

RURAL DEVELOPMENT AS RISK MANAGEMENT

Philip Kostov* and John Lingard**

Abstract

This paper proposes a new concept of rural development in an uncertain world. The nature of risk and uncertainty is discussed and risk management is defined as a positive model of economic and social behaviour. Some relevant paradigms for rural development are briefly reviewed and evaluated within the general approach of risk management.

It is demonstrated that the suggested view of risk management can effectively combine and reconcile different approaches outlining their advantages and shortcomings. Departing from a subjective definition of risk management we progressively include its social dimensions and this introduces both complexity and structure in the process of development.

1. Introducing risk management

Recent research into decision making (Huber, 1997) indicates that human behaviour in general and economic behaviour in particular is better thought of as a process of reducing uncertainty through risk defusing operators, that is, risk management. The environment is characterised by uncertainty – and this uncertainty is often high, not well structured and irreducible. Development can be viewed as a continuous process of evolution of the available risk management operators broadly classified into control, new alternatives, worst-case plans and precautions.

One can list many examples of risk defusing operators, such as agricultural diversification (combination of control and new alternatives), rural tourism (new alternatives), insurance (precautions), sharecropping (worst-case plans). Since the concept originates from a naturalistic decision making perspective, which is a positive, rather than normative approach to the problem of decision making, it differs considerably from the conventional approach of subjective utility maximisation under which the decision environment is taken as given. The purpose of risk management is to alter this environment. This can be done by exploiting some objective features as in the case of insurance which presumably includes in the economic calculation objective probabilities for the events which are insured against.

From a normative point of view the act of insuring would only make a difference for those persons whose subjective risk perceptions differ from the objective ones. From a positive point of view however, it is not worth taking chances and insurance reduces the risk perception. Similarly spraying crops or vaccinating animals can reduce or eliminate some unfavourable possibilities, thus altering the environment in which farmers operate. Another often ignored form of risk management is to modify the subjective perception of risk. An example is when one simply ignores some information. Strictly speaking the latter does not change the decision-making environment, but the perception of it, that is the subjective reality. The above definition of risk management has to be positioned on sound foundations. It seems to contradict the long tradition of

* Department of Agricultural and Food Economics, Queen's University Belfast, Newforge Lane, Belfast, BT9 5PX, UK. E-mail: p.kostov@qub.ac.uk.

** Department of Agricultural Economics and Food Marketing, University of Newcastle, Newcastle upon Tyne, NE1 7RU, UK. E-mail: john.lingard@ncl.ac.uk.

utility maximisation in a range of social sciences from economics to psychology. It requires a better definition of the concept of risk and our understanding of socio-economic processes.

2. The notion of risk

a. Risk and uncertainty

These two terms are often used interchangeably. Nevertheless they express different nuances of the same phenomena. An often cited distinction is made by Knight (1921) who defined risk as the case in which there exists an underlying (objective) probability distribution of possible outcomes, and uncertainty as the case where no such distribution exists. This distinction is often viewed as artificial and unnecessary. Nevertheless it has deep roots in economics and other social sciences. It is clear that what we face in everyday life is, in a Knightian sense, almost exclusively uncertainty. This is the main reason why many claim his distinction is not useful. In contrast to this, we find his definition significant and meaningful and will use it as a corner stone in explaining and developing the concept of risk management.

Note that the use of the term risk is much wider than that of uncertainty. With the notable exception of Austrians, economists predominantly speak about risk. How is this possible if the world in which we live is dominated by uncertainty and risk is just an awkward guest? The main reason is the association of risk with probability distributions and thus the link to the elegant mathematical apparatus of utility maximisation. The ‘transformation’ of environmental uncertainty into the concept of risk is made by using the idea of subjective utility, which expresses the problem as one with a probability distribution. This makes possible the calculation presented in subjective utility theory. We note several significant elements of the above scheme. First, risk is closely related to the possibility of rational calculation; second, it is an intrinsically subjective concept and third, the concept of risk dominates theory via its mathematical apparatus thus providing an ‘objectivised’ interpretation of reality. In this manner uncertainty ceases to ‘exist’. On the other hand, for the Austrian school, such a calculation is impossible and thus the concept of risk is unnecessary. Austrians emphasise the structural character of uncertainty. While the lack of a probability distribution is often considered in mainstream economics as an information problem, which can easily be resolved, Austrians stress that uncertainty is often radical, in the sense that we do not even know what the possible outcomes are. This is a distinction introduced by Keynes (1973), whose definition of uncertainty was “We simply do not know”. We note that the Keynesian view is firmly in the direction outlined by Knight. These types of Knightian uncertainty that are due to ignorance about the underlying probability distributions are potentially calculable and transferred to the domain of risk, while unstructured ones remain in the domain of uncertainty. This is a more balanced approach than that of the neo-classical economics, where all uncertainty is finally reducible to risk. We note that risk and uncertainty are linked through the concept of ignorance. This points to the subjective nuance of the term risk.

b. Defining risk

Knight’s definitions of risk and uncertainty have influenced the development of these concepts and through the mathematical appeal of subjective utility provided today’s dominance of the use of the first term. It has been a point of departure for those who subsequently negated the usefulness of his distinction. There is however, a considerable historic context of this definition and we wish to exploit it to further distinguish between risk and uncertainty. As stated earlier, the world around us is characterised by uncertainty. It is however clear that in the face of sheer uncertainty human action, and particularly economic action, is not possible. In order to act, we need a vision of the world, we need an idea about its structure. Hence the uncertainty of the objective world needs to be translated into a subjective perception. Therefore we define uncertainty as a characteristic of the environment and risk as the subjective perception of this uncertainty. In this we are departing from Knight’s definition. Uncertainty, as defined above, may indeed in most cases be structural, but is not always. Risk on the other hand, may be predominantly calculable, but not necessarily so. One may for example be aware of either one’s ignorance or be aware of the structural character of the

uncertainty and this would make comprehensive calculation impossible. The distinction of risk and uncertainty as corresponding phenomena in subjective and objective reality takes into account the hidden context of the use of these terms. But one cannot now take a stance that this distinction is meaningless. Risk and uncertainty are linked via our learning about objective reality but also via our ignorance. Subjective perception will never be equivalent to reality. Adams (1994) argues that analysis of risk must take account of the selective response to perceived uncertainty in behaviour. By defining risk as subjective perception of environmental uncertainty we respond to his appeal.

c. The Risk Society

Defining risk as a subjective concept is not new. One of the most eminent examples of such a definition is Beck's (1986) proposition of the 'Risk Society'. Formally Beck does not make the distinction that Knight (1921) made between risk and uncertainty. He claims that it is not useful. He uses the term risk to denote basically Knightian uncertainty. Nevertheless the origin of his risk concept is in the calculation. Calculation is not necessarily perfect, it is an internal feeling about the environmental probabilities. In other words, calculation is only feasible internally and does not need to meet the 'objective' environmental probabilities. Owing to this he sees risk as a subjective perception of an uncertain world.

