NEW ECONOMIC THINKING

Carmen PASCA[*] and Magdalena ALBULESCU[**]

Abstract. *"New Economic Thinking" is a phrase embodying a call for a new way of formulating economics. The need for such a call was provoked by the financial crash of 2007 and 2008. Recognition of the urgency for such a reformulation is spreading throughout the world. At its most concrete it is embodied in The Institute for New Economic Thinking, which is a nonpartisan research and education non-profit organization based in New York. This was founded by a generous donation from George Soros who has been crying in the wilderness for many years about the need for a new way of conducting the art or science of economics. Finally his words are being heard and being acted upon. The main implications of this New Economic Thinking is that we should relax the emphasis on individualism; we should recognise the people do not have precisely defined objective functions; we should understand that constraints are not set in stone and are flexible and manipulable; and most crucially we should relax the emphasis on equilibrium – recognising that it is sometimes not unique, but, more importantly, influenced by the actions of the agents themselves.*

Keywords*: equilibrium, individualism, irrationality, rationality, reflexivity.*

1. Introduction

"New Economic Thinking" is a phrase embodying a call for a new way of formulating economics. The need for such a call was provoked by the financial crash of 2007 and 2008. Recognition of the urgency for such a reformulation is spreading throughout the world. At its most concrete it is embodied in *The Institute for New Economic Thinking*, which is a nonpartisan research and education non-profit organization based in New York. This was founded by a generous donation from George Soros who has been crying in the wilderness for many years about the need for a new way of conducting the art or science of economics. Finally his words are being heard. His main criticisms are about the present state of economics.

[*] ,[**] SNSPA, Bucharest, Romania, carmen.mariana.pasca@gmail.com

2. The present state of economics

At the risk of being accused of excessively simplifying the present state, we would characterize core economics as adopting the following key components: *methodological individualism; rationality and constrained optimization; equilibrium*. The first of these embodies the idea that the decision-maker in economics is an individual. This does not mean that it is an individual human-being, but rather an individual decision-maker; it could be an individual household comprising several humans, an individual firm, an individual committee, or an individual government, for example. The 'individuality' here ties in with the second item – *rationality and constrained optimization*. Economics assumes that the decision-maker has well-defined preferences and wants to put itself into the most preferred scenario given any constraints it is under. What does economics understand by 'well-defined preferences'? Such preferences should be transitive and complete: intransitivity, as understood in a static setting, would lead to situations where there was not a most preferred scenario; incompleteness likewise. *Equilibrium* is trickier: it essentially assumes that any situation 'will' find itself in a steady state. Formally, a situation is in a state of equilibrium if there are no forces that would lead to a departure from that state: no individuals who could do better for themselves by doing something different. This implies that the individuals, in equilibrium, are in mutually consistent and compatible states. Economics assumes that individuals drive the economy, pursuing their self-interests, and that the interesting states to study are equilibrium states. So the story goes as follows: individuals take economic decisions; they take them by maximizing their own self-interest subject to exogenously given constraints; these decisions are then aggregated and the equilibrium is calculated in whatever situation we are. This determines the economic consequence.

3. The criticisms of the present state

It is difficult to know where to begin. The present state of economics is elegant, self-contained and consistent within its own rules. However, it is important to recognize how constricting these rules are. These rules constrain what economics can do and what it does do.

Let us start with the first item in our list above: *methodological individualism*. As we have noted, this means that the decision-maker is an individual (and later, with the second item) has well-defined preferences. In many circumstances this is true, but one can think of many situations in

which the decision-maker is a group of individuals: a committee, a council, a government, an international organization. There may be conflicts of interest within the groups. How does economics treat such groups? Economics normally proceeds in two stages, which ultimately lead to a decision by the group. The first stage is conceived of as being a game between the members of the group, and usually, in keeping with the third item on our list, the economist seeks a *Nash Equilibrium* of the game. Then this Nash Equilibrium is taken as the outcome of the group's decision-making. This raises many questions: first, is a Nash Equilibrium a *rational* outcome of the game? It is easy to construct games (the classic example is that of the Prisoner's Dilemma) in which all players can be better off *not* playing the Nash Equilibrium. So why does the Nash Equilibrium emerge as the 'obvious' equilibrium? The answer given by economists is that it emerges as such *because of the logic of its construction*: in it all players are doing the best for themselves *given what everyone else is doing*; it is very individualistic. But suppose we use an alternative story: that all people assume that everyone else is as clever as they are. We could then get to a mutually preferred equilibrium.

