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Heterodox Monetary Theory in the Twenty-First Century: What are the Implications for Policy?[1]

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Introduction

One of the main *collective* contributions[3] of the various heterodox schools of monetary thought, such as circuit theory, Post Keynesian theory (in both horizontalist and structuralist versions), modern money theory (MMT), and others, has been to stress the importance of the endogeneity of money *via* bank credit creation. This issue was rarely discussed in mainstream economics after Keynes's death, not until the end of twentieth century and the beginning of the twenty-first. Even then the "new consensus", which emerged as the orthodox theory at the turn of the century, tended to obscure rather than clarify the questions in debate. This was inevitable, given that Wicksell (1898), whose own work was a hundred years old by this time, was explicitly or implicitly the inspiration for the new consensus (Woodford 2003). Neo-Wicksellian models carry a heavy load of intellectual baggage, including the false idea of a "natural rate" of interest, and, fatally once the idea of endogenous money is admitted, a failure to recognise multiple sources of inflation and deflation.

It has meanwhile become clear that recognition of the endogeneity of money is only a necessary not sufficient condition for an improved understanding of monetary theory and policy. The other key issue is the question of what determines the rate of interest, most importantly the inflation-adjusted or "real" interest rate (Smithin 2003, 2009, 2013a). This is where the neo-

Wicksellian theorists of the early twenty-first century went badly astray, as had Wicksell at the end of the nineteenth century, and also the many detractors of Keynes in the mid-twentieth century. There was a failure to understand that the rate of interest, as such, is a phenomenon that arises *only* in a monetary economy. It is not the same thing as a subjective rate of time preference, or "own rate of [return]" (Keynes 1936, 224) that might also exist in a barter exchange economy.

Having identified the two main questions in dispute, the purpose of this paper is to inquire into the implications for the conduct of macroeconomic policy, both monetary and fiscal, that a heterodox understanding of them might entail.

"Brave Heretics" or "Monetary Cranks"?

There have always been dissenters from the orthodox approach to money. It is not simply a twenty-first century phenomenon, although matters may perhaps have come to a head following the global financial crisis of the last decade. There are also obvious analogies between the current state of political economy and the comparable watershed three-quarters of a century ago in the 1930s. This was also a period 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 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 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).

Hayek (1932, 76-8), for example, was able to deride the efforts of Foster and Catchings (from the 1920s) simply on the grounds that they were not professional economists. However, as Robertson (1940, *op. cit*) said at the time:

> It is easy to scoff at these productions: it is not so easy … to see exactly where they go wrong.

This is substantially where matters still stand for outsiders trying to make some impression on academic economics. Very recently, for example, I have heard complaints from within today's still extant "social credit" movement that Keynes more-or-less plagiarized the work of Major C.H. Douglas, the original author of *Social Credit* (1933). This is unfair to Keynes (1936, 370-1) who certainly acknowledged Douglas, but thought that "the strength of … [his] … advocacy … largely depended on orthodoxy having no valid reply …". Keynes then went on to the famous quote about Douglas ranking as "… a private, perhaps, but not a major in the brave army of heretics …". He was prepared to give Douglas credit for having seen the problem, but was not impressed by the monetary theory, or the associated political theory. Moreover, the higher-ranking "officer class" of heretics such as "Mandeville, Malthus, Gesell and Hobson" were also not immune to criticism. The theory of Hobson and Mummery, for example, "… failed of completeness, essentially on the account of their having no independent theory of the rate of interest …" (Keynes 1936, 370). This the point already made in the introduction.

The "Myth of Barter"

At both microeconomic and macroeconomic levels, mainstream theory tries to neutralize any possible real effects of money by appeals to "natural rates" of unemployment, growth and interest, and by insisting that employment and output are determined *only* on the supply side. A basic research strategy in economics from Adam Smith onwards has been to invoke a hypothetical world without money which nevertheless has a fully-fledged market economy (the barter economy). Researchers are supposed to look behind the "veil of money" to the barter ratios presumed to reflect the underlying preferences. The barter equilibrium, even though it exists only as a sort of thought experiment, is regarded as the norm for the "optimal allocation of resources". Never mind that there would have been no trade in the first place until someone hit upon the notion of money, and hence no factual basis to judge what this optimal allocation should be.

