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Interest Rates, Income Distribution, and the Monetary Policy Transmissions Mechanism under Endogenous Money: What have we Learned Thirty Years on from *Horizontalists and Verticalists*?

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Abstract

This paper suggests that the near-optimal setting of the real policy rate of interest (the real overnight rate in Canada) is zero. This will achieve as close an approximation as is possible to a fair distribution of income in a particular sense. It will also promote financial stability, inflation stability, high growth, full employment and higher real wages.

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Basil J. Moore, endogenous money, income distribution, monetary policy transmissions mechanism, zero interest rate policy (ZIRP), zero real policy rate (ZRPR).

Introduction

The famous 1988 volume by Basil J. Moore, *Horizontalists and Verticalists*, was decades ahead of its time, in particular in its insights about the theory of endogenous money, the theory of monetary policy, and the "relationships between the central bank and the commercial banks" (Kam and Smithin, 2012). As a direct result, the case for a "park it" stance on interest rates

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(Rochon and Setterfield 2007, 2012) as opposed to an activist monetary policy, is today much more firmly established than it was thirty years ago.

This paper will argue that the near optimal setting of the real policy rate of interest (which used to be called the overnight rate in Canada), in a regime which has either flexible exchange rates or a "fixed-but-adjustable" exchange rate, is zero.[2] A zero real policy rate (ZRPR) will achieve as close an approximation as possible to a fair distribution of income in a particular sense. It will also promote financial stability, inflation stability, high growth, full employment and higher real wages. The notion of fairness employed here differs only slightly from that attributed by Lavoie and Seccareccia (2004, 2016) to Pasinetti (1980/81, 1981). It is less generous than was Pasinetti to the so-called rentier interests.[3] However, it stops well short of Keynes's (1936, 376) "euthanasia of the rentier".

Strictly speaking, the genuine economy-wide optimum (along all of the dimensions mentioned above) would be that the market real rate of interest on money would be zero. However, this may not be achievable in practice for a variety of reasons including very prominently the influence of Keynesian liquidity preference. Nonetheless, the real market rate of interest and the real policy rate are indeed closely related *via* the transmission mechanism of monetary policy. This circumstance is therefore the basis for the argument that the ZRPR would be a near-optimum. That is, it will achieve the closest approximation possible to the optimum in

[2] This caveat is crucial. The various policy options are not available to a jurisdiction with an irrevocably fixed exchange rate or embedded in a currency union. See, for example, Tymoigne and Wray (2015), Smithin (2016a, 2016b, 2018), and Wray (2012).

[3] The term *rentier* was originally used in 17th and 18th century France to literally denote the recipients of agricultural "*rentes"*. Since the early twentieth century, mainly under the influence of Keynes (1923, 1936) himself, it has come to mean almost exclusively the recipients of interest income. For example, the title of my book *Macroeconomic Policy and the Future of Capitalism: The Revenge of the Rentiers and the Threat to Prosperity* (1996), written in the aftermath of a period of very high real rates of interest on money, is self-explanatory.

any given set of circumstances.

The present proposal differs from the zero real interest policy (ZIRP) put forward by members of the modern money theory (MMT) school, in that it focuses on real rather than nominal rates of interest. Nonetheless, the two proposals are clearly very similar in spirit. There are two main reasons, however, for preferring ZRPR to ZIRP. The first is that, unlike a ZIRP, a ZRPR is conducive to inflation stability. The second is that a ZIRP, in itself, is unable to achieve the putatively fair distribution of income. In what follows, this paper will first discuss the question of inflation stability, and then move on to an examination of the distributional issues.

Comparison of ZRPR and ZIRP in Terms of Inflationary or Deflationary Instability

The discussion of inflation stability will based on the following equations which are drawn from the "Alternative Monetary Model" (AMM) as previously set out in both Smithin (2013, 221-2) and Smithin (2018, 28-9);

(1) $$p = p_0 - \lambda(r - r_{-1}) + w - a \qquad 0 < \lambda < 1$$

(2) $$i = m_0 + m_1 i_0 \qquad 0 < m_1 < 1$$

(3) $$r = i - p_{+1}.$$

Equation (1) is the inflation equation. This is not arbitrary but includes a reasonably comprehensive accounting of the various possible influences on inflation. These influences include including changes in productivity, cost-push and conflict inflation effects, and also the parameters of the money demand and endogenous money supply functions. Importantly, these demand and supply parameters are able fully able to take into account the impact of Keynesian liquidity preference, both in the sense of the 'bullishnesss" and "bearishness" of the *Treatise on Money* (Keynes 1930, 128-31) and also of the "speculative demand" of the *General Theory*

(Keynes 1936, 196). In the notation used here the symbol p stands for rate of inflation, r for the real rate of interest on money, w for the natural logarithm of the average real wage rate *per* employed person, and a for the natural logarithm of average labour productivity. The parameter p_0 is an inverse measure of the state of bearishness on both sides of the money market (in Keynes's sense from the *Treatise*) whereas λ is effectively the interest elasticity of money demand in a speculative theory of the demand for money, such as that in the *General Theory*.[4]

Equation (2) is the monetary policy transmissions mechanism, expressed in nominal terms. Here i is the nominal market rate of interest on money, i_0 is the nominal policy rate, m_1 is the pass-through coefficient, and m_0 is the average commercial bank mark-up between deposit rates and lending rates.[5]

Equation (3) finally is simply the usual definition of the real interest rate on money.

