FULL EMPLOYMENT AND THE CRYPTOCURRENCY ECONOMY: LESSONS LEARNT FROM MICHAEL POLANYI

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ABSTRACT

Cryptocurrencies present a disruption to financial institutions, investments, and markets. Should governments therefore allow cryptocurrencies or ban them? How will they affect the flow of money? What form of economic justice should the cryptocurrency market adopt? Who should be involved in the determining of the economic justice? I claim that Michael Polanyi's theories about employment, money, trade, and his overarching sociotechnical vision of society and the economy can help us understand the current labour market challenges and solutions in view of the digital economy.

Michael Polanyi, a polymath and a chemist-turned-social scientist, was well ahead of his time. He wrote *Full Employment and Free Trade*, published by Cambridge University Press in 1945, an American edition of which came out in 1947, where he achieved the integration of Keynesian and Monetary Economics long before its achievement in the 1970's (Roberts and van Cott 1998). His theory was written with the traditional economy in mind. However, the 21st century has seen the rise of cryptocurrencies. Cryptocurrencies have caused a huge disruption to financial institutions, investments and markets. This has prompted many governments to consider whether there is a need to ban or regulate cryptocurrencies (*Business Today* 2019; Chan 2019). I argue that Polanyi's economic synthesis is useful to understand the regulation of cryptocurrencies such as Bitcoins, because he defends both arguments, that the state should

intervene to boost employment, and yet at the same time uphold the liberal concept of a free market economy and self-regulation, combining Keynes, (1932, 1936) and Hayek's (1941) approaches. Polanyi's understanding of the mixed concepts of economics is useful for understanding why cryptocurrencies should be allowed to flourish without the state banning its evolution, since they will create new jobs. The role of the state however is to take on a proactive role to ensure that free market enterprise is possible while limiting criminality.[1]

Michael Polanyi's Economic Theory

In the preface of his book, Polanyi (1945, v) writes: "Keynesian economics must be made simpler and cleaner," and argues that the state can be proactive about creating a healthy economy to foster jobs, without needing to put in place centralized planning and controls that stifle free-market enterprise. However, Polanyi does not fully adopt a Keynesian perspective on economics (Festré 2018). His theory is a synthesis of Keynesian and monetarist economics, which is associated with Milton Friedman (Mirowski 1998). Unlike Keynes, Polanyi thinks that long-term monetary policies are able to resolve problems of unemployment (Festré 2018).

Polanyi (1945, 1-66) outlines his theory of full employment in the first chapter of the book, starting with the Money Circle, which refers to the cyclical process of the movement of money from the spender back to the spender, with portions going to various stakeholders involved in the same process such as retailers, manufacturers, and primary producers. However, this representation works on the assumption of immediacy in spending, wage-paying, and other production costs involved. It does not take into account many other factors where money might seep out of the circle, such as in private savings and business investments, nor external parties not privy to this circle such as the state, which demands taxes and public expenditure (this is considered and discussed later in the book). In order to include employment in this scheme, the impact of increased and decreased expenditure on businesses has to be considered. This is where Polanyi's Money Belt representation becomes relevant.

He describes a variable Money Belt regulating levels of employment, visualised as a revolving belt passing through both homes and businesses and with a width that expands and contracts. The width of the Belt at any time represents the level of employment – during full employment, the Money Belt is equal in width with homes and businesses. Depression, represented by a narrow width, is the zone in which the Belt does not traverse all homes and businesses, and employment is available only to those engaged in production. Conversely, a Belt that is wider than both homes and businesses points to a critical point in the availability of jobs, which are not being taken up. In this case, full employment is still achieved but the level of production does not expand

further, and this results in inflation (Biró 2018; Festré 2018; Polanyi 1945; Roberts and van Cott 1998).