It is an article of faith in this approach that money itself is emergent from the market, not the other way around. Money is primarily a "convenient medium of exchange" (Keynes 1930, 3) rather than a combination of a *money of account* with a *means of payment* (of debt), as in the view of more historically and sociologically informed authors (Keynes 1930, Hicks 1989, Ingham 1996, 2004). According to the orthodox parable, starting from the simple act of barter market forces will naturally select one, or a limited number, of actual physical objects (*e.g.* precious metals) to serve as the generalized medium of exchange. However, there is little or no historical, sociological or anthropological support for this conjecture. The anthropologist Graeber (2011, 21), drawing on Innes (1913, 1914), Wray (1990, 1998) and Ingham (2000, 2004), has

written explicitly of the "myth of barter".

The typical response to this sort of argument has been that, regardless of history, if it can be shown to be logically possible for a money economy to emerge from barter exchange that is an adequate justification for using barter as a template. However, it is not possible to show that a pure barter system is *viable* if it was ever established, given the necessity in actual capitalism to realize profits in monetary terms (Smithin 2013b, 2015). Significantly, Wicksell's (1898, xxv) original definition of the natural rate explicitly referenced the idea of barter:

> This natural rate is roughly the same thing as the real interest of actual business. A more accurate, though rather abstract, criterion is obtained by thinking of it as the rate which would be determined by supply and demand if real capital were lent in kind without the intervention of money.

But, if barter is a myth, then the idea of a natural rate of interest is also a myth. How can there be "actual business" without a money of account and credit creation? Furthermore, if the natural rate of interest is a myth, then all cognates such as the natural rate of unemployment, the natural rate of growth, the NAIRU,[4] *etc*., must also be myths. All the building blocks of conventional Phillips curve analysis are suspect (Kam 2005, Smithin 2009, 2013a).

Where do Profits Come From?

The "monetary circuit" is actually a term that originated in Marx. More directly relevant to current "post-Keynesian" heterodox economics,[5] it is noteworthy that in some writings before the *General Theory*, Keynes (1933a, 1933b) also seemed to allude to this idea, *via* the notion of a "monetary theory of production". However, these references did not survive in the published version of the *GT* in 1936. 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). Writers such as Graziani (1990, 2003) and Parguez (Parguez and Seccareccia 2000) have since developed the theory of the monetary circuit in far more detail, arguing that to advance the idea of a monetary theory of production in our own time it is necessary to go well beyond Keynes's 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. Much of this is contained in a question that economic sociologists do sometimes ask, but economists almost never, namely "where do profits come from?" (Collins 1986, 122). A starting point for an answer is to write out the scheme from *Das Kapital* vol.2, ch.1 (Marx 1884, 109) in full, that is, $M - C \ldots P \ldots C' - M'$, and try to explain what $M' - M$, and $C' - C$, are supposed to represent. Taking the details of the production process (... *P* ...) for granted, the complete circuit can thus be written:

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

The entrepreneurs start with a sum of money (dollars) *M*. They then buy some commodities *C* (including raw materials and labour time). Next, they engage in production, using *C*, to make more (*i.e*., "more valuable") commodities *C'*. The term (*C'* - *C*) therefore represents real value-added in the economy. Entrepreneurs then sell the enhanced commodities, *C'*, for more *money M'*. The difference ($M' - M$) is the realized money profit. This is capitalism according to Marx, similar to Weber, Schumpeter, Keynes, and others.

To proceed any further with the argument we would need to define "real value", an old question in economics. In Marx, and in some versions of classical economics, there was a labour theory of value. Later neoclassical, "Austrian", and modern mainstream economics fell back on

the nebulous concept of utility.

More to the present point, if the money supply is supposed to be fixed, how can it be p*ossible* 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. Implicitly, however, modern accountants do ask it of modern businesses every day.

The point being made is that the system must generate positive aggregate profits in money terms *before* any "real" profit or surplus comes into existence for the parties to dispute. Granted, even if *M' = M* it is still *possible* for some firms to make money profits while others make losses. This is the usual meaning of "competition". But, it is *not* the answer. It is still impossible for firms in aggregate, and on average, to be profitable. The system as a whole cannot function on this basis. The expectation of success in any particular business is zero and there is no real incentive to act. The only solution is credit creation (money creation) by the banking system.

