THE ROLE OF PSYCHOLOGY IN AUSTRIAN ECONOMICS AND GAME THEORY: SUBJECTIVITY AND COORDINATION

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The Role of Psychology in Austrian Economics and Game Theory:
Subjectivity and Coordination

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Abstract:
In this contribution we relate the respective works of two important economists, Friedrich von Hayek and Michael Bacharach, namely one of the main intellectual leaders of the Austrian Schools and one of the most original game theorists. Hayek and Bacharach are two authors – few in number – who do not conceive that economic analysis could be built without the help of psychology. They both considered that subjective perceptions of the real world provide the first stage of decision processes and that, within this stage, psychological factors played a fundamental role. Therefore, they both proposed how perceptions, economic rationality and social coordination could be combined. However economists who really accept to take psychology into account often face new difficulties. The incorporation of subjectivity in economic behaviour can make much more complex the analysis of economic and social coordination. To overtake these new difficulties we will see that both Hayek and Bacharach integrate a specific approach to human cognition and resort to an evolutionary explanation of social coordination. This is the main message we deliver in this contribution.

Keywords: Austrian economic theory, game theory, cognitive psychology, subjectivism, social coordination

Introduction
The Austrian economic theory and game theory have a priori very little in common. The first emerged at the end of XIXth century with Carl Menger and is still alive to-day, even if its influence in economics has strongly declined during the 20th century. Game theory was introduced in economic analysis after the Second World War and its analytical importance grew little by little, playing to-day a central role in theoretical and applied economics.

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However, in spite of these differences, both theories had connections in different periods and therefore, some commentators had the opportunity to stress these relationships (for instance, see Foss, 1999; Garrouste, 2001; Koppl, 2006; Kelly, 2009; Cevolani, 2011) trying thus to show that both research programs were compatible or at least were not incompatible.

In this contribution, we go further trying to connect the respective works of two important economists, Friedrich von Hayek and Michael Bacharach, namely one of the main intellectual leaders of the Austrian Schools and one of the most original game theorists. We obviously know that these authors were very different theorists and that they worked on distinct issues. However, their contributions had something in common which should be stressed in this paper. Both of them always rejected the viewpoint of the General Economic Equilibrium (GEE) research program which stated that agents’ preferences are exogenous and given, belong to the “fundamentals” of microeconomic theory and do not need any psychological foundations to play their role. They never accepted that in standard microeconomics, usual rational choice theory was a self-sufficient framework which did not need any form of help from psychology. Quite the reverse, they both considered that subjective perceptions of the real world provide the first stage of decision processes and that, within this stage, psychological factors played a fundamental role. Therefore, they both proposed how perceptions, economic rationality and social coordination could be combined.

Hayek and Bacharach are therefore authors – few in number – who do not conceive that economic analysis could be built without the help of psychology. However this point of view creates new analytical difficulties they could not ignore. The incorporation of subjectivity in economic behaviour makes more complex the analysis of economic and social coordination. To overtake these new difficulties we will see that both Hayek and Bacharach integrate a specific approach to human cognition and resort to an evolutionary explanation of social coordination. This is the main message we deliver in this contribution. From this prospect, in a first part of this paper we will stress the importance of perceptions in both authors’ approaches and note how this importance contrasts with its entire neglect by GEE theory. In a second part, we will investigate how both authors use a specific form of psychology and define beliefs and forms of knowledge in an analytical context where complete explicit information is not the usual and the unique foundation of economic coordination. Finally, in the last part of this contribution, we will see how subjectivity can be combined with social and market coordination.
1. Why perceptions matter in economics

For some commentators, Hayek is presented – till 1937 at least (Hayek, 1937) – as a GEE theorist, assuming therefore the homogeneity of individual agents, the absence of intentionality and the rejection of any type of psychological explanations of economic behaviour. Therefore, his contribution would have been in line with Schumpeter’s interpretation of Walras’s ‘pure economics’ interpreted as a ‘self-contained’ or a ‘closed’ approach entirely independent from psychology (see Arena, 2006). The prevalence of this point of view on Hayek’s contribution clearly provides a major obstacle if we wish to argue in favour of a permanent preoccupation on the influence of psychology – and especially of perceptions – on economics in his approach, even before 1937. We actually disagree with this point of view on Hayek’s contribution to economic analysis and we tried at length to show elsewhere (Arena, 2003) that there was more continuity than discontinuity between the young and the mature Hayek.

One of the first and major arguments presented in favour of the interpretation of Hayek as a GEE theorist is Hayek’s famous 1928 article on “intertemporal price equilibrium” (Hayek, 1928/1984). This article is indeed used in support of a Walraso-Paretian interpretation of the ‘young’ Hayek arguing that this equilibrium is nothing more than a prefiguration of the neo-Walrasian modern concept of intertemporal GEE (for a characterization of this concept, see for instance Radner, 1991). At first sight, some passages and arguments developed in Hayek’s text seem to corroborate this interpretation and to anticipate the GEE research program of the 1950s and its neglect of a psychological explanation of the process of formation of consumer preferences or of intertemporal consumer choice inconsistencies as exemplified, for instance by Ainslie’s hyperbolic discounting (Ainslie, 1975). This first impression is, however, misleading.

Hayek actually knew rather little on the technical aspects of Walras’s and Pareto’s mathematical constructions. His own use of GEE did not focus so much on the general interdependence of relative prices but rather on the interplay between the expectations of individual agents and the actual realisation of the various economic variables. As we will see later, this interplay was also seriously considered by Bacharach when he investigated the notion of rational expectations (Bacharach, 1989). As Hicks after him, Hayek argued that expectations should be consistently introduced and that they played a central role in economic
theory. He was however clearly skeptical about Walras’s theory of tâtonnement to explain the formation and the stability of prices in a world of certainty ruled by an auctioneer or any other type of central price mechanism. This is why considering what individuals must know for the realisation of an intertemporal equilibrium, he noted “that this will never be so in reality” (Hayek 1928/1984: 76). An echo of this focus on individual expectations is also given in Prices and production where he emphasized the “very pressing question of (...) what determines the expectations of entrepreneurs and particularly of how such expectations will be affected by any given change of present prices” (Hayek 1931: 155). This is also why Hayek never believed in a pure theoretical explanation of price stability as the Walrasian one and always emphasized the necessity to combine economic analysis with historical and empirical considerations (Arena, 1999 and 2003) namely referring to a “causation” based on “a chain of historical sequences” (Hayek, 1941).