What is not clear however, is whether and how decision makers are aware of this uncertainty. Indirectly this is stated in a modified form where he discusses risk transition. The latter implies greater awareness of the environmental uncertainty in the sense that it now depends on actors' actions *inter alia*. It is stressed that 'objectively' in traditional societies the underlying uncertainty also exists but awareness is somehow lower, in the sense that it is paid less attention. The greater awareness is maybe created by the idea of active shaping of the environment. This idea is a source of risk itself.

Beck's concept of risk is psychological and internal to the decision maker. Risk is explained as a consequence of the idea of control. The very notion of risk is defined first as a spatial and later as a temporal concept. The origin of the concept itself is the calculativeness, that is, the desire to calculate in the future. That is, he deems risk as a psychological category related to our desire to control the environment. The rise of the concept of risk, in this case, is related to the idea of provision of security. Security is the twin of risk. It is a way of avoiding some risks and accepting others in order to achieve desirable positive outcomes. The latter is a concept that assumes active management of the risk, and suggests that this is a subjectively defined process. Linking the concept of risk to that of rational calculation reveals the social character of this phenomenon. The idea of risk has become institutionalised via our desire to control reality and since this desire is becoming increasingly forward looking, the intrinsic uncertainty of the time dimension has raised our awareness of risk. To summarise 'the rise of risk' is a social phenomenon, but its mechanisms are subjectively rooted.

Beck contends that risk control inevitably leads to new risks and to producing other risks. That is, his idea of risk is that of transformable uncertainty. Beck's concept of risk is similar to the Keynesian one and structural uncertainty is excluded, because awareness, according to Beck, is an important component, if not major determinant of risk. The latter provides us with the idea that risk can be transformed. And since risk is a subjective perception, this leads to the point where the subjective alteration of the (subjective) reality represents a risk management process.

The rise of risk, understood as subjective perception is a product of modern society. This can be illustrated by the paradox in what Giddens (1999) calls the "end of tradition". The idea of control (freedom) that leads to greater diversity in (economic) action, leads to a smaller role of "tradition" and thus via the greater diversity in options and choices to greater uncertainty. This is what Giddens (1999) defines as 'manufacturing' risks. The greater awareness of the role of institutions in economics in latter years however, suggests that the "traditions" are very important. The decreased role of "traditions" in this case could be better interpreted as a kind of a transition towards a greater role of subjective risk management. The traditions imply a more uniform perception of the environment, while their end means greater heterogeneity, which logically would lead to more internal than external risk management. This effectively justifies

Giddens's claim about the manufactured risk expansion, which is identical to Beck's 'rise of risk'. They both emphasise the reflexive nature of risk perceptions and this is again a form of subjective risk management. This reflexive component is not new. Some examples include Morgenstern's (1931) paradoxes (particularly the story of Sherlock Holmes and Prof. Moriarti) and Keynes's (1973) beauty contest. It is related to the problem of rationality in general and in more detail would go beyond the topic of the present paper. What is important is that it stresses the subjective nature of risk.

The main feature of Beck's "Risk Society" is that the actors are confronted with socially created (that is 'manufactured') risks. The leading social institutions (economic and legal) not only produce these risks, but also make them socially non-existent. The operation of the latter two processes is the essence of the 'Risk Society'. The failure of social institutions to properly reflect the uncertainty increases the subjective awareness of risk. This however is the main difference between our and Beck's vision of risk. Beck views risk as a predominantly social phenomenon, while we, from a decision making perspective, see it in a more subjective light. There is no contradiction between these two stances. Douglas and Wildavsky (1982) contend that risk cannot be defined objectively and what is perceived as "risk" depends upon the values held by individuals or groups. Since individual values are socially dependent, then the rise of risk in modern society is clearly a social phenomenon, as Beck argues, and should be explained in subjective terms. The social 'production' of risk is a good illustration of the interwoven linkages between social and subjective.

The BSE crisis was brought about by the pursuit of individual interests which, according to the 'invisible hand' principle should lead to achieving the common interest. If this was all that mattered however, it would have been simply a market failure which we could have avoided. The pursuit of profit, which led to the use of animal waste in feed, however, also reflected consumers' desire for cheaper food. The common perception did not want to pay attention to the potential possibility of disastrous consequences. This possibility was there; it is well known that such mixing of animal species can create dangers. What was missing however, was awareness of the seriousness of this possibility. It was ignored, that is it was not perceived as risk. Whether one can say that this was a result of government failure, or profit-blinded farmers, the truth is that this is a common responsibility. This practice was not risky, simply because it was not perceived as such. The risk arises only when the perceptions change and this happened when BSE was discovered.

3. The concept of risk management

One could argue that the shift towards subjectivity is also a perception phenomenon. Risk assessment has probably always been subjective. In traditional societies however, the higher role of traditions and institutional conditions create an impression about greater stability in the environment and this is interpreted as some kind of objective reality. Objective in this case is nothing more than institutionalised subjectivity (see Commons, 1934 on the linkages between common and individual). This variety creates awareness for the greater role of subjective differences and leads to a perception of the greater role of individual actors. The origins of this idea are rooted in the Renaissance concept of free will and the economic emphasis on individual action. The latter has evolved into the today's diversity and multi-functionality. The paradox is that the original idea was to get the "ideal" man. The quest for such an ideal however resulted in imperfect substitutes. To put it simply, we cannot assert that the situation has dramatically changed. What changed is our perception and awareness. These are dependent on the type of mental accounts we employ in our decision making processes, or, in other words, our interpretative frameworks. The latter are institutionally shaped and this creates a type of embeddedness, which in its turn creates the problem of 'rising risk'.

The embeddedness is also expressed in the genesis of risk. Risk stems from the idea of control and control becomes a tool to shape the risk. Since control is a mental activity, risk becomes subjective too. The risk management creates subjective comfort in that it reduces the risk, by decoupling it from the uncertainty. The latter process not only describes the idea behind the concept of risk management, but also explains why risk management is the main characteristic of the decision making process. Without it, calculativeness would not be possible. Calculative agencies are viable in an uncertain world only in two cases. The first is ignorance

and the other is the intentionally ignoring of some elements of the environment. Both these can be expressed as simplification of the initial problem. This simplification may be subconscious or intentional, but its final aim is to lead to simpler decision making rules. In other words, calculative agencies should be, and are, rather simple and necessarily neglect some important aspects of reality. This cannot be fully contained in the bounded rationality paradigm, which states that this simplification is a result of scarce resources. In our case this simplification is also a consequence of our interpretation of the problem, our subjective appraisal.