But there are deeper issues, and ones connected with social relationships and the 'rules of the game'. A committee meeting is rarely simply a mechanical application of some predetermined rules. Even if it was, there is still an interesting question of where those rules came from: presumably some earlier round of negotiation. And where did those come from? In drawing up a set of rules, social interaction between the players is crucial. Some players are more persuasive, some more aggressive. Personality matters, as well as the relationship between the players. One has to merely look at the ongoing negotiations between the Greeks and the other Euro zone members to realize that these factors are important: the outcomes of these negotiations (which will have a profound influence on the world) are not a consequence of pre-determined rules, and social interactions are important. So the idea that decision-makers are individuals is seriously flawed.

There is an also an additional consideration: individuals may not care only about themselves – they may also care about others. There are models in economics which take such considerations such as altruism, hate, envy, spite into account; no longer are such models individualistic.

At this stage we need to bring in our second item: *rationality and constrained optimization*. 'Rationality' is a tricky term, and there are many versions of it. Economists have hijacked a particularly strong form, and express their assumptions about rationality in the form of axioms. For us,

rationality is merely consistency with some given set of preferences – which implies that choice is not completely random which would make it unpredictable. This depends upon the context. Let us consider a particularly simple static decision situation in which there are three possible outcomes (*a, b, c*) that the individual may have to choose between, and the individual will be asked to choose once between two of these alternatives. Let us suppose, *ex ante*, that we do not know what those two alternatives are going to be, but we want to predict the choice whatever the two are. We need to know the individual's preferences over the various members of the set of possible outcomes. Suppose these preferences violate one axiom which economists regard as almost sacrosanct – transitivity: let us suppose that the individual says that he or she prefers *a* to *b*, prefers *b* to *c*, and prefers *c* to *a*. This implies that there is no preferred outcome from the set (*a, b, c*). But why is that a problem? If the individual is offered a choice between *a* and *b*, he or she will choose *a*; if between *b* and *c*, he or she will choose *b*; if between *c* and *a*, he or she will choose *c*. We can predict choice and there is no problem. There is a problem if we do not know the complete set of preferences; if we just know that the individual prefers *b* to *c* and prefers *c* to *a*, then without transitivity we do not know the individual's preferences between *a* and *c*. So, one of the reasons for making assumptions, using axioms, is that we can predict out-of-sample.

One area in which axioms are extremely powerful in this respect is that of decision-making under risk (as distinct from under uncertainty which we shall talk about later). In economics, the predominant model is that of *Expected Utility Theory*[1]. This is not only powerful, it is also very elegant. It leads to a simple decision rule: the decision-maker chooses the option which maximizes the utility that he or she expects to get. The story goes as follows: the decision-maker is envisaged as having to choose one from a set of risky lotteries each of which leads to one out of a set of possible outcomes with specified probabilities. We should pause at this stage and reflect on what these words imply. First, that the decision-maker can specify the members of this set; second, that he or she can attach probabilities to each member of the set. In certain contexts the first of these seems trivial: consider a roulette wheel – it seems obvious that the outcome of a spin is that the ball ends up in either a red pocket or a black pocket. In this context, attaching probabilities to these two outcomes again appears trivial – they must be ½ and ½ (unless the roulette wheel is biased).

[1] The seminal reference is Neumann and Morgenstern (1944).

Notwithstanding the fact that the roulette ball may fly off the table, this example seems to be a safe area to apply Expected Utility Theory. But most real world decisions are taken in situations where the complete set of possible outcomes cannot be specified, and probabilities cannot be assigned. What might be done about the first possibility? It seems that the only thing to do is to assume that the decision-maker ignores any possibilities outside the set. As far as the second is concerned, things are more complicated which we shall discuss shortly.

However, before we go onto to more interesting scenarios, let us briefly mention the attractiveness and the 'problems' of Expected Utility Theory. The story is simple: in evaluating a risky prospect the decision-maker uses the probability-weighted average of the utilities of the outcomes. We should also mention the 'problems' with the key axiom of Expected Utility Theory: the Independence Axiom. This states that, if the individual prefers some risky lottery A to some other risky lottery B, then he or she should also prefer a lottery which leads to lottery A with probability p or some third lottery C with probability $1-p$ to a lottery which leads to lottery B with probability p or the same third lottery C with probability $1-p$. One can see the intellectual attractiveness of this, but behaviorally it seems very suspect. Many experiments have been conducted to test this axiom – possibly the most famous being that of Maurice Allais in 1953, in which he observed Leonard Savage violating (if only temporarily) the Independence Axiom.

Suppose our decision-maker can specify the set of possible outcomes, but finds it difficult to attach probabilities to the members of this set. What might he or she do? Economists are tackling this question. One obvious solution is to assume that the decision-maker use the middle (or average) estimates of each probability, but this ignores the fact that the decision-maker is uncertain about the probabilities – the situation is one of *ambiguity* rather than of risk. The field of decision-making under ambiguity is an active one in economics[2]. For example, one model assumes that the decision-maker can specify the set of possible probabilities (for each outcome), but can do no more, and therefore, instead of maximizing expected utility (which is not unique) the decision-maker chooses the option where the worst possible expected utility is maximized. A more sophisticated model assumes that the decision-maker can not only specify the set of possible probabilities, but also attach probabilities to each member of this set.