This model is concerned with the amount of money that is either injected or withdrawn by private individuals and state-led authorities. Polanyi argues that controlling the money stream would affect employment, and any money that is withdrawn or spent should be balanced with new investments, so that the Money Belt stays wide, which he believes supports full employment. However, the new investments should not cause the Money Belt to widen beyond the critical point where it exceeds homes and businesses. The budget deficit, the expenditure by state authorities that is not covered by taxation, is shown to have a similar effect as expenditure on new investment. Hence, he supports filling the gap caused by the budget deficit through both public and private investments (Roberts and van Cott 1998). Polanyi emphasizes that a steady level of employment can be achieved by balancing savings and investments, but he warns that the circulation should not be too high to cause inflation.[2] That said, Polanyi notes a self-regulating mechanism that is akin to the human body's process of homeostasis: an excess in savings or investment will set in motion countermoves in an attempt to right the system (Polanyi 1945). This is a self-sealing gap, a set of counter-forces, which limit the reduction and rise of the monetary circulation (Biró 2018; Festré 2018; Gilbert 1946; Roberts and van Cott 1998). Full employment is achieved by filling the gap, which appears when savings exceed new investments when full circulation is maintained. Polanyi suggests that the state should have a role to play in filling the gap, by using expenditure from a budget deficit that is as substantial as the difference between savings and investment at full circulation. In line with Keynesian economics, he also argues that the state has a part to play in maintaining effective demand, by providing necessary conditions for private enterprises (Festré 2018; Mullins 2013; Polanyi 1945). This is to help bring about a full employment policy (see Beira 2018 for details on Polanyi's diagrams; Gilbert 1946).

Relevance to Cryptocurrencies

The recent popularity of Bitcoins has caused frenzied buying and has many governments and financial institutions seriously worried about taxation, money laundering, and disruption of the financial system. The Bitcoin, said to have been invented by Satoshi Nakamoto in 2008, is a worldwide, decentralized, anonymous virtual cryptocurrency that uses peer-to-peer technology to manage transactions, without traditional middlemen of banks or central authority (Bitcoin n.d.; Patron 2014; Yermack 2013). The first transaction in Bitcoins took place in 2010 (Gray 2017). In the place of the traditional middleman is a blockchain or a public ledger. The process of using the computing power of specialized hardware in exchange for rewards is called "mining" (Bitcoin n.d.). While the Bitcoin is by no means the only public ledger platform, it was

the first as well as the best known, and as of 2014 also the largest (Evans 2014). Bitcoin circulation has been experiencing a linear increase, and as of June 9, 2018, 17,084,788 Bitcoins were in circulation (Blockchain Luxembourg S.A. n.d.).

Although cryptocurrencies are designed to be digital money, it is not immediately evident that they can serve as money in the same I would consider fiat currencies. For cryptocurrencies to be relevant to Polanyi's theory, the functions of cryptocurrencies as money need to be considered. The three traditional functions of money are: medium of exchange, a store of value, and unit of account. It is hotly debated whether cryptocurrencies fulfil these functions of money. Saifedean Ammous (2018) argues that although cryptocurrencies are often used as medium of exchange, due to their general inability to effectively function as store of value and unit of account, it is difficult for cryptocurrencies to be regarded as money. Ammous identified the Bitcoin as an exception to this, which could possibly become regarded as important as fiat currency in the future. The perspective that Bitcoins could become regarded the same as fiat currency is shared by Lawrence White (2015). White argues that the Bitcoin fulfils all the tradition functions of money. As long as there remains trust and some demand for Bitcoins, it would be able to function similarly to money. This trust and demand can be seen from its acceptance as a mode of payment in many MNCs, including Baskin-Robbins, Whole Foods Markets, and (unofficially) Starbucks (Castillo 2019). Moreover, in October 2015, the Court of Justice of the European Union ruled that the exchange between the Bitcoin and fiat currencies is exempted from value-added tax, while value-added tax still apply to transactions made with Bitcoins (Court of Justice of the European Union 2015). This ruling effectively regards the Bitcoin as a currency similar to fiat currencies. Therefore, even though cryptocurrencies are not universally recognised as equivalent to money at the moment, they can fulfil the same functions as money with increased trust in them, thus, we need to consider their impacts on employment.

Where does the Bitcoin fit into the discussion on employment? One observation suggests a possible causal relationship between both: an increase in cryptocurrency-related jobs following the entry of the Bitcoin and other cryptocurrencies. Employment marketplace Freelancer, which connects employers and freelancers globally, saw a spike of 82 percent in cryptocurrency-related work in the third quarter of 2017. Such work includes designing new cryptocurrencies and developing plans for technologies that use blockchain, such as the Bitcoin (Lin 2017). The introduction of these new forms of currencies have provided employment. In January 2019, post-crash of the cryptocurrency market known as the "crypto winter", the Crypto Valley in Switzerland still contributes to more than 3300 blockchain-related jobs (CVVC 2019). The correlation between the increasing supply of cryptocurrencies and job opportunities suggests that Polanyi's theory is highly applicable.

