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Table of Contents

Hierarchical Inconsistencies: A Critical Assessment of Justification Juozas Kasputis	1
Institutions, Policy and the Labour Market: The Contribution of the Old Institutional Economics Ioannis A. Katselidis	13
Orthogonal Time in Euclidean Three-Dimensional Space: Being an Engineer's Attempt to Reveal the Copernican Criticality of Alfred Marshall's Historically- ignored 'Cardboard Model' <i>Richard Everett Planck</i>	31
Credit, Indebtedness and Speculation in Marx's Political Economy Miguel D. Ramirez	46
Comment on Miguel Ramirez's paper, 'Credit, Indebtedness and Speculation in Marx's Political Economy' Stavros Mavroudeas	63
Response to Stavros Mavroudeas Miguel D. Ramirez	69

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Hierarchical Inconsistencies: A Critical Assessment of Justification

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Abstract

The existential insecurity of human beings has induced them to create protective spheres of symbols: myths, religions, values, belief systems, theories, etc. Rationality is one of the key factors contributing to the construction of civilisation in technical and symbolic terms. As Hankiss (2001) has emphasised, protective spheres of symbols may collapse – thus causing a profound social crisis. Social and political transformations had a tremendous impact at the end of the 20th century. As a result, management theories have been revised in order to deal with transition and uncertainty. Francis Fukuyama's (2000) approach is supportive of hierarchical organisation as the best solution when facing a 'disruption'. The notion of *Homo Hierarchicus* has been based on, allegedly, rational presumptions. This paper contributes to the discussion on hierarchy within contemporary organisations. It criticises so-called 'natural' and 'rational' necessities justifying hierarchy. A key issue identified by the paper is the formalisation of language in claiming value-free knowledge and 'detached' observation as the basis for neutral rationality and aspired efficiency. This should be seriously reconsidered as hindering rather than aiding understanding of social complexity. All in all, *Homo Hierarchicus* appears to be misleading rather than helping symbolic sphere or construct.

Key words: Rationality, bureaucracy, hierarchy, complexity

JEL: B50, M14, Z13

1. Introduction

The most usual definition of management mainly refers to an act of making a decision in accordance with the interests and goals of certain organisations. It means that 'organised' people can be divided into two major groups: ones who make decisions and others who implement decisions. Even the simplest kind of organisation indicates the presence of hierarchical order which ensures that decisions are smoothly (as much as possible) implemented. There are diverse and complicated forms of organisational hierarchy including many chains of middle-management with various levels of autonomy. Hierarchy is a formal structure of organisation maintained by officially-approved rules. A fundamental slogan of hierarchical management is 'efficiency and more efficiency'. The efficient organisation is supposed to achieve the maximum results at minimum costs. Not surprisingly, a formal structure needs a formal language purified from all the imperfections of ordinary language, like vagueness or ambivalent interpretation. Guidance and commands must be produced and feedback reports must be delivered through formalised lines - which should guarantee the most accurate content of information is transferred. Mathematics is a scientific instance of formal language. So it is not a coincidence that management within hierarchical organisations is permeated by quantitative techniques. But do they provide adequate assistance? A

mathematician has the privilege to be engaged primarily with abstract concepts and patterns on a theoretical level. So even, physicists, as scientists studying natural phenomena, are not completely satisfied with the assistance of mathematics. The formal language can be helpful but its rigour has not been always adequate to study phenomena which do not easily surrender to formal treatment. Rather a more poetic practice may be more relevant. This is Bohr's advice to Heisenberg (1971), and Manin (1981) shares the same sentiment. Hankiss (2001) also has implied that 'compatibility of mathematics (and human reason behind it) with the universe is questionable' (p. 196). Dyson (1979) has brilliant memories of how discussions among physicists and mathematicians proceeded under Oppenheimer at Princeton. Social phenomena are more complicated than natural ones, nonetheless social sciences are invaded by formalisms in no less a way. Leontief (1982) has expressed major concern regarding too much applied mathematics within economics. Formal approaches have introduced fatalistic and static notions into social sciences, absolutely ignoring human values and indulging in 'routinised' procedures. Bourdieu (2004) alleged that too many mathematicians retreated to social sciences in search of safe shelter, due to their inability (or possibly incompetence) to secure an academic career in theoretical mathematics. However, social sciences were institutionalised just at the end of the 19th century, later than the natural sciences (Wagner, 2001). It is a common practice in methodological disputes to juxtapose social and natural sciences. The impressive success of Newtonian physics has established long-standing standards for scientific method. However, Russell (1956) has pointed out the opposite case where social theory induced a breakthrough in natural sciences - Darwin's theory of evolution. Many contemporary social scientists enjoyed introducing evolutionary ideas from biology into the social sciences in order to oppose mechanistic trends. An example is evolutionary economics in contrast to conventional equilibrium economics - which is overly captivated by mechanical models of rationality and perfect information (Metcalfe, 1998). Socalled Neo-Darwinism has thrived by coupling social and natural sciences thanks to complexity and evolution theories (Khalil and Boulding, 1996). Russell (1956) indicated that Darwin himself could not derive evolutionary theory from the previous achievements in the natural sciences. For example, geology was not developed enough to be finally independent from orthodox theology at the first half of the 19th century. According to Russell (1956), Darwin's theory was no more than generalisation of everyday experience. 'Biological' legitimation of hierarchy according to the principle of 'survival of the fittest' couldn't derive support from Darwin, who never used this term, it was rather Spencer who introduced it (Le Page, 2008). Later this generalisation was used to disguise certain affirmative values dependent on specific historical context. It could be identified with impersonal hierarchical frameworks of power - though Darwin had actually insisted that cooperative social groups had a better chance of survival.

The discussion about rationality and human values in science may also have some implications for management issues. Science is more theoretical and speculative. Management is a more practical activity. The realms of concern in the social sciences and management do not totally coincide, but they do overlap. All in all, the social sciences and management face a common problem of human values – only differently accentuated. Both value-free science and formalistic management are completely idealistic concepts and are not adequate for dealing with reality. Weber (1958; 1965), who introduced an ideal type or archetype of bureaucracy, had recognised the threat coming from 'specialists without vision' within hierarchical structures of power. Normally, all that needs to be done within a neoliberal paradigm is proper constraint of informal imperfections. According to Myrdal (1944), all conflicts of values in social sciences are resolved through rationalisations which bridge incoherencies by belief systems. Absolutely formal management is very rigid and inflexible –

like strict bureaucracy. They are thus doomed to fail when facing new and unexpected challenges in economy, society, politics and within the military. That is unless, following Weber (1965), 'the big question' regarding alternatives are considered.

Management, as an act of making decisions and of organising, is directly dependent on norms and values. Normativity has framed and directed all human actions. A rational machinery of capitalism is trying to tame and to domesticate informal human values in the usual way of 'capitalisation'. But there are different rationalities other than one single 'human reason'. The highly influential rationality of Milton Friedman, that capitalism equals freedom, overthrew Keynes' commitments and 'rationalised' the case for cutting corporate taxes, which significantly improved the position of the '1% in society'. It represents one of the best examples of how zealous commitment to rationality is itself irrational (Stiglitz, 2010). The whole division of human values into formal / informal and rational / arational is inappropriate in the 21st century based as it is on obsolete Cartesian dualism of mind and body. But it is exactly what the prophet of rationality and Rockefeller-type of intellect, Fukuyama (2000), is trying to do. He is a grand thinker, but his inclination to validate the presence of hierarchies by 'human nature' contains a pseudo-religious flavour, as indeed does the fake entity of *Homo Hierarchicus*.

2. The Great Inconsistencies of Fukuyama

Fukuyama's book The Great Disruption (2000) is partly a response to rising civil society and new ideas regarding a reconfiguration of organisational frameworks in order to replace hierarchical structures by spontaneous networks having a higher degree of freedom. It sounds like discarding a vertical top-down framework of domination by introducing horizontal, spontaneous network with less hierarchy. This seems very promising and Fukuyama (2000) does not attack that idea straightforwardly. And he is right in his own terms, because this classification of social order (hierarchical order vs. spontaneous order) is endorsed by him personally. There should however be some health warnings in order to analyse Fukuyama's 'rational' proposal, because it hides a rhetorical trap with its arbitrary extreme cases of 'hierarchy' and 'spontaneity'. It is timely to recall Barthes's (1992) advice, '...how absurd it is to try to contest our society without ever conceiving the very limits of the language by which (instrumental relation) we claim to contest it: it is trying to destroy the wolf by lodging comfortably in its gullet' (p. 8). Fukuyama (2000) is very well aware of complex systems and chaos theory which cannot be denied. Self-organised, nondeterministic 'schools' are a common occurrence in the nature. But his universe of norms (Fukuyama, 2000, p. 148) is framing an intentionally-selected piece of reality. It is a very ambiguous framework because this kind of 'selection' is close to an arbitrary 'creation' or 'symbolic construction'. In other words, it is ideological preaching in the name of 'rationality' under the guise of 'objectivity'. This selective interpretation of meaning and manipulative game with causal links, imposes certain affirmative values. Fukuyama (2000) has assigned to social capital all norms which prevail outside hierarchical authorities. Obviously, the idea is to combine social capital and civil society in order to ground and purify the presence of authority. Following Fukuyama (2000), hierarchy is a source of formal social rules imposed by authority (bureaucratic, religious, etc.), and spontaneously-generated norms, which are mostly informal, are inherited. The definition of rational norms has indicated what is wrong with rationality itself – allegedly, these norms are chosen after rational choice in rational discussion. The only discrepancy in this definition is, namely, who sets the terms of discussion. The whole scheme displaying how norms are distributed has merely an illusory appearance of symmetrical allocation. All

arational and spontaneously-generated norms are presupposed to pass a 'filter' of rationality and hierarchy. Alternatives are left aside as rejected and unapproved (or just simply ignored and not considered) until the next 'rational discussion'.

Within a hierarchy the authority 'makes a rational choice' from an available 'pool' of spontaneous and informal norms. The definition of rational choice is inconsistent due to an inability to define exactly what is meant by 'rational'. More than this, Kagan (2009) has pointed out that a popular definition of a rational decision asserts that it is the best means of gratifying a wish based on a conclusion derived from the gathering of an optimal amount of information. This abstract definition fails to stipulate the best means of gratifying a desire or the meaning of an optimal amount of information (Kagan, 2009, p. 169).

The presence of a sovereign authority presupposed the dialectical tension between 'rational' and 'arational', like the one in the paradox of the Master and Servant relation introduced by Hegel. The major idea behind this paradox is that Master and Servant cannot exist without each other because they fulfil each other's existence despite hierarchical conflict. Fukuyama's (2000) four-quadrant matrix has reduced a complex world into a picture with fixed and polariszed categories. It's a partial world view and a perfect example of 'applied metaphysics' as warned of long ago by Marx (1937 [1847]). Following him, everything which is reduced to logical categories is an abstraction of social relations. Fukuyama's (2000) approach has become entangled with his own religious sources, even though exclusively referring to Max Weber. It seems that Fukuyama (2000) has attempted to extend a Weberian framework to current social issues, but this intellectual jump from the end of the 19th century has been revealed as naïve 'Americanism' with self-confident superiority. The most explicit of Fukuyama's (2000) examples of social disruption are from non-Puritan areas like Latin America or Southern Italy (pp. 17-18). Puritanism, in his sense, is a bridge transferring informal family values into external formalised activities – such as doing business. Fukuyama (2000) had intended to present a softer and more flexible version of 'Newtonian mechanistic' top-down organisational structure. The 21st century represents guite a challenging time period for that kind of hierarchical organisations with deeply ingrained formal routines. For example, management theory has been seriously considering biological metaphors for organic bottomup organisations. So, in order to counteract anti-hierarchical trends in management theory, Fukuyama (2000) has saved his own 'biological' argument for Homo Hierarchicus - 'people by nature like to organise themselves hierarchically' (p. 222). The main idea behind this statement is transmitted in strikingly 'obvious' terms: dominance in hierarchy increases levels of serotonin in the brain, according to studies of chimpanzees' competitive sexual selection and their fights for alpha-male status. Fukuyama (2000) has equated it to the similar impact of antidepressants known as SSRIs (selective serotonin reuptake inhibitors), with brand names like Prozac, Zoloft, Celexa, etc. Besides that, he has claimed that higher status within a hierarchy brings a better emotional reward because recognition is supposed to be one of the basic social needs for human beings. And this is the point where Fukuyama's (2000) Homo *Hierarchicus* project starts to fall to pieces before reaching the final stage.

3. The Problem of Prediction

The explanation of phenomena in causal terms has always persisted in the realm of causeeffect studies. It has become a formal way of 'doing proper science'. Effectively, revealed causal links enable us to predict future processes or to retrodict into the past – but this is only a part of the story. Prediction and retrodiction have remained as ideal forms of scientific activity, even while still not fully realised throughout the sciences. The overwhelming success of Newtonian physics, for a while, had provided a universal paradigm to be followed by all scientists. But later discoveries in the natural sciences, especially in biology and chemistry, were not completely affirmative with regard to this mechanistic approach. Human behaviour, as a social process in general, does not follow certain 'laws', though some regularities and patterns may exist. Besides which, even physics (including thermodynamics, quantum mechanics and complexity theory) does not wholly rely on Newtonian and Cartesian premises. Predictability assumes controllability, such as an ability to control future events and prevent crises. But the historical record of successful social predictions is not impressive. The problem is not precision itself, but the whole concept of cause-effect. The expectations built on past regularities and routines cannot help to avoid huge disasters and failures in the future. The mechanism of cause-effect works pretty well in mechanics. However the decreasing power of the church and religion has empowered a new secular theology of amelioration - a progress. This way of reasoning presupposes a developmental pattern of growth towards 'higher' social forms. The dependence of the current state on a previous one means the ability (or, at least, the aspiration) to predict a future state. This is the backbone of the linearity concept or, in other words, reversibility.

The notion of reversibility is borrowed from classical physics. With given laws and formulae, it enables us precisely to retrodict or predict the past or future states of physical processes. In cases where absolute precision is unachievable, it can be replaced by the calculus of probability. One of the prominent model assumptions of this kind is the Markov Chain - a sequence of vectors with probability criterion where each vector in sequence depends only on the previous state. A probability gives a wider account for quantifiable results, but it still retains a restraining power. So, not surprisingly, deterministic predictions or probabilistic calculations are quite useful in sustaining hierarchical structures, because they frame strategical planning and provide top-down consolidation. But social complexity and uncertainty do not surrender themselves to finite formalisms as easily as the theory may lead us to expect. First of all, future oriented calculations and planning tend to disguise the projection of many interests for maintaining power relations within hierarchies. The hierarchical organisation projecting itself into the future needs some sort of 'clarity window' based on rational values. It is like a set of parameters within which the organisation fits itself. And, consequently, each link (or position, or employee) in a hierarchy is granted permission to act within certain limits of responsibility. It gives a false sense of security and consistency because social reality consists of non-linear processes too. This is a precise example of reducing human existential experience into narrow and false symbolic concepts (Hankiss, 2001). In this case the remark of Davidson (1998) is very relevant with its suggestion of the notion of accuracy (meaning 'care to obtain conformity with fact or truth') instead of precision (meaning 'sharpness to minute detail'). Maybe conformity with truth is also unrealistic, even if it seems less dogmatic and not so trapped by perfectionism as precision. In the case of hierarchical organisations, precision and perfection denote the fear of loose interpretation. To put it simply, the precision of formal language is supposed to transfer orders and reports in clearest way without loss of information. But formalisms do not make anything simpler, they compartmentalise reality into fixed concepts with permanent meanings. This kind of affirmative permanence has an ideological or even a theological flavour. It encloses an organisation within restricted forms of behaviour and firm (but narrow) directions for the future. Presumably, evolutionary development favours 'the fittest' capable of exploiting opportunities and calculating possibilities. But guite often the notion of 'fitness' is taken out of context and separated from the idea of adaptive processes. Thus 'fitness' has become a justification for the current state of affairs as a frozen moment in the present. From this point

of superiority, the future is predicted and the past is retrodicted in terms of higher authorities within hierarchical structures.

Interestingly, even though this does not provide a genuine picture of future, it also distorts the past. Critical analysis has suggested that from a historical perspective rational explanation is merely a foundational myth. The modern theology of progress and rationality is a relatively young one and not necessarily indispensable. It managed to become dominant due to the rise of capitalism in the 19th century. A mechanistic world view and large-scale industrialisation have imposed a belief that 'discovered' social laws will pave a way to a brighter future and a more sustainable society with fewer grievances. All that is necessary is simply to follow and obey 'invisible' market forces. In this regard, Russell (1956) issued a relevant warning, 'the same laws which produce growth also produce decay' (p. 81). Supposedly 'discovered' social laws should be better declared as coincident regularities and routines. Holland and Oliveira (2013) following Hume and Smith have indicated the deficiencies of premise-dependant 'systems thinking' thus, '...Hume's stress that what is perceived depends on the habitual dispositions and values of the perceiver, has implications for suggesting that that there is no "value free" social science and while decision makers on markets allegedly have been guided, as it were, by an invisible hand, most of them have been driven by values, beliefs and dispositions less than consciously acquired from life experience and education...' (p. 48). Hoover (2003) has recounted one of the insightful reflections by Isaiah Berlin that human beings tend 'to find a unitary pattern in which the whole world of experience, past, present, and future, actual, possible, and unfulfilled, is symmetrically ordered' (p. 220). Hierarchical structure of organisation, as it is expected, should ensure survival and maintain institutional 'fitness' within an economy. Bankrupt firms usually are explained away in rational terms like miscalculations of management, inability to react to the change of demand, modified market regulation by government, etc. But deeper analysis can reveal the inner self-destructive drive within 'rational expectations'. This is a vicious circle - an irrational adherence to rational value-free modelling. The impressive failure in 1998 of the speculative hedge fund Long Term Capital Management, run by the Nobel laureates Merton and Scholes, has exemplified the inconsistency between econometric predictability and real market fluctuations. 'Scientific method' did not help in managing long-term financial investments. Highly sophisticated mathematical calculations ignored Keynes's claim 'that there was no basis for predicting long-term expectations since these depended on group and mass psychology' (Holland, 2015a, p. 115). Certainly, the 'fitness' of many firms needs to be 'corrected' by external market regulators, for example, tightening the control of the financial sector. Cause-effect reasoning has imposed ideological, socially conditioned and institutional constraints in an unjustified apotheosis of market rationality (Holland, ibid.). As a result, the assumptions of 'rational' expectations and 'efficient markets' paved the path to the subprime crisis and the greatest financial disaster since 1929 (Holland, 2015 b).

