

Economics, Knowledge, and Ignorance: The case of F.A. Hayek and T.W. Hutchison.

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ABSTRACT. In the controversial methodological disputes of the 1930s, F.A. Hayek and T.W. Hutchison were on opposite sides. Hutchison is well-known for being the first economist to introduce, in some broadly and loosely sense, the influences of logical positivism, the Popperian falsificationism and a testability criterion into economics. Hutchison was mainly reacting in opposition to the aprioristic deductivism of Ludwig von Mises and, in Hutchison's view, Lionel Robbins and F.A. Hayek - Hutchison associated the tautological apodictic method as essentially empirically empty, anti-fallible and utopian. Though the severe critics to Hayek in the 1930s, in Hutchison's mature methodological writings a remarkable convergence is noticed with Hayek's methodology of complex phenomena and his emphasis in the limitations of explanation, prediction and control in social and economic sciences. I explore the connections, similarities, and differences in Hayek mature methodology and Hutchison's later view of a more humble scope of economics than he advocated. I argue that Hayek and Hutchison have in common an appreciation for the epistemic dimension of fallible knowledge, ignorance, and uncertainty - although each one internalizes this notion differently in respective to their singular and particular methodological position.

Key-words: F.A. Hayek, T.W. Hutchison, knowledge, ignorance, methodology, empiricism, inductivism, falsificationism, explanation of principle, pattern prevision.

JEL: B25, B31, B41, B53.

RESUMO. Nas controvérsias metodológicas dos anos 1930, F.A. Hayek e T.W. Hutchison estavam de lados opostos. Hutchison é notório por ter sido o primeiro economista a introduzir de forma consistente as influências do positivismo lógico, do falsificacionismo Popperiano e um critério de testabilidade na teoria econômica. Hutchison estava reagindo especialmente em oposição ao apriorismo dedutivo de Ludwig von Mises e, na visão de Hutchison, de seus adeptos Lionel Robbins e F.A. Hayek. Hutchison associava o caráter tautológico e apodítico como empiricamente vazio, anti-falível e utópico. Apesar das severas críticas a Hayek nos anos 1930, nos escritos metodológicos maduros de Hutchison é notável uma convergência de posições com a metodologia de fenômenos complexos de Hayek. É explorado as conexões, similaridades e diferenças entre a posição metodológica madura de Hayek e a visão posterior mais humilde de Hutchison em relação ao escopo da teoria econômica. É argumentado que Hayek e Hutchison tem em comum uma apreciação pela dimensão epistêmica do conhecimento falível, ignorância e incerteza – apesar de cada um internalizar essas noções de forma distinta em suas respectivas posições metodológicas.

Palavras-chave: F.A. Hayek, T.W. Hutchison, conhecimento, ignorância, empirismo, indutivismo, falsificacionismo.

JEL: B25, B31, B41, B53.

1. Introduction.

In his authoritative intellectual biography of F.A. Hayek, Bruce Caldwell (2004) describes in several passages the surprising contact points along various themes between Hayek and Terence W. Hutchison (e.g., Caldwell, 2004, p. 202-4, 230). Special convergence of positions is noticed in relation to the mature methodological positions of Hayek and Hutchison regarding the limitation of explanation, prediction and social control of the social sciences in general, and of economic science in particular. Caldwell (2004, p. 230, f.n. 16) writes:

“Hayek would disagree, I think, with the claim that forecasting was a chief aim of economics, although he would certainly acknowledge it as an important goal. As for the rest of what Hutchison wrote, Hayek himself could have written it. Although their paths to them were different, the conclusions reached by Hayek and Hutchison ended up being remarkably similar. The similarity may account for what Hutchison was so eager to try to convince Austrians (perhaps even Hayek himself) that Popper, rather than Mises, was the right person to follow regarding methodology.”

Hutchison seems *prima facie* to have a complex and idiosyncratic intellectual relationship with Hayek. A notorious example is Hutchison's (1981, 1992a, 2009) position that interprets Hayek's crucial paper, “Economics and Knowledge” (1937), as a methodological “U-turn” between the so-called Hayek I (Misesian-Wieserian) and Hayek II (Popperian falsificationist). Hutchison's consequent debate with Caldwell (1992a, 1992b, 2006, 2009) on the nature of U-turn and Popper's influences on Hayek evidenced Hutchison's interpretation as extremely fragile. Hayek himself in letters to Hutchison and Caldwell (reprinted in Caldwell, 2009, p. 323-4) emphasizes that he never accepted the Misesian apriorism either pre or post 1936, the year that he would come to know Popper's work. Hayek also denies any influence of Popper in his decisive essay “Economics and Knowledge,” mentioning that his “definite hypothetico-deductive view” was already present in “Collectivist Economic Planning” (1935a), where Hayek addresses the difference of the empirical element between social sciences and natural sciences (contrary to falsificationist methodological monism, therefore).

For Hutchison (2009, p. 307-8; see 1938, p. 131-7, 155), “in 1935 he [Hayek] was still pretentiously claiming that thanks to introspection, the social sciences could claim firmer foundations than the natural sciences, an idea he probably owed to Wieser.” Hayek's passage that Hutchison refers to does not seem to corroborate with his thesis that Hayek defends an infallible apriorism. Hayek understands that the essential difference of the empirical element “is that in the natural sciences the process of deduction has to start from some hypothesis which is the result of inductive generalizations, while in the social sciences it starts directly from known empirical elements and uses them to find the regularities in the complex phenomena which direct observations cannot establish” (Hayek, [1935b] 1948, p. 126-7). Hayek points out that there is more evidence of his pre-Popper thinking contained in his inaugural lecture at LSE, “The Trend of Economic Thinking” (1933) (May 15, 1983, Hayek to Hutchison, reprinted in Caldwell, 2009, p. 323-4). Hayek later in his mature methodological position sophisticates his approach by abandoning the dichotomy of social sciences and natural sciences for one of a continuous spectrum of phenomena of lesser and greater complexity degree, yet preserving the particular and limited character of explanation and prediction of the so-called complex phenomena - mostly social and biological phenomena (Hayek, [1955] 1967, [1964b] 1967).

Ironically, for Hutchison (2009, p. 307-8) these two references mentioned by Hayek (i.e., Hayek, 1933; 1935a, p. 126-7) would be the major evidence of Hayek's adherence to Misesian apriorism and exposes the dogmatic and infallible notion of knowledge of the so-called Hayek I. Where Hayek sees evidence of his pre-1937 thinking that dialogued with Popper - and therefore were not introduced by his contact with Popper ([1935] 1959) - dismantling Hutchison's thesis between Hayek I and Hayek II, Hutchison sees these as the supposed greater evidences of the apriorism and anti-fallibilism of Hayek's thought pre-1937. In what Hayek understands as his hypothetico-deductive view before the contact with Popper and then invalidating the U-turn in 1937, Hutchison understands a dogmatic apodictic apriorism derived from Mises and Wieser and then shifted to a fallible character with the introduction of the empirical element in economic theory, validating the U-turn. Hayek ([1942-4] 2010, p. 99-107; [1943] 1948, p. 59) in his 1940s methodological writings developed the nature of empirical element distinction between the social and natural sciences, the former dealing with essentially subjective fact and elements. At the same time as he deepens this distinction, Hayek ([1942-4] 1952, p. 49-50) puts as a founding element of the analysis and investigation of the social sciences' object the fallible character of an intrinsically subjective, dispersed and incomplete knowledge.

Hutchison's thinking is much more diverse and heterogeneous than the complete passive acceptance of Popperian falsificationism, approaching much more of a British skeptical inductive-empiricist tradition. Hutchison's intellectual pluralism obscures and confuses his interpretation at first. Hutchison, for example, has a complete and deep aversion to the hypothetico-deductive or deductive mode of theorizing, even in Popper's work - associating this with the necessarily anti-inductive nature of knowledge and therefore to the anti-fallible or meaningful character of economics and social sciences. Hutchison identifies in Hayek's (1935a) proto-vision of a "definite hypothetico-deductive view" such a symptom *pari passu* with the Misesian-Wieserian apriorism (Hart, 2002, p. 366-8; Hutchison, 1992b, p. 57, 192). What Hutchison ignores in the context of his interpretation about Hayek is that Popper also shares the hypothetico-deductive method, being logically incompatible with Hutchison's thesis *stricto sensu* of Hayek's U-turn - there is a confusion of feelings and impressions in Hutchison's argument who naturally associates the fallibility of knowledge with inductivist testability (Hart, 2002, p. 368). Hayek's extensive methodological writings in *Digitate a equação aqui*.the 1940s deepening some of his particular methodological notions that Hutchison thinks that is elements of Haye's apriorism also invalidate Hutchison's supposed U-turn (if so, would it be a U-turn of U-turn?). In other words, Hutchison's reconstruction and central thesis seem to have been misguided in all-encompassing ways. How could Hutchison be so mistaken about Hayek's methodological position?

The primacy of empiricism and falsificationism in Hutchinson's thinking is tied to the falsifiable propositions of empirical testing and validation as the best (and perhaps the only) way to internalize the fallibility of human knowledge. If a scientific theory does not prohibit any event, then there is no empirical content, so it is not fallible and has little or none practical applicability, and if it is not fallible, it can only be dogmatic. For Hutchison, the relationship between falseability and empirical content is *the* central message of Popper, and understood in these terms that his thesis on Hayek's U-turn must be appreciated (Hutchison, 1937b, p. 651, f.n. 1; 1988; Hart, 2002, p. 366). Hutchison associated Hayek's (1937) epistemic postulation of fallible knowledge that gives rise to the problem of knowledge that will permeate his entire research project as necessarily a Popperian pro-falsificationist turn, i.e., Hutchison understands fallibilism as necessarily embedded in the empiricist-falsificationist character and in the search for greater empirical falsifying content. Elsewhere I argued that the role of the epistemic notion of fallible knowledge in Hayek's research program is fundamental to understand and appreciate his core message about social and economic sciences - and that a better way to understand the Hayek-Popper relation is to take as central that they shared such epistemic view of fallible knowledge (Telles, 2018). In this paper, I will argue that F.A. Hayek and T.W. Hutchison essentially shares the same central conception of the scientific importance of the epistemic position of fallible knowledge and in consequence both end with similar mature methodological positions that emphasize the limitation of such knowledge in the ambit of explanation, prevision, and control in social-economic phenomena. However, the fallibilism notion is interpreted by Hutchison essentially as inseparable from the inductive falsifying empirical confrontation - something that is not shared by Hayek in his methodological writings about complex phenomena.

Although Hayek and Hutchison ends with similar conclusions of knowledge limitation and the leading role of ignorance in economic science, both explore different trajectories and theoretical justifications for their mature methodological positions. Hayek's trajectory comes from the epistemic postulation of fallible knowledge in "Economics and Knowledge" (1937), which will mark the core of his research program based in the coordination problem and his particular development in the methodology of complex phenomena. Hutchison's trajectory, however, is marked by an aversion to apodictic aprioristic knowledge and deductive method, which he regarded as dogmatic, theoretical limiter and anti-fallible by definition, placing at the center of his methodological concerns the inductivist-empiricist emphasis - understood by Hutchison almost as synonymous of the fallibility of knowledge. For Hutchison, empiricism and inductivism in the dynamics of Popperian falsificationism seems to be a natural destiny and main embodiment of the knowledge fallibilism in economic science.