In this case institutional changes are important because they not only change the environment, they change the problem itself. The result is that old ways of dealing with tasks are no longer viable and one needs to correspondingly modify either the institutions or alternatively to change one's perception of the problem. These two factors are mutually related. They express two different dimensions of institutional change. Risk management reconciles the subjective and objective realities and creates satisfaction for the individual decision maker. It resolves the rationality paradox and simultaneously leads to types of behaviour that through feedback from the objective to the subjective reality initiates an evolutionary process that for some economists is a justification for the optimisation hypothesis. The differences between these two realities however are substantial and consequently the rationality model collapses after thorough examination.

a. What type of vision does it presuppose?

We have emphasised that the ideas of control in general, and calculation in particular, are related to the concept of risk. Risk management is essentially the way in which we take care of risk in decision making. The dominant paradigm of subjective utility firmly links the latter with probability calculations. Probability calculation is a form of risk management, because its idea is to express the multidimensional perception of uncertainty, that is the risk, as a single number and in combination with some other numbers such as expected utility and risk aversion, produce an answer to the decision dilemma. It is a way to first transform the decision problem by simplifying it, and then to take the risk out of it. One can see that such a decision making procedure, with well defined probability distributions is effectively equivalent to the case of perfect foresight. There are however two problems. First it claims to be universal and tries to impose itself on all types of decision making problems; second, it is not realistic. The latter means that it has been extensively criticised in that it does not conform to reality in terms of predicting the outcome of human behaviour. Even more importantly humans, in general, cannot effectively utilise the concept of probability, they do not look for such information.

In a study by Huber (1997) an experiment required subjects to search for further information after being given a minimal description of a decision problem. In only 2 of 72 cases was any probability information requested¹. The latter underlines the narrowness of the subjective utility paradigm in explaining human behaviour. The main message of this theory however is not its technical mechanism. It is the general 'qualitative' representation of the decision making processes, as a combination of simplifying the problem and taking the risk out of it. The main point is that decision is possible only if we take the risk out of our problem. This is the vision we want to put forward, and this is the role of risk management. We see this from a positive not normative point of view. What is important is not what people should do but what they actually do. The normative approach in social sciences has tried to impose the 'ideal' way of doing things and has resulted in an instrumentalist methodology. We do not claim that any social science should be strictly positive. This is untenable. But in order to obtain the desired results one should base analysis on positive rather than normative foundations.

The type of calculation involved in decision making processes is prevalingly not that of the probability calculus. A reasonable, rational man, should not use such type of calculations. Even if there is a basis for estimating a probability distribution, as in the case of insurance, this distribution will be estimated by the insurer based on some Law of Big Numbers and would apply for its pool of potential insurees. In other words, this calculation is relevant to the person who faces numerous cases with similar characteristics. There

¹ In only one of the four problem contexts was simple probability information supplied in the minimal problem description.

are of course many constraints to the usefulness of probability calculus even in this case, because imperfect appraisability can lead to adverse selection (Akerlof, 1970, Arrow, 1971). Let us however look at the other side of the example, the insuree's. The person taking out insurance cannot use probability calculus, because, the world in which he/she lives is a unique one. The insured event, let us say a fire will either happen or not. For the insurer knowing that in 15 out of 1000 cases this will happen is sufficient to calculate some premiums. The average, expected outcome and therefore the expected subjective utility are however of little relevance to individuals when they take out an insurance policy. Let us note that there are two possible outcomes: nothing will happen and the house will burn. The 'expected utility' calculation will provide a result whose probability of occurrence is exactly zero. Like Shackle (1949, 1979) contended there are not many worlds and we do not just live in the average one.

The risks we have to manage have to be foreseen well in advance and once they happen, this is a unique event that changes our life. Owing to this, our action, that is our decision whether to ignore the possible occurrence of some risky event, or to do our best to manage it using some risk management operator depends on our perception of the seriousness of its consequences, not on its probability. The proposed risk management concept stresses the subjective attitude to the decision problem rather than the probability of its occurrence. This is a less mechanistic process that is governed by our interpretative frameworks and governs our behaviour in a non-ergodic world, and we are aware of the non-ergodicity present in our environment. The non-ergodicity leads to irreversibility of the structures (Callon, 1991). This type of vision can be illustrated by the Differentiation and Consolidation Theory (Svenson, 1992). The uniqueness of our experience is expressed in the subjective perception. We do not however argue for an entirely subjective approach. Subjectivities are interdependent and linked to each other. Perception is by and large also a social phenomenon. Social attitude conditions individual perceptions.

The foot and mouth epidemic in the UK has recently raised public awareness and therefore individual attitudes towards its hazards. In other words, foot and mouth risk, although a subjective perception in nature, is also a social construct. Both the subjective and social character of risk defy the normative approach. Normative approaches need criteria of what is 'good' and what is 'bad'. The latter are however mental constructs, which cannot be universal. Slavery as a way of organising agricultural production was considered perfectly good practice for a large part of the 19th century in America. Profit, the 'universal' driver of the market economy, was considered a vice in Medici's Christian Italy, and nowadays Islamic countries. BSE risk is another example. It is widely acknowledged that it exists, but the UK debate of the ban on meat on the bone and whether or not it is acceptable, clearly demonstrates that normative views are difficult to maintain.

b. Defining risk management

Risk management is a process of simplifying the decision problem aimed at restructuring it in such a way that the risk (the subjective perception of the environmental uncertainty) is excluded.

The main drive of risk management is the idea of control. One wants to be able to control the problem. This is also one of the risk operators. Control means shaping the problem and transforming it so that its characteristics are altered in favourable directions. The control operators (are believed to) offset some of the unfavourable possibilities. In this way they extract some risk out of the problem. The use of control operators is dependent on our current knowledge of the problem and particularly of our structural and procedural knowledge. Control operators need a model of how the environment changes. Control therefore assumes decision making in time as an associative learning process. We can reduce the occurrence of some detrimental outcome, or alternatively increase that of favourable outcomes, only if we have such a causal model. Another prerequisite for control operators is the availability of a relatively clear distinction between 'good' and 'bad' outcomes.