4. The 'Rise and Fall' of Homo Hierarchicus

For such reasons there is a need also to reassess *Homo Hierarchicus*. Hierarchy does not fit everybody. It is rather an imposed pattern of organisation. Fukuyama (2000) has categorised social norms as formal / informal (rational / arational) to distinguish values which could be helpful in the argument for hierarchies and to understate alternative proposals. But his statements, like assigning informal values to organised crime, or promoting hierarchy as more transparent than networks, do not seem persuasive enough. At least that is the view of this writer. And here come the strongest arguments deployedin various ideological battlefields –

biological and religious ones. Invoked 'by nature' really sounds like an unquestionable ruling by a judge, without any right to lodge an appeal. In biology, serotonin has been identified as a chemical compound within human brains that is considered to contribute to happiness or good psychological well-being. A shortage of serotonin and depression are deemed causally linked in psychiatric practice. Fukuyama (2000) conjures up a double causal link; serotonin and non-depression, non-depression and hierarchy. This series of causal links deployed in a linear fashion is used to build an argument, but it can also conceal serious gaps. For example, the problem with serotonin highlights the challenge of analysing statistical data and interpreting medical research. Selective serotonin reuptake inhibitors (SSRIs) are a very popular group of antidepressants which increase the level of serotonin in the brain, thus presumably curing depression. But there is extremely disturbing statistical data on the extent of the use of antidepressants (not least, it presupposes a distinct market with certain patterns of consumer behaviour), especially in the United States. According to the US National Health and Nutrition Examination Surveys 2005-2008 (by National Centre for Health Statistics -NCHS), antidepressants were the third most commonly prescribed drug taken by Americans of all ages, and the most frequently used by persons aged 18-44 years in 2005-2008. According to Pratt, Brody and Qiuping Gu (2011), who have analysed NCHS data, there has been a 400% increase in antidepressant use in the United States among all ages from 1988-1994 through 2005-2008. Some eleven per cent of Americans aged 12 years and over, take antidepressant medication. Of course, antidepressants are used to treat not only depression but also various forms of anxiety disorders. The problem is on a truly pandemic scale, and if Fukuyama's causal links were to be reversed, it would be tempting to attribute the crisis to a failed model of hierarchy existing within modern society. But there is no need 'to play' under the same (simplistic) principles of cause-effect reasoning. People become frustrated and anxious, consequently many of them search for the easiest and simplest solution in order to counterbalance experienced emptiness in contemporary society (such as Durkheim's anomie). It is obvious that classical hierarchical systems are not the answer to actual social challenges. Troubled people cannot necessarily find a suitable hierarchy to 'fit in'. Indeed, hierarchy itself may be more a problem than a solution. This story of serotonin shows how it is possible to reverse cause and effect in order to manipulate people's minds. As Hume claimed (An Enguiry Concerning Human Understanding, [1748]), while we can assume cause-effect, we cannot necessarily prove it. The biological foundations of human behaviour cannot be reduced to a mechanistic interplay in terms of formal models. The defective mechanism cannot be fixed by replacing broken parts or by refuelling. Such a way of reasoning has monopolised decision, disseminating rigid and ineffective patterns of solutions.

But this monopoly of expertise does not ensure the efficacy of problem treatment, despite its veneer of objectivity and rationality. Ubiquitous formalisms may claim undistorted universality, but social complexity (and critical thinking) has eroded this world view. Kagan (2009) noted that 'current obsession with the biological bases for all deviant behaviours or unwanted moods' (p. 54) is due to increasing political power of the major pharmaceutical companies. Kirsch (2014) has made a thorough analysis of pharmaceutical tests for antidepressants. It has revealed many issues at an institutional, and industrial level regarding the regulation of the market, and at a scientific level in terms of research on the use of serotonin is supposed to be a primary reason for illness. But there is a wide range of side effects from the use of antidepressants. Sexual dysfunction affects 70–80% of patients on selective serotonin reuptake inhibitors (SSRIs), long-term weight gain, insomnia, nausea and diarrhoea. Kirsch (2014) has indicated that approximately 20% of patients attempting to quit taking antidepressants show withdrawal symptoms akin to addiction. Other issues include

increased idealisation of suicide among children and young adults, increased risks of stroke and death among older adults, increased risk of miscarriage or birth malformations for pregnant women. With the added consequence that 'antidepressants increase the risk of relapse after one has recovered' (Kirsch, 2014, p. 132). This analysis has uncovered that serotonin has a shaky foundation. Moreover, it also is possible that the US Food and Drug Administration (FDA) used flawed procedures to approve drugs. While reviewing pharmaceutical trials, Kirsch and his colleagues did not find any significant differences between antidepressants and placebos. More simply, human beings are too complex to be cured by single chemically synthesised switches like selective serotonin reuptake inhibitors (SSRIs). Consequently, Kirsch has proposed a combination of psychotherapy, antidepressants and alternatives such as physical exercises or acupuncture as the best treatment for depression. Antidepressants should be prescribed only as a last resort in severe cases. Thus, the story of serotonin has shown much more complex interactions than the simple cause-effect relations assumed by many in the medical hierarchy.

Similarly, the hierarchical mode cannot be supported by religious, or to be more precise, Puritanical sentiment. Fukuyama (2000) referred to Weber in promoting the importance of Puritanism in establishing market relations and values which are commonly known as capitalism. Its initial economic success, aided by the political and military power of state, has strengthened the global dominance of capitalism. As with any kind of evangelism, capitalism does not tolerate the opposing values of 'alternatives'. Peaceful coexistence does not automatically presuppose tolerance, it can disguise a self-indulgence with a satisfied (or delusional) superiority feeling. The diffusion of 'free' market values has always been conducted within the shadow of religion. In other words, the techniques of conversion were borrowed from religious practices. Even now, the term 'conversion' has strong religious overtones. Moral values do not emerge in a vacuum, even if imposed by certain authorities. In any case, there is a strong tendency to believe that universal values should be cleansed of subjective differences in order to remain objective and rational. Fukuyama's (2000) way of reasoning is permeated with evangelicalism. According to him, and drawing uncritically on Weber, the merit of the Protestant revolution 'was not so much that it encouraged honesty, reciprocity, and thrift among individual entrepreneurs, but that these virtues were for the first time widely practiced outside the family' (Fukuyama, ibid., p. 18). He submits that a more advanced and developed religion (i.e., Puritanism) had outmatched a backward one (i.e., Catholicism). By contrast, Tawney (1956) was strongly critical of Weber, submitting that the Protestant Reformation should not be regarded as a monolithic movement solely responsible for the rise of capitalism.

Fukuyama (2000) goes further with the 'purification' process in his view of how rational / formal values are constructed, deploying the concept of social capital, as 'purification' on behalf of society. For example, informal values are good for maintaining family's bonds, but in public affairs they may result in nepotism. Yet Fukuyama 'restrains' informal values within a double straitjacket. First, as just indicated, he 'capitalises' them under the high sounding label 'social capital', which has advantages and disadvantages. For, by analogy with physical capital, there is a big danger of destructive misuse. Physical capital can be turned into the production of killing devices, while social capital can sustain organised crime or nepotism. Secondly, the label 'capital' itself presupposes the existence and even the necessity of an owner or efficient manager. It is a sin to mismanage capital, which needs a higher authority, and implies the need for a secular saviour and rationality embodied in formal hierarchies for the common good. Fukuyama's (2000) rational procedure of 'purification' therefore should eliminate the deficiency of informal values (social capital). So-

called objective outcomes of this process should gain some sort of universality such as in the hierarchical structures of modern organisations. The problem is that this pattern does not fit social reality. Fukuyama's approach is not convincing because it is constructed on flawed cause-effect reasoning. There is nothing wrong with cause-effect reasoning in physics or engineering, but human behaviour has too much uncertainty. Too big a preoccupation with a cause-effect framework for social reality has something arational in itself. Though Fukuyama (2000) wanted to show that Puritanism was the initial driving force for universal and rational values, the question still remains to be answered: does the hierarchy originate out of a necessity to control a chaos of informal values? Is there any need to 'purify' them? The question is valid, but the answer is complex. For, as Tawney, with reason, submits:

"... The heart of man holds mysteries of contradiction which live in vigorous incompatibility together. When the shrivelled tissues lie in our hand, the spiritual bond still eludes us. In every human soul there is a socialist and an individualist, an authoritarian and a fanatic for liberty, as in each there is a Catholic and a Protestant' (Tawney, 1954, p. 176).

The developmental way of reasoning since the 19th century has been captivated by the idea of directional evolution. It tends to assume a coherent direction of change that monopolises foresight by narrowing the range of alternatives. Besides which, it requires a set of criteria to validate a proper or 'higher' phase of development in comparison with the previous one. The directional development supplies a narrative uniting the previous scattered lines of evolution into a single one containing shared aspirational values. It resembles a graphical structure of hierarchy - lower-ranking positions subordinated to middle management, which is accordingly subordinated to superior management, etc. At the highest end of each hierarchy is the head of organisation, who embodies the aspiration for growth and delineates intra-hierarchical relations. But Fukuyama's reasoning about the rise of hierarchy and, respectively, Homo Hierarchicus is dependent on 'rational' simplifications. The idea of cause-effect itself isolates explained phenomena in order to avoid complications. It is a closed system of thought mainly preoccupied with closed models in order to be secured from 'distortions'. As a result, the model has been separated from reality, and studied phenomena have been explained endogenously. For example, the notion of 'free market' is explained separately from society and state. In this case a 'free market' has been endowed with its own laws of interaction and evolution - rational expectations, equilibrium, the survival of the fittest, etc. Braudel (1992) following Karl Polanyi has strongly criticised this sort of approach, '...the economy is only a "subdivision" of social life, one which is enveloped in the networks and constraints of social reality and has only disentangled itself recently (sometimes not even then) from these multiple threads' (pp. 225-226).

5. Conclusion

A hierarchical structure for an organisation is justifiable and necessary in many areas of public administration and business. But from a critical and historical point of view, it is not plausible to justify hierarchy on the basis of 'natural' and 'rational' necessity. It leaves out of the picture many creative and productive alternatives of how to organise and manage social activities. The human aspiration to tame Nature has turned into a more ambitious one – to manage uncertainty. But this growth of ambition is not exclusively supported by the increased capacities of human reason. Progress itself does not diminish human anxiety and fear. Much

that is represented as an improvment may only be a more sophisticated way to 'repress disturbing human experiences' (Hankiss, 2001, p. 9). A hierarchy definitely looks like a haven for existential (and professional) security in the face of present uncertainty (which, actually, was never absent). As is emphasised by Hankiss, fear is a major factor in human existence,

'In order to mitigate this fear, human beings and communities have surrounded themselves – not only with the walls of their houses and cities, with instruments and weapons, laws and institutions, but also – with protective spheres of symbols: myths and religions, values and belief systems, hypotheses and theories, the shining constellation of works of art. In a word, with a brilliant construct: civilization' (Hankiss, 2001, pp. 1-2).

A variational evolution has enabled human beings to possess and improve a great variety of ways to organise their activities. A hierarchy is not a unique solution to achieve the best possible result. Human happiness is a vague notion, but the hierarchical structure of modern organisations is not the only mode of management to satisfy creative and socially responsible professionals. Blurred lines between formal and informal ways of management have given a chance to 'hybridized' social activities like social entrepreneurship (Jensen, 2010). There are many common ideas elaborated for both the sciences and management on how to gain more autonomy from formalised frameworks. Interdisciplinary studies may prevent narrowness and short-sighted specialisation. So for the modern organisation, plagued by formal procedures and short-sighted profit seeking, a good option is 'synthetical' management (Fontrodona, 2002). 'Synthetic' functions of management can enable pluralism such as allowing scientific inquiry to be followed; for example, a new business idea could be treated like a research hypothesis. Besides which, management practice can be enriched by complexity theory (McMillan, 2008). According to McMillan, management should treat change as a normal process and preserve the organisation on 'the edge of chaos' 'where the parts of a system never quite lock and yet never quite break up either' (p. 55). It also is important to keep in mind Dyson's remark (1979, 1997) that all quantitative changes in the long run turn into qualitative ones. Hierarchy is neither a natural nor a social necessity. Homo Hierarchicus, like its 'cousin' Homo Economicus, is just another rational fiction. It may sound trivial but 'trivialities are sometimes not trivial at all' (Hankiss, 2001, p. 271).

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Institutions, Policy and the Labour Market: The Contribution of the Old Institutional Economics^{*}

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Abstract

This paper seeks to examine the relationship and the interaction between institutions, policy and the labour market in the light of the ideas of the first generation of institutional economists, who, in contrast to neoclassicals, conceived of the economy as a nexus of institutions, underlining, therefore, the significant role of institutional and non-market factors in the functioning of an economic system. They also criticised those who define (economic) welfare only in terms of efficiency and satisfaction of consumer interests; institutionalists instead focus on issues related to justice, human self-development and labourers' welfare. In addition, early institutionalists paid considerable attention to the institutional framework of the labour market. In particular, the first generation of institutional economists highlighted the importance of institutions and other non-market parameters in determining the level of wages and employment (e.g. the role of the bargaining power of workers and employers). Furthermore, they made substantial contributions towards the field of labour policy and they were pioneers in the formulation of economic and social policy. Specifically, various modern institutions and labour market policies, such as unemployment benefits, industrial training and active employment policies, were implemented in the US, during the first decades of the 20th century, after the recommendation of the institutional labour economists. Therefore, their ideas, besides being interesting from a historical point of view, may also be useful in today's analysis of workers' problems and the functioning of modern labour markets.

Keywords: Institutional School, History of Labour Economics, Labour Policy, Labour Market Institutions

JEL classification: B15, B25, J08

1. Introduction

It has long been recognised that the labour market is different from the other markets due to the peculiar nature of labour as a 'commodity'. Contrary to other 'commodities', labour has a soul. Thus, in order to understand the labour market functioning, we should not focus exclusively on the price mechanism, but should also take into consideration other crucial factors and parameters. Specifically, such factors may be the social norms, which influence – *inter alia* – the wage levels and workers' behaviour, psychological factors affecting the workers' effort and motivation, as well as labour institutions such as unemployment benefits

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or trade unions. The so-called 'Institutional Economics' has long attached great significance to the above-mentioned factors, and that was one of the main reasons for its intellectual dominance in the economic analysis of labour markets during the first decades of the 20th century.

Early institutional economists conceived of the economy as a nexus of institutions, highlighting the important role of non-market factors such as proprietary rights, professional and trade associations, traditions, customs, etc. in economies' functioning. Furthermore, they expressed the belief that the economic concept of welfare, in addition to the criterion of effectiveness and satisfaction of consumer desires, should also include issues concerning human 'self-development', justice and workers' well-being.

This paper seeks to examine the relationship and the interaction between institutions, policy and the labour market in the light of the ideas of the first generation of institutional economists. The paper has the following structure: section 2 briefly presents the main characteristics of the old institutional economics, while section 3 succinctly compares Institutional and Neoclassical economics focusing on labour market issues. The next section presents the main theses and approaches of institutional labour economics. After this discussion, section 5 looks at the old institutions. Section 6 briefly discusses the case of minimum wages policy in order to highlight the relevance of early institutional ideas in analysing contemporary labour market issues. Finally, the concluding remarks bring together some key arguments of the paper.

2. The Old Institutional School of Economics: A Brief Overview

Institutional school of economics emerged in the United States by the end of the 19th century and flourished in the first decades of the 20th century. The three generally accepted major figures of early institutional economics were Thorstein Veblen (1857-1929), Wesley Clair Mitchell (1874-1948) and John Rogers Commons (1862-1945). The first explicit (at least prominent) reference to the term "institutional economics" seems to have appeared in an article written by Walton Hamilton in 1919, entitled "The Institutional Approach to Economic Theory", which was published in the *American Economic Review*. However, as Hamilton pointed out, Robert Hoxie had first called himself an "institutional economist" in 1916 (Rutherford, 2003).¹ The old institutional school of economics reached its peak in the 1920s, while in the 1930s its influence gradually began to decline, so that by the end of World War II it had lost much of its previous sway on economic thought (Kaufman, 2000; Rutherford, 2000; 2003; for a recent discussion about the causes of this decline see Hermann, 2018; Mayhew, 2018).

One of the fundamental institutionalist theses was that an economy should not be conceived only in terms of the market mechanism, but should also include all those institutions that operate through the market and interact with it (Samuels, 1987). In this context, the institutional structure and arrangements of the economy – and not just the market mechanism – were the crucial factors for good economic performance and the effective allocation of productive resources; the market is nothing more than a mere, though very important, institution. But, how exactly is an institution defined? The answer to such a question cannot be absolute and unique. John Commons, for example, gives the following

¹ According to Kenneth Boulding (1957, p. 3), "Wesley Mitchell claimed Richard Jones, a somewhat obscure contemporary of Ricardo, as perhaps the first institutionalist, though if we make the term vague enough Sir William Petty has a good claim to this somewhat dubious honor."

definition: "(...) We may define an institution as collective action in control, liberation and expansion of individual action. Collective action ranges all the way from unorganised custom to the many organised going concerns, such as the family, the corporation, the trade association, the trade union, the reserve system, the state" (Commons, 1931, p. 649). On the other hand, Veblen identifies institutions in his *Theory of Leisure Class* (1899) as follows:

"Products of the past process, are adapted to the past circumstances, and therefore never in full accord with the requirements of the present (...) At the same time, men's present habits of thought tend to persist indefinitely, except as circumstances enforce a change. These institutions which so have been handed down, these habits of thought, points of view, mental attitudes and aptitudes, or what not, are therefore a conservative factor" (Veblen, 1911 [1899], p. 191; see also Papageorgiou et al., 2013).

In any case, institutions, whether conservative or progressive, are human constructs and thus are subject to continuing modification. In institutionalists' view, institutions play a significant role, not only in the shaping of human behavior, but also in the evolution of capitalism. However, this role is in fact quite intricate given that institutions are part of the contradictory powers that form instincts, conducts, and habits of thought (see e.g. Veblen, 1909).

In addition, Commons argued that the evolution of the economic system and the development of institutions is a process of purposeful, "artificial selection". The interaction between individual actions and specific organisations can lead to institutional alteration. In Commons' view, individuals

"meet each other, not as physiological bodies moved by glands, nor as 'globules of desire' moved by pain and pleasure similar to the forces of physical and animal nature, but as prepared more or less by habit, induced by the pressure of custom to engage in those highly artificial transactions created by the collective human will" (Commons, 1934, p. 74).

In other words, Commons and other institutionalists who follow his approach, by repudiating the psychological background of the neoclassical paradigm, contended that institutional shift takes place due to individuals' choices, actions, and efforts to overcome their problems, which are connected to the (institutional) situation of each individual in society (Rutherford, 1983; for more details see Papageorgiou et al., 2013). By contrast, Veblen contended that in social evolution there was a "natural selection of institutions". In his own words: "The life of man in society, just like the life of other species, is a struggle for existence, and therefore it is a process of selective adaptation" (Veblen, 1911 [1899], p. 188). Therefore, according to the Veblenian tradition, the human institutions' progress

"may be set down, broadly, to a natural selection of the fittest habits of thought and to a process of enforced adaptation of individuals to an environment that has progressively changed with the growth of community and with the changing institutions" (Papageorgiou et al., 2003, pp. 1236-1237; see also Veblen 1911 [1899]).