Feasibility of Cryptocurrencies

The ease of cryptocurrency transactions with the accompanying promise of freedom from worries about security has the potential to have a significant synergy with the increasing ease of quantification of data that increasingly cheap and fast technology is likely to produce in the foreseeable future. This bodes well for the uptake of cryptocurrencies and is likely to lead to positive externalities that will aid in the adoption of cryptocurrencies as societies everywhere move further in the direction of the frictionlessness of what Zygmunt Bauman described as "liquid modernity" (Bauman 2000). What potentially complicates this picture, however, is that there is an apparent difference between the rhizome-like network structures of interactions, free from centralized authority, as envisioned by Deleuze and Guattari (1987) as underwriting the smoothness of social interactions and transactions in their conception of society, and the top-down, centralized structure of monetary currency, which typically tends to operate by fiat (at the instruction of a central government and a central bank)—and are, in fact, therefore called fiat currency.

The problem here is twofold. Firstly, there is the practical problem that, in spite of its ease of use, cryptocurrencies will not see adaptation unless there is an incentive for people to use them. And since what gets accepted as legal tender tends to be decided by fiat by national governments, one can therefore safely suggest that cryptocurrencies will not see much uptake unless there is a significant incentive for national governments to encourage their use. However, there does not appear to be such an incentive, given that national governments are unlikely to want to lose the near-total control over monetary policy that they currently enjoy with fiat currencies in use (Milutinovi 2018). Secondly, even leaving aside this practical problem concerning the adaptation of cryptocurrency, and even assuming that national governments do not actively discourage the use of cryptocurrency, there is the question of why, affectively, individual citizens would want to start using cryptocurrency; while the macro-scale, society-level advantages to cryptocurrency use may be apparent, an individual citizen does not alter his or her behaviour altruistically simply for the sake of some perceived social good unless there is a payoff, whether economic or affective, for him or her to make that behavioural change (Adamus 2017).

With regard to the first question, the best I can do is to note that the economic benefits of the adoption of cryptocurrency are likely to outweigh the loss of power that the State will undergo as a result of relinquishing the kind of control that it tends to have over fiat-based currency. Since economic benefits accruing to all citizens do enhance the prestige and legitimacy of the state, one can cautiously wager, perhaps, that the State, faced with such a choice, would make decisions on the basis of enlightened self-interest. One possible route towards adaptation could, perhaps, even pass through the following scenario: various communities first start to use cryptocurrency locally

and at the community level, and the State then eventually steps in and regularizes a *de facto* use of cryptocurrencies into a *de jure* use. One may note, in this context, that certain communities have already started to adopt blockchain-based solutions as early adaptors, such as the Inuit in Rigolet, Labrador (Scott 2018). It is clear that there are benefits to adopting cryptocurrencies as a community.

The second question, however, is much more intriguing: namely, what could be the affective reasons as to why *individual* citizens would prefer cryptocurrencies, and switch? After all, for an entire community to make the switch to cryptocurrency, each individual in the community has to individually make the switch. Frédéric Lordon's recent suggestion as to people's motivation for work in the contemporary world may be of relevance here. Lordon has suggested that post-Fordist capitalism operates beyond the logic of alienated labor. Lordon believes that capitalism has, instead, succeeded, to varying degrees, in enlisting the human capacity for creativity and unalienated, entrepreneurial activity and in turning human subjects into joyous "automobiles" that are "collinearized", that is, in alignment with the logic and goals of capital (Lordon 2014). Lordon's argument is that, to the extent that the tendency towards general frictionlessness in capitalism is internalized and becomes a predisposition, it becomes more likely, arguably, that the payoff for an individual in adopting a solution that promotes such frictionlessness is collinear, that is, consistent with the payoff for society as a whole. In her recent work, Shoshana Zuboff also makes a similar critique, pointing out that capital is subjecting human experience to the extraction of value (Zuboff 2019).

While it may seem counterintuitive to argue using Lordon's or Zuboff's conceptual apparatus for the social benefits of cryptocurrencies and blockchains, given that Lordon and Zuboff themselves use that apparatus in the service of what is really a critique of contemporary capital, it is not as surprising as it may initially seem. As I noted earlier, it is entirely possible that a communitarian use of blockchains and cryptocurrencies could develop organically, and that such a community-based trajectory, proceeding in a bottom-up fashion, could well enable communities, rather than corporate capital, to shape decisions regarding its use. The possibility of such scenarios deflects the sharpness of the criticism that Lordon and Zuboff mount with the help of their conceptual tools. Thus, to make use of conceptual apparatuses like those of Lordon and of Zuboff against the grain, so to speak, in connection with cryptocurrency and blockchain is not, perhaps, unjustified. Just as affective capacities can be captured with the purpose of enlisting human drives and desires in the service of capitalism, these capacities can also be captured in a context that is conducive to communitarian cooperation. The success of blockchains and cryptocurrencies in alleviating unemployment rather than exacerbating it will depend on the extent to which the uptake of cryptocurrency follows a collaborative effort by communities and the state. Collaborative consensus is needed to build and enable the necessary economic and human resource infrastructure that