From equations (1), (2) and (3) we can derive the following relationship between the real rate of interest on money and the expected inflation rate;

(4) $$r = m_0 + m_1 r_0 - (1-m_1)p_{+1}.$$

Thus there is a negative relation between the expected inflation rate and the real rate of interest on money and, as pointed out by Smithin (2013, 2018) and Kam (2000, 2005), this is nothing other than the historical "forced saving effect" (Hayek 1932, 1939) or the twentieth century "Mundell-Tobin effect" (Mundell 1963, Tobin 1965).

Next, consider the likely consequence of a ZIRP. This implication of this policy recommendation is that the nominal policy rate of interest should be set at zero, or;

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[4] Collis (2016, 2018a) provides time series for an empirical proxy for p_0 in both Canada and the USA, and also estimates of λ in both countries.

[5] Once again Collis (2018a) provides empirical estimates of each of the latter two parameters.

(5) $i_0 = 0.$

If we then apply (5) to equations (1), (2) and (3), this will result in the following dynamic expression for inflation;

(6) $p = p_0 + w - a + \lambda(p_{+1} - p).$

Lagging one period and re-arranging then yields the following difference equation;

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

This is unstable as the coefficient $[(1+\lambda)/\lambda]$ is greater than one.

I originally made this argument in two papers published in 2016 (Smithin 2016a, 2016b) which were intended as a commentary on an exchange between two prominent members of the MMT school, namely Tymoigne and Wray (2015), and their "critics" as represented by Palley (2015a, 2015b). Since that time the relevance of this result for the evaluation of a ZIRP in the given context has not been disputed. However, at the same time I also made an assertion that an alternative real interest rule would suffice to promote both inflation stability and general economic stability. This is actually an argument that I have consistently been making for the past 25 years, initially in Smithin (1994).[6] It was not perhaps strictly pertinent to the exchange between Tymoigne and Wray and Palley (as neither camp advocates a real interest rate rule) but nonetheless seemed to me to be in place, at least as an aside to the main discussion. To my surprise, however, this most recent statement has indeed attracted some attention and debate as, for example, in Watts (2016, 2018). Watts has noticed that the simplest possible version of the real rate rule (that is, a rule of the form $r_0 - p_{+1} = x$) will also fail to achieve the goal of inflation

[6] For the purposes of this paper it is important to note that the claim is not, and has never been, that a real rate rule would promote low inflation, or any particular target for inflation. That would be beyond the competence of the central bank - unless they are also willing to severely comprise the performance of the real economy.

stability in the particular circumstances under discussion.[7]

Watt's contention is correct in this particular case, but the problem is easily remedied by the adoption of only a slightly more sophisticated real rate rule that nonetheless has the effect of stabilizing the target real policy rate at the desired level of zero. This result is generalizable to other specifications of both the inflation equation and the real interest rate rule. Such a remedy, however, is clearly not an option available in the case where a nominal rate of interest is the target, regardless of the context.

To see both sides of the argument using the current notation note that, in the case where the target real policy rate is zero, and where the term r'_0 stands for the target itself, the simplest version of the real rate rule would be as follows;

(8) $$r_0 = r'_0 = i_0 - p_{+1} = 0.$$

Therefore, using (9) in equations (5) and (2), the following difference equation in expected inflation will emerge;

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

And, as Watts (2016, 2018) has argued, this dynamic process has precisely the same stability issues as that examined in equation (7) above. It is unstable. But, also as suggested, only a slight modification to the real rate rule will eliminate the difficulty. The specific rule which would work in the present case is;

(11) $$r_0(t) = r'_0 + [(1-m_1)/m_1]p_{+1}.$$

This would work for any specified target value of r'_0, but here we are particularly interested in

[7] The actual implementation of such a rule would likely involve using the currently observed inflation rate or the lagged inflation rate as a "proxy for" the expected rate of inflation, as in the original Taylor rule (Taylor 1993, 202). Alternatively, it might also plausibly be argued that the central bank's own expectation of inflation is likely to drive expectations of inflation generally, and that they should use their own in-house expectations of inflation in implementing the rule.

the case where the target is zero. That is;

(12) $r'_0 = 0.$

Therefore, using (12) and (11) in equation (5), it can be shown that;

(13) $\lambda(r-r_{-1}) = \lambda[m_0+(-m_1)p_{+1} - (1-m_1)p_{+1} - m_0 - (1-m_1)p + (1-m_1)p] = 0.$

The second term on the right-hand side (RHS) of equation (2) disappears and the inflation rate will converge to;

(14) $p = p_0 + w - a.$

The above turns out to be a comprehensive theory of equilibrium inflation for an economy with endogenous money, in the sense in which the latter concept was theorized by Basil Moore (1979, 1988a). Cost-push and conflict inflation influences and productivity changes are relevant, but so also are the parameters of both the money demand and supply functions. These demand and supply parameters now summarize Keynes's (1930) notions of bullishness *versus* bearishness from the *Treatise*, rather than the speculative demand for money of the *General Theory* (which is eliminated by the rule itself).