In modern economics, real value added is no longer thought of as "embodied labour" (nor even utility, in practice) but as 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 the 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 provided by statisticians. The reported GDP numbers are not "stock-flow consistent", and thus

violate a basic theoretical requirement endorsed by many writers in heterodox economic traditions (*e.g*., Godley and Lavoie 2007, Palley 2015a, Wray 2012). In practice, the GDP numbers are all there is for empirical work but in no way are they 100% accurate or consistent from the theoretical perspective. With this caveat, the circuit becomes:

(3) $M - Y - M'$

If $M' = M$, there is no Y. Why? (No pun intended). There is no *incentive* to produce Y. Even if $M' > M$, it is still possible for there to be 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.

If $(M' - M) > 0$, and also (roughly) = Y (or consistently is not much greater than Y) there is an incentive for production, and prices will be (roughly) stable (the inflation rate will be "low and stable"). If $Y > 0$, but $(M' - M)$ is much greater than Y, there is still incentive for production but prices will be rising (there will be "high" inflation). It seems clear that both macroeconomic policy and financial regulation should be working toward the first of the latter two outcomes. The case of outright instability is discussed below.

Finally, as this is being written in the twenty-first century not contemporaneously with Marx or Keynes, note that none of the foregoing depends on the existence of a specific payments technology, or on the evolution of the physical/outward forms of money. The logic has to do with money as a "social relation" (Ingham 1996), not as a payments technology.

Implications for Monetary Policy

By now most scholars in the various heterodox economic traditions probably do agree that a realistic monetary theory must simultaneously reject two familiar notions from orthodoxy, (i) the idea that the supply of money is an exogenous variable, and (ii) *also* that there exists a "natural" rate of interest beyond the control of the monetary authorities. However, this does not by any means imply agreement on policy. Consider, for example, the recent sharp exchange between Palley (2015a, 2015b), a self-described Post Keynesian or "Old Keynesian", and Tymoinge and Wray (2015), leading representatives of the MMT school. (Palley 2015b, 55-6) favours an activist monetary policy or "discretion", whereas Tymoigne and Wray advocate a "park it" approach (Palley 2015a, 17) believing that the nominal policy rate of interest should be allowed to fall to zero. There are several potential policy dichotomies of this type. Commentators differ on the perennial question of "rules versus discretion",[6] the choice of the monetary policy instrument, and, as in the case of Palley *versus* Tymoigne and Wray, activism as opposed to benign neglect.

Logically, if money is endogenous and there is no natural rate, this solves the instrument problem. Clearly the instrument must be an interest rate. However, the same circumstances also strongly suggest that monetary policy is non-neutral and there should be careful thought about what the setting of the rate should be. The idea, just mooted, that the *nominal* policy rate should be zero therefore seems doubtful on the face of it. It raises the question of how the *real* rates corresponding to this setting will behave, and whether or not the policy is conducive to stability.

On numbers of occasions, Smithin (2003, 2007, 2009, 2013) has proposed an alternative *real* interest rate rule that the inflation-adjusted real policy rate should be kept "low but still positive". This could be achieved simply by adjusting the nominal policy rate whenever the

currently observed inflation rate increases. For example, if r_0 *i*s the target for the "real" overnight rate, the rule would be:

(5) $$i_0 = r_0 + p$$

This is definitely a "park it" type of policy. Nonetheless there remains a significant element of judgement or discretion in the idea that real rates matter and the specific recommendation the real policy rate should be stabilized at a low positive level. The following section goes on to compare the stability properties of this type of rule with those of the alternative of pegging the nominal policy rate.

How Stable is the System?

To explore this question in more detail, consider the following simple model of the demand for, and supply of, endogenous money:

(6) $$M = \psi PY \qquad 0 < \psi < 1$$

(7) $$M = \phi W_{-1} N_{-1}, \qquad \phi > 1$$

Here, M is total holdings of commercial bank deposits in period t, and $W_{-1}N_{-1}$ is the aggregate nominal wage bill in the previous period. The idea that the money supply, currently in existence, depends on the total wage bill, comes from circuit theory (Graziani 2003, 27). However as already discussed for the industrial system to be *viable*, in the sense of generating positive monetary profits, ϕ must be greater than one. This term therefore represents all other types of borrowing over and above what is needed to finance the aggregate wage bill (Smithin 2013a, 228-30). There is implicitly a one-period production lag, whereby the expression $Y = AN_{-}$

$_{-1}$ maps *lagged* labour input into current GDP. From (11) and (12), the aggregate price level, *P*, is given by:

(8) $P = (\phi/\psi)(W_{-1}/A)$

Dividing through by P_{-1} and taking natural logarithms, we obtain;

(9) $p = ln\phi - ln\psi + w_{-1} - a$

where, in lower-case notation *p* is the inflation rate ($p = lnP_{-1} - lnP_{-1}$), $w_{-1} = lnW_{-1} - lnP_{-1}$ and $a = lnA$. Next, suppose that:

(10) $\phi/\psi = [(\phi_0/\psi_0)]e^{-\lambda(r - r\text{-}1)}, \qquad 0 < \lambda < 1$

This specification contains a version of Keynes's (1936, 196) "speculative" demand for money from the *General Theory*. There is also, however, a speculative *supply* of money (not in Keynes) represented by the ϕ term. Again take natural logs:

(11) $ln\phi - ln\psi = p_0 - \lambda(r - r_{-1})$

The new term in equation (11), that is $p_0 = ln(\phi_0 - \psi_0)$, represents the purely psychological element of liquidity preference (rather than speculation, as such) and may be identified with the overall "bullishness" and "bearishness" in financial markets from the *Treatise on Money* (Keynes1930, 128-31). Again both sides of the money market are relevant. The final expression for inflation is therefore:

(12) $p = p_0 - \lambda(r - r_{-1}) + w_{-1} - a$

Next, recall that, by definition:

(13) ` $r = i - p_{+1}$

To compare the different interest rate rules next suppose that the central bank fixes the

nominal policy rate at whatever level (which could include zero). The significant feature of this policy stance is that the central bank is *not* following a feedback "rule" conditional on previous outcomes. The setting of the nominal policy rate i_0[7] will be passed through to other interest rates *via*:

(14) $$i = m_0 + m_1 i_0, \qquad m_0 > 0,\ 0 < m_1 < 1$$

Therefore, letting $w = w_{-1} = w_{-2} = ...$ in "real" equilibrium, the following difference equation in inflation will emerge:

(15) $$p = [(1+\lambda)/l]p_{-1} + (1/\lambda)(p_0 + w - a)$$

As $0 < \lambda < 1$, then we have $[(1+\lambda)/\lambda] > 1$. With a nominal interest rate peg, including a value of zero, the difference equation is not convergent, and there is inflationary instability (Smithin 2013a).

Alternatively, suppose that the central bank (more sensibly) pursues the real interest rule in equation (5) above. Taking first differences of (12), we now get the following dynamic equation:

(16) $$\Delta p_{+1} = m_1 \Delta p - \lambda(p_0 + w - a - p)$$

In this case, as $0 < m_1 < 1$, the difference equation in (16) is convergent. In equilibrium, $\Delta p_{+1} = \Delta p = 0$ and the inflation rate stabilizes to:

(17) $$p = p_0 + w - a$$

In principle, assuming the monetary authorities do pursue the policy in (5), this is a comprehensive theory of steady-state inflation for an economy with endogenous money. Cost push and productivity changes are relevant, but so also are the parameters of the explicit money

supply and demand functions.

Fiscal Policy "Space"

As for fiscal policy, if anything, heterodox endogenous money approaches tend to suggest an even more radical departure from supposed notions of "sound finance", than in discussions of monetary policy. Tymoinge and Wray (2015, *op. cit*, 24-5), again describing their own MMT variant of heterodoxy, have put the point in the following way:

> [A] … main contribution… [of MMT] … has been to explain why monetarily sovereign governments have a flexible policy space unconstrained by hard financial limits.

Critics of MMT have inevitably claimed that this is not new and also that MMT authors fail to give credit to the many others who have expressed similar views.[8] There is some force in these complaints, which is why I tend to refer to "heterodox endogenous money approaches" in general. Nonetheless it *is* fair to say that the MMT school have been uniquely successful in the promotion of these ideas over the past few decades, particularly since the advent of the Euro-zone in 1999. This has been an important contribution in the contemporary political environment.

However what, exactly, is the meaning of the claim that "sovereign" governments do not face binding financial constraints? If *D* stands for the government budget deficit, *G* for government expenditure, *T* for taxes and *R* for interest payments on the national debt, then, by definition:[7]

(18) $$D = \$G + R - \$T$$

If $D > 0$ it has usually been argued that the deficit can be "financed" one of two ways. Either the ministry of finance (treasury in the USA) can sell bonds, B, to the general public (bond financing), or the central bank can buy bonds from the ministry of finance in exchange for its own liabilities, H, (money financing). The symbol H dates back to the heyday of monetarism in the 1960s and 1970s when the monetary base was called "high-powered money". It is not a good descriptive term, but it remains convenient to have a different symbol from the overall money supply, M. The supposed choices about how to finance the deficit can thus be characterized;

(19) $$D = \Delta B + \Delta H$$

where ΔB represents "bond financing" and ΔH "money financing".