Let us look at the use of chemicals in agricultural production. These are a way to increase yields, and the quality of the final product. This is achieved by preventing the influence of say worms and diseases. The

other side of the story is that such chemicals can accumulate in the final product. Recently this has been perceived as a 'bad' thing. Therefore this control operator worked well until the categorisation of the outcomes had changed. Organic farming is also based on the use of control operators. It claims to prevent the unfavourable consequences of commercial farming by certification and other measures. Note that agriculture before its commercial era was in principle organic. The control has led to two essentially opposite tendencies. The difference is however, the perception of what is good and bad, and therefore risk.

The drive towards novelty defines the search for new alternatives. Unlike the conventional subjective utility story of well defined and exhaustive characterisation of the problem, we are often aware of our ignorance. The idea of control pushes us to try to transform Knightian uncertainty into Keynesian risk, that is, to better assess the structured uncertainty. The new alternatives operator transforms ignorance into knowledge. Our awareness of risk exposure is coupled with an awareness of ignorance. While new alternatives operators decrease this ignorance, it rarely disappears.

Control and new alternatives operators transform the nature of the problem. Nevertheless they are not able to get rid of all the risk. Precautions operators transfer risk outside the problem by either transferring them to somebody else, like in insurance, or by preventing their unfavourable consequences occurring. The second type of precaution operator looks similar to the control operator. The main difference is that the control operator uses the interpretation of how things function in order to prevent occurrence of some unfavourable consequences, while the precautions operator is used without the thought of altering the outcomes, but simply taking measures that will offset their consequences. Ideally one would like a totally risk free problem but this is not possible. Risk is a deterrent to decision making. Excluding it is costly and cannot be fully accomplished. For this reason we have to be able to have some tolerance of risk exposure. That is, if our perception is that risks are significantly small we can ignore them, and act as if they do not exist. This thresholding of risk is a prerequisite of action, and represents a built-in mechanism of altering the subjective reality. These thresholds can be modified during the decision making process.

In some cases defusing all the risk, even with the use of a level of risk tolerance may not be possible. In this case one would tend to use the least risky known alternative. The worst-case plan operator is used to reduce the risk exposure in such a way that risk exposure is minimised. It does not resemble a 'risk free' choice, but is the second best. Nevertheless the implication of the use of worst case plans operator is similar to the use of the other operators. Although there is an awareness of the existence of risk in the transformed problem, decision can be made, as if it did not exist.

The problem is therefore the way we define the calculative nature of risk. Risk management does not do such a risk 'assessment'. It takes the risk away from the decision process, not by calculating it, but by transforming the problem and controlling it. 'Rational' risk assessment, is simply one form of risk control. We cannot assert that it is non-existent, but trying to generalise it to any situation is a rather heroic, foolish, attempt, destined to fail.

c. Why rural development is risk management

Rural development is an increasingly popular concept. It has been identified with terms such as 'integrated', 'multifunctionality' and 'sustainability'. Without entering into definitional nuances, we note that these concepts are 'fuzzy' (Kostov and Lingard, 2001). The use of such concepts leads to greater risk awareness. The well defined aims of agricultural policy vanish and the 'second pillar' of the CAP has to be managed in a much broader context. This puts more emphasis on the way risk perception and interpretative frameworks govern behaviour. Behaviour, seen from the instrumentalist and functionalist point of view becomes erratic and unpredictable. The risk management concept, however, helps us to delimit behavioural patterns and better understand them. Viewing development as a risk management process defines the way in which different perceptions and views channel human choice and action in an uncertain world. The paradigm of probability calculation does not work not only because of the structural character of the uncertainty related to integrated rural development, but also because it is an instrumentalist tool of normative analysis, that does not fit into the positive view of behaviour that is needed to explain what may actually happen, not what is

the 'best' (or second best) that should happen. Risk is a major element which one should take into account when choosing a course of action.

The 'integrated' character of rural development suggests that there are many relevant variables that impact on the outcome of this process. The idea of combining all relevant variables into a single quantifiable decision number, directly contradicts this view. As Kornai (1971) put it, there can be no economy that functions with a simple information system. The probability calculus does this type of inadmissible simplification. There is evidently a conflict between complex multidimensional reality and the need for simple decision-making criteria. A probability calculus is not able to accommodate such a contradiction.

Risk management, as defined in this paper, proposes a way out of this dilemma. The perception of the environment takes only those elements that are subjectively, (that is experience dependently) deemed to be important and relevant. This simplifies the 'objective' problem. The process of risk management then acts on this perception, that is, on the associated risks. Defusing the risks further simplifies the decision problem and makes it possible to choose an acceptable alternative. It is not claimed that this alternative will be the perfect one, or that it will be the best with regard to some black-box criteria such as individual preferences. But the choice is a rational one. Furthermore there is an awareness that although the choice has been based on a simple criterion, reality is much more complex and not all risks may have been defused out of the problem. The latter implies that decision making is a self-correcting process over time. In a complex social environment where there are many different interpretative frameworks and different, often conflicting, interests, the 'best' solution to the problems is to be found by some kind of preliminary co-ordination of these interests. The latter would only be possible if one can understand and reconcile the different risk perceptions and if there are appropriate risk defusing operators available to socio-economic actors.

4. The social capital approach

We have argued elsewhere (Kostov and Lingard, 2001) that the concept of integrated rural development needs a new non-instrumentalist and non-reductionist approach, and have suggested that the social capital paradigm can provide the tools for such a new approach. In what follows we briefly review some elements of the social capital approach in the light of the risk management view of development. In this discussion we examine the economic understanding of development as result of market processes to clarify the significance of this view of risk management.

a. Networks

The network approach allows us to concentrate on the interweaving linkages and interactions. Our understanding of this approach builds on the work of Granovetter (1973, 1985). The term network is defined as a set of actors, linked to each other by specific links. These links can be stronger or weaker. A principal merit of the network view is the understanding of non-reducibility. The actor is identified by the network in which he/she participates, and more precisely by the network context, which is that part of the network that the actor knows better and explicitly includes in his/her calculations when engaging in action. This gives rise to the problem of embeddedness (Granovetter, 1985). The actor and the network are essentially embedded in each other. The actor's identity, that is the combination of own perceptions and the opinion of others, evolves within the network context. The network at the same time can be identified as a structured product of the identities of its participants.

By applying the networks view we can avoid the methodological trap of explaining decision making under uncertainty, because networks impose stringent informational constraints on both individual and organisational behaviour. The network links define the type of information that will flow through, while the identities of economic and social agents restrict the information that will be taken into account. In this way one does not need total information to calculate an optimal decision, a requirement that most conventional economic models need.

