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MICHAEL POLANYI' VISION OF ECONOMICS: SPANNING HAYEK AND KEYNES

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Michael Polanyi' Vision of Economics: Spanning Hayek and Keynes[1]

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Abstract: This paper analyses Michael Polanyi's vision of economics. We stress two major features: first, the radical opposition to central planning and his defence of self-organization as a superior mechanism for coordinating individual plans that he shared with Hayek; second, the strong support for state interventionism in order to fight unemployment and limit income inequalities that he borrowed from Keynes. Polanyi blended these two apparently contradictory influences and provided an original institutionalist approach, which has unfortunately been underrated in the economics literature. We argue that this approach is consistent with Polanyi's intellectual background and more specifically, his view on tacit knowledge and his critical approach of liberalism.

Keywords: Michael Polanyi, Hayek, Keynes, spontaneous order, State intervention, liberalism, tacit knowledge, public liberty.

JEL codes: B25, B31, B41

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1. Introduction

Michael Polanyi is a very impressive and interesting scientist and philosopher who published more than 200 papers. He was originally educated as a physical chemist, working first at prestigious Kaiser Wilhelm Institutes in Berlin then at the University of Manchester.[2] His interest by the mid-thirties had shifted to economics and political philosophy.[3] Like his brother Karl, Michael was very concerned, for both professional and family reasons (his mother was from Vilnjus), about the economic and political situation in the Soviet Union and the widespread diffusion of planning ideas including in the scientific domain. He met Hayek in 1938 at the *Colloque Walter Lippmann* on neoliberalism held in Paris although he got acquainted with the Austrian literature on the socialist calculation even earlier. In 1940 he founded with John Baker the Society for Freedom in Science. Apart from the Austrian influence, he was also particularly sympathetic to Keynes' ideas in order to cure unemployment. In order to make Keynes' views accessible to the general public, he used both moving picture technology and chemical apparatus as innovative pedagogical tools aiming at describing the principles underlying the economic life.[4]

Whereas the proximity between Polanyi and Hayek has already been discussed in the literature (see Mirowski 1998-1999 and Mullins 2010 on the common inspiration of Gestalt psychology; Oguz 2010 on the different meanings of tacit knowledge), the relation with Keynes is less documented in the literature except in the limited context of macroeconomic thinking by Roberts and Van Cott (2000).

[2] He was a secular Jew but converted to Catholicism. It is unclear whether this conversion dated from October 1919 (well into the era of the White Terror in Hungary) was an act of faith or whether it was a practical step to facilitate his employment in Germany (Frank 2012: 209). For a precise biography of Michael Polanyi, see Nye (2011) and Scott and Moleski (2005). See also Biró's recently published book on Polanyi's economic thought, which is a journey through the life, correspondence and work of Polanyi, whose reading is very informative about the context in which Polanyi's economic ideas arose (Biró 2020).

[3] He continued to work in chemistry at the University of Manchester until 1948, but in 1937 his interest gradually switched to popular education in economics. As lamented by Melvin Calvin, one of Polanyi's Post-Doc student in 1935 and 1936 who later won the Nobel Prize, 'it was hard to interest Polanyi in chemistry subjects anymore' (Nye 2002, 125 referring to Calvin 1991-2).

[4] We refer here specifically to the two films: the 'economic machines' he designed in his chemical laboratory at the University of Manchester in the 1930s and 'Unemployment and money. The principles involved' (1940), a diagrammatic sound film aiming at disseminating key mechanisms of Keynes' *General Theory*. Later on, Polanyi *Published Full Employment and Free Trade* (1945), which is the extended written version of the 1940 film. See Biró (2017), Beira (2014-2015) and Moodey (2014-2015).

Our aim in this paper is to show that there is coherence in Polanyi's mixed vision of a market economy if we consider it in the broader perspective of the complex philosophical background of Polanyi's ideas as well as his political (and religious) engagement.

Our main argument is that Polanyi's and Hayek's views on liberalism and tacit knowledge are different, which made it possible for Polanyi to agree with Keynes that the State should intervene to reduce unemployment while also upholding the concept of a self-organized economy and society in line with Hayek. Needless to say – and somewhat ironically, thinking about Polanyi's philosophical perspective on knowledge – this interpretation will inevitably make some aspects of his thought more salient, while concealing others.

The structure of the paper is as follows. Section 2 presents Polanyi's mixed vision of economics. Section 3 contrasts Polanyi and Hayek's perspectives on tacit knowledge and liberalism, arguing that these differences help to understand the idiosyncratic approach provided by Polanyi in the field of economics. Section 4 concludes the paper.

2. Polanyi's mixed vision of economics

Polanyi's economics writings consist of a few articles (Polanyi 1935, 1938, 1940a) and a book entitled *Full Employment and Free Trade* (1945).[5] They are divided between attacks on the Soviet system and lucid commentaries on the work of Keynes. As very well documented by Biró (2020), Polanyi started to build his network of economists in 1928, when he moved to Manchester. Between 1935 and 1950, he corresponded with a number of important economists: Besides Hayek and Keynes, Polanyi exchanged with Lionel Robbins, Joan Robinson, John Hicks and Ludwig Lachmann. His position as a scientist and a social thinker led him to belong to a group of intellectuals in England concerned with social problems. This group – called the Moot – was conducted by Joseph H. Oldham, editor of the *Christian Newsletter* (Cash 1996: 7).

In his economics writings, Polanyi displays ideas that have some commonalities with Hayek and Keynes. He was however critical Hayek's view of liberalism and defence of *laissez faire*

[5] Most of his articles were not published in mainstream economic journals.

in the field of economic policy.[6] When he read Keynes's *General Theory* he was, by contrast, impressed by its economic policy implications.[7]

In fact, Polanyi was as critical of extreme forms of liberalism based on a dehumanized values-free utilitarianism, as he was of collectivism, which he considered as the latest utopian vision that the Depression and turmoil in Europe have inclined the masses toward. Therefore, he advocated for a conservative liberalism (see Allen 1998), which combines a vision of the economic order, which rests on self-organization principles, as in Hayek, but which accommodates for interventionism, as in Keynes, when economic disequilibria jeopardize existing traditions and fundamental values. The first feature is related to Polanyi's view of knowledge and science, which he describes also as polycentric processes, and the second is more in line with his idea that it is possible to solve economic inefficiencies using what Popper calls 'piecemeal technology'.[8] In the following, we successively examine in some details these two features.

