The Ontology of Money, the Concept of the Monetary Circuit, and the Source of Profit¹

John Smithin² York University

Abstract:

In some writings before the *General Theory* (1936), Keynes (1933a, 1933b) made allusions to the original Marxian monetary circuit, *via* his concept of a" monetary theory of production". However, these references did not survive in the published version. Nor did Keynes seem at all confident about this concept in debates about interest rate theory, in the *Economic Journal*, and elsewhere, the following year. It is therefore important to inquire exactly how the Marxian circuit was supposed to work. A starting point is to write out the scheme from *Das Kapital*, vol.2 (Marx 1884), in full, $M - C \dots P \dots C' - M'$, and try to explain precisely what M' - M, and C' - C, are supposed to represent. This poses a further question that economic sociologists have sometimes asked, but economists almost never, namely "where do profits come from"? It is argued that the system must first generate positive aggregate profits in money terms *before* any "real" profit, or surplus, can come into existence for the parties to dispute.

JEL Classifications: B14, B22, E31, E02, E42, E51

Keywords: Keynes, Marx, monetary circuit, profit, social ontology.

Introduction

A useful starting point for this paper is the following quote from Keynes in a famous letter to

¹ I would like to thank Shakeb Abdul-Hakim, Geoff Ingham, Geoff Harcourt, Wally Klinck, Marc Lavoie, Fred Moseley, Phil Pilkington, Steve Pressman, Hana Smithin and Leo Zalmanowitz, all for making useful comments and criticisms, either on earlier drafts of this paper, or on related work, which have helped to improve the exposition and argument. There was a lively discussion of the issues at the session *Meanings of Money: Considering Marx, Keynes, Sraffa, and Minksy* at the URPE/ASSA annual meetings, San Francisco, January 2016, organized by Ann Davis. Remaining errors and omissions are the sole responsibility of the author.

² John Smithin is Professor of Economics in the Department of Economics and the Schulich School of Business, York University, 4700 Keele Street, Toronto, ON, Canada M3J 1P3; tel: +1 (416) 736 2100, ext. 33623; e-mail: jsmithin@yorku.ca.

George Bernard Shaw of January 01, 1935:³

... to understand my state of mind ... you have to know that I believe myself to be writing a book on economic theory which will largely revolutionise - not, I suppose, at once but in the course of the next ten years - the way the world thinks about economic problems. When my new theory has been duly assimilated and mixed with politics and feelings and passions, I can't predict what the final upshot will be in its effects on action and affairs. But there will be a great change, and, in particular, *the Ricardian foundations of Marxism will be knocked away* ... I can't expect you, or anyone else, to believe this at the present stage. But for myself I don't merely hope what I say - in my own mind I'm quite sure. (emphasis added)

What did Keynes actually mean by "knocking away the Ricardian foundations of Marxism"? In fact, neither modern Post Keynesians (representing the "left" of the academic spectrum) nor the so-called "Austrian" economists (on the "right") think that there is any serious opposition between Keynes and Marx. For the Austrians, whose primary interest was in the advocacy of free markets and to demonstrate the power of market forces, all of "state socialism" (including Marxian communism), "interventionism", and "inflationism" were simply variants on the theme of "etatism" (Mises 1978, 13-26). Keynesianism is dismissed as merely the twentieth century incarnation of age-old inflationism (Hayek 1994, Mises 1978, Sennholz 1978). On the Post Keynesian side Lavoie (2014, 44-45), in an authoritative work entitled *Post-Keynesian Economics: New Foundations*, advocates a hybrid approach that is sometimes labelled Classical-Keynesian (Cesaratto and Mongiovi 2015),⁴ and which by definition must accommodate both Ricardo and Marx. Similarly King (2012, 4) explicitly calls for a "Keynes-Marx synthesis".

³ For many years, this quotation was reprinted on the back cover of a widely-used 1964 paperback edition of the *General Theory*, published by Harcourt Brace.

⁴ This paper is the introduction to a symposium on this topic in the *Review of Political Economy*, April 2015, with a number of informative contributions.

