MICHAËL POLANYI ON REALITY, KNOWLEDGE, AND ECONOMICS

Documents de travail GREDEG
GREDEG Working Papers Series

Agnès Festré
Pierre Garrouste

GREDEG WP No. 2014-40
http://www.gredeg.cnrs.fr/working-papers.html

Les opinions exprimées dans la série des Documents de travail GREDEG sont celles des auteurs et ne reflètent pas nécessairement celles de l'institution. Les documents n'ont pas été soumis à un rapport formel et sont donc inclus dans cette série pour obtenir des commentaires et encourager la discussion. Les droits sur les documents appartiennent aux auteurs.

The views expressed in the GREDEG Working Paper Series are those of the author(s) and do not necessarily reflect those of the institution. The Working Papers have not undergone formal review and approval. Such papers are included in this series to elicit feedback and to encourage debate. Copyright belongs to the author(s).
Michaël Polanyi on Reality, Knowledge, and Economics

by

Agnès Festré, University Nice-Sophia Antipolis and GREDEG
and
Pierre Garrouste, University Nice-Sophia Antipolis and GREDEG

1. Introduction

Michaël Polanyi is a very impressive and interesting scientist and philosopher. He is born in Budapest in 1891 and died in 1976 in Northampton. He completed a medical degree in 1913 and a Ph.D. in physical chemistry in 1917 both at the University of Budapest. He then moved to Karlsruhe where he continued to study physical chemistry. After a short stay in Budapest he moved to Berlin where he obtained a position at the Kaiser Wilhelm Institute for Fiber Chemistry. He moved to Great Britain at the University of Manchester in 1933 after the Nazi regime decision to prohibit Jews from exercising civil-servant activities. He continued to work in chemistry at the University of Manchester but in 1937 he begun to be interested in economics and “it was hard to interest Polanyi in chemistry subjects anymore” (Nye, 2002, p. 125). He had also many discussions in economics with his brother Karl Polanyi (1886-1964) who was living in London. As his brother he was highly concerned with the economic and political situation of the Soviet Union that he visited for professional reasons and benefited from the experiences of members of his family living there (his mother was from Vilnjas). In 1936, Michaël Polanyi met Bukharin (Polanyi was invited to give lectures for the Ministry of Health Industry in the USSR) who stressed that in socialist societies all scientific research is directed in connection with the needs of the Five Year Plan. Michaël Polanyi noted what had

---

1 We warmly thank Martin X. Moleski for very helpful discussions and comments. We also thank Nicolas Bisset for his remarks and comments.
2 Michaël Polanyi’s son, John Polanyi won the Nobel prize in Chemistry in 1986.
3 For a precise biography of Michaël Polanyi see Nye (2011) and Scott and Moleski (2005).
4 Karl Polanyi graduated from Budapest University in 1912 with a doctorate in Law. From 1924 to 1933 he was employed as a senior editor of the prestigious *Der Oesterreichische Volkswirt* and became then economist and economic historian. He is known for his *The Great Transformation* (1944). The two brothers disagree on the interpretation of the Great War, the rise of fascism and communism and the Great Depression. They also disagree on their opinions on U.S.S.R (see Nagy, 1996; Scott and Moleski, 2005; Gulick, 2008.). According to Michael Polanyi, fascism and communism were due to a “moral inversion” that blends skepticism and utopia (see Yeager, 2002-2003).
happen to the study of genetics once the doctrines of Lysenko had gained the support of the State. In Great Britain, the Marxist John Desmond Bernal, was one of the defenders of the planned scientific research. Together with John Baker, Polanyi founded the Society for Freedom in Science. His meetings with very different scientists, Nikolai Bukharin as well as Max Born and Erwin Schrödinger; in very different domains, economics, Keynes and Hayek, epistemology, Popper and Kuhn, and philosophy, Bertrand Russell and Ludwig Wittgenstein, contributed to make his conception of reality and knowledge very specific. As a scholar untrained in economics he also provides an iconoclast approach: he defends both Keynesian and Hayekian ideas. The paper is organized as follows. In Section 2 we present Polanyi’s conception of science and reality. In Section 3 we present the famous notion of ‘tacit knowledge’ and in Section 4 Polanyi’s ideas in economics and society. We conclude in Section 5.

2. Polanyi’s conception of science and reality

Reality, according to Polanyi opens a set of indefinite future manifestations. “What we mean is that the thing is not dissolved like a dream, but that, in some ways it will yet manifest its existence, inexhaustibly, in the future ... This defines reality and truth. If anything is believed to be capable of a largely indeterminate range of future manifestations, it is thus believed to be real. A statement about nature is believed to be true if it is believed to disclose an aspect of something real in nature. A true physical theory is therefore believed to be no mere mathematical relation between observed data, but to represent an aspect of reality, which may yet manifest itself exhaustively in the future.” (Polanyi, 1967, p. 190).

Polanyi’s conception of reality cannot be understood without reference to his theory of ‘boundary conditions’. This theory is based on the idea of emergence. This means that reality is characterized by a hierarchy of levels (from the lowest to the highest). The lowest level is the one where things are based on physical or chemical laws, they are real in themselves but do not have the possibility to manifest in new way. At the highest level (e. g. social human beings) there is comprehensive entity which “is not under our control and can manifest itself as an aspect of the hidden reality in genuinely new ways”. (Paksi, 2010, p. 82). According to

---

5Important debates took and take place between the Polanyians concerning Polanyi’s conception of reality. See Tradition & Discovery: The Polanyi Society Periodical, 23(3)(1999-2000) on the evaluation and interpretation of Polanyi’s realism, 29(3)(2002-2003) on the possibility to link Polanyi’s conception of reality with the notion of supervenience, 40(3)(2013-2014) on the relationships between Polanyi’s conceptions of emergence and download causality and Prigogine’s dissipative structures.
Polanyi we have not the possibility to objectively know the highest levels of reality because they have the capacity to reveal themselves “indeterminately in the future” (Polanyi, 1964, p. 10).