2.1. Polanyi's approach to inter-individual economic coordination: the commonalities and differences with Hayek[9]

Polanyi shares with Hayek the idea that self-organization is an essential principle of coordination in societies not only for traditional economic activities, but also for science or academic activities. He expressed his views in his 1962 article *The Republic of Science*, where

[6] "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 suggested definite measures of 'planning'" (Polanyi 1945: 149). "Besides, if I recalled the memorable campaign through which he [Friedrich Hayek] defended for a time some indispensable truths against the turbulent hopes of contemporary opinion, I should also have to criticize to a certain extent the position he took up in this struggle. He addressed an age obsessed by the fear of mass unemployment while turning an indifferent eye on this problem. This surely was a mistake." (Polanyi 1949: 267).

[7] 'But since the early 1930s a new and more enlightened opinion has begun to dawn 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: 2).

[8] By analogy with the central role of piecemeal experiments in the sciences, Popper argues that piecemeal social engineering is the only type of reform (in contrast to economic or social planning) that can be rationally justified, namely, a conception of public intervention that is small-scale, incremental, and continuously amended in the light of experience. Note that Polanyi never refers explicitly to the notion of piecemeal technology.

[9] For a comparison between Hayek and Polanyi, see Mirowski (1998–1999).

he argued that the market-like spontaneous order[10] should be the organizational principle of science rather than social demand:[11]

> 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: 56).

Polanyi paid explicit tribute to Hayek in an article he wrote in 1969, where he elaborates on *polycentricity*, an alternative terminology for spontaneous order:[12] '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' (Polanyi 1969 in Allen ed. 1997: 183).

Polanyi mentioned the idea of polycentricity[13] for the first time in his 1941 essay "The Growth of Thought in Society", where he developed his vision of the organization of science and

[10] For the debate over who, Hayek or Polanyi, is the father of the notion of spontaneous order, see Jacobs (1999) and the pro-Hayek response from Bladel (2005). Moleski would seem right in writing (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 handmaid of totalitarian ideals".

[11] "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 of the explosion was released at the expense of mass in accordance with the relativistic equation e = mc2 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: 62).

[12] '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 1969 in Allen ed. 1997: 183). This essay entitled "The Determinants of Social Action" is part of a book edited by Streissler and published in 1969: *Roads to Freedom: Essays in Honour of Friedrich A. von Hayek* (Streissler ed. 1969). This Festschrift of 'honorary essays' presented to Hayek on his 70th birthday includes essays by Erich Streissler, Jacques Rueff, Peter T. Bauer, James M. Buchanan, Gottfried Haberler, George N. Halm, Ludwig M. Lachmann, Friedrich A. Lutz, Fritz Machlup, Frank W. Paish, Michael Polanyi, Karl R. Popper, Günter Schmölders, and Gordon Tullock.

[13] Note that the concept of polycentricity diffused to governance studies, thanks to Vincent and Elinor Ostrom and the Bloomington School of institutional analysis (see Aligica and Boettke 2009).

contrasted two organizational orders: the corporate order and the dynamic order. The first one 'consists in limiting the freedom of things and men to stay or move about at their pleasure, by assigning to each a specific position in a pre-arranged plan' (Polanyi, 1941, 431). By contrast, in the other order, which characterizes both natural and human settings, 'no constraint is applied specifically to individual particles (…). The particles are thus free to obey the internal forces acting between them, and the resultant order represents the equilibrium between all the internal and external forces' (ibid.).

Interestingly, we find in Polanyi (1948: 248–249) a demonstration, through the use of graph representations, of the impossibility of economic planning through the comparison between two opposed coordination devices that characterize the two kind of orders, namely, corporate authority and spontaneous order (see Figures 1–5 in the Appendix).

What Polanyi wants to demonstrate is the superiority – in terms of efficiency – of spontaneous order over corporate authority when the number of interacting individuals becomes significant. This approach is based on the notion of *span of control*, first proposed by proposed by Graimucas (1933), then revived by Meier and Bohte (2000) and developed by Theobalt and Nicholson-Crotty (2005) in management.[14]
In Polanyi's words, "The impossibility of central economic direction lies in the much shorter span of control [the number of adjustable relations] of a corporate authority as compared with a self-adjusted system." (Polanyi 1948: 256).

Polanyi completes his analysis of polycentricity (compared to corporate authority) with an analysis of the incentives needed for economic actions when their performance is not necessarily in the actors' interests. Accordingly, he lists the "five determinants of societal action", which he writes in the sequence: "Powers, Tasks, Tests, Rewards, Accession." Those factors define the necessary criteria for rational action which characterize any polycentric

[14] The notion of 'span of control' has been first introduced in Management by Graicunas (1933, 1937). This notion came from the psychological notion of 'span of attention'. The formula known as the Graicunas formula can be written as follows:

$$r = n\left[\frac{2^n}{2} + (n-1)\right]$$

where *r* is the number of relationships and *n* the number of subordinates. Accordingly, the 'span of control' is defined by the total of relationships that can be decomposed of into three types of interactions: the number of direct relationships between the core and the subordinates, i.e., *n*; the number of cross relationships, i.e., $n(n\text{-}1)$ and the number of direct group relationships, i.e., $n\left(\frac{2^n}{2} - 1\right)$. This formula shows that the span of control increases dramatically with the number of subordinates. See Gulick and Urwick (1937), Urwick (1956, 1974), Nickols (2011).

economic system, whether it is of private or public enterprise (Polanyi 1969 in Allen 1997: 185–186).