The Functional Distribution of Income

The theory of income distribution as previously set out in Smithin (2009, 2012, 2013, 2018) is based on the idea that realistically there should be three categories in the functional distribution of income, namely wages, entrepreneurial profit and interest, rather than just a two-way split between wages and a supposed return (or reward) to "capital" in one sense or another. Significantly, the latter concept of income distribution has been prevalent in *both* Marxian

economics (*via* the notion of exploitation) and in contemporary mainstream economics.[8]

As already shown by Smithin (2018, 114-7) a synthetic theory of profit, as differentiated from both interest and wages, may be derived from the following two equations;

(15) $$PY = \Pi + (1+i_{-1})W_{-1}N_{-1} + (1+i_{-1})P_{-1}U_{-1}$$ (nominal revenue)

(16) $$Y = AN_{-1}$$ (production takes time).

The basic premise in this formulation is that there is a one-period production lag. This is the simplest possible specification whereby we can conveniently introduce the crucial element of time into the analysis of the production process. Therefore, the symbol Y is here taken to stand for the level of output that is sold currently, but was actually produced in the previous period. Meanwhile P is the current price level. The term PY thus stands for nominal revenue in the case of an individual firm or for nominal GDP in aggregate. For theoretical consistency, the various nominal quantities mentioned, such as Π (money profits), $W_{-1}N_{-1}$ (the lagged nominal wage bill), and $P_{-1}U_{-1}$ (nominal user cost), should be taken as referring to actual flows of funds, rather than the imputed values provided by the statisticians in the national income and product accounts.[9] The unfamiliar term U_{-1} is meant to be a concept similar to Keynes (1936, 66-73) "user cost" (whence the symbolism is derived), or to what Marx called "constant capital" (Sweezy 1942, 63-71). Thus $P_{-1}U_{-1}$ represents the money value of the amounts of raw materials and physical capital equipment that are "used-up" (Smithin 2012, 2018), during the production process. The nominal interest charge levied on both the nominal wage bill and nominal user cost is the nominal interest

[8] The three-way split, on the other hand, corresponds much more closely to Keynes's ideas on income distribution as put forward in the *Tract on Monetary Reform* (Keynes 1923, 5-32) and in the *General Theory of Employment Interest and Money* (Keynes, 1936, 372-77).

[9] Typically the numbers provided in the national accounts data are not "stock-flow consistent" (Godley and Lavoie 2007, Lavoie 2014, Wray 2012).

rate prevailing at the start of the production period, or i_{-1}. Therefore, equation (16) allows for the basic reality that production takes time. It is this unalterable circumstance, after all, which accounts for both the interest charge and for the fact that entrepreneurs must necessarily form expectations of future sales receipts before undertaking production. Although the formulation in (16) only explicitly shows a relation between output and labour input, it by no means ignores the other so-called factors of production. Essentially, the contributions of the various machines, technical knowledge, raw materials and so forth, are all rolled up in the catch-all term A. What emerges is therefore perhaps best described as a "virtual labour theory of production" as in Smithin (2012, 225). It is intended as a rival or antidote to the familiar "AK" model of late twentieth century neoclassical growth economics (Jones, 1998, 145-50) wherein the A stands, not for the intelligible concept of labour productivity, but for the completely *un*intelligible notion of the productivity of capital (somehow defined). As previously discussed (Smithin 2018, 12-3), the type of specification used in this paper accepts without reservation Keynes's (1936, 41) view that it is best to restrict attention to "quantities of [real] money-value and quantities of employment" (my interpolation), rather than to attempt the quixotic task of trying to attach any concrete meaning to the ill-defined notion of the "capital stock", or K.[10]

The next step in deriving a synthetic theory of income distribution is to introduce two more definitions, namely:

$$s' = P/[W_{-1}N_{-1}(1+i_{-1})] \tag{17}$$

$$k' = P_{-1}U_{-1}/W_{-1}N_{-1}. \tag{18}$$

The first of these is similar to the so-called "rate of surplus value" in Marx, but with the addition

[10] As no real meaning can be given to an expression like $Y = AK$, in the text below we are later free to appropriate the term K to stand, not for capital, but for the aggregate business mark-up (and also to retain the symbol A to stand for labour productivity).

of an interest charge on what Marx would have called "variable capital" (Sweezy 1942, 63-71). The second definition similarly relates to another well-known Marxian notion, that of the "organic composition of capital" or, alternatively, to the more familiar capital-labour ratio from neoclassical economics. There are some dangers, of course, in using these expressions from Marxian economics, for the obvious reason that they are likely to attract the ire of commentators from *both* the left and the right of the political spectrum, each for their own reasons. Nonetheless, it is difficult to avoid using these sorts of expressions entirely, as most other economic traditions simply lack the relevant terminology. In any event, given the definitions in (17) and (18), (15) can be re-written as;

$$PY = (1 + s' + k')(1 + i_{-1})W_{-1}N_{-1}. \tag{19}$$

Finally, let the symbol K now stand, not for capital but for the gross entrepreneurial mark-up, such that $K = k' + s'$. Thus the mark-up includes an allowance both for depreciation on physical capital and for the rate of surplus value. It is "gross" in that sense, but it is "net" of the nominal interest charge. Thus equation (19) becomes;

$$PY = (1 + K)(1 + i_{-1})W_{-1}N_{-1}. \tag{20}$$

The total money value of the output is therefore expressed, quite concisely, as a multiple of the original investment in the nominal wage bill. The multiplying factor covers the three main elements in the accounting scheme, namely the interest charge, depreciation on fixed capital and net profit.