Draft of January 2015

Therefore, it seems that Keynes's claims about the shakiness of the Ricardian foundations must be investigated at a somewhat deeper level than that of macroeconomic theory *per se*. They are a question of social ontology (Ingham 2004, Searle 2010, Smithin 2013) and, more particularly, the ontology of money. From this point of view, Keynes's (1933a, 19933b) notion of a "monetary theory of production" implies a view of money as a social relation, a social institution, or a social fact (using the terminology of such writers as Ingham 1996, 2000, 2004, 2015, Lawson 1997, 2003 and Searle 1995, 2005, 2010), which is not reducible to its material properties but, nonetheless, has causal effects on the material world. Philosophically speaking, it is a version of emergentism. On the other hand, according to Ingham (2004, 61), "the labour theory of value committed Marx and ... his successors to a version of the commodity theory of money ...", and, in general, to a philosophy of (historical) materialism.

This paper has two objectives. Firstly to explain in more detail the significance of the debate about the nature of money and its relevance for Keynes, Marx, and macroeconomic theory in general. However, supposing then that the *Ricardian* foundations of *Marxism* are indeed "knocked away", does this also eliminate Marx the *economist* (as opposed to the political theorist or social philosopher) from the discussion of money. This cannot be so, because Marx, even if his point of departure was as a commodity theorist in the classical tradition, was *also* the originator of the concept of the monetary circuit. This idea, in turn, is indispensable both to a viable credit theory of money, and to an explanation of how profit is actually generated (as opposed to *valued*) in the economic system that Weber called the "method of enterprise" and Marx called "capitalism".

3

Credit versus Commodity Theories of Money

According to Schumpeter, quoted by Ingham (2004, 06), "... there are only two theories of money which deserve the name ... the commodity theory and the claim ... [or credit] ... theory". It is has already been made clear above that a main difference between Marx and Keynes was which side of the fence they were instinctively on.

Keynes, writing in the midst of the world crisis(es) of 1914-44, was seemingly trying to re-conceptualize the whole process of what he came to call monetary production. In the classical and neoclassical traditions, to which he was the heir, capitalism is identified simply with "the market" (Heilbroner and Milberg 1995). The market is treated as a barter-like place of exchange and the role of money is thought to be insignificant. To the extent that Marx was also heir to the *classical* tradition (emphasis added) the role of money was similarly not a primary issue for him. In both *A Contribution to the Critique of Political Economy* (1859, 27-62), and *Capita*l vol. 1 (1867, 139-77), it is significant that Marx *begins* with the idea of exchange and develops the theory of value from there. As for Keynes, the events that he was witnessing in the inter-war period of the twentieth century must have made this of sort of argument seem untenable.

To be sure, the two different possible visions of how economic activity takes place in a market-based system are much older than either Keynes or Marx. The two competing theories of money can be traced all the way back to the Greek philosophers Plato and Aristotle (Lau and Smithin 2002). One of these is sometimes called the "catallactic" theory, from the Greek for "to exchange" (Mises 1934, Schumpeter 1954). It holds that money is primarily a medium of exchange and evolved spontaneously from barter for the purpose of minimizing transaction costs (Menger 1892). Historically, various precious metals were supposed to have been chosen as

4

Draft of January 2015

media of exchange because they were the most saleable commodities. Hence, the catallactic theory is also referred to as "metallist" theory.⁵ The value of this metallic money was supposedly based on the intrinsic content of the metal. Metallic money is held to be both money *and* a commodity at the same time.

The other main school of thought on money may be called "chartalist". This term comes from an adjective derived by Knapp (1924) from the Latin *charta* meaning a "ticket' or "token" (Goodhart 1998, Wray 1998), though again there were many writers before Knapp who anticipated this view. Chartalism, in this sense, emphasizes the means of payment and unit of account functions of money, rather the medium of exchange. It brings in notions of credit on the ground floor. Money is basically "a debt-relation or a promise to pay that exists between human beings" (Bell 2001). Or, "money is a social relation" (Ingham 1996, 2000, 2015). General acceptability by the public, rather than inherent commodity value, is then the necessary condition of money. It has indeed frequently been argued, in particular, that money is that which is accepted as taxes, or other payments by the state (Innes 1914, Knapp 1924, Lerner 1947, Wray 1998). The main point however, is simply that the value of money is based on *social* arrangements rather than the intrinsic content of the "stuff" of which money is made, metallic or otherwise.

The two different underlying schools of thought on money lead to two fundamentally different approaches to economic theory, namely "real analysis" and "monetary analysis"

⁵ The term catallactic was first popularised by von Mises. Lau and Smithin (2002) have argued that this is a better locution than the more picturesque "metallist".