Is the argument, then, simply that a "sovereign" government could possibly set $\Delta B = 0$ with the deficit 100% money financed? No, the point that MMT authors, and others, have been trying to make goes much deeper than that. From equation (19) alone it could just as well be argued that the opposite choice could be made, with $\Delta B > 0$ and $\Delta H = 0$. Then the authorities would be subject to the full discipline of the financial markets. The problem with the conventional argument is, rather, that the concept of "money finance" is restricted to the idea that the monetary base increases to pay for the deficit when bond financing is not available. In order to make any more general statement about the supply of money the analyst is forced back to another monetarist notion of the 1960s, that of the "money multiplier" (Friedman 1960, Goodhart 1989). For the purposes of monetarism that there needed to be a reliable connection changes in central bank liabilities and the overall money supply, such as;

(20) $$\Delta M/\Delta H = [(1+cd)/(cd+rr)]$$

where *cd* is the cash-deposit ratio, and *rr* is the reserve ratio. If *H* changes by some given dollar amount *M* is supposed to change in the ratio $(1+cd)/(cd + rr)$. In reality, then and now, the argument does not work at all, as each of *H, M, cd,* and *rr* are endogenous variables. Commercial banks "keep in step" (Keynes 1930, 23), not by restricting themselves to loaning out "other people's money", but by adjusting their own lending and deposit rates whenever the central bank policy rate changes (Kam and Smithin 2012, Lavoie 2010). It is reasonable to argue that the central bank influences commercial bank lending rates (and thereby the nominal value of bank balance sheets) by changing the policy rate, but *not* that there is any direct numerical relationship between *H* and *M.*

The real change in thinking as a result of the endogenous money approach is that, for a sovereign government, there is never any problem in "finding the money" to finance a deficit at a given interest rate. The money supply is *fully endogenous*. Regardless of the initial choices made in the context of equation (19), the following always holds:

(21) $$D = \$G + R - \$T = \Delta M$$

In the monetary production economy, both "initial finance" and "final finance" (Graziani 2003, Smithin 2015), are ultimately provided by bank lending of some kind, either directly, or at least one remove to some third party. The budget deficit of a sovereign government is one such source.

Does this, therefore, mean that there is *carte blanche* for fiscal profligacy, or, to put the point in a slightly different way, is there an implication that the government must *always* run a deficit for the economy to grow? No of course not. Even if $D = [\$G + R - \$T] = 0$, there can still be analogous expressions to (21), involving imbalances in one or another of the other sectors of

the macro-economy, to provide a source of finance.

International Economic Relations

There remains the question of what, actually, is meant by the expression *sovereign* in this context. Tymoinge and Wray (2015, *op. cit.*) state that:

> We use the term 'sovereign government' to indicate a government that issues its own currency… a monetarily sovereign government can choose among alternative exchange rate regimes – fixed, managed, and floating – which impact domestic policy space.

This explicitly introduces the problems posed by the existence of international economic relations, but also rules *out* many examples of what the financial press would call "sovereign debt", for example, the debt of member nations of the contemporary Euro-zone.

As a broad brush, we can identify four possible configurations for international economic relations. These are:

1. A floating exchange rate.
2. A "fixed but adjustable" exchange rate.
3. An irrevocably fixed exchange rate or "hard peg".
4. An optimum currency area (OCA).

In an economy with a floating exchange rate the results would be qualitatively the same as those in the equivalent closed-economy model. This is a case of full sovereignty. All that would be needed for a complete discussion is to add results for the real exchange rate and the foreign debt position.

In an economy with a fixed but adjustable exchange rate, the results also resemble qualitatively those of the closed economy, thus again allowing for some domestic control over

both monetary and fiscal policy.

In spite of the name, a putative hard peg for the exchange rate (*e.g.*, a metallic standard, a supposedly "credible" fixed exchange rate regime, a currency board with no loopholes) is actually an unstable regime, and will eventually break down. There are numerous historical examples. There is no effective sovereignty in this case. It is not a viable choice in the long-run.