During the period under consideration, both institutional and non-institutional economists put emphasis on "practical economic problems", though their focus was on different issues. In particular, the non-institutional economists of the early 20th century were primarily focused on

issues of pricing and of money, while the old institutionalists were highly interested in labour issues.² Accordingly, the old Institutional school of economics compiled many studies concerning the conditions of work and employment, playing also a substantial role in the formation of US labour legislation during the first decades of the 20th century (Katselidis, 2011). In the words of Edwin Witte, who was a prominent institutional economist at Wisconsin School,

"Institutional economists are not so much concerned with the explanation of all economic phenomena as with the solution of particular economic problems of immediate significance. John R. Commons studied labour problems to find out what was the best way for dealing with industrial conflict, with child labour, industrial accidents, sweat shop wages, and many similar questions (...) It is the practical problems approach which above all others characterizes institutional economics" (Witte, 1954, p. 133).

Furthermore, these reform-minded academic economists founded in 1906 the American Association for Labour Legislation (AALL),

"launching a national movement for compulsory social insurance and protective labour legislation. The leaders of the AALL were motivated primarily by the problem of worker insecurity (...) They believed that state intervention was necessary because workers and their families were unable to protect themselves against potentially devastating industrial hazards" (Moss, 1996, pp. 2-3).

Thus, they had a significant impact on the formation of the US welfare state³ and highly affected the making of the New Deal policy of President Roosevelt in the 1930s.⁴ Finally, institutionalists, by adopting an interdisciplinary approach in their works, extended as well their contributions to non-economic fields such as sociology, psychology and labour history (Hermann, 2018).

Labour institutionalism had several roots, such as the "German Historical School" of economics, the progressive reform movement in America and some dissenting British economists, including Sidney and Beatrice Webb and William Beveridge (Kaufman, 2004). In addition, some late 19th-century American economists, such as Richard Ely and Henry Carter Adams, who both had studied in Germany and were influenced by the historical school of economics, were the main origins of the Institutionalists' emphasis on legal institutions (Rutherford, 2003). Finally, both the interest of institutional economists in social reform and their belief that the state can significantly contribute to this end also had roots in "historical economics" (Tribe, 2003).

All the above-mentioned sources of influence led many

"institutional economists to adopt an empiricist approach to theorising, namely they first collect the data and the observations, involving themselves in the facts (Richard Ely's 'look and see' method), and then adduce from the facts and other grounded empirical work the major premises for theorising, so

² I wish to thank Anne Mayhew for this point.

³ For instance, John Commons played a significant role in formulating the 1932 "Wisconsin Unemployment and Compensation Law". I thank Arturo Hermann for reminding me of this fact.

⁴ Specifically, the institutional economists of Wisconsin school made significant contributions to the New Deal policies (Kaufman, 2003).

as to draw conclusions about reality. This approach was opposed to the deductive, *a priori* method of mainstream economics" (Katselidis, 2011, pp. 988-989; see also Chasse, 2017).

However, it should be explicitly noted that the aforementioned empiricist approach mainly characterises the institutionalist tradition of Commons and Mitchell, and not the Veblenian approach. Veblen's main contribution to labour issues, as we will see in the next section, is related to his rejection of the (neoclassical) pleasure-pain approach to labour theorising. Though this rejection might be based on observation, it was not of the "go and see" kind that Commons and his fellows used.⁵

The philosophical background (Weltanschauung) of old institutional economics was shaped by both European (e.g. Hegel, Darwin and Spencer) and American (e.g. Peirce, James and Dewey) intellectual influences, leading the institutionalists to "view the economic order as an evolving scheme of things or cultural process (...) [that is] as an open system subject to change and growth" (Gruchy, 1967 [1947], pp. 17, 19). Within such a system, the individual is considered a social being whose behaviour is affected by the force of habit and formed by the individual's interaction with the other members of the community. Thus, in contrast to the mechanistic and static perception of the classical and neoclassical economic tradition, institutional economists regarded the economic system as a dynamic and evolutionary process (Papageorgiou et al., 2013). Their methodological approach has been characterised as holistic since they were interested in the functioning of the economy as a whole, as opposed to the methodological individualism of the neoclassical paradigm (Biddle and Samuels, 1998).

Institutionalists argued that an understanding of the institutional structure of the economy is also a basic prerequisite for finding solutions to problems of economic and labour policy. Nevertheless, institutions, as already noted, should not be regarded as given, since they are human constructs and are subject to perpetual change (Witte, 1954). Furthermore, the (direct) observation of the real world – and not the construction of (abstract) models – was a main component of institutional economics, whose members did not regard economics as an exercise of logic, but as an endeavour to explain the behaviour of the real economies. As Bruce Kaufman put the matter:

"The labour institutionalist's methodological approach to research is distinguished by four key features: the emphasis on fact-gathering, the importance of realism of assumptions, the virtues of a "go and see" participant/observer method of investigation, and the necessity of an interdisciplinary approach to theory construction. These methodological predispositions arose, in turn, from the institutionalist's dual focus on reforming both orthodox theory and national labour policy and workplace employment practices" (Kaufman, 2004, pp. 16-17).

3. Institutionalism vs. Neoclassical Economics: A Brief Comparison Focused on Labour Market Issues

The early economic literature on labour institutions and their objectives was rather short and incomplete. Despite the fact that from the beginnings of economic science both the concept of the market and that of labour had a central role in economic thought, labour market analysis

⁵ Many thanks to Anne Mayhew for this argument.

and the examination of industrial problems had been limited for a very long time. In particular, "classical economic thought advocated free labour markets and considered the relationship between capital and labour to be non-competitive" (Drakopoulos and Katselidis, 2014, p. 1135). In addition, classical economists were more interested in long-term economic processes under the assumption of perfectly competitive markets, and less about the actual conditions of the (imperfect) job market. On the other hand, marginalists and early neoclassical analysts, such as Stanley Jevons and Francis Edgeworth, asserted that the existence of labour institutions, like trade unions, renders the labour market problem mathematically indeterminate (Edgeworth, 1881; Jevons, 1882). Therefore, practical issues concerning labour did not pertain to economic science (see e.g. Jevons, 1882, pp. 154-155). In other words, "according to orthodox theory, labour problems either do not exist (e.g., unemployment is a voluntary choice) or are best solved by individual initiative and market forces" (Kaufman, 2004, p. 18).

Therefore, it was clear that neoclassical economics, applying the hypothesis of perfectly competitive markets, could not shed light on fundamental labour market issues, including the role of collective bargaining, the interplay between labour unions and employers' associations, or labour legislation matters. Thus, the goal of institutional economists was twofold:

"On the one hand, they attempted to make labour problems more widely known, emphasizing the crucial role of labour issues both in the economy and the society. On the other hand, they tried to 'prove' that the neoclassical analysis could not contribute to any solution of this kind of problems; therefore, a different scientific approach was needed" (Katselidis, 2011, p. 988).

Neoclassical theorists have conceived of labour as a pure commodity or a factor of production. Hence, the payment of labour in the neoclassical system is determined by marginal productivity theory, according to which wages are equal to the value of the marginal product of labour, under the hypothesis of perfect competition both between workers and between employers (see e.g. Clark, 1899, pp. 166, 179). Moreover, the marginal productivity condition determines also the level of the demand for labour. Nevertheless, the final magnitude of wages and employment is also influenced by the supply of labour. In the words of Alfred Marshall ([1920/1890]1949, p. 442), "demand and supply exert co-ordinate influences on wages; neither has a claim to predominance; any more than has either blade of a pair of scissors, or either pier of an arch". The neoclassical supply of labour relied upon the utilitarian hedonic principle, according to which, the labour supply has a negative utility for the worker. Therefore, for Jevons, the founder of the neoclassical theory of the supply of labour, labour, labour may be defined as follows:

"Labour is any painful exertion of mind or body undergone partly or wholly with a view to future good (...) It is possible that the true solution will consist in treating labour as a case of negative utility, or negative mingled with positive utility" (Jevons [1879/1871] 1965, pp. 168-169).

The neoclassical conception of labour was in full contrast to the institutional viewpoint; for instance, the institutional-Veblenian notion of the "instinct of workmanship" was diametrically opposed to the hedonistic interpretation of human behaviour (Veblen, 1898; 1914). More precisely, Veblen identified three basic drives or instincts that govern human behavior and

individual action: "the instinct of workmanship" or the impulse to work so as to "turn things to human use" closely related to the habits of thought (Veblen, 1898, p. 191), "the instinct of idle curiosity", referring to the propensity to comprehend how the external world works through the use of imagination; and "the instinct of parental bent", emphasising human interest in the welfare of others (Veblen, 1898; 1914; see also Papageorgiou et al., 2013). However, the instinct of workmanship is regarded as the most fundamental and generic trait of human nature (Veblen, 1898).

Veblen's theory was in sharp contrast to that of orthodox economic theory, which asserted that one of the basic characteristics of the "economic man" is his aversion to work. In addition, according to the idea of the "instinct of workmanship", the neoclassical hypothesis of the negative utility of labor is incompatible with human biological evolution, since if humans systematically avoided useful labor, then the human species would not have survived. "In contrast, hundreds of thousands of years of human evolution must have led to the [natural] selection of some propensity to engage in work that was useful for [human] survival" (Hodgson, 2004, p. 196; brackets added). Veblen, therefore, strongly criticised the neoclassical theory of labor, which, by adopting the utilitarian and hedonistic interpretations of human behavior, incorrectly ignored "the instinct of workmanship" which, as stated above, "is a generic feature of human nature that guides the life of man in his utilisation of material things and gives rise to a proclivity for purposeful action" (Cordes, 2005, p. 2).

Furthermore, during at least the first third of the 20th century, Arthur Pigou may be regarded as the most prominent early neoclassical author on labour market analysis. Specifically, Pigou was one of the first neoclassical economists who found a strong positive correlation between the real wage rate and unemployment level, attributing more and more importance to wage rigidities as the main cause of the unemployment problem. Additionally, in contrast to the institutional economists, he considered particular institutional factors like the trade unions' power or the minimum wages to be mainly responsible for labour market malfunctioning (Pigou, 1913; 1927; see below section 6).

On the other hand, the majority of the institutional economists underlined the importance of social and institutional parameters in determining the level of wages and strongly expressed their reservations as regards the connection of the principle of marginal productivity with the real firms' conduct (see e.g. Lescohier, 1935). Moreover, institutionalists argued that the nature of labour supply is totally different from the supply of other input factors or commodities. For instance, Wisconsin institutionalism emphasised the significant role of human will in economic life and tried to construct a human theory of labour as an alternative to a mechanical / physics type theory of mainstream / neoclassical economics (Commons, 1964 [1913]; Commons, 1950; Kaufman, 2008). In the words of Don Lescohier, an influential member of the Wisconsin institutional school,

"labour is an expression of the personal energy of a human being. The productive energy which the labourer sells to his employer is inseparable in existence and in use from the personality of the labourer (...) The labour supply has other interests than work. It is produced in response to other than economic motives. It comes into existence through human reasons, not for market demands" (Lescohier, 1919a, pp. 10-11).

In spite of the aforementioned differences – both in theory and methods – between early neoclassical and institutional economists, it is worth noting that there were also some convergent points of view. For instance, Arthur Pigou, in his work *Unemployment* (1913), endorsed some policies and labour market institutions proposed by institutional economists,

such as insurance against unemployment or a net of labour exchanges (Katselidis, 2011). In particular, Pigou stated that "the volume of unemployment is likely to be diminished by any device which enables workpeople to ascertain where work is wanted and to move freely towards available vacancies. Labour Exchanges are a device of this kind" (Pigou, 1913, p. 245).

In addition, he asserted that,

"besides investigating *remedies* (...) it has also been found necessary to investigate *palliatives*, in the sense of means to alleviate the evil consequences to which a given amount of unemployment leads. Among these palliatives the most important are the device of meeting periods of depression by organized short-time instead of the dismissal of hands, and the device of insurance against unemployment" (Pigou, 1913, p. 246, italics in original).

Moreover, it is also noteworthy that Alfred Marshall did not piously adopt the abstractdeductive approach with respect to labour issues. Although Marshall's labour market approach was not differentiated from the competitive market reasoning, he developed some arguments which seem to bear close resemblance to institutional analysis. As Marshall put the matter:

"In fact there is no such thing in modern civilization as a general rate of wages. Each of a hundred or more groups of workers has its own wage problem, its own set of special causes, natural and artificial, controlling the supply-price, and limiting the number of its members; each has its own demand-price governed by the need that other agents of production have of its services" (Marshall, [1920/1890]1949, p. 442).

4. Institutional Labour Economics

As already noted, the first systematic and special studies on the labour markets and their problems emerged in the last decades of the 19th century and the first decades of the 20th century. During that period, the large Western economies were gradually driven to full industrialisation and production concentrated in big factories where, in many cases, mainly in the US, a scientific organisation of the work process (Taylorism) was adopted. At the same time, labour was taking the form of "regular employment", and a large part of the workforce consisted of salaried employees (Dedousopoulos, 2000; Wisman and Pacitti, 2004). Then, the trade union movement in Europe and America was significantly strengthened, and the first powerful factory unions, which contained thousands of members, were created. Within this historical context, the first generation of institutional economists provided their analyses on numerous labour issues.

The labour market, as an imperfect human-made institution, may break down due to various reasons, causing thus a host of problems. Institutional labour economists tried to resolve these "labour questions" primarily through three means / methods: unions, labour law and (personnel) management. Firstly, mainly during the period from 1885-86 to 1905-06, there were a considerable number of labour studies and books focusing on the problems of organised-unionised labour. Accordingly, that trend in labour studies placed emphasis on the various evils connected to the use of labour in an industrial system, on trade unionism and

collective bargaining (McNulty, 1980). For example, a popular work in American literature related to the study of organized labour was Thomas S. Adams and Helen L. Sumner's textbook *Labour Problems* (1905).⁶ However, it is noteworthy that of all these works published during the first phase of labour institutionalism, most concerned the impact of labour problems on individuals rather than on the economy (Brissenden, 1926).

After about 1905, there was a shift as regards the ways to address various labour issues, instigating thus the second "phase" in the study of labour problems and solutions. In particular, labour specialists and policy makers attributed more and more importance to labour law, and specifically to social insurance and protective labour legislation (Kaufman, 2003). "That shift played also a role to the gradual emphasis given to the labour market as an institution and how the employment relationship is embedded and operates within a web of institutions" (Katselidis, 2011, p. 993). In addition, as has been mentioned, the "American Association for the Labour Legislation" was founded in 1906, encouraging this kind of research, and Commons and Andrews's book entitled Principles of Labour Legislation (1916) was regarded as the leading work in this area until about the mid-1930s. Labour institutionalists, by underlying the peculiar nature of the labour contract, conceived of labour and the "free access to a labour market" as an intangible property right: "It is intangible because it is merely the act of offering and yet withholding services or commodities. It is property and becomes labour in the sense that it is the power of getting value in exchange" (Commons and Andrews, 1916, p. 8). For that reason, the government should intervene both in the economy and the labour market in order to protect the aforementioned property right.

Around World War I the field of industrial relations / personnel management emerged, commencing a third "phase" of labour institutionalism. Don Lescohier, who was one of the pioneers in the study and instruction of personnel management (see Lescohier, 1960), recommended the creation of employment departments within industries in order to "reduce labour turnover, improve labour selection, improve the training of workers, and increase per capita productivity" (Brandeis and Lescohier, 1935, p. 324). In general, early labour institutionalists, such as John Commons, Don Lescohier, William Leiserson and Sumner Slichter, made a substantial contribution towards the examination, development and promotion of this new approach to labour management, stressing its positive impact both on employee relations as well as on firms' profits (Kaufman, 2008). For instance, Commons, in his book Industrial Goodwill (1919), strongly criticised the old personnel methods such as the so-called "drive" methods of management and the scientific management, known as Taylorism. On the other hand, he highlighted the positive consequences of more participative and collaborative practices like his "goodwill" approach. Specifically, in the words of Commons, "scientific management, since it begins and ends with individuals separated from their fellows, has the defects of autocracy. It means government by experts (...) But goodwill is reciprocity. It is not government at all, but mutual concession" (Commons, 1919, p. 19).

It is worth pointing out here that all the above-mentioned research approaches and programs were influenced both by the scientific progress in the labour studies field and by the real life phenomena such as the disorganised nature of the American labour market or the pervasive dissatisfaction displayed by workers.

"Thus, the serious economic and political pressures generated by the WWI, in conjunction with the development of the institutional program of labour studies, help explain why institutional economists gave emphasis to certain subjects such as labour turnover, labour management or the organisation of

⁶ To be accurate, we should note that some (not many) chapters in the Adams and Sumner's textbook dealt with non-union issues.

the labour market through an extensive system of labour Exchanges" (Katselidis, 2011, p. 993).

In short, as seen above, labour institutionalists strongly criticised both the unreal character of the various neoclassical assumptions and the overreliance on abstract mathematical analysis. For instance, in a review of the Paul Douglas's outstanding work *The Theory of Wages*, Lescohier held that

"Professor Douglas relies too much upon the truth of assumptions and estimated probabilities which he incorporates as raw materials into his analysis; and that the reader must watch carefully lest he accept conclusions based in part upon foundations that are questionable" (Lescohier, 1935, p. 277).

To sum up, in institutionalists' work can be found the "rejection of the three then-prevalent orthodox doctrines: the commodity conception of labour, a laissez-faire approach to market / employment regulation, and the monarchial or 'employer autocracy' model of work force governance" (Kaufman, 2003, p. 4).

5. The Labour Market Functioning, Labour Policy and the Role of Institutions

As has been stressed, the American institutionalists held that the labour market should be conceived as a major institution which significantly affects and organises the employment relationship. This employee-employer relationship, as embedded in the employment contract, is not regarded only as a kind of market transaction, but it is also formed through the interaction of legal, economic, social and political factors. For that reason, institutional economists contended that the study of labour issues requires the adoption of a multidisciplinary approach (Kaufman, 2006). In addition, they recognised that labour, even conceived as a commodity, displays at least two important peculiarities: (a) in a free labour market, the "labour commodity" is sold for a specified time period, preserving thus the worker's personal freedom, and (b) it is a commodity that cannot be separated from its owner. Therefore, institutionalists argued that the labourer is not just an input in the productive process or a tool of production. On the contrary, most emphasised the human and social aspects of work, regarding the worker as a citizen and a social being who has family, personal life, etc. (see e.g. Commons and Andrews, 1916; Lescohier, 1919b). They also considered that the monolithic perception of labour as a market commodity and a supplement to the other factors of production impedes the implementation of those policies which promote labourers' welfare, a better education system, health protection, improvement of living conditions of the working class etc. (Commons, 1964 [1913]; Commons and Andrews, 1916; see also Gruchy 1967 [1947]). In short, "labour, unlike other inputs, is embodied in human beings and the condition and outcomes of work experienced by human beings carry a much higher moral significance" (Kaufman, 2006, p. 302).

Furthermore, institutional economists, by stressing the importance of collective action, rejected the neoclassical conception of society as a simple sum of individuals (Commons, 1934). Therefore, an additional essential characteristic that differentiates labour from other factors of production is the collective behaviour of individuals that induce them to form groups and unions based on common interests and goals (Wolman, 1924; Perlman, 1928; 1936; see also Tarling, 1987, p. 87). Accordingly, early institutional economists, such as John R.

