

## Macroeconomics and natural rates: some reflections on Pasinetti's fair rate of interest

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**Abstract:** Monetary policy based on the Wicksellian natural rate of interest is progressively losing its hold on macroeconomic theory and policy. We advocate a 'park it' approach to monetary policy, where the interest rate is not set as a counter-cyclical tool based on this natural rate. The paper presents what has been called the Pasinetti rule, based on his concept of the fair or just rate of interest – a distribution-neutral rate. Central banks should insure that the nominal rate of interest – the long-term government bond rate – is equal to the growth rate of labour compensation.

**Keywords:** Monetary policy, Income distribution, Pasinetti rule, Fair interest rate

**JEL Classification:** E11, E12, E25, E43, E58

### INTRODUCTION

In two articles that we published in the late 1980s (Lavoie and Seccareccia, 1988; Seccareccia and Lavoie, 1989), we had considered and worked with a concept that had been put forward by Luigi Pasinetti (1980-81; 1981, ch. 8), but that seemed to have been ignored by virtually everybody else in the profession. That concept was Pasinetti's definition of the '*natural rate of interest*', which we thought should best be labelled anew as '*the fair rate of interest*', or what we called in French '*le taux d'intérêt juste*'. Indeed, when Pasinetti (2002) asked himself whether it is legitimate to pay interest on loans, he argued that his natural rate *is* the '*just rate*' in the Aristotelian/Tomistic sense, founded on the principle of commutative justice. Pasinetti's natural or fair rate of interest attracted slightly more attention when the concept was again presented in a following book (Pasinetti, 1993), as two reviewers of the book did discuss it in some detail (Malinvaud, 1995; Hishiyama, 1996). In a nutshell, the fair rate of interest 'is the rate of

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interest that maintains unaltered through time all purchasing power relations in terms of labour' (Pasinetti, 1993, p. 92), that is, in other words, it is the rate that 'has the property of ensuring that there is no distortion from the "labor principle of income distribution"' (Pasinetti, 1980-81, p. 180). The fair rate of interest pertains to the rate of interest that will leave unchanged the distribution of income between interest and non-interest income regardless of lending and borrowing activities.

Clearly, the concept of the fair rate of interest has nothing to do with the neoclassical conception of an equilibrium rate, as exemplified by the Wicksellian natural rate of interest, which is often invoked by central bankers. This equilibrium rate of interest, within the neoclassical framework and the loanable funds approach, is understood as the real interest rate that equates desired saving and intended investment at full employment, dependent on thrift (abstinence) and productivity. In its empirical incