Decision making pattern of subsistence farmers in Bulgaria

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Acknowledgements

This research was undertaken with support from the European Union's Phare ACE Programme. The content of the publication is the sole responsibility of the authors and it in no way represents the views of the Commission or its services.

Abstract

Economic research by and large is dominated by a ‘rationality’ paradigm. Economic decision making within this paradigm is viewed as a maximising procedure. In general the latter represents the decision-making as a choice amongst a well defined set of alternatives. In this paper we question this and analyse the options of the small-scale subsistence farmers in Bulgaria in the way they see them. By applying mental accounting methodology we deduce some significant characteristics of Bulgarian subsistence agriculture.

JEL classification: D11, D13, D79, D89

Non-technical summary

Economic models often apply the view of economic rationality. The latter presents a specific characterisation of the decision problem and applies pre-determined criteria to deduce the ‘rational’ choice. This paradigm of ‘substantive rationality’, although dominant in economic research, is insufficient to explain economic behaviour. When applied to real world problems, such as the discussed in this paper problem of subsistence agriculture, it leads to a conclusion that the economic agents behave unreasonably and that measures are needed to be taken to make them act ‘rationally’. Such a view is however, untenable and we redefine rationality in a procedural context, that is, people are rational if they can list reasons for their behaviour. In the latter context, it is increasingly important to build an image of the ‘world views’ held by economic agents. Their action will be more dependent on the way they see the problem (the world view) than on the information they possess.

The paper analyses the ‘world views’ of Bulgarian subsistence farmers and deduces several important characteristics of these. We elaborate on the origins and causes of these views and demonstrate their consequences for the economic choices of subsistence farmers. In this way we can not only explain some seemingly paradoxical situation like this how it was possible for Bulgaria in the presence of production surplus of tomatoes, to import tomato puree, but also to delimit the future behaviour of Bulgarian subsistence farmers.

1. Introduction

Bulgaria began the transformation of its agricultural sector early on in the reform process. The reform started with physical restitution of expropriated property, including agricultural land, as well as the distribution of collective farm assets among the members. The outcome of this process has been a very fragmented structure of land ownership and farming structure dominated by a large number of small private family farms.

Reforming land ownership rights to the status of fifty years ago created highly polarized farming structure of individual farms and commercial farms. Inside the category of individual farms there are a large number of small subsistence farms belonging to mostly older people. At the beginning of the reform they were considered as a concomitant structures, stemming from pre-reform household plots with limited influence on performance of the sector. Gradually with the prolonged land reform, non-existing land market and difficult process of creating the infrastructure of market economy was realized that subsistence farming in Bulgaria is not a temporary phenomenon.

Inconsistent results of applied agricultural policy show that the major problems of the Bulgarian agriculture at the moment are structural ones. The current dualistic farm structure, with the few large commercial producers on the one end, and a very large number of small farmers on the other is not efficient and viable one in the medium and long run. The major emphasis in agricultural policy in pre-accession period should be place on supporting the emerging of medium scale commercially oriented private farmers. To initiate and speed this process deeper research on motivation system of subsistence farmers and on the constraints they meet is needed. This is the only way to develop a system of measures to support the strengthening of the potentially viable subsistence farmers, that are relatively young, educated , and motivated for development into commercial farmers.

2. Methodology

We use the concept of mental accounting to investigate the limits and characteristics of the subsistence type of economic behaviour in Bugarian agriculture. Mental accounts were first introduced by Thaler (1980, 1985) with reference to the general concept of integration, which refers to the influence of some outcomes on the evaluation of present decisions. The essence of the mental accounts is that they are used to keep record of the gains and losses and if the information about two events is kept in the same mental account, they will be integrated in the process of decision making. This integration may be both temporal in a sense that outcomes at different points in time will be taken into

consideration, spatial, in which case different aspects of a problem are considered at the same time, or either. Mental accounting is governed by the principles of categorisation (Henderson and Peterson, 1992). The principles of mental accounting were incorporated at a very general level in the Behavioural Life-Cycle Theory (Shefrin and Thaler, 1988, 1992). They define three main types of mental accounts in which the monetary assets are typically categorised: current income, current assets and future income. These are assumed to have decreasing propensity to consume in the above order. These three are in fact real accounts. They are however labelled mental in order to demonstrate the psychological constraints that they impose on consumption. Their use can be seen as a general strategy of resolving the inconsistency between short and long term preferences, or as it is more popular self-control. The latter inconsistency is an well known problem in economics. Strotz (1956) has demonstrated that in a dynamic context the stationarity of consumption, which is necessary for the consistency of preferences, is often violated. Thaler (1981) presents further empirical evidence on this. Self-control strategies to resolve this problem have been introduced and analysed by Hoch and Loewenstein (1991).

It is important to note that in contrast to the case dependent and specific use of the mental accounts, as in Tversky and Kahneman (1981), in the consumption life-cycle theory (Sefrin and Thaler, 1988, 1992) they are seen as more stable cognitive structures. Although not exhaustive, the above classification of the monetary assets can be further developed by differentiating different sub-accounts. The self-restraining effect of the use of mental accounts is a logical expression of the development of calculative agencies. The latter point is confirmed by the stimulating analysis of Viviana Zelizer (1998) on the evolution of money "earmarking".

3. General implications of mental accounting for an agriculture in transition

Economic transition represents a major alteration of economic environment. It increases instability and makes the future more difficult to predict. Considering the current income which is the monetary element with the highest propensity to consume, the general fall in incomes under transition leads to a relatively lower consumption, compared to the previous period. Due to the egalitarian income policies in the pre-transition period and the high inflation at the early stages of transition, the importance of the current assets as a source of consumption has declined. The future income prospects are difficult to grasp from individual point of view in conditions of high uncertainty. In general, transition leads to decreased consumption. Kostov (2001) argues that the effects of the high uncertainty and institutional instability that accompany transition are expressed in disintegrated social structures, including markets for agricultural products. Following the same line of argument, we could assert that since mental accounts are

socially established constructs, the effects of transition processes on them will be similar. To put it simply, transition necessarily results in increased segregation of the categories classified in different mental accounts. With regard to consumption, the above means that current income, current assets and future income become segregated and thus consumption is confined mainly to current income. Sellart et al. (1997) after extensive experimentation suggested that the influence of the mental accounts is directed to the buying decisions and their effect on general consumption is indirect. The mentioned study by Zelizer (1998) provides indirect empirical support for this. The lower monetary propensity to buy therefore makes small-scale farmers more self-sufficiency orientated and dependent on the household production.

The influence of the uncertainty on consumption and buying decisions is twofold. First it influences the propensity to consume. Higher uncertainty implies an urge to consume now by increasing the importance of current income and belittling future income. Current assets are seen as a buffer for contingency situations and thus consumption is anchored to current income. Moreover, there are numerous institutional constraints on the use of current assets (Kostov, 2001). Second, uncertainty does not allow people to clearly "see" the future and this further decreases the importance of future income. In other words the greater uncertainty obliterates the differences between market and self-sufficiency oriented farmers, thus acting as a driving force for agricultural decommercialisation. Another effect of uncertainty is the higher dynamics of the changes and hence increased time pressure on decision makers. Kaplan et al. (1993) argue that time pressure induces a shift in the focus of information processing from external to internal sources, such as stereotypes and institutions. The economic hardship of transition has led to transforming agriculture into a social buffer, that is a sector that provides some, although insufficient income and employment. Consequently agriculture became dominated by aged persons, which were less likely to find alternative livelihood. Aged persons have stronger links to the institutions of the former planned economy and find it difficult to "unlearn" these stereotypes. Pejovich (1996) suggests that aged persons in general feel threatened by the undergoing economic changes because of the responsibility for their families, which was institutionalised in Eastern European "shortage" economies. The greater conservatism of aged persons leads to increased status-quo effects (Samuelson and Leckhausen, 1988), while the responsibility drives them towards escalation of their commitment to outdated stereotypes and courses of action (Brockner, 1992). Overall, aged people are less susceptible to adapt to the changing environment and thus prefer to reduce their risk exposure by insulating themselves from the market, that is being more subsistence oriented.

4. Data description

The data were collected in the framework of SWAPUA Copernicus project, executed in 1999-2000. The study is done in two regions - around Sofia and Troyan. In Sofia region were interviewed 80 farmers in the recreation zones around the city and in all nearby villages. In Troyan the interviews were carried out in the town and all surrounding villages. The interviews were distributed systematically. In each villages the interviewees were chosen in the following way: in house holds located on the left hand side, on first and/or second cross-roads, when looking to the South of the center on the main street of the settlement. Interviews were done with non-farmers, farmers, representing successful and unsuccessful examples of economic development and also doing different types of farming.

5. Discussion of the results

Two elements in the survey are clearly related. In the options for primary aim of household production the provision of food for own consumption and its role as a source of income and employment. The above two options were preferred by most of the respondents and were chosen by respectively 62% and 21% of the interviewed in Sofia region and 80% and 15% in the region of Troyan. Additionally they were selected by further 22% and 26% in Sofia region and 10% in both groups in Troyan region as second reason for practicing agricultural activities. The latter shows that most subsistence farmers are motivated by one of these two motives. Both these can however be expressed in terms of income. Employment is a source of income, while producing own food saves income that can be spent on something else. We could however assume that distinguishing between these two options shows the mental constructs employed by the interviewed subsistence farmers. Emphasizing on the food aspect reveals mainly subsistence orientation, while focusing on the income demonstrates market orientation. With regard to the above one could conclude that current small-scale farmers in Bulgaria are more subsistence than market oriented. Moreover this subsistence orientation seems to be greater in the more typical rural than in the suburban areas. This is in accordance with the general picture presented in Mishev and Kostov (2000), but contradicts the suggestions of Kostov and Lingard (2000) and the detailed analysis of Kostov (2001a) about the primary market orientation of subsistence farmers in Bulgaria. There is however no contradiction. Kostov (2001a) and Kostov and Lingard (2000) speak about forward looking orientation. The latter is prone to realise only if the whole production process from the planning of production to its sale is integrated over time. Owing to the high uncertainty, however, small-scale farmers tend to temporally segregate production and marketing, which results in the current subsistence agriculture (Kostov, 2001). This segregation therefore introduces a bias in the interpretation of the

question "why do you produce". In the mental categories, that is in the mental accounts, held by subsistence farmers production and marketing are segregated. Additionally it is well known that people often cannot objectively express their opinion in a direct way. There is a vast marketing and psychological literature on this topic. The answer of the question "why do you produce" involves elicitation of the current situation and evokes the memories of the most recent past outcomes which are subsequently integrated in making the final judgement. The answers show mainly subsistence orientation due to the recent emergence and expansion of subsistence agriculture and disintegration of agricultural markets. The greater market orientation in the suburban area of Sofia in this case simply reflects the greater market opportunities in the local market. The markets of agricultural products in transition countries are predominantly local. A more appropriate way of inferring the true orientation of subsistence farmers would have been to ask them a question like "if you have an offer for a given product at price X, how much would you sell?".

To confirm the role of the market access, 43% of the respondents in Sofia area use central market, 29% sell to relatives and friends and 29% sell direct from plot or on local markets.[1] No one uses middlemen. In the area of Troyan, on the other hand, about 1/3 of these that provided answer to this question claimed selling to middlemen. Furthermore the sale to relatives and neighbours is possible only in the area of Sofia, where one can live in the city and have neighbours that do not practice agricultural activities. Overall in rural areas the main reason for the statistics, showing greater subsistence sector is the restricted market access and the smaller local market.

The access to healthier and safer food was selected by 7% of Sofia sample as a first choice and by 30% of Troyan sample as a second choice as a motive for production. The greater role of this motive in the rural areas may seem surprising at first sight. This answer however can be interpreted as a preference of own produced food to the purchased one. The formation of this preference is probably an outcome of psychological differentiation and consolidation processes (Svenson, 1992) accompanying the recent expansion of subsistence agriculture and as such is better expressed in rural areas. The ranking of this motive at first place by some respondents in the Sofia sample may to a certain degree reflect a genuine concern about the quality of the food available on the market. The effects of the above preference for the behaviour of subsistence farmers are however considerable. It denotes a segregation of own production and market food. To put it simply, if one produces given product, he/she would not normally buy the same product. This can be confirmed by the elasticity calculations of Mishev et al. (1998, 1998a). Kostov (2001a) provides further quantitative support of this argument, claiming that eggs are probably the only

[1] Percentages sum exceeds 100% because some farmers use more than one channel for distribution.