"Power" defines people's possibility to act economically. It is complete in a polycentric system, and limited inside a corporation. "Tasks" are the set of actions assigned to individuals. They are determined by senior individuals within a corporation and rationally defined by the individuals in a polycentric system. "Tests" are the set of tools used to evaluate individual performance. They are based on a contract in a polycentric system, and on a fair appraisal in corporations. "Accession" is linked to the procedure of "promotion or demotion". It is defined by a contract in the case of a business corporation.[15]

Polanyi then analyses the institutions that, in a polycentric system, provide the persons making decisions with "the five factors of responsible societal action." (ibid: 189). He uses the figure below (slightly modified to clarify):

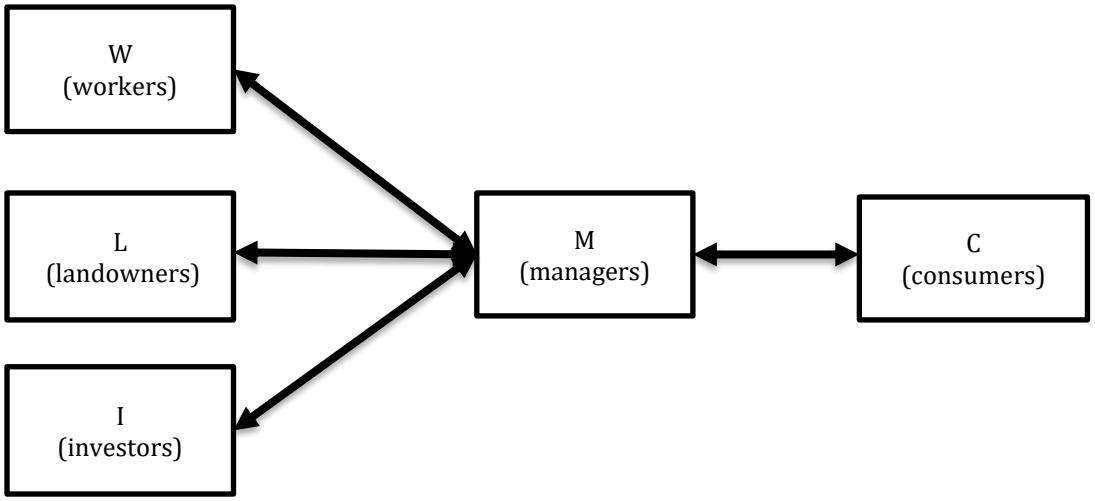


Figure 6. Resource allocation in an economic system

The double-headed arrows connecting the symbols expresses the following two way processes:

[15] Note that Polanyi does not analyze Accession in the case of a polycentric system.

> The W's allocate themselves to jobs offered by M (managers) while M's give jobs to W's. Similarly the L's assign sites to one of the plants controlled by an M, while an M decides to puts his plant on a site placed at his disposal by an L. The I's allocate capital between different M's, while the M's allocate their ideas to one of the I's. On the right of the M's we see them distributing their products between the C's (consumers) while the C's choose between different M's in allocating their custom. (ibid: 190)

In the above quotation, the W's refers to the workers, the L's to landowners, while the I's stand for the investors. According to Polanyi the polycentric system permits the five determinants to function efficiently if (i) there is a system of contracts that bilaterally links the different parties (W and M, L and M, I and M and M and C); (ii) this system of contracts being "enforceable by a legal order of private law." (ibid: 190) and (iii) a price system exists that allows the different parties to allocate their resources in a rational way.

What distinguishes capitalism from socialism is mainly the contractual relationships between the I's and the M's. First, under socialism the I's "are appointed by public authorities" (ibid: 193) and people cannot directly finance the M's and reap no profits from this: "All risks of enterprise are pooled in the public treasury. The State bears all the losses and takes all the profits." (ibid: 194). Second,

> in the competitive order I ↔ M, we still have the managers boosting their projects in competition with each other and trying to attract capital in the direction of greater profitability; but the I's being all officials of the same government cannot possibly pursue as many different and conflicting opinions as private individuals could' (ibid: 194).

In a nutshell, Polanyi argues that self-organization is a more efficient coordination device than planned organization because (i) from a threshold number of people, the span of control does not permit the hierarchy to organize the flows of information between the different levels of the organization efficiently; and (ii) to use modern parlance, the system of incentives is poorer within an organization than it is in the market.

As Hayek, Polanyi was conscious that the State had to perform minimal regalian functions such as providing security and warranting conditions (in particular contract law and property rights) for the market and the entire economy function efficiently.[16] As he wrote: "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: 135). An additional function of the State is to fund infrastructures such as roads, town halls and armaments. Moreover, according to Polanyi, the modern State has to provide the people with health and education services since "the care for children, for the sick, the old, and the unemployed is a public concern" and "the great majority of human satisfactions are (…) of distinctly individual character, and are parceled out through the market to individual consumers on commercial basis." (ibid). Thus, the State is obliged not only to defend freedom in economics, science and society in general but also to finance public goods and services and to avoid poverty and inequalities.[17] From this perspective it is interesting that Polanyi considers that the best way to reduce inequalities is to suppress inheritance.

Moreover, and this is at odd with Hayek, Polanyi considers that the State has an important role in stabilizing the whole economic system. This dimension of Polanyi's thought borrows from Keynes and is displayed in his 1945 book *Full Employment and Free Trade*. Interestingly, on the topic of speculation, Polanyi considers that "limitations on certain speculative opportunities and on the movement of 'hot money' may be imposed permanently." However, he adds that 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: 87).

To sum up, Polanyi's stance regarding the role of the State nicely fits the later Musgrave framework, which emphasizes three functions: resource allocation, income distribution and macroeconomic stabilization (Musgrave 1949). First, the State has to ensure that the conditions for polycentricity (or self-organization) are warranted in order to reach an efficient resource allocation. In particular, property rights and contract law must be defined and enforced. Second, the State must first, finance public goods and public services and second, try to reduce poverty

[16] We do not develop this aspect of Polanyi's conception here; however, in our view, those elements are due to his strong humanism. See Kelleher (2008–2009) and below.

[17] 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: 99).

and economic inequalities. Third, the State must dampen economic fluctuations as well as economic dysfunctions such as speculation for instance. Let us now develop at more length Keynes' influence on Polanyi as regard macroeconomic stabilization.

2.2. *Polanyi's Keynes-inspired approach to government economic intervention*

Polanyi acknowledges Keynes' influence in a letter he wrote in September 1937 to Toni Stolper:[18] "Keynes' *General Theory of Unemployment*! A grandiose *oeuvre* that will offer nourishment to social powers for many years." (Beira 2014–2015: 9).

More precisely, Polanyi endorses Keynes' monetary approach to the determination of the level of economic activity. In his book *Full Employment and Free Trade* (1945) Polanyi takes as point of departure what he calls the "money circle" and used the visual representation of a belt (the "Money Belt") to characterize different states of "equilibrium" regarding the level of employment (see Figures 7 and 8 in the Appendix).[19] In this framework, 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: 25). The increase in new business investment creates a monetary expansion and prices rise again: "A business expansion is therefore a self-accelerating process." (ibid). However, expansion is not an indefinite process and sooner or later a reverse process of contraction will start:

> Once a retardation has set in a contracting force 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: 25).

