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### **THE QUESTION OF KNOWLEDGE IN ECONOMICS\***

#### **Abstract:**

This article argues that despite the fact that the concept of knowledge and is much discussed, it is underdeveloped in economic theory. It discusses this in relation to three dominant positions in economics; the Neoclassical, Institutional and Austrian. Of the three, the Austrian is the position that has gone deepest into the study of knowledge. However, not even the Austrian position has fully explored how knowledge development can be integrated into its theory. It is therefore argued that economic theory should embrace a broader understanding of knowledge, which draws upon a cross-disciplinary approach and takes into account that knowledge is inherently both a subjective, social and complex phenomenon.

#### **Keywords:**

knowledge in economics, economic theory

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## Introduction<sup>1</sup>

Today there is an extensive debate concerning knowledge as an important resource in society. The contemporary society is often referred to as a *knowledge society*, where knowledge is seen as a main resource. Naturally, economic theory has paid increased attention to knowledge. Yet, I will argue that despite the fact that the concept of knowledge is much discussed, it is underdeveloped in economic theory.

The reason for this is that economic theory has had a too narrow approach to investigating knowledge development and the role of knowledge in society. I will argue that economic theory should embrace a broader understanding of knowledge, which draws upon a cross-disciplinary approach and takes into account that knowledge is inherently both a subjective, social and complex phenomenon.

What I want to do today is to discuss the following question: What are the implications of applying a broader perspective on knowledge for the field of economics? In order to answer this question, I will briefly walk you through three dominant positions in economics; the Neoclassical, Institutional and Austrian. They are all approaches that produce certain knowledge about knowledge. However, I will argue that they all have limitations.

I will only briefly discuss the two first, since I see the Austrian as the position that has gone deepest into the study of knowledge. I will point out the shortcomings that I see with these three positions in relation to knowledge, but not necessarily offer a solution to it. The intention is to inspire further debate on the issue.

### 1. Knowledge according to the neoclassical school

The first dominant position, Neoclassical economic theory, is a *formal equilibrium theory*. Some might see it as a *functional theory*. Formal equilibrium theory is a logical set of propositions. These tell us what logically would be requirements for equilibrium, not what is actually happening in the economy. By functional theory we mean that it points at how some factors are correlated to other factors. However, neither in the formal equilibrium version nor as a functional theory is there a need for a theory of knowledge development. There is simply no knowledge development going on, as

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consumers and suppliers mechanically choose the market prices because no goods would be sold below that price of supplied below that price.

It is hardly controversial to say that the aspiration of the neoclassical school has do to with economics aiming at becoming a *science*, which in its original 18th century enlightenment form meant natural sciences. The ambition behind natural sciences' discoveries was the natural laws beyond the individual case. Thus, Adam Smith was inspired by *astrology* in this economic theory. Later, the Neoclassic theory was inspired by *physics*, with notions such as equilibrium. And post-war economics have been inspired by *mathematics*, building on propositions that do not need to have any relation to reality (Friedman, 1953; Solow, 1956). However, this is a big paradox; that economics as a science of society, and thus people, has aimed at ignoring human beings.

### Equilibrium assumption

One could of course argue that the intention of economics is not to say something about the reflections, feelings and thinking of individuals. These human aspects are left to psychology and others. Economics is simply a more limited approach to understanding society. As Robert Lucas argued in 1986:

“In general terms, we [economics] view or model an individual as a collection of decision rules (rules that dictate the action to be taken in a given situation) and a set of preferences used to evaluate the outcome arising from particular situation-action combinations.” (Lucas, 1986)

This does not mean that Neoclassical economics do not address issues related to knowledge development. For instance, it has been able to integrate concepts like expectation, uncertainty and risk in its models. However, there are clear limitations to this approach when it comes to knowledge as an important resource.

### The limits of the neoclassical approach to knowledge

In short I will summarise the limitations of the Neoclassical approach to knowledge as follows: knowledge is constant, it is exogenous, it is manly related to information, preferences or new technology, and the focus is on knowledge distribution (full information) as a condition for equilibrium. Neoclassical economics discuss uncertainty; there might be uncertainty in the market, and differences in knowledge can be discussed in terms of games.

It was argued by Kenneth Boulding in 1966 that “the Epistemological Question has received rather scant attention in the hands of economists” (Boulding, 1966). In fact, I would argue that seeing knowledge merely as information reduces the understanding both on what knowledge is and how it develops.