Similarly, the idea of an *OCA* originally due to Mundell (1961), is to do away with exchange rates altogether. It is a total abandonment of sovereignty. Unfortunately, when initially applied, the OCA has the same (in)stability characteristics as a hard peg (as was certainly the case in the Euro-zone, for example). There are really only two possible long-run outcomes, either (a) a break-up of the system, or (b), eventual evolution into a true federal state with a developed system of fiscal federalism (the different countries literally become provinces).

These results can be better understood by referring to the familiar interest parity conditions, from international finance. In notation used elsewhere (Smithin 2013a, 274-7), the covered interest parity (CIP) condition may be written;

(22) $$i - i^* = (E - F)/E$$

where i is the domestic nominal interest rate, i^* is the foreign nominal interest rate, E is the current spot exchange rate (defined as the domestic currency price of one unit of foreign exchange) and F is the forward exchange rate. If the (stronger) uncovered interest parity condition (UIP) also holds then;

(23) $$lnF = lnE_{+1}$$

This is the traditional conclusion of a "rational expectations" or "efficient markets" analysis. In reality, however, when there are floating exchange rates, and regardless of how

expectations are formed, UIP frequently does *not* hold. The forward rate differs from the expected future spot rate, E_{+1}, due to the existence of the so-called "risk premium", *Z*, (a true Keynesian, no doubt, would prefer to say "uncertainty premium"). That is:

(24) $$lnE_{+1} = lnF + Z$$

Therefore in general under flexible exchange rates, domestic nominal interest rates can deviate from foreign interest rates, according to:

(25) $$i - i^* = [(E - E_{+1})/E] + Z$$

The domestic authorities therefore have a certain leeway to set the rate of interest as they see fit, based on domestic economic conditions.

Even in the case of a "fixed but adjustable" exchange rate the domestic authorities still retain some control over the domestic interest rate. In these circumstances, although the exchange rate is not *expected* to change ($E = E_{+1}$), nonetheless it possibly could do so. This must be taken into account and priced into all relevant financial contracts. Domestic nominal interest rates will therefore still differ from foreign rates according to:

(26) $$i - i^* = Z$$

This result does not rely on capital controls or other political impediments to the free flow of funds from one jurisdiction to another. Ironically, it is the *lack* of firmness about exchange rates that provides the "policy space".

The other two regimes provide *no* policy space, which is why they are unstable. To see this point, first note that in such regimes the CIP condition will continue to hold as usual. As $Z = 0$, the UIP condition also holds, and domestic nominal interest rates will be equal to foreign interest rates, $i = i^*$. In real-world political economy, this theoretical result seems actually to

have been thought of as a method of *enforcing* the natural rate of interest globally (in a sense of making neoclassical economics "come true"). However, this does not work if another parity condition, purchasing power parity (PPP), does not hold, and real exchange rates can change. This problem seems to have been totally ignored by irresponsible policy-makers and their advisors in the late twentieth and early twenty-first centuries. In general, there is a real version of equation (25) above such that:

(27) $$r - r^* = [(Q - Q_{+1})/Q] + Z$$

But in the assumed circumstances, with $Z = 0$, and $i = i^*$, and using the basic definitions of the real rate of interest domestically and in the rest of the world:

(28) $$(i - p_{+1}) - (i^* - p^*_{+1}) = (Q - Q_{+1})/Q,$$

Lagging one period and re-arranging, this expression gives the rate of change of the real exchange rate as:

(29) $$[(Q - Q_{-1})/Q_{-1}] = p^* - p$$

The dynamic process for the real exchange rate is *unstable*, unless inflation rates are the same across the different jurisdictions. But when (for example) inflation is lower in the rest of the world than in the domestic economy there is no way of enforcing $p = p^*$, except with draconian austerity policies. The have been many historical examples of this in (supposed) hard pegs and OCAs, such as the situation in the early 21st century EU, the collapse of the currency board in Argentina in 2001, exchange rate crises in various parts of the world in the 1990s, the end of the exchange rate mechanism (ERM) in Europe in 1992, the collapse of the restored gold standard in the late 1920s/early 1930s, and so on.