Therefore, it would be completely misleading to interpret Hayek as a forerunner of Debreu. Our view is confirmed by the fundamental distinction Hayek draws between a one-agent economy and a decentralised market economy. The former serves essentially a pedagogic purpose and permits us to understand deviations from the equilibrium over time at the level of the economy as a whole (Hayek, 1928/1984: 77). By contrast, the latter concept allows the introduction of a new and fundamental question, namely the analysis of the intertemporal compatibility between individual plans decided upon by heterogeneous agents:

“The obvious precondition for an exchange to take place is that, on this, as on all occasions, those engaged in exchange set relatively different valuations upon the goods to be exchanged. That this precondition can be fulfilled follows from the fact that the temporal ranking of subjective evaluations alluded to above relates wholly to the individual, and so different persons can arrive at two completely opposed sets of valuations” (Hayek, 1928/1984: 78)

This multi-agent economy therefore excludes a purely Walraso-Paretian context of usual rational choice associated to homogeneous agents. According to Hayek’s point of view, economic agents are heterogeneous and are guided by “subjective evaluations” related “wholly to the individual”. Hayek therefore stresses the importance of expectations and individual perceptions and replaces Walraso-Paretian individualism by a first form of subjectivism. As we will show this view is totally shared by Bacharach. As in Hayek’s approach Bacharach’s incorporation of perceptions and psychology in economics provides an explanation of agents’ beliefs and subjective knowledge. This explains why he rejected the assumption of perfect foresight (1989). A multi-agent economy also entails the presence of
strategic uncertainty that, in turn, can lead to the occurrence of disequilibria. Thus, Hayek also introduces the importance of strategies which never appear in a Walraso-Paretian world and will be taken into account by game theory.

Actually, contrary to what has been argued too often, before 1937, the majority of Hayek’s contributions finally refer to the problems of incomplete information and of the heterogeneity of individual agents. But Hayek also introduced the concept and the question of knowledge as soon as 1928. For instance, he noted if there are “periodically recurring changes in the conditions of production” (Hayek, 1928/1984: 85), agents can acquire the knowledge required to ensure the persistence of equilibrium. This point of view is again very different from a Walraso-Paretian context where conditions of production are given and exogeneous, in compliance with the notion of closed or self-contained approach. Hayek distinguishes between three cases of such changes: (i) changes “which recur with precise periodicity” (ibidem), (ii) changes “which are of uniform tendency in both direction and extent” (ibid., 85) and (iii) changes “whose unique occurrence can be confidently expected for a definite point in time, as the result of developments which are currently observable or of known human decisions” (ibid., 85). The two first types of change show agents can acquire the knowledge required to ensure the persistence of dynamic equilibrium and therefore that they are able to learn from the context. The third type of change corresponds to the specific case of empirical and tacit knowledge acquired through the observation of regularities. Here again, we are very far from a general economic equilibrium perspective where knowledge is totally explicit or codified and reduced to information (see Arena and Festré, 2006, introduction). We will see later why tacit knowledge plays a central role in Hayek’s approach.

The debate on socialist planning also reinforced the conclusion that Hayek was already sensitive to the problems of individual knowledge and heterogeneity in economic analysis before 1937. In questioning the possibility of using a general equilibrium framework as a guide to rational decision-making in a socialist planned economy, Hayek casted doubts on the ability of central decision maker to have explicit and codified knowledge of the parameters of the required calculations. He argued that some of the information about a blue-print of productive techniques in the economy was available only in the form of tacit knowledge related to “circumstances” (Hayek, 1935/1945: 155). In 1940, Hayek provided a convincing example of this problem, showing that it was hardly possible to possess codified and explicit knowledge of real markets and activities. He pointed out that it was difficult for a central planner to define a sufficiently standardised commodity and a sufficiently precise list of
supplies and demands to define a given market and, therefore, to investigate changes in the mechanisms of supply and demand in real time (Hayek, 1940/1948: 188-189). This view is shared to some extent by Bacharach’s criticism of the GEE view of standardized goods. For him goods are indeed replaced by ‘commodities’ which allows the possibility of a difference between subjective and social representations of the objects of exchange.

Hayek’s view on socialist central planning are corroborated by comments Hayek made in the 1930s on expectations, refuting the idea that entrepreneurs’ errors could be regarded as a sufficient explanation of crises, unless these could be regarded what he called “justified errors” (Hayek, 1939/1963: 443). While “avoidable errors” are caused by external shocks, “justified errors” arise from “guides or symptoms” that prove to be systematically misleading, as is the case with disequilibrium monetary prices.

It does not, therefore, come as a surprise when, in the introduction to *Economics and Knowledge*, Hayek commented on the continuity between his present preoccupation and those that underlay his theories of capital and of business cycles:

“It has become more and more obvious that in the treatment of the more “dynamic” questions of money and industrial fluctuations the assumptions to be made about foresight and “anticipations” play an equally central role, and that in particular the concepts which were taken over into these fields from pure equilibrium analysis, like those of an equilibrium rate of interest, would be properly defined only in terms of assumptions concerning foresight. The situation seems here to be that before we can explain why people commit mistakes, we must first explain why they should even be right”. (Hayek, 1937/1990: 29).

We can therefore conclude that even before 1937, Hayek defended a conception of individual agents which clearly differed from the one which prevailed in the GEE research program. He indeed assumed heterogeneous agents, incomplete information and a first form of subjectivism. Moreover, even if he did not reject the concept of equilibrium over time, his approach did not however appeal to the theory of tâtonnement but to the compatibility of subjective perceptions and expectations in a world where prices were permanently changing.

This interpretation is obviously confirmed by Hayek’s post 1937 advances concerning economics and psychology (see especially Hayek, 1937, 1940, 1945 and 1960). We shall develop these advances in the following sections. We shall however already note that in his post 1937 contributions, Hayek reinforced the role he attributed to cognitive psychology in his view of market coordination through the convergence of subjectivist perceptions among
individual agents as it is the case in Bacharach’s conception of coordination. Hayek showed how tacit knowledge and beliefs strongly contributed to help to the creation of the “knowledge of society” to which individuals have no access and of a market social order in which the dispersion of individual knowledge and beliefs still prevail. These views remind Bacharach’s distinction between individual frames and “universal frames”, agents being only able to take up the first ones but never the complete set of the second ones (Bacharach, 1993, 2001, 2006).

Contrary to Hayek, Bacharach’s contribution does not stem from a critique of the GEE. However, according to him explaining market exchanges also requires to enlighten (i) that people are motivated by desires for goods and more specifically by “notional desires” and (ii) how these “notional desires” effectively lead to market exchange. By this way, he opens the door for psychology within consumer theory (1990: 346-347). Bacharach (ibid., 387) indeed clearly refers to “the psychological fact of the notionality of our desires.” Fundamentally, in Bacharach’s approach all of the types of goods are ‘experienced goods’ and he identifies them as “commodities” (Bacharach, 1990: 387). In some way in Bacharach’s vision, as well as in Hayek’s approach, as consumers we are driven by the perceptions we have about the way the goods we plan to comprise will satisfy us. According to Bacharach, these are the “notional desires”. We experience this satisfaction only when consuming the goods. Accordingly before purchasing we are motivated by the perceptions we have about the eventual satisfaction drawn by consumption; and those perceptions are a matter of framing.