As an example, in the domain of life, Polanyi identifies different levels of reality: if the zero level is the physical and chemical elementary processes of life, the first one is the compartment one, the second the level of the cell, the third the level of multicellular organisms, the fourth the level of organisms with nervous system, and the fifth the level of culture and language.

The idea that reality is organized into a hierarchy is based both on Polanyi’s ontology and epistemology. Polanyi’s ontology, as written above, is based on the ideas of emergence, downward causation, and indeterminacy. Reality is, at its highest level, impossible to know. As for his epistemology, Polanyi is a realist in the sense that he thinks that reality exists out of us and that truth is a search human beings commit themselves to attain. This is however an impossible quest just because the reality of the objects of science is independent of scientific theories. He is however a strong opponent to positivism. First he criticizes the distinction between analytics and synthetics which is a cornerstone of logical empiricism (Quine, 1951). Second he puts out another distinction, the one made between objectivity and subjectivity.

The first opposition does not makes however Polanyi a defender of Popper’s falsificationsim. “This illustrates and substantiates the conclusion derived previously by the logical analysis of the positivistic model of science, namely, that the fulfilment of predictions in terms of observations is not in itself capable of validating a scientific statement. And we may add that even the converse of this is true. Our general conceptions of the nature of things cannot be strictly contradicted by experience, for they can always be expanded so as to cover any

---

6 A sign of this idea can be found in his opposition, during the conference held in 1949 at the University of Manchester to Turing’s possibility of building up an intelligent machine. See Blum (2010), Turing (1950) and Polanyi (1949, 1968). Polanyi’s arguments rest on Gödel’s incompleteness theorems as well as Tarski’s works that “has shown that any formal system in which we could assert a sentence and also reflect on the truth of its assertion must be self-contradictory.” (Polanyi, 1974, p. 260).

7 I think we may distinguish between the personal in us, which actively enters into our commitments, and our subjective states, in which we merely endures our feelings. This distinction establishes the conception of the personal, which is neither subjective nor objective. In so far as the personal submits to requirements acknowledged by itself as independent of itself, it is not subjective; but in so far as it is an action guided by individual passions, it is not objective either. It transcends the disjunction between subjective and objective.” (Polanyi, 1974, p. 300).
experience. This is often true even of specific scientific theories.” (Polanyi, 1950, p. 29). This position seems *a priori* in line with Lakatos’ critics of the dogmatic falsificationism (“we cannot prove theories and we cannot disprove them either” (Lakatos, 1978, p. 16).

But Lakatos is strongly opposed to what he calls the ‘conventionalist conception of science’ as he illustrates with the example of the Einsteinian research programme: “but my reconstruction makes tenacity of Einsteinian research programme in the face of alleged contrary evidence completely *rational* phenomenon and thereby undermines Polanyi’s ‘post-critical’-mystical message” (Lakatos, 1978, page 77, note 6). Lakatos considers Polanyi as sharing Kuhn’s and Feyerabend’s conventionalist conception of science (Feyerabend being more an anarchist according to Lakatos).

Even if Polanyi is reluctant to consider induction as a relevant scientific method he nevertheless sees it as a valuable source of information and at the basis of discovery. As put forward by Sheppard, “Polanyi’s expressed view in PK [Personal Knowledge] is to agree that induction is indeed a far from reliable process, but that it nevertheless undeniably remains a valuable and principal source of information that has led to the formulation of many successful theories.” (Sheppard, 1999, p. 2).

Polanyi is however not a radical constructivist as Kuhn is considered to be; he is rather a moderate one, or more precisely defending a social evidentialism (Stenmark, 1995).

According to Stenmark, social evidentialism is linked with two conditions of rationality: the *evidential principle* according to which a belief is rational if it is expressed by an informed individual, and the *social principle*, which means that this belief needs to be shared by a community of informed individuals. It is the reason why Polanyi is not in line with Kuhn.

“From my point of view, all that is good in Kuhn’s position is found in Polanyi, while there is no trace in Kuhn whatsoever of Polanyi’s orientation toward purposes which bear upon eternity. Polanyi’s worldview goes far beyond Kuhn’s in its orientation toward truth as a metaphysical prerequisite for the progress of science.” (Moleski, 2006-2007, p.21)

---

8 For the relations between Popper and Polanyi, see Jacobs and Mullins (2011). Popper’s reaction to Polanyi’s *The Stability of Beliefs* has been very incisive, as the letter he has written to Polanyi just after the presentation of his *The Stability of Beliefs* (June 9, 1952, LSE) shows it.

9 “Here stands revealed a system of knowledge of immense value for the understanding of experience, to which the conception of falsifiability seems altogether inapplicable” (Polanyi, 1974, p. 47).


11 Induction is the method put to the fore by positivism.

12 In a personal communication Martin X. Moleski writes “I have never thought that Polanyi opposed induction per se. I think he opposed the idea that it could ever be reduced to a set of rules or that it could be strictly formalized. For Polanyi, a discovery emerges from the tacit dimension as a Gestalt switch that changes how we see part-whole relationships.”