We can now take natural logarithms of each variable where k (not the same as k') = $ln(1+K)$, and also employ the widely-used approximation (*e.g.*,) that $ln(1+i) = i$ (approx.). Therefore, from (20) this will yield;

$$lnP = k + i_{-1} + lnW_{-1} - lnA \tag{21}$$

Next subtract lnP_{-1}, the natural logarithm of the lagged price level, from both sides of the equation and re-arrange. The result is;

(22) $$k = lnA - [i_{-1} - (lnP - lnP_{-1})] - (lnW_{-1} - lnP_{-1})$$

where the term in square brackets, namely $[i_{-1} - (lnP - lnP_{-1})]$, is the lagged nominal interest *minus* the expected inflation rate at time t_{-1}, equivalent to the lagged real interest rate, r_{-1}. Also, let lower-case w stand for the natural logarithm of the average real wage rate, such that $w_{-1} = lnW_{-1} - lnP_{-1}$, and lower-case a for the natural logarithm of labour productivity where $a = lnA$. Then the basic theory of profit can be written much more simply as;

(23) $$k = a - r_{-1} - w_{-1}.$$

This is simply an "adding-up" theory expressed in terms of logarithms or percentages. It states that the natural logarithm of the gross aggregate mark-up factor is equal to the natural logarithm of labour productivity *minus* the lagged real interest rate and the natural logarithm of the lagged average real wage rate. In equilibrium, the theory of income distribution is thus;

(24) $$k = a - r - w \qquad (\text{or, } a = k + r + w).$$

In short, when expressed in terms of logarithms and percentages, the natural logarithm of labour productivity resolves into three components - not just two - that is, profit, the real rate of interest, and real wages.

Numerical Illustrations of the Concepts of Exploitation and Usury

The next obvious question that arises is how we might put some "actual numbers", from a "real economy", into this expression? To see how this might be done, suppose that in the national income and product accounts of a given economy for a certain year real GDP (hopefully correctly measured as a flow of funds) is one trillion constant dollars. Also, that the number of

persons counted as being employed is 10 million. Further, that the labour share in the distribution of income is 55%. Thus we have;

(25) Y = real GDP = 1 trillion constant dollars

(26) N = employment = 10 million persons.

Average labour productivity will be;

(27) A = average labour productivity = Y/N = 10,000.

And the average real wage rate *per* employed person is;

(28) W/P = average real wage = 5,500.

A next step would be to work out a reasonable measure for the average real rate of interest in the economy as a whole. This, however, is not necessarily such an easy task as it might sound. Fortunately, Collis (2016, 2018) has recently provided a detailed discussion of the various alternative methods by which such calculations may be attempted with real world data, and a careful evaluation of the merits of the different approaches in empirical practice. Therefore, for present purposes, and to cut a long story short we can here suppose for the sake of argument, that the necessary calculations work out to the (relatively high) level of $r = 0.15$. Therefore, also taking natural logarithms of (27) and (28), we will now have;

(29) $a = lnA = 9.2$

(30) $w = ln(W/P) = 8.6$

(31) $r = 0.15$.

Given these levels of real wages and real interest rates, the natural logarithm of the average entrepreneurial mark-up factor $(1+K)$ is $ln(1+K) = k = 0.45$. That is;

(32) $k = a - r - w = 9.2 - 0.15 - 8.6 = 0.45$.

As already shown in equation (24) above, an alternative way of writing equation (32) would be to put the term *a* on the left-hand side (LHS) of the expression and move the other terms over to the RHS. The resulting expression then explains how the natural logarithm of labour productivity is split between entrepreneurial profit, interest and wages. That is;

(33) $$a = k + r + w$$

which expression may then be normalized by dividing through by *a* itself. This gives;

(34) $$1 = k/a + r/a + w/a.$$

The resulting ratios are the various income shares relative to the natural logarithm of average labour productivity. They therefore represent one measure, among others, of how much output there actually is in existence at any point in time which is then available to be distributed. I have not been able to discover any established mathematical terminology for these concepts and ratios. Therefore, in Smithin (2018, 206) I coined the term "logarithmic shares", or (*ln*)shares, to stand for the three ratios. The most important point about them is that together they must always sum to unity. Given the assumed numbers from equation (32) the result is;

(35) $$1 = 0.05 + 0.02 + 0.93.$$

firm (*ln*)share rentier (*ln*)share wage (*ln*)share

Perhaps (at least at first sight) this new concept of (*ln*)shares may not seem to shed much light on the practical "struggle for income distribution" as it will be experienced by the participants themselves. For example, the (*ln*)share of labour in equation (35) is 0.93, whereas we know that the actual labour share in GDP is 55%. Due to the mathematical properties of logarithms, small changes in the (*ln*)shares always translate into large changes in the actual percentage shares. Nonetheless, as we will see, this way of putting things does turn out to be extremely useful in defining what is actually meant by the various normative concepts that typically arise in the

discussion of the functional distribution.