The economic agents are embedded in the socio-economic networks and should not be regarded outside this context. Focusing attention on these networks will contribute to elaborating a holistic systems view of the problems of integrated development. We once again stress the non-reducibility of the network approach. One cannot concentrate on the actor within a given network or alternatively on the network structure. Actor and network are the same and are analytically inseparable and intractable on their own. This approach has evolved into the Actor-Network Theory (ANT). Our aim here is not to review this approach, but to link it and reinterpret in within the proposed risk management view in order to clarify the latter.

The central place in the network theories is the process of the actor's identity evolution. To be consistent, we consider the economic dimensions of the evolution. Most succinctly these have been analysed and formulated in Callon's (1998) work on framing and overflowing. Framing is a process of differentiation that makes the different elements distinctive from each other. In the realm of the network approach, it allows us to distinguish and define actor and network. Framing creates the structure of the decision problem. The economic laws of supply and demand for example assumes the form of a framing in which supply and demand have to be identified and distinguished from each other. We see framing as a subjective process of formation of categories, which will further redefine and influence our perception of the environment with all its characteristics. In other words framing is a process of translating environmental uncertainties into subjective perceptions, that is, risks. The risk is therefore a social product, as Beck contended, since the institutionalised mental categories define a perception structure which is then imposed on our subjective individual perception system. Framing is therefore a type, but only one possible type, of structuring. This structuring makes action possible through the formation of specific calculative agencies. Overflowing, on the other hand, according to Callon, is the occurrence of outcomes that are not calculable within the structure imposed by the specific framing. One cannot prevent overflowing, not only because an absolute calculation is impossible, but also because there is structural uncertainty. In this way development becomes a continuous process of consecutive framing and overflowing, followed by reframing designed to contain the overflowing and so on. In economic terminology, we can express this as a never-ending process of internalising externalities. The driving force of this process is the idea of containing the overflowing, which is equivalent to eliminating the risks. Therefore this is a dynamic form of the risk management process.

Callon says "Markets are not embedded in networks". What he means is that markets are not an objective feature that exist on their own, markets are social constructs, are created and modified. In the same way that actors and networks are not predetermined, so are markets. He argues against adding up different relations in a functionalist way, that is, against the instrumentalist view of the market. A concrete market is the result of the circular causation process of "disentanglement, framing, internalization and externalization". In other words the market is an evolutionary concept, but it is also a subjective perception. This perception may be socially sanctioned. The latter is a kind of embeddedness, an embeddedness of society into the individual, but the real market is nevertheless very different from this socialized ideal. Market evolution for Callon is the evolution of the calculative agencies, and more specifically the type of calculative agencies that allow actors some sort of impersonality in that they can distance themselves once the transaction has been concluded. This impersonality presumes that social capital will be missing, and the network links will become weaker. There are thus limits to the impersonality. Networks cannot be preserved unless they have a proportion of 'stronger' links because this would contradict their definition.

This leads to two important points: a degree of impersonality, of bridging social capital is needed in market mechanisms and also the market is inside, not outside, us. Market risks therefore are also to be interpreted as a subjective perception. They may exist independently of us under the form of uncertainty, but for decision making purposes, that is for calculative agencies, we need an awareness of these and a desire and ability to incorporate this awareness in calculation. Risk therefore has an 'objective' foundation in terms of environmental uncertainty. This uncertainty is however transformed into an internal perception. There are possibilities for misinterpretation during this 'translation' into subjective reality. Risk management however does not depend on this. The actual success also depends on our ignorance about existing uncertainties. In this internal decision making process it depends on actors' interpretative frames, that is on their awareness of such uncertainties, real or imaginary, and their perception about the possible measures that could

transform these risks. Beck's 'Risk Society' expresses an idea that this awareness is now greater than ever, because of our knowledge. Primitive man faced uncertainty, but did not perceive it as something over which he had any control. Modern man has the idea of control and this immediately highlights in his subjective reality everything that deviates from this perception. This creates risk as perception. It is a result of the idea of control, but also of the ongoing process of control. This process is Callon's framing and entanglement. It incorporates the risks we are aware of and tries to control them. At the end it leads to overflowing and thus to new risks. The 'Risk Society' therefore is a product of the risk management view of the development process. Whether this is a local characteristic of the modern age or a characteristic of social evolution is another question. In primitive societies religion and superstition played similar roles and were a form of risk management.

Defining a market in a rather strict sense, one can exclude from it some exchanges and perform a framing to locally purify it. Trying to globally define the market, as 'economic imperialists' do, represents another type of framing and the result of this is that the 'pure' market becomes a distant ideal. Laws defined for the 'pure' market cannot and do not apply to this new 'market in general'. This is a way to create overflowing. The idea of control creates its own opposition. The overflowing in this case is due to the transfer of the specific knowledge of the 'pure market' to the 'market in general'. This shortcoming is overcome by internalisation, or, by re-framing, that will include further details that were missing. In this case one gets to yet another point where some elements are externalised. The externalisation is a logical necessity. In the sphere of risk management, not all the perceived uncertainty can be internalised and controlled. Externalising some elements, that is, intentionally ignoring them and excluding them from the framing process creates the possibility of calculation. This is the element of altering subjective reality.

Callon says "The metaphor of framing and externalisation (taking into account only those relations which make it possible to conclude the calculation) is not the same as that of embeddedness and of social construction (taking into account informal relations to account for the possibility of a calculation)". The first case, he sees as a positive approach, in which it is emphasised what the market (and development) actually does, while the other highlights overflowing that the market cannot prevent. The latter is a comparative, normative point of view, because it implicitly takes into account the idealised market as a benchmark. In the first case we believe in the existence of the calculating actor, although this is an imperfect, and restricted calculating actor, whilst in the other we deny its existence. We cannot say that one of these points of view is more valid than the other. The positive view however allows us to derive the concept of risk management as a predicting and configuring device of the development process, a process which unlike the neo-classical market never ends.

Since we have extensively employed the concept of calculation and the latter is usually associated with some kind of mathematical operation we comment on what we understand by it. Law (2000) asserts that there are many forms of economic calculation. These are based on different 'subjectivity', that is on different world views and different discretion, which lead to a different emphasis on what is important (He presents as an example the two types of accounting; administrative and management).

"The argument I'm making, then, is that the practices and apparatuses of economic life and the subjectivities that they generate perform as a complex multiplicity that is neither entirely coherent, nor completely incoherent" (Law, 2000).