13 Even if Kuhn is not as radical as von Glasersfeld. See Glasersfeld (2001)
Polanyi’s notion of tacit knowledge has to be linked with his conception of science in its relation with reality (cf. his *Science and Reality*, 1967). Analyzing the links between Copernic’s, Kepler’s and Newton’s discoveries he stresses the idea that Kepler’s three laws solved problems involved in Corpernic’ system and some of its drawbacks and that Newton’s theory of gravitation solved problems of Kepler’s three laws. This concept of problem perfectly anticipates Kuhn’s concept of paradigm. It is the reason why in his 1962 very influential book, *The Structure of Scientific Revolution* Kuhn makes references to Polanyi’s works in epistemology. It is interesting to look at the words used by Polanyi to present both its conception of awareness and of science. In these two explanations he uses the words ‘clues’. In relation to the two kinds of awareness (focal versus subsidiary) he writes: “we don’t look at these two in themselves [the pictures], but see them as clues to their joint appearance in the stereo-image” and “The relation of clues to that which they indicate is a logical relation [italics due to M.P.] similar to that which a premise has to inferences drawn from it.” (Polanyi, 1965, p. 799). In accordance with his conception of science he stressed that “Problems are evoked in the imagination by circumstances suspected to be clues to something hidden; and when the problem is solved, these clues are seen to form part of that which is discovered, or at least to be proper antecedent of it. Thus the clues of a problem anticipate aspects of a future discovery and guide the questing mind to make the discovery.” (Polanyi, 1967, p. 188). In fact, in both cases (science and awareness) the clues disappeared because they have logically produced something different: new knowledge. In fact integration permits the emergence of higher levels of stable beliefs. “My analysis of consecutive operational levels necessitates the assumption of a principle which works in the manner of an innovation achieved by integration. The assumption that this process is evoked by the accessibility of the higher levels of stable meaning which it eventually achieves, seems compelling to me.” (Polanyi, [1966b], 2009, p.90). The process of integration and consequently the emergence of novelty is for Polanyi undetermined, it is only based on potentiality: “it is the image of humanity immersed in potential thought that I find revealing for the problems of our day. It rids us of the absurdity of absolute self-determination, yet offers each of us the chance of creative originality, within the fragmentary area which circumscribes our calling.” (Polanyi, [1966b], 2009, p. 91).

We only progressively consider reality as external. In the early stage of our life, “the I-Thou relationship which we establish with persons prevails also in our intercourse with impersonal objects. Only later do we class these objects in an I-It relationship and recognize the
distinction between persons and things.” (Polanyi, 1950, p. 31). When we begin to understand the world we consider that events are linked with a kind of intention. “Modern education breaks down our natural predilections which favor the magical outlook and inculcates in us certain conceptions which primitive people do not possess.” (ibid., p. 32). According to Polanyi, we share beliefs with the members of the community we belong to, even if these beliefs evolve through time. Taking the example of Evans-Pritchard (1937) of the tribe of Azande, he shows that the beliefs of the members of this tribe are incommensurable with ours that is to say there are not possibly comparable with the modern beliefs. “In our own case, the case of modern man, we are committed in this manner to a naturalistic conception of the universe which is the major unrebuttable premise of all modern natural science.” (Polanyi, 1950, p. 33). This conception of science is absolutely not in line with the positivism or the Popperian conception of science. “It is true that a single piece of contradictory evidence refutes a generalization, but experience can prevent us only with apparent contradictions, and there is no strict rule by which to tell whether any apparent contradiction is an actual contradiction. The falsification of a scientific statement can therefore no more be strictly established than can its verification. Verification and falsification are both formally indeterminate procedures.” (Polanyi, 1981, p. 91). According to Newton (2011) “what Polanyi vigorously rejects is the idea that a methodology or specific process of validation can determine whether a discovery is true or not. This would be to elevate man-made constructs above human insight and divorce science from personal convictions about experience and the community values which are needed to maintain a free society.” (Newton, 2011, p. 5).

As for Popper the scientist is a kind of hero taking the maximum of risk inasmuch as he “tries to kill his theories” (Popper, 1972, p. 109). His main reference is Einstein and he stresses the idea that the great scientist takes the risk of being contradicted by experiments.15 In his autobiography Popper tells that he has been impressed by this Einstein’s idea and writes that all what he writes in philosophy of sciences starts from this. According to Polanyi scientists but also all human beings commit themselves to try to solve new problems in order to discover new knowledge.16 Scientists are however not disembodied as they are for Popper. According to Popper scientific knowledge is objective: “knowledge in the objective sense is

---

14 The I-Thou, I-It distinction is due to Martin Buber (1937). I-Thou is a word that refers to relationships, although I-It relates to experience and sensation.

15 This idea is strongly criticized by Polanyi who considers it as a rational reconstruction.

16 Hall (1982) contrasts differently Popper’s and Polanyi’s views. “On Popper's view, scientific knowledge is critical, on Polanyi’s view it is post-critical” (Hall, 1982, P. 45).
knowledge without a knower: it is knowledge without a knowing subject.” (Popper, 1972, p. 109). At the opposite for Polanyi “the scientist’s decision depends on the strength of the beliefs in the light of which he interprets his observations, and we approve of this decision if we share these beliefs.” (Polanyi, 1950, p. 30). The title of one of his books Personal Knowledge is linked with this idea that, contrary to Popper, individuals are at the centre of all knowledge.

3. Tacit knowledge

“Tacit knowledge” is a notion widely used in management as well as in economics. The way it is defined in those domains is however not only far from Polanyi’s definition but often “inconsistent and confused” (Hedersstrom and Whiley, 2000, p. 5). Hedersstrom and Whiley identify two principal conceptions of tacit knowledge in management. The first, they name difficulty school stresses the idea that tacit knowledge can or could be made explicit or codified; the second, the de facto school considers tacit knowledge as impossible to formalize. As for Polanyi tacit knowledge is an essential element of all knowledge, scientific, artistic or religious. He stresses that “all knowledge is either tacit or rooted in tacit knowledge. A wholly explicit knowledge is unthinkable.” (Polanyi, 1966a, p. 7). Accordingly, “scientific discovery cannot be achieved by explicit inference, nor can its true claims be explicitly stated. Discovery must be arrived at by the tacit powers of the mind and its content, so far as it is indeterminate, can be only tacitly known.” (Polanyi, 1966a, p. 1).