exception. The formed preference for own production provides sufficient differentiation in terms of mental constructs between it and the equivalent products available on the market. Consequently they are categorised in different mental accounts. The latter however, cannot fully explain why one would not decide to buy from the same product he/she is producing. We found that the purchase of inputs and the sale of own production are positively correlated. The sale of agricultural products however not only provides financial funds for organising production. It also allows other food to be substituted for the products produced onfarm. A reasonable question would be whether this substitution is feasible the other way around. The land in our sample has been used very intensively and subsistence farmers produced significant output per unit of land area. Furthermore a very common problem they perceived, is the poor soil quality, shown by 20% of the surveyed in Sofia area and over 58% in Troyan area. This confirm the conclusion of Mishev et al. (1998) that subsistence agriculture have restricted growth potential. The highest importance in future production they have attributed to the children - 23% of the overall sample. This percentage may seem low because less than a half of the interviewed had an answer to this question. Since children are a source of labour for the household farm, that is "labour capital" (O'Brien et al., 2000), the latter shows that subsistence farmers are feeling the pressure of the restrictions on growth. Therefore the substitution of own production for purchased food is not feasible in present conditions. Seeing the possible substitution effects as one way, means that subsistence plays important income role and is seen as such. The limits of subsistence type of economic behaviour are virtually reached and the only change that could be induced is the one that leads to commercialisation of agriculture.

Viewing subsistence mainly as income supporting activity raises questions about the future. It suggests that market access and the size of market for agricultural products have crucial role in transforming subsistence agriculture (Kostov and Lingard, 2000). The present structure of differentiation of consumer goods in the mental accounts, employed by small scale farmers however, puts certain breaks to the commercialisation opportunities (Kostov, 2001). Therefore a successful strategy to transform current subsistence agriculture should apply a combination of market promotion and income creating measures.

Farmers expectations would play important role in initiating a change. Next we review the answers provided to some questions that indirectly reveal their expectations and attitudes.

Asked about their future production plans the majority of the farmers (between 60% and 80% for the different subgroups) declared they do not intend to change the volume of production. These that intended to increase it were approximately the same number as those who wanted decrease it (or quit). The only exception to the above is the case of the owners of temporary houses around Sofia, where only 10% intended to increase, while 40% intended to decrease the production. The willingness to increase production suggests market orientation for the rural residents, although it can have different reasons

for the non-residents. The decision to keep the same level of production, may be strategy of waiting (Kostov, 2001a). We do not reject other explanations for the above result, but since most of the farmers have asserted it, the waiting strategy seems convincing. It could increase the adaptive abilities of subsistence farmers to future changes by preserving their production potential.

Another question that is related to farmers intention is this about whether they would take a loan. Overwhelmingly they have expressed their reluctance to take loans. The only type of credits they were interested in were the preferential ones. It would be misleading to treat the above answer as a typical subsistence orientation. The interest in preferential credits shows that the terms of the loan are very important. The depressed agricultural prices restrict marketing opportunities and hence subsistence farmers do not see any reason to expand production. Their intention to keep at the same level however, demonstrates that they are ready to react to favourable circumstances. In order to get further information, farmers were asked to state the most likely way they would utilise credit resources. The answers may be summarised as equipment and improvements on existing agricultural buildings. This reflects the cautious approach to extending production. Since previous losses, reflecting outcomes that are integrated in the decision making process, lead to risk averse behaviour, it is clear that the strategy of waiting and uneasiness toward credits are expression of such behavioural changes. The profitability of agricultural production is thus an important pre-requisite for changing this situation.

Risk attitudes and market expectations are significant factors influencing the intertemporal substitution of one type of specific capital for another (Kostov, 2001), or to put it differently the substitution of future income for current assets. The high uncertainty and discounting factor, in fact prevent it. Another constraint to the desire to take credits is that land currently cannot be used as collateral in Bulgaria. The land is the natural candidate for collateral for agricultural credits, since it is integrated with agricultural production in a sense that they are kept in similar mental accounts. The concerns about the quality of land is a confirmation of the latter. The use of other current assets for collateral may be prevented by the structure of the employed mental accounts. Kostov (2001) lists certain conditions which could allow for elimination of some of these restrictions, including general stability and opportunities in the area of primal use of the asset.