Consider, for example, consider the familiar Marxian notion of "exploitation". In the present context we can see that Marxian exploitation will occur whenever;

(36) $k + r > 0.$

On the other hand if $k + r = 0$ there is no exploitation, and;

(37) $a = w.$

This is therefore a case where the whole value of the output accrues to those who were (supposed by Marx to be) the actual producers.

Similarly, given some initial assumptions about fairness, we are also able to define the concept of "usury" which was a staple of the historical literature on money and banking. The word use is an archaic synonym for interest, and the notion of usury would come into play whenever the rate of interest charged on loans on money was deemed to be excessive in some sense. Historically, for example, usury laws were often passed, limiting the amount of interest that may be charged for any financial transaction. Evidently, in order for this concept to be operational there has to be some method of determining what is, and what is not, excessive. In terms of our current notation, the case can be made that there will be usury whenever the real interest, $r,$ is greater than zero. That is, if;

(38) $r > 0.$

If so, there would be no usury when;

(39) $r = 0.$

And we would therefore have;

(40) $a = k + w.$

Now the total income available is divided solely between the entrepreneurs and the workers. In

this case, contrary to Marxism, the economic function of entrepreneurship continues to be recognized, as well as that of labour. However, the recipients of interest income, the so-called rentiers, are allowed only to preserve the real value of previously accumulated financial capital.[11] They will not be able to participate in, or to take any share of, the returns to current production.

Is the Optimal Real Rate of Interest on Money Zero?

Given the above discussion, perhaps the answer to this question is yes? It is true that, starting with a succinct statement more than 25 years ago in *Controversies in Monetary Economics* (Smithin 1994), and then subsequently in many other places, I have usually argued central banks should pursue a monetary policy that sets a target for the real policy rate of interest at a "low but still positive" level (Smithin 1994, 188). Given the transmissions mechanism of monetary policy, under normal circumstances this will feed through to a still relatively low (albeit also positive) real market rate of interest on money. Therefore, the basis for the argument must be, in the first place, that lower real interest rates, even if not zero, do promote economic growth. Secondly, and as shown above, any real target for the real policy rate, even if it is greater than zero, would at least stabilize the inflation rate. These sorts of statements, however, were always meant only to be taken in the spirit of pragmatic policy advice. I have not usually given any precise quantitative target for the real policy rate of interest.

The ethical argument now introduced, however, is based on the idea that to the extent that the current wealth holdings of the rentiers have arisen from past receipts of either wages or profits (and only from those sources) they are legitimate. Therefore, subject to the caveat in

[11] This is turn, will raise further questions about the original source of their income and its legitimacy. If the original source of the income was indeed either wages or entrepreneurial profit only, the ethical argument would be watertight. However, to the extent that the past income was acquired by either usury or financial speculation, this would raise difficult issues of political economy for any transitional regime.

footnote 9, fairness would entail that their owners are entitled to preserve the real capital value of any past gains due solely to their own efforts. On the other hand, again from the point of view of fairness, there is no argument for them to share in the proceeds of current income generated by the work effort, entrepreneurial activity and risk-taking of others. To use the same sort of language just introduced above, usury should not be allowed. This requires an effective real rate of interest on money of $r = 0$. In the particular case considered here and as previously shown by Smithin (2018, 27), to achieve this result the target for the real policy rate would have to be;

(41) $$r'_0 = [(1 - m_1)/m_1)]p - (m_0/m_1).$$

If this can be achieved, and continuing to assume that $a = 9.2$ and $w = 8.6$ as before, the natural logarithm of the average mark-up factor across all business firms will be thus increased from the level of 0.45, previously calculated, to now stand at 0.60. That is;

(42) $$k = a - r - w = 9.2 - 0.0 - 8.6 = 0.6.$$

Given the new value of k we can once again re-arrange and normalize the distributive equation to obtain the following result for the (*ln*)shares;

(43) $$1 = 0.07 + 0.00 + 0.93.$$

firm (*ln*)share wage (*ln*)share

There is now no rentier share. It has fallen to zero. The other (*ln*)shares have either increased, in the case of the entrepreneurs, or remained the same in the case of labour.