Commons, were advocates of collective action through unionism, claiming that the bulk of the American union movement (the American Federation of Labour) was chiefly motivated by economic concerns (Commons et al., 1918; Rutherford, 2000; Drakopoulos and Katselidis, 2014). Moreover, old institutional economists, such as George Barnett, Robert Hoxie and Selig Perlman, by adopting an interdisciplinary – more sociological-historical – approach, did not seek to formalise their ideas on trade unions. This perspective, in accordance with their holistic methodological approach, placed emphasis "on the social nature of man, collective decision making, and particular institutional histories" (Drakopoulos and Katselidis, 2014, p. 1136; for a discussion, see Rutherford, 1989; 2009). In general, institutionalists

"conceived of unions as politico-economic organisations whose members were motivated by relative comparisons and were concerned with issues of equity and justice (...) They also sought to place unions into different categories according to their structure, specific purpose, or social function⁷ (...) Additionally, they described in detail the various duties and responsibilities of unions, and explained the factors that influenced the development of unionism" (Drakopoulos and Katselidis, 2014, p. 1136).

Institutional labour economists were, at that time, in front of a host of labour issues and questions that require investigation and resolution: first, workers were exposed to many risks, facing a variety of problems such as low wages, poor and unhealthy working conditions, frequent labour accidents, gruelling working hours, unemployment etc. Therefore, the creation of those institutions - for example, minimum wages and accident prevention statutes, that would protect employees and restrict their suffering - was indispensable (Commons and Andrews, 1916). Second, cyclical as well as seasonal fluctuations were permanent in the US economy, making both product and labour markets highly volatile. Thus, the stabilisation of these markets and the reduction of casual and unstable employment were also two crucial issues (Lescohier, 1919a). Third, the relationship between workers and employers was to some degree confrontational; institutionalists were in favour of the alleviation of this struggle through institutional measures and labour laws. In a similar vein, they also supported the equality of bargaining power of employers and workers (Commons, 1919). Finally, a fourth important issue, with adverse effects both on employees and employers, was related to the workers' behaviour and attitude. Specifically, workers were often indifferent to their work and their duties; for that reason, institutionalists proposed ways of improving the work climate and employee involvement in the operation and management of the companies (Slichter, 1926).

The main pillars of the institutional school's agenda with respect to labour market policy and the creation of appropriate institutions were the following: first of all, the American institutional economists strongly supported the systematic organisation of the labour market through the institution of manpower employment agencies that would contribute, *inter alia*, to the increase of market efficiency (Leiserson, 1914; 1917; Lescohier, 1919a). Second, they suggested strengthening regular and stable employment and reducing the very high rate of labour turnover, i.e. the workers' movement rate from one job to another, which was considered to be one of the most serious evils of the industrial life. Besides their attempt to find the causes and remedies of the problem, institutionalists tried to statistically analyse it so as to determine, if possible, the optimal-normal turnover rate (Slichter, 1919; Brissenden and Frankel, 1922). Thirdly, they underlined the importance of the systematic policy of vocational education and training with a view to further developing employee skills (Lescohier, 1919a). Institutional economists seem to have been influenced by the so-called industrial education /

⁷ Hoxie's discussion (1914a; 1914b) of various "types" of unionism is indicative of this direction.

vocational guidance movement developed in the United States in the period under consideration. The "Vocationalists", like Frank Parsons and Meyer Bloomfield, argued that the school, viz. the education of the young people, and the labour market should be closely connected (Katselidis, 2011). In a similar vein, they stated that "social problems could be solved by changing the individual (...) and had long criticized industry for its 'wasteful' recruiting techniques" (Jacoby, 2004, pp. 51, 68). Fourthly, institutional economists were the founders of the personnel management and industrial relations, developing progressive ideas about how to manage employees in enterprises (Commons, 1919; Leiserson, 1959). Here again we may find an intellectual connection between Institutionalists and Vocationalists, since the latter "became some of the most active proponents of personnel management, and they infused the new profession with an abiding interest in employee selection and career development" (Jacoby, 2004, p. 50).

Moreover, a fifth pillar of the early institutional labour market policy agenda is related to the institutionalists' aim to improve working conditions with an emphasis on healthy workplaces (Lescohier, 1919a). Sixth, they proposed a counter-cyclical macroeconomic policy aimed at smoothing both cyclical economic fluctuations and the destructive, as proved, rapid rises and falls in the size of production activity and employment (Commons, 1934; for a discussion see Kaufman, 2006). Finally, institutionalists were pioneers in the issue of social security, proposing, for example, insurance against unemployment and medical insurance (Altmeyer, 1937; 1950; Witte, 1935). For instance, Edwin Witte writes:

"Unemployment compensation is not conceived of as a complete protection against the hazards of unemployment. In no country in the world has it proved so. This does not mean that unemployment compensation is valueless. Far from it. It is a first line of defence, valuable particularly for those workers who are ordinarily regularly employed – the great majority of our industrial workers and the largest element in our entire population" (Witte, 1935, p. 90).

6. Old Institutional Economics and Current Labour Issues: The Case of Minimum Wages

For neoclassical / mainstream economics, in general, the enforcement of a minimum wage is considered to be foreign to the laws of political economy, diminishing the size of employment – especially of low-wages workers – and discouraging capital and firms from expanding. For instance, A. C. Pigou, though accepting of a broad Minimum Conditions programme with respect to several aspects of life (*e.g.* education, consumption, medical care and housing), he argued that a minimum wage was a deficient measure mainly due to its possible negative impact on employment (Pigou, 1913; see also Katselidis, 2016).

Nowadays, although there is no consensus among economists on the effect of minimum wages on the unemployment level, it is argued that the imposition of minimum wages mainly has an adverse impact on the employment of young people and low-skilled workers (see e.g. Nickell and Layard, 1999; Neumark and Wascher, 2008; Ehrenberg and Smith, 2017). The opponents of minimum wages hold that though those workers who remain in the labor market have higher wages, this is in fact at the expense of both firms' profits and employment, both of which are lower as a result. However, this analysis assumes that firms operate in competitive markets with little or no economic rent that can be extracted in the form of higher wages. But what happens if the labour market does not function in a competitive

framework? After the publication of Card and Krueger's influential book *Myth and Measurement* (1995), there have been many mainstream economists who assert that imposing a minimum wage may have a positive effect on employment (increase in employment) (only) when the business firm has some form of monopsony power in the labour market due to, for example, labour immobility (Card and Krueger, 1995). In this case, a monopsonistic firm pays a wage significantly lower than both the competitive one and the marginal product of labour, employing also fewer workers than it would if it were in a competitive labour market. The introduction here of a minimum wage will be expected to increase employment up to the point where the minimum wage level is equal to the competitive equilibrium wage (Polachek and Siebert, 1993). Even then, nevertheless, neoclassical practitioners are likely to contend that monopsony conditions do not characterise the real markets where minimum wages apply.

On the other hand, for institutionalists, as already noted, this is the wrong way to conceive of markets. Therefore, as Kaufman (2010) points out, institutional theory tells a more convincing story and presents a more positive case for minimum wages, broadening also the relevant theory and policy debate. Specifically, according to the early institutional economics' viewpoint, the implementation of a statutory minimum wage may affect positively both workers and employers, promoting long-term economic efficiency and productivity. For instance, "high road" employers, who face an increased production cost due to the existence of a minimum wage, will be forced to improve their production methods, investing in new technologies, R&D and human capital (Kaufman, 2010). In addition, the enforcement of a minimum wage higher than the competitive one will lead to a revision of firms' hiring policy; firms will mainly turn to hiring permanent and capable employees, thus reducing the number of low-quality casual workers. This may also have a positive impact on workers, provided that they will try to improve their technical dexterities and qualitative characteristics with a view to become more competitive (Commons, 1921). Consequently, in the long-run, the most effective and advanced enterprises survive in markets, since they gradually displace those firms which follow old and obsolete management and production methods.

Early institutional economists also held that minimum wages legislation is one of the instruments against the exacerbation of labour standards caused by adverse economic circumstances like unemployment, which gives employers the power to exploit the labourers' need to work, leading also to more elastic employment conditions (lower wages, worse working conditions, illegal labour with close to zero salaries, etc.). Additionally, workers have no power to react since they are easily replaceable and have a strong need to work at any labour price. In other words, this power structure violates any equality in the negotiations between employers and workers, giving the comparative advantage to the stronger part. Therefore, the minimum wages measure can also contribute towards the reduction of inequality of bargaining power (Commons and Andrews, 1916). Finally, early institutionalists, in a "proto-Keynesians" vein, connected minimum wages to macroeconomic stability and aggregate demand's boost (Kaufman, 2010).

7. Concluding Remarks

The early institutional economists helped shape labour market policy in the US during the first decades of the 20th century, aiming both at the improvement of working conditions and the rise in labourers' standard of living. The observed labour market inequalities and malfunctions rendered imperative the creation of mechanisms for the redistribution and readjustment of power between employees and employers. The majority of the old institutional economists

attached great significance and attention to real life economic phenomena and empirical facts, stressing that not only should the economic theory of labour markets be based on realistic assumptions, but it should also be tested empirically.

Institutional economists, in contrast to neoclassicals, regarded economy as a nexus of institutions, underlining, therefore, the important role of institutional and non-market factors (e.g. property rights, professional and trade associations, tradition, social norms and customs) in the functioning of an economic system. They also criticised those who define (economic) welfare only in terms of efficiency and satisfaction of consumer wants; institutionalists instead focus on issues related to justice, human self-development and labourers' welfare.

Classical and early neoclassical economists did not pay much attention to the economic analysis of labour market institutions, since they contended that such an issue was outside the standard domain of economic analysis (e.g. Jevons, 1882), and that, moreover, such an institutional presence hampered the application of formalism to economics (e.g. Edgeworth, 1881). By contrast, early institutionalists paid considerable attention to the examination of the institutional framework of the labour market. In particular, the first generation of institutional economists highlighted the importance of institutions and other nonmarket factors in determining the level of wages and employment (e.g. the role of the bargaining power of workers and employers). Furthermore, they made substantial contributions towards the field of labour policy; indeed they were pioneers in the formulation of economic and social policy. Specifically, acting on the recommendation of the institutional labour economists, various modern institutions and labour market policies, such as unemployment benefits, industrial training and active employment policies, were implemented in the US during the period under consideration. Hence, judging by the number of their published papers in leading scientific economic journals, and by their participation in various committees and councils, it seems that institutionalists were very influential both in the scientific and government circles. Therefore, their ideas, besides being interesting from a historical point of view, may also be useful in today's analysis of workers' problems and the functioning of modern labour markets.

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Orthogonal Time in Euclidean Three-Dimensional

Space: Being an Engineer's Attempt to Reveal the Copernican Criticality of Alfred Marshall's Historically-ignored 'Cardboard Model'

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Abstract

This paper begins by asking a simple question: can a farmer own and fully utilise precisely five tractors and precisely six tractors at the same time? Of course not. He can own five or he can own six but he cannot own five and six at the same. The answer to this simple question eventually led this author to Alfred Marshall's historically-ignored, linguistically-depicted 'cardboard model' where my goal was to construct a picture based on his written words. More precisely, in this paper the overall goal is to convert Marshall's ('three-dimensional') words into a three-dimensional picture so that the full import of his insight can be appreciated by all readers.

After a brief digression necessary to introduce Euclidean three-dimensional space, plus a brief digression to illustrate the pictorial problem with extant theory, the paper turns to Marshall's historicallyignored words. Specifically, it slowly constructs a visual depiction of Marshall's 'cardboard model'. Unfortunately (for all purveyors of extant economic theory), this visual depiction suddenly opens the door to all manner of Copernican heresy. For example, it suddenly becomes obvious that we can join the lowest points on a firm's series of SRAC curves and thereby form its LRAC curve; it suddenly becomes obvious that the firm's series of SRAC curves only appear to intersect because mainstream theory has naively forced our three-dimensional economic reality into a two-dimensional economic sketch; and it suddenly becomes obvious that a two-dimensional sketch is analytically useless because the 'short run' (SR) never turns into the 'long run' (LR) no matter how long we wait.

Keywords: completed competition, cardboard model, non-Newtonian economics, orthogonal time

JEL codes: A23, B21, B41, B59

1. The Geometry of Euclidean Three-dimensional Space

We start with Figure 1. It's a simple open-top cardboard box. Notice that we pretend we have X-ray vision so we can see through the cardboard, if required. Several things need to be noted:

- 1. One corner is labelled 'O' for origin because this will generally be our basic reference point.
- 2. Angles ZOX and AYB appear as right angles because they are right angles and because they lie 'in' or 'parallel to' the plane of the paper.

- 3. All other angles (e.g., angle AYO) are also right angles but they do not appear to be right angles when a three-dimensional sketch is forced onto a two-dimensional page.
- 4. Thus Figure 1 is an orthogonal projection of a simple cardboard box.

Figure 1 A simple open-top cardboard box



We focus our attention on the far lower-left corner. As mentioned above, this shall be the origin of our journey into Euclidean three-dimensional space, so we labelled it as Point O. Next, to aid in the visualisation of what is before us, we imagine that the box has been pushed all the way back against a large piece of white paper thus Point Z, Point O and Point X will be touching the paper. In other words, the side identified as ZOX is a surface lying in the plane of our paper.

Now we look at the side identified by Point A, Point Y and Point B. These three points also create a plane surface but note that, even though AYB is also a plane surface it does not lie in the plane of our paper. It is a flat surface which is parallel to the plane of the paper (and to ZOX). This leaves us with a three-dimensional set of axes on which to place our various musings about reality, Figure 2a.

Figure 2a 3D reality

Figure 2b The apparent intersection of two non-intersecting lines when a 3D reality is projected as a 'shadow' onto the (back) plane of the paper (i.e., a misleading 2D sketch of 3D reality).



Now we can start to hone in on the crux of the fundamental problem. In order to do this, we re-draw Figure 1 as viewed from a slightly different angle (Figure 2a), we change the proportions to aid in visual clarity and we add lines A-B and O-D. Notice that, in Figure 2a, these two lines do not appear to intersect when drawn in an orthogonal projection (i.e., when drawn in a picture which is closer to our three-dimensional reality) yet, when we naively force

the picture back into a two-dimensional sketch (Figure 2b), it now appears as if they do intersect. Here's the reason: we have inadvertently cast a 'shadow' of Figure 2a back onto our paper (Figure 2b). Thus a researcher who was given only Figure 2b on which to base his/her analysis would probably assume that lines A-B and O-D intersect when, in reality, they do not [Appendix, pp. 40-41].

1. Honing In: The Geometry of 'the Short Run' Sketched in Two Dimensions

Let us now use what we have learned by applying it to an examination of the short run average cost (SRAC) curve for our farmer who owns precisely five output-producing tractors, Figure 3.

Figure 3 A typical short-run average cost (SRAC) curve



Note that we have re-labelled the vertical axis as 'Price' and have re-labelled the horizontal axis as 'Quantity' so as to be consistent with conventional economic labelling. Note, also, that we will use either of two standard mathematical expressions to indicate our farmer's capital constraint. Specifically, we will express his ownership of tractors as SRAC(k=5) or even more simply as SRAC(5), depending on our needs at the moment. It is most important that the reader fully understands that, mathematically, the two expressions mean the exact same thing: our farmer – at the time of our initial examination of his 'physical capital' – owns precisely five usable output-producing tractors. As discussed in a just moment, we will let him (if he wishes) add to his physical capital by allowing him the option of purchasing an additional tractor(s) next year (or 'whenever').

In the meantime, as mentioned above, we have recast everything in a format more suitable for an economic analysis of 'the short run'. Also note that we have identified the lowest point on the farmer's SRAC curve as Q(DOL). This is the farmer's Design Output Level when his tractors are being utilised at 100%, no more, no less. This is the production level where the farmer's short run average costs are at a minimum when he owns five tractors [Appendix, p. 41].

Three additional points need to be mentioned here and we put the crucial point first. Figure 3 is a picture of reality. It is not dependent on any economic theories; neither is it dependent on any (relevant) 'simplifying assumptions'. Second, Figure 3 (for any particular real-world firm) would be constructed from collectable and/or calculable real-world data thus Figure 3 is a visual presentation of the minimum selling prices (for various levels of output, e.g., Q_L or Q_H , etc.) which would be financially acceptable to the firm for some sustainable future, given its particular and extant arrangement of capital and labour, *ceteris paribus* (here we must translate rather loosely: 'all other things held constant'). Third, we shall not, at this juncture, allow quibbling over the components of 'production costs'; we let the reader make his/her own selection and require only that rigorous consistency be maintained throughout.

Moving on, in Figure 4, we let there be a correctly-anticipated increase in business and therefore allow our farmer to contemplate an increase in his capital; specifically, he contemplates buying one additional tractor (note that we now include SRAC(k=6) in Figure 4.)

Before we proceed further, it's important to understand that, in this paper, our analytic requirements are rather strict. First, the new tractor is not permitted to have any technical improvements, e.g., if the original tractor had a carburettor, this one has a carburettor, not fuel injection).¹

Figure 4 The farmer buys additional tractors



Now we can move on. We let our farmer also contemplate the purchase of two additional tractors (again, Figure 4), thus increasing the number of fully-utilised tractors to seven. When the resulting SRAC curve for the seventh tractor is added to our figure and we force everything into a two-dimensional sketch, we begin to see the problem more clearly, Figure 5. A two-dimensional sketch of our three-dimensional reality gives the viewer the completely erroneous impression that the various SRAC curves intersect in various places and, to the best of this author's knowledge, this is the current state of affairs regarding extant economics theory's current visualisation of a firm's SRAC curves. More importantly, when viewed as in Figure 5, we are forced into the standard 'tangency solution' when we try to construct the firm's LRAC curve because, while a firm can have short-run *economic* losses and long-run *business profits* at the same time, it cannot have short-run *business losses* and long-run *business profits* at the same time² [Appendix, pp. 40-41].

¹ In subsequent papers we will be much more lenient because we will want to start moving much closer to reality. Specifically, realistic leniency will allow us to push well beyond Marshall and thus examine our farmer's options in Euclidean five-dimensional space.

² It took this author a long time to fully grasp the crucial difference between *economic* profits and *business* profits. An (external), i.e., a real-world lack of adequate competition determines the size of the firm's economic profits whereas a lack of (internal) business acumen determines the size of the firm's business profits. Confusion can arise because both are calculated based on 'left-over' money.
Figure 5 Extant economics' simple but misleading presentation of the relationship between the firm's series of SRAC curves and its LRAC curve



Remember the firm **can** have short-run *economic* losses and long-run *business* profits but it **cannot** have short-run *business* losses and long-run *business* profits. Thus the 'tangency requirement' in this too-simple sketch.

Now can we can turn to Marshall's 'cardboard model' and see how he thought the mis-perception problem should be solved [Appendix, pp. 40-41].

2. We Begin in Ernest: Marshall's Obscure Footnote

We begin by examining the first part of Marshall's footnote. It explains how we could come much closer to our economic reality with regards to this particular economic sketch.