In an article Polanyi published in 1938, he already proposed an explanation of the trade cycle based on an adjustment process of capital:

[18] Toni Stolper was a economic journalist and economist. She was the wife of the economist Gustav Stolper.

[19] Polanyi's book was reviewed by Arndt (1946), Gilbert (1946), Lindblom (1946), Lutz (1946), Phelps Brown (1946), Stead (1946), T.M.R. (1945), Harrod (1945) and Woolbert (1946).

> The cycles of reinvestment will be shown to be accompanied by regular changes in the age distribution, average age, and value of capital during which payments for reinvestment oscillate around the steady rate of amortisation, causing alternative phases of liquidation and re-absorption of capital and ending up eventually with the net liquidation of … [part] of the originally invested capital. The whole of this process is called 'The Settling Down of Capital' (Polanyi 1938: 153–154).

In this way Polanyi explains the trade cycle as the relationships between amortization payments and reinvestment. The first exceeds the second during a downturn, and the reverse effect is a source of revival following a slump.

This phenomenon, according to Polanyi, is a consequence of what he calls the Gap, that is, the difference between savings and investments. This Gap is due to the fact that savings and investments depend on two sets of independent decisions that do not necessarily converge and "expansions and contractions of monetary circulation arise in consequence." (Polanyi 1945: 26). There is a tendency for gaps to be self-sealing because variations in the national income induce variations in both savings and investments in the same direction: "This process of self-sealing, however, is achieved at the cost of adjusting Employment and National Income to some level which is not likely to be a desirable one. In fact advanced industrial communities tend to adjust the level of employment well below full capacity." (ibid: 26).

Accordingly, because the automatic forces that fill the gap fail in achieving full employment, the gap has to be filled artificially:

> 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: 27, emphasis in original).

But this should not be achieved by any means. Polanyi realized that an insufficiency of demand meant an insufficiency of money. Therefore, the government should finance its deficit by issuing new money.

Interestingly, Polanyi introduces the "principle of neutrality", according to which "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: 29, emphasis in original).

Clearly, Polanyi defines the principle of neutrality differently from the conventional way monetary economists do. Traditionally, the principle of neutrality expresses the idea that nominal variables have no effect on real ones. This is the basis of the quantitative theory of money: If the quantity of money supplied increases then prices increase without any effect on real GDP value.

To a certain extent, the neutrality principle can be interpreted not only as an analytical tool but also as a pedagogical device aimed at making a clear distinction between what must be the province of markets, namely to provide for the (including monetary) needs of the public, and what are the prerogatives of the State (i.e. the traditional regalian functions, but also providing for public goods, limiting inequalities, and importantly, acting as the guardian of the monetary circulation). The neutrality principle implies that the issuing of money during periods of depression should not constitute a financial burden for the public (condition 1), nor that it should produce mal- or overinvestment through inadequate tax (condition 2).

For Polanyi, an expansionary monetary policy based on fiscal deficit, and whose amount is limited to the usual government expenditures will meet the first condition because, in this case, the issuing of new money cannot be considered as borrowing:

> 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: 36–37).

As for the extent of the monetary policy and its potential redistribution effects, Polanyi writes 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: 147).

Note that the two conditions for long-run efficient monetary policy aimed at curing unemployment stand in sharp contrast with the dominant Keynesian position at the time.

Referring to Meade (1938), Polanyi writes that:

> He 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 social services in amounts compensating for circulatory deficiencies is in sharp conflict with this principle (Polanyi 1945: 124).

By the same token, Polanyi criticizes President Roosevelt's 1937 decision to impose a special tax on undistributed profits because such a policy induces a 'misdirection of human efforts, or human relations' as well as employment policies as well as Beveridge's employment policies based on additional taxation (Polanyi 1945: 29 and 57).

Polanyi is also strongly opposed to Keynesian massive fiscal policies that imply that the Government consolidates a floating debt by placing government bonds with the public. In these cases, government intervention is at odds with the principle of neutrality. Moreover, it has some counterparts in terms of seignorage tax, which translates in a reduction of money circulation (see Polanyi 1945: 18).

In other words, Polanyi stresses the idea that the State, in order to reduce unemployment due to the Gap, has to inject new money into the economy without compensation on the part of the public so long as this injection does not produce distortions in the real economy.

To the extent that the neutrality principle guaranties that State interventions do not distort individuals' incentives and resource allocation, they do not infringe the freedom of people to behave and coordinate. Therefore, they do not prevent spontaneous order from emerging.
As suggested by Manucci (2005: 156), the neutrality principle is a safeguard of the functional separation between economics and politics.

To sum up, Polanyi's half-forgotten contribution to macroeconomics has far-reaching implications.

First, Polanyi provided an analysis of market economies that combines polycentricity as an efficient organization device (against planning) and a macroeconomic monetary approach which offers room for a fiscal policy based on money issue as a means to cure unemployment.[20] It is true that contrary to Keynes who strongly opposed monetary policy, Polanyi considered money to be of utmost importance for macroeconomic stability. A related interpretation provided by Roberts and Van Cott is that Polanyi synthesized Keynesian economics with the monetary school of economics later associated with Milton Friedman.[21]
On the other hand, he was not an expert of monetary theory. In particular, he did not consider, as Hayek did extensively, the role of banking credit in the cycle and its deleterious – in terms in over or malinvestment – interaction with government manipulation of money. He nevertheless warned against the risk of the misuse of the newly issued money in particular when it takes the form of the undertaking of new public enterprises.

Second, he was a visionary man correctly predicting that many of Keynesian policies were pointless, because they were mainly aimed at increasing the sphere of influence of government without solving the main problem according to Polanyi, namely, the needs of the public for cash balances.

As will be developed in the next section, the originality of Polanyi's economics will be even more salient when put in perspective with his intellectual and philosophical background, more specifically his vision of liberalism, which reflects the synthesis between spontaneous order and public intervention.

[20] See Spector and Van Cott (2007) for a critique of macroeconomics textbooks presentations of pure fiscal policy that systematically neglect its underlying monetary mechanisms.

[21] Paul Craig Roberts who was one of Polanyi's last graduate student and Van Cott make such claim: "Being 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' (Roberts and Van Cott, 1988–1999: 26).