Bacharach (2001: 1) defines frames as the set of concepts an individual handle when thinking about the world; it is most simply her view or her perceptions of the world. It is thus analogous to Hayek’s subjective representations of reality:

“[I]n order to explain how someone acts, we have to take account of the representation or model of her situation that she is using as she thinks what to do. This model varies with the cognitive frame in which she does her thinking. Her frame stands to her thoughts as a set of axes does to a graph; it circumscribes the thoughts that are logically possible for her (not ever but at the time). In a decision problem, everything is up for framing. The preferences on which she acts, her alternatives … So far from finding herself with given preferences over outcomes, as traditional theory holds self-evident, these preferences depend upon the evaluative concepts that are uppermost in her mind.” (Bacharach, in Gold, Sugden, 2006: 69)
By implication individuals’ frames shape their representation of commodities. Therefore, commodities are ‘things’ or ‘objects’ under description (Bacharach, 1990: 351), and it necessarily relies on language for Bacharach:

“Commodities depend for their existence on words to express the concepts under which fall consumers’ desires. Call the set of the community’s verbalized concepts its conceptual repertoire.” (Bacharach, 1990: 366)

Understanding how frames influence individuals’ decision-making requires for Bacharach to identify: (i) what are determinants of individuals’ frames, (ii) the process by which frames come to individuals’ mind and (iii) their structure (Bacharach and Bernasconi, 1997: 5). Therefore, Bacharach purports to draw a model of individual decision-making permitting a full account of this mechanism. He builds the Variable Frame Theory (VFT), (Bacharach 1991, 1993, 1995, 1997, 1999, 2006).

Individuals’ frames, i.e. individuals’ conceptual repertoire – which is structured in families of concepts (Bacharach, 2001: 5) – is based on their “everyday experience”, e.g. – as in Hayek – on their experience of effective consumptions, of market functioning, of trade, of strategic or social interactions on markets, etc. This everyday experience in turn shapes individuals’ “everyday theory”, i.e. the way they theorize the world. Framing is therefore context-dependent (Bacharach, 1991, 1993, 1997, 1999, 2001, 2006). Each context induces the (involuntary) instantiation of a set of pre-existing concepts (or families of concepts), (e.g. see Scanzieri, 2008: 197). A stock of concepts is progressively stored according to individuals’ everyday experience and this in turn gradually shapes individuals’ cognitive structure. In other words this progressively shape players’ conceptual repertoire, i.e. their frames. According to Bacharach

“It is reasonable to think that framing would primarily be associated with the cognitive and linguistic ability to grasp specific problem situations through the activation of particular set of ‘naturally connected’ features.” (Bacharach, 1997: 196-97)

These “naturally connected features” are proper to each individual with respect to their experience and their corresponding cognitive frames. As a consequence individuals’ frames are necessarily incomplete (2001: 5). Individuals are not ‘conceptually omniscient’ (Bacharach, 1991: 29). Framing is a matter of attention. Because of their non-omniscience, depending on each individual, certain concepts (or families of concepts) are more salient than others in specific contexts (Bacharach, 2001: 5). In this perspective, congruence and similarity
are two mechanisms focusing attention (Scanzieri, 2008). They may drive the attention on specific features of the world (ibid., 195).

How does this mechanism impact market exchange? Information is provided on markets by the existence of an offer of a “type F” commodity. The description (by words) of this type conveys information like the context surrounding the offer – e.g. “the name of the supplier, the price, the glossiness of the sales blurb, the ideological position of the newspaper in which the offer appears.” (Bacharach, 1990: 354). However, a part only of this available information drives the potential consumers’ attention. Again this depends on their everyday experience of market exchange and consumption, and accordingly of their cognitive structure. This relies on their “recognition capacity” (ibid., 367).

Since framing is prior to reasoning (Bacharach, 2001: 5), such an accurate account of the process of framing allows Bacharach to better “circumscribe” the rationale of individuals’ decisions (regarding their frames), and in particular the “possibility space” of individuals’ beliefs and expectations (e.g. of economic variables, of others’ perceptions and eventual issuing behaviors in case of interactions). Individuals’ beliefs are defined within their frames and regard propositions that are included within those frames (Bacharach, 1986: 182). The incompleteness of frames therefore necessarily induces “truncated beliefs” (Bacharach, 2001: 9). Thus, individuals’ rationality is “circumscribed” by their frames: “the space of propositions or event on which an agent’s subjective probabilities are defined is always incomplete” (Bacharach, 2001: 5). Subsequently, Bacharach’s account of rationality stands for subjective rationality (Bacharach, 1992: 248). As explained in the following quotation, this statement has important consequences in Bacharach’s account of market exchange.

« Let [O] be a predicate [i.e. a concept] of the language of the economy E which denotes the type F of [commodity]. When a member of E believes of a thing that it is 'a O', she not only believes that it is an F but also, crucially, she believes (perhaps only implicitly) to apply to it numerous generalizations describing tendencies of Fs... If she does not acquire a sufficiency of commonplace, tendential beliefs of this sort, she does not understand the sentence 'it's an [O]' and she cannot be correctly ascribed the belief that the thing is an [O]. I shall call the network of propositions that embed the concept F and inform in this way competent speakers' beliefs about what they believe to be Fs, the everyday theory of Fs. » (Bacharach, 1990: 357)

This refers to Bacharach (1990)’s terminology
The above quoted generalizations are specific to each individual, in a given time and a given place. And because every individual frames is incomplete every individual’ “[e]veryday F-theory is partial” (ibid., 358). Individuals’ and eventually groups’ conceptual repertoire(s) does not contain all the potential “properties” of the F commodity. However, individuals can learn new concepts, bringing about new families, new associations of concepts, etc. and it modifies or eventually shapes new structures of cognitive frames (Bacharach, 1990: 367). Yet, in order to be memorized and enrich individuals’ frames, the eventually added concepts must be activated by new experiences and then enter in individuals’ “everyday theory”.

“If a concept F is to enter the repertoire, people must learn the addendum to everyday theory which treats of F’s – they must “do” a new topic; they must often acquire new recognitional capacities; they must enlarge their vocabulary. All these impose cognitive strain. Once acquired, new concepts must be maintained, expensively, in working order. The larger the existing stock, the greater may be the marginal costs of acquiring and maintaining a new concept.” (Bacharach, 1990: 367)

To summarize, the introduction of framing, i.e. of individuals’ representations in decision-making, has important consequences and especially for us in this contribution since it paves the way to agent’s subjectivity and heterogeneity as well as the introduction of the influence of psychology in the realm of economics. This has not only effects in terms of individuals’ beliefs and rationality, but analytically, for the role of strategic and social interactions on markets exchanges. We will address this issue in the second and third parts of this contribution.