## 2. Knowledge according to the institutional school

The second dominant position is the Institutional school. There is a growing literature on the rise of the knowledge economy. One example is Powell and Snellman’s 2004 article *The knowledge economy*. This article is not about knowledge, but about *knowledge institutions*. Friz Marchlup had pioneered the field of studying knowledge institutions in the 1950’s and 1960’s (Marchlup, 1984). The theme was popularised by Daniel Bell in his 1973 book *The coming of the post-industrial society*. This literature explores the rise the knowledge economy and its institutional effects. This includes the increased importance of R&D, universities and other knowledge organisations. It also discuss the fact that knowledge has become a more important input in production, intellectual property rights becoming more apparent, and that there is an increased attention to issues on how to *organise* knowledge organisations.

### Non-equilibrium assumption

Parallel to this institutional literature, there was a development of evolutionary perspectives on economics. Nelson and Winter’s 1982 book, *An evolutionary theory of economic change*, is a key reference here. Both evolutionary economics and institutional theory have acknowledged the role of knowledge in social and economic development. Since learning is an inherent part of the market process, the organisation must constantly adapt to new realities. The ability to learn, or to learn how to learn, is important when one is facing changing environments. Both evolutionary economics and institutional theory have therefore inspired and been inspired by learning theory (Agyris, 1982) and this has led to a large literature that study the formation of capabilities as endogenous processes in the market (Teece and Pisano, 1994; Nonaka,1994).

It is interesting to observe a discussion that was initiated by the OECD in 1989 (OECD 1990) where economists, organisation and strategy researchers, sociologist, and institutional economists were invited to discuss what the OECD called the *productivity*

*paradox* of the 1980s. The paradox referred to the fact that although the western economies had seen large technological improvements over some decades, the productivity did not seem to follow that same development. These were indications of an economy that did not manage to achieve equilibrium.

Interesting enough, the whole group assembled by the OECD seemed to agree that there is something about organisations, institutions, and endogenous processes of growth that seem to be important. The idea of looking closer into the systemic processes of knowledge formation and the preconditions for development and learning came to the forefront of the agenda. In the same conference report, Assar Lindbek observes:

“The overwhelming impression [...] at the Conference is, in my judgment, the complexity and pluralistic nature of the processes of productivity change and technological development. Some years ago, a discussion was still going on about whether market system or centrally planned (“command”) economies would be more favourable for productivity growth, technological improvements and innovation. Only very few, if any, observers today deny that the market economy has turned out to be widely superior in this respect. However, it is then important to emphasize that “market system” comprise not only (and indeed not mainly) of atomistic markets, but also markets with different forms of “imperfect competition”, sometimes with strategic interaction and rivalry. We also know that traditional market relations in the real world have often developed into long term formal and informal bilateral contracts between firms not only via prices in “open markets” but also via co-operative arrangements between firms, including direct exchange of information.” (OECD, 1990).

The discussion in the late 1980’s parallels many of the discussions we have had after the financial crisis of 2008. However, in spite of this acknowledgement of institutional impacts on economic development, Hodgson, Itho and Yokokawa (2001), in my mind, rightly observe that within the economic discipline, the integration of an economic and an institutional perspective has never really happened. The two more or less still live in their separate discourses.

### **The limits to the institutional and evolutionary approach to knowledge**

In summarising the Institutional and evolutionary approach to knowledge, I argue that they see knowledge as endogenous to the economic process. There is learning in the market, and learning implies institutional development. This has implications for the theory of the firm. Firms can hold different capabilities and knowledge. These capabilities are the preconditions for learning and help differentiate firms. Firms can

develop competitive advantage through learning; thus, firms play a part in the development of new knowledge in the economy. However, pointing at these structural features of economic development is in my opinion not sufficient to explain the development of knowledge in society. This is because knowledge development is as much an epistemological issue, as it is embedded in social structures.

### 3. Knowledge according to the Austrian school

The third dominant position is the Austrian school. Austrians explicitly addressed the issue of knowledge in economics. I take as a point of departure the famous article by F. A. von Hayek from 1937, *Economics and knowledge*. In the article Hayek argued that formal equilibrium theory in economics had overlooked the problem related to knowledge. As he saw it the problem is this; how is it that people come to have the necessary knowledge that make equilibrium possible? In order for an economy to be in equilibrium, there has to be some sort of correspondence between the subjective data that actors hold. At the same time Hayek rules out the possibility that equilibrium will happen only if everybody knew everything. In fact, most people know only a little part of the whole, and nobody knows everything, so the equilibrium order has to be what Hayek later called a result of *human action* but not of *human design*.