Conclusion

A macroeconomic model with endogenous money, an interest rate instrument and no natural rate of interest, must generate non-neutrality results for monetary and fiscal policy, in both the short-run and the long-run. 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. In particular, money and credit 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. Though certainly "real" enough in the common-sense meaning of the term (and also important "relative prices" in the standard economic sense) they are determined *primarily* in the money and financial markets.

This is significant not only for an understanding of how the system works, but also what advice should be given about such matters as monetary, financial, fiscal, and trade policy.

Notes

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3. It is necessary to stress this point because of the various claims and counter-claims made in the literature. See, for example, the exchange between Palley (2015a, 2015b) and Tymoigne and Wray (2015). This debate is discussed in more detail below.

4. The "non-accelerating inflation rate of unemployment".

5. As to what is meant by "post-Keynesian" see Lavoie (2014, 42).

6. As suggested by the title of Simons's (1936) famous Chicago-school paper and Taylor (1993), six decades later.

7. In Canada, the nominal policy rate is called the "overnight" rate.

8. As the symbols *G* and *T* were used earlier to refer to real government spending and taxation, the notation *$G* and *$T* implies nominal or money values.

References

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

Douglas, C.H. 1933. *Social Credit*. London: Eyre and Spottiswoode.

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

Godley, Wynne and Marc Lavoie. 2007. *Monetary Economics: An Integrated Approach to Credit Money, Income, Production and Wealth.* London: Palgrave MacMillan.

Goodhart, Charles. 1989. The monetary base. In *The New Palgrave: Money*, eds. J. Eatwell, M. Milgate and P. Newman, 206-11, London: Macmillan.

Graziani, Augusto. 1984. The debate on Keynes's finance motive. *Economic Notes*: 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.

Graeber, David. 2011. *Debt: The First 5000 Years.* Brooklyn: Melville House.

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

----------. 2000. Banylonian 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.

Innes, A. Mitchell. 1913. What is money? *The Banking Law Journal*. (As reprinted in *Credit and State Theories of Money*, ed. L.R. Wray, 14–49, Cheltenham: Edward Elgar, 2005)

----------. 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: Elgar, 2005)

Kam, Eric. 2005. A note on time preference and the Tobin effect. *Economics Letters* 89: 137-42.

----------. and John Smithin. 2012. A simple theory of banking and the relationship between the commercial banks and the central bank. *Journal of Post Keynesian Economics*, 34: 545-9.

Keynes, John Maynard. 1930. *A Treatise on Money*: vol 1. (As reprinted in *Collected Writings*, 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)

Lavoie, Marc. 2010. Changes in central bank procedures during the sub-prime crisis and their repercussions on monetary policy. *International Journal of Political Economy* 39: 2-23.

---------- . 2014. *Post-Keynesian Economics: New Foundations*: Cheltenham: Edward Elgar.

Mundell, Robert. 1961. A theory of optimum currency areas. *American Economic Review* 51: 657-65.

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

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

----------. 2015b. The critics of modern money theory (MMT) are right. *Review of*

Political Economy 27: 45-61.

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.

Rochon, Louis-Phillipe and Mario Seccareccia. eds. 2013. *Monetary Economies of Production*: *Banking and Financial Circuits and the Role of the State: Essays in Honour of Alain Parguez*, Cheltenham: Edward Elgar.

Simons, Henry C. 1936. Rules versus authorities in monetary policy. *Journal of Political Economy* 44: 1–30.

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

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

----------. 2007. A real interest rule for monetary policy? *Journal of Post Keynesian Economics* 30: 101-18.

----------. 2009. *Money, Enterprise and Income Distribution: Towards a Macroeconomic Theory of Capitalism.* London: Routledge, 2009.

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

----------. 2013b. Credit creation, the monetary circuit, and the formal validity of money. In Rochon and Seccareccia, eds., 41-53.

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

Taylor, John1993. Discretion versus policy pules in practice. *Carnegie-Rochester Conference Series on Public Policy*, 39: 195-214.

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

Wicksell, Knut. 1898. *Interest and Prices: A Study of the Causes Regulating the Value of Money* (As reprinted by Augustus M. Kelley, New York, 1965)

Woodford, Michael. 2003. *Interest and Prices: Foundations of a Theory of Monetary Policy*. Princeton NJ: Princeton University Press.

Wray, L. Randall. 1990. *Money and Credit in Capitalist Economies*: *The Endogenous Money Approach*. Aldershot: Edward Elgar.

----------. 1998. *Understanding Modern Money.* Cheltenham: Elgar.

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