2. Economics and Psychology: subjective minds, cognition and behavioural rules

In this section we will highlight how both Hayek and Bacharach favour a very specific use of psychology. On the one hand Hayek builds his own theory of human cognition by contrast with the predominant psychological framework of his time. On the other hand Bacharach combines various subfields of cognitive and social psychology, yet distancing himself from the predominant trends prevailing in in these subfields, an attitude which is shared by Hayek.

The first stage of Hayek’s use of psychology in economics after 1937 is based on the role he attributed to knowledge and beliefs.

His conception of knowledge is clearly given in his Constitution of liberty:

“The growth of knowledge and the growth of civilization are the same only if we interpret knowledge to include all the human adaptations to environment in which past experience has been incorporated. Not all knowledge in this sense is part of our intellect,
nor is our intellect the whole of our knowledge. Our habits and skills, our emotional attitudes, our tools, and our institutions – all are in this sense adaptations to past experience which have grown up by selective elimination of less suitable conduct. They are as much an indispensable foundation of successful action as is our conscious knowledge” (Hayek, 1960: 26)

This quotation of Hayek shows that, in his view, individual knowledge cannot be limited to “explicit and conscious knowledge” (op. cit. 25). By the way, it also stresses a perspective common to Hayek and Bacharach which consists of pointing out the role of individuals’ personal experience in the structuration of their mind.

It is possible to distinguish in Hayek’s approach three main forms of knowledge. The first form corresponds to general explicit knowledge. Hayek refers to it when he notes that explicit knowledge is expressed through “formulated generic rules that can be communicated by language from person to person” (Hayek, 1960: 33).

The second form of knowledge is local explicit knowledge. Hayek refers to explicit local knowledge when he considers “the knowledge of facts related to the close environment of agents” (Hayek, 1945: 525) or the “knowledge of circumstances”, when they are “observable” or “tangible” (Hayek, 1988: 89).

For Hayek, explicit knowledge, general or local, does not necessarily imply dealing with the individual specificity of agents. It can be transferred from man to man and the process of transfer does not depend on the personalities of the sender and the receiver of information.

The third form of knowledge that Hayek refers to differs entirely from the previous ones since it is at least partially tacit and unconscious. Hayek’s inclusion of this type of knowledge needs to be stressed. Hayek distinguishes rule-following behaviour which he characterized as “knowing how” and the knowledge of a thing which he characterized as “knowing that” (Hayek, 1988: 78). This distinction is also present in Bacharach’s contributions. By contrast with both first types of knowledge, the third form can only be acquired directly because it does not necessarily imply the preliminary definition of an objective of voluntary learning. Day after day, it is absorbed through social interaction. It is not acquired with the help of artefacts or formal institutions but by the permanent resort to rules of social behaviour, the meaning of which is not always and entirely understood by agents. Therefore, generally, individual agents are not conscious to use and implement particular rules in order to face specific daily circumstances. Tacit knowledge cannot be transferred with the help of a codified language. Its existence is directly related to the subjective personality of agents.

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2 This explicit local knowledge echoes the contextual forms of local knowledge we referred earlier quoting Hayek’s 1928 paper.
As we showed in the first section, Bacharach characterizes individual frames as an history-dependent construction and as the basis of agents’ subjective knowledge. Agents’ perceptions are dependent on their experiences of market exchanges. Progressively, because of the recurrence of particular contexts, agents become more and more able to conceive general types of situation. This process of generalization also allows them to establish behavioural rules which they will follow in the future.

More generally, Hayek’s conception of knowledge must be understood in relation to his subjectivist methodology, which essentially rests on two justifications. The first, which is cognitive, is found in The Sensory Order (1952). In this book, Hayek champions the idea that according to the connectionist approach, the point of departure of mental representations is not the physical order of things as ‘scientistic objectivism’ – to use Hayek’s expression (cf. Hayek (1952) chapter V) – would have put it, ‘but the product of abstractions which the mind must possess in order to be capable of experiencing that richness of the particular [of the reality]’ (Hayek 1978: 44). The conscious experiences that individuals regard as relatively concrete and primary and which they attribute to the intrinsic properties of the physical order “are the product of a superimposition of many ‘classifications’ of the events perceived according to their significance in many respects” (ibid., 36).

Hayek’s point of departure is Ernst Mach’s sensationalism for which the set of human perceptions is constituted by pure and elementary units of sensations. These sensations are coming from the external world and transmitted to the internal world, namely the human body and its nervous system. In this context, the brain is therefore a tool which permits to receive external data. A strict correspondence is assumed by Mach between external data and internal sensations. Moreover, elementary sensations are then reorganized in the brain. At this internal level, new relations are therefore created supported by sensations and provide new meanings. Individual perceptions therefore result from two origins: the external data and the relations set between sensations by the brain.

Hayek also assumes that there are two “orders” in which the human mind arranges the objects in the world: the physical order, which classifies events as similar or different according to whether they produce similar or different other external events; and the sensory order, which classifies events according to their sensory properties. In contrast to Ernst Mach, Hayek however holds that there is no simple one-to-one correspondence between the elements of the two orders:
Since Mach had qualified so many of the connexions between sensations as ‘relations’, I was finally forced to conclude that the whole structure of the sensory world was derived from ‘relations’ and that one might therefore throw out altogether the concept of pure and simple sensations, which plays such a large role in Mach. (Hayek, 1967: 174)

In other words, sensations have to be discarded and therefore sensationalism has to be rejected to explain the formation of agent perceptions considered in the first part of this contribution. Hayek indeed excludes the existence of a direct correspondence between external events and the organization of the brain. According to Hayek, the type of psychology to combine with economics or the explanation of the social world should only consider the internal organization of the brain. External events have only an indirect influence on the brain. The brain is only a classifier of external impulsions and gives them a meaning. The classification of external impulsions implemented by the brain form a physiological memory which is the real point of departure of mental phenomena. Therefore, each specific brain creates specific mental phenomena which provide the basis of Hayek’s subjectivism. Agent specific or subjective sensations depend on the position of neuronal fibres which lead impulsions to the set of the central neuronal system. This is a typical connexionist approach stressed in 1982 by Hayek himself:

My conclusion at an early stage was thus that mental events are a particular order of physical events within a subsystem of the physical world that relates the larger subsystem of the world that we call an organism (and of which they are part) with the whole system so as to enable the organism to survive. (Hayek, 1982: 288).

This quotation is an interesting summary of the relation between sensory and social orders. As we already noted, these two orders differ since the first is purely subjective and therefore this is the reason why individual agents are fundamentally unable to understand the working of the overall social order. *The Sensory Order* also includes an evolutionary dimension which contributes to explain the contents of a real process of subjective learning and helps to understand how subjectivism is compatible with an evolution of human and economic behaviour.