empowers citizens and institutions to adapt to the use of cryptocurrencies should they choose to. This idea of collaborative consensus is linked to the idea of 'public power' (Festré 2018). I argue that collaborative consensus adds to 'public power' and makes it 'public empower.' Let us discuss the role of authorities in this process of empowerment.

The Role of Authorities: Creating a Regulatory Framework and Understanding the Economic Implications of a Market You No Longer Control

Polanyi (1951) believes that people should be given the freedom to seek their own aims to maximize efficiency in completing tasks. However, this level of freedom depends on the task at hand. In the case of the economy, Polanyi's idea is that the economy is best performed by having multiple economic centres, which independently carry out economic operations, an idea known as polycentrism. The producers of goods in a market economy will adjust their efforts in response to the actions of other producers and consumers. Through aiming to maximise their own individual profit, they would also create a more efficient economy through the spontaneous ordering of individuals (Jacobs 1999). However, Polanyi did not believe in unrestricted freedom of the individual in an economy. There needs to be some form of cooperation between the various members in society to maintain the system. This is achieved through 'public power' which controls the economic institutions (Festré 2018).

How extensive should this control be? Polanyi (1945) argues that the control should be minimal to allow maximal circulations of goods, but ensure that the financial stability of the economy is not endangered. This includes the control of speculative areas of the economy (Festré 2018), which includes cryptocurrencies. Industry insiders such as JPMorgan Chase CEO Jamie Dimon and Ray Dalio from Bridgewater Associates are openly critical about bitcoins and digital currencies in general, with the former calling it a "fraud" and believing that it will eventually be closed down, and the latter suggesting that it is just a "bubble" because of its volatility and it being a speculative market (Imbert 2017; Kim 2017). The speculative nature of cryptocurrencies thus warrants some form of regulation through "public power." In fact, regulations of cryptocurrencies already exist in most countries, even those who take a liberal standpoint towards cryptocurrencies. These regulations in liberal countries are generally against the illegal use of cryptocurrencies (Jia and Zhang 2018). In contrast, countries such as Russia implement a direct ban of cryptocurrencies due to the fear of the financial instability it would cause (Jia and Zhang 2018). However, the outright ban of cryptocurrencies would be damaging to the employment that cryptocurrencies can provide. Although there is no definitive cause, worries about regulatory crackdowns have often been cited as a key reason for the crypto market crash in January 2018 (Williams-Grut 2018). China's release of information on severe regulation and ban of cryptocurrencies have

similarly invoked a crash in the market (Chan 2019). Therefore, I propose a moderate approach in line with Polanyi's thoughts (1945) to maximise the beneficial impacts of cryptocurrencies. The authorities should provide the necessary infrastructures to allow individuals to utilise cryptocurrencies to establish new economic centres, while regulating the criminality and speculative nature within the system.

Polanyi concludes his book with a few observations. Firstly, the 'principle of neutrality' states that the government's expenditure of money does not burden the national economy (Biró 2018; Festré 2018; Gilbert 1946; Roberts and van Cott 1998). Investing in digital currencies should follow the same underlying principles that rule the creation of a larger monetary base. In the end, cryptocurrencies alter the amount of money in the economy, the same way a central bank alters the amount of money in circulation by issuing more legal tender currency. Gilbert (1946) expands on Polanyi's point: when there is a gap created by savings exceeding new business investments, full employment is not achievable. On a purely speculative note, mining bitcoins and hoarding them for pure speculation will not contribute to alleviating unemployment. The bitcoins should be put in circulation for them to have an effect in the real economy. Regulations should point in this direction.