2. Hayek on knowledge, methodology, and ignorance in economics.

2.1. The epistemic notion of fallible knowledge, equilibrium, and the coordination problem.

The epistemic conception of fallible knowledge is central in Hayek's extensive and wide intellectual research program, it is the introduction of the notion of subjective, tacit, and dispersed knowledge (i.e., fallible) by Hayek ([1937] 1948, p. 36, 50; [1945] 1948, p. 77-9, 83) in the analysis of the concept of neoclassical equilibrium that allows the emergence and intelligibility of the so-called knowledge problem. The knowledge problem reports to

which are the best institutional mechanisms that best create, transmit and store relevant knowledge for the coordination of inter-individual plans. It is in the mechanisms of creation, gain and transmission of knowledge that there is the introduction of the empirical domain of economic theory, that is, “the empirical element in economic theory — the only part which is concerned, not merely with implications but with causes and effects, and which leads therefore to conclusions which, at any rate in principle, are capable of verification — consists of propositions about the acquisition of knowledge” (Hayek, [1937] 1948, p. 33). The problem arises insofar as Hayek perceives an illegitimate logical transposition of the neoclassical equilibrium theory between individual tautological equilibrium and societal equilibrium.

An individual is said to be in equilibrium when his action plan is logically ordered in a relation of means and ends, that is when the actions of the agent are consistent with each other and form part of a mean of the same desired end. As the knowledge of reality by the individual is not available in a given and objective way (i.e., knowledge is subjective), in equilibrium the individual action plan will be coordinated internally insofar as the mutual consistency of his actions. If the equilibrium action plan recommended by the agent is not compatible with the external reality, the actions cannot be carried out and the equilibrium is then undone - but until the operational checking with the external reality the individual equilibrium can be defined tautologically *a priori* to such an extent as mutual consistency of actions is subjectively interpreted (Hayek, [1937] 1948, p. 36).

In the case of inter-individual or societal equilibrium, the equilibrium by analogy in the individual case can also be defined as being the consistency between the various individual action plans. Hayek identifies two problems in the transition from individual to societal equilibrium, the first problem is that (i) different agents will have different subjective expectations of the external world, so different agents will have conflicting expectations regarding the external world. Thus, the second problem is exposed, (ii) there must be a compatibility of different expectancy interpretations of individuals to have coherent action plans between themselves and must be a coordination about the set of plans with the objective external reality - this because each individual agent interprets the subjective expectation of the other agents in relation to the world as being itself the objective knowledge of the external world. The inter-individual equilibrium needs inter-plan coordination (coordination of subjective expectations divergent from agents) and a coordination of cohesive plans with each other with objective external reality to carry out the planned actions successfully (Hayek, [1937] 1948, p. 38).

The neoclassical theory of general equilibrium defines collective equilibrium as nothing more than the horizontal sum of all individual equilibria, there is an unjustified extrapolation of the qualitative conditions that define individual equilibrium for the analysis of collective equilibrium. For Hayek, the crucial hypothesis that underlies this definition of general equilibrium is that of perfect objective knowledge given to all agents. With perfect knowledge of the subjective expectations of other agents and external reality, the notion of equilibrium as the compatibility of plans and their problems are solved *ex hypothesi* - the characteristic aspects of the individual tautological equilibrium return. The notion of equilibrium can then be understood as where there is perfect foresight (or knowledge) of the subjective expectations of other agents and of external reality - introducing the empirical element of tendency or not to the equilibrium that is capable in principle of verification or falsification.

The concept of neoclassical equilibrium has by implicit definition the elimination *ex ante* of the two levels of coordination problems of the inter-individual plans, assuming as hypothesis the own definition of the resolution of the “real problem of the philosophical approach to the social sciences” (Hayek, 1983, p. 423) - i.e., if and how ignorant and fallible agents end up via institutional mechanisms of discovery, communication, and storage of knowledge having the correspondence of their subjective expectations with the objective facts of the external world (i.e., tendency or not to equilibrium). Hutchison (1937a; 1937b; 2009, p. 307-8) accuses Hayek (1933, 1935a) of the same *petitio principii* that Hayek now denounces as being of the internal logic of neoclassical equilibrium. In Hutchison’s view, “[r]egarding the investment decisions of private entrepreneurs, he [Hayek] straight away, like Mises, assumed what he had to prove, namely that private decision makers were perfectly informed. [...] Hayek was simply following Mises in tacitly postulating the relevance of the fundamental assumption of perfect knowledge that he later described as ‘customary’ and which has, quite recently, been described as ‘standard’.”

The departure of the sphere of pure logic of choice and its tautological variations of individual equilibrium lead to the introduction of the empirical element from the different and comparative institutional frameworks of learning of ignorant agents for the plans coordination in a societal equilibrium. The generic character of the category *a priori* is necessarily modified by supplementary hypotheses of greater specificity of the particular

conditions of time and place in relation to the contextual needs of relevant knowledge to each situation under analysis. The division of knowledge into society further deepens the idiosyncratic relevant knowledge notion for each type of situation in a certain condition of time and space context.

Hayek warns, however, that from the transformation of the tautologies in which consist the propositions of individual equilibrium in structures of the causal conditions and processes of learning does not necessarily follow that a turn to an empiricist research program must be conducted - as Hutchison (1938) will later defend. Hutchison (2009, p. 307-8) interprets this status qualitative transformation of the empirical element in equilibrium theory as being *the* transformation or U-turn of Hayek in 1937, Hayek would henceforth abandon his Misesian-Wieserian apriorism to a fallible understanding of knowledge, leading to his natural consequence of empiricist emphasis. Contrary to Hutchison's view, however, Hayek ([1937] 1948, p. 55) is skeptical of the possibilities of a "wide field for empirical research" to advance in the discovery of new knowledge no longer widespread, seeing with limitations the space of the empirical agenda in economic theory - the most important would be if in principle the argument of tendency or not to equilibrium could be able of verification when reporting to the real world conditions. Hayek finds insurmountable difficulties in pursuing the problem of knowledge both in aprioristic rationalistic analysis and as well as he is skeptical and pessimistic of the capacities of discovering new knowledge through empiricist and inductivist sensitive experience. The learning mechanism of agents and theory is not the result of absolute and immutable methods of analysis, but it is fallible and contingent - serving immediate purposes in certain particular situations and even so not suiting others, knowledge is often tacit, contradictory and essentially limited (Hayek, [1945] 1948, p. 77-9; Andrade, 2004, p. 130).

Hutchison seems to understand the introduction of the status of the verifiable empirical element or falsification as Hayek's own understanding of fallible knowledge, the epistemic conception of fallible knowledge and the aversion to the perfect knowledge hypothesis is intrinsically associated by Hutchison with the potential and progressive capacity of the theory in regard to an increase of the empirical falsifier element. *Au contraire* of Hutchison, I understand that Hayek's epistemic postulation of fallible knowledge is not *essentially* and *only* in the possibilities of an empirical nature in which the investigation of the problem of knowledge results, but in the earlier conception of knowledge itself as being subjective, tacit, and dispersed that makes the problem of knowledge to be intelligible in the first place. The fallible aspect in which the empirical experience can demonstrate of tendency or not to equilibrium is the result of the own fallibility of the economic agents in the process of (*dis*)coordination of plans.

2.2. The road to methodology and the constitution of ignorance in economic science.

Hayek ([1945] 1948, p. 91) attributes the impossibility of his neoclassical audience in the economic calculation debate of recognizing the nature of the problem of knowledge as being methodological in nature, the real economic problem - "the unavoidable imperfection of man's knowledge and the consequent need for a process by which knowledge is constantly communicated and acquired" - was suppressed and hidden *ex hypothesi* and relegated to indifference. The methodological failure of the profession in relation to the centrality of the perfect knowledge hypothesis in the obscure concept of neoclassical equilibrium led Hayek to engage in the Abuse of Reason Project, a historical-methodological project of reconstructing the roots of methodological *hybris* that dominated the profession and prevented its peers from seeing beyond the formal propositions of maximization, and that at the political level also entailing nefarious social consequences (e.g., Hayek, [1952] 1979, p. 10-1; 1983, p. 132-3, 227-9, 276-80; 2010). The *hybris* is the progressive abuse of reason, understood as the constructor, modeler and architect itself of the main institutions of civilization.

In what would be the first planned part of the project, Hayek ([1946] 1948) makes a substantial distinction between two types of so-called individualist intellectual traditions in the course of Enlightenment, the true individualism inherited of the Scottish Enlightenment, and the false individualism inherited from the French and Continental Enlightenment. The primary difference among them is between an intellectual tradition and a primary view that in general levels of analysis emphasize as "rather low the place which reason plays in human affairs, which contends that man has achieved what he has in spite of the fact that he is only partly guided by reason, and that his individual reason is very limited and imperfect, and a view which assumes that Reason, with a capital R, is always fully and equally available to all humans and that everything which man achieves is the direct result of, and therefore subject to, the control of individual reason." (Hayek, [1946] 1948, p. 8)

The singular edifying role of Reason given by false individualism helped in the philosophical defense of unrealistic assumptions that assumed the necessary relevant knowledge as simply given to agents, as in the case of perfect knowledge in equilibrium theory. The Cartesian rationalism of false individualism prevented the appreciation of coordination processes created by human action but not by *total* rational human design. The true individualism is humble because it internalizes the uncertainty, fallibility, and limitation of human knowledge, being able to recognize that many of the defining institutions of society are not the result of a single individual mind or a group of individuals (Hayek, [1946] 1948, p. 8-9, 12-3; 2013). Hayek claims to be an heir of true individualism, and indeed his fundamental epistemological conception of fallible knowledge in the equilibrium analysis that gives rise to the problem of knowledge can be understood first and foremost as a philosophical and epistemic divergence between the traditions of true individualism and false individualism (see also Hayek, [1964a] 1967).

Hutchison (2009, p. 313, f.n. 28; 1996, 1997, p. 206) comments that “Individualism: True and False” ([1946] 1948) “has long been unduly neglected,” and seems to agree with the philosophical difference between the two types of individualism that Hayek traces. Hutchison, however, puts more emphasis on the British inductivist and empiricist tradition in general as essentially fallible and not only in the intellectual tradition that refers to the Scottish Enlightenment as Hayek (cf. Hayek, [1941] 1952, p. 360, f.n. 94; Hutchison, 1953). For Hutchison, “Hayek almost turns a vital philosophical or ideological distinction into a national issue between British inductivist, fallibilist doctrines, and French rationalist deductivism. ‘True’ individualism lies with the British tradition, with its more gradualist, tolerant politics. The French tradition leads to a much stronger confidence in the role of government. Not that the British tradition has remained untainted by over-confident rationalist notions. As Hayek observed, in the nineteenth century, some of the English classicals, perhaps even J.S. Mill, became dangerously infected.”

We can see the difference in the understanding of the fallibilism valorization genealogy between Hayek and Hutchison, Hayek understands the fallibilism of true individualism as contained in the humble posture of the Scottish Enlightenment tradition that is able to internalize and appreciate the limited role of reason as an architect and builder of the institutions of the modern Great Society - fallibilism results to a great extent (but not only) in the appreciation and cultivation of the emergent spontaneous order (Hayek, [1946] 1948, p. 32). For Hutchison, fallibilism is substantially part of the British skeptical tradition of inductivism and empiricism, fallibilism is born insofar there is a confrontation of knowledge with the empirical reality - anti-fallibilism is by definition trapped in the trenches of aprioristic deductive rationalism.