Polanyi is highly influenced by both Gestalt psychology and Piaget’s theory of intellectual development through his conception of the different stages of children’s development. Polanyi’s main concept, in order to explain the notion of tacit knowledge is the concept of integration. “This act of integration, which we can identify both in the visual perception of objects and in the discovery of scientific theory, is the tacit power we have been looking for. I shall call it tacit knowing. It will facilitate my discussion of tacit knowing if I speak of the

---

17Polanyi (1966b) uses the Meno paradox to ascertain the necessity of tacit knowing. Meno paradox can be formulated as follows: a) if you know what you’re looking for, inquiry is absurd, b) if you don’t know what you’re looking for, inquiry is impossible, c) therefore, inquiry is either absurd or impossible. See Bradie (1974) and Simon (1976) for a critic of Polanyi’s arguments.
clues or parts that are subsidiarily known as the proximal term of tacit knowing and of that which is focally known as the distal term of tacit knowing.” (Polanyi, 1966a, p. 3).

Tacit inference and tacit integration (from subsidiary awareness to focal awareness) are characterized by the fact that 1) there is an asymmetry between them and 2) they are linked by a logical relation (subsidiary awareness is not sub-conscious). There are two kinds of irreversibility: first we cannot identify all the clues we have integrated (contingent irreversibility), second when we go back to the subsidiary we lost their joint meaning (logical irreversibility).

“The process of formalizing all knowledge to the exclusion of any tacit knowledge is self-defeating.” (Polanyi, [1966b], 2009, p. 20). “This has subversive implications for the general approach of formalization since its looks for ‘the kind of lucidity which destroys its subject matter’” (Sen, 2009, p. xi).

“The tracing of personal knowledge to its roots in the subsidiary awareness of our body as merged in our focal awareness of external objects, reveal not only the logical structure of our personal knowledge but also its dynamic sources.” (Polanyi, 1962, p. 60). As shown above we can point here an important difference between Polanyi and Popper. According to Popper scientific knowledge is objective that is “knowledge without a knower: it is knowledge without a knowing subject.” (Popper, 1972, p. 109). At the opposite Polanyi emphasizes “the knower’s active participation in any act of knowing.” (1966a, p. 4).

Tacit knowledge can be compared with Hayek’s abstract rules. Tacit knowledge and abstract rules cannot be formalized but Polanyi and Hayek do not found their notions on the same psychological approach. As we see Polanyi’s conception of knowledge is influenced by the Gestalt psychology although Hayek proposes a connectionist conception of knowledge (see Smith 1997, Festre and Garrouste, 2009). Polanyi’s conception of knowledge is closer to Kahneman’s three cognitive systems (adapted from (Stanovich, and West, 2000))
Kahneman’s three cognitive systems (from Kahneman 2003, p. 1451)

The two approaches are based on the idea that speaking or reading is sequential (serial) while understanding is holistic.

4. Polanyi on economics and society

“A devoted Keynesian, Polanyi's writings on economic subjects are divided between attacks on the Soviet system and lucid commentaries on the work of Lord Keynes. Between 1935 and 1950, Polanyi corresponded with a number of important economists including Friedrich A. Hayek, David Caradog Jones, Wolfe Mays, and John Maynard Keynes. His position as a scientist and a social thinker led him to become involved with a group of intellectuals in England concerned with social problems. This group, the Moot, was convened by Joseph H. Oldham, editor of the Christian Newsletter... Many of the manuscripts written between 1935 and 1940... deal with economic subjects. As a whole, they represent Polanyi's two-part approach to contemporary economic problems. Such manuscripts as the 1935 lectures on economics ..., the 1943 essays on economic planning ... and the 1944 Principles of Economic Expansion... are interesting interpretations of Keynesian thought. Other manuscripts from this period like the 1938 Reflections on Marxism ..., the 1940 Collectivist Planning ..., and the 1947 Soviets and Capitalism ... are criticisms of Soviet economics. The notes series contains little of relevance to Polanyi's economic thought. There are a few general notes on economic subjects ... as well as material on individual economists like Keynes and
von Hayek, but the majority of economic material is found in the correspondence and manuscripts.” (Cash, 1996)

In his writings in economics Polanyi is closed with Hayek but even if he attended the first Mont Pelerin Society, he was not convinced by Hayek’s conception of economics especially his defence of a laissez faire policy. When he read Keynes’ The General Theory of Employment, Interest and Money he was impressed by its economic policy consequences. In fact, Polanyi defends both a Hayekian conception of society and a Keynesian macroeconomic approach. The first is more in line with his conception of the emergence of novelty (see above), what he also calls a polycentric process and the second with his idea that it is possible to solve economic inefficiencies using what Popper calls ‘piecemeal technology’. We will examine those two influences which are completely different in terms of the ways the arguments are organized: in the Keynesian approach Polanyi does not based his discourse on the idea of emergence, he is deliberately situated on a macroeconomic level whereas in the Hayekian one the idea is to analyze the way an order emerges from individuals’ actions and interactions. We will finally examine the possibility to make the combination of those two approaches coherent.

Polanyi as a Hayekian

What Polanyi takes from Hayek is the idea that freedom is an essential element of coordination. In his The Republic of Science he compared the market mechanism à la Hayek

---


19 "In the controversy between Laissez Faire and Planning my outlook leans distinctly towards the former… Yet I have proposed some measures which many people may call ‘planning’. If we understand by ‘planning’ the setting aside – in whatever instance – of an alleged automatism, which economic science used to consider as inescapable, and its replacement by government action, then I have certainly have suggested definite measures of ‘planning’" (Polanyi, 1945, p. 149)

20 "But since the early 1930’s a new and more enlightened opinion has begun to draw upon economic science, and through the publication in 1936 of The General Theory of Employment, Interest and Money, by J.M. Keynes, the light finally broke through.” (Polanyi, 1945, p.2).