3. **Polanyi's conservative liberalism: the role of tacit knowledge, traditions and commitment**

In the former section, we have provided a historical reconstruction of Polanyi's economic ideas. We have reached the conclusion that although Hayek and Keynes exerted an influence on his vision of economics, Polanyi nevertheless developed an original perspective on market economies. First, Polanyi stressed the idea that polycentricity (self-organization) is efficient compared to planning. Second, he supported State intervention – provided certain constraints are fulfilled – to help reduce unemployment. According to us, this synthesis can be better understood if put in perspective with Polanyi's non-classical view or "post-modern"[22] of liberalism which emphasizes the role of personal knowledge, emotions as well as traditions.

3.1. Polanyi's liberalism and the role of tacit knowledge

The notion of tacit knowledge is nowadays overused in management as well as in economics. The way it is defined in those domains is not only far from Polanyi's definition, but often "inconsistent and confused" (Hedesstrom and Whiley 2000: 5). Hedesstrom and Whiley identify two principal conceptions of tacit knowledge in management. The first, named *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. Collins (2001, 2010) offers typologies contrasting *unrecognized knowledge* with *unrecognizable knowledge* or, in his later book, *relational* (or weak) with collective (or strong) tacit knowledge.

As for Polanyi, tacit knowledge is an ontological feature of all kinds of 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: 7).[23]

Polanyi has been highly influenced by both Gestalt psychology and Piaget's theory of intellectual development through his conception of the different stages of children's development. His main concept, in order to explain the notion of tacit knowledge, is the concept of *integration* between *focal* and *subsidiary* awareness:

[22] See in particular Biró (2020: 13–35).

[23] Polanyi (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.

> 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 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).

When describing focal and subsidiary awareness, Polanyi refers to stereoscopy[24] and the notion of *clues*: "we don't look at these two [the stereoscopic pictures] in themselves, 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: 799).

The articulation between the two types of awareness implies an emergence process. It is not possible to deduce subsidiary awareness of a whole from focal awareness of its constituting parts; it is strongly linked to imagination and invention or new knowledge: 'the *clues* of a problem anticipate aspects of a future discovery and guide the questing mind to make the discovery." (Polanyi 1967: 188).

In a nutshell, subsidiary awareness and 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 lose their joint meaning (logical irreversibility).

Another key characteristic of tacit knowledge is its personal dimension:

> 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: 60).

[24] Stereoscopy refers to the techniques used by 3D imaging for creating or enhancing the illusion of depth in an image by means of stereopsis for binocular vision. Most stereoscopic methods present two offset images (placed about four inches from one another, i.e. the average distance between eyes) separately to the left and right eye of the viewer (a metaphor for subsidiary awareness). These two-dimensional are then combined in the brain to give the perception of 3D depth (a metaphor for focal awareness).

This points out an important difference between Polanyi and Hayek. In Hayek, tacit knowledge is defined in general and abstract terms, as related to the classification process of the human's mind, i.e. the idea that perception is the result of classification at varying abstraction levels. If both authors share a common influence of the Gestalt psychology, they do no found their notions on the same ontological approach.

The origin of the divergence between Hayek and Polanyi's views on tacit knowledge can be located in their respective epistemologies. Hayek essentially hires Popper, while Polanyi rejects any form of positivism and is not in favour of Popper's falsifiability.[25] First Polanyi criticizes the distinction between analytics and synthetics which is a cornerstone of logical empiricism (Quine, 1951). Second, he portrayed science as inseparable from emotions and moral and ultimately based on faith and devotion to certain ideals[26]. This implies that evidence can neither kill nor create fundamental beliefs or commitment that are somewhat subject to a confirmation bias. As he summarizes: "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 experience. This is often true even of specific scientific theories." (Polanyi 1950: 29).

So to wrap it up, Polanyi's definition of tacit knowledge has subversive implications for scientific knowledge in general but also for the organization of society.

First, it implies that scientific knowledge resists formalization. Moreover, scientific discovery through experiments cannot be explicitly stated and therefore, cannot easily transmitted from one individual to another:

[25]For the relations between Popper and Polanyi, see Jacobs and Mullins (2011). Popper's reaction to Polanyi's *The Stability of Beliefs* was 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.

[26] See Biró (2020), chapter 5 "Correspondance on the spirituality of science and economics."

> 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: 1).

Second, it rules out the idea that scientific knowledge may be objective, as Popper would put it: "*knowledge without a knower*" or "*knowledge without a knowing subject*." (Popper, 1972, p. 109). On the contrary, Polanyi emphasizes the embeddedness of knowledge in individuals: "the knower's active participation in any act of knowing." (Polanyi 1966a: 4).

Third, tacit knowledge is embodied in specific institutions and practices which cannot be abstractly codified and applied elsewhere. We now turn to Polanyi's formulation of liberalism along these lines.

3.2. Polanyi's liberalism: the role of traditions and commitment

As highlighted by Mullins (2013) and Biró (2018), Polanyi envisions society as a network of overlapping layers of orders (a system of dynamic orders) that are governed by two kinds of coordination mechanisms (spontaneous market-like vs. planned organization-like). The first one is ruled by competition, which is one of the constituent elements of the laws of the market, for which the 'invisible hand' is only a metaphor (Moodey 2014: 32). "Public power" is the principle that governs the second one. Unlike the invisible hand, public power "shelters and controls" the "economic institutions of society". In other terms, by making co-operation the coefficient of the economic system, Polanyi appears to be rejecting competition in favor of co-operation.

Polanyi's distinction between two notions of freedom, namely "private freedom" and "public liberty" reflects this dual view of coordination and is at the core of his conservative liberalism.

Private freedom is the individualistic and self-assertive type of freedom defended by classical liberalism. To use Berlin (1969)'s distinction between positive and negative liberty, it is mainly a negative concept in that "it is liberty *from*, from deliberate interference with, in J.S. Mill's words, the individual 'pursuing his own good in his own way.'" (Allen 1998: 17).

At the opposite, public liberty is not for the sake of the individual but "for the benefit of the community in which dynamic systems of order are to be maintained." It is freedom "with a

responsible purpose; a privilege combined with duties, as exacting as any that are shouldered by man." (Polanyi 1941: 438).

It is rather a positive notion of liberty in the sense that it answers to the question: "What, or who, is the source of control or interference that can determine someone to do, or be, this rather than that?" (Berlin 1969: 122 quoted by Allen 1998: 20).

More precisely, for Polanyi, public liberty is associated with the political concept of conservative liberty[27] and defined as "those traditional rights and liberties by which power is dispersed in ways such that it is not exercised arbitrarily by members of society." (Brenkert 1991: 32, quoted by Allen 1998: 41). The main custodians of these rights are judges, scientists, academics or theologians who have their freedom from public purpose.