'We could get much nearer to nature if we allowed ourselves a more complex illustration. We might take a series of curves, of which the first allowed for the economies likely to be introduced as a result of each increase in the scale of production during one year, a second curve doing the same for two years, a third for three years, and so on' (Marshall, 1990, App. H, Art. 3, footnote 2, p. 667).

Obviously Marshall is not yet describing the precise same picture that we are herein considering but, already, he clearly recognised the need to go beyond the standard twodimensional schema when trying to visualise the interactions between three economic variables [Appendix, pp. 11, 12]. Now let us turn to the last half of his footnote.

'Cutting them out of cardboard and standing them up side by side, we should obtain a *surface*, of which the three dimensions represented amount, price and time, respectively' (Marshall, 1990 App. H, Art. 3, footnote 2, p. 667, italics in original).

Notice that Marshall used the words '...amount, price and time...' We chose to avoid the actual use of the word 'time' because the pictorial location of any particular SRAC curve does not depend on the passage of time, *per se*; it depends, instead, on the firm's state of

production affairs at the end of any 'time interval' during which capital was increased. In other words, our farmer might buy additional tractor(s) at the end of one year or he might buy it/them at the end of two years or at the end of three years. The important point is that our farmer increases his output-producing capital in 'clumps' (he cannot utilize $\frac{1}{2}$ of a tractor).³ Anyway – usurping some poetic licence regarding Marshall's precise words – we illustrate an unambiguous visual depiction of our farmer's initial situation (i.e., k=5), Figure 6A.

Next, we let him contemplate the purchase of one additional tractor thus he would then own six tractors, Figure 6B. Note that, in figures 6A, 6B and 6C, the axis coming 'out' of the page has now been re-labelled as $q(A_k)$; i.e., output is shown as a function of the amount of capital, not as a function of time.

Finally, we let him consider adding two tractors at the end of the first year, Figure 6C. Certainly, he could have chosen to buy no additional tractors (k=5); he could have chosen to buy one additional tractor (k=6) or he could have chosen to buy two additional tractors (k=7). The wisdom of his decision regarding (a) how many additional tractors to contemplate buying (if any) and (b) when to buy them would, of course, be almost totally dependent on him having reliable real-world cost data and/or cost estimates.

Figure 6a, b and c How to contract Alfred Marshall's historically-ignored 'cardboard model'





³ 'Clumps' might suggest that a 'quantum economics' approach be considered but unfortunately, that terminology is already gaining unwarranted currency.



Now we can combine figures 6A, 6B and 6C so as to form Figure 7, thus coming very close to reaching Marshall's cardboard model.



But, before we take the last step, it seems important to show that – if we wanted to – we could (confusingly) force Marshall's 3D model back into a 2D sketch, Figure 8. Note the subtle but crucial difference between Marshall (Figure 8) and extant theory (Figure 5). Specifically, Marshall's depiction *allows for (but does not require)* a 'low point solution' to the SRAC vs LRAC problem whereas extant theory *requires* the 'tangency solution' [Appendix, pp. 42-43].

Figure 8 A misleading simplification of Marshall's cardboard model



Now let us take the last step. Let us view Alfred Marshall's three-dimensional 'cardboard' model as this engineer believes it was actually meant to be viewed, Figure 9.



In Figure 9, we show the basic 'ribs' which form the skeleton of Marshall's short-run vs longrun 'surface' [Appendix, p. 42]. And, given that a clear appreciation of the SRAC vs LRAC arrangement seems a necessary precursor to more advanced economic theorizing, it would seem that it is time for Marshall's three-dimensional, historically-ignored 'cardboard model' to be given its rightful place as one of the several 'foundations' of modern economic theory.

3. Conclusions

It should now be obvious that my distinction between the 'short run' and the 'long run' has absolutely nothing to do with calendar or clock. Indeed, the distinction must be based solely on the various sizes of the 'clumps' of output-producing capital that a representative firm actually has available at any given instant. Basically, our farmer chooses to own a certain number of tractors (i.e., he chooses a particular short-run curve from a set of long-run options) for his 'course tuning' of output capability then 'fine tunes' his actual output – while 'stuck' on that pre-selected SRAC curve – so as to maximise his profits in accordance with market demand. All things considered, we arrive at the following conclusions:

- 1. We can join the lowest points on a firm's series of SRAC curves and thereby form its LRAC curve;
- The firm's series of SRAC curves only appear to intersect because mainstream theory unnecessarily (and misleadingly) forces our three-dimensional economic reality into a two-dimensional economic sketch;
- 3. A two-dimensional sketch is analytically useless because the 'short run' (SR) never turns into the 'long run' (LR) no matter how long we wait.

In summary - when the words of Alfred Marshall are recognised as being a set of instructions and we then draw a picture based on those words – we begin to understand that (using modern engineering terminology) 'the short run' and 'the long run' are orthogonal functions in Euclidean three-dimensional space.⁴

Appendix

This appendix will utilise the following format. I will quote the reviewer (hopefully, not out of context) and then I will provide my reply. I begin with the comments / suggestions of Professor Duddy because he (appropriately) addressed my (partially successful) attempt to translate 'engineering words' into 'economic words'.

Professor Conal Duddy (CD) wrote: 'The author proposes a new diagram that differs from the original in two ways. Firstly, the new diagram is three-dimensional. Secondly, the author objects to the "tangency solution" that we see in the standard diagram.'

My reply: Professor Duddy is quite correct. My 'new diagram' is, indeed, 'visually different'. In my depiction (based on Marshall's words), I use a three-dimensional sketch for the firm's SRAC curves (plural) because a three-dimensional sketch simply cannot be unconfusingly depicted in a sketch having only two-dimensions. Specifically, the (2D) depictive error creates two separate chimeric problems: (1) the *appearance* of 'intersections' of the SRAC curves and (2) the *appearance* of a 'tangency requirement' regarding the firm's LRAC curve.

A simple real-world example might suffice. Merely hold two wooden dowels up in the air in bright sunlight and let their shadows be cast on the ground. Then arrange them so that their shadows actually do cross. But, obviously, the dowels need not actually be physically touching even as their shadows on the ground create an optical illusion which causes the unwary to (incorrectly) conclude that the dowels are touching.

But the arrangement of our firm's SRAC curves (and their inter-action with the 'longer run' curve) is a bit more complicated than mere shadows of wooden dowels. More to the point, it is my firm contention that, in a proper depiction, any individual SRAC curve lays in its own unique plane and that each of the remaining SRAC curves each lays in its own unique plane and all of the SRAC 'planes' are parallel to each other. Envision the 'first' SRAC curve as being drawn on a piece of semi-transparent graph paper lying on a table. Then place a piece of clear glass over it. On the glass, lay the (semi-transparent) graph of the 'second' SRAC, being sure to align the axes. Repeat the procedure several more times and then look straight down through our 'sandwich'. Voila! But this time, we have a fancier (and perhaps embarrassing) optical illusion: many of the SRAC curves will suddenly appear to intersect. Finally, in my depiction of SRAC curves and the resulting LRAC curve, the LRAC curve is what we get when we 'drill' down through the glass and paper, intersecting each SRAC curve only once. [Note that the LRAC curve may actually be curved or it might be a 'curve' with radius of curvature = 00 (i.e. it might sometimes be a straight line), (Thomas, 1962, p. 588).] Note, therefore, that the (mainstream econ) LRAC cannot be tangent to the series of SRAC curves because it is, in my depiction, somewhat perpendicular to the series of SRAC curves.

⁴ Those readers already familiar with orthogonal functions probably realise that, while the axes (price, quantity, capital) *are* orthogonal, a real-world firm's LRAC curve will almost never be fully orthogonal to its collection of SRAC curves because the firm's LRAC curve is actually a 'directional derivative', not a true 'partial derivative' of the overall production function. Our purpose herein was to bring modern attention to Marshall's historically-ignored 'cardboard model' thus we used relatively simple illustrations and/or words and leave gradients and vector calculus to the 'quants'.

Note that I purposely choose the word 'somewhat' because (in my depiction of the real world) the 'longer run' curve is probably never precisely perpendicular to the series of SRAC curves but is, instead, a 'directional derivative' as discussed by Kreyszig (1972, p. 306). Basically, in my (non-Newtonian) depiction of that relationship, the 'long run' curve lays in a plane which is *reasonably* perpendicular to the planes of the SRAC curves *but 'tangency' and/or 'intersection' requires that <u>all</u> curves under consideration (all SRACs <u>and</u> the LRAC) lay in one single plane. I hope that this description of my arrangement between a firm's series of SRAC curves and its LRAC curve adequately explains why I object to the 'tangency' depiction and to the 'intersection' depiction.*

CD: 'The author argues that the long run curve should instead cross through each short run curve at its *lowest point* (CD's italics). This can be seen in figures 8 and 9.'

Me: I must apologise for not mentioning that, in the referenced sketches, the 'crossing' at the lowest point was chosen only for graphic simplicity. [I confess that I am not very skilled with computer graphics.] In the real world, I would expect that my LRAC curve would probably never intersect the lowest point of any of the firm's SRAC curves because, based on my perusal of data regarding USA manufacturing output, I concluded that most (established) firms report that they typically operate at roughly 83 +/- % of capacity; they seldom operate at 100% of capacity (what I label as the design output level, DOL). [But do keep in mind that the reported 'capacity utilisation' may be influenced by the state of the economy and/or by political motivations.]

In reference to the terminological confusion, Professor Duddy wrote: 'It may also be appropriate to give a different name to the curve to avoid confusion.'

Me: After I realised that he was quite correct, I searched for a new and different acronym. The best that I can do, for now, is something like 'non-Newtonian long-run average cost' curve (nNLRAC). Granted, it's a mouthful but it should eliminate any future confusion and will be used for clarity when necessary.

CD: '...Marshall does not make any reference in this footnote to a long run average cost curve. So, this aspect of the new diagram requires some separate justification.'

Me: I agree that Marshall (Marshall, 1990) does not make any specific reference to a long run average cost curve but he does talk about '... the economies likely to be introduced as a result of each increase in the scale of production during one year, a second curve doing the same for two years, a third for three years, and so on' (Marshall, 1990). But (to me) it seemed apparent that he was talking about some sort of 'longish' time frame because (with our tractor example) the farmer might add one more tractor (i.e., to increase his scale of production) during the first year, buy another (additional) tractor after two years, etc. Thus I decided that it was analytically acceptable to express Marshall's 'increase in the scale of production' either in terms of a (non-Newtonian) long run 'time' or in terms of an increase in actual physical capital. If my memory is correct, the formal mathematical technique is called 'conformal mapping'.

Dr Ellerman's comments are of a rather different nature. He wrote: 'The question addressed in this paper was already addressed and resolved in the sophisticated discussion by Paul Samuelson in his Foundations of Economic Analysis. See the pages for "Wong" in the index.' Me: While I can agree that the question 'was already addressed...' in Samuelson's text, I cannot agree that it was 'resolved', regardless of Samuelson's 'sophisticated discussion'. Granted, the importance of using mathematical sophistication was also [well] 'addressed' by Professor Chiang (Chiang, 1984) regarding the need to go beyond geometric models: '...mathematics has the advantage of forcing analysts to make their assumptions explicit at every stage of reasoning' (Chiang, 1984, p. 4).

But I suspect that part of Chiang's preference for using mathematical models is because, on p. 4, he also mentions that the drawing a three-dimensional sketch is 'exceedingly difficult'.

Regardless of the reason for avoiding a three-dimensional sketch, 'what if' the mathematically-inclined analyst chooses and uses impeccable mathematics but he has chosen the 'wrong' mathematics...? Let us pursue this very intriguing question in greater depth....

The following set of figures illustrate just one of the 'foundational' problems that I have with 'mainstream' economics. Figures 10A through 10C summarise the basic steps in the derivation of the familiar 'cross' which purports to depict equilibrium between supply and demand. Figure 10A illustrates the (perfectly horizontal) demand curve when we assume 'perfect competition' (or Samuelson's 'pure competition'. The demand curve is then integrated to give total revenue, TR_{NE} (Figure 10B, pursuant to profit maximisation), yielding the upward-sloping supply curve in Figure 10C. But from whence came the *downward*-sloping demand curve in Figure 10C? It 'whenced' from 'relaxing' the strictness of perfect competition and thus allowed the demand curve to be depicted with a downward slope (which probably is more in tune with our real world).





But...why not start closer to reality (Figure 11A) and follow the precise same mathematical steps as were followed in the 'mainstream' derivation? The result is a *downward*-sloping supply curve. Thus, instead of our mathematics yielding Marshall's 'scissors' model (Marshall, 1990, p. 290), our mathematics yields a 'wheel and ramp' model of equilibrium between supply and demand, Figure 11C.

I realise that this is not a general equilibrium model (which would need to employ Samuelson's admittedly sophisticated mathematics) and it is not even a partial equilibrium model. Properly labelled, it might be called a 'single firm equilibrium model'. In my defense for eschewing sophisticated mathematics, it's been almost 50 years since I studied math at that level and, frankly, I just didn't feel like sweeping off all the cobwebs. Plus, that level of mathematics is not necessary in order to explain my underlying contention: a two-dimensional picture – if it is the correct picture of our economic reality – will often yield results which are much more useful (and, in the case at hand, be rather contrary to) a purely mathematical but naive approach. That's why it was necessary to begin with Marshall's cardboard model; we needed an SRAC curve, totally unencumbered with 'intersections' and/or 'tangency' confusions, before we could tackle the naive use of 'incorrect' mathematics which, in my opinion, resulted in the (incorrect) 'scissors' depiction of equilibrium between supply and demand.

Let me give an example used by Professor Washington (Washington, 1980, p.183) in which he illustrates the potential danger of making a naive decision to employ a specific mathematical technique without first employing a sketch to validate the choice of the mathematics, *per se.* [I came across it when I was reviewing some of my early math texts in preparation for writing this paper. Note that I misplaced my original copy and had to purchase a slightly newer edition, quoted herein.]

Here's the example he used to illustrate the problem, Figure 12:

Figure 12 The graph of $y = x^3 - x$



Find the area between $y = x^3 - x$ and the x-axis.

Note that the area to the left of the origin is above the axis and the area to the right is below. We start with the naive math first... The problem seems simple and straightforward: simply use calculus to determine the area in question.

$$A = \int_{-1}^{1} (x^3 - x) dx = \frac{x^4}{4} - \frac{x^2}{2} \Big|_{-1}^{1} = (1/4 - \frac{1}{2}) - (1/4 - \frac{1}{2}) = 0$$

But if we recognize that, at x = 0, there exists what Kaplan (Kaplan, 1953, p. 554) calls an 'isolated singularity', then we must let the graph override our naive (one step) mathematical approach and use the arithmetic sum of two *separate* integrals to obtain the *correct* answer

$$A = \int_{-1}^{0} (x^{3} - x) dx + \int_{0}^{1} (x^{3} - x) dx = \dots = 1/2$$

In economics (and in most other disciplines) it seems that the mathematical economist sometimes fails to realise that mathematics is 'dumb', i.e., it is merely a 'tool' that does what it was told to do. And because of the absolute reliability of a mathematical answer, the mathematical economist also sometimes fails to realise that he/she has chosen the wrong mathematical tools (plural). More precisely, in the case at hand, the ('mainstream') mathematical economist starts with one assumption and then chooses the 'appropriate' tool (singular) but, when finished, essentially pretends that he/she started with a different 'tool' based on a different assumption, thereby unknowingly acknowledging that the first tool was the wrong choice. *If consistency of the original assumption had been maintained throughout the complete mathematical 'proof', Marshall's 'scissors' would have looked like Figure 13.*

Figure 13 Equilibrium of supply and demand if maintaining consistency of original assumption



Interesting perhaps, but pragmatically useless. Anyway, this (I believe) is the case with the derivation of the firm's SRAC curve. In my opinion, all economists here-to-fore have chosen the wrong mathematical tool and that's why the firm's SRAC curve is *incorrectly shown as being the upward-sloping portion of the firm's marginal cost (MC) curve* whereas the correct mathematical tool reveals that it is actually *the downward-sloping portion of the firm's average cost (AC) curve*.

Acknowledgements

I am very indebted to the insightful comments provided by David P. Ellerman and by Conal Duddy. Their comments were deemed so helpful such that I felt compelled to offer the requested (additional) clarifications in a newly-added Appendix. [The body of the text is essentially unchanged; relevant (clarifying) words were gathered together and placed in the appendix.]

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Credit, Indebtedness and Speculation in Marx's Political Economy

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Abstract

This paper contends that Marx develops in Volume III of *Capital* an incisive conceptual framework in which excessive credit creation, indebtedness and speculation play a critical and growing role in the reproduction of social capital on an extended basis; however, given the decentralised and anarchic nature of capitalist production, the credit system does so in a highly erratic and contradictory manner which only postpones the inevitable day of reckoning. The paper also highlights Marx's relatively neglected but highly important analysis of the separation of ownership from management in the advanced capitalism of his day, England, and its modern-day implications for excessive risk-taking and debt-fuelled speculation up until the eve of the crash. More importantly, the paper argues that in Volumes II and III, Marx implicitly connected the expanding role of credit (which he associated with the development of capitalism) to a significant reduction in the turnover period of capital, thereby boosting the rate of surplus-value, and countering in a highly erratic and contradictory manner, the fall in the rate of profit. The growing role of credit has been relatively ignored in the Marxian literature as an important counteracting factor to the law of the declining rate of profit. It is not mentioned at all by Marx in his famous Chapter XIV, Vol. III of *Capital* where he discusses other important counteracting forces to the falling rate of profit, nor by Engels (in this particular context) who edited both Volumes II and III.

Keywords: B10; B14; B24

JEL codes: bills of exchange; capital; credit; crises; fictitious capital; industrial (business) cycle; speculation; turnover period of capital

I. Introduction

Marx's discussion of credit and speculation and its connection to the reproduction and turnover of capital on an extended basis was left in an unfinished and, at times, confused state for Friedrich Engels to painstakingly edit and organise into a coherent body of work. In no small part this was due to Marx's almost illegible handwriting. Despite its disorganised and unfinished state, Marx's analysis, in Chapters XIII, XIV, XV, XVII, XXIX, XXX and XXXI of Volume III of *Capital*, does represent a compelling, prescient and lengthy discussion of the role of credit (and moral hazard) in nurturing and sustaining the illusion of a smooth and continuous reproduction process of capital up to the eve of the crisis – an analysis that present-day economists and students of the business cycle can profit and learn from. One of the more important, yet relatively neglected, points to emerge from Marx's discerning analysis of the recurring and ever-expanding circuit of social capital in both Volumes II and III of *Capital*, and Engels's presentation of it in Chapter IV of Volume III, is the decisive and contradictory role of credit on both the turnover of capital and in counteracting the law of the declining rate of profit. Marx discussed this 'law' in the context of cyclical crises, and although

some Marxist scholars contend that Marx viewed the fall in the rate of profit as the sole or primary explanation for the onset of economic crises (e.g., see Kliman, 2011; Dobb, 1973; Mandel, 1971 [1968] and 1973; and Moseley, 1997), other scholars strongly disagree and argue that Marx had several competing explanations for business (industrial) cycles, including explanations based on disproportions between the various branches of production arising from the anarchy of capitalist production as well as those associated with underconsumptionist tendencies (see Brewer, 1984 and 1990; Foster, 1986; Foster and Magdoff, 2009; Howard and King, 1985 and 1992; Ramirez, 1990 and 2007; Sherman and Evans, 1984; Sowell, 1967; and Sweezy, 1970 [1942]).