In what would be the second part of the Abuse of Reason Project, Hayek ([1941] 1952, [1942-4] 1952, [1951] 1952) systematically deepens his hitherto not fully articulated methodological position. The main enemy that Hayek wants to fight is scientism, defined as the illegitimate transposition of methods and ways of scientific investigation from the natural sciences into the social sciences without the previous consideration of the object of study (Hayek, [1942-44] 1952, p. 24). The main philosophical movements embedded in the scientism that Hayek identifies are historicism, collectivism, and physicalism. It is clear the analogy with the illegitimate transposition of individual equilibrium to societal equilibrium, scientism is part of the meta-theoretical justification that validated and convened the *non-sequitur* in the equilibrium theory. Like the tradition of false-individualism, Reason, with capital R, and its abuse give life to Science, with capital “S” - the overwhelming merit and success of Science was the reclassification of the mental categories and their connections that until then were dominated by subjective sensory perceptions, the natural sciences and their objective scope have reshaped our perception of the world on the basis of the objective character of its object and its relations. Indeed, “[t]he whole history of modern Science proves to be a process of progressive emancipation from our innate classification of the external stimuli till in the end they completely disappear” (Hayek, [1942-44] 1952, p. 33).

The scope of the social sciences are the subjective structures of man and his relations, which are intelligible only because we shared the same mental classifier apparatus of stimuli and sensations - and its objective is the explanation of the unintentional consequences of the actions of individuals. The imperfection of the human mental structure and its ability to observe the subjective mental facts is limited, leading to the inability to explain and predict in specific and in detail the changes in the phenomena analyzed. More importantly, there is an intrinsic limitation of the brain classificatory apparatus which is itself. A structure of decoding, classification and interpretation can only explain in detail less complex phenomena - so the classification system cannot fully explain in detail its own functioning. It follows from this premise that the brain structure of classifications will

also not be able to fully explain (only in principle) any kind of social phenomenon of greater complexity than our own brain apparatus (Hayek, [1942-44] 1952, p. 86; see Hayek, 1952; 1983, p. 152, 255-6).

Hayek reaches his full methodological stature in the second half of the 1950s. Hayek ([1955] 1967, [1964b] 1967; [1974] 1978, p. 31-2) continues with his notion that the hypothetico-deductive method is the only way of thinking science by accepting the Popperian notion that the falsifiability demarcation criterion between science and non-science is in principle valid and that scientific predictions are mostly of prohibitive nature. Hayek also abandons the qualitative distinction between natural sciences and social sciences starting from his object of study being objective or subjective and begins to think in complexity degrees of the phenomena. Hayek defines the phenomenon complexity or explanatory pattern as being “[t]he minimum number of elements of which an instance of the pattern must consist in order to exhibit all the characteristic attributes of the class of patterns in question” (Hayek, [1964b] 1967, p. 25). In this way, higher complexity phenomena are usually associated with social or biological phenomena with multiple minimum qualitative variables that characterize the phenomenon itself (e.g., variables of an economic system) and phenomena of a lower complexity degree are usually associated with natural and physical phenomena having few fundamental dependent variables that determine the qualitative characteristic of phenomena (e.g., mechanical physics).

Hayek ([1955] 1967, p. 19) preserves most of the differences of explanation, prediction, and control in relatively more complex phenomena and relatively simpler phenomena. More complex phenomena are less likely to fit into the dynamics of conjectures and refutations by their high number of interdependent variables, and thus being more difficult to prove false certain specific variables of the multiple sets of interconnected variables. There is no crucial experiment in falsifying complex theories. Complex phenomena have less falsifiable empirical content, therefore the explanatory and predictive power is limited - the complexity of the object would limit the scientist to only explanations of principle and pattern predictions with less exposure to falsifiability but still in principle falsifiable – revealing itself fragile the falsificationist thesis in this type of phenomena. There is a trade-off of seeking greater empirical falsifying content and theoretical advancement that necessarily diminishes the falsifiability degree of theories in complex phenomena (Hayek, [1964b] 1967, p. 29).

The prediction and detailed explanation of complex phenomena are constrained by their qualitative properties of greater dependent variables and their interconnections - leading to greater generality and less empirical adherence to specific situations. Nevertheless, the explanations of principle and pattern predictions are falsifiable and must be confronted with the empirical facts. For Hayek, to accept the prevalence of ignorance and the limitation of knowledge in complex phenomena is to have the truly scientific attitude of humility and fallibility in choosing a limited but true knowledge, as opposed to the scientific attitude where there is the pretension of knowledge of something that the “man of science” does not really possess. Hutchison (2009, p. 308) accuses Hayek I (in 1928) and Mises of committing the same intellectual crime that Hayek now denounces when defending “the fatal conceit” of infallible perfect knowledge typical of false individualism (Hayek, 1988). It is at least strange Hutchison's accusation when considering the elements of continuity in Hayek's *sui generis* methodological development – this, of course, is not to deny the changes in his position, such as the abandonment of the division between natural and social sciences for one of the phenomena with more or less complexity degree. The point is that the core of his methodological singular position of explanation and prediction limitation in complex phenomena makes itself present - as Hayek in a letter to Hutchison recalls (May 15, 1983, Hayek to Hutchison, reprinted in Caldwell, 2009, p. 323-4). Hutchison's interpretation can only be understood when we take into account the indissociation between the fallibility of knowledge and his British empiricist tradition.

3. Hutchison on knowledge, methodology, and ignorance in economics.

3.1 Hutchison's first reactions on tautologies, the nature of economic theory, planning and uncertainty.

In his first publication in a professional journal, Hutchison (1935, p. 159) already demonstrates his dissatisfaction with the tautological use of the propositions of economic theory - often used as a rhetorical device to justify “unpopular theories.” Hutchison also has his first reactions to what he saw as the apodictic deductive character of the nature of economic theory made by Robbins (1932) (Hart, 2002, p. 363). Tautologies are nothing more than true analytic propositions *a priori* that is derived from premises - somewhat arbitrarily – chosen as common and evident to all the rational analysis of the problem in question. The infallibility of tautologies is found in the rational deductive process consistent with the initial definitions, thus not reporting to any real-world element “for its truth or falsity” - but reporting to the world for its applicability or not. Hutchison criticizes the

emphasis on tautological use in economic theory in which it is simply assumed the initial definitions and it is derived the tautological product that is necessarily true instead of investigating other sources and ways by which such proposition could be validated “or why there is any particular reason for believing the propositions of economic theory at all.”

Another methodological *malaise* for Hutchison (1935, p. 161) is illustrated by Robbins (1932, p. 111) which confuse the mere tautological formal implications of the definitions of economic theory - by definition without empirical elements - with causal inferences that relate to empirical conclusions about the real world. The tautological implications cannot have predictive value nor be filled with inferences about the world that is no longer contained in their own definitions, the implications by nature can “no more prognosticate anything than can the multiplication table.” *Au contraire*, the inferences necessarily demand the data of the initial conditions to establish the causal empirical nexus since-therefore - the formal propositions and their empirical sterility prove that some prognostic value is normally reached by inductively formed hypotheses. Hutchison gives the example of the quantity theory of money and its applications to cases of inflation in the post first war period, the inductive hypothesis occurs within the framework of the *ceteris paribus* clause, thereby opening spaces of fallibility of the theory previously non-existent in its tautological form – e.g., sudden movements both in the velocity of circulation of money and in the volume of transactions could show the fallibility of the quantity theory in the explanation of the inflation of the post-war period.

Hutchison dismisses the deductive attack on empirical research because it does not successfully introduce hypotheses inductively about the corroboration of theory to a particular case. On the contrary, for Hutchison, it is this formulation of inductive hypotheses and its consequent confrontation with the empirical facts that characterize the scientific *modus operandi* - as in the most prestigious of the sciences, physics.¹ Thus, “[t]he necessary fundamental assumption of all scientists is that there are some regularities about the facts of the world which allow of successful inductive hypotheses. It is a well-known difficulty that, up to now, this assumption does not appear to have been so fully justified in that section of the world studied by the economist, as it does in that section studied by the physicist” (Hutchison, 1935, p. 161).

Two years later, Hutchison (1937a) enters into the controversy of the economic calculation under socialism reacting mainly to Hayek (1935a), that initiates the calculation debate in the English language. Hutchison reverses Mises-Hayek-Robbins' argument for the dysfunctionality of central planning system in the face of the uncertainty and ignorance in the context of absence of private property and relative prices in the market system. That is, Hutchison seems to ignore the main aspect of the argument made by Mises-Hayek-Robbins, the exhibition of the institutional means of economic calculation and transmission of knowledge in a system of private property and price system that would allow some mechanism of learning and feedback of individual plans. Hutchison, in the end, seems to modify the formal similarity thesis in relation to uncertainty and ignorance, i.e., introducing the uncertainty and ignorance to the formal similarity. Hutchison reaffirms the formal similarity thesis made by early neoclassical economists in regard to the marginal preconditions of maximization in general equilibrium theory, and introduces the drastic aspect of uncertainty and ignorance in relation to individual decisions. In other words, both systems of economic organization have to deal with the uncertainty and radical ignorance aspect of the world with regard to their decisions, either in a central planning committee or in individual decentralized decisions. Hutchison (1937a), like Hayek ([1937] 1948), seems to have as epistemic postulation fallible knowledge, understood as imperfect foresight and radical state of uncertainty. For Hutchison (1937a, p. 72) the more we take uncertainty into account in economic decisions, the more it seems that the argument of freedom and sovereignty in individual decisions is flawed - and that, the freedom of decentralized individual decisions, would be the main thesis of “anti-planners.”

By not appreciating the underlying, or not so explicit, institutional aspect on Hayek's (1935a) argument, Hutchison (1937a, p. 73) understands that the anti-planners tacitly assume that all individual choices are optimal, or close to optimal, approaching the ideal type of choice “absolutely certain” - which presupposes, of course, perfect foresight, i.e., given objective knowledge of all relevant information and complete and absolute absence of any kind of radical uncertainty. This posture, Hutchison continues, logically discredits any kind of freedom in choice - that is, it is the definition of the formal similarity thesis in relation to uncertainty and ignorance. The freedom of choice that anti-planners defend in the calculation debate could only occur “in that static world devoid

¹ Later, Hutchison (1977) inverts completely this logic, the natural sciences can be based on generalized laws and the hypothetico-deductive method, as has Karl Popper describes in his falsificationism philosophy - but the social and economic science has to move and must deal with the inductive-empirical method.

of uncertainty and imperfect foresight with which the central bulk of economic theory down to recent times has mainly been concerned” (Hutchison, 1937a, p. 72).

Hutchison associates the defense of anti-planners with the unrealistic assumption of the static and tautological conditions of equilibrium theory for the real world, i.e., the illegitimate transposition of assuming in the real world the hypotheses of the theoretical model - precisely the opposite posture of seeking to confront the hypotheses and the conclusions of the model in the empirical facts of the real world. For Hutchison, the *non-sequitur* of Mises and Hayek (1935a, p. 110) is essentially the result of the aprioristic and anti-fallibilist conception of the formal definitions of economic theory. Hutchison (1937a, p. 73) criticizes the dubious application of the knowledge problem to central planning while “assume that such decisions can be and are made by some easy, automatic, and almost infallible process in a capitalist economy.”