21 Polanyi never refers explicitly to this notion.

22 For a comparison between Hayek and Polanyi, see Mirowski (1998-1999).
and the functioning of science. He was completely opposed to the idea that pure science could have been based on social demand. In his *The Republic of Science* (1962) he begins by an analysis of the functioning of a free market à la Hayek and stresses the idea the scientific community has to be based on the same rules. “What I have said here about the highest possible co-ordination of individual scientific efforts by a process of self-co-ordination may recall the self-co-ordination achieved by producers and consumers operating in a market. It was, indeed, with this in mind that I spoke of 'the invisible hand' guiding the co-ordination of independent initiatives to a maximum advancement of science, just as Adam Smith invoked 'the invisible hand' to describe the achievement of greatest joint material satisfaction when independent producers and consumers are guided by the prices of goods in a market.” (Polanyi, 1962, p. 56). He calls the process of self-co-ordination polycentricity. “I think I have proved in earlier writings that the production and distribution of modern technological products can be conducted only polycentrically, that is, by essentially independent productive centers distributing their products through a market.” (ibid, 183). In order for individuals to engage in economic actions that are not necessarily in their interest to perform some determinants are needed. Accordingly, the “list of five determinants of societal action, which, for the stake of further discussion, I should prefer to write in the sequence: Powers, Tasks, Tests, Rewards, Accession.” (Polanyi, 1997, p. 186).

The possibility to plan science in accordance with social needs is then an error. “I appreciate the generous sentiments which actuate the aspiration of guiding the progress of science into socially beneficent channels, but I hold its aim to be impossible and indeed nonsensical. An example will show what I mean by this impossibility. In January 1945, Lord Russell and I were together on the BBC Brains Trust. We were asked about the possible technical uses of Einstein's theory of relativity, and neither of us could think of any. This was forty-years after the publication of the theory and fifty years after the inception by Einstein of the work which led to its discovery. It was fifty-eight years after the Michelson Morley experiment. But, actually, the technical application of relativity, which neither Russell nor I could think of, was to be revealed within a few months by the explosion of the first atomic bomb. For the energy

---

23. The essay I am offering here for the celebration of my honoured friend Fritz Hayek is on a subject close to his major interest” (Polanyi, 1997, p.183).
24. As for the debate concerning who, Hayek or Polanyi is the father of the notion of spontaneous order, see Jacobs (1999) and the pro-Hayek answer from Bladel (2005). Moleski seems quite right when he writes (personal communication): “I am not sure it is fair to say that Polanyi ‘took’ this theme from Hayek. I think it developed quite naturally from his instinctive dislike of Soviet economics and a philosophy of science that made it the handmaiden of totalitarian ideals.”
25. For a critic of this conception see Knight (1949), Buchanan (1967) and the answer from Roberts (1969).
of the explosion was released at the expense of mass in accordance with the relativistic equation \( e = mc^2 \) an equation which was soon to be found splashed over the cover of *Time* magazine, as a token of its supreme practical importance.” (Polanyi, 1962). Polanyi’s conception of the market economy sounds very close to Hayek’s one and it is the not strange that he attended the first meeting of the Mont Pelerin Society. Polanyi is however conscious that the State has a role in making the market and the entire economy function. “The State supervises commerce by controlling the standard forms of contracts through which it operates and by supporting the organization of markets which offer scope for public competition.” (Polanyi, 1997, p.135). According to Polanyi, Roads, town hall, armaments have to be funded by the public authorities but modern State “considers, in particular, that the care for children, for the sick, the old, and the unemployed is a public concern, and it provides services for these from public funds”… but “the great majority of human satisfactions are, however, of distinctly individual character, and are parcelled out through the market to individual consumers on commercial basis.” (ibid). There is a will both to defend freedom in economics, sciences and society in general and to avoid poverty and inequalities. In this perspective it is interesting to note that Polanyi considers that the best way to reduce inequalities is to suppress inheritance. As for speculation Polanyi considers that “[L]imitations on certain speculative opportunities and on the movement of 'hot money' may be imposed permanently. But the public will hardly approve of the permanent establishment of a broad battlefront between an army of officials and the private users of money.” (Polanyi, 1945, p. 87).

Polanyi as a Keynesian

In Polanyi’s *Full Employment and Free Trade*(1945), the point of departure is what he calls the “money circle” (figure 2). The full circulation situation is characterized by the fact that the “Money Belt” is such that full employment is realized (figure 3). Accordingly trade cycles are possible. When the economy expands, prices increase and “such a tendency makes prospects of further new business investment appear profitable” (Polanyi, 1945, p.25). This makes new business investment to be undertaken which creates a monetary expansion and then prices rise again. “A business expansion is therefore a self-accelerating process” (ibid.). The same but reverse reasoning can be applied to the process of contraction. An expansion is however not

---

26 We do not develop here this aspect of Polanyi’s conception but for us, those elements are due to his strong humanism. See Kelleher (2008-2009) and below.

27 Polanyi also notes that “If a local deficiency in health or education can be noted, national funds should, without question, be made available to remedy the weakness.” (Polanyi, 1945, p. 99)
an indefinite process: “once a retardation has set in a contracting forces may gain the upper hand. Increased depreciation allowances allocated with respect to the increment of constructional equipment which was created in the upspring, combined with a comparative dearth of renewals (as to be expected in the immediate wake of a wave of new construction), will tend to produce a down-turn. Such a downward trend will go on self-accelerating for a while.” (ibid.).
“Money Circle” (source Polanyi, 1945, p. 4)
“Polanyi realized that an insufficiency of demand meant an insufficiency of money. This realization permitted full employment to be maintained without the need for national
economic planning and without running up the national debt. There was no reason to incur public debt and interest payments when the purpose of the fiscal deficit was to satisfy an excess demand for money and absorb an excess supply of goods and labor. The government should finance its deficit by issuing new money.” (Roberts and Cott, 1998-1999, p. 28).

This phenomenon is according to Polanyi the consequence of what he calls the Gap that is the difference between savings and investments.

Gap = Savings – Commercial Investments.

