and therefore reflects the overall economic development, while the latter is rather more specific. It refers to the income opportunities available to subsistence farmers and thus is related to rural development. There is no need to design specific policies aimed at subsistence agriculture in relation to the overall economic development which is deemed a priority in every country. In the case of the rural development however, much can be done to create the pre-conditions for agricultural commercialisation. The collapse of the non-agricultural sources of income in rural areas were largely responsible for the current agricultural situation (Kostov, 1995). Rural employment schemes can therefore contribute to reversing the process. These policies will not directly lead to a technically more efficient agriculture, but will facilitate the exit of some subsistence farmers and reduce the significance of agriculture as a social buffer that ensures employment and some income. The greater merit of such policies will however be their contribution to a more predictable agricultural situation. By creating alternative income sources they enable the opportunity cost logic, that we have criticised, to be applied to agriculture. The exit from agriculture may be full or partial. In the first case, this will create an additional market for food products, which some could benefit from. In the second case production surplus will be reduced because of the reduced efforts put into small scale production. This again means an additional market, because this reduction will be reflected in the market served by the farmers who have partially exited. This would be itself an impetus for improving production efficiency.

### ***5.2. External markets***

The next important determinant of subsistence farming is the size of the foreign market. A more detailed conceptualisation is provided in Kostov (2000, 2001) and Kostov and Lingard (2000). Foreign markets impact on the traditionally exported products of subsistence agriculture, although indirect impacts through substitution effects are possible even for non-exportable products. Bulgaria is a traditional agricultural exporter and for the main products of subsistence, vegetables, foreign markets have a major impact. Improved external market access and creation and promotion of new markets, may give immediate results. In terms of subsistence they only require a part of the own consumption to be reallocated for sale. That is the commercialisation effect, at least initially will be immediate. Kostov and Lingard (2002) provide a classification of Bulgarian subsistence agriculture into products aimed primarily at self-sufficiency and mainly market oriented products. It can be noted that the latter group covers exactly the traditionally exported products. This is one of the reasons for the likely immediate effect of export opportunities on subsistence production. Export stimulating policies should pay attention to the infrastructure needed. It is the inappropriate institutional infrastructure that does not allow for export reallocation of vegetable production. Foreign market influence is a logical outcome of the extended interpretation of the size of the market effect.

### ***5.3. Capital accumulation***

The third factor that influences agricultural commercialisation is the process of capital accumulation. Extending production, which is a consequence of agricultural commercialisation, is not possible unless there are conditions for accumulating the specific capital needed for this expansion. Additional to the possibility for capital accumulation, it is necessary for it to be vested in a concrete form as a teleological sequence. Nonetheless, we will hereafter concentrate on the first aspect of the question only.

While some capital goods such as buildings have to be "produced" in agriculture, others may be bought. In case of purchase of assets, we transform money, which can be regarded as a universal or financial form of capital into some specific capital. That is we have a substitution of one form of capital for another form of capital. Similarly the "production" of capital goods and the use of loans to purchase assets can be regarded as intertemporal capital substitution. In the case of using bank credits this can be justified by the requirements for collateral. The asset that is bought now against the amount of the credit is "substituted" for the collateral at the term of the credit. The process of capital accumulation therefore requires the initial capital that has to be currently or temporarily substituted. There are two sources for capital accumulation: financial resources and owned specific assets. The availability of financial resources is dependent upon the sales of production and other incomes. Therefore income supporting policies

can contribute to the process of capital accumulation. The assets that can be transformed into desirable specific capital goods via production or when used as collateral are of greater importance. Subsistence farmers largely lack such assets except for land. The use of land as collateral is however problematic. It depends on the profitability of agricultural production and, in countries like Bulgaria, it will take a time before banks agree to consider land as appropriate collateral, which they presently avoid. There are other assets the main use of which is outside agriculture, but which are accepted as collateral such as a house. Two main factors influence the decision to "transfer" assets from other activities. The first is the expected profitability of agricultural production. The second is the situation in the domain of main use of this asset. If the opportunity loss related to the eventual impossibility to recover this asset is sufficiently large, this may deter the decision to "transfer" it. Therefore the area of main use of the asset should be relatively stable. With regard to the use of own house as collateral, the main use of this asset is for accommodation. If there is a sufficient and supply of affordable rented accommodation, then it is more likely than one would decide to use it as collateral than if there is a shortage of accommodation or uncertainty about the rents of accommodations. In other words the decision to "transfer" an asset to agriculture would depend on its opportunity cost in the area of its main use and the balance of advantages (likely profit) and disadvantages (risk and uncertainty) in its destination (in this case agriculture). Such calculations, however, have to take into account institutional constraints. If for example having your own home is culturally a high individual priority, then the threats of losing it may be exaggerated, and only highly profitable projects may be backed up by using homes as collateral. Policies have to be designed such that they should decrease the risks and uncertainty facing agricultural production on the one hand and create a more stable situation in areas of the main use of the assets used in the process of capital accumulation. Many recognise this as a process of institutionalisation and improving the infrastructure. The policy for providing state guarantees on credits for agricultural producers is an example of state policy that ensures the process of higher capital accumulation. In terms of current subsistence agriculture however, the transformation is likely to be a long and difficult process. The banks prefer to deal with bigger farms, because this decreases their relative transaction costs. Therefore a policy towards creation of rural banking structures may be helpful. The latter however have to be implemented in a situation in which there are conditions for agricultural commercialisation. Otherwise as Mishev (1997) points out small-scale farmers are likely to use the available credit resources mainly to finance their short term cash flows.

## **6. Conclusion**

The widespread existence and endurance of subsistence and semi-subsistence agriculture in countries in transition has been defined a problem by many analysts of

transition. Such recognition often lacks sufficient understanding of what it represents and how it may modify economic policies. The positive impacts that subsistence farming exercises on total food production and consumption are important for better understanding its role in the economy. Only by abandoning the illusion that subsistence is abnormal and a strange phenomenon can we understand why it has persisted for so many years. This paradoxical conclusion is useful for understanding economic processes in general. Our argument may seem illogical to neo-classically trained economists, because of the comparative statics that economic orthodoxy postulates, without paying attention to the feasibility of the compared states. This stereotype may be useful in a slowly changing environment, but in terms of transition economies, which are marked by dynamic changes, this view is insufficient. What is needed is an understanding of the economy as a process, rather than a sequence of end states. Our discussion may not have utilised such an approach, but we have outlined the need for it. Comparative statics have to be replaced by a thorough process view of the changes, a view that considers their flow in real time. The problems of subsistence agriculture are beyond the scope of agricultural and food sectors. This does not mean that nothing specific can be done in relation to subsistence farming and we have to wait for general economic development to work it out. Understanding the processes that govern the underlying dynamics can help formulate policies aimed at facilitating agricultural commercialisation. We have outlined above the general design of such policy measures. The issue requires more detailed investigation.

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