#### The Austrian approach to equilibrium

Hayek argued that it is only to the extent that we are interested in what is going on in real life, that is, how the individual tries to achieve the necessary knowledge in order to make decisions, that the subject's arguments become relevant. However, Hayek and the rest of the Austrian economists were also interested in maintaining equilibrium as a key concept and process in economics.

Hayek calls the underlying assumption in standard formal analysis; *pure logic of choice*. By this he means that actors in the model are not reflecting on their choices, but rather make them *automatically* based on their preferences. Any two persons with the same preferences would make the same choice. Hayek's ambition is to go beyond this and say something about how equilibrium comes about in the *real-life situation*. What does it mean when we say that people in real life are in a state of equilibrium?

The first answer which would seem to follow from our approach is that equilibrium in this connection exists if the actions of all members of society over a period are all executions of their respective individual plans on which each decided at the beginning of the period. (Hayek, 1937, p. 51)

This definition of equilibrium indicates that individuals over a period of time have to be able to realise their expectations. This again means that equilibrium is dependent on the possibility for everybody to have their expectations realised, that their expectations have to be coordinated or based on some sort of common external factors. But:

...since some of the data on which any one person will base his plans on will be the expectation that other people will act in a particular way, it is essential for the compatibility of the different plans that the plans of the one contain exactly those actions which form the data for the plans of the other. (Hayek, 1937, p. 38)

How can an individual gain insight into the plans and expectations of others? The answer, of course, is that they can't. There has to be some sort of medium by which the expectations and plans of individuals are transformed into information to others. The question then is: how is this process operating?

F.A. Hayek returned to this issue in the 1945 article *The Use of Knowledge in Society*. In the article he demonstrated how society is dependent on a variety and diversity of knowledge. In fact, the distribution of individual knowledge is the cornerstone of knowledge in society. This is a strong argument for a liberal society based on what he called *natural order*. Natural order is a result of human action but not human design. Without order, there would be no society. Society exists because of and to the extent that there is order. Order is a consequence of the fact that people prosper from cooperation with others. The more general and impersonal this order is the more people will be able to prosper.

Tacit knowledge such as norms and learned rules that emerge through evolution has the potential to bring prosperity in society. Individuals learn to practise rules and appreciate order before they are able to explain in full detail how they were formed and how they operate. Only later, when we have experienced the advantage of this order, do we start to explain why. Natural order is therefore for Hayek a key to knowledge development.

The efficiency of the natural order is explained by the fact that it contains complex information: that is, more complex information than any single individual could ever control.

...by relying on the spontaneously ordering forces, we can extend the scope or range of the order which we may induce to form, precisely because its particular manifestation will depend on many more circumstances than can be known to us, and in case of social order, such an order will utilize the separate knowledge of all its several members, without this knowledge ever being concentrated in a single mind, or

being subject to those processes of deliberate coordination and adaption which a mind performs. (Hayek, 1979, vol. 1; 1973, p. 41)

Hayek's argument has been called a rule-utilitarian argument. It has as a principle that utility is measured, not by the end result of individual action, but by the potential of actualising individual knowledge. It is the *open-endedness* and general nature of the natural order that bears this potential. In summarising Hayek's theory of knowledge, Desai writes:

[...] (1) equilibrium involves compatibility of individual plans ex ante and the congruence (correspondence) of subjective expectations with objective data; (2) there is a causal connection between experience and knowledge and this is the avenue through which congruence helps to make compatibility possible; (3) Knowledge is fragmented among individuals; the content of this specialized partial knowledge is not only prices but also some incomplete knowledge about the alternative use of resources (the opportunity set) owned by the individual concerned; (4) local knowledge may lead to equilibrium but such an equilibrium need not be optimal; (5) one sufficient condition (among others unspecified) for attaining optimality is connectedness of fragments of knowledge; connectedness requires that over all the individuals there is complete knowledge of, say, the opportunity set, though non possesses it individually. (Desai, 1994, p. 42)

Israel Kirzner has referred to this discussion on the *division of knowledge* and how to utilise different types of knowledge at different levels in society as *knowledge problem A* (Kirzner, 1992, p. 169). The central aspect of knowledge problem A is *coordination* of knowledge. But there is also a *knowledge problem B*. Knowledge problem B is related to developing new knowledge, inventing new ideas or building new theories.

In Kirzner's model, there are two processes: one external process of technological and social change that constantly disturbs the market equilibrium, and one internal process of entrepreneurial activity that constantly helps to restore equilibrium. The reason why entrepreneurial activity leads to market equilibrium is that each disequilibrium situation contains the possibility of entrepreneurial profit, since disequilibrium is defined as a gap between the prices of supply and demand. This gap has a profit potential that the entrepreneur will try to fill, and in that way, he helps to restore equilibrium.