“The problem of Full Employment can now be seen to consist in the task of filling this gap. In other words: to achieve Full Employment it is necessary to fill the Gap at Full Employment-the gap by which Savings exceed new commercial investment when Full Circulation is maintained.” (Polanyi, 1945, p.27). Accordingly, “I have repeatedly expressed already in a preliminary fashion the point which I shall urge here further; namely, that if, employment being depressed for lack of circulation, the Government covers some of its expenditure by the issue of new money in order to supplement circulation and to restore employment, this must not be looked as a process of borrowing: but that the operation must, on the contrary, be regarded as a definitive financial act by which the Government discharges for the time being its obligation, as guardian of the level of monetary circulation.” (ibid, p. 36-37).

Budget = Tax^{28} + Gap.

A condition needs however to be satisfied: “the process undertaken in order to create sufficient circulation need involve and must involve no material sacrifice to speak of. It should be, and can be, carried out in a neutral form, i.e. in a way requiring no materially significant economic or social action to accompany it.” (ibid, p. 29). It is the way Polanyi defines the “principle of neutrality”^{29}.

^{28}There is two kinds of taxes: “1) Direct taxation of high incomes and of inheritance is necessary in order to restore social justice; 2) indirect taxes on spirits may be levied as a curb on drinking; 3) a motor tax may be imposed to enforce payment for construction and maintenance of roads by those who principally use them.” (Polanyi, 1945, p. 50)

^{29} We will see below that this principle is problematic.
The idea that the quantity of money has to be increased by the State in order for the economy to recover full employment seems to be the reason why some scholars consider Polanyi as attempting to integrate *avant la lettre* Keynes and Monetarism.\(^{30}\)

A possible reconciliation

The fact that Polanyi develops both Hayekian and Keynesian conceptions could be considered contradictory. As it is well known, Hayek and Keynes strongly disagreed on economics and economic policy.\(^{31}\) If Keynes was not a defender of central planning, he was an advocate for the use of government to help regulate the economy in case of unemployment. Hayek believed that economic freedom is tied to free markets, and the less government intervention, the better for the economy. In order to solve the apparent contradiction in Polanyi, Roberts and Cott (1998-1999) stress the idea that “[B]eing untrained as an economist allowed Polanyi to avoid pitfalls that confused economists. It also left him unaware of the magnitude of his achievement. He saw himself as a Keynesian, but in fact he achieved, in the early years of Keynesianism, before the monetarist critique, an integration of the two approaches that economists did not reach until the 1970s.” (p. 26).

Whatever the consistency of this argument, it seems better to look at the arguments Polanyi developed in the two cases. As an evolutionist Polanyi disagrees with Hayek. Hayek’s evolutionism is not teleological whereas it is the case for Polanyi. Just compare the idea that “[T]hough by moral conduct an individual may increase his opportunities, the resulting evolution will not gratify all his moral desires. *Evolution cannot be just.* Indeed, to insist that all future change be just would be to demand that evolution come to a halt” (Hayek, 1990, p. 74) with Polanyi’s one that “[L]et me only observe here that the theory of natural selection, by subsuming that evolutionary progress under the heading of adaptation as defined by differential reproductive advantage, necessarily overlooks the fact that the *consecutive* steps of a long-range evolutionary progress – like the rise of human consciousness – cannot be determined merely by their adaptive advantage, since these advantages can form part of progress only in so far as they prove *adaptive in a peculiar way, namely on the lines of*  

\(^{30}\)Polanyi synthesized Keynesian economics with the monetary school of economics later associated with Milton Friedman. In this synthesis, Polanyi was at least two decades, and perhaps three, ahead of the best minds in the economics profession.” (Roberts and Cott, 1998-1999, p. 26). This is however questionable (see below).

\(^{31}\) Hayek and Keynes were not however completely opposed. They shared a subjectivist approach (Boehm, 1989; Butos and Koppl, 2013). Hicks (1967) identified proximities between Hayek and Keynes. See also O’Driscoll, 1977), and more recently, Arnon (2014).
ascending evolutionary achievement.” (Polanyi, 1974, p. 385)\(^{32}\).

According to Polanyi Man becomes better through evolution\(^{33}\). Polanyi’s vision of Man is such that he considers that “man’s responsibility to standards of truth and rightness establish him as a rational person” (Polanyi, 1959, p. 90). There is a moral and theological dimension through Polanyi’s works and his conception of knowledge is applied to science, arts as well as religion. Such a moral aspect makes Polanyi reluctant to accept inequalities and is one of the reasons why he defends the possible intervention of the State in order to solve injustice and inequalities (see above). This in line with Keynes’ idea that “[F]or my own part, I believe that there is social and psychological justification for significant inequalities of income and wealth, but not for such large disparities as exist today.” (Keynes, 1936, p. 137).

As a Keynesian, Polanyi stress the idea that, in order to solve the problem of unemployment, the State has to create money in order to make the Gap disappeared. This policy is however constrained by the respect of the “principle of neutrality”. Polanyi’s definition of this principle is not the same as usually referred to in economics. In economics the principle of neutrality is a positive, not normative concept and expresses the idea that nominal variables have no effect on real ones. It is at the basis of the quantitative theory of money: if the quantity of money supplied increases then the prices increase without any effect on the volume of the GDP (that is its real value)\(^{34}\). This theory has been challenged by Keynes that proposes a “monetary theory of production”\(^{35}\). Accordingly it seems that Polanyi’s use of the term “principle of neutrality” is link with the idea that the State must not create distortion in the economy\(^{36}\). Referring to Meade (1938) Polanyi writes that “[H]e expounded this method [the Keynesian theory] here with unsurpassed clarity, but failed to round off the picture by adding to it the principle of neutrality. His suggestion to distribute money as a supplement to

---

\(^{32}\)“Polanyi opposes moral relativism and advocates a society in which liberty is defended on the grounds that it facilitates the pursuit of transcendent ideals.” (Goodman, 2005, p. 55).