Draft of January 2015

(Schumpeter 1954). Real analysis, as the name implies, takes it for granted all economic knowledge can be acquired simply by studying relationships among and between goods and services, whereas monetary analysis involves a separate and relatively autonomous monetary sphere. Keynes (1933a, 408-11) also distinguishes a "real-exchange economy" from a "monetary economy". For Keynes, a monetary economy is that in which:

money plays a part of its own and affects motives and decisions and is... one of the operative factors ... the course of events cannot be predicted, either in the long period or in the short, without a knowledge of the behaviour of money ...

He continues (far too optimistically):

 \dots (e)veryone would \dots agree that it is in a monetary economy in my sense \dots that we actually live.

There are some obvious analogies between the current state of political economy, following the global financial crisis (GFC) of the last decade, and the comparable watershed three-quarters of a century ago that affected Keynes. Both are periods in which, in the absence of an effective response to crisis by economic orthodoxy, various heterodox approaches proliferated, outside and inside the academy. A central problem often mooted, then and now, by Keynes's (1936, 371) "brave ... heretics" and Robertson's (1940, 39) "monetary cranks" alike (but never stated perfectly clearly) is the deceptively simple question of whether, in an actual money-using economy, there is enough money in existence to purchase the full value of the output. As shown by Smithin (2009, 2013) this is a real problem, but never seems to have been successfully posed by would-be monetary reformers. Orthodox economics has therefore always been able to elide the issue, in both macroeconomic and microeconomic contexts, by such devices as the concept of the velocity of circulation (Smithin 2015).

Marx on Money?

Ingham (2004, 61-62) has provided a further convincing summary of Marx's overall position on

money. This passage merits quotation at some length, as follows:

Like Adam Smith, Marx held that '[g]old only confront other commodities as money only because it previously confronted them as a commodity ...' Forms of credit are derivative: bank notes and bills of exchange are money in so far as they directly *represent* both precious metals and/or commodities in exchange ... (original emphasis)

... [A] ... departure from classical economics is to ... [argue] ... that monetary relationships do not ... represent a *natural economic* reality but mask ... the underlying reality of the *social relations* of production . For Marx there are *two* 'veils' (original emphasis). Behind money lie 'real' economic forces, as they do in a somewhat different manner in orthodox economics. In turn, behind these economic forces lie the 'real' social relations ... This ... reasoning is why Marx is regarded as a classical sociologist ... [Nonetheless] ... it *also* implies (emphasis added) that money can be analytically 'bracketed'... Marx's *analytical* position is similar to that of classical economics (original emphasis). Emphasis ... on the labour theory of value prevented Marx from recognizing the ... relative autonomy of the production of abstract value... [*via*] ... credit-money...

At times Marx appeared to ... gras[p] that capitalist credit-money can be created autonomously outside the sphere of the production and circulation of commodities; but then he thinks that it plays an essentially *dysfunctional* role (original emphasis). Bank credit 'could expand beyond its necessary proportions' and become 'the most potent means of driving capitalist production beyond its own limits ... this has become ... the most effective [vehicle] of crises and swindle' ... Marx held the conventional ... view that credit instruments ... were, or rather should be, no more than functional substitutes for hard cash.

This last statement is crucial to understanding the important difference between a

commodity theory of money and a credit theory, from the point of view of a theory of political

economy. In a credit theory, the process of credit creation in itself is absolutely necessary to the

"normal" operation of the system. It is not only relevant to the pathological case. Marx

apparently took the former view. The reference above is to the passages from later in Vol. II, and

in Vol. III, of *Das Kapital* in which Marx does take up the issue of credit money.

Where do Profits Come From?

The above discussion has made clear the basis of Keynes's claims about the "Ricardian foundations of Marxism". However, an important complicating factor is that the expression "the monetary circuit", which has come to seem so important in credit-based theories, is actually a term that originated in Marx. Moreover, it is well-known, and certainly noteworthy, that in some writings before the *General Theory*, Keynes (1933a, 1933b) also alluded to this idea *via* the notion of "monetary production". Unfortunately, these references did not survive in the published version of the *General Theory* in 1936 (Tarshis 1989). Nor did Keynes seem at all confident about the concept in debates about interest rate theory in the *Economic Journal*, and elsewhere, the following year (Graziani 1984). For this reason, writers such as Graziani (1990, 2003), Parguez (Parguez and Seccareccia 2000), Schmitt (1988), and others, have since had to develop the theory of the monetary circuit in far more detail. The argument has been that to advance the monetary theory of production in our own time it is necessary to go well beyond Keynes's tentative discussion.