The meaning is that these subjectivities or world views are not compatible in a sense that they exclude each other, but nevertheless they are related because they are interdependent. Some forms of calculation can only be based on the achievements of some other forms of calculation. This emphasis on calculation reveals the richness of economic life and further emphasises the uncertainty around us. This uncertainty has to be overcome by using some sort of calculation. The choice of form of calculation, which is a manifestation of the subjectivity is yet another expression of risk management. The specific calculative agencies employed by actors are a result of this process and can be understood in the realm of framing and overflowing. Calculation is therefore an expression of specific subjectivity. As such it cannot and should not be equated with mathematical calculation. Calculation may take many forms (Law, 2000) and what risk defusing

operators do are actually different forms of calculation. In this regard calculation is a manifestation of individual rationality.

The nature of the rural networks delimits the informational flows, but also reflects the actors' identities, that is, their perceptions of the environment, or, according to our definition, the risk. Understanding behaviour in terms of risk management focuses on individual and collective interests and relations of power. These however, are often only present implicitly. The interests manifest themselves in subjective perceptions. This transformation of interests and power into what we called risk, is the mechanism which governs behaviour. Interests and power, need not therefore be spoken, or even consciously interpreted; they are, sometimes subconsciously, included in the subjective view of the world. In other words, the tools of network analysis, may be useful in identifying the reasons for some outcomes, but if we want to 'predict' the outcomes, we need a snapshot of the mental representation of the problem. Mishev and Kostov (2001), for example, present evidence that small-scale farmers in Bulgaria, differentiate their own products from those available in the market, and discuss how this differentiation is borne by changes in local marketing networks, as well as its implications for their further evolution. The conclusion is that looking at the way the actors are managing the risks in given networks helps us to understand the apparent 'irrationality' in their actions.

b. Institutions

An important property of the social capital view is that it reconciles and combines networks and institutionalist approaches. Their complementarity is clearer when seen through the lens of the risk management. Social order is considered to be a human product (Commons, 1934), or "more precisely, an ongoing human production". (Berger and Luckmann, 1966: 51). From such a point of departure one can contend that "Institutionalisation occurs whenever there is a reciprocal typification of habitualized actions by types of actors". (Berger and Luckmann, 1966). This typification represents an adding up and harmonisation of the subjectivities that represent the calculative agencies. To put it differently, institutions fit these subjectivities into an ordered pattern and assign labels to them. This process facilitates the calculation itself, as stressed by the Austrians. Non-reciprocal typification (see Brenner, 1999) can be used to explain the emergence of co-operation and subsequently via the establishment of reciprocity, of institutions. The above process is that of framing, but here it is at a different level. ANT stresses the micro-level, while here we have a social dimension and need to include embeddedness in the picture. Embeddedness, thus transforms the problem. At this level, purely positive theory is no longer feasible. The nature of institutions, as forces shaping the categories and mental accounts makes this an illusion. The role of the typification is that it creates a structure of the subjectivities and in some sense is self-imposing. It is important to stress that this represents the controlling nature inherent in institutionalisation. Moreover this controlling character is a prerequisite for institutionalisation and exists, prior to and apart from, any external enforcement mechanisms (such as sanctions for non-compliance) specifically set up to support an institution.

Control is the general direction of development. This idea of control gives rise to institutionalisation, since the latter enhances the subjective perception of eliminating the risk. Institutions are therefore not simply workable adaptations to the environment, they are advantageous projections in subjective reality that eliminate risks. To put it simply, the role of institutions is to alter subjective reality by providing the tools of risk management. There is however more to institutions. They are the primary product of the interaction of subjectivities, and thus an internalisation of primary human activity. When they become established however, they are 'objectivised' in the sense that they are externalised as a product of social interaction and become matter of fact for the individual. One cannot escape them, or change them. In this way institutional development represents a process of ongoing framing and overflowing. To put it differently, institutionalisation may reduce the risks, but institutions create an environment (perceived as exogenous) for individual action and thus create additional risks. The idea of the risk society therefore can simply be a reflection that we live in a world of much faster changes than ever before, a world, in which more institutions become obsolete and unable to create the needed risk management tools. The need for institutional change is yet another facet of the increased risk awareness.

Institutions, organisations and networks taken together, define the specific frames used by economic agents and thus the type of overflowing contained within these frames. This means that the structure of risk is defined by the institutional structure. Institutions provide the general rules for economic and social behaviour and define general behavioural guidelines. Institutions are in some sense 'socialised habit'. The rules they prescribe as a standard for behaviour in given situations create increasing returns. When they are adopted by a sufficient number of actors, it is advantageous for the rest to use them. As such, institutions create incentives to create economic and social roles. These can be understood as a generalisation of typical behavioural features of actors that may not be directly connected within the same network. In other words, roles, formed under the influence of the institutions, are similar to the personal identities, but at a more aggregate level. Economic and social roles, defined by the existing institutions represent 'socialised' identities. Both concepts of identity and social role are however built on the subjectivities. They are to some extent 'restricted' subjectivities in the sense that they are harmonised and typified and impact on our perception of the socially constructed uncertainties. The institutional structure is therefore a necessary element in constraining the risk. It constrains the subjectivities and creates a more predictable, less uncertain and consequently less risky social environment.

c. Synergies

Network and institutional approaches complement each other and it would be useful to combine them. The product of this combination is a *synergy view* to social capital, the latter being defined as "the norms and the networks that enable people to act collectively" (Woolcock and Narayan, 2000: 226). This approach provides a more general, more abstract view on the issues discussed above. While the networks approach concentrates on the micro level of specific networks, and the institutional approach is pre-occupied with the general social functions of the prevailing social norms, the synergy approach bridges and combines their achievements, thus allowing analysis at both levels.