These neuronal foundations also help to understand why Hayek’s subjectivism entirely differs from standard individualism. A comparison between *The Sensory Order* and Hayek’s theory of economics and society suggests why for him social order cannot be interpreted as a direct result of an aggregated rational choice. In 1967, Hayek indeed noted:

Such spontaneous orders as those of societies, although they will often produce results similar to those which could be produced by the brain, are thus organized on principles different from those which govern the relations between a brain and the organism which it directs. Although the brain may be organized on principles similar to those on
which a society is organized, society is not a brain and must not be represented as a sort of super-brain, because in it the acting parts and those between which the relations determining the structure are established are the same, and the ordering task is not deputized to any part in which a model is preformed. (Hayek, 1967: 74).

There are thus as many subjective forms of knowledge as there are individual ‘nervous systems’, i.e., as there are heterogeneous agents. For Hayek, this approach does not always conflict with some of the tools commonly used in microeconomics, what he called the formal “logic of the choice”. However, he thinks they require a serious adaptation.

The second justification of Hayekian subjectivism is found in what Hayek called the ‘social division of knowledge’. For Hayek, as a civilization develops, the knowledge of its society becomes more complex and specialised. However, no individual agent can have access, to such knowledge alone. Knowledge is dispersed within society and each of the individuals constituting it can have access only to a very small part of the social knowledge and, in particular, to the processes by which social and economic activity is regulated and reproduced globally. This conception of dispersed knowledge is similar to Bacharach’s one. We noted in the first section that Bacharach (1986) considers that the larger the social “conceptual repertoire” is, the more difficult it is for individuals to have access to it, i.e. to learn and maintain new concepts.

Therefore, Hayek claims that the economic behaviour of each individual agent is embedded in the framework of his own theory of how the world works. This idea is also vividly defended by Bacharach (1986, 1989, 1991, 1993, 1997, 1999, 2001, 2006). For Hayek, it means that each individual takes decisions according to his own set of ‘structural’ individual beliefs. These structural beliefs shape what we could call ‘circumstantial’ beliefs, namely, beliefs which govern specific decisions related to particular circumstances and to particular expected economic results at a given point of time.

These decisions give rise to actions which, in their turn, produce results which the agent compares to his own expectations. The divergence perceived by the individual between his expectations and the actual outcomes of his actions leads him to revise his circumstantial and sometimes, albeit less frequently, his “structural” beliefs. This revision process is stronger when the observation of actual results convinces the agent of the ‘errors’ in his ‘attempt’ and provides him with the opportunity to eliminate some beliefs. If, on the other hand, the ‘attempt’ is successful, a true selection of beliefs takes place. Indeed, in the long run, as pointed out by Garrouste (1999: 891), “structural” beliefs become stronger and are gradually transformed into individual
abstract rules, comparable to genuine routines. In fact, the agent becomes aware that his structural beliefs help him to obtain results that are superior to the other possible beliefs. However, despite the fact that individual beliefs are subjective, they are not independent from those of the other agents. This provides the last step of Hayek’s construction related to the transition from individual to collective beliefs.

Similarly, Bacharach differentiates several forms of knowledge, which are related to his vision of subjectivism. Bacharach (1991: 15) defines two types of knowledge: (i) occurent and (ii) non-occurent. The former entails that “a necessary condition for someone to know that $p$ is that the question of $p$ should come to her mind or occur to her; that she should think of $p$”. This knowledge is deliberative. It appeals to individuals’ reflection and awareness. The later is tacit “but nevertheless action-guiding”. Tacit knowledge is expressed in terms of unconscious rule following. In other words tacit knowledge corresponds to stored and generalized knowledge enabling individuals, by congruence between similar situations to identify patterns of behaviors. We can assume that in Bacharach’s vision, tacit knowledge stems from individuals’ “everyday experience” which then, by generalization, forms an “everyday theory”. As we stated it in the first section, agents are cognitively bounded. Unconscious rule following behavior plays therefore a great role in his characterization of economic behaviors.

In addition, the culture in which individuals are embedded endows them with ‘social’ and tacit knowledge. Bacharach (in Bacharach, Hurley, 1991: 3) believes in the existence of a “cultural common sense”, i.e. “the fact that every real [individual] has the general knowledge her cultures gives her, such as knowledge of which arrangements are salient or traditional in that culture”. Thus, as in Hayek, Bacharach’s subjectivism and his interpretation of agents’ heterogeneity are combined to form a ‘social order’ enabling individual to coordinate.

Because in some circumstances the rationale of agents’ decisions relies on their non-occurent knowledge, i.e. on the rule following form of individual knowledge, Bacharach draws upon psychology to understand how this non-occurent knowledge is build, stored and then can affect individual-decision making.

For Bacharach indeed, “the study of rationality has much to gain by triangulation from different disciplines” (in Bacharach and Hurley, 1991, p. 4). This includes especially cognitive psychology and social psychology. Understanding how players’ representations matter in their mode of reasoning and accordingly affect their beliefs toward the way market
exchange can be conducted goes beyond the scope of economics. Recall that for Bacharach the role of individuals’ beliefs prime in the analysis of market exchange. Bacharach in fact, declares

“There is, I shall argue, a serious gap in our theoretical understanding of how economies work. What is missing is a satisfactory Theory of Belief for individual economic agents.” (Bacharach, 1986: 175)

In this perspective he uses and crosses various literatures in psychology and social psychology. Alongside the role of framing, a large part of psychology that matter for Bacharach is linked to the role of sociality and of social and strategic interactions, in human cognition. And in each case, Bacharach’s influences are mainly cognitivist.

Meanwhile Bacharach’s contribution into Decision Theory and Game Theory through the VFT (1990, 1991, 1993, 1997, 1999, 2000, 2001, 2006), the work of Kahneman and Tversky (1979, 1986) especially and the ‘framing effect literature’, start to influence economists who challenge those two disciplines within economics. Bacharach retains from Kahneman and Tversky’s “prospect theory” (1979) that individuals’ beliefs and preferences depend on their subjective descriptions (representations) of the world (Bacharach, 1986: 183). However, Bacharach distances himself from Kahneman and Tversky and the framing effect literature by being interested solely in natural framing, i.e. in the absence of ‘manipulations’ designed by the theorists to affect individuals’ decision making (2001: 4). Bacharach attempts to understand the ‘natural’ process of framing in order to appreciate the influence of frames on individuals’ decision-making and rationality in their everyday life (and by implication in their choices of consumption for instance). As stated above, this requires appreciating what determine those frames and their structure. Because frames are structured, different levels of this structure require different mechanisms of activation. Bacharach therefore draws on different frameworks within psychology to identify what determine the structure of frames and the different levels of activation that prevail in individuals’ recognitional capacities.