This was a missing piece of the puzzle in Keynes, and is it important to inquire about its significance for an overall system of political economy. Somewhat ironically, given the references already made to Marx, much of its importance is embedded in a question that economic sociologists do sometimes ask, but economists almost never, namely "where do profits come from?" (Collins 1986, 122).

An important point of departure for an answer is to write out the scheme from Das

Draft of January 2015

Kapital vol.2, ch.1 (Marx 1884) in full, $M - C \dots P \dots C' - M'$. The next step is to try to explain exactly what [M' - M] and [C' - C] are supposed to represent. Taking the details of the production process (... $P \dots$) for granted, the complete circuit can be written:

$$(1) \qquad M - C - C' - M'$$

The entrepreneurs start with a sum of money M. Then they buy some commodities C (including raw materials and labour time). Next, they engage in production, using the C, to make more (*i.e.*, "more valuable") commodities C'. The term [C' - C] must therefore represent the real value-added in the economy. The entrepreneurs then sell the enhanced commodities, C', for more *money* M'. The difference between M and M' [M' - M] is the realized money profit. So, this is what capitalism looks like in practice, according to Marx, which is quite similar to Weber, Schumpeter, Keynes and others.

To proceed any further with the argument we are now once again faced squarely with the need to define "real value", the oldest question in economics. However note that the issue has arisen *after* the introduction of the concept of the circuit, not before. As already mentioned in Marx, and in some versions of classical economics, there was a labour theory of value.⁶ The later neoclassical economists, the Austrians, and modern mainstream economics all fell back on the nebulous concept of utility.

Moreover, regardless of the value theory adopted, if the money supply is supposed to be fixed there is always the problem how can it be possible for M' to be greater than M, and for *money* profits to be realized? This is the crucial question, but neither Marx, nor the classical

⁶ Other classical commodity theories include Ricardo's original "corn model" and Sraffa's (1960) neo-Ricardian approach.

Draft of January 2015

economists, nor the neoclassical economists, ever seemed clearly to ask it. On the other hand, implicitly modern accountants do ask it of modern businesses every day.

The point being made is that the system as a whole must be able to generate positive aggregate profits in money terms, *before* any "real" profit or surplus can come into existence for the different parties to dispute. Granted even with the money supply constant, M' = M, it would be still possible for *some* firms to make money profits while others make losses. This is the usual meaning of the term "competition". But, it is *not* the answer. It would still be impossible for firms in aggregate, and on average, to be profitable. The system as a whole cannot function on this basis. Expectation of success in any particular business is zero and there is no real incentive to act. The only solution to this conundrum is credit creation by the banking system, implying an equal amount of money creation on the liabilities side of the balance sheet.

To return to the question of real value, it must also be pointed out that in modern economics real value-added is no longer thought of as "embodied labour", nor even utility in practice.⁷ Instead it is (something like) the standard definition of real GDP;

$$Y = C + I + G + (EX - IM)$$

where *Y* where stands for real GDP, *C* for real consumption expenditure, *I* for real investment spending, *G* for real government spending and (EX - IM) for real net exports.

For theoretical purposes these symbols should be taken as referring to real flows of funds (money flows deflated by a Fisherine "ideal" price index) rather than the imputed values

⁷ Economic theorists in the "microfoundations of macroeconomics" literature do, of course, continue to favour the utility maximization approach (King 2012). However, there is a large and obvious disconnect between this and the methods by which the statistical national accounts data are compiled.

Draft of January 2015

provided by statisticians. The reported GDP numbers are not "stock-flow consistent" and thus violate a basic theoretical requirement endorsed by many writers in the various heterodox economic traditions (Godley and Lavoie 2007, Palley 2015, Tymoigne and Wray 2015, Wray 2012). In practice, the GDP numbers are all there is for empirical work. However, in no way are they 100% accurate or consistent from the theoretical perspective. The importance of this theoretical qualification is that, were the flows of funds statistics to be accurately complied, this might provide the basis for an alternative theory of value to either the labour theory⁸ *or* utility theory. It would resemble Ingham's (2004) "social theory of value". With this important caveat, the circuit becomes:

$$(3) \qquad M - Y - M'$$

But, if M' = M, there would be no production (no *Y*). Why? (No pun intended). The reason is simply there would be no *incentive* to produce *Y*. In fact, even if *M*' is greater than *M*, M' > M, and there is positive credit creation, it would still possible for there to be no incentive for production, and no *Y*. Then, the circuit becomes;

(4)
$$M - M'$$

This is the case where all the borrowed money goes for financial speculation, *etc.*, and nothing is produced. This is a major worry for economists of all political persuasions. "Left" and "right" seem completely to agree on this point.⁹

On the other hand, if M' is greater than M and also roughly equal to Y (or, at least, is

⁸ Or to the other classical theories.