The institutional argument in favor of a decentralized system is seen by Hutchison (1937a, p. 74) as “tacitly assuming a static world of perfect foresight where no entrepreneuring (in the sense of adaptation to unforeseen and unforeseeable change, as against organisation) is necessary, and where therefore the task (since there is none) must be perfectly carried out.” As a consequence of the formal similarity between systems of decentralized and centralized organization and no illegitimate logical leaps for the static world of perfect knowledge, there is, for Hutchison, no reason or conclusion that would make a central planning system face more difficulties in dealing with ignorance and uncertainty than a decentralized system. We may consider this formal similarity in relation to ignorance and uncertainty as a proto-development of the knowledge problem formally developed a year earlier in 1936 by Hayek ([1937] 1948). The not so clear exposition of Hayek’s (1935a) argument and Hutchison’s impotence in seeing the institutional character of the argument against planning seems to have prevented Hutchison from further appreciation of the economic calculation controversy and Hayek’s subsequent research program on the problem of knowledge and to the extent that this problem necessarily demands institutional responses - which Hayek develops along his intellectual journey.

Similar to Hayek, Hutchison attributes the argument problem of his intellectual opponents - in this case, the anti-planners - to the methodological background. In Hutchison’s view, Mises and Hayek have fallen into the use of the unreal assumptions of the equilibrium model as a justification for the allocative superiority of a decentralized system in function of the deductivist, aprioristic, infallible and without empirical content emphasis of the formal propositions of theory. “It seemed at first that Professor Mises and his followers were attempting by purely theoretical arguments to prove some ‘impossibility’ or ‘inner contradiction’ in collectivist planning and their methodological views would apparently support the feasibility of such an attempt” (Hutchison, 1937a, p. 74). This is exactly the same methodological critique that Hayek ([1940] 1948, p. 188) will accuse the attempts to use general equilibrium theory to prove the practical viability of a central planning system. Both share a profound methodological dissatisfaction with the state and course of economic theory and its focus on the tautological theory of equilibrium *per se*.

The "Note on Uncertainty and Planning" (1937a) was later reprinted as part of the appendix “Some Postulates of Economic Liberalism” in “The Significance and Basic Postulates of Economic Theory” (1938). According to Hutchison (1938, p. 177), “economic liberalism” - the idea that a “Liberal, capitalist, *laissez-faire* economic policy leads to a maximum returns for the community or to a greater returns than any collectively planned economic policy” - is essentially a tautological point of view, assuming what it should explain. Hence, “economic liberalism” is always trying to prove by purely theoretical, deductive and apriorist arguments an inner contraction in collectivist planning while assuming that “if people knew how to achieve maximum returns, wanted to do so, and were free from obstruction, they would in fact maximise their returns” (p. 183). The maximum expression of this kind of posture is, for Hutchison (1938, p. 184), “the writings of the leader of contemporary Economic Liberalism, L. von Mises.”

3.2. Hutchison on the significance and basic postulates of economic theory.

Hutchison (1937b) develops the ideas of his “Note on Uncertainty and Planning” (1937a), absorbing somehow Hayek’s “early response” in “Economics and Knowledge” (1937) to his initial impressions of the calculation debate. This essay, “Expectation and Rational Conduct” (1937b), was also one year later reprinted in Hutchison (1938) as “The Basic Postulates of Pure Theory: Expectation, Rational Conduct, and Equilibrium.” Following the order in “Significance,” I will present first the discussion before the “Expectation.”

It is explicit in Hutchison (1938) the then methodological dispute of economic theory on its role and scope as scientific theory - derived from the great disruptions and theoretical consolidation involved in the years of high theory and methodology. The aim of Hutchison's book is "to help in elucidating the significance of that body of 'pure theory' the possession of which distinguishes Economics from the other social sciences," that is, in what makes economic science a singular and independent branch of scientific inquiry. For this objective, the book is concerned "to arrive at a clear definition of 'pure theory' enabling one to mark off clearly propositions which belong to 'pure theory' from those that do not, to investigate the source of the validity of these propositions," and "to clarify their relation to the assumptions or postulates on which they rest," in particular the *ceteris paribus* clause and the main tautological-analytical concepts of economic theory as, e.g., equilibrium, rational conduct, expectations and perfect competition (1938, p. 3).

Hutchison addresses the book to the economists that already broadly accept in some sense the criterion of testability that he will elaborate - and further expose the logical consequences when this criterion is applied "rigidly and unwaveringly to the particular concepts and postulates of theoretical economics." In other words, Hutchison wants to demonstrate that when this principle is applied to the economic theory of his time it will clarify the methodological failures that constitute the empirically empty tautologies of much of the central basic concepts of economics. It is this methodological failure that is responsible in part for the then current state of affairs in the 1930s, i.e., "the unsatisfactory state of the foundation beneath the common-sense surface which is the most serious and crippling deficiency of contemporary economic science, since other deficiencies lie rather in the nature of the subject matter as compared with that of natural sciences and may never be thoroughly overcome in the same way" (p. 18). For this, it is necessary to reinforce the highly practical and pragmatic view that separate science and pseudo-science, that "aimed at developing political economy as an empirical discipline, directed primarily at producing less unreliable policy-guidance, based on less inaccurate predictions than would be forthcoming without some kind of disciplined, or 'scientific', effort" (Hutchison, 1996, p. 189). It is this pragmatic view that Hutchison traces influences of the empiricist, inductivist and "matter-of-fact" British tradition, especially John Locke, George Berkeley, David Hume, Thomas Malthus (in opposition to the tradition of Ricardo, Senior and Cairnes), John Stuart Mill, Jeremy Bentham, Alfred Marshall and John Maynard Keynes (e.g., Hutchison, 1938, p. 14, 174, 179; 1941, p. 735; 1977, p. 90-91; 1984, p. 23; 1997; 1998).

In such context, Hutchison introduces his "principle of testability" that will demarcate the line between science and pseudo-science, that is, that differentiates a scientific activity from the mere "comprehensive cloak" and "expressions of ethical or political passion, poetic emotion or metaphysical speculation." The principle says that

"finished propositions of a science, as against the accessory purely logical or mathematical propositions used in many sciences, including Economics, are to have any empirical content, as the finished propositions of all sciences except Logic and Mathematics obviously must have, then these propositions must *conceivably* be capable of empirical testing *or to be reducible to such propositions* by logical or mathematical deduction. They need not, that is, actually be tested or even be practically capable of testing under conditions of statistical investigation, nor is there any sense in talking of some kind of 'absolute' test which will 'finally' decide whether a proposition is true or false. But it must be possible to indicate intersubjectively what is the case if they are true or false" (1938, p. 9-10, italics in original; in the all subsequent quotations of Hutchison works, all italics are in the original text.).

Hutchison (1938, p. 19, f.n. 6) resume the principle as "that a scientific proposition may no itself be empirically testable directly, but may be reducible by direct deduction to an empirically testable proposition or propositions." In short, the main argument of Hutchison (1938, p. 18) is that the scientific reasoning demands previous agreed intersubjective criteria that establish the rules of the scientific game, including the rules that compare and judge between different and contrary arguments. His main argumentative strategy and concern is "to seek solutions of certain basic problem of economic science in accordance" with the principle of testability, and not to pursue or urge an ultimate absoluteness about the criteria.

In possession of this exhaustive classification of all proposition called scientific, Hutchison proposes this as a scientific characteristic division by dichotomy, where all scientific proposition are either able to falsification by empirical confrontation or not, with each option being a mutually exclusive dichotomy. Therefore,

"either a proposition which has sense is conceivably falsifiable by empirical observation or it is not. If it is not thus falsifiable it does not, if true, *forbid* any conceivable occurrence [the case of applied theory], but only a contradiction in terms [the case of pure theory]. Propositions obtain their empirical content simply in so far as, if true, the *exclude, restrict, or forbid* something [...]. Therefore a proposition with empirical content or an empirical proposition must, by definition, be conceivably falsifiable, that is, if true, exclude some conceivable possibility. Conversely, a proposition with sense, the validity of which does not depend on any empirical observation, cannot by definition, exclude any conceivable possibility, and is therefore devoid of empirical content." (Hutchison, 1938, p. 26-7).

The price for the apodictic and *a priori* certainty of the pure theory is the complete lack of empirical and practical sense. By the nature of aprioristic pure theory and this process of reasoning, the assumptions and definitions which the scientist usually start the model or theory is already implicit assumed in the logical conclusions derived from the definitions - with the proof or checking be applying with no logical contradictions the concepts involved in each logical step of the theory. That is, the profound symptom of assuming what one want or require to prove. Besides this limitation of pure theory that is somehow sterile in saying something really new about the world, Hutchison sees a necessity of assigning definitions for the key role of clearing the chains of reasoning and better structure the causal effects in question and thus constructing a non-contradictory and valid logical model of propositions of pure theory, which are “indisputably a creative scientific achievement” (p. 30). In this dynamics, the propositions of pure theory can “reveal unexpected relations between our definitions which are thus explained and clarified” - if the humans’ brains and the reason were all-powerful then “we would need no pure theory to work out the relations and implications of our definitions or empirical premises” (p. 34-5).

Hutchison (1938, p. 27-8, 55-8; 1996, p. 190-1) associates the posture of assuming what one should explain in the history of economic thought first with the Physiocrats influenced by French and German rationalists and idealists. “If the subject matter of Economics,” writes Hutchison (1938, p. 55-6), “is defined in a way that excludes all propositions that are not analytical-tautological and ‘circular’ in form, it is hardly surprising that every single central proposition and system of economic theory since the Physiocrats has, at some time or other, been criticised as circular, or as ‘assuming what it required to prove’.” In this way, the so-called laws of propositions of pure theory are misleading because actually they are not based in a sense that is derived from the principle of testability, i.e., scientific laws understood as inductive inferences conceivably empirically falsifiable though not empirically practically falsified (p. 62). The prevailing tendency that confuses the meaning of a scientific law as being a proposition of pure theory instead a proposition of applied theory (that is falsifiable) is traced by Hutchison as a “survival from eighteenth-century rationalist philosophy and theology” (p. 63). A scientific law can only be an empirical generalization if it is grounded in the empirical work of applied theory, an example given by Hutchison is the Gresham's law or the law of diminishing returns. Hutchison (1938, p. 64) says that “[i]t is such laws as these that it is the central object of science to discover. This is something more than the mere suggestion of a terminological change. It implies a fundamental alteration in the *quaesita* and methods of Economics.” Or, equivalently, it can be said that the aim of science is producing empirical laws to prognoses or foresight (Hutchison, 1938, p. 65; see also 1977, 1992b, 1994).