\(^{33}\)“This is the point at which the theory of evolution finally bursts through the bounds of natural science and become entirely an affirmation of man’s ultimate aims.” (Polanyi, 1974, p. 404)

\(^{34}\)It is then difficult to accept the idea that “Polanyi synthesized Keynesian economics with the monetary school of economics later associated with Milton Friedman.” (Roberts and Cott, 1998-1999, p. 26). Indeed, according with Friedman the effect of an increase of the quantity of money supplied, after a short period of efficiency (during which people are victim of a monetary illusion) is an increase of inflation without any effect on the level of employment. Polanyi is much more in line with Hicks (1937).

\(^{35}\)See Keynes (1933).

\(^{36}\)“[T]he principle of neutrality also follows: namely that Governments must use existing channels of public expenditure for issuing new money and do not undertake new public enterprises or deviate in any other way from the otherwise desirable course of economic policies, merely for the purpose of bringing money into circulation.” (Polanyi, 1945, p. 147). Manucci (2005) stresses that “the principle of neutrality demanded by Polanyi is simply the principle of separation between economics and politics.” (156)
social services in amounts compensating for circulatory deficiencies is in sharp conflict with this principle.” (Polanyi, 1945, p. 124).

What is impressive is that in Full Employment and Free Trade Polanyi never refers to the notions of economic coordination, spontaneous order, or polycentricity. He put himself directly on a macroeconomic level without reference to the microeconomic one and to the emergence of macroeconomic realities. He avoids solving the problem of aggregation which is an important one for the Austrian School.

5. Conclusion

Polanyi has a very fascinating trajectory. He was first trained in natural sciences as a chemist. After he moved to England, he progressively changed his mind and participated to societal debates concerning planning in economics as well as in science. His ontology is very specific and based on the ideas of emergence and download causation. His contribution to philosophy of science anticipates Kühn’s conception. His epistemology is based on the notion of tacit knowledge. He defends free market in line with Hayek’s conception of economics and society and proposes a Keynesian approach of full employment. Blending those two conceptions seem, at first sight contradictory. It is however possible to find an explication and reduce the opposition between those two approaches which are set up on completely different frameworks (polycentricity for the first, macroeconomic variables for the second). First Keynes does not defend socialism and is a defender of a free-market economy, so is Polanyi and Hayek. Second, in opposition with Hayek his approach is teleological and defends the existence of transcendent ideal. It is the reason why Polanyi’s works are mainly considered and discussed by philosophers and theologians and not so much by economists.

References

Buber, M. 1937. *I and Thou*, Charles Scribner's Sons
Hall, R. L .1982. The Role of Commitment in Scientific Inquiry: Polanyi or Popper?, *Human Studies*, vol. 5, 45-60


Newton, N. 2011. Michael Polanyi’s theory of knowledge, Habermas and interdisciplinary research. Paper submitted in part completion of the requirements of the degree of Doctor of Philosophy, University of Bristol


http://www.kfki.hu/chemonet/polanyi/9912/sheppard2.html


*Tradition & Discovery: The Polanyi Society Periodical*. 2013-2014, 40(3)


2014-01 Cristiano Antonelli & Francesco Quatraro
The Effects of Biased Technological Changes on Total Factor Productivity: A Rejoinder and New Empirical Evidence

2014-02 Michaël Assous & Roberto Lampa
Lange's 1938 Model: Dynamics and the “Optimum propensity to consume”

2014-03 Agnès Festré & Pierre Garrouste
Do People Stand by their Commitments? Evidence from Classroom Experiments

2014-04 Samira Demaria & Sandra Rigot
IFRS Standards and Insurance Companies: What Stakes for Long-Term Investment? A French Case Explanatory Analysis

2014-05 Gérard Mondeiello
Splitting Nuclear Parks or Not? The Third Party Liability Role

2014-06 Frédéric Marty
Towards an Economics of Convention-based Approach of the European Competition Policy

2014-07 Giovanni Dosi, Giorgio Fagiolo, Mauro Napoletano, Andrea Roventini & Tania Treibich
Fiscal and Monetary Policies in Complex Evolving Economies

2014-08 Séverine Borderon
La nature devenue projet de compensation écologique

2014-09 Benjamin Montmartin & Marcos Herrera
Internal and External Effects of R&D Subsidies and Fiscal Incentives: Empirical Evidence Using Spatial Dynamic Panel Models

2014-10 Olivier Brette, Thomas Buhler, Nathalie Lazaric & Kevin Marechal
Reconsidering the Nature and Effects of Habits in Urban Transportation Behaviour

2014-11 Raphaël Chiappini
Institutional Determinants of Japanese Outward FDI in the Manufacturing Industry

2014-12 Olivier Bruno, André Cartapanis & Eric Nasica
Bank Leverage, Financial Fragility and Prudential Regulation

2014-13 Anaïs Carlin
Consumer Choice Theory and Social Learning

2014-14 Djamila Elidrissi, Valérie Hauch & Sabrina Loufrani-Fedida
Compétences relationnelles et entreprises à internationalisation rapide et précoce : une approche multi-niveaux

2014-15 Franck Léon
La construction des Business Models des fournisseurs d’Infrastructure as-a-Service : l’étude de deux “purs players” français

2014-16 Maëlle Della Peruta & Dominique Torre
Virtual Social Currencies for Unemployed People: Social Networks and Job Market Access