It is interesting to note that there is a definite family resemblance between the above argument and the rules of so-called "Islamic Banking" as these have been described, for example, by Arnold (2014, 351-2). This notion of Islamic Banking is usually understood to be a code of conduct for bankers who wish to comply with certain religious requirements in their business dealings. In this sort of discourse, there is a basic or underlying presumption that the

charging of interest for loans of money is somehow unethical, as opposed to the receipt of income earned from entrepreneurial profits and wages. Therefore, certain rules are set down for business and financial dealings which, in one way or another, are able to avoid interest charges entirely. This is actually not so in the current argument, because it is not possible always to avoid a *nominal* interest charge. If the real interest rate is to be set to zero, the nominal interest rate must always be equal to the inflation rate and therefore the nominal interest rate must be positive whenever the inflation rate is positive. Clearly, the main difference from the overtly religious argument is whether it is a nominal, or a real, interest rate that is set to zero. The point is, however, that with a zero real rate of interest there is still no *real* income actually being received by the rentiers regardless of inflation rate. The final result therefore does seem to be well within the spirit, if not the letter of the law, of the various religious proscriptions.[12] It also seems important to stress once again that if there is only a zero real rate of interest the rentiers are not actually being euthanized as Keynes had predicted they would be, or perhaps thought that they should be. The rentiers are still able to preserve full the value of any financial capital acquired from previous work effort or entrepreneurial effort.

Is ZIRP the Optimal Nominal Policy Rate of Interest?

One of the consequences of setting the nominal policy rate itself at level of zero has already been discussed above. It was found that a nominal interest rate peg of any kind, not just zero, will lead

7 Perhaps needless to say, very similar ideas have also been present in many other religious traditions beside that of Islam. The latter is simply a convenient example because it is a religious tradition (or traditions) which has/have a very large number of adherents worldwide at the present time and is/are therefore much discussed in the contemporary news media - including the financial and business media. Another example, but with far less contemporary relevance, would be that of medieval Catholicism in the scholastic period. On this point see, for example, Hayes (2017).

to inflationary instability. For example, if the inflation rate is positive to start with, and there is no change in the nominal interest rate, the real rate of interest will continue to fall and the inflation rate will simply become higher and higher, and *vice versa*. Following the discussion above, however, in addition to the instability issue there seems to be another important problem. This is that a zero nominal interest rate will not be distributionally neutral, even as regards those sources of income regarded as legitimate.

Consider first the inflationary case, and suppose that at the current point in time the inflation rate is (say) 12% or $p = 0.12$. Treating the currently observed inflation rate as a "proxy for" expected inflation (Taylor 1993, 202, Smithin 2018, 63), the real interest rate is then given by the following expression;

(44) $$r = m_0 + m_1 r'_0 - (1 - m_1)p.$$

But, as $i_0 = 0$ by assumption, this further reduces to;

(45) $$r = m_0 - p.$$

Thus the effective real rate of interest on money is equal to the mark-up between lending rates and deposit rates in commercial banks (presumably reflecting the market power of the commercial banks) less the inflation rate. For example, with $p = 0.12$ and if (say) $m_0 = 0.02$ we will have;

(46) $$r = 0.02 - 0.12 = -0.10.$$

In this case, the real rate of interest is therefore actually negative at (-)10%. If $a = 9.2$ and $w = 8.6$, as before, the average entrepreneurial mark-up will thus be increased to $k = 0.7$;

(47) $$k = a - r - w = 9.2 + 0.10 - 0.86 = 0.70.$$

And the relative (*ln*)shares come out to;

(48) $$1 = 0.076 - 0.011 + 0.93.$$

firm (*ln*)share rentier (*ln*)share wage (*ln*)share

The workers are holding their own but the rentier share is negative. What is actually going on is that "resources are being transferred" (as a neoclassical or mainstream economist would put it) *from* the holders of financial capital *to* business firms. The firms are, in effect, profiteers from inflation just as was described by Keynes in the relevant passage in the *Tract on Monetary Reform* (Keynes 1923, 18-27). And, what is worse (from the point of view of the rentiers) recall that the system is unstable. This is a situation which will continue to worsen as time goes by. The inflationary case therefore really does lead to the "euthanasia of the rentier" as described by Keynes (1936, 376). *Pace* Keynes, however, this does not represent an ethically defensible position, at least from the point of view on fairness set out above.

Next consider the deflationary case, and suppose alternatively that the price level is currently falling at a rate of 10% per annum. (The rate of deflation is $p = -0.10$). In this situation, even though the nominal interest rate remains at zero the real rate of interest on money will now be positive at $r = 0.14$. The average entrepreneurial mark-up will therefore fall to $k = 0.46$;

(49) $$k = 9.2 - 0.14 - 8.6 = 0.46.$$

In this case, the (*ln*)shares will be;

(50) $$1 = 0.05 + 0.02 + 0.93.$$

firm (*ln*)share rentier (*ln*)share wage (*ln*)share

Now resources are now being transferred *to* the holders of financial capital *from* business firms, in a clear example of a process that in Smithin (1996, xi), I called "the "revenge of the rentiers". Again the system is unstable and the situation is only going to worsen over time, this time from the point of view of Main Street. The boot is on the other foot. Now it is business that will

eventually be euthanized, and with it the entire economy. In this particular example, if the rate of deflation does eventually proceed to an order of magnitude of around 70%, the average business mark-up will begin to turn negative. Then, firms in the aggregate will literally be making losses. With a 68% rate of deflation, for example;

(51) $$k = 9.2 - 0.68 - 8.6 = -0.08.$$

I would say that this is the very essence of the process of deflation and depression.