A first element of framing that matters for Bacharach is ‘entification’ since within frames concepts come, and are classified, in bundles. In this perspective he refers to Gestalt psychology (e.g. Wertheimer, 1923; Campbell, 1958) which focus on visual perceptions. In this framework this mechanism is caused by the following characteristics: “‘contiguity’, ‘common fate’ (moving in parallel over time), ‘good figure’ (forming a recognizable pattern) and ‘similarity’… closeness and impermeability” (Bacharach, 2006: 70-71). One of the
previous characteristics, “similarity”, leads to a second trend of research that Bacharach uses: Post Gestalt psychology (e.g. Campbell, 1958; Tajfel 1969; Tversky, 1977; Rosch, 1978). This school of thought defines similarity as the “criterion of grouphood” i.e. “the meta-contrast principle [which] explains categorization, that is, the cognitive activity of dividing a domain of items” (ibid., 71). Drawing on this school of thought, Bacharach tries to show why individuals’ identities matter in their decision-making. For Bacharach the characteristics identified by the Post Gestalt psychology can refer to groups of human. Subsequently and here in contrast with Hayek’s subjectivism, he states that “psychological, cultural and social” similarities can provide the basis for an individual to entify a group of individuals and in turn activate her sense of group identity (ibidem). This feature of human cognition plays a great role as we will see since it allows individuals to interact, communicate and coordinate in their everyday life.

“Personhood is the resultant, to the extent that it is so constituted, of a set of group identities; more exactly, the person is defined by the intersection of her group identities. But it is only to some extent, since there are plenty of person-defining features which do not correspond to group memberships.” (ibid., 88-89)

Bacharach refers to the theory of self-categorization in psychology in order to understand how each individual constitutes her own identity through the interactions between her multiple group identities. Self-categorization theory postulates that self-identification is a matter of framing, and therefore which of the self-identities are activated in specific contexts depend salience (ibidem). Bacharach relies on Bruner (1957) and Gurin and Markus (1988) to postulate that

“Which of my collective personae is activated depends on the current accessibility’ of the categories to which I belong the relative accessibility of a category depends upon many things, which include the perceiver’s current expectations, tasks and purposes. In human interactions, the accessibility of categories is a special case of the notion of availability of frames at the heart of the variable frame theory of games.” (ibidem)

Individuals’ collective identities shape their decision-making since for Bacharach they affect individuals’ goals (ibid., 75). Therefore, Bacharach tries to define the conditions tending to enhance individuals’ ‘group identification’, which “in turn produces certain judgements, attitudes and behaviour” (ibid., 76). The circumstances identified by social psychologists and the consequence of group-identification on the members’ mental states are numerous³, like

³ We will not enumerate this list since this will be too exhaustive. We will solely retain the consequences of group identification that matter for us.
are the references of Bacharach. Among other things, membership induces the “internalization of group norms” (ibid., 80). This is of particular importance in market exchange since individuals, when exchanging and consuming, internalize norms which refer to ways of proceeding in markets. In people’s mind these norms determine reliable principles of exchange. Assuming the existence of the collective identities of individual agents may seem to be incompatible with Hayek’s subjectivism. Individuals are indeed partly determined by their social environment for Bacharach in the sense that their collective identities may influence, in some circumstances, their mental states. However for Bacharach, this statement is compatible with subjectivism. Collective identities allow heterogeneous agents to form and use social conventions or institutions.

Besides individuals’ group identities are only one of the self-identities that matter for Bacharach. He quotes Brewer and Gardner (1996) who identify three self-identities: (i) “personal”, (ii) “relational” and (iii) “collective” (ibid., 74). An individual’s personal identity is linked “to aspects of her representation of herself that differentiate herself from others” (ibidem), while her relational identity concerns her “self conception in terms of relationships with other individuals with whom she interacts” (ibidem). The role of attribution theory – again in social cognition and social psychology – seems to play a great role for Bacharach to determine the role of interactions in human cognition. In this case Bacharach (1989: 180-81) again refers to various contributions (e.g., Fiske and Taylor, 1991; Hewstone, 1983; Schneider, 1995). In his conception of sociality, individuals’ relational identity affects their preferences, goals, mode of reasoning, etc. More precisely, “attribution theory” involves individuals’ second order beliefs, i.e. their beliefs about the beliefs of the other individuals with whom they interact (ibid., 181). They intervene in individuals both strategic and social interactions, like in market exchanges. In his model of trade, Bacharach “connect[s] two sets of beliefs: those of consumers about the graders of that which they would acquire if they engaged in commodity trade in a type F; and those which make up the "everyday theory" of Fs and so fix the meaning of the predicate $\phi$ that denotes F.” (Bacharach, 1986: 347)

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3. Social coordination and markets

In considering Hayek’s cognitive approach, Birner (1999: 67–8) underlines the analogy, developed by Hayek himself, between the organization of the human brain and that of society. This marks the limits of Hayekian subjectivism, because ‘knowledge and beliefs of different people’ are not completely diverse but ‘possess a common structure which makes communication possible’ (Hayek 1952b, p. 49). Even if Hayek’s and Bacharach’s contributions do not resort to the same explanation of this phenomenon, and even if their subjectivisms differ, we may stress that both of them however accept the idea that there exists a common mental structure of individuals which plays an important role to explain coordination. In this perspective:

individuals which compose society are guided in their actions by a classification of things or events according to a system of sense qualities and of concepts which has a common structure and which we know because we, too, are men. [...] Not only men’s action toward external objects but also all the relations between men and all the social institutions can be understood only by what men think about them. Society as we know it is, as it were, built up from the concepts and ideas held by the people, and social phenomena can be recognized by us and have meaning to us only as they are reflected in the minds of men. (Hayek 1952a, pp. 57–8, our emphasis)

This therefore implies that the rules of conduct which guide the behaviour of agents are clearly dependent on the mental ‘common structure’ of men. Thus it is easy to understand why Hayek admits that individuals belonging to the same historic and/or socio-cultural environment tend to share common individual beliefs. This statement is clearly similar to Bacharach’s view of the impact of individuals’ social knowledge. This social knowledge allows the formation and acceptance of conventions or institutions and the corresponding stable pattern of behaviours that induce common individual beliefs.

As some commentators have noted (Ioannides, 1999: 874–6; Garrouste 1999: 887–91), the features of social rules of conduct that in Hayek underline the formation of a spontaneous social order similar to the one found in market societies, are threefold. First, they must be tacit, that is, ‘supra-conscious’, to use Hayek’s expression. To put it another way, individuals follow rules of conduct, without knowing explicitly that they are doing so. Second, these rules must be abstract. Third, tacit and abstract rules must necessarily be general. This means that they must be valid for all individuals and apply to an infinite number of particular cases. The content of these rules is independent from the particular individuals who adopt them or from the particular types of actions in which they are put into practice: these rules are the result of a process of adaptation which tends to gradually erase its origin (Hayek 1960: 27). With the passing of time and the repeated
use of individual rules of conduct, their tendency to become more and more abstract and general creates the conditions of their growing autonomy vis-à-vis the individuals who have implemented and/or adopted them. In the long run, these forms of conduct ‘consist of what we call “traditions” and “institutions”, which we use because they are available to us as a product of cumulative growth without either having been designed by any one mind’ (ibid., 27).