3.3. A special reference to expectation, rational conduct, equilibrium and perfect knowledge.

Finally, I will pass the main essay in “Significance” (1938), the chapter IV, “Expectation, Rational Conduct and Equilibrium” (1937b). Hutchison (1937b, p. 636) begins by discussing the permanence throughout the history of economic thought of some “fundamental assumption” or “economic principle” about human behavior on which the bases of economic theory would be derived or deduced, “from the profit-seeking Ricardian business-man down to the ‘rational’ consumer balancing marginal utilities.” Hutchison points out the variation of the emphasis between hypothetico-deductive aspects and their theoretical consistency and the empirical validity of generalizations made from fundamental assumption. In spite of the more variable initial postulations of economic theory, there is a common characteristic of perfect expectations as an instrument of the deductive operationalization of the initial hypotheses, thus assuming a world without the possibility of imperfect foresight and genuine uncertainty. It is not shown *how* economic agents maximize their utility functions but rather assumed mathematically that they act rationally given all relevant objective knowledge to the maximization problem – as if they knew the correct path of actions to maximize.

Hutchison (1937b, p. 637) indirectly touches on the central point of Hayek’s knowledge problem, of what are the institutional mechanisms that make the coordination *process* of individuals’ plans to be consummated. The problem of knowledge is about the institutional (dis)coordinating process of plans, of the *how ex post* that Hutchison refers to, and not with the *ex ante* hypothesis that they actually maximize - it is about the (dis)equilibrium *process* and not about the final state of equilibrium *per se*. Assuming the simple maximization of some utility function can only logically be carried forward in a world with perfect foresight, the terms “rational” or “sensible” only make sense in terms of comparison to other non-optimal action plans, specifically

expectations or the process of arriving at expectations from other non-optimal action plans. Expectations are only different when there are different interpretations of the same objective facts, i.e., to consider different expectations is to consider subjective knowledge to some degree. The choice will only be automatic, mechanical and totally rational-sensitive between a course of action with a payoff greater than another action definitely with smaller payoff in a world where expectations about the payoffs are confirmed correct, in this scenario “the assumption that people *expect* to maximise their returns and the assumption that they *actually* do maximise them come to the same thing.” When we introduce the notions of uncertainty and imperfect expectations, however, the maximization expectation will not be the same as the maximization *de facto* - since with Knightian uncertainty “people cannot conceivably *know* or *calculate* but can only more or less vaguely *guess*, which out of many possible lines of conduct will lead to the fulfillment of the principle” (Hutchison, 1937b, p. 638, italics in original).

For Hutchison, a real-world analysis cannot begin with a “rational” or “sensible” postulate, as defined above, since this would by definition be uncertainty absent - this would be a world without the real economic problem, a world, quoting Knight (1921, p. 268), mechanic and automaton (compare this with the remarkable similarities of Hayek’s argument). As perfect expectations are in relation to the actions of other agents, the maximization of one agent in relation to the expectations of the other agents and vice versa cannot occur in a context in which maximizing actions influence the other decisions of the system and of other agents that expectations themselves try to predict - an environment of perfect expectations is incompatible with an economic system of interdependent agents characterized by situations of oligopoly or monopoly. Hence, perfect expectations are only compatible with a state of perfect competition, i.e., where the conditions of an agent’s actions cannot influence the general conditions of the system and of other agents. Faced with these situations of intimate interdependence of decisions in an oligopolistic context the application of the sensible theory would be clearly discarded since expectations regarding other players will be imperfect. What would remain then would be an empirical emphasis on how the expectational process actually takes place in this context, “if one wants to find out how, or on what expectations, oligopolists in fact behave, the only way is to ‘look and see’” (Hutchison, 1937b, p. 644).

Hutchison goes on to discuss the exact role of perfect expectations for equilibrium, there are many conditions in which individual equilibrium or collective equilibrium can be defined. Hutchison agrees that a *sine qua non* condition for equilibrium involves perfect expectations, but following Morgenstern (1935) on the logical inconsistency between perfect foresight and the equilibrium concept - which is a critique of Hayek’s ([1935c] 1939) “Copenhagen lecture” - Hutchison denies that this is the characteristic definition itself of equilibrium as Hayek ([1937] 1948, p. 42) defines it. Hutchison (1937b, p. 645) points out that the use of perfect, correct, and undisappointed expectations “appear often to have been used more or less interchangeably as a quality or even defining characteristic of equilibrium” - which would not be precisely the case. Perfect expectations relate to a *quasi*-practical omniscience condition about the future, undisappointed expectations may still be sub-optimal from the expectational initial continued plan, and correct expectations may be correct from the subjective point of view of the decision-maker but may not consider other Pareto-improving action paths. For Hutchison, the best definition for the equilibrium state seems to be reserved to the optimal point of an objective, available and definitive set of competing for action options, the concept of equilibrium, therefore “is best reserved for the ‘optimum maximum’ condition whether or not the individual or community has been led to it by perfect expectation” (p. 646). What Hutchison ignores is that the particular use that Hayek ([1937] 1948, p. 42) assumes as defining characteristic of equilibrium as plan compatibility is strictly the condition of correct foresight with the subjective expectations and the external world, which protects Hayek’s definition from the Hutchison’s criticism. This means that the Hayekian equilibrium is not exactly the neoclassical equilibrium of perfect foresight condition as Hutchison puts it (cf. Rizzo, 1990). This distinction in “Economics and Knowledge” was just a response to Morgenstern’s criticism as well, Hayek then introduces the concept of correct foresight of action plans of other individuals and external reality (Foss, 1995, p. 350-4, 359-60; Caldwell, 2004, p. 209-14).

As Hayek ([1937] 1948, p. 45) reminds, the equilibrium construct only has much appeal and theoretical force because we suppose some tendency for equilibrium, which would be a matter of an empirical nature - “that is, an assertion about what happens in the real world which ought, at least in principle, to be capable of verification. In addition, it gives our somewhat abstract statement a rather plausible common-sense meaning. The only trouble is that we are still pretty much in the dark about 1) the *conditions* under which this tendency is supposed to exist, and 2) the nature of the *process* by which individual knowledge is changed.” Hutchison (1937b, p. 646-7) does

not seem to appreciate and internalize this passage of Hayek, focusing instead only on the assumption of equilibrium. As a solution, Hutchison proposes an empirical emphasis as Hayek, since the special concern with equilibrium can only find solid theoretical foundations from the need for verification or empirical testability of its theoretical assumption of convergence or equilibrium tendency. Nevertheless, even with the tendency towards equilibrium in the economic system having empirical corroboration supported or not by *ceteris paribus* clauses, it should be noted that other permanent endogenous tendencies to the system that can be disequilibrating and counterbalance the tendency to theoretical equilibrium with the *ceteris paribus* clause. The net or compositional effect of the coordinating and unbalancing forces may not be favorable to the equilibrium concept. The assumption of a tendency toward equilibrium *per se* is not sufficient to justify the use of the equilibrium concept since this equilibrium tendency can be counterbalanced by other qualitative effects - there is no assumption that the tendency toward equilibrium is actually predominant to disequilibrium or unbalancing tendencies. Hence, the empirical emphasis on the equilibrium concept must be in the significant sense of predominant tendency, “that is, it must be the case that we are always in equilibrium or fairly often approximating to it to make a special study of it of particular interest” (Hutchison, 1937b, p. 648). Hutchison understands Hayek’s position to be that there is a tendency of being always near or in the equilibrium state - which is, in my view, precisely the opposite of Hayek central message.

Hutchison sees in economic science itself an important instrument in the convergence of expectations based on its desired predictive and empirical capacity - therefore, this is one of the reasons of the emphatically given importance in the predictive potentiality of economic theory as being its main objective or aim (Hutchison, 1937b, p. 648; Hart, 2002, p. 361). After the methodological attack in regard to the way economic theory and the concept of equilibrium were conducted in the 1930s, Hutchison introduces in response his positive methodological view. Hutchison argues that the “Law of Motivation” or the principle of “subjective rationality” is undoubtedly the empirical core of the behavioral postulates that base the tautological deductions of economic theory - and as such has empirical content regardless of how minor it is, so it could be more precisely formulated and tested. The same occurs with the derivative propositions arising out of this behavioral principle, asserting as hypothesis conditions about perfect expectations and equilibrium would be like assuming what should be explained, any attempt to have a relevant theory from the practical and pragmatic point of view of change of economic reality must report to the empirical and testable adherence of its prepositions. Hutchison, as well as Hayek, accuses the neoclassical theory of the same methodological error of *petitio principii*. According to Hutchison (1937b, p. 650), the final domain of economic theory would reside in the investigation and inductive-empirical test of its propositions, therefore, “[t]o make assumptions as to expectations and therefore as to conduct, unless these assumptions are empirically confirmed is, in dealing with economic problems, fundamentally to beg the question and assume what one wants to find. [...] Although in some cases rough *a priori* reasoning may yield results which turn out accurately, *ultimately* all such questions as these can only be decided by extensive empirical investigation of each question individually.” Now, this may justify the Machlup’s label of “ultra-empiricism.”

Quoting Popper ([1935] 1959) about the relation between empirical content and falsifiability, especially with the primary function of the theory or scientific law to prohibit certain phenomena capable of empirical refutation, Hutchison advocates the removal of the scope of pure definitions and innocuous tautologies from the true explanation and prediction of scientific investigation from economic science. About Hayek’s skepticism with the outcome of an eventual empirical-turn of economic theory, Hutchison (1937b, p. 653) replies: “The answer to such an objection is quite simple. If, as one is perfectly free to do, one considers that the results obtainable by the only possible scientific method open to one are not of sufficient interest to reward the effort of investigation, then one must give up the scientific handling of these problems altogether and leave them to others of different intellectual taste.”

For Hayek, when introducing subjective, disperse and tacit knowledge, the equilibrium theory is filled with its empirical element by the knowledge problem. The methodological disruption of the profession in the 1930s concerns the epistemic notion of abuse of reason and the influence of scientism in social sciences. Hutchison gives weight and importance to the inseparable character of infallibility and perfect knowledge of the tautological deductive methodological position in its lack of empirical contact with the world reality that economics as a practical discipline - policy-oriented and in search of predictions - should turn to. Both Hayek and Hutchison have epistemic problems with perfect knowledge and the inappropriate use of the tautologies of the equilibrium theory to justify such epistemic position. For Hayek the solution is to internalize the epistemic postulate of

fallible knowledge at the heart of the equilibrium theory, giving life to the problem of knowledge and later turning to the methodological failure of the profession embedded in scientism and abuse of reason, the Abuse of Reason Project. For Hutchison, the solution necessarily passes through an empiric-oriented turn of the hypotheses and fundamental postulates of the economic theory for better prediction and theoretical contact with the real world aiming at its practical significance of mitigation of instability or of the economic cycle (e.g., see Hutchison, 1938, p. 166-174; 1997, p. 135; Hart, 2002, p. 369, 373).

4. Knowledge and ignorance in economics: the common epistemic notion in F.A. Hayek and T.W. Hutchison.

“Knowledge and Ignorance in Economics” is the title of an Hutchison’s book in the late 1970s. The book is divided in two main parts, the first part is a theoretical, methodological, and epistemological discussion of the economics of knowledge and ignorance, and the second part, the appendix, is a case study of knowledge and ignorance in practice, on the predictions of the economics profession about the devaluation and the Britain joining the European Economic Community. In the first footnote of the third chapter, “On the History and Philosophy of Science and Economics,” Hutchison discusses about his new impressions of his young work in “The Significance and Basic Postulates.” Hutchison is very critic about his then certain positivist, optimistic naturalism (or monist) position in relation to the natural and social sciences.

