# The Ontology of Money, the Concept of the Monetary Circuit, and the Source of Profit<sup>1</sup>

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# Introduction

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

George Bernard Shaw written on January 01, 1935:<sup>3</sup>

... 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* 

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*Economics: New Foundations*, advocates a hybrid approach that is sometimes labelled Classical-Keynesian (Cesaratto and Mongiovi 2015), <sup>4</sup> and which (presumably by definition) must accommodate both Ricardo and Marx and other classical economists. Similarly King (2012, 4) explicitly calls for a "Keynes-Marx synthesis".

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 (Lawson 2015, Smithin 2013, Searle 2010, Ingham 2004) 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 (to use the terminology of such writers as Ingham 1996, 2000, 2004, 2015, Lawson 1997, 2003, 2015 and Searle 1995, 1998, 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 an incorrigible commodity theorist, was *also* the originator of the concept of the monetary circuit. This idea is indispensable both to a viable credit theory of money, and to an

John Smithin: Ontology of MoneyDraft of December 2015explanation of how profit is actually generated (as opposed to valued) in the economic systemthat Weber called the "method of enterprise" (Collins 1986) and Marx called "capitalism".

## **Credit versus Commodity Theories of Money**

According to Schumpeter, as 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 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 not a primary issue for him. In both *A Contribution to the Critique of Political Economy* (1859, 27-62), and *Capital* 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 untenable from his perspective.

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, 05). One of these is sometimes called the "catallactic" theory from the Greek for

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"to exchange" (Mises 1934, 462, Schumpeter 1954, 63). 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 media of exchange because they were the most saleable commodities. Hence, the catallactic theory is also referred to as "metallist" theory.<sup>5</sup> 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 in general 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, alternatively, "money is a social relation" (Ingham 1996, 2000, 2004, 2015). General acceptability by the public, rather than any inherent commodity value, is then the necessary condition of money. It has indeed frequently been argued that in particular money is that which is accepted as taxes or other payments by the state (Innes 1914, 161, Knapp 1924, 95, Lerner 2005, 313, Wray 1998, 4). 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" as

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described by Schumpeter (1954, 277-8). 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 usefully 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 of the last decade, and the comparable watershed threequarters 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, 370-1) "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, 2013b) this is a real problem, but it 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 the 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 difference between a commodity theory

of money and a credit theory. 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.

## 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, as mentioned, 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 seemed to allude to this idea and its significance for monetary theory *via* the notion of "monetary production". However, 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), 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 Kapital* vol.2, ch.1 (Marx 1884, 109) in full,  $M - C \dots P \dots C' - M'$ . The next step is then to try to

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explain exactly what M' - M and C' - C are supposed to represent. If we can take the details of the production process (... *P* ...) for granted, the complete circuit can be written:

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

According the equation (1), the entrepreneurs start with a sum of money (*e.g.* dollars) *M*. They then 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 this 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.<sup>6</sup> The later neoclassical economists, the Austrians, and modern mainstream economics all fell back on the highly 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 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 surely be able to generate

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positive aggregate profits in money terms, *before* any "real" profit or surplus can come into existence for the parties to dispute. Granted, even with the money supply constant, that is, 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 as utility in practice.<sup>7</sup> Instead it is (something like) the standard definition of real GDP;

$$(2) Y = C + I + G + (EX - IM)$$

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 some sort of Fisherine "ideal" price index) rather than the imputed values provided by statisticians in the national accounts. 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 (see, for example, 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

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funds statistics to be accurately complied, this would provide the basis for an alternative theory of value to either the labour theory of value<sup>8</sup> *or* to utility theory. It would resemble Ingham's (2004, 202-3) "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 would be the case where all the borrowed money goes for financial speculation, *etc.*, and nothing is produced. As we have seen this is a major worry for economists of all political persuasions. "Left" and "right" seem to completely agree on this point.<sup>9</sup>

On the other hand, if M' is greater than M and also roughly equal to Y (or, at least, is 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" as in Friedman's (1960) famous locution. 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 Scylla and Charybdis of 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 10

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two entirely. The case of outright instability meanwhile has been discussed in some detail in both Smithin (2013, 238-47) and Smithin (2016).

Finally, as this is being written in the twenty-first century, and 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, and treating economy activity mainly as a question of barter 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 extremely important "relative prices" in the standard economic sense.

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works, but also what advice should be given about such matters as monetary, financial, fiscal and trade policy.

As for Keynes and Marx, it is clear that the difference between them is that Marx was 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.

### Notes

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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.

5. The term catallactic was first popularised by von Mises. Lau and Smithin (2002, 20) have argued that this is a better locution than the more picturesque "metallist".

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

7. Economic theorists, for example 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.

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).

# References

Bell, Stephanie 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, Sergio and Gary Mongiovi. 2015. Pierangelo Garegnani, the classical surplus approach and demand-led growth: Introduction to the symposium. *Review of Political Economy* 27: 103-110.

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

Friedman, Milton. 1960. A Program for Monetary Stability, New York: Fordham University Press.

Godley, Wynne and Marc Lavoie. 2007. Monetary Economics. London: Palgrave MacMillan.

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

Graziani, Augusto. 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.

Heilbroner, Robert and William Milberg 1995. *The Crisis of Vision in Modern Economic Thought*. New York: Cambridge University Press.

Ingham Geoffrey. 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, Friedrich von. 1994. *Hayek on Hayek*, eds. S. Kresge and L. Wenar, Chicago: University of Chicago Press.

Innes, A. Mitchell. 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, John Maynard. 1930. *A Treatise on Money*, vol. 1. (As reprinted in *Collected Writings* V, ed. D. Moggridge, London: Macmillan, 1971)

-----. 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, John. 2012. The Microfoundations Delusion. Cheltenham: Edward Elgar.

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

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

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

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

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

-----. 2015. The nature of money. Unpublished paper, Cambridge UK.

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

Marx, Karl. 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, Carl. 1892. On the origin of money. Economic Journal 2: 239-55.

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

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

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

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

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

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

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

-----. 1998. Mind Language and Society New York: Basic Books.

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

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

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

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

-----. 2003. *Controversies in Monetary Economics: Revised Edition*. Cheltenham: Edward Elgar.

-----. 2009. Money, Enterprise and Income Distribution. London: Routledge, 2009.

-----. 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*. (Online as of 27.11.15)

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

Tarshis, Lorie. 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, Eric and L. Randall Wray. 2015. Modern money theory: a reply to Palley. *Review of Political Economy* 27: 24-44

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

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