When Polanyi takes the examples of the scientist and the judge, he stresses the idea that both follow standards inherited from the past and, that it is on that basis that they can express their originality, that they can discover new results or propose new sentences. As we have already emphasized, scientists but also judges act on "spiritual grounds." Both professions are committed to their job according to socially accepted rules.

In *The Foundations of Academic Freedom* (1947), Polanyi shows that public liberty presupposes that scientists and scholars generally respect standards that are based on tradition and discipline: "Academic freedom can claim to be an efficient form of organization for discovery in all fields of systematic study controlled by a tradition of intellectual discipline." (Polanyi 1947: 584). The reliance on traditions or conventions is also a consequence of the human process of tacit knowing, which implies specific and idiosyncratic knowledge that can hardly be transmitted beyond expert communities. As emphasized by Polanyi, scientists in different schools "think differently, speak a different language, live in a different world." (Polanyi 1958: 151).

Finally, Polanyi's notion of public liberty implies the idea of deliberate and meaningful commitment. In particular, the role of commitment is essential in Polanyi's conception of science (see Hall 1982).

In sum, for Polanyi, liberalism is grounded in a combination of private and public freedom. If "responsible public liberty sets a limit to irresponsible private freedom", the two kinds

[27] Burke and Tocqueville are usually classified as conservative liberals.

complement each other rather than being substitutes: "They merge into one another and mutually stimulate each other." (Polanyi 1941: 440). Moreover, it emphasizes the role of personal commitment, which derives from Polanyi's specific view on tacit knowledge.

The specificity of Polanyi's view on liberalism is linked to his political engagement and the conviction he shared with Toni Stolper that the sort of extreme liberalism that has diffused in the Western countries was a maker of its own destruction by being cut from its moral roots. For Polanyi, one of the reasons lies in the subjection of the scientific and materialist view of science to the value-free behaviourist utilitarian exigencies (see Biró 2020: 104107). This explains in particular why Polanyi devoted so much energy in finding innovative educational ways (through visual methods or experiments) to raise the public's awareness about the risk of paving the way for nihilism or totalitarianism.

This points out differences with Hayek, even if they stood together in looking for ways to defeat the scientific socialism which was dominant during WW2.[28] They were both concerned about the difficulty to diffuse liberal ideas that rely on propositions which are too abstract and not enough scientifically grounded, such as the notion of the invisible hand. The problem with the invisible hand was precisely its inaccessibility, which frustrated the agent's economic activity from its larger social and moral sense, a void which central planning fulfilled. After the publication in *Nature* of Hayek's 1941 article on planning, science and freedom, Polanyi wrote him to express his commitment to their joint enterprise, stating that "the only real aim in my view is the starting of the literary and philosophical movement of our own for the renaissance of Liberalism".[29] Finally, both were aware of the crucial role of experts given the dispersed nature of knowledge. From this perspective, Hayek and Polanyi can be viewed as two pivotal figures of the renewal of liberalism in the 1940s. They shared the idea that the epistemological ground of liberalism (against planning) lies in a theory of knowledge that focuses on the tacit nature of knowledge and its related implications for science and society.

However, they did not share the same vision of liberalism. Hayek could not easily move away from too abstract and universal definitions of liberty and from spontaneous order (see Jacobs

[28] In a letter from July 1st, 1941, Hayek explained that he attached 'very importance to the pseudo-scientific arguments on social organization being effectively met' and that he is 'getting more and more alarmed by the effects of the propaganda' of the left scientists which 'discredit the reputation of science by such escapades' Hayek to Polanyi, 1 July 1941, Box 4, Folder 7, Polanyi Papers, University of Chicago Library.

[29] Polanyi to Hayek, 18 November 1941, Box 78, Folder 35, Hayek Papers, Hoover Archives.

2000). Moreover, he endorsed Popper's theory of open society and, as already emphasized, Polanyi was critical of Popper (cf. Jacobs and Mullins 2011).

They also disagree concerning the implications of tacit knowledge in terms of organization of science and the role of traditions. Polanyi focused on the notion of public liberty whereas, Hayek's emphasis is on individual freedom[30]. As suggested by Jacobs and Mullins (2015: 16), this is one of the reasons why Polanyi wrote an ambivalent review of Hayek's *Individualism and Economic Order*. In this review, Polanyi points out that it is not clear how to interpret Hayek's reference to "'Acton and Burke [who] tell us that tradition is the only true bulwark of liberty'" and his notion of individualist order which " 'must rest on the enforcement of abstract principles'. For Polanyi, abstractness is a non-operational criterion for distinguishing between good and bad traditions or convention because we do not know 'how to distinguish between abstract principles on which we should base the order of the economy and speculative ideas, the fascination of which we must firmly resist?' (Polanyi 1949: 267). The interpretation is even more problematic if we agree with Hayek that "'the individual …must be ready and willing to adjust himself to changes and to submit to conventions which are not the result of intelligent design, whose justification in the particular instance may not be recognisable, and which often may appear unintelligible and irrational.'" (Polanyi 1949: 268).

In other words, if for Hayek social norms and traditions matter, it is mainly because individuals are essentially and involuntarily rule-followers (see Festré and Garrouste, 2009).

From this perspective, Polanyi's liberalism is closer to Keynes's conception of politics. Indeed, according to Keynes (1931, p. 344),

> the political problem of mankind is to combine three things: Economic Efficiency, Social Justice, and Individual Liberty. The first needs criticism, precaution, and technical knowledge; the second, an unselfish and enthusiastic spirit which loves the ordinary man; the third, tolerance, breadth, appreciation of the excellencies of variety and independence, which prefers, above everything, to give unhindered opportunity to the exceptional and to the aspiring.

[30] See Allen (1998) and Jacobs and Mullins (2015). See also Hodgson (2019: 5) on the divergence between Polanyi and Hayek regarding the regulation of markets.

Moreover, in a series of lectures he gave in Oxford in 1924 and in Berlin in 1926, Keynes argued against the naïve doctrine of *laissez-faire*, saying that

> the world is *not* so governed from above that private and social interest always coincide. It is *not* so managed here below that in practice they coincide. It is *not* a correct deduction from the Principles of Economics that enlightened self-interest always operates in the public interest (Keynes 1931: 312, emphasis in original).