This interpretation is confirmed by Hayek’s analysis of the ‘properties’ that social rules are supposed to possess in order to produce a global order that appears to be independent from individual actions. These ‘properties’ explain how individual rules (even shared rules) can be transformed into social rules, i.e. ‘normative’ rules which ‘tell’ individuals what they can or cannot do. As we already noted, the social process of standardization of rules first results from similarities between individual mental processes. Its origin can also be found in the existence of a ‘common cultural tradition’. Finally, it can be enforced by, say, the State or the law, and imply sanctions in case of violation. The above remarks confirm that social facts or norms have gradually acquired such a large autonomy with respect to individuals that they appear to them as strictly exogenous (customs, convention, culture, law, etc.). This is why they appear to be the real causes of the process of social standardization of individual rules. Therefore, if shared individual beliefs often imply true social beliefs, it is mainly because individuals usually choose their individual rules of conduct within the repertoire of the available social rules. As we already noted this view is shared by Bacharach. Traditions and institutions imply shared individual perceptions and therefore provide the basis for a common structure of frames. These institutions are interpreted by individuals as exogenous coordination devices because agents think of them as reliable. They are therefore progressively stored in individuals’ “everyday theory” of how the social world works. That is why step-by-step institutions as recurrent successful coordination devices, by generalization, induce tacit rule following and are incorporated in the deep structure of individuals’ frames.

It then remains to understand how the mechanism of selection between rules and available social beliefs works. This mechanism is essential since it allows us to understand the emergence of rules or optimal social beliefs. The answer Hayek puts forward corresponds to his theory of cultural evolution:

All that we can know is that the ultimate decision about what is good or bad will be made not by individual human wisdom but by the decline of the groups that have adhered to the ‘wrong’ beliefs. (Hayek 1960: 36)

However, one can still wonder how the process of selection of social rules leads to a situation of relative autonomy with respect to individual knowledge beliefs, even if Hayek strongly advocates subjectivist individualism. This autonomy is taken into account by Hayek through his reference to
the ‘knowledge of society’ (ibid., 25). Individuals have no direct access to this kind of knowledge (ibid. 25). On the other hand, for Hayek, the simultaneous recourse, by individuals, to their own particular knowledge leads each of them to benefit from what one could call positive externalities stemming from social interaction. All that remains then is to understand how individuals can benefit indirectly from this knowledge. Hayek’s answer is obvious: tradition provides agents with a set of rules that are superior or ‘wiser’ than human reason (Hayek 1988: 73).

To sum up, Hayek actually allows for the existence of a ‘knowledge of society’, or ‘of the impersonal process of society’, which, as already noted, differs from the mere juxtaposition of individual kinds of knowledge (Hayek 1960, p. 65). This means that, for Hayek, we must distinguish between two analytical levels (see for instance, ibid., 28). The first is entirely governed by the methodology of subjectivist individualism and, therefore, only refers to individual beliefs, be they shared or not. The second corresponds to a kind of knowledge that individuals cannot access directly. It is the outcome of the interactive effects of their actions. In order for this impersonal knowledge to be as efficient as possible, it is first necessary that a social process of selection generates rules allowing men to live together in an open society, in other words, in a type of social order that permits individuals to make free but compatible decisions. It is also necessary that these selected rules produce the largest and best ‘knowledge of society’.

The rules which govern market coordination and selection processes are similar to those which contribute to generate this knowledge. This is why in Individualism and economic order, Hayek noted:

> Competition is essentially a process of the formation of opinion: by spreading information, it creates that unity and coherence of the economic system which we presuppose when we think of it as one market. It creates the views people have about what is best and cheapest, and it is because of it that people know at least as much about the possibilities and opportunities as they in fact do. It is thus a process which involves a continuous change in the data and whose significance must therefore be completely missed by any theory which treats these data as constant (Hayek, 1948: 106).

This quotation is really interesting since it summarizes the fact that according to Hayek, market coordination is only a ‘case study’ of his general theory of cultural evolution. On the one hand, it therefore permits to understand why markets are considered to be optimal institutions. On the other hand, As Vanberg (1987) noted however, the research program which argues that market order is the optimal possible social one was never developed entirely and in a satisfactory way by Hayek.
Now, according to Bacharach, a pervasive trait of humanity is the ability of individuals to coordinate (and eventually cooperate). For him, real individuals are perfectly able to coordinate for two broad reasons we also met in Hayek’s approach: cultural and evolutionary. First, in an environment characterized by a multileveled society, with multiple types of interactions between heterogeneous agents – or groups –, conventions or institutions drive toward convergent pattern of behaviors. The non-omniscience of individuals and the bounds of their cognitive abilities in decision-making are supplemented by a social and common background stored in cultural knowledge (see Bacharach, Hurley, 1991). Second, in long period, the “natural” selection operates at a group level. This selection is in favor of groups which perform well, i.e. structured and organized groups in which the members coordinate and cooperate – through cultural coordination devices (Bacharach, in Gold, Sugden, 2006, chap. 3).

The ability of agents to exchange on markets primarily relies on the existence of a common language (Bacharach, 1990: 350). It means, that a common background is the basis for interactions. The possibility of social coordination in market structure partly relies in the sharedness of some representations stored in language. Drawing on a shared knowledge i.e. the common understanding and of the semantics\(^5\) of words in a common community language, and the awareness of that, economic agents (i.e. consumers and suppliers) can exchange. Since commodities are unfussy in Bacharach’s account of trade, the eventual buyers need to know that there is common understanding of what can be a given type of products – say, F. They need to be sure that everybody in this community share the same understanding – semantics – of the words determining what is an ‘F’. This is the necessary condition for a trade to be eventually conducted (Bacharach, 1990, p. 357).

« Your confidence that accepting the k-offer would bring you an F depends in the first place upon your understanding of the offer and your belief in the supplier's understanding of it. (Bacharach, 1990: 353)

Referring to empirical results\(^6\), Bacharach exhibits that within a common culture, e.g. in a community language, individuals tend to represent situations in the same way (Bacharach, 2001: 9). In other words, individual frames have a propensity to be shared. Individuals are inclined to hold common structural frames (i.e. common conceptual repertoires, common classifiers concepts, etc.). The partially sharedness of frames will in turn enable individual economic agents to form beliefs about others. Bacharach (1986, 1990) views market

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\(^5\) Bacharach’s account of frames is semantic. For a comparative claim see Scazzieri (2008).

\(^6\) More specifically the results of Metha, Starmer and Sugden, 1994; Bacharach and Bernasconi, 1997; Bacharach and Stahl, 2000.
interactions mainly as strategic relationships. This implies that agents must have beliefs about others’ behaviors which means that they have to form beliefs about others’ perceptions and beliefs.

Moreover, the above-mentioned empirical results reveal “that beliefs about framing propensities are also shared” (ibid., 9). Furthermore, Bacharach postulates the existence of mutual beliefs (ibidem).