2014-17 Lauren Larrouy
Challenging Standard Non-Cooperative Game Theory? From Bacharach’s “Variable Frame Theory” to “Team Reasoning”
<table>
<thead>
<tr>
<th>2014-18</th>
<th>Cléo Chassonnery-Zaïgouche &amp; Lauren Larrouy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reshaping Standard Microeconomics for Political Action: Kenneth J. Arrow and Thomas C. Schelling’s Rand Corporation Projects on Racial Issues</td>
</tr>
<tr>
<td>2014-19</td>
<td>Nabila Arfaoui</td>
</tr>
<tr>
<td></td>
<td>Eco-innovation and Regulatory Push/Pull Effect in the Case of REACH Regulation: Empirical Evidence from Survey Data</td>
</tr>
<tr>
<td>2014-20</td>
<td>Patrice Bougette &amp; Christophe Charlier</td>
</tr>
<tr>
<td></td>
<td>Renewable Energy, Subsidies, and the WTO: Where has the 'Green' Gone?</td>
</tr>
<tr>
<td>2014-21</td>
<td>Sandrine Jacob Leal, Mauro Naioletano, Andrea Roventini &amp; Giorgio Fagiolo</td>
</tr>
<tr>
<td></td>
<td>Rock around the Clock: An Agent-Based Model of Low- and High-Frequency Trading</td>
</tr>
<tr>
<td>2014-22</td>
<td>Denis Cormier &amp; Samira Demaria</td>
</tr>
<tr>
<td></td>
<td>Pertinence des mesures non-GAAP pour les marchés boursiers : le cas des firmes du CAC 40</td>
</tr>
<tr>
<td>2014-23</td>
<td>Patrice Bougette, Marc Deschamps &amp; Frédéric Marty</td>
</tr>
<tr>
<td></td>
<td>When Economics Met Antitrust: The Second Chicago School and the Economization of Antitrust Law</td>
</tr>
<tr>
<td>2014-24</td>
<td>Maria Cristina Marcuzzo &amp; Eleonora Sanfilippo</td>
</tr>
<tr>
<td></td>
<td>Keynes and the Interwar Commodity Option Markets</td>
</tr>
<tr>
<td>2014-25</td>
<td>Florian Smuda, Patrice Bougette &amp; Kai Hüscherlath</td>
</tr>
<tr>
<td></td>
<td>Determinants of the Duration of European Appellate Court Proceedings in Cartel Cases</td>
</tr>
<tr>
<td>2014-26</td>
<td>Stéphanie Missonier, Frédérique Chedotel &amp; Sabrina Loufrani-Fedida</td>
</tr>
<tr>
<td></td>
<td>Conflict Management in Interorganizational Projects: An Integrative Analysis of Two Longitudinal Case Studies in Information Systems</td>
</tr>
<tr>
<td>2014-27</td>
<td>Adel Ben Youssef, Ludivine Martin &amp; Nessrine Omrani</td>
</tr>
<tr>
<td></td>
<td>The Complementarities between Information Technologies Use, New Organizational Practices and Employees’ Contextual Performance: Evidence from Europe in 2005 and 2010</td>
</tr>
<tr>
<td>2014-28</td>
<td>Jean-Luc Gaffard</td>
</tr>
<tr>
<td></td>
<td>Capital, richesse et croissance : de la recherche empirique aux éclairages théoriques</td>
</tr>
<tr>
<td>2014-29</td>
<td>Edward Lorenz</td>
</tr>
<tr>
<td></td>
<td>Do Credit Constrained Firms in Africa Innovate Less? A Study Based on Nine African Nations</td>
</tr>
<tr>
<td>2014-30</td>
<td>Thomas Jobert, Alexandru Monahov &amp; Anna Tykhonenko</td>
</tr>
<tr>
<td></td>
<td>Domestic Credit in Times of Supervision: An Empirical Investigation of European Countries</td>
</tr>
<tr>
<td>2014-31</td>
<td>Adel Ben Youssef, Walid Hadhrri &amp; Hatem Mhenni</td>
</tr>
<tr>
<td></td>
<td>Adoption of Information and Communication Technologies and New Organizational Practices in the Tunisian Manufacturing Sector</td>
</tr>
<tr>
<td>2014-32</td>
<td>Denis Cormier &amp; Michel Magnan</td>
</tr>
<tr>
<td></td>
<td>Does a Firm’s Exposure to Ethical Issues Matter to Financial Markets? A Governance Perspective</td>
</tr>
<tr>
<td>2014-33</td>
<td>Aymeric Lardon</td>
</tr>
<tr>
<td></td>
<td>A Partial Characterization of the Core in Bertrand Oligopoly TU-games with Transferable Technologies</td>
</tr>
<tr>
<td>2014-34</td>
<td>Raphaël Chiappini &amp; Yves Jégourel</td>
</tr>
<tr>
<td></td>
<td>Futures Market Volatility, Exchange Rate Uncertainty and Cereals Exports: Empirical Evidence from France</td>
</tr>
<tr>
<td>2014-35</td>
<td>Frédéric Marty</td>
</tr>
<tr>
<td></td>
<td>De la soutenabilité budgétaire des contrats de partenariat public-privé</td>
</tr>
<tr>
<td>2014-36</td>
<td>Samira Demaria &amp; Grégory Heem</td>
</tr>
<tr>
<td></td>
<td>L'évolution du lien entre les normes comptables et prudentielles : une analyse du point de vue des parties prenantes du secteur bancaire</td>
</tr>
<tr>
<td>2014-37</td>
<td>Flora Bellone, Patrick Musso, Lionel Nesta &amp; Frederic Warzynski</td>
</tr>
<tr>
<td></td>
<td>International Trade and Firm-level Markups when Location and Quality Matter</td>
</tr>
<tr>
<td>2014-38</td>
<td>Haeng-Sun Kim</td>
</tr>
<tr>
<td></td>
<td>Firms’ Leverage and Export Market Participation: Evidence from South Korea</td>
</tr>
</tbody>
</table>
Giulio Guarini, Giuseppe Garofalo & Alessandro Federici
A Virtuous Cumulative Growth Circle among Innovation, Inclusion and Sustainability?
A Structuralist-Keynesian Analysis with an Application on Europe

Agnès Festré & Pierre Garrouste
Michaël Polanyi on Reality, Knowledge, and Economics