This paper does not address directly the issue of whether Marx subscribed primarily to a supply- and/or demand-based explanation of the industrial cycle, interesting and important as it is, because it would take us too far afield from the main focus of this essay which is the impact of the role of credit on the turnover period of capital and the rate of profit. In what follows, we will operate under the assumption that Marx had a theory of the business cycle that emphasised the importance of supply-side elements, such as a fall in the rate of profit (due to an increasing organic composition of capital) in explaining both the slowdown and collapse of investment, and its eventual eruption into a generalised economic and financial crisis (see Howard and Sherman, 1985 and 1992; and Ramirez, 1990). In other words, we will follow Marx's lead and proceed under the implicit assumption that up until the precise moment of the crisis, the surplus-value produced in the competitive capitalism of his day was being realised or effectively demanded (see Dobb, 1973; and Ramirez, 1990). It will be argued that Marx's incomplete (and unfinished) analysis of the law of the tendency of the falling rate of profit and its counteracting effects in Chapters XIII, XIV and XV of Volume III of Capital would have benefitted immensely from the explicit inclusion of the growing use of credit in the capitalism of his day (in the form of bills of exchange, bank notes and loan advances) in accelerating the turnover period of capital, thus countering the fall in the rate of profit in an often erratic and contradictory fashion. The shortening of the turnover period of capital, and its crisis-prone reproduction on a national and global scale, is both a direct result of the growing use of credit via the 'financialisation' of the accumulation process and the everrising social productivity of labour which expresses itself both in a marked reduction in both the time of production and circulation, thus boosting both the rate of surplus-value and profit (see Beitel, 2008; Fichtenbaum, 1988; Foster and Magdoff, 2009; Kliman, 2011; and Palley, 2013).

This article is organised as follows: Section II below discusses the role of credit in the development of capitalism, particularly its direct role in expediting the realisation of surplusvalue (profit) as well as its indirect one on the reproduction of surplus-value, albeit in a contradictory and destabilising manner over the course of the industrial (business) cycle. It also highlights Marx's important and relatively neglected discussion of the separation of ownership and management where he implicitly hints at the important role of moral hazard in the excessive speculation that emerges just before the onset of the crisis. Section III examines Marx's analysis of the circuit of money capital and Engels's discussion of the turnover period of capital and the factors that determine its production and circulation periods. Section IV is the conclusion and summarises the main points.

II. The Role of Credit and the Development of Capitalism

With the development of capitalism (and the rising social productivity of labour), Marx never tired of pointing out throughout the three volumes of *Capital* (and also in Theories of Surplus

Value, Part II and the Communist Manifesto), that the compelling forces of 'money-making' and competition would drastically reduce both the time of production and circulation, thus endogenously generating a powerful catalyst to the process of capital accumulation and reproduction (e.g., see Vol. I, pp. 626-628; Vol. II, pp. 124-128; Vol. III, pp. 435-36; and the Communist Manifesto, pp. 66-72). According to Marx, with the development of commercial and banking credit, money begins to serve more and more as a means of payment in the sense that commodities are not sold for actual money, but for a written promise to pay at some agreed upon future date (essentially a derivative financial instrument). Marx, and his contemporaries, referred to these 'promises' as bills of exchange, and they were commonly used by capitalists to settle debts, purchase goods, or presented to banks for actual money, albeit at a discount – essentially a bank loan (see Chp. XXX of Vol. III, pp. 479-81). That is, the steel producer gives his iron ore and coal suppliers a promissory note or draft rather than cash payment, and the latter, in turn, redeem these bills at a discount (deducting interest) with their respective bankers. When the promissory note comes due (say, in three months), the steel producer pays the amount stated on the bills to the respective bankers. Thus, the bankers have essentially lent the suppliers a certain amount of money for three months, enabling them to reduce by three months the circulation time of their capital (and also the steel producer who receives credit from his suppliers only because the latter have received credit from their bankers) (see Vol. III, p. 479; and Mandel, 1971, pp. 226-230).

Marx emphasised correctly that the expanded (and widespread) use of credit in the form of (discounted) bills of exchange, bank cheques, bonds, and advances (loans) on current account – the *de facto* 'derivative (financial) instruments' of his time¹ – would reduce significantly the time during which commodities are in transit (circulation time), thus expediting their sale (realisation of surplus-value) and increasing the rate of surplus-value (and profit) (see Chp. XVII of Vol. III; and Chps. XXIX and XXX of Vol. III).² In his words,

'It is, therefore, the metamorphosis of commodities that is here promoted by credit; not merely C-M, but also M-C and the actual production process... Credit, then, promotes... the transition of industrial capital from one phase into another... as far as the merchants are concerned, the transportation of and transition of commodities from one person to another until their definite sale for money or their exchange for other commodities' (Vol. III, p. 482).

However, as the capitalist reproduction process expands and develops, aided and abetted by the credit system, new forms of money capital make their appearance which Marx dubbed 'fictitious' or 'illusory' capital; 'fictitious' in the sense that the accumulation of money capital or wealth resolves itself into the mere accumulation of titles of ownership that generate interest income and capital gains for their owners independent of 'the movement of value of the real capital for which they are titles... that is their quotation on the Stock Exchange' (Vol. III, p. 477). In Marx's view, once the real wealth of a nation assumes primarily the form of interest-

¹ 'Derivative financial assets' in the sense that the latter derive their value from a more fundamental financial asset which, in Marx's time, is the simplest financial asset, viz., the universal equivalent money in the form of gold or silver (see Brewer, 1984, pp. 15-18). ² Without discussing the specific forms that credit assumes (which he discusses in Chps. XXIX and

² Without discussing the specific forms that credit assumes (which he discusses in Chps. XXIX and XXX), Marx, in his famous chapter entitled, 'The Role of Credit' (Chp. XVII) argues generally that '...credit accelerates the velocity of the metamorphoses of commodities and thereby the velocity of money circulation.... Acceleration, by means of credit ... later the metamorphosis of capital, and with it the acceleration of the process of reproduction in general ... credit helps to keep the acts of buying and selling longer apart and serves thereby as a basis for speculation' (Vol. III, p. 436). See also Beitel, 2008, pp. 40-42; Harvey, 2014, pp. 79-85; Kliman, 2011, pp. 19-27; Foster and Magdoff, 2009, pp. 106-109; and Palley, 2013, pp. 17-40.

bearing capital in the form of bills of exchange, bank notes, government bonds and shares of stock, then it appears that any periodic revenue stream is interest on some capital, whether it is *real* or not, thus disguising the source of surplus-value (profit) in the production (labour) process and effectively replacing Marx's circuit of capital, M-C-C'-M', with the truncated (alienated) M-M' form. In his words,

"The formation of a fictitious capital is called capitalisation... For example, if the annual income is \$100 and the rate of interest is 5%, then the \$100 would represent the annual interest on \$2000, and the \$2000 is regarded as capital-value of the legal title of ownership on the \$100... All connection with the actual process of capital [production of surplus-value] is thus completely lost, and the concept of capital as something with automatic self-expansion properties is thereby strengthened" (Vol. III, p. 466).

As indicated above, although these paper assets represent claims on real assets such as railroads, the shares of stock themselves are fictitious because the real capital consists of the actual capital invested in rails, locomotives, trellises, etc., and not the capital-value of titles of ownership that are traded continuously in the market and subject to bouts of speculation (see Harvey, 1982; and 2014, pp. 240-45; and Foster and Magdoff, 2008, pp. 54-62).

For Marx, the gains and losses associated with the independent movement of the prices of these titles of ownership

'and their centralisation in the hands of railway kings, etc., become, by their very nature, more and more a matter of gamble, which appears to take the place of labour as the original method of acquiring capital wealth and also replaces naked force. This type of imaginary wealth not only constitutes (with the development of capitalism) a very considerable part of the money wealth of private people, but also of banker's capital' (Vol. III, p. 478).

The illusory nature of fictitious capital becomes most evident during stock-market crashes and financial crises when the prices of securities and bonds (and other paper assets) plummet in a matter of days or hours, yet the real functioning capital of the nation in the form of machinery, plant, equipment and warehouses remains intact. As a result, an increasing fraction of the real wealth of the nation comes into the hands of money-lending capitalists (bankers) who, in time of crises, buy up these devalued financial assets in the form of bills of exchange, bonds and securities (see Fine, 1986; Harris, 1976; Harvey, 2014; Hilferding, 1981 [orig. 1910]; and Shuklian, 1991). In Marx's words,

'Loan capital accumulates at the expense of both the industrial and commercial capitalists... It is at such times (crises) that the money-capitalists buy this depreciated paper in huge quantities which in the later phases regains its former level... It is then sold again and a portion of the money-capital of the public is thus appropriated... And it must grow (accumulation by money-capitalists) with every expansion of the credit system which accompanies the actual expansion of the reproduction process' (Vol. III, p. 502).

In this connection, O'Hara (2000) correctly observes that, although Marx viewed the sphere of money and credit (broadly defined) as relatively autonomous from the sphere of production

(where surplus-value is actually created or produced), he nevertheless believed that the development of the credit system had a decisive direct effect on the time of circulation and thus an indirect one on the reproduction of surplus-value (on this, see Barba and de Vivo, 2012; Foster and Magdoff, 2009; Kliman, 2012; Mandel, 1971; and Shuklian, 1991).³ For example, as indicated in footnote 1 above, '...credit accelerates the velocity of the metamorphoses of commodities and thereby the velocity of money circulation... and with it an acceleration of the process of reproduction in general' (Vol. III, p. 436).⁴ Commercial and banking credit not only reduces the cost of circulation by reducing that part of capital value that must be held in the form of money, but, according to Marx, by concentrating the reserve funds of industrialists, merchants and the small idle money savings of all classes in the bankers' hands, it centralises the money savings of society and thus enables associated industrial capitalists (borrowers) to renew the process of production on an ever-larger scale, culminating in the formation of joint-stock companies (Vol. III, pp. 436-37). In Marx's words,

'The credit system is not only the principal basis for the gradual transformation of capitalist private enterprises into capitalist stock companies, but equally offers the means for the gradual extension of co-operative enterprises on a more or less national scale. For Marx capitalist stock companies are to be viewed as transitional forms from the capitalist mode of production to the associated one' (Vol. III, p. 440).

In Chapter XXVII of Vol. III entitled, 'The Role of Credit,' Marx is almost prophetic in his discussion of the formation of joint stock companies and the separation of ownership from management, and implicitly hints at the important role of moral hazard in the excessive speculation that emerges just before the onset of the crisis. He writes,

'The credit system appears as the main lever of over-production and overspeculation in commerce because the reproduction process... is forced to its extreme limits, and is so forced because a large part of the social capital is employed by people who *do not own it* [my emphasis] and consequently tackle things quite differently than the owner, who anxiously weighs the limitations of his private capital in so far as he handles it himself' (p. 441).

Marx's analysis anticipates, to some degree, Keynes's own insightful observations decades later in Chapter 12 of the *General Theory* where he argues that the separation of ownership and management which characterises organised investment markets tends to generate destabilising speculation because of

'the fetish of liquidity, the doctrine that it is a positive virtue on the part of investment institutions to concentrate their resources upon the holding of "liquid" securities... [forgetting] that there is no such thing as liquidity of investment for the community as a whole' (Keynes p. 155).⁵

³ O'Hara's (2000) incisive comments on Marx's analysis of money, credit and fictitious capital are made in the context of his critical review of Nelson's (1999) book where the latter criticises Marx's theory of money because 'it is based on the money commodity (gold), and... because [allegedly] he follows a dialectical method that is more idealistic [Hegelian] than materialistic' (p. 84).

⁴ Barba and de Vivo (2012) also suggest that Marx 'conceives a possible positive influence of credit on the average rate of profit (e.g., when it allows the capital to circulate more rapidly)' (p. 1486). On this point, see also Beitel, 2008; Mandel, 1971, pp. 237-238; and Palley, 2013).

⁵ Kliman (2011) concurs with this assessment and remarks that, 'I doubt if any of this would have surprised Marx. Indeed, he argues that moral hazard is *the* problem that makes the credit system "the

Later, in Chapters XXX, XXXI, and XXXII of Volume III, Marx connects explicitly the expanded use of credit with the development of the productive power of social labour and production on an expanded scale for distant markets (see Brewer, 1984 and 1990; Kliman, 2012; and Mandel, 1971 and 1973). The latter development necessitates that credits must be prolonged (a longer run for bills of exchange) and this, of course, opens the door for 'the speculative (gambling) element' to dominate transactions to an ever-greater and perilous extent. He observes that,

'Production on a large scale and for distant markets throws the total product into the hands of commerce; but it is impossible that the capital of a nation should double itself in such a manner that commerce should itself be able to buy up the entire product with its own capital and sell it again. Credit is... indispensable here; credit, whose volume grows with the growing... value of production and whose time duration grows with the increasing distance of markets... The development of the production process extends the credit, and credit leads to an extension of industrial and commercial operations... the speculative element must thus more and more dominate the transactions' (Vol. III, p. 481).

Ultimately, as discussed below, a process of capitalist reproduction which rests upon an everincreasing use of credit in all its forms (e.g., bills of exchange, bank loans, shares of stock, bonds, etc.) must end in a payments crisis; in Marx's prophetic words,

'At first glance... the whole crisis seems to be merely a credit and money crisis... But the majority of these bills (of exchange) represent actual sales and purchases, whose extension far beyond the needs of society is, after all, the basis of the whole crisis. At the same time, an enormous quantity of these bills... represent plain swindle, which now reaches the light of day and collapses; furthermore, unsuccessful speculation with the capital of other people; finally, commodity-capital which has depreciated or is completely unsaleable, or returns that can never be realised again' (Vol. III, p. 490).⁶

In Chapter XXXI Marx explicitly connects the expansion of credit to the accumulation of loan capital and argues that during different phases of the business cycle it reflects both actual

principal lever of overproduction and excessive speculation". He also suggests that moral hazard is not a defect created by any financial system but an inevitable by-product of credit as such, since debtors inevitable take risks with creditors' funds, even when they do business directly, instead of through the intermediation of financial institutions' (p. 20).

⁶ Rudolf Hilferding's monumental analysis of the role of (bank) credit and the joint stock company in accelerating the process of concentration and centralisation of capital draws on Marx's work in Vols. I, II, and III of *Capital*, but further extends and modifies it to show that the separation between industrial and financial capital which was characteristic of competitive capitalism disappears in the era of finance capital; the latter represents for Hilferding a fusion of industrial and financial (bank) capital in the epoch of monopoly capitalism (circa 1905). However, contrary to Marx and the analysis undertaken in this paper, he believes (based primarily on the German experience) that the concentration of banking and industrial capital leads to the spreading of risk (via new financial instruments), the export of capital and the lessening of commodity speculation. Thus, banking and financial crises *per se* become less severe in the monopolistic (cartelised) stage than in the more competitive phase of capitalism. As argued in the next section below entitled, 'Credit and the Industrial Cycle,' this is not the position taken by Marx or this author. If anything, the increasing and speculative use of credit only serves to mask the severity of the overproduction of capital up to the eve of the sudden and acute crisis. For further details, see his major work, *Finance Capital* (1981 [orig. 1910], pp. 288-310; and pp. 331-333.).

(real) accumulation of capital (predominantly in the initial phases) and fictitious or speculative accumulation (accumulation for its own sake) during the later (boom) phase of the cycle. He writes,

'If for no other reason, that accumulation of loan capital is inflated by such circumstances, which are independent of actual accumulation but nevertheless accompany it, there must be a continuous plethora of money-capital in definite phases of the cycle and this plethora must develop with the expansion of credit. And simultaneously with it, the necessity of driving the production process beyond its capitalistic limits also must develop: over-trade, over-production and excessive credit. At the same time, this must always take place in forms that call forth a reaction' (Vol. III, pp. 508-508).

Credit and the Industrial Cycle

It is readily apparent from the textual evidence presented in Volume III (and in Volume II of Capital) that Marx viewed the credit system as playing a critical (and contradictory) role in shortening the turnover time, as well as expanding both the scale of domestic production (via joint-stock companies) and the circuit of capital beyond national borders. He also believed, correctly, that credit and indebtedness would assume a more important and decisive role in the various phases of the industrial (business) cycle as capitalism developed, and in so doing, also become a conduit for the transmission of crises internationally (contagion) (see Vol. III, pp. 491-93). However, in Marx's dynamic and disequilibrium perspective, it would occur in a highly contradictory and chaotic manner; that is, the excessive and speculative use of bank and commercial credit enables capitalist production to expand (momentarily) beyond its natural limits (as determined by the financial needs of productive accumulation) before the inevitable and often unexpected crisis occurs; that is, the 'financialisation' of the economy via excessive credit intermediation nurtures and sustains the illusion of a smooth and continuous reproduction process of capital up to the eve of the crisis.⁷ The 'sudden stop' and crash is mistakenly attributed to financial causes such as a banking crisis or speculative bubbles when, in reality, it is primarily the result of the reproduction process being strained beyond its capitalistic limits in terms of both demand and supply-side factors, thus culminating in a crisis of overproduction ('a superabundance of industrial capital').⁸

In fact, it is precisely at this critical juncture in Chapter XXX that Marx asks the reader to conduct a thought experiment and consider an economy comprised of only workers and industrial capitalists devoid of price fluctuations and 'the sham transactions and speculations' associated with the pervasive use of credit. Under these conditions, Marx believes that a generalised crisis can only arise as a result of a disproportion of production between

⁷ O'Hara (2000) concurs with this assessment when he states that 'money and credit relations [in the Marxian system] respond to this limit or barrier (contradiction) by seeking to go beyond this limit in order to propel capital to the required extent. The sphere of circulation must thus expand over and above value and *equilibrium* by growing on a world level... A tendency [thus] exists within capital to try (temporarily) to surmount production' (p. 88). See also Mandel (1971), p. 238

⁸ In this regard, Kliman (2011) observes correctly that the crisis of overproduction 'is also more severe than it would otherwise be' *precisely* because the credit system (and fictitious capital) '...allows the economy to grow more rapidly for some time than is warranted by fundamental economic conditions such as profitability and the production of new value (p. 19). See also Kotz (2015) who argues that 'the common belief that the financial crisis [2007-08] caused the Great Recession by cutting off funds for the real sector finds no support in the data which show huge increases in cash in the hands of financial and nonfinancial corporations from the start of the crisis. However, the financial panic worsened profit expectations further, accelerating the decline in business investment and contributing to the severity of the recession [depression]' (pp. 543-544).

branches I (consumption goods) and II (producer goods) and/or a disproportion between the consumption and production of capitalists. As matters stand in reality, he seems to suggest towards the end of Chapter XXX that the reproduction of capital is primarily dependent on the 'consuming power of the non-producing classes', that is, money lenders, financiers, bankers and a rentier class who live on fixed incomes. Yet Marx shrewdly observes that the effective demand of 'the unproductive classes and of those who live on fixed incomes' is severely undermined on the eve of the crisis and is a contributing factor in the downturn because 'during the inflation of prices which goes hand in hand with over-production and over-speculation... their consuming capacity diminishes relatively, and with it their ability to replace that portion of the total reproduction which would normally enter into their consumption' (p. 491).