“Regarding the views expressed in that earlier essay (The Significance and Basic Postulates of Economic Theory, 1938 and 1960), I would still support for economics the criteria of testability and falsifiability. However, though this early essay could be claimed to have been, in many ways, a sceptical work by the standards of 1938, its optimistic ‘naturalism’ seems now indefensible: that is, its suggestions that the ‘social sciences’ could and would develop in the same manner as physics and the natural sciences. This is certainly not now to assert that economists and ‘social scientists’ *should not try* to follow natural scientific methods, and the ‘mature’ sciences, *as far they can, while respecting the nature of their material*. In fact economists have achieved *some* degree of success along these lines. But it should not be imagined or suggested that they can ‘succeed’ - and, above all, not be pretended that they have ‘succeeded’ - in anything approaching the same manner as has been achieved in physics and other natural sciences. Whether these differences between economics and physics are regarded as a matter of degree or a matter of principle does not seem to be very important as long as their full significance is understood. However, it seems highly misleading to insist on certain general similarities between the natural and social sciences (although such general similarities certainly exist) *without* making it clear how important in practice these differences are.” (Hutchison, 1977, p. 151, f.n. 1)

Hutchison seems to recognize the long-standing arguments about the “full significance” differences of prediction, explanation, and control in natural and social sciences made by Hayek in his extensive methodological writings in the 1940s, latter sophisticated in the structure of the theory of complex phenomena in the 1950s. In this sense, it is explicit in Hutchison’s quote the central message of Hayek’s particular and singular methodological notion that marks his epistemic position on different grounds of natural and social sciences. It is transparent the Hayekian epistemic spirit of a dycothomical notion of natural sciences with an objective object of study and social sciences with a subjective object of study in Hayek’s methodological approach in the Abuse of Reason Project (a matter of principle), or in his mature position of a continuum line that mark the relatively simpler phenomena (with few dependent explanation variables, like mechanical physics) and relatively complex phenomena (with a greater interdependent variables, as biological and social-economic phenomena) where the differences are regarded as a matter of degree of complexity of the object in analysis. Being the difference a matter of degree (theory of complex phenomena) or a matter of principle (Abuse of Reason Project), the epistemic notion of fallible knowledge is present as a significant notion of the limitations of human knowledge in areas concern to social-economic aspects.

4.1. Hutchison’s reawakened interest in Hayek.

The first and principal significant notion of an epistemic understanding of fallibility and limitation of economic knowledge and the role of ignorance in the study of society is the central theme of the theoretical and methodological part in Hutchison’s book. Indeed, strangely there is no direct citation to Hayek in the book, but the Hayekian influence is present in every part, the whole book seems to be a study and particular interpretation of the theme of Hayek’s Nobel Lecture, “Pretence of Knowledge” (1974). There are some pieces of evidence that Hutchison wrote the book under the influence of the Hayek’s Nobel Prize in 1974. For example, (i) the language that Hutchison utilizes in the book is by far more similar to Hayek’s language of complex phenomena,

with explanations of principle and pattern predictions (compare this language to the positivist language of Hutchison in the 1930s). (ii) This common language is also noted in the extremely similar arguments criticizing the Popperian system in relation to the applicability of the naturalist-falsificationist dynamics in social sciences, Hayek opens his mature methodological writings criticizing the excess, limits and the inapplicability of Popper's philosophy in the social sciences and even in natural sciences, and Hutchison (1977) is using exactly the same argumentative structure. The agreements of Hayek with Popper are also similar to the agreements of Hutchison with Popper with exception of the hypothetico-deductive method, i.e., both Hayek and Hutchison agreed that the main feature that demarcates the line between science and non-science is that the scientific propositions are falsifiable, and subject to empirical test and refutation, that is, the principle of testability or falsifiability (cf. Hayek, 1955, 1964a). They also agreed with Popper that the better institutional scientific framework is one of criticism and the primacy of ignorance and fallibility of knowledge, the fallibility of knowledge is the reason to adopt the falsificationist criteria, because the falsification does not confirm any theory, only discards the uncorroborated - this criterion is a statement of scientific ignorance. (iii) There are, in addition, some similar points in the construction of a positive methodological response to the failure of Popperian methodology, i.e., the criterion of falsifiability and testability preservation, the distrust and skepticism in detailed explanations and precise predictions, and the emphasis in patterns and trends in social sciences. The difference remains in the inductive-empiricist view that Hutchison stressed. Hayek did not agree with this empiricist-inductivist turn, Hayek has a deeply practical skepticism with the empirical turn in economics and social sciences.

(iv) The book published in 1977 was probably written soon after Hayek's Nobel. The chapter 3, which I mentioned earlier, was first presented, "give at or emerged from," the Nafplion Colloquium of September 1974, in Greece, on Research Programmes in Physics and Economics organized by S. Latsis, before the Hayek's Nobel therefore - Hayek was awarded on October 9 (see Caldwell, 2017). However, the essay was only latter reprinted in "Method and Appraisal in Economics" (1976), Hutchison suggests that the printed finished paper was largely modified in 1974 and/or 1975 until the publication in 1976 (Hutchison, 1977, p. vii; see also Robbins, 1979).

Hutchison (1977, p. 58) in this chapter refers to the same obscurely and marvelous passage attributed to Marshall that Hayek (1975) quoted and delivered in December 10, 1974, finishing his Banquet Speech following the receipt of the Nobel Prize, the speech was on the dangers of scientism within the economic profession and scientific humility, and Hayek finishes with perhaps one of the central message of his career: "I am therefore almost inclined to suggest that you require from your laureates an oath of humility, a sort of hippocratic oath, never to exceed in public pronouncements the limits of their competence. Or you ought at least, on conferring the prize, remind the recipient of the sage counsel of one of the great men in our subject, Alfred Marshall, who wrote: 'Students of social science, must fear popular approval: Evil is with them when all men speak well of them.'" Hutchison (1977, p. 58), in the same spirit, wrote: "For the kind of 'methodological' which many economists want and value is one that boosts up their prestige - vital for raising funds - as 'Scientists' with a capital 'S', while being flexibly permissive, barring no holds, or even letting 'anything go', when it comes to throwing one's weight around in the political arena as a professional 'expert' on behalf of one's particular favourite policies. Alfred Marshall said that economists ought to be suspicious of, and critically inclined towards, all policies popular with politicians and the public. Similarly, philosophers of science and methodological critics should be suspicious of methodological claims and prescriptions which are popular with economists."

Hayek and Hutchison refer to a comment by Marshall that has appeared in A. C. Pigou (1924), "In Memoriam: Alfred Marshall," reprinted in Pigou edition's "Memorials of Alfred Marshall" (1925). Pigou (1925, p. 89) says that he found the passage "among the manuscripts in which he [Marshall] defines the student's duty to the State." The complete passage is reproduced below.

"Students of social science, must fear popular approval: Evil is with them when all men speak well of them. If there is any set of opinions by the advocacy of which a newspaper can increase its sales, then the student who wishes to leave the world in general and his country in particular better than it would have been if he had not been born, is bound to dwell on the limitations and defects and errors, if any, in that set of opinions: and never to advocate them unconditionally even in *ad hoc* discussion. It is almost impossible for a student to be a true patriot and to have the reputation of being one in his own time."

Compare Hutchison's passage with his early writings in the 1930s, the difference is considerable.² Hutchison's passage is clearly influenced by Hayek, the notion of "Science" with capital "S", the attack of scientific pretense and the call for methodological humility suggests that Hutchison read and studied very carefully "The Pretence of Knowledge" as well as other Hayek's writings. The evidence for this interpretation is that few years later Hutchison writes "The Politics and Philosophy of Economics: Marxians, Keynesians and Austrians" (1981), which he devoted to analyzing the Austrian methodology more closely and tried to differentiate Hayek's methodological position from Mises and apriorism. Why? Well, one reason is that Hutchison was influenced by some Hayekian methodological themes and Hutchison could not conciliate this methodology posture with his extreme aversion to the deductivistic aprioristic methodology of Mises. Hutchison wanted to separate Hayek from the anti-fallibilism deductivist motto that Mises and his followers defended. Another reason, especially, is because Hutchison identified himself with the common epistemic notion of humility and fallible knowledge that Hayek emphasized so much in his writings. This is not a specific or aleatory theme, rather it is the central contribution of Hayek to the social sciences and economic theory, it is the original scholarly advance of Hayek's research program based in the epistemic notion of fallible knowledge. It is remarkable that after so much disagreement and methodological incommensurability in the 1930s, Hayek and Hutchison end up in some aspects with similar and common methodological views of the limited role of economic theory, the economic profession and social sciences in general.

4.2. Kinds of ignorance and knowledge.

The views that the profession of a scientific discipline have in relation to its object of study and the nature of his branch of scientific inquiry is closely connected to the expectations of the scientific community and the population in general about the capacity of scientific explanation, predictions, and control of this discipline. This is also true in the case of economic science, the different views about the role of economic theory and knowledge is directly connected with the expectations of the profession and the policy-makers on what it is capable to achieve in terms of prediction and therefore manipulation and control with instruments that derive from economic theory. In this context, the questions about the extent of knowledge and ignorance in economic science are of great social and political importance. An extreme and incompatibly high expectation with the prospects of the economic science in particular can, would and definitely led to a generalized frustration with the economics profession. A robust expectation on what reasonably economic policies can be expected to do or achieve is to be grounded in a clear understanding and comprehension of the scope and limits of economic knowledge and the domain of economic ignorance.

The great scientific notion and expectation of the "man of science," as Hayek says, that regard the progress of the natural sciences as an inherent trend to progress of mankind is all about utopian and naively wishful thinking, Hutchison (1977, p. 4) believes that this broadly positivist view of the early twentieth century "regarding the blessing of mankind which would flow from the progress of the natural sciences have now long since faded away behind threatening mushroom-shaped clouds." But the equally or more utopian and naively scientific notion that was introduced in social sciences in relation with the capability of social architecture and engineering in improving the social-economic progress, development and human welfare is quite widespread and alive. "The point," according to Hutchison (1977, p. 4-5), "is not simply that such expected blessings might well prove illusory, *even if some great leap forward in economic knowledge were to take place* (such as *has* taken place, for example, in the last half-century in physics). The point is that, in any case, no such great leap forward can reasonably be expected. Meanwhile, no kind of ignorance can be more dangerous than the ignorance regarding the limits and limitations of one's knowledge."

The ignorance of the limitations of human reason and understanding in general and its consequences in the social sciences and economics in particular is, in other words, the pretense of scientific knowledge that Hayek

² Remind, for example, of the second paragraph of Knight's review of Hutchison (1938). Knight (1940, p. 1) quickly states that "[t]he author is a positivist, i.e., one of those who always think of "science" with a capital S (if they do not always write it that way) and use it in a context which conveys instructions to pronounce in the awe-inspired tone chiefly familiar in public prayer." Compare the similar arguments of Hayek and Knight on predictions in one side, and Hutchison in other, for Hayek and Knight the uncertainty and ignorance forbid much of the aim of predictions and empirical orientation, for Hutchison is the contrary, it is because the domain of uncertainty and ignorance that empirically oriented turn is necessary. In this sense, it can be said that Hutchison (1938, p. 65) understood Knight (1921) wrongly when quoting Knight's approach to uncertainty as a prelude of his empirical emphasis (cf. Emmett, 2009, p. 345).

is so critic about. The knowledge provenient of scientism is not a really scientific knowledge because it is founded in the rejection of the particular status and characteristics of the scientific object in question, this knowledge is simply an illusion that is emerged in arrogance by the experts. Frequently, it is this intellectual background in which authoritarian governments are founded and that has so nefarious and perverse social consequences. For Hutchison, the student of history of economic thought and methodology of economics has an important social and political role that is to combat and reduce this kind of ignorance and pretense of knowledge (this is exactly the spirit of the great project of reconstruction in history of ideas and methodology that Hayek traces in the Abuse of Reason Project, continued in his later writings).