Polanyi's full employment policy thus entails a budget deficit, created by reducing taxes while maintaining public expenditure at an appropriate level in view of the national income at full employment. However, to maintain full employment, Polanyi believes that the stimulation of private investment as well as the reduction of savings should not take place; the full employment policy should be carried out neutrally in what is known as the 'principle of neutrality.' According to this principle, monetary and budgetary policies that manipulate the quantity of money circulating in the economy will prevent full employment (Festré 2018; Gilbert 1946; Mullins 2013; Roberts and van Cott 1998). But now with cryptocurrencies the authorities cannot control the amount of money that is released to the economy. Thus, the economy is at a greater level of instability. The only thing that can be done from the institutional perspective is to set up an adequate regulatory framework that becomes an invitation for non-speculative investors. In other words, any regulation has to enable, rather than disable, free market enterprise in line with Polanyi's economic synthesis.

In addition, in line with Keynesian economics, Polanyi argues that the state has a part to play in maintaining effective demand, by providing necessary conditions for private enterprises (Mullins 2013). This is to help bring about a full employment policy. The Keynesian notion of chronic depression is one where the rate of investment falls as capital approaches saturation, while saving rates increase with increasing national income. A gap is created when business investments decrease, and savings accumulate —but this gap is self-sealed by the downward pressure on national income.

Polanyi believes that this situation of chronic depression had plagued Great Britain and the USA for some time in the past.

In looking at full employment in Soviet Russia, economic expansion for war and internal problems of full employment, Polanyi (1945) points out that the government, in trying to establish full employment, faces the difficulty of determining the level of monetary circulation that will involve a large enough size of the national income to create the fullest possible utilisation of the country's resources, yet a level of circulation that does not threaten financial stability (Festré 2018; Gilbert 1946). The problem now is that we cannot control the amount of money in circulation, since the creation and circulation of the bitcoin and all the other cryptocurrencies might be undetected by regulators. In this case, authorities need to follow very closely the evolution of the cryptocurrency supply and its latest developments with a view to converse with user communities and be a catalyst for new forms of employment and uses that cryptocurrencies might generate.

Economic Justice: Complications to the Role of Authorities

Polanyi's economic views are based upon his sociotechnical vision. He believes that there is a need to empower the public on economic issues in order to facilitate an appropriate economic system and economic justice (Biró 2017). According to him, Keynesian economics is compatible with multiple "standards of economic justice" (Polanyi 1945, 146). Thus, the structure of the economy and the form of economic justice within a society is predicated upon public opinions (Biró 2017). The state should be present only to provide the required infrastructure. The empowerment of the public is such that public opinion should sway the social and legal framework established around the economy (ibid). Polanyi thinks that public opinion should be shaped by democratic processes involving those who understand economic matters (Polanyi 1937). He believed that the crux to resolving the dilemmas of the economy and the social consciousness against liberalism involves the need to promote a popular understanding of economics (Biró 2017). Viewing this in relation to his perspectives on polycentrism suggests that members of each democratic state should be allowed to determine their own forms of economies and economy justice.

However, this story becomes more complicated in the case of cryptocurrencies. Cryptocurrencies are global and are not bound by national boundaries. Thus, the community that can be affected by cryptocurrencies is essentially the entire world. In this case, it becomes difficult to consider the one form of economic justice that should persist in relation to cryptocurrencies. Thus, we need to consider two fundamental questions about economic justice in cryptocurrencies. Firstly, is it reasonable to speak about a universal economic justice for cryptocurrencies, and if so, what form of

economic justice should cryptocurrencies adopt? Secondly, who should be involved in the determining of economic justice for cryptocurrencies?