⁹ *Cf.* for example, the similarities between the Austrian theory of the business cycle and Minsky's financial fragility hypothesis (Smithin 2013, 243-45).

Draft of January 2015

consistently not much greater than *Y*) there *is* an incentive for production. In this case, prices will either be roughly stable, or the inflation *rate* will be "low and stable". If *Y* is positive but [M' - M] is much greater than *Y*, there would still be incentives for production (the economy will still be functioning), but prices will be rising. There will be "high" inflation. In both these cases, the credit creation necessary as a prerequisite for the creation of real value is taking place. However, the latter outcome is presumably less desirable than the former. They are both superior to the first two scenarios. It seems clear, therefore, that both macroeconomic policy and financial regulation should be working toward the first of the two outcomes last discussed, and should avoid entirely the first two entirely. The case of outright instability has been discussed in detail in both Smithin (2013) and Smithin (2016).

Finally, as this is being written in the twenty-first century, not contemporaneously with either Marx or Keynes, it should be stressed that none of the foregoing depends on the existence of a specific payments technology, or on the "evolution" of the outward, physical/material forms of money. The logic has to do with money as a social relation, not as a payments technology or any type of commodity.

Conclusion

Money is a social relation or social institution. It is neither a simple commodity nor merely a *numeraire*. It has deontic power and important causal effects on the material world. In particular, credit creation and money creation are continuously necessary for firms to realize the profits, and workers to receive the wages, on which the method of enterprise (capitalism) depends. Orthodox economics errs by ignoring this, treating economy activity mainly as a question of barter

Draft of January 2015

exchange. There is a failure to understand that *both* inflation-adjusted real interest rates and, in international economic relations, real exchange rates are important *monetary* variables. The reader should not, however, be misled by this statement into thinking it relies on so-called "money illusion", or on any supposed differences between "macroeconomics" and "microeconomics" Though determined primarily in the money and financial markets, real interest rates and real exchange rates are certainly "real" enough in the common-sense meaning of the term, and are also important relative prices in the standard economic sense. These ideas are significant not only for an understanding of how the system actually works, but also what advice should be given about monetary, financial, fiscal and trade policy.

As for Keynes and Marx, it is clear that the difference between them is that Marx was at bottom a commodity theorist and Keynes (at least) an embryonic credit theorist. Nonetheless, to fully develop the implications of a "credit or claim" theory of money for both theory and policy, Marx's notion of the monetary circuit is indispensable.

References

Bell, S. 2001. The role of the state and the hierarchy of money. *Cambridge Journal of Economics*. (As reprinted in *Concepts of Money*, ed. G. Ingham, 496–510, Cheltenham: Edward Elgar, 2005)

Cesaratto, S. and G. Mongiovi. 2015. Pierangelo Garegnani, the classical surplus approach and demand-led growth: Introduction to the symposium. *Review of Political Economy* 27: 103-110.

Collins, R. 1986. Weberian Sociological Theory. London: Routledge.

Godley, W. and M. Lavoie. 2007. Monetary Economics. London: Palgrave MacMillan.

Goodhart, C. 1998. The two concepts of money. *European Journal of Political Economy* 14: 407-32.

Graziani, A. 1984. The debate on Keynes's finance motive. *Economic Notes* 1: 5-32.

-----. 1990. The theory of the monetary circuit. *Economies et Societies* 24: 7-36.

-----. 2003. *The Monetary Theory of Production*. Cambridge: Cambridge University Press.

Ingham G. 1996. Money is a social relation. Review of Social Economy 54: 243-75.

-----. 2000. Babylonian madness: on the historical and sociological origins of money. In Smithin (ed.) *What is Money?*, 16-41.

-----. 2004. The Nature of Money. Cambridge: Polity Press.

-----. 2015. 'The great divergence': Max Weber and China's missing links. *Max Weber Studies* 2: 160-191.