“In fact, to promote clarification of the extent and limits of economic knowledge and ignorance may well do much more to reduce dissatisfaction with the current economic policies and their results, than do many or most of the contributions to confused and undisciplined wrangles and debates on particular policy problems. Discerning and emphasising limitations may not seem very warmly inspiring or exciting as a message. But economist are only preparing disappointment and disillusionment for politicians, the public, and themselves, if they demand, like prophets, to be fired by impressive or exciting inspirations” (Hutchison, 1977, p. 5).

Hutchison states that prediction is the central feature that includes, involves or brings together the various main aspects that a scientific understanding should be able to answer, and this is still more important in a social discipline as economics. For Hutchison (1977, p. 12), improving predictions or forecasting “is, and should be, a main aim of economists and that is *to some limited extent* a feasible aim.” The capability of predictions as a mark and main character of scientific progress and economic knowledge is what delimits the numerous frontiers of what is expected to be reasonable, feasible, utopian, dangerous, or pretentious. It is clear that if the economic profession can identify, describe and explain in a certain sense the social and economic problems, but it cannot do some kind of predictions, even as bad as it can be and has being made since the Adam Smith times, then the practical contribution in promoting human welfare is hardly damaged and do not correspond to the expectations so long formed inside and outside the profession. The position that Hutchison takes in these problematic and controversial frontiers is one that refuse the “over-optimist comparisons” or some kind of “epistemological parity with the more mature sciences as the natural sciences in terms of prediction capacity,” and at the same time avoid the simplistic nihilist anti-rational skepticism which maintain that prediction in economics is in some way impossible (p. 8-9, 33).

The demand for specific, detailed, and quantitative economic predictions was introduced in the period of the post first world war in the study of business cycles and industrials fluctuations, as a replacement to the prediction of tendencies of long run that was so typical in classical economists and latter the certain qualitative and pattern prediction that dominates the early neoclassical period at the beginning of the twentieth century. This quantitative and positivist tendency has gained vigor in the 1930s with the formalist revolution and the advances in statistical informations and econometric techniques. Finally, in the 1940s during and post the second world war, it has become one the central features and policy-requirements of the economics profession, consagrates in Friedman’s methodology (1953). This movement toward the measurement and quantization of economic predictions is closely linked to the scientific influence in which the social sciences tried to slavishly imitate the methods, language and thus the predictions of natural sciences - in kind of self-validity predictions that attest the status of real science, like the natural hard sciences, to economics. The problem, Hutchison goes on, is that this intellectual posture neglects some instances of the social sciences object of study itself, both the degree of precision and testing the so-called general law and the marginal conditions that this law is applied is very different in natural and physical phenomenon and social phenomenon - and this difference has extreme consequences in limiting the practical use for policy-forecasting and theory truthness. These limits also are applied in the Popperian falsificationist dynamics, since in the economics and other social sciences there are few or none scientific prediction in the sense that is derived from totally generalized and well-tested laws, “conditional predictions are more or less useless unless the [initial] conditions themselves can be controlled or predicted” (p. 18).

“A clear definition of ‘scientific prediction’ has been set out by Sir Karl Popper in his account of causal explanations and prediction, and is to the effect that an explanation or prediction should be accepted as ‘scientific’ if, *and only if*, it is deduced from a universal law that has been well tested and corroborated, and from specific initial conditions which have been independent checked. For phenomena to be susceptible to scientific prediction, they must, according to Popper, be ‘well-isolated, stationary, and recurrent.’ But it seems that unless one interprets this standart so loosely as almost or completely to abandon any standart at all, it must be recognised that, so far, in economics and the social sciences, virtually no, or very few, predictively significant, non-trivial laws, or generalisations, have been discovered, which meet up, even approximately, to such a standart” (Hutchison 1977, p. 15).

Since the character of non-trivial, genuine and relevant scientific laws in the Popperian natural-scientific sense is virtually denied in the social and economic sciences, this branch of studies and economists, in particular, have been used for predictions and forecasting “*trends, tendencies, and patterns*, expressed in empirical historical generalisations of less than universal validity, restricted by temporal and local limits” (p. 20). As Popper reminds us, the scientific laws and historical patterns are in different epistemic grounds, and it is important to keep in mind this epistemic fundamental differences in regard to the validity and application of trends and tendencies explanations and predictions - they are by far much more the only poor tentative to see in the darkness of ignorance and knowledge fallibility. Hence, such trends, tendencies and patterns are far from any degree of consensus or objectivity, they are indeed vulnerable to the more diverse interpretations, misleading, and subjective ideological uses. For Hutchison, the fact that the enormously amount of economic prediction is made by the consistent use and pursuit of this kind of historical patterns and that such trends play a basic social and political role of guidance in all social- economic and econometric prediction is the evidence that this method is what economic profession *can* do to fulfill the society demand for forecasting, and not what the profession thinks or wish to do.

The scientific laws are necessarily accompanied by precise and checkable initial conditions in an independent form, in which the law derived from a practically certain explanation and prediction is applied as a form of deductive process - this is possible because the initial conditions are so precise and clearly fulfilled that the application of the law is a *quasi*-closed system. But in social and economic sciences this is not possible, an almost closed system with few dependent variables objectively measure and initial marginal conditions clearly applied that provide a deductive structure of applications of pure theory or pure law into applied theory is a denied option, then the inductivist notion of discovering empirical historical patterns, trends and tendencies is the only legitimate exit for the social sciences to have a scientific enterprise and practical relevance (forecasting). Hutchison (1977, p. 23) admits that “[e]xtrapolation of trends by a kind of induction is a method which has obvious weaknesses. But beggars can’t be choosers, and if, in some important branches of economic prediction, inductive extrapolation is an inevitable or demonstrably superior method, *because of the nature of the material*, then it must be recognised, and the best must be made of it; and, in fact, *quite naive* inductivist extrapolation *has been shown* in some cases in economics to score roughly as well as, or better than, in terms of predictive batting averages, the most elaborate, ‘rigorous’ deductive model-building.” Both men, Hayek and Hutchison, perceive some intrinsic failures about the Popperian falsificationist social sciences and both share Popper’s epistemic dimension of fallible knowledge, and indeed the critics that Hayek has to Popper are similar to the limitations that Hutchison points out. Nevertheless, each one internalizes these aspects in particular forms in a broad epistemic aspect of knowledge and ignorance.

5. Conclusion.

Although Hayek and Hutchison have so many methodological incommensurability in the 1930s caused by an optimist, naturalist and broadly empirical-inductive positivist view that Hutchison introduced in economics, in their mature methodological writings both men have become remarkably similar in terms of general understanding of the limitations and the role of ignorance and uncertainty in explanation, prediction, and control of social-economic phenomenon. However, the intellectual paths of both men were marked by a particular and singular methodological position in each case. Hayek in developing the knowledge problem as a coordination process between ignorant agents in the context of economic calculation debate under socialism perceives that his intellectual opponents were inebriated with a scientific mentality that prevented an appreciation for the institutional arguments of the real problem of economics. From this, Hayek starts a great project of reconstruction on the history of ideas and methodology that intended to search the intellectual roots of scientism, the Abuse of Reason Project. Finally, criticizing the basic Popperian falsificationism and sophisticating his methodological position in terms of modern notions of complexity, Hayek deepens his *sui generis* methodological view of explanation of principle and pattern prevision that he thought that it would be the maximum that economics and social sciences could do. Therefore, the essential epistemic position of fallible knowledge that gives life to the coordination problem is intrinsically present in all the scientific inquiry of complex phenomena, and is the central element of appreciation of ignorance and humility that became the central practical message of Hayek’s methodology.

Hutchison traces a very different intellectual path, initially in the years of high theory and methodology that was the 1930s, Hutchison feels a profound methodological disruption in the profession by the abuse and diffusion of the deductive method in economic theory as an essentially empty of empirical significance and meaning. The deductive method is only about logical propositions of language and tautological symbols in a manner not contradictory in itself, thus they are essentially sterile about the real policy-oriented concerns and predictions - the main aim of science, according to Hutchison. The tautologies are by definition infallible, hence they are dogmatic and unrealistic to the various historical-contextual empirical economic problems. Hutchison defines a criterion to differentiate the scientific proposition to the pseudo-science, this is the principle of testability, and the principle says that a scientific proposition has to be conceivably empirically testable directly or be reducible by direct deduction to an empirically testable proposition or propositions. In this sense, the propositions of science are divided in a dichotomous definition of propositions of pure theory and propositions of applied theory, the first is only concerned with language, not falsifiable and with any empirical meaning, the second is an empirical inference to the real conditions in the analysis subject to testability. When applied the principle of testability to the body of economic theory and its main concepts, Hutchison perceives that much of these concepts are tautological and empirical empty - such as the rational or sensible behavior postulate, equilibrium, and so forth. The economic theory was assuming what it had to explain. Later in his mature methodological writings, Hutchison abandons his young strict positivist and optimist naturalist view present also in Popper but maintains the principle of testability and falsifiability.

Hayek and Hutchison see extreme difficulties in the application *stricto sensu* of the Popperian falsificationism philosophy in social sciences, in this kind of phenomena there are not closed systems and the application of hypothetico-deductive general laws in some marginal and initial conditions is very difficult. The natural consequence to both Hayek and Hutchison is the appreciation of the great portion of uncertainty and ignorance in much of economic science. Hutchison, different from Hayek, embraces a more empiricist inductivist inclined view in some way to fulfill the policy demand and the goal of science, predictions. Hayek did not fully support this inductivist turn and empirical view of Hutchison, Hayek has a skepticism with the results of an empirical oriented work in economics justly because of the limits of predictions and refutations intrinsically in complex phenomena. If for Hayek the incurable ignorance and fallible knowledge is a limitation for social-economic explanations and predictions, Hutchison internalizes the ignorance and uncertainty as a justification for the empirical and inductivist oriented turn in economics. Anyhow, Hayek and Hutchison end up with a remarkably similar understanding of the limitation of knowledge and the role of ignorance in economics, and the methodological mature differences between the two can be understood as the different particular internalization of an epistemic notion of fallible knowledge. Hayek internalizes this epistemic notion as a central aspect of his research program, and Hutchison internalizes it as an intrinsically - almost interchangeably - association with the empirical content subject to refutation, a scientific theory is one that predicts and forbids some kind of events, and by this the theory is by definition fallible. In this sense, Hutchison has a similar way to Popper to internalize the epistemic notion of fallible knowledge in science, the difference remains in the aversion to deductivism and the British empiricist and inductivist tradition emphasized by Hutchison. The difference between Hayek and Hutchison can also be set on the optimism or pessimism about the epistemic ground of fallible knowledge and ignorance, about the capability of science to conduct society to a better place. Hutchison (1997, p. 192, 200) preserved his optimistic hope for improving social welfare through science via prediction, while Hayek is an epistemic pessimist.