Let us consider the Bitcoin to address the first question. Since its inception in 2008, Bitcoin has been the most popular cryptocurrency (Bitcoin n.d.; Patron 2014; Evans 2014). This has created millionaires who had fortunately made some sums of investments early on in Bitcoin (Mahdawi 2018). More generally, cryptocurrencies have also been related to the rise in employment (Lin 2017). The economic impact of Bitcoin on society is undeniable. Yet, who truly benefits from the Bitcoin? Across the world today, we see various forms of economic justice being adopted with a variety of capitalist economies (Coates, 2005). The conflicting perspectives towards economic justice will prevail even in the case of cryptocurrencies. The choice of the right economic justice that fits all can be challenging. Instead, I will consider the current form of economic justice that cryptocurrencies appear to hold. The occurrences of some people earning a fortune from Bitcoin investments (Mahdawai 2018) suggest that perhaps cryptocurrencies can be rather fair, allowing individuals across different economic classes to gain possible access to fortunes. However, these cases are rare. On the contrary, cryptocurrencies tend to make the rich richer. In the case of Bitcoin, one prominent characteristic is that Bitcoins can be mined (Bitcoin n.d.). By investing computational power, people are able to earn Bitcoins as rewards. However, this process is costly and biased towards those who are educated and rich. In order for people to earn Bitcoins through mining, one has to be the first to provide the correct answer to a numeric problem (Hayes 2019). Unfortunately, the process gets easier with the use of equipment of higher computational powers (ibid). In such a way, advantaged individuals are allowed to gain much more from Bitcoins than the poor. This goes against Polanyi's vision of a liberal economy. Polanyi (1937) perceives economic inequality as a flaw in economic liberalism. His vision for a liberal economy includes the government financing public goods and services, and the intervention of the government to alleviate social issues such as poverty (Festré 2018). Thus, authorities might have to consider redistributive policies. For example, states can consider imposing taxes on earnings made from investments in cryptocurrencies, in contrast to the ruling from the Court of Justice of the European Union (2015). However, it can be difficult to track the earnings from cryptocurrencies. Unlike traditional investment media, cryptocurrencies are based on the blockchain technology that make the tracking of the currencies difficult. Furthermore, some forms of cryptocurrencies like the Bitcoin are decentralised and there are no overarching laws or corporations that oversee its flow (Bitcoin n.d.; Patron 2014; Yermack 2013). These challenges make the role of the authorities even more difficult.

With such far-reaching economic impact across the world, Polanyi's (1937) view suggests that everyone in the world has a stake in determining the economic justice of cryptocurrencies. To tackle this, we can consider international organizations as a

possible authority to oversee cryptocurrencies. In line with Polanyi's vision, international organizations might have to provide education on economics in order to create an informed public and utilize democratic procedures such as referendums to decide on the prevailing economic policies surrounding cryptocurrencies (ibid). Nevertheless, the reality is that cryptocurrencies are being tackled differently by different states, despite the global nature of cryptocurrencies (Business Today 2019; Chan 2019). This could become problematic if states start to adopt regulations in order to utilize cryptocurrencies to further their own interests at the expense of others. For example, the majority of the cryptocurrencies in existence are using the US dollar for the exchange rate (Bitcoin n.d.). This will increase demand for USD. States might become tempted to use regulations on cryptocurrencies to enforce a market exchange with their own state currencies in order to increase demand for the currency. Polanyi (1945) warns against the possible problems that may arise when states start to adopt strict regulations in order to manipulate the economy to benefit their own interest, as he posits that no one should be overly benefitted or harmed in the regulation of currency in the economy. Only by separating the economy and politics can a liberal economy be effectively implemented (Gulick 2017).

The algorithm economy has become both the driver of innovation and is also being driven by innovation. It is taking over many aspects of how we work, play, and even live. It is, however, more difficult to imagine the impact of subversive uses of computer coding in the remaking of money and currency exchange. Speculation about Bitcoin and other cryptocurrencies has escalated globally. Cryptocurrencies work on trust of its creators and referral systems. It may either fall through or fizzle out, or it will become the biggest disrupter of the flow of money the world has ever seen. Some companies and countries ban it, and others embrace it, because they know that if they do not embrace it, their business might be eventually disrupted. As of now, currency exchange markets regulated by central banks and governments still largely control us. While cryptocurrencies are too hard to supervise or to be banned, governments need to ensure that full employment and free trade is possible despite technological disruptions. Despite the possible worries about the unknown future and the difficulties of supervision and regulation, the relevance of Polanyi's economic theory provides us with relief. By providing the freedom to actors, the economy will be able to experience readjustments as producers and consumers interact (Polanyi 1945). Nevertheless, we cannot deny the importance of the authorities in maintaining the system. In the era of the fourth industrial revolution, authorities face greater levels of challenges in assuming their redistributive and regulatory roles. Moreover, in the search of Polanyi's (1937) vision, authorities may have to adopt a new informative role to enlighten the people. Public policy needs to catch up with technological advancements for the continued smooth functioning of the algorithm economy.[3]

ENDNOTES

[1]Festré (2018) provides a detailed analysis of Polanyi's synthesis of Hayek and Keynes. He also states, "it is beyond the scope of this paper to analyse the proximity between Hayek's and Polanyi's visions of tacit knowledge. As well documented by the secondary literature, Gestalt psychology provided a common philosophic background. See Mullins (2010) for Polanyi's use of Gestalt psychology and De Vecchi (2003) for the place of Gestalt psychology in the making of Hayek's thought" (Festré 2018, 3).

[2]Gilbert (1946) provides a detailed analysis of Polanyi's economic policy.

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