Taking the inflationary and deflationary cases together, the conclusion must be that a ZIRP is not the optimal setting of the monetary policy instrument, either from the point of view of stability or of income distribution. Far from it.

The "Near Optimality" of ZRPR

Conversely, we have suggested that the ZPRP is at least a near-optimal monetary policy. Perhaps the use of the word "near" is a little over optimistic, but it is difficult to come up with a better alternative. What *can* be shown is that this policy will achieve the closest possible approximation to the optimum that is achievable in practice. In order to see this argument, suppose that a central bank actually does decide to set a real target for the policy rate, but not a target of zero. For example, imagine that a central bank indeed follows my previous pragmatic advice about a low but still positive real rate rule, and sets a target for the real policy rate at something like 2 percent. That is;

(52) $$r_0 = 0.02.$$

In this case, the actual real rate of interest on money in the market would be given by;

(53) $$r = m_0 + m_1 0.02 - (1-m_1)p.$$

Hopefully this would also turn out to be a low real rate of interest, but we cannot be quite sure.

The overall levels of interest rates in the market-place evidently also depend on each of the parameters m_0 and m_1, and also on the inflation rate p (and thereby on liquidity preference *etc*., as explained in Smithin 2018, 96-100). Although such a rule can certainly be defended on pragmatic grounds as better than nothing (as I have done many times in the past) it cannot be optimal in any of the senses in which economists typically use the term. As we have seen, optimality *per se* would require a market real rate of interest of zero.

How would the situation differ from the above if the central bank went still further and, instead of just aiming for a low rate, actually implemented the ZRPR? That is, set the real policy rate of interest at zero, $r_0 = 0$. In this case, the general level of the real market rate of interest, r, would turn out be;

(54) $$r = m_0 - (1-m_1)p.$$

Again, the market rate of interest would not itself be zero except by accident. It may well turn out to be positive, or even negative on occasion, always depending on the values of m_0, m_1 and p. Hopefully, it would still be "low", but the important point to notice in comparing equations (53) and (54) is that in (54) the positive term $m_1 0.02$ (or in general $m_1 x$) is missing. Therefore, for a positive starting value of r, and in any given set of circumstances, the real rate of interest on money will always be closer to the distributionally neutral value of zero than it ever could be in (53). This is the basis for the suggestion that a ZRPR is the closest approximation to the optimum solution, that is attainable in practice. Also, as it is a real target, the ZRPR performs just as well on the grounds of inflation stability as any other real rate rule.

Conclusion

It can certainly be argued that Basil Moore's (1988) *Horizontalists and Verticalists* was

instrumental in establishing the principle of the endogeneity of the money supply for a wide audience, notwithstanding that there were important precursors such as Kaldor (1982) and the French economist Jacques Le Bourva in the 1960s (Lavoie 1992a, 1992b). This conclusion is not disturbed at all, in my opinion, by the subsequent debate within the Post Keynesian camp between the "horizontalists" and "structuralists" (Dow and Dow 1989, Rochon 1999, Fontana 2003, 2004, Rochon and Rossi 2017, Smithin 2017, 2018, Wray 1990). In these debates the principle of endogeneity itself was not at stake. Rather, the discussion was all about issues in the transmissions mechanism of monetary policy. In particular, as is implicit in equations (1), (2) and (3) above, an important question was whether factors such as liquidity preference could operate to drive a wedge between the policy rate and the market rate of interest on money at any given time, even in the presence of endogenous money. Naturally, Moore's horizontalism also inevitably carried the implication that the actual instrument of monetary policy must be a nominal interest rate of one sort or another, most likely the nominal policy rate of interest. By 2014, even the Bank of England seemed finally to accept these two principles, as described in an article by staff members in a *Quarterly Bulletin* of that year (McLeay, Radia and Thomas, 2014).

A further final important implication of Moore's (*e.g.,* Moore 1988b), and other's work, was that the level of the real policy rate of interest and also, obviously, the volatility of interest rates in general, are as important in their effect on income distribution as they are for their effects on other economic variables, such as the real GDP growth rate and the inflation rate. Since the publication of Moore's book these issues have been addressed, over quite a long period of time, by such authors as Lavoie and Seccareccia (1988, 2016), Komlos (2019), Palley (1997, 1998), Rochon and Seccareccia (2018), Rochon and Setterfield (2008), Seccareccia (2019) and Smithin (1996, 2009, 2013, 2018).