The synergy approach to rural development could be expressed as a process of internal restructuring of the social capital. Woolcock (1999) defines two types of social capital - *bonding*, which is based on strong ties within the network and *bridging*, which relies on weaker ties. Bonding social capital is a characteristic of more traditional societies and preserves their coherence by fostering solidarity and mutual trust. Bonding social capital reduces risks but also reduces the incentives to change. It imposes additional costs on individual actors. In this way it may lead to a 'closure' of society which would be discouraged to strive for growth. Bridging social capital on the other hand contributes to greater dynamics and is growth oriented. It is more favourable for change. Granovetter's (1973) classical study on the operation of labour markets presents a clear view of the advantages of bridging social capital. Bridging social capital 'creates' risks and thus implies greater use of risk defusing operators. It creates awareness of risk. With regard to the problems of rural development, migration to urban centres is a good example of the transformation of bonding into bridging social capital. It is clear that a high quantity of bonding social capital is favourable only up to a given level of development and afterwards becomes detrimental. Migration to towns has destroyed existing socio-economic networks and increased the importance of the weak ties. Consequently it contributed to economic growth. Such developments lead to a greater presence of "arm's length" transactions, and have contributed to modern market theory, which have promoted this type of transactions as a normative standard for economic activity. It could be argued however, that the high quantities of weak ties, or the lack of sufficient strong ties in social networks, could represent a threat to further development. The aims of creating sustainable and environmentally friendly agriculture, as well as improved rurality within the realm of integrated rural development require structures that preserve the coherence of the rural system. The dilemma of the social capital structure is therefore what proportion of bonding and bridging social capital is most favourable. Too much bonding social capital 'socialises' the risk and there is nothing to manage. Too much bridging social capital increases risk so that it can become unmanageable. The process of development is a dynamic one and therefore these two types of social capital are continuously being transformed into each other.

The institutions needed to achieve the aims of rural development cannot be so purposely designed. They will evolve in the process of interaction of state, farmers and rural communities. None of the single entities alone possesses sufficient resources to ensure sustainable rural development. Therefore they have to work together by forming synergies to accomplish this task. The nature of institutions as structured subjectivities reveals that the processes of risk management have a central role to play in this process. On the one hand action is a risk management process and, as such, shapes and constrains the possibilities for institutional change. This change on the other hand impacts on the socially created environmental uncertainty, but also on its perception. Because as Commons (1934) put it institutions are not only "collective action in control of individual action", but also "collective opinion in control of individual opinion".

These synergies have to be based on both complementarity and embeddedness (Evans, 1992, 1996). In the area of complementarity, there is more room for purposeful action aimed at mutual support. This would arguably be the main channel for policy intervention, because measures, such as guarantees of rights and definition of the obligations of actors in the process of rural development, can be effectively implemented by designing and modifying formal institutions. Embeddedness on the other hand, has more profound implications and is more difficult to assess. Murdoch (2000) argues that there can be no universal model for rural development, because rural networks may be of many different types from dense ones in Mediterranean countries to rather sparse ones in the Nordic countries. The direction of potential change is constrained by the existing relations of embeddedness, but individual actors are not able to build correct models. Applying a wrong model may lead to unwanted consequences.

Following Baldock et al. (2001) in their definition of integrated rural development as a final product of the endogenous model of rural development, we stress individuality as a major characteristic of this paradigm. Integration can make sense only as a process of reconciling and recombining this individuality. Without the element of individuality, integration becomes a trivial concept that loses its significance and is relegated to an object of instrumentalist and reductionist analysis. That is, it will lose its endogenous character. The only way to integrate individuality is by allowing for involvement of the actors that represent this individuality and thus adopting an endogenous model of rural development. The nature and the extent of the rural networks and institutions and the way we can transform them becomes a major question. Individuality is an outcome from a framing process and thus describes a specific form of subjectivity, with the associated perceptions and therefore risk structure. Risk is defused individually and the resulting actions create overflowing.

Institutions are tools for combining these subjectivities, as are networks and other social constructs. Institutionalisation is therefore the way to achieve such an integration. Institutionalisation however takes time. Our idea of control urges us to try to change things 'yesterday, if possible'. This can create significant negative overflowing. The best way to prevent this is to imitate evolutionary institutionalisation, that is, to design the change in such a way that it minimises the risks. Although uncertainty may be uniform, it is risk that defines behaviour, and it is typically non-uniform. 'Scientific' management of change would not be feasible, even if it was able to correctly guess the 'best' structure of the rural economy. 'Best' can only be defined with regard to behaviour and to risk, which is inherently subjective. Heterogeneity is not a vice, it is a blessing if we adopt a synergy approach. Dissimilar beliefs and therefore risk perceptions can be used to create risk defusing operators and eliminate risks. Take as example futures markets. If all people had similar expectations, these markets simply could not exist, because there would be no way to transfer risk. Complementarity is the property that allows the combination of subjectivities and thus makes change smoother and less radical in terms of subjective risk perception.

7. Conclusions

We have argued that rural development is better understood as a process of risk management. Although we have concentrated on the problems of risk and the tools to take it out from the decision setting, it is also important to stress the process nature of rural development and behaviour. The term process is linked to an awareness of time and its significance. It is the concept of time that is most relevant to our perception of

risk. Time is not simply an index, that is a space-like dimension. Time is characterised by novelty and surprise. The latter are sources of risk. It does not matter whether the objective world is deterministic or stochastic. Our subjective perception of it is not fully deterministic and this leads to the existence of risk. Any change that emphasises the role of time, that is all dynamic concepts, or alternatively the complex phenomena, which define multidimensional world views, are destined to lead to greater awareness of environmental uncertainty, that is to greater risk. Our computational resources are insufficient to cope with this in ways prescribed by normative theories. This situation requires analysis centred around a positive model of behaviour. Risk management, as defined in this paper is such a positive model. Rural development is a concept that contains both the temporal and complexity elements for the rise of risk. Therefore it is a convenient subject for analysis by the model of risk management.

To summarise, the main idea of risk management is that agents can improve their performance either by changing the environment or by changing their opinions about it. This requires us to regard the agent and environment as mutually dependent. Consequently it is appropriate for the aims of rural development where farmers and rural communities interact with rurality in a process that both shapes their actions and modifies the basic features of rural areas. Providing farmers and rural inhabitants with appropriate risk defusing operators would help them adapt to the environment, but also may channel their economic and social efforts in ways that can contribute to better achieve the purposes of rural development policies. In other words, the tools of risk management can introduce the needed complementarity of public and private interests. The specific tools and methods are the research agenda.

We point out that the question of power distribution and the nature of governance mechanisms greatly influence the tools of risk management. Redistribution of power from the centre to local communities for example gives larger opportunities for local actors not only to adopt, but also to create risk defusing operators, by exploiting their own detailed knowledge of local networks. There seems to be an apparent contradiction between the 'exogenous' and 'endogenous' models of rural development, which as Murdoch (2000) states are not easily reconcilable. There can be no unique way of 'ideal' rural development. Developments as a risk management process clearly illustrate this.