Workers, on the other hand, cannot be relied on to solve the deficiency in aggregate demand because the rise in the workers' wage share takes place in the late expansion period of the boom, viz., when the reserve army of the unemployed diminishes to such a point that the bargaining power of labour is temporarily strengthened and workers are able to obtain higher wages and better working conditions. However, the lower rate of exploitation (or higher wage share) reduces the amount of surplus-value available for accumulation, thereby causing a steep and sudden fall in the general rate of profit and a collapse of investment (see Howard and King, 1992, pp. 12-14; Ramirez, 1990, pp. 162-63; and Weisskopf, 1979, pp. 341-378). In Marx's words,

'As soon as capital would... have grown in such a ratio to the labouring population that neither the absolute working-time supplied by the population, nor the relative surplus working-time, could be expanded any further... at a point, therefore, when the increased capital produced just as much, or even less, surplus-value than it did before its increase, there would be absolute over-production of capital... there would be a steep and sudden fall in the general rate of profit not caused by the development of the productive forces, but rather by a rise in the money-value of the variable capital (because of the increased wages) and the corresponding reduction in the proportion of surplus-labour to necessary labour' (Vol. III, 251-52).

It is in this particular context that one must come to terms with Marx often-stated but misunderstood sentence, viz.,

'The ultimate reason for all real crises always remains the poverty and restricted consumption of the masses as opposed to the drive of capitalist production to develop the productive forces as though only the absolute consuming power of society constituted their limit' (Vol. III, p. 484).

Obviously, the capitalist reproduction process, aided and abetted by an ever-expanding credit system, is constrained by the *relative* (and absolute) consuming power of society, namely, one whose antagonistic class-based nature can only profitably serve industrial capitalists as long as it does not reduce the amount of additional surplus value available for accumulation, and thus threaten the *raison d'être* of the capitalist mode of production.⁹

⁹ Beitel (2008), drawing parallels with the onset and aftermath of the subprime debacle of 2007-08, also concludes *a la* Marx, that the main contradiction of mature capitalism is that it is a system that '...has no endogenous means to guarantee an adequate level of private investment, yet by the same token, cannot tolerate any rise in [relative] wages that would erode the profits of the owning classes. This has left the system dependent upon... credit-driven booms and bubbles followed by crisis once the

In Chapters XXX- XXXII of Volume III, Marx analyses the role of loanable moneycapital and the movement of interest rates over the course of the industrial cycle. Although some of the discussion in these chapters, as well as others dealing with the role of commercial and bank credit is in an unfinished and, at times, confused state, it does contain the outlines of a coherent framework of analysis for understanding how credit, in a contradictory manner, both promotes and retards real capital accumulation over the course of the business cycle. Marx, at first, poses the important question of whether the mere accumulation of loanable money-capital, as reflected in the movement of the interest rate, represents an abundance or scarcity of real capital accumulation. He answers negatively by pointing out that in the period immediately following an economic and financial crisis, the rate if interest is at its minimum and there is a plethora of loanable money-capital precisely because '...the spirit of enterprise is paralysed... as a result of [the vast] contraction... of industrial capital' (Vol. III, p. 485). On the other hand, Marx notes that when interest rates are at their highest, during the crisis period proper, huge quantities of commodities are unsaleable, factories are closed and credit is almost non-existent; he writes perceptively that following a crash

"...everyone has products to sell, cannot sell them, and yet must sell them in order to meet payments; it is not the mass of idle and investment-seeking capital, but rather the mass of capital impeded in the reproduction process, that is greatest when the shortage of credit is most acute... nothing is more erroneous... than to blame a scarcity of productive capital for such a condition. It is precisely at such times that there is a superabundance of productive capital, partly in relation to the normal, but temporarily reduced scale of production, and partly in relation to the paralysed consumption' (Vol. III, p. 483).

A shortage or scarcity of real capital, according to Marx, can only arise in developed capitalist nations such as England as a result of '...general crop failures, either in the principal foodstuffs or in the principal industrial raw materials' (Vol. III, p. 484). In Marx's view, the only phases of the business cycle where a relatively low interest rate (above its minimum) coincides with real capital accumulation are, first, in the period of prosperity and growing confidence associated with the initial recovery from the crisis, and, second, that phase of prosperity 'which precedes that of overexertion [and crisis]' when the 'rate of interest reaches its average level, exactly midway between the minimum and maximum' (p. 489). That is, during the second stage, the credit system (and fictitious capital), via over-trading and the formation of speculative bubbles, both accentuates the booms and busts of the business cycle.

To summarise, at the beginning of the cycle, a low rate of interest and superabundance of loan capital coincides with a contraction of industrial capital; this is then followed by a period of recovery and prosperity during which money and loan capital are readily available to meet the growing requirements of industrial capital and the rate of interest reaches its average level. The final phase of the cycle takes place when the crisis sets in, credit suddenly stops, payment are suspended and the rate of interest reaches its maximum; the reproduction process comes to a standstill and a superabundance of industrial capital

expansion of financial claims [ends abruptly]' (p. 42). In a similar vein, Harvey (2014) argues that 'Much of the compound growth realised until the financial crash of 2008 was achieved by way of speculative gains out of successive bubbles (the dot.com boom and bust of the 1990s followed by the property market boom and bust of the 2000s).... But what this means is that more and more capital is being invested in search of rents, interest and royalties rather than productive activity' [p. 241].

arises alongside an absolute scarcity of loan capital (see Vol. III, p. 488). In other words, an abundance of or scarcity of loanable capital should not be confused with an abundance or scarcity of real industrial capital.

For Marx, excessive credit creation, indebtedness and over-speculation, fuelled by moral hazard and the financial innovations of his time in the form of discounting bills, bank notes and making advances (loans), played a critical and growing role in the reproduction of social capital not only in any one country but internationally as well; however, given the decentralised and anarchic nature of capitalist production, it did so in a highly erratic and contradictory manner which only postponed the inevitable day of reckoning. In Chapter XXX of Volume III Marx's writes that,

'the whole [credit] process becomes so complicated, partly by simply manipulating bills of exchange, partly by commodity transactions for the sole purpose of manufacturing bills of exchange [speculative excess], that the semblance of a very solvent business with a smooth flow of returns can easily persist even long after returns actually come in only at the expense partly of swindled money-lenders and partly swindled producers. Thus business always appears almost excessively sound right on the eve of a crisis.... Business is always thoroughly sound and the campaign in full swing, until suddenly the debacle takes place' (pp. 484-85).

Moreover, the crisis is transmitted via the world market (contagion) when a massive drain of gold resulting from an unfavourable balance of payments in England (the epicenter of the crisis) is transmitted to every other commercially-developed nation (see Harvey, 2014, pp. 242-44; and O'Hara, 2000, p. 88). Marx writes discerningly that

'it then becomes evident that all these nations have simultaneously overexported (thus over produced) and over-imported (thus over-traded), that prices were inflated in all of them, and credit stretched too far. And the same breakdown takes place in all of them. The phenomenon of a gold drain takes place successively in all of them and proves precisely by its general character 1) that gold drain is just a phenomenon of a crisis, not its cause; 2) that the sequence in which it hits the various countries indicates only when their judgment-day has come' (p. 492).

This inherent tendency of a bank-based system of credit intermediation to create periodic cycles of excessive credit, indebtedness and speculation that are decoupled from the real accumulation of capital at the peak of the boom is a hallmark of mature capitalism. It arises, in part, when profits from new investments cannot find profitable realisation outlets in the real economy, thus placing the burden on the financial sector to absorb the ever-growing hoard of fictitious capital in increasingly frivolous and unproductive ways. At this juncture, one is struck by the parallels between Marx's and Keynes's own discerning analysis of the progressively important role assumed by excessive credit and speculation in mature capitalism; e.g., in Chapter 12 of the *General Theory* Keynes distinguishes between 'enterprise' or investments made on the basis of the long-term prospective yields of the asset over the life-time of the investment and 'speculation' which is primarily concerned with 'the influence of mass psychology, three months or a year hence' (p. 155). As indicated above, Keynes believed correctly that with the evolution and development of capitalism, the predominance and influence of speculation would increase as 'the proportion of the equity in the community's

aggregate capital investment is owned by persons who do not manage and have no special knowledge of the circumstances...of the business in question' (p. 153). He believed that without proper regulation and taxation via 'a substantial Government transfer tax' on stock market transactions such as the current 0.5 % stamp tax imposed on each trade in the London Stock Exchange, investment markets in mature capitalism would degenerate into a frenzy of speculation and economic instability such as that witnessed by the 1929 October crash and ensuing Great Depression. In his words,

'Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes the bubble on a whirlpool of speculation. When the capital development of a country becomes the by-product of the activities of a casino, the job is likely to be ill-done' (Keynes, 1936, p. 159).¹⁰

Marx did not remain content to just analyse the pernicious effects of excessive credit, debt and speculation in an advanced capitalist economy such as England, but his dynamic and dialectal approach led him to identify during the course of the business cycle both supply-side (falling rate of profit) and demand-side (underconsumptionist tendencies) constraints that set up real barriers and limits to the further expansion and reproduction of industrial capital. At the height of the boom, the growing financialisation of the economy via excessive credit creation and speculative bubbles enables the capitalist system to surmount these barriers momentarily, but one that calls forth a strong reaction in the form of a sudden and devastating crisis (see Vol. III, pp. 507-508; and Foster and Magdoff, 2009, pp. 106-109). It is, in the pertinent words of Harvey (2014), nothing but 'fictitious capital feeding off and generating even more fictitious capital [via the purchase and sale of various financial assets] without any concern for the social basis of the trading' (p. 241). But these crises of ever-greater intensity are incapable of resolving the fundamental contradiction of the capitalist mode of production which is its tendency to develop the social productivity of labour regardless of the conditions under which capitalist production takes place; thus, the financialisation of the economy is a major and novel method by which capitalists production checks the fall in the rate of profit and/or the strong underconsumptionist tendencies that endogenously arise via the relative and, at times, absolute impoverishment of the active part of the working class (see Brewer, 1990; Foster, 1986; and Foster and Magdoff, 2009). Still, as Marx is quick to point, this is all for naught because,

'The *real barrier* of capitalist production is *capital itself*. It is that capital and its self-expansion appear as the starting point and the closing point, the motive and the purpose of production... The limits within which the preservation and self-expansion of the value of capital resting on the expropriation and pauperisation of the great mass of producers [which] come continually into conflict with the methods of production employed by capital for its purposes, which drive toward unlimited extension of production... towards unconditional development of the social productivity of labour' (Vol. III, p. 250.)

¹⁰ For further discussion of the influence of Marx's work on Keynes's economic thinking on the role of money (credit) and the business cycle in an entrepreneur (capitalist) economy, see Brandis (1985) and Ramirez (1990, pp. 159-166).

III. The Turnover Period of Capital

The full importance of the role played by credit in the Marxian reproduction scheme cannot be understood unless the reader realises from the outset that the turnover period of total moneycapital comprises both the time of production of surplus-value and the time of circulation of commodities, including labour-power (L) and means of production (MP). In Marx's notation, the circuit of money capital is: M—C (L & MP)...P...C'—M', where M and C denotes money and commodities, respectively, and the dots indicate that the process of circulation is interrupted by the production of surplus-value; 'and C' and M' designates C and M increased by surplus-value' (see Marx, 1885, Vol. II, p. 23).¹¹ The whole point of capitalist production is to continuously reproduce and expand the circuit of capital-value in the form of money to such a degree that '...The process of production appears merely as an unavoidable intermediate link, as a necessary evil for the sake of money-making' (Ibid., p.56). It should be emphasised that it is the entire continuous, repeating and expanding circuit of money-capital that defines capital-value; in other words, capital is a process and not a thing embodied in particular usevalues such as tools, machinery and equipment (in the manner in which the present-day economics profession treats the concept). Only if these use-values (including money) are used or function in a manner in which they generate surplus-value through the exploitation of labour-power (the capacity to work) - during the labour process - are they denoted as capitalvalues or money-capital; the latter term is consistent with the way in which most business people use the term 'money' when it is intended to make more money.

Marx, to his credit (no pun intended), devoted the better part of Volume II of Capital to analysing the various metamorphoses of capital and their individual circuits (e.g., the circuits of productive and commodity capital), and although it would take us too far afield to discuss them in any depth in this paper, it is important to note that he believed that with the development of capitalism both the time of production and circulation would be shortened significantly. For example, he correctly observes in Chapter XIII of Volume II that the time of production is - due to interruptions in production and physical and chemical changes inherently longer than the actual working time (labour-process) during which surplus-value is actually created or produced; anything, therefore, that decreases the time of production, such as investments in new plant and machinery (fixed capital) as well as technical and chemical improvements, will ceteris paribus shorten the turnover period of capital, thus boosting the creation of surplus-value and profit. Insofar as the time of circulation is concerned, he contends that when capital-value is tied up in the form of money-capital or commodity-capital, the length of the turnover period is lengthened and the creation of surplus-value and profit is thereby reduced (since it takes place only in the sphere of production, more precisely, the labour-process). Improvements in transportation and communication, as well as any institutional innovations that reduce the time and labour required to buy and sell commodities. such as the expanding use of credit in the form of bills of exchange bank notes, shares of stock and loan advances (as discussed above), will not only shorten the turnover period of capital but enable it to be undertaken on a much larger scale, thus boosting the creation of surplus-value, ceteris paribus (see Marx, 1885, Vol. II, Chps. VI and XIV).

¹¹ In Marx's work surplus value (M'- M) is divided into three major components: industrial profit, interest and rent (see Chp. XXIII, Vol. III, pp. 372-375; and Chp. XLVIII, Vol. III, pp. 820-822). With the development and maturity of capitalism an inherent and growing conflict emerges between financial and industrial capitalists (as well as landlords) over the distribution of the surplus value generated in the sphere of production which, at times, can either retard or promote the turnover period of capital, thus impacting not only the rate at which surplus value is generated and accumulated as capital, but also the course of the business cycle (see Fine, 1986; and Harvey, 2014, pp. 244-45).

More specifically, Marx outlines in Chapter XVII of Volume III the decisive role of credit in shortening and expanding the circuit of capital via three major channels: first, it plays a pivotal role in equalising (averaging) the rate of profit by helping speed up the flow of capital from one industry to another; second, as indicated above, it reduces the costs of circulation by speeding up the circulation of commodities and shortening the turnover time of capital; finally, credit acts as a powerful lever for expropriating the capital of small capitalists by big ones – it accelerates the concentration and centralisation of capitals via the formation of stock companies which, in turn, further stimulates the scale of production and the creation of surplus-value (profit) and the development of capitalism on both a national and international scale (see Vol. III, pp. 435-38). However, Marx is quick to observe that it does so in an highly erratic and contradictory fashion, punctuated by recurring and ever-growing crises, because it sharpens the basic contradiction of capitalism, viz., that between the social character of production (concentration of thousands of workers in giant enterprises) and its private capitalist form of appropriation (now primarily in the form of interest, i.e., as mere compensation for owning capital that is now divorced from the function of the capitalist manager (see Vol. III, pp. 436-7)).

Engels, who, except for the title, edited all of Chapter IV, Volume III of *Capital*, observes that the turnover period of capital has been significantly reduced via improvements in the

'methods of producing steel iron and steel, such as the processes of Bessemer, Siemens, ...etc., [which have] cut to a minimum at relatively small costs the formerly arduous processes. The making of alizarin, a red dye-stuff extracted from existing coal-tar, requires but a few weeks, and this by means of already existing coal-tar dye-producing installations, to yield the same results which formerly required years' (Chp. IV, Vol. III, p. 71).

Similarly, the rising productivity of labour has reduced the time during which commodities are in transit via dramatic improvements in means of communication and transportation. He notes that,

"The last fifty years have brought about a revolution in this field, comparable only with the industrial revolution.... On land the macadamised road has been displaced by the railway, on sea the slow and irregular sailing vessel by the rapid and dependable steamboat... and the entire globe is girdled by telegraph wires. The Suez Canal has fully opened East Asia... to steamer traffic. The time of circulation of a shipment of commodities to East Asia, at least twelve months in 1847, has now been reduced to almost as many weeks" (Chp. IV, Vol. III, p. 71).

More precisely, if we have two capitals (A and B) with the same value composition (c/v), equal rates of surplus-value, and equal working-days, then 'the rate of profit of the two capitals are related inversely as their period of turnover' (*ibid.*, p. 72). A numerical example, borrowed from Engels' exposition in Chapter IV, Volume III will elucidate this important idea. Suppose that capital A is composed of a value of 80c + 20v = 100C, and rotates twice per year with a rate of surplus value of 100 percent. At the end on year, the total value produced is: 160c + 40v + 40, and the profit rate over the advanced capital, 100C - not the turned-over capital of 200 - is 40 percent. Capital B, on the other hand, has the same rate of surplus value and value composition as capital A, viz., 160c + 40v = 200C, but is turned over only once per year,

and yields a profit rate over the advanced capital of only 20 percent, half as much as capital A. The analysis can also be easily modified to include fixed capital so that only a portion of the existing fixed (e.g., machinery, warehouses) constant capital (as opposed to circulating constant capital), say 10 percent, is transferred to the commodities produced in any given number of turnovers of capital (see Vol. II, pp. 293-4).

Engels, through his meticulous editing of the unfinished and almost illegible scattered manuscripts left behind by Marx, is also more precise and consistent than Marx was in Volume III (Marx actually wrote Volume III before Volume II) in laying out algebraically an alternative formulation to Marx's formula for the rate of profit below,

$$p' = s' v / (c + v)$$
 (1)

where p' is the rate of profit, s' the rate of surplus value (s/v), and v in the numerator is the variable capital advanced in each turnover (a flow variable), while the v in the denominator is variable capital *initially* advanced (a stock variable). In this formulation, the two v's are only equal if the turnover time is precisely one year and Marx in Volume III was not always altogether clear or consistent about this. Engels' more precise formulation for the profit rate, based on Marx's analysis of the annual rate of surplus-value in Chapter XVI, Volume II of *Capital*, is given in Chapter IV, Volume III, p. 74 as follows,

$$p'=s'nv/C$$
(2)

where n refers to the number of turnovers and C is the total stock of capital initially advanced, *including* fixed capital. The product s'nv represents the surplus-value produced during a given time period (year), and, *ceteris paribus*, the greater the number of turnovers, the greater the amount of surplus-value generated per year and thus the higher the profit rate. By comparison, in Marx's formulation given in Chapter XVI, Volume II of *Capital*, the annual rate of surplus-value produced during a given time period is calculated relative to the variable capital initially advanced, *viz.*, S' = s'nv/v, and Marx observes that

'Only when n is equal to 1, that is, when the variable capital initially advanced is turned over once a year, and hence equal to the [variable] capital employed or turned over during a year, the annual rate of surplus-value [S'] is equal to its real rate [s']' (Vol. II, p. 305).