We have seen this "struggle over income distribution" play out dramatically in real time over the past 30 years and more. There has been much commentary, for example, about the large changes in the concentration of income observed beginning in the 1980s and 1990s more-or-less at the same time that Basil Moore was writing. This was the "revenge of the rentiers" mentioned above, so-called by Smithin (1996). Income was redistributed to rentiers both by high real interest rates *per se*, and also *via* the frequent changes in real rates both up and down during this period, giving many opportunities for financial speculation. After the mid-1990s interest rates began to fall but the distribution of income, and particularly the position of labour, did not improve. This was essentially because increases in real wages would have required rapid economic growth, a relationship noted by Adam Smith (1776) long ago but revived only very recently in academic circles, over the turn of the 20th and 21st centuries, in the guise of the so-called "wage curve" or "wage function" (Atesoglu and Smithin 2006, Blanchlower and Oswald 1994, Collis 2016, 2018a, 2018b, Smithin, 1997, 2005, 2009, 2013). Unfortunately, a return to rapid economic growth after the revenge of rentiers was ruled out essentially for political reasons (and ironically with support from both ends of the political spectrum, albeit with different rationales).[13] In the present context, the role played by economic policies derived primarily from mainstream economic theory deserves particular attention (Komlos 2019, Rochon and Seccareccia 2018, Smithin 2018). Concepts such as the ubiquitous vertical long-run Phillips curve, and ideas about natural rates of growth, unemployment, the rates of interest and so forth, militated against any form of policy intervention which might have improved the situation.

[13] For example, concern over inflation on the "right" and radical environmentalism on the "left". The latter movement, in turn, harks back to Malthusian concerns about scarce resources from two hundred years ago, and thereby neatly intersects with some traditional themes in mainstream economics.

The present paper has argued that the optimal real rate of interest on money is actually zero. This would mean zero rentier income in real terms, although *not* the euthanasia of the rentier, and also eliminate financial speculation in the bond and other financial markets. Even if a zero real rate on money is not achievable in practice, a zero real policy rate (ZRPR) represents a goal that is at least the closest attainable approximation to the optimum. Further, with this sort of monetary policy in place, the way would be open for further expansionary policies, for example on the fiscal side[14], that would increase growth and reduce unemployment and thereby, as just asserted, *increase* the average real wage rate. Keynes's original policy recommendations from the *General Theory* to this effect specifically mentioned a policy of "loan expenditure", defined as "a convenient expression for the net borrowing of the public authorities on all accounts whether on capital account or to meet a budgetary deficit" (Keynes 1936,128-9). Logically, this might include either direct increases in the ratio of government spending to GNP, or cuts in the average tax rate. It would not, however, involve the typical "tax and spend" policies which have become all too familiar in the past 70 years or so, and have wrongly been identified with Keynesian economics ever since Samuelson's introduction of the mistaken notion of "balanced budget multiplier" in the first edition of his famous textbook in 1948 (Samuelson 1964, 245). In fact, the balanced budget multiplier is negative (Smithin 2018, 37).

As growth proceeds it is true that in several different sets of circumstances the mark-up earned by entrepreneurial business will likely be falling in the aggregate and on average. This is not quite the same thing as Marx's "falling rate of profit" (Smithin 2018, 119-20), but is a similar sort of idea. Many years ago, in the first flush of the Keynesian era, Michal Kalecki (1943, 144),

[14] The point was made above that in order for any of these policies, monetary or fiscal, to work there must a be a floating exchange rate regime. Or, at least, the nominal exchange rate should be "fixed-but-adjustable".

for one, was apparently quite concerned by the possible reaction of "business leaders" to continued economic prosperity. He argued that they would ultimately take steps *via* the political process to bring the expansion to an end, even to the extent of forming "a powerful block … between big business and the rentier interests". However, as against this, one of the advantages of thinking about income distribution in terms of a three-way split between interest wages and profit, as we have done above, rather than the usual two-way split, is to make to make clear the typically different motivations of the entrepreneurial and financial interests ("Main Street" *versus* "Wall Street", or Bay Street, or the City).[15] The real question to be asked, and answered, is whether or not the individual entrepreneurial entities should actually care about a falling mark-up in the aggregate? It will not fall to zero, and they are all still "making money" both individually and collectively. (Keynes 1936, 374) was clear that there are "valuable human activities which require the motive of money-making and private wealth ownership ..." but went on "… it is not necessary for the stimulation of these activities that the game should be played for such high stakes as at present". Keynes certainly seems to have had the typical disdain of the upper-middle class intellectual for the mere money-making activities on which the rest of society must depend, but he was surely right in principle.

With the rentier position settled the remaining class struggle between entrepreneurs and workers would then boil down to conflict over the intercept term in the wage function (Collis 2016, 2018a, 2018b, Smithin 2009, 2013, 2018). If the employers can collectively/politically take action to push this down (for example, *via* the sponsorship of restrictive labour legislation or some form of economy-wide lockout) it would be possible to increase the aggregate mark-up by

[15] The title of a work by Geoffrey Ingham which, like Moore's volume was published in the 1980s, was *Capitalism Divided*? (Ingham 1984). This title neatly encapsulates the underlying argument.

this route. But, this must come at the expense of everyone else. There will be a bad economy, political unrest, war even,[16] and ultimately the firms themselves will be by no means secure. *Provided there is sufficient effective demand* (which was one of the main points that Keynes was trying to make in the *General Theory*, and thus deserves emphasis), it would make more sense simply to innovate at the individual firm level, and to try to preserve the competitive position of the individual firms in that way. If this were to happen on an economy-wide scale there would then be increases in *both* wages and profits. Meanwhile the existing real financial position of the rentiers is maintained.

[16] Kalecki's 1943 article, cited above, was actually published during WW2.

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TBA

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