But although the entrepreneurial activity is a constant corrective to market disturbance, there are a number of qualifications to this market process. The main one is that entrepreneurs may be wrong; they may make mistakes and in that way increase disequilibrium. To this challenge, Kirzner remarks:



If we maintain, nonetheless, that the market process can fairly be described, in general terms, as equilibrating, this is because of a conviction that in the face of initial ignorance there is a systematic tendency for genuine discoveries, rather than spurious ones, to be made. (Kirzner, 1992, p. 45)

The Hayekian answer to this coordination problem (knowledge problem A) is that people relate their actions to common norms (Kirzner, 1992, p. 173). The constitution of society with its general structures and norms is a common point of reference for the social process. In Kirzner's words, that is:

For us the existence of systematic market forces means the existence of a spontaneous process of learning. (Kirzner, 1992, p. 201)

What are the driving forces behind the learning process in the market? According to Kirzner:

...they are driven by alertness of individual's intent on achieving their purposes. (Kirzner, 1992, p. 204)

Alertness and purpose drive individuals to explore possibilities and learn from mistakes or try new alternatives. Purpose means that one constantly looks for something, that is, looks in a specific direction.

### The limits to the Austrian approach to knowledge

There are also limits to the Austrian approach to knowledge. Austrian economics start with the assumption that knowledge is subjective, in the minds of actors. Actors make choices based on knowledge. Equilibrium requires that everybody knows everybody else's plans, which is impossible. Actors learn through an *intersubjective understanding*. There is therefore an *epistemological dimension* to the knowledge issue. There is also an evolutionary dimension to it, that is; of forming the natural, emergent order, which implies an inherent critique of *rationalism*.

In my opinion Hayek did not define knowledge and knowledge development in a sufficiently comprehensive way. In fact, there are many references in his work, and even more in other Austrian economists like Fritz Machlup, claiming that knowledge is the same as information (Machlup, 1984). If knowledge is information, one can objectify it, store it, and treat it by information technology. It meets the ambitions of economics as a natural science. However, if knowledge is not *information* but *interpretation*, as Lachmann argues, the case for implementing knowledge into economic theory is different (Lachmann, 1943).

If we look to Kirzner, purpose and alertness are sufficient elements to explain how the spontaneous coordination of the market process emerges (knowledge problem A). Knowledge problem B is related to genuine creation and discoveries. This indicates that there are two separate learning processes related to the market process. In Kirzner's words, the problem can be formulated like this:

To be sure, the spontaneous emergence of any institution indeed relies on the very same process through which Knowledge Problem A is solved in markets. (...) On the other hand, however, it has been our aim to point out (...) that these earlier economic insights into the spontaneously co-operative properties of markets do not, in themselves, provide any reassurance concerning the benign quality of the long run tendencies of institutional development. (...) The explanation for such benign tendencies, if indeed they exist, must be sought elsewhere. (Kirzner, 1992, p. 179)

So, I will argue that there are severe limitations to how extensive we can investigate the social processes of learning and knowledge development within the equilibrium scheme. This is both because equilibrium does not say anything about the kind of knowledge that is developed, and because equilibrium, if it happens, is the structural end product of a process, not the process itself.

#### 4. Subjectivity knowledge and economic theory?

I will now further discuss what *subjectivity knowledge* is and what it would require to integrate it into economic theory. Among the three approaches I have presented, I think that the Austrian position is the most promising, because it draws attention to the complex *subjective* and *social nature of knowledge*. However, I believe that Hayek and his followers have not pushed this line of reasoning far enough. Therefore I argue that knowledge should be studied by drawing on a broader set of empirical material as well as methodological and philosophical approaches.

It was a clearly stated ambition among Austrian economists to retain a perspective on the individual as a subject in their economic reasoning. Austrians were inspired by philosophical discussion of their time, including *phenomenology*. Alfred Schütz (1899 – 1959) had in his 1932 book, later translated into English as *The phenomenology of the social world* (Schütz, 1967) made similar arguments as Hayek did later regarding how social equilibrium (or social order) comes about. Ludwig Lachmann wrote in 1943:

"The Social World consists not of facts but of our interpretation of the facts. Nothing will be achieved in way of an inductive study of expectations until people's expectational responses to the facts of a situation

are made *intelligible* to us. Until we are able to understand *why* the acting and expecting individual interpret a set of facts in the way they actually did. From this point of view we need not deplore unduly the indeterminateness of expectations, for it is intelligibility and not *determinateness* that social science should strive at." (Lachmann, 1943)