[2] For a recent survey see Etner *et al* (2010).

This seems to us to be taking us in the wrong direction. It is taking a complex situation and making it more complex by complexifying the decision rule. Interestingly this highlights a serious problem about the way that economics is conducted. Recall the second term in our second item: rationality and *constrained optimization*. Economics assumes that decision-makers can actually implement the constrained optimization problem with which they are faced. First, it may be the case that the constraints cannot be specified completely; economists assume that they are specified precisely, but the decision-maker may not be able to state them, or they may be manipulable. Consider again the Greeks bargaining with the Euro zone: it seems clear that the constraints on Greece at the start of the negotiation have been radically changed during the course of the negotiation. Social relationships are important. Second, the constrained optimization problem may be an incredibly difficult one. It is ironic that publications in economic journals are full of complicated optimization problems, which the academic writing the article has struggled with for many months, and often the main reason for its publication is that it *is* complicated and difficult. There is an odd paradox here: the problem must be difficult to solve (for the academic), yet the man-in-the-street (the decision-maker in the model) can solve it quickly and accurately.

There has been intense experimental activity investigating whether humans can reach the optimal solution. The great joy of experiments is that the experimenter can set the objective function through the use of the payment scheme (thus controlling one of the things assumed by the theorist). Sometimes humans' behavior does appear to be close to the optimal; sometimes a long way away. Interestingly, in what appears to be a very complex situation – for example, that of a 'competitive' market, with many traders' experiments – have shown that the competitive equilibrium is often attained in a very short period of time. One wonders how it happens – is this Adam Smith's Invisible Hand? Other experiments show that in more complicated markets, equilibrium is not attained immediately and there may be bubbles and crashes. The lesson may be that, in a complex situation, decision-makers do not adopt a more complex decision rule, but rather either simplify their description of the problem and optimize with respect to the simplified scenario or adopt a simpler decision rule – one that might be called 'ad hoc'.

Buried beneath the surface of the above discussion is necessarily some consideration of the *cost of computation*. If this is taken into account, then a 'sub-optimal' decision may be better than an 'optimal' one – because it saves on the cost of computation. However, note that this cannot

be modeled: if there is a cost to computation, then the decision-maker must first decide whether it is worth doing the computation; but, in order to decide that, the decision-maker must decide whether it is worth the cost of the computation required to decide whether it is worth the cost of computation; and so on – an infinite regress. Economists would be trapped inside their concept or rationality.

Let us return to our discussion of well-defined and rational preferences, and let us consider dynamic decision problems. In these decisions taken today have consequences not only for today but also for tomorrow. Preferences have to be defined over outcomes at all points in time. Defining rationality here is more difficult. Economists are guided by the principle that preferences here have to be *dynamically consistent*. What this means will take a moment to describe, and let us restrict ourselves for the moment to decision problems under risk. Consider a dynamic decision problem in which the decision-maker has to take a decision at various points in time, and interleaved with these decisions are 'moves by Nature' – probabilistic moves. There are two ways that the decision-maker could solve this problem – which are called the Strategy Method and the Backward Induction Method. The Strategy Method involves specifying a set of *conditional* decisions at each decision point, where the conditioning is on the move by Nature. Backward Induction works, as its name suggests, by working backwards, starting at the final decision date, deciding the best decision at all final decision points, eliminating the unchosen routes, and then working back in this manner to the first decision point. Dynamic consistency requires that both ways of finding the solution actually end up with the same solution. Consider what might happen if this were not the case: at each decision point the two methods would suggest different decisions. Which should the decision-maker choose?

One can see from this why dynamic consistency is attractive to economists, but note that it severely restricts behavior. We all know people who today plan to do something tomorrow, but, when tomorrow comes, actually do something different. It may be interesting to point out that dynamic consistency in a risk context requires that the individual has Expected Utility preferences, and we have already seen the problems with that. (As an unimportant footnote: dynamic consistency in a non-risky setting requires that the individual has exponential preferences).

Let us now turn to *equilibrium*. Even in a static setting, the assumption that equilibrium is attained (and that economics starts from there) is a difficult one. It requires that everyone is taking the best decision for them, given the decisions of others. Proponents of the use of the

concept of equilibrium would argue that disequilibrium must necessarily be a passing phenomenon: self-interest would soon restore it. Well, of course, in a static setting (where we started this paragraph), it is meaningless to talk about adjustment processes. In a static setting, individuals are born, take a decision, reap the consequences, and then die. So how can it be that we get to equilibrium straight away? In an interactive setting, each individual, when deciding what to do, has to predict the constraints that they will be facing, and these may be determined by the decisions that others are taking. In equilibrium there is no problem, but out of equilibrium, there is a problem.