References.

- Caldwell, B. (1992a). Hayek the Falsificationist? A Refutation, *Research in the History of Economic Thought and Methodology*, 10 (1), p. 1-15.
- Caldwell, B. (1992b) Hayek the Falsificationist: Reply to Hutchison, *Research in the History of Economic Thought and Methodology*, 10 (1), p. 33-42.
- Caldwell, B. (2004). *Hayek's Challenge: An Intellectual Biography of F.A. Hayek*. Chicago and London: University of Chicago Press.
- Caldwell, B. (2006). Popper and Hayek: Who Influenced Whom?. In: Jarvie, I. Milford, K. Miller, D. (Eds.). *Karl Popper: A Centenary Assessment. Volume 1*. London: Ashgate, p. 111-124.

- Caldwell, B. (2009). A Skirmish in the Popper Wars: Hutchison versus Caldwell on Hayek, Popper, Mises, and Methodology, *Journal of Economic Methodology*, 16 (3), p. 315-24.
- Coase, R. H. (1937). The Nature of the Firm, *Economica*, 4 (4), p. 386–405.
- Coase, R. H. (1975). Marshall on Method, *Journal of Law and Economics*, 18 (1), p. 25-31.
- Emmett, R. B. (2009). Realism and Relevance in the Economics of a Free Society: the Knight–Hutchison
- Hart, J. (2002). A Conversation with Terence Hutchison, *Journal of Economic Methodology*, 9 (3), p. 359–377.
- Hart, J. (2003). Terence Hutchison’s 1938 essay: Towards a Reappraisal, *Journal of Economic Methodology*, 10 (3), p. 353-73.
- Hart, J. (2011). Terence Hutchison and the Introduction of Popper’s Falsifiability Criterion to Economics, *Journal of Economic Methodology*, 18 (4), p. 409-26.
- Hayek, F. A. (1933). The Trend of Economic Thinking. *Economica*, 13 (1), p. 121-37.
- Hayek, F. A. (Ed.) (1935a). *Collectivist Economic Planning: Critical Studies on the Possibilities of Socialism*. London: Routledge.
- Hayek, F. A. ([1935b] 1948). Socialist Calculation I: The Nature and the History of the Problem. In: Hayek, F. A. ([1948] 1980). *Individualism and Economic Order*. Chicago: University of Chicago Press.
- Hayek, F. A. ([1935c] 1939). Price expectations, monetary disturbances and malinvestments. In: Hayek, F. A. (1939). *Profit, Interest and Investment and Other Essays on the Theory of Industrial Fluctuations*. London: Routledge & Kegan Paul, p. 135-56.
- Hayek, F. A. ([1937] 1948). Economics and Knowledge. In: Hayek, F. A. ([1948] 1980). *Individualism and Economic Order*. Chicago: University of Chicago Press.
- Hayek, F. A. ([1940] 1948) Socialist Calculation III: the Competitive “Solution.” In: Hayek, F. A. ([1948] 1980). *Individualism and Economic Order*. Chicago: University of Chicago Press.
- Hayek, F. A. ([1941] 1952). The Counter-Revolution of Science. In: Hayek, F. A. ([1952] 1979). *The Counter-Revolution of Science: Studies on the Abuse of Reason*. Glencoe: Free Press; reprinted, Indianapolis: Liberty Fund Press.
- Hayek, F. A. ([1942-4] 1952). Scientism and the Study of Society. In: Hayek, F. A. ([1952] 1979). *The Counter-Revolution of Science: Studies on the Abuse of Reason*. Glencoe: Free Press; reprinted, Indianapolis: Liberty Fund Press.
- Hayek, F. A. ([1943] 1948). The Facts of the Social Sciences. In: Hayek, F. A. ([1948] 1980). *Individualism and Economic Order*. Chicago: University of Chicago Press.
- Hayek, F. A. ([1945] 1948). The Use of Knowledge in Society. In: Hayek, F. A. ([1948] 1980). *Individualism and Economic Order*. Chicago: University of Chicago Press.
- Hayek, F. A. ([1946] 1948) Individualism: True and False. In: Hayek, F. A. ([1948] 1980). *Individualism and Economic Order*. Chicago: University of Chicago Press.
- Hayek, F. A. ([1951] 1952) Comte and Hegel. In: Hayek, F. A. ([1952] 1979). *The Counter-Revolution of Science: Studies on the Abuse of Reason*. Glencoe: Free Press; reprinted, Indianapolis: Liberty Fund Press.
- Hayek, F. A. ([1952] 1979). *The Counter-Revolution of Science: Studies on the Abuse of Reason*. Glencoe: Free Press; reprinted, Indianapolis: Liberty Fund Press.
- Hayek, F. A. (1952). *The Sensory Order: An Inquiry into the Foundations of Theoretical Psychology*. Chicago: University of Chicago Press.
- Hayek, F. A. ([1955] 1967) Degrees of Explanation. In: Hayek, F. A. (1967). *Studies in Philosophy, Politics and Economics*. Chicago: University of Chicago Press.
- Hayek, F. A. ([1964a] 1967) Kinds of Rationalism. In: Hayek, F. A. (1967). *Studies in Philosophy, Politics and Economics*. Chicago: University of Chicago Press.
- Hayek, F. A. ([1964b] 1967) The Theory of Complex Phenomena. In: Hayek, F. A. (1967). *Studies in Philosophy, Politics and Economics*. Chicago: University of Chicago Press.
- Hayek, F. A. (1967). *Studies in Philosophy, Politics and Economics*. Chicago: University of Chicago Press.
- Hayek, F. A. ([1974] 1978). The Pretence of Knowledge. In: Hayek, F. A. (1978). *New Studies in Philosophy, Politics, Economics and the History of Ideas*. London & Melbourne: Routledge & Kegan Paul.
- Hayek, F. A. (1975). Banquet Speech Following Receipt of the Prize. In: *Les Prix Nobel en 1974*. Stockholm: Imprimerie Royale.
- Hayek, F. A. (1978). *New Studies in Philosophy, Politics, Economics and the History of Ideas*. London & Melbourne: Routledge & Kegan Paul.

- Hayek, F. A. (1983). Nobel Prize Winning Economist. A. Alchian (Ed.) UCLA, Charles E. Young Research Library, Department of Special Collections, Oral History Transcript n. 300/224.
- Hayek, F. A. (1988). *The Fatal Conceit: The Errors of Socialism*. W.W. Bartley (Ed.). Chicago: University of Chicago Press.
- Hayek, F. A. ([1994] 2008). *Hayek on Hayek: An Autobiographical Dialogue*. S. Kresge & L. Wenar (Eds.). Indianapolis: Liberty Fund Press.
- Hayek, F. A. (1995). *Contra Keynes and Cambridge*. B. Caldwell (Ed.) London: Routledge.
- Hayek, F. A. (2013). The Overrated Reason. *Journal of History of Economic Thought*, 35 (2), p. 239-56.
- Hutchison, T. W. (1935). A Note on Tautologies and the Nature of Economic Theory, *Review of Economic Studies*, 2 (2), p. 159-61.
- Hutchison, T. W. (1937a). Note on Uncertainty and Planning, *Review of Economic Studies*, 5 (1), p. 72–74.
- Hutchison, T. W. (1937b). Expectation and Rational Conduct. *Zeitschrift für Nationalökonomie/Journal of Economics*, 8 (5), p. 636-653.
- Hutchison, T. W. (1938). *The Significance and Basic Postulates of Economic Theory*. London: Macmillan.
- Hutchison, T. W. (1941). The Significance and Basic Postulates of Economic Theory: A Reply to Professor Knight, *Journal of Political Economy*, 49, p. 732–750.
- Hutchison, T. W. (1953). *A Review of Economic Doctrines, 1870-1929*. Oxford: Oxford University Press.
- Hutchison, T.W. (1956). Professor Machlup on Verification in Economics, *Southern Economic Journal*, 23, p. 476–83.
- Hutchison, T. W. (1960) Methodological Prescriptions in Economics: A Reply, *Economica*, 27, p. 158–160.
- Hutchison, T. W. (1977). *Knowledge and Ignorance in Economics*. Chicago: University of Chicago Press.
- Hutchison, T. W. (1981). *The Politics and Philosophy of Economics: Marxians, Keynesians and Austrians*. Oxford: Basil Blackwell.
- Hutchison, T.W. (1984). Institutional Economics, Old and New. *Journal of Institutional and Theoretical Economics/Zeitschrift für die gesamte Staatswissenschaft*, 140, p. 20–9.
- Hutchison, T. W. (1988). The Case of Falsification. In: De Marchi, N. (Ed.), *The Popperian Legacy in Economics*, p. 169-81. Cambridge: Cambridge University Press.
- Hutchison, T. W. (1992a). Hayek and 'modern Austrian' methodology: Comment on a non-refuting refutation, *Research in the History of Economic Thought and Methodology*, 10 (1), p. 17-32.
- Hutchison, T.W. (1992b). *Changing Aims in Economics*. Oxford: Blackwell.
- Hutchison, T. W. (1994). Ends and Means in the Methodology of Economics. In: Backhouse, R. E. (Ed.) *New Directions in Economic Methodology*. London and New York: Routledge, p. 27-34.
- Hutchison, T. W. (1996). On the Relations Between Philosophy and Economics: Frontier Problems in an Era of Departmentalized and Internationalized Professionalism (part I), *Journal of Economic Methodology*, 3 (2), p. 187-213.
- Hutchison, T. W. (1997). On the Relations Between Philosophy and Economics (part II), *Journal of Economic Methodology*, 4 (1), p. 127-151.
- Hutchison, T. W. (1998). Ultra-deductivism from Nassau Senior to Lionel Robbins and Daniel Hausman, *Journal of Economic Methodology*, 5 (1), p. 43-91.
- Hutchison, T. W. (2009). A formative decade: methodological controversy in the 1930s, *Journal of Economic Methodology*, 16 (3), p. 297-314.
- Keynes, J. M. (1937). The General Theory of Employment, *Quarterly Journal of Economics*, 51, p. 209–223.
- Keynes, J. N. (1891). *The Scope and Method of Political Economy*. London: Macmillan.
- Knight, F. H. (1921). *Risk, Uncertainty and Profit*. Boston: Houghton Mifflin.
- Knight, F. H. (1940). “What is Truth” in Economics?, *Journal of Political Economy*, 48 (1), p. 1–32.
- Latsis, I. (1976). *Method and Appraisal in Economics*. Cambridge: Cambridge University Press.
- Pigou, A. C. (1924). In Memoriam: Alfred Marshall. In: Pigou, A. C. (Ed.) (1925) *Memorials of Alfred Marshall*. London: Macmillan.
- Popper, K. R. ([1935] 1959) *The Logic of Scientific Discovery*. New York: Basic Books.
- Robbins, L. (1932). *An Essay on the Nature and Significance of Economic Science*. London: Macmillan.
- Telles, K. (2018). *Hayek and Method: The Epistemic Role of Fallible Knowledge in F.A. Hayek*. Unpublished manuscript.