Finally, the idea of commitment makes Polanyi's conception of liberalism compatible with economic interventionism, under certain limits, as exemplified by his neutrality principle. In the following quotations, Polanyi defends Keynes's economic interventionism:

> The orthodox Liberals [rejecting Keynes' theory out of ignorance or misunderstanding] maintain that, if the market is limited by the fixation of some of its elements, then it must cease to function, the implication being that there exists a logical system of complete laissez faire, the only rational alternative to which is collectivism (Polanyi 1940b: 140).

Also, in a 22 February 1937 lecture to the Manchester Political Society, Polanyi stressed that

> the work of Keynes has brought an understanding of the trade cycle which seems also to lead up a proper definition of public responsibility in an industrial system. At last we have before us a fundamental criticism of liberal economics which avoids the mistakes of Communism (Polanyi 'On Popular Education in Economics', lecture delivered in February 1937 to the Manchester Political Society, box 25, Folder 9; cited in Jacobs and Mullins 2015: 5n25; republished in *Tradition & Discovery* in Polanyi 2016).

This feature also marks a convergence between Michael and his brother Karl Polanyi according to Gulick (2008: 10), who shows how little is the difference between Karl's socialist ideal and Polanyi's modified sort of liberalism in his maturity:

> The shortcomings of the market principle have been increasingly demonstrated over the past decade or two. The market system is notably blamed because the market cannot balance collective demands. It is incapable of deciding whether priority should be given to the construction of a network of highways or a system of high schools. It cannot balance social costs, not can it regulate the list prices of newly developed industries or

> public works. Finally, it cannot control effective demand, at least in the sense that Keynes – whose theory I subscribe to – understood it. These operations or functions should therefore be carried out insofar as it is possible and even if it is done imperfectly, by the public authorities. By so doing, public authorities serve to regulate, guide, and supplement market tendencies. This function, which is now generally known as 'over-all planning', enables the market tendencies which do appear to be utilized, but not suppressed (Polanyi 1963: 95–96).

Biró (2020: 111) also emphasizes the convergence between the two brothers by pinpointing their common interest for the connection between the economic and the social: Karl locates the role of traditions or social norms at the macrolevel (with the notion of embeddedness) while Michael Polanyi is more concerned about the individual cognitive level, i.e. about how individuals understand, learn and believe in the social environment to which they belong.

4. Conclusion

Polanyi's life followed a very fascinating trajectory. His initial training was in natural sciences as a physical chemist. After moving to England, he participated in societal debates on planning in economics as well as science. In the field of economics, he defended the free market in line with Hayek's conception of economics and society and proposed a Keynesian approach to full employment. We have shown that Polanyi offered an original and consistent vision of market economies which shares commonalities and differences with Hayek and Keynes. Our interpretation is that Polanyi's humanistic vision of economics and society goes far beyond the surface opposition between Hayek and Keynes. First, Polanyi, like Keynes and Hayek did not defend socialism and was a promoter of a free-market economy. Second, the neutrality principle can be interpreted as a way to reconcile State intervention and polycentricity. We have also emphasized that Polanyi's conceptions of tacit knowledge and liberalism was instrumental to understand his economics approach. In particular, we have shown that Polanyi endorsed a conservative view of liberalism where traditions and commitment are crucial for coordination.

From the perspective of institutional economics, Polanyi's achievement illustrates his synthetic method by mixing different orders (spontaneous and deliberately organized). As put forward

by Nye (2011), Michael Polanyi's original account of institutions is to be found in his work on the social dimension of science and provides a noteworthy connection with his brother Karl.

Finally, at the risk of opening the Pandora's box, Polanyi's thought sheds some light on topical debates surrounding the development on blockchain technologies. Indeed, these technologies constitute, according to Davidson et al. (2016) a "*new type of economy*: a "spontaneous organization', which is a self-governing organization with the coordination properties of a market …, the governance properties of a commons …, and the constitutional properties of a nation state…. " (Davidson et al. 2016: 3). It is interesting to note that this literature never addresses the problem of tacit knowledge. Instead, it focuses on the virtues of using blockchain to mitigate or even eliminate informational asymmetries or strategic uncertainty and their related behavioural and welfare consequences (moral hazard, adverse selection, opportunism, overexploitation, etc). Nor does it address the question of the institutional anchoring of the blockchain technologies. From this perspective, Polanyi's notion of public liberty as well as his discussion on the role of commitment and traditions are illuminating.

Appendix

Following Polanyi, let us suppose a leader and three subordinates who each have three subordinates, who, in turn, three subordinates each (see Figure 1).

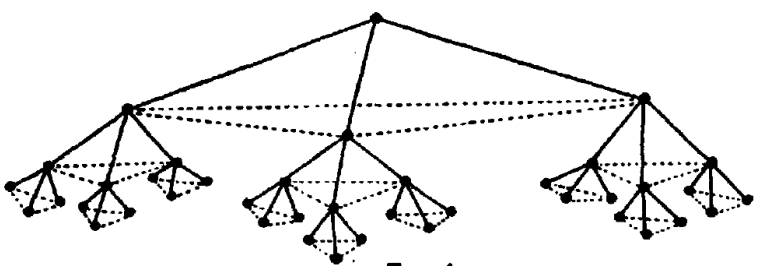


Figure 1. A pyramid of authority of 4 levels (source Polanyi, 1948, p. 248)

The total number r of connections between the nodes is given by:

$$r = 3 + 3^2 + 3^3$$

If one generalizes the three-level graph to l levels, the total number of connections is given by:

$$r = 3 + 3^2 + 3^3 + \cdots + 3^{l-1}$$

The number m of ultimate subordinates equals 3^{l-1} and $i = r/m$ is the number of relations per person governed by the corporate authority[31] (see Figure 2). In other terms, i can be interpreted as the number of connections by node and is given by the following geometric series:

$$i = (1/3)^{l-2} + (1/3)^{l-3} + \ldots + 1$$

Therefore,

$$i = (3/2)\left(1 - (1/3)^{l-1}\right)$$

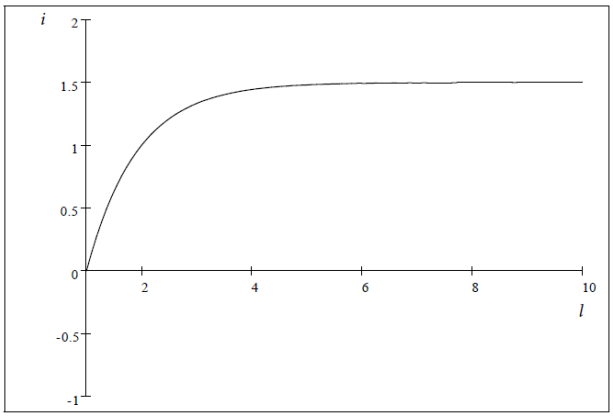


Figure 2. The curve of the function $i = (3/2)(1-(1/3)^{l-1}$ with $l \geq 1$

Suppose now that the nodes are directly connected to each other as in Figure 3, which represents a spontaneous order situation.