'Better' and thus sustainable rural development is achievable only if there is sufficient flexibility (Saraceno, 1994). The word 'flexibility' suggests dynamics, because this is a forward-looking concept, which builds the foundations for change. In terms of risk management flexibility means the availability of appropriate risk defusing operators, and change is expressed by the alterations in subjective perceptions of the uncertainty. Risk therefore becomes an associative learning concept. In this light participatory approaches to rural development are not automatically advantageous, because participation is associated with specific perceptions and according to the nature of the existing networks, or, the structure of existing social capital, participation may be perceived as introducing new risks and thus detrimental. In the long term, this may be an effective approach, but participation is contingent on the existence of 'strong ties' and relations of trust and solidarity that have to be fostered. In such situations, a more 'exogenous' model of rural development may work better. This example shows that there may be a conflict between shorter and longer term risk management. Since development is, in general, a mix of short and long term decisions, it would be erroneous to argue for or against 'exogenous' or 'endogenous' approach to rural development. There can also be no 'third way' in terms of a radically different approach. What is needed is to review and re-estimate existing approaches. Using the concept of risk management in a specific context, we can do this and reconcile these conflicting points of view. There is of course, no guarantee that this 'synthesis' will be successful when specified in any particular case, because any combination will bear the inheritance of subjective perception and evaluation. Nevertheless, accounting for the nature of risk in rural development will result in a more process-oriented approach to tackle the problems. Together with advances in research into integrated rural policies, this could lead to the formation of better decision-making "models" and greater transparency of rural development which has been demonstrated to increase the adaptability of economic agents to complex environments. The positive concept of risk management, therefore, can be implemented in future research on rural development strategies as a tool for evaluation and comparison of competing alternatives.

References:

Adams, J. (1994) *Risk*, London: U.C.L. Press.

Akerlof, G.A. (1970) The Market for “Lemons”: Quality Uncertainty and the Market Mechanism, *Quarterly Journal of Economics*, 84: 488-500.

Arrow, K.J. (1971) Economic Welfare and the Allocation of Resources for Invention, In G. Lamberton (ed.) *Economics of Information and Knowledge*, London: Penguin Books.

Baldock, D., J. Dwyer, P. Lowe, J-E. Petersen and N. Ward (2001) Development: Towards A Sustainable Integrated Rural Policy in Europe, Synthesis Report, WWF

Beck, U. (1992) [1986] *Risk Society, Towards a New Modernity*, London: Sage Publications.

Berger, P. L and T. Luckmann (1966) *The Social Construction of Reality: A Treatise its the Sociology of Knowledge*, Garden City, New York: Anchor Books.

Brenner, T. (1999) *Modelling Learning in Economics*, Cheltenham : E. Elgar.

Callon, M. (1991). Techno-economic Networks and Irreversibility. in J. Law (ed.) *A Sociology of Monsters? Essays on Power, Technology and Domination, Sociological Review Monograph*. London, Routledge., 132-161.

Callon, M. (1998). An Essay on Framing and Overflowing: Economic Externalities Revisited by Sociology. in M. Callon (ed.) *The Laws of the Markets*. Oxford and Keele, Blackwell and the Sociological Review.

Commons, J. R. (1934) *Institutional Economics: Its Place in Political Economy*, NewYork: MacMillan.

Douglas, M. and A. Wildavsky (1982) *Risk and Culture: an Essay on the Selection of Technical and Environmental Dangers*. Berkeley: University of California Press.

Evans, P. (1992): The State as Problem and Solution: Predation, Embedded Autonomy, and Structural Change, in S. Haggard and R. Kaufman (eds.): *The Politics of Economic Adjustment: International Constraints, Distributive Conflicts, and the State*, Princeton University Press, Princeton, N.J.

Evans, P. (1996): Government Action, Social Capital and Development: Reviewing the Evidence on Synergy, *World Development*, 24(6): 1119-32.

Giddens, A. (1999) Risk, Reith lectures, BBC, 17 November.

Granovetter, M. (1973): The Strength of Weak Ties, *American Journal of Sociology*, 78: 1360-80.

Granovetter, M. (1985): Economic Action and Social Structure: The Problem of Embeddedness, *American Journal of Sociology*, 91: 481-510.

Granovetter, M. (1995): The Economic Sociology of Firms and Entrepreneurs, in A. Portes (ed.): *The Economic Sociology of Immigration: Essays on Networks Ethnicity and Entrepreneurship*, New York: Russell Sage Foundation.

Knight, F.H. (1921) *Risk, Uncertainty, and Profit*. Boston: Houghton and Mifflin, available online at <http://www.econlib.org/library/Knight/knRUP.html>.

- Keynes, J. M. (1973) *The General Theory and After, Part II: Defence and Development*, in *Collected Writings*, London : Macmillan, vol. XIV.
- Law, J. (2000) Economics as Interference in P. du Gay and M. Pryke (eds), *Cultural Economy: Cultural Analysis and Commercial Life*.
- Morgenstern, O. (1937) [1931] *The Limits of Economics*, London : W. Hodge.
- Huber, O. (1997): Beyond Gambles and Lotteries: Naturalistic Risky Decisions, in R. Ranyard, W. R. Crozier and O. Svenson (eds.): *Decision Making: Cognitive Models and Explanations*, pages 145-62, London: Routledge.
- Kornai, J. (1971) *Anti-equilibrium: On Economic Systems Theory and the Results of Research*, London: North-Holland Publishing Company.
- Kostov, P. and J. Lingard (2001) Integrated Rural Development - Do We Need a New Approach?, 71 EAAE Seminar, Ancona, 28-30 June.
- Mishev, P. and P. Kostov (2001) Decision Making Pattern of Subsistence Farmers in Bulgaria, 76th EAAE Conference, Halle, Germany, 6-8 May.
- Murdoch, J. (2000) Networks -- A New Paradigm of Rural Development?, *Journal of Rural Studies*, 16(4): 407-419.
- Saraceno, E. (1994) Alternative Readings of Spatial Differentiation: The Rural versus the Local Economy Approach in Italy, *European Review of Agricultural Economics*, 21 (3/4): 451-474.
- Shackle, G. L. S. (1949) *Expectation in Economics*, Cambridge: Cambridge University Press.
- Shackle, G. L. S. (1979) *Imagination and the Nature of Choice*, Edinburgh: Edinburgh University Press.
- Svenson, O. (1992) Differentiation and Consolidation Theory of Human Decision Making: A Frame for the Study of Pre- and Post-decision Processes, *Acta Psychologica*, 80: 143-168.
- Woolcock, M. (1999): Learning from Failures in Microfinance: What Unsuccessful Cases Tell us about How Group-based Programs Work, *American Journal of Economics and Sociology*, 58(1), pages 17-42.
- Woolcock, M. and D. Narayan (2000): Social Capital: Implications for Development Theory, Research and Policy, *The World Bank Research Observer*, 15(2): 225-49.