In a dynamic context, things are different, as there is time to adjust. But, even here, economics assumes equilibrium. The logic now becomes trickier. Consider a dynamic decision problem, in which what individuals do today affects what is possible tomorrow. In order to take the best decision today, one must correctly predict what will happen tomorrow. As we have already discussed, economists, in an individual context, solve this problem by either assuming that individuals backwardly induct (from the end of the time period of the problem) or that they find the strategy solution and resolutely implement that solution even if they want to change their minds during the playing-out of the problem. In a market context, things are even more complicated: individuals have to correctly predict what possibilities the market will offer in the future. Economists close their models by assuming *rational expectations*: in which expectations are correct on average. In order to do this with most realistic dynamic stories – in which there is no endpoint – individuals must base their predictions on some model of the future. In economics, this model is an economic model, which almost certainly incorporates rational expectations. So if all individuals trust the theory then their expectations will be self-fulfilling. If not, not.

At this point, we need to bring in George Soros. In an article (Soros 2013) in the *Journal of Economic Methodology* he writes

" … if investors believe that markets are efficient then that belief will change the way they invest, which in turn will change the nature of the markets in which they are participating (though not necessarily making them more efficient). That is the *principle of reflexivity*".

This is a crucial point, which we have effectively ignored until now: economic agents, by their very actions, change the world in which they live. We cannot, as the economic paradigm described above implicitly adopts, assume exogeneity of the environment in which the agent is operating. Notice what is given in that description: the preferences of the

agents, and the constraints which they are facing. We should now discuss each of these.

We have assumed that preferences are given, but in the real world preferences change, sometimes as a consequence of social interactions with others, and sometimes because of advertising and marketing; economists prefer to ignore the latter. Preferences could change through the decision-making process itself, as a consequence of it.

The assumption that constraints are given is even more tenuous. We have already given examples relating to the Greek crisis, but examples exist everywhere. Constraints are not rigid; income constraints are not set in stone: if one is short of money one can borrow, if one is very short one can borrow more. An economist would respond that this can be built into the specification of the problem in the first place – one can expand the model. But the correct expansion depends crucially on how the decision-maker perceives the constraint: he or she may be unaware of, or morally against, going to pay-day loan operators. Note that this makes the model more complex and returns us to our earlier discussion of complexity. We firmly believe that economists have yet to think seriously about the issue of complexity.

Also institutions are not fixed and the constraints they imply are not fixed. A clear example is the reaction of the monetary authorities to the financial crisis of 2007 and 2008: they changed the rules under which markets could operate. They introduced more surveillance and more regulation. They broke up large financial institutions. One wonders if these changes had been anticipated by the market traders. More importantly, could they have been? The bottom line seems to be: expectations of what might happen in the future cannot be rational; they cannot be probabilistic; they are necessarily uncertain or ambiguous.

Let us return to Soros and his use of the idea of reflexivity[3]. This we quoted above; it is intimately related to the idea of fallibility which he describes as follows:

"The first is that in situations that have thinking participants, the participants' views of the world never perfectly correspond to the actual state of affairs. People can gain knowledge of individual facts, but when it comes to formulating theories or forming an overall view, their perspective is bound to be either biased or inconsistent or both. That is the *principle of fallibility*".

[3] Many authors have discussed reflexivity, including Soros. Other references are Touraine (1995) and several articles in a special issue of the *Journal of Economic Methodology* (2013).

So we have imperfect humans operating in an imperfect world. Their imperfect decisions have an effect on the world about them. This effect is necessarily largely unpredictable.

4. Conclusion – Where should economics go now?

We should relax the emphasis on individualism; we should recognize the people do not have precisely defined objective functions; we should understand that constraints are not set in stone and are flexible and manipulable; and most crucially we should relax the emphasis on equilibrium – recognizing that it is sometimes not unique, but, more importantly, influenced by the actions of the agents themselves.

REFERENCES

[1] Etner J., Jeleva M. and Tallon J-M (2010), *Decision Theory under Ambiguity*, Journal of Economic Surveys, 26, 234-279.

[2] Journal of Economic Methodology (2013), Special Issue: *Reflexivity and Economics: George Soros's Theory of Reflexivity and the Methodology of Economic Science*, 20, Taylor and Francis.

[3] Neumann F and Morgenstern (1944), *Theory of Games and Economic Behavior*, Princeton, NJ, Princeton University Press.

[4] Soros G (2013), *Fallibility, reflexivity, and the human uncertainty principle*, Journal of Economic Methodology, 20, 309-329.

[5] Touraine, A. (1995), *Critique of Modernity*, Oxford: Blackwell.