[31] In his 1948 article Polanyi apparently makes an error when he evaluates m as r^{l-1}. However, it would seem to be a typographical error because the value of i is calculated using the value of $m = 3^{l-1}$.

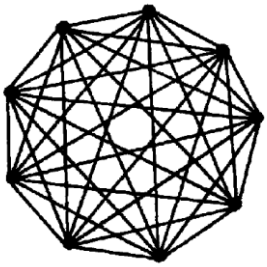


Figure 3. A system of spontaneous order of 9 individuals

(source: Polanyi, 1948, p. 249)

In the above figure, the number *j* of connections between the nodes equals (9.8) = 72, that is, for *l* nodes *l*(*l*-1), and for every new node the increase in *j* equals *l*-1.

Let *k* be the difference in the connections by nodes between the two organizational devices (spontaneous order and corporate authority). Accordingly:

$$k = j - i = (l - 1) - \left((3/2)(1 - (1/3)^{l-1})\right)$$

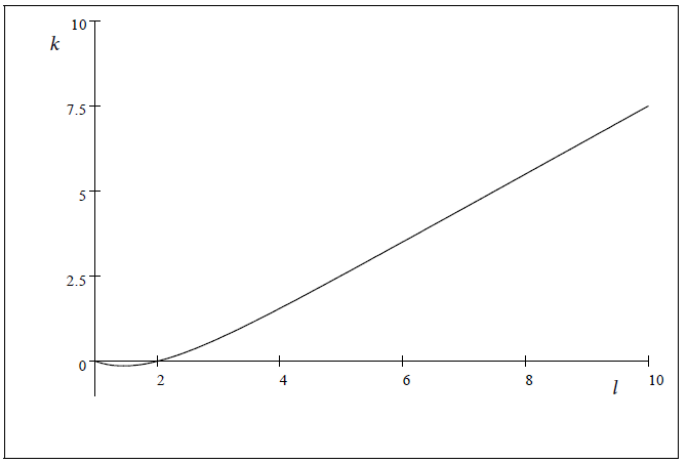


Figure 4. The curve of the function $k = (l - 1) – (3/2)(1 - (1/3)^{l-1})$ with $l \geq 1$

As shown in Figure 4, *k* begins to decrease and then increases from *l* = 1.5 onwards.
As far as the slope of *k* is concerned, it increases up to 1 and then remains constant (see Figure 5).

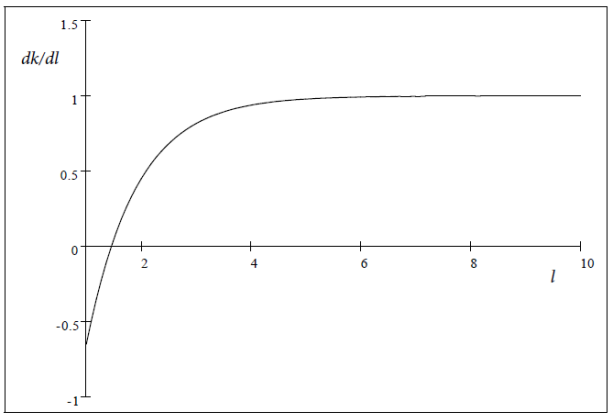


Figure 5. The curve of the function $dk/dl = 1-(9/2)(\ln 3)(1/3)^l$, with $l \geq 1$

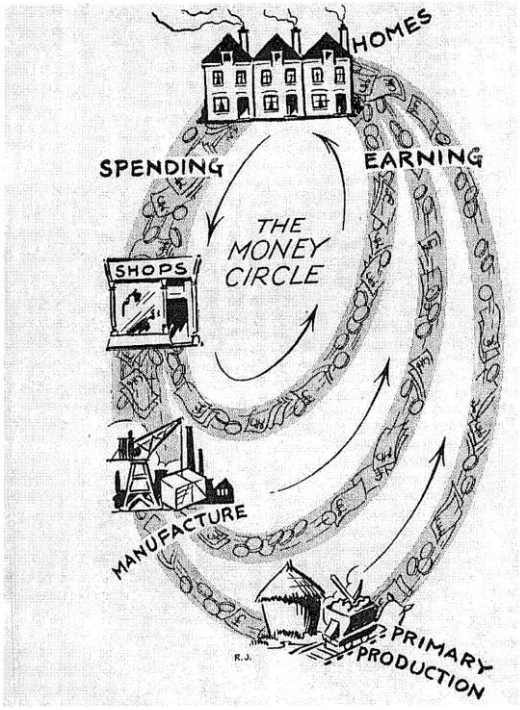


Figure 7. The 'Money Circle' (source Polanyi, 1945, p. 4)

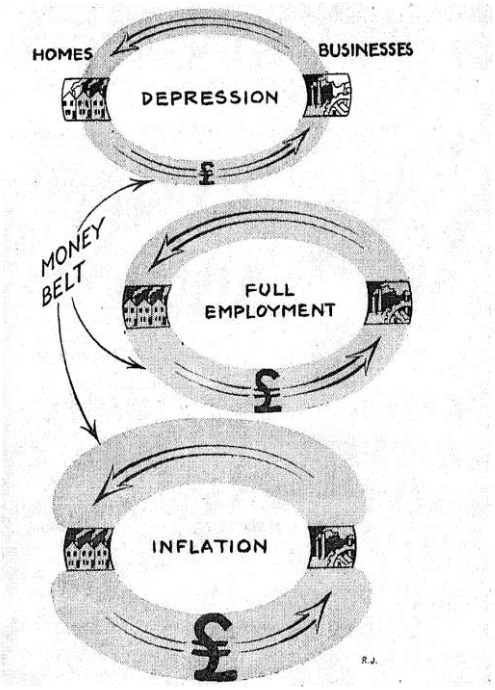


Figure 8. 'Expansion and Contraction' (source Polanyi, 1945, p.7)

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