It is likely that had Marx lived to re-write Volume III, he would have adopted Engels' more precise formulation of the profit rate which is consistent with his own analysis in Volume II for the annual rate of surplus-value (for further details, see Brewer, 1984; Mandel, 1968, pp. 236-238; and Ramirez, 2014, pp. 65-67).¹²

IV. Conclusion

This paper has discussed Marx's unfinished, compelling and, at times, prophetic views on the role of credit in the development of advanced capitalism, particularly its part in expediting the realisation of surplus-value as well as its changing and ultimately destabilising effect on the

¹² Brewer (1984) notes that 'Marx's treatment of turnover is very weak throughout volume three; the manuscript of this volume was actually written *before* the parts of volume two that deal with turnover time' (p. 130)

industrial (business) cycle. The discussion also highlighted Marx's relatively neglected but highly important analysis of the separation of ownership from management in the advanced capitalism of his day, England, and its modern-day implications for excessive risk-taking (moral hazard) and debt-fuelled speculation up until the eve of the crash. The analysis further showed that Marx did not remain content to just describe the pernicious effects of excessive credit, debt and speculation in an advanced capitalist economy such as England, but he also tried to identify both supply-side (falling rate of profit) and demand-side (underconsumptionist tendencies) factors that set up real barriers and limits to the further expansion and reproduction of industrial capital over the course of the business cycle. Moreover, Marx's analysis was not just confined to any one nation, but, far ahead of his contemporaries, he viewed the business cycle and the recurring crises as a world-market phenomenon and outlined how contagion took place in the commercially advanced nations of his day, viz., England and France. Next, the paper discussed how the expanding role of credit in the course of capitalist development acts as a powerful but contradictory lever countering the 'law' of the declining rate of profit; this is an important and neglected countering factor to the so-called law of the falling rate of profit, viz., the effect of the turnover of total capital comprising both its production and circulation periods. It is shown that Marx did not explicitly include the turnover of total capital as a counteracting factor to the falling rate of profit in his famous Chapter XIV of Volume III of Capital where he discusses other prominent offsetting forces; nor, for that matter, did Engels who failed to include an explanatory note in Chapter XIV when editing the work for publication, despite his own thorough discussion of the turnover period in Chapter IV of Volume III.

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Comment on Miguel Ramirez's paper, 'Credit, Indebtedness and Speculation in Marx's Political Economy'

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I. Introduction

The 2008 global capitalist crisis and its financial intricacies has shattered the Mainstream dictums of efficient market hypothesis and the benevolent role of finance and has regenerated interest in the 'underworld' theories of Marx and Marxist Political Economy. This return to Marx has taken place within a broader resurgence of interest in Heterodox economic approaches. However, this much needed resurgence is not without problems.

A first one is that despite their obvious failure Mainstream Economics, instead of losing, they increased their grip on the economics profession and academia. The reasons for this abnormal dominance are manifold. A fundamental one is that the dominant classes have not yet found a suitable alternative and that the depth of economic turbulence does not leave them much room for economic concessions to the subaltern classes. A second reason might be that the Heterodox assault against Mainstream economics has, too a great extent, misspecified its target. The brunt of the attack is on a largely fictitious Neoliberalism and has missed that the actual current Mainstream is a fusion of mild Neoliberalism with conservative New Keynesianism – as exemplified in the New Macroeconomic Consensus. Hence, many of the attacks on the Mainstream miss their target. Moreover, they make false alliances with well-publicised Keynesian and New Keynesian approaches (P. Krugman and J. Stiglitz being the more prominent of them) that blunt both the Heterodox critique of the Mainstream and its ability to offer an alternative.

It is within this framework that Ramirez's article can be understood and situated. In this article ('Credit, Indebtedness and Speculation in Marx's Political Economy'), as in other similar papers (e.g. Ramirez, 2014), he advances a very meticulous reading of Marx's analysis of capitalism's financial system. He argues that, despite the fragmented nature of Marx's writings on this issue, they offer a coherent and insightful framework for grasping the modus operandi of capitalism's financial system. Ramirez accurately points out that for Marx the financial system and its main attributes (credit, debt, speculation) play a double and contradictory role. On the one hand, it facilitates the expanded reproduction of capital. But, on the other hand, it increases the fragility of the capitalist system. Especially during the phase of the economic cycle that precedes a depression, the financial system may succeed in postponing it but at the cost of aggravating it when the day of reckoning can no longer be delayed.

II. The Significance of Credit and the Turnover of Capital

Ramirez follows meticulously Marx's analysis of the development of credit in capitalism, beginning from commercial credit and evolving towards bank credit and more complex forms of debt and speculation.

He identifies three major channels through which credit enhances capitalist reproduction:

(1) It is pivotal in equalising the profit rate by helping speed up the flow of capital from one industry to another;

(2) It reduces the costs of circulation by speeding up the circulation of commodities and shortening the turnover time of capital

(3) It facilitates the concentration and centralisation of capitals via the formation of stock companies which, in turn, further stimulates the scale of production and the creation of surplus-value and the development of capitalism on both a national and international scale.

But at the same time, credit, debt and speculation increase the instability of the system due to the anarchic character of capitalism's modus operandi.

Moreover, Ramirez analyses how Marx very appositely related this contradictory role to different phases of the economic cycle. In my opinion, the most important point of this issue is its emphasis on the turnover of capital, how this is related to credit and how it affects the capitalist reproduction. This is a very interesting issue given the limited attention that it has received till now. This paper is part of a small but growing research on this crucial matter (e.g. Fichtenbaum, 1988; Jones, 2016). Ramirez shows that in Volumes II and III of *Capital*, Marx considers that the expansion of credit during capitalism's development reduces the turnover time of capital. The latter increases the rate of surplus-value and thus the rate of profit. This means that the shortening of the turnover time operates as a counteracting factor to the tendency of the rate of profit to fall. He commendably pays attention to Engels' contribution on this and the latter's copious reworking and expansion of Marx's fragmented notes.

In a nutshell we can formulate the issue of turnover time as follows. First, consider the following well known Marxian equations referring to the whole (annual) turnover of capital:

rate of profit r = s/(c + v)	(1)
rate of surplus-value s' = s/v	(2)
organic composition of capital g = c/v	(3)
then by combining (1), (2): $r = s'/(g+1)$	(4)

Then if we assume a higher turnover time within a year, the rate of surplus-value is transformed as follows:

$$s' = (s_i/v)^*n$$
 (5)

where s_i: surplus value produced in one turnover time

n: number of turnover times per year

Then the annual rate of profit is:

$r = ((s_i^*n)/(c + v))$	(6)
or alternatively $r = ((s_i/v)*n)/(g + 1)$	(7)

It is evident from this that, *ceteris paribus*, if the turnover time decreases (hence n, the number of turnover times during the year increases) the profit rate increases.

As Shukian (1991) among others observes, turnover time consists of two parts: (a) production time and (b) circulation time. The relationship between them is particularly important in empirical calculations.

III. Some Critical Issues

However, there are some lacunae and possible problems in Ramirez's analysis.

Is Fictitious Capital a Mere Hoax?

First, Ramirez's analysis would benefit immensely if it clarified more the significance and the role of Marx's categories of loanable money capital, money dealing capital and interestbearing capital. The way Marx distinguishes and relates them is one of the more incisive parts of his analysis.

Marx is correctly keen in demonstrating that (a) capitalism is an exploitative system, (b) its exploitation is through the extraction of surplus-value by productive capitalists at the point of production and (c) this surplus-value is subsequently redistributed between the different generic fractions of the capitalist class (productive, money and merchant capital). The money capitalist has no independent channels of exploitation but depends upon the abovementioned redistribution. It is within this framework that Marx analyses the function of the financial system and the determination of interest. He distinguishes between money as capital (related to the production of surplus-value) and money as such. It is the first that is relevant to the analysis of the credit system and the rate of interest (Harris, 1976). Money involved in the lending and borrowing activities of the capitalist financial system, is defined as loanable money capital (LMC). LMC is sub-divided in money-dealing capital (MDC) and interest-bearing capital (IBC). MDC advances credit in general for buying and selling in the sphere of circulation. IBC uses credit relations to advance money capital in order to appropriate surplus-value. The capitalist financial system collects idle funds and channels them to investment through the credit and the capital markets (which operate differently). Credit markets involve both MDC and IBC. Capital markets involve solely IBC. These formulations differentiate Marx from Keynes as their understanding of the determination of interest is completely different (see Harris, 1976; Fine, 1985/6) particularly in his debate in Science & Society with Panico). Keynes and his followers understand interest in its juristic form and do not differentiate between the different lending activities. Moreover, they neglect the profit rate and make it dependent upon the interest rate, whereas Marx correctly follows the opposite path. Finally, and related to the previous points, they do not ascribe to the Labour Theory of Value.

The crucial Marxian concept of fictitious capital derives exactly from these definitions. Fictitious capital is a form of IBC. IBC is money-capital which is loaned in order to be used in the sphere of production for extracting surplus-value, in contrast to the simple loan of money (money as such) which simply facilitates transactions in general. However, since there is an obligation to repay a loan (which takes the form of debt), it is possible for this debt to acquire a life of its own. Consequently, the obligation (which takes the form of securities, e.g. shares, bonds), can autonomously be bought and sold at some money value, which might or might not correspond to the ability of its sum of money (if used as capital in the production sphere) to realise enough surplus-value. This autonomous circulation of IBC in the form of securities is called by Marx fictitious capital. 'Fictitious' does not imply that it does not exist or that it is artificially created. It denotes that its circulation is distinct from the circulation or the yield of capital which it represents.

This is a crucial point as several contemporary radical analyses (and especially several Marxo-Keynesians) consider fictitious capital as a mere hoax. This is not so. Fictitious capital is a wager on surplus-value that might be extracted in the future and which it is being

discounted in the present. This does make it a 'bubble', but it does not make it purely illusory as Ramirez tends to argue.

Marx and Keynes or Marx Versus Keynes?

Second, Ramirez equates Marx's understanding of the evolution of the financial system with that of Keynes. He begins with Marx's analysis of the emerging separation of ownership from management in the advanced capitalism of his day and its tendency towards excessive risk-taking and debt-fuelled speculation. Then he considers it akin to Keynes' structural separation of industrialists from modern financial rentiers.

The Marxian approach has common points with that of Keynes; but they are essentially different. They differ in scope, in methodology and in analysis. Marx's aim is the overthrow of the capitalist system whereas Keynes' aim is its rescue from itself. Marx considers the operation of the financial system as subservient to the capitalist (productive) accumulation. Thus, interest is a subtraction from the surplus-value extracted by the industrial capitalist. This creates tensions and conflict between these two fractions of the bourgeoisie. Nevertheless, in the end both the industrialist and the financier are part of the capitalist class and despite their partial differences they together operate the total circuit of capital. On the contrary, Keynes juxtaposes the one to the other, as separate classes with entirely different interests. He borrows the notion of the rentier from the Classical Political Economy (which was attributed to the separate class of the landowners) and applies it to the financiers. Thus, Keynesianism implies a different class analysis which leads to different economic and political conclusions.

What Crisis Theory?

Third, Ramirez's analysis of the operation of the financial system within the economic cycle would benefit if it was situated within a coherent crisis theory. Instead, Ramirez seems to oscillate between different versions of Marxist theories of crisis (distinguished as supply and demand side ones). He assumes that Marx had a tendency of the rate of profit to fall (TRPF) theory of crisis; which is indeed correct. And then he analyses how the functioning of the financial system relates to the economic fluctuations caused by the TRPF.

This is legitimate but not necessarily satisfactory. The analysis of the operation of the financial system is enlightening when it addresses real and not hypothetical scenarios. The way the financial system operates differs radically in an economy whose cycles are dependent upon demand, from how it operates in an economy whose cycles depend upon profitability. The Keynesian analysis follows the former path whereas the Marxist the latter.

Financialisation With or Without Inverted Commas?

Last, Ramirez has an ambiguous position towards a very popular contemporary leitmotiv: 'financialisation'. The central thesis of the Financialisation Hypothesis (FH) is that during the last decades the financial system, through a series of innovative mechanisms, has conquered capitalism's commanding heights and has changed the whole system according to its own prerogatives. This new financialised capitalism operates completely different from traditional capitalism.

In Mavroudeas and Papadatos (2018) we have criticised the FH on five counts.

- First, it interprets short-run and conjectural phenomena as long-run structural changes. The FH is a middle-range theory and suffers from the weaknesses of this methodology.
- Second, it considers the post-1990s financial expansion as totally unprecedented whereas such phenomena are usual during a pre-crisis period. Although there are some new forms of this financial expansion, they do not constitute a new qualitative different system.
- Third, it erroneously maintains that money capital has become independent from productive capital and acquired an autonomous mechanism of exploitation through usurious lending not only of the workers but of other classes (or even other capitalists) as well. This argument unwarrantedly equates capitalism with the pre-capitalist era of transition from feudalism to capitalism.
- Fourth, it proposes an unrealistic class analysis very similar to the Keynesian one where you have two capitalist classes (the financiers and the rest).
- Fifth, the FH leads to unjustified analytical fuzziness as it blurs the understanding of capitalism's fundamental economic and social processes.
- Another crucial conclusion of the FH is that in 'financialisation' crises are caused by financial instabilities and not by problems in real accumulation.

In the under-discussion article Ramirez takes a dubious stand *vis-à-vis* the FH. In the greater part of it he refers to the FH as 'financialisation' and emphasises that 'the crash is mistakenly attributed to financial causes such as a banking crisis or speculative bubbles when, in reality, it is primarily the result of the reproduction process being strained beyond its capitalistic limits in terms of both demand and supply-side factors'. However, towards the end of the article Ramirez reverts to financialisation (without inverted commas) and refers to post-Keynesian and Marxo-Keynesian theorists that support the FH.

IV. In Place of Conclusions

Ramirez's article offers a useful analysis of Marx's understanding of the operation of the capitalist financial system. It accurately emphasises its relevance for the analysis of contemporary phenomena. Moreover, it makes a significant contribution in expounding the role of the turnover time of capital. His analysis would be even more productive if it addresses some ambiguous points. To return to the observation at the beginning of this comment, our challenge of the Mainstream analysis is more successful when it has clarity and coherence.

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Response to Stavros Mavroudeas

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First, I thank Professor Mavroudeas for taking the time and effort to read carefully my paper and for making useful comments and cogent suggestions for improvement. He concurs with my overall interpretation of the crucial role and significance of credit in the Marxian system in terms of expediting the turnover of capital and thus the production and realisation of surplus value, albeit in a contradictory and crisis-prone manner. He also points out that this is an important research topic that has only recently begun to receive the attention it deserves in the literature (e.g., see Jones, 2016).

Insofar as his criticisms of my paper and/or suggestions for improvement are concerned, he focuses on four subtopics, namely: 'Is fictitious capital a mere hoax?' 'Marx and Keynes or Marx versus Keynes?' 'What crisis theory?' and 'Financialization with or without inverted commas?' Let me briefly take up each of these in the order presented.

'Is Fictitious Capital a Mere Hoax?'

I do concur with Professor Mavroudeas suggestion that a more formal taxonomy of the various forms of financial capital in the Marxian system (e.g., loanable vs. interest-bearing capital and money-dealing capital) would benefit the paper in terms of identifying the origin and significance of fictitious capital in the process of capitalist reproduction. The trade-off is that the paper, already long, would be lengthened without it necessarily adding to, and perhaps even detracting from, the overall thesis of the paper. Having said this, the paper provides textual evidence from Volumes III of Capital for the origin of fictitious capital in interest-bearing capital as opposed to money-dealing capital and emphasises that the periodic revenue stream in the form of interest appears to be detached from the actual production of surplus value (recheck for new pagination...pp. 50-51). The latter point is important, because, contrary to Professor Mavroudeas' contention, I do not subscribe to the notion that fictitious capital is 'purely illusory' and does not play a decisive role in the production and reproduction of capital. It is only 'illusory' in the sense that it is an alienated (truncated) M-M form of capital; it thus appears to the industrial capitalists and bankers to have lost all connection to the actual production of surplus value and profit (see pages 51-52 in the paper).

'Marx and Keynes or Marx vs. Keynes?'

Professor Mavroudeas contends in his comment on my paper that, 'Ramirez *equates* [my emphasis] Marx's understanding of the financial system with that of Keynes.' I beg to differ because all I do in my paper is indicate that Marx 'anticipates, to some degree' certain crucial concepts such as moral hazard and the speculative, casino-like nature of the stock market. In this connection, I also allude to other authors, such as Kliman (2011) and Harvey (2014), who have drawn similar parallels between Marx and Keynes on this point. I do not claim or

suggest in any manner that the aim and scope of Marx's analysis, let alone his methodology, is the same as that of Keynes's analysis. Far from it, because I emphasise in the paper that the increasing role of credit and speculation only serve to postpone the day of reckoning because they are incapable of resolving the fundamental contradiction of the capitalist mode of production, namely, its tendency to develop the social productivity of labour regardless of the conditions under which capitalist production takes place. On this, see my remarks on pages 51-53 and footnote 5, as well as pages 56-57.

'What Crisis Theory?'

In his comment on my paper Professor Mavroudeas suggests that my analysis of the role of credit during the course of the business cycle would benefit from a more coherent (formal) presentation of Marx's supply and demand-side analysis of the cycle. He believes that my supply-side assumption based on the law of the tendency of the rate of profit to fall (TRPF) is essentially correct but not necessarily satisfactory (see Dobb, 1973). If by this he means that I need to develop more systematically how credit affects the cycles of an economy based on under-consumptionist tendencies from one where supply-side factors (TRPF) are the binding constraint, I concur with his assessment. However, as I indicate at the outset of my essay, I believe a thorough discussion of these factors ' ... would take us too far afield from the main focus of the essay which is the role of credit on the turnover period of capital and the rate of profit' (p. 50). I should add that I have discussed elsewhere (more formally) Marx's incomplete (and unfinished) analysis of supply and demand-side explanations of the business cycle, and I refer the interested reader to them (Ramirez, 1990 and 2012).

'Financialization With or Without Inverted Commas?'

Professor Mavroudeas finishes his commentary of my paper by observing that 'Ramirez has an ambiguous position towards [the] ... Financialisation Hypothesis (FH)'. The latter argues that, in recent decades, the financial system has achieved such a degree of autonomy from the real economy as to constitute not only a change in degree but one in kind. He goes on to add that through most of my paper I consistently adhere to the view that credit enables capital production to expand temporarily beyond its natural limits as dictated by the productive accumulation of capital, but that I revert to 'post-Keynesian and Marxo-Keynesian theorists that support the FH'. Again, all I do towards the end of my essay is point out some interesting parallels between Marxian and Marxo-Keynesian theorists without subscribing to the view that the financial system has become decoupled and independent from the financial needs of productive accumulation, viz., the production of surplus-value. My view of the role of the credit system (broadly defined) is in line with that of O'Hara (2000) who argues that it has a relative autonomy from the sphere of production (where surplus-value is produced) and it (credit) has a decisive effect on the time of circulation and, in turn, an indirect one on the reproduction of surplus-value.

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