“Among the members of a single-language community, meanings, and so the network of beliefs which fixes them, cannot vary much. There is a core of tendential beliefs such that anyone who believes ‘it’s a k’ of an object acquires most or all of them of it. Furthermore, the communicative functions of language are served only because everyone believes (at least implicitly) that other members believing the sentence possess them.” (ibidem)

In a world composed by multi-leveled interactions between heterogeneous individuals’ (and groups), Bacharach claims that to account for successful coordination and cooperation, the error of decision theory is to discard individual decision-making from their cultural knowledge (Bacharach and Hurley, 1991: 3). In fact, for Bacharach, “human framing propensities stand behind the well-known ability of people to solve coordination problems by exploiting ‘focal points’” (2001, p. 7). Focal points are devices of coordination. They enable heterogeneous people to recognize consistent and convergent pattern of behaviors; i.e. to ensure “congruent structures” (Scazzieri 2008:187). Individuals selection rules of behaviors through the recurrence of interactions and the repeated use of coordination devices. They process by abstraction and generalization from their “everyday experience”. Step by step individual knowledge, as stored in each subjective conceptual repertoire, partly generalized to broad and repetitive contexts. Focal points, as repeated coordination devices, belong to individuals’ cultural knowledge, i.e. to their social and generalized conceptual repertoire. Besides, focal points focus people’s attention. One trait of human cognition and its boundedness is to make focal points salient characteristics of the world. Due to the ability of human to classify by congruence and similarity, focal points allow information filtering and individual selection of rules of behaviors.

Bacharach’s account of subjectivism leads him to advocate for what he defines as “the transparency of deliberation” (Bacharach, Colman, 1997: 9). In a given (language or cultural)

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7 “The partiality and instability of frames or ‘conceptual boundedness’ disables human agents in certain tasks ... However the sharedness of frames enables them to do well in other tasks, and in some cases it is important for this that the shared frame is partial” (Bacharach, 2001, p. 9)
community, the tendency of sharedness of frames and in this perspective of individuals’ beliefs, can justify the hypothesis of “transparency of deliberation”\(^8\). Subsequently he uses researches on stereotypes and attribution in social cognition which “have revealed a remarkable degree of consensus in people’s understanding of their social environment, and … shown that the same basic cognitive processes underlie people’s predictions and explanations of their own behaviour and that of others” \(\text{ibidem}\). Focal points orient toward “transparency of deliberation”. Even if individuals’ perceptions are subjective, they can follow rational principles of decision; and from shared perceptions stemming from socialization, they can draw common inference.

In addition, in Bacharach’s vision, a fundamental process in human cognition is self-perception or self-categorization. He argues that the way individuals perceive themselves (and others) determines their capacity to coordinate and cooperate (see e.g., Bacharach, 2006: 70). We saw previously that for Bacharach, individuals’ identities matter in their decision-making. Individuals are constituted by multiple group identities which in turn enhance collaborative and cooperative behaviors. This paves the way for the introduction of Bacharach’s evolutionary argument. He postulates “that group identification is the fundamental evolved proximate mechanism for collaboration in man” (2006: 112). He thinks that

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\text{“[M]an has evolved to have a repertoire of cooperative behaviours geared to different types of situations with scope for cooperation … Call the hypothesis that people are endowed with such a range of cooperative, situation-dependent behaviours the cooperative repertoire hypothesis.” (ibidem)}
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And finally, because Bacharach believes in selection at a collective level, and because in evolutionary biology, groups in which the members are cooperative perform well and survive in long term (see Bacharach, 2006), cooperative individuals are biologically selected. That is why each individual inherit a cooperative conceptual repertoire. Accordingly, individuals, or economic agents, are perfectly able to successfully coordinate and cooperate (i.e., for instance to exchange).

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\(^8\) Here Bacharach refers to researches: (i) on stereotypes (Mackie and Hamilton, 1993; Oakes, Haslam, and Turner, 1994), and (ii) in theory of attribution in social cognition (Fiske, Taylor, 1991; Hewstone, 1983; Schneider, 1995).
CONCLUSION

At the end of this contribution, we can check that contrary to a first sight view, Hayek’s and Bacharach’s conceptions of economics are far to be incompatible. Many concepts and ideas are present in both authors’ contributions which share a close conception of the relation between subjectivity and psychology. The nature of the form of psychology associated to each author however differs and leads to two distinct conceptions of social coordination. It would not be therefore obvious to build a synthetic research program including both approaches of Hayek and Bacharach.

We may however notice that their common stress on the necessity of connecting economics and psychology is to-day shared by a growing number of behavioral microeconomists or game theorists who are more and more taking into account heuristics and cognitive biases on one side and social preferences as well as social psychology on the other side. We may also stress that Hayek’s and Bacharach’s views on social and market coordination require to introduce complexity in economics and therefore heterogeneous agents and forms of social interactions much more sophisticated than the neo-Walrasian ones.

Both these methodological tendencies express a strong discontent towards the old GEE research program and a substantial change of microeconomic analysis that is now taking place. This is also why the contributions of Hayek and Bacharach had a pioneering role as regards to these recent evolutions in contemporary microeconomics.

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28


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The Dual Role of Mobile Payment in Developing Countries

Michaël Assous, Olivier Bruno & Muriel Dal-Pont Legrand
The Law of Diminishing Elasticity of Demand in Harrod’s Trade Cycle (1936)

Mohamed Arouri, Adel Ben Youssef & Cuong Nguyen
Natural Disasters, Household Welfare and Resilience: Evidence from Rural Vietnam

Sarah Guillou & Lionel Nesta
Markup Heterogeneity, Export Status and the Establishment of the Euro

Stefano Bianchini, Jackie Krafft, Francesco Quatraro & Jacques Ravix
Corporate Governance, Innovation and Firm Age: Insights and New Evidence

Thomas Boyer-Kassem, Sébastien Duchêne & Eric Guerci
Testing Quantum-like Models of Judgment for Question Order Effects

Christian Longhi & Sylvie Rochhia
Long Tails in the Tourism Industry: Towards Knowledge Intensive Service Suppliers

Michael Dietrich, Jackie Krafft & Jolian McHardy
Real Firms, Transaction Costs and Firm Development: A Suggested Formalisation

Ankinée Kirakozian
Household Waste Recycling: Economics and Policy

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Régulation par contrat

Muriel Dal-Pont Legrand & Sophie Pommet
Nature des sociétés de capital-investissement et performances des firmes : le cas de la France

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Eco-Innovation and Firm Growth: Do Green Gazelles Run Faster? Microeconometric Evidence from a Sample of European Firms

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La difficile conciliation entre politique de concurrence et politique industrielle : le soutien aux énergies renouvelables

Lauren Larrouy
Revisiting Methodological Individualism in Game Theory: The Contributions of Schelling and Bacharach

Richard Arena & Lauren Larrouy
The Role of Psychology in Austrian Economics and Game Theory: Subjectivity and Coordination