Hayek, F.A. 1994. *Hayek on Hayek*, eds. S. Kresge and L. Wenar, Chicago: University of Chicago Press.

Innes, A.M. 1914. The credit theory of money. *The Banking Law Journal*. (As reprinted in *Credit and State Theories of Money*, ed. L.R. Wray, 50–78, Cheltenham: Edward Elgar, 2005)

Keynes, J. M. 1933a. A monetary theory of production. As reprinted in *Collected Writings* XX1, ed. D. Moggridge, London: Macmillan, 1973)

-----. 1933b. *The General Theory of Employment* (draft table of contents). (As reprinted in *Collected Writings* XIII, ed. D. Moggridge, London: Macmillan, 1973)

-----. 1936. *The General Theory of Employment Interest and Money*. (As reprinted by Harcourt Brace: London, 1964)

King, J. 2012. The Microfoundations Delusion. Cheltenham: Edward Elgar.

Knapp, G. 1924. *The State Theory of Money*. (As reprinted by Augustus M. Kelley, Clifton NJ: 1973).

Lavoie, M. 2014. Post-Keynesian Economics: New Foundations: Cheltenham: Edward Elgar.

Lau, J. and J. Smithin. 2002. The role of money in capitalism. *International Journal of Political Economy* 32: 5-22.

Lawson, T. 1997. Economics and Reality, London: Routledge.

-----. 2003. Reorienting Economics, London: Routledge.

Lerner, A. 1947. Money as a creature of the state. (As reprinted in *Concepts of Money*, ed. G. Ingham, 467–72, Cheltenham: Edward Elgar, 2005)

Marx, K. 1859. A Contribution to the Critique of Political Economy. (As reprinted by Progress Publishers: Moscow 1970).

-----. 1867. Capital: Vol 1. (As reprinted by Penguin Books: London, 1976)

-----. 1884. Capital: Vol 2. (As reprinted by Penguin Books: London, 1976).

Menger, C. 1892. On the origin of money. *Economic Journal* 2: 239-55.

Mises, L. 1934. *The Theory of Money and Credit*. (As reprinted by Liberty Press: Indianapolis, 1980)

-----. 1978. Notes and Recollections. Indianapolis: Liberty Fund.

Palley, T.I. 2015. Money, fiscal policy and interest rates: a critique of modern money theory. *Review of Political Economy* 27: 1-23.

Parguez A. and M. Seccareccia. 2000. The credit theory of money: the monetary circuit approach. In J. Smithin, ed., *What is Money*?, 101–23, London: Routledge.

Robertson, D.1940. Essays in Monetary Theory. London: P.S. King and Son.

Schmitt, B 1988. The international debt problem and the 'Clearing Union''. In *Keynes and Public Policy after Fifty Years*, eds. O. Hamouda and J. Smithin vol. 2, 194-201, New York: New York University Press.

Schumpeter J. 1954. History of Economic Analysis. (As reprinted by Routledge, London: 1954).

Searle, J. 1995. The Construction of Social Reality. New York: Free Press.

-----. 2005. What is an institution? Journal of Institutional Economics 1: 1–22.

-----. 2010. Making the Social World. New York: Oxford University Press.

Sennholz, H. 1978. Postscript. In Mises, Notes and Recollections, 145-76.

Smithin, J. 2000. What is Money? (ed.) London and New York: Routledge.

-----. 2013. Essays in the Fundamental Theory of Monetary Economics and Macroeconomics. Singapore: World Scientific Publishing.

-----. 2015. Some puzzles about money, finance, and the monetary circuit. Paper presented at the annual meetings of the Eastern Economic Association, New York, February.

-----. 2016. Endogenous money, fiscal policy, interest rates and the exchange rate regime: a comment on Palley, Tymoigne, and Wray. *Review of Political Economy* 28: 64-78.

Sraffa, P. 1960. *Production of Commodities by Means of Commodities*. Cambridge University Press.

Tarshis, L. 1989. Keynes's co-operative economy and the aggregate supply function. In J.D. Pheby, ed., 35-47, *New Directions in Post Keynesian Economics* Aldershot: Edward Elgar.

Tymoigne, E. and L. R. Wray. 2015. Modern money theory: a reply to Palley. *Review of Political Economy* 27: 24-44

Wray, L. R. 1998. Understanding Modern Money. Cheltenham: Edward Elgar.

-----. 2012. Modern Money Theory. London: Palgrave Macmillan.