The degree of segregation of production and marketing is a reliable indicator for the underlying commercial or subsistence orientation. The structure of the perceived problems provides valuable information in this respect. Except the mentioned concern about the soil quality, the following more important problems have been listed by the interviewed in Sofia area: lack of labour and time (20%), thefts (20%), lack of capital (19%), insufficient market opportunities or low prices (18%), lack of technical information and advice (4%). In the area of Troyan, on the other hand, the main problems were: lack of inputs (40%), lack of capital (33%), insufficient market opportunities or low prices (28%), lack of technical information and advice (25%), lack

of transport (25%). Taking into consideration that the area of Troyan is more rural, the differences in farmers perceptions are of crucial significance. One could see that in the latter subsample the presence of problems that reveal market orientation is considerable. The lack of transport is one such problem. Also in the Troyan area the perception of common problem like the market opportunities was considerably greater than in Sofia area. The difference in the perception of capital and technical information also demonstrates the more commercial orientation of the Troyan area farmers. Capital and technical information are factors that influence employed technology, and change in technology is related to greater market orientation. On the other hand the lack of labour resources and time presumes unchanging technology and thus more subsistence orientation. The problem of theft of agricultural production contribute to more risk averse and hence more subsistence oriented behaviour.

6. What future for Bulgarian agriculture?

Young people are currently reluctant to get involved in agriculture. This is a consequence of their longer planning horizon. They cannot see future in agriculture, due to the unfavourable market conditions. It was suggested that successful agricultural commercialisation strategy should involve measures aimed both at increasing market opportunities and creating additional income sources. The latter can however divert young people who could benefit from the additional income opportunities instead of entering agriculture. The extent to which this could happen depends, of course, on the balance of stimuli and the sequence of changes. Commercialising agriculture however, means that in general there will be free labour force to compete for the non-agricultural jobs. Younger people are more likely to be successful in this competition. With view of this we could expect that even in the future, agriculture would be dominated by aged persons. Nevertheless, agricultural commercialisation and general income increase should drive out the older farmers, who are currently striving to survive on their subsistence farm and thus would decrease the average farmers' age from its current level at around 62 years (Sarris et al., 1999). For example if the rent for agricultural land is sufficiently high (as a function of agricultural profitability) pensioners may be tempted to exit. The general demographic trend of ageing population and the lower chances of exit for other jobs, compared to younger persons, however, seem to tie aged persons to agriculture. Their commitment to agriculture is higher and hence they are more likely to launch the revival of agriculture. Production requires experience and the marketing of the production depends on the network contacts. Both these are more likely to be found in aged than in young persons.

7. Conclusions

The choices that subsistence farmers face in transition economies are defined by the unstable economic situation characterised by underdeveloped institutions and generally high level of uncertainty. In this situation, subsistence agriculture does not contradict economic rationality. Kostov and Lingard (2000) demonstrate that the existence of subsistence agriculture can lead to Pareto improvements at the aggregate level. In the terminology of the New Institutional Economics, economic transition induces increase in transaction costs. The latter have substantial impact on economic decisions. Key et al. (2000) found considerable transaction cost effects on market participation in a sample of Mexican agricultural households. Since transaction costs depend on the existing institutional structure, institutional developments are the key to agricultural commercialisation. A view of institutional change is necessarily dynamic. We have used the mental accounts methodology to clarify some categories employed by Bulgarian subsistence farmers. The use of certain categories instead of others channels the way of thinking, that is, it represents the "theoretical" views of decision makers. The use of the categories "supply", "demand" and "equilibrium" in economics, and the links among them is an example about the way economic theory is structured. Similarly, in the case of subsistence farmers the structure of their categorical frameworks, that is the system of mental accounts they employ, defines their choices. Investigating the structure of the mental accounts and particularly the degrees of integration and segregation, helps us to identify the boundaries of their economic behaviour. In a certain sense this is an use of the concept of bounded rationality. The unrestricted economic rationality refers to the case in which all mental accounts are fully integrated across time and space. Since the latter is impossible, segregation imposes certain restrictions. The type of economic behaviour that results is evidently inconsistent with the postulates of economic orthodoxy. For example the preference ordering in a system of mental accounts that is not fully integrated can be only partial. With partial instead of full preference orderings, however, economic behaviour may be inconsistent. Explaining the foundations of the economic behaviour of subsistence farmers can help us to both identify their likely response to agricultural policies and the measures that are needed to introduce the needed institutional changes. We would like to stress that institutional changes are not only changes in legislation and organisational structure of the economy, but changes in the relevant rules and routines for economic behaviour. It is true that legislation and organisational structure influence the process of formation of these rules. Nevertheless they do not "create" these rules. The farmers will only adopt such rules that are consistent with their views, that is with their mental accounts.

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