Although Hayek and Kirzner indicate that this problem of social order has to do with learning, which is beyond formal equilibrium analysis, they were still eager to maintain the reference to equilibrium. This led to a paradox that has been pointed out by among others Kenneth Arrow, K. J. (1994). He wrote about Hayek that:

"His motives was to rebut the possibility for centrally planned society, one in which the relevant knowledge is concentrated in one place. But in the course of his argument, he has put obstacles in the way of a better understanding of the generation of knowledge." (Arrow, 1994)

In the book *Personal Knowledge: Towards a post-critical philosophy* from 1958 Michael Polanyi makes the argument, that sound, practical knowledge should be better acknowledged and also made into a basis for theoretical reasoning. In fact, his book has inspired later work on knowledge and learning in the economy (Ancori, Bureth and Cohendet, 2000). Polanyi also developed an argument that is critical of positivism in science, and argues that individual reflection forms the basis of knowledge (Polanyi, 1958; Polanyi and Prosch, 1975). He argued that while some knowledge is personal and tacit, all knowledge contains an element of judgement:

...I shall not try to repudiate strict objectivity as an ideal without offering a substitute, which I believe to be more worthy of intelligent allegiance; this I have called 'personal knowledge'. (p. 18) Even the most strictly mechanised procedures leave something to personal skills in the exercise of which an individual bias may enter. (p. 19) (Polanyi and Prosch, 1975)

The question that this raises is; *how* this conception of knowledge as personal interpretation and judgement is brought into economic reasoning? An answer to this question would entail that the economic study of knowledge is also concerned with general development tendencies and formation of opinions in society.

### **Social knowledge beyond information and facts**

I will now try to go beyond the discussion of knowledge as information and facts. In summarising I have so far argued that Neoclassical economic theory mainly treats knowledge as facts or information, or as inputs in technology (Ruccio and Amariglio, 2003). Furthermore, Institutional and evolutionary theory mainly looked at the structural dimensions of learning, while the Austrian school addressed the subjectivity of

knowledge. However, the Austrian school has not been able to utilise this insight in economics. Generally I argue that none of these approaches are really addressing knowledge in a sufficiently comprehensive way. They are addressing facts, intuition, technology and structure, but not the *subjective* and *social* dimension of knowledge.

What then is knowledge? My approach to this question is that knowledge has to be distinguished from beliefs and fantasies on the one hand, and facts and information on the other. Knowledge is about how we understand and comprehend things. Knowledge is not the same as information or truth, nor is it ideology (Fuller, 2002). Just believing something or having an opinion, does not make it knowledge. Knowledge is *validated and justified truth claims*. Thus, knowledge is subjective but also has a social dimension to it, because the validation is a social process.

In this regard it is, however, important to note that the social validation of knowledge can be wrong. In fact, many of the things we regard as knowledge today, are probably untrue or wrong. Knowledge is, as Jürgen Habermas has pointed out, strongly integrated with *communicative structures* and *human interests*, although some knowledge aims at transcending that (Habermas, 1968). Therefore, knowledge has to be contested. For instance, it might be contested by individuals who have come to a new understanding of things. New experiences could lead to one objecting to the established knowledge. Furthermore, social events that make people realise that what they believed to be knowledge was not as valid as they thought, can inspire knowledge development. Some knowledge aspires to be universal while other knowledge aspires to give meaning in a local context. Society consists of both kinds. Thus, knowledge develops in complex, discursive processes embedded in social and historical structures.

This also means that knowledge in a society can develop in what we would regard as a wrong direction. The *epistemological problem* relates to how we come to new and better understandings of things through reflection and reasoning, and thus to better knowledge. As I see it, the core challenge in a knowledge society and a knowledge economy relates to the process of developing new knowledge that is good for society. It is the quality of this process that defines the goodness of knowledge and thereby the wealth of society.

## Conclusion: Economics and the epistemological challenge

In conclusion, the question I have tried to address here is how a more developed concept of knowledge and knowledge development can be integrated into economic theory. I have shed light on this issue by pointing at the conceptions of knowledge that we find in contemporary economic theory, and why I see them as insufficient. I present this as a problem; *can economics address knowledge as a more comprehensive, epistemological problem?* While I am not able to offer an answer in the sense of what an economic theory like this would look like, my main aim is to inspire some constructive discussions that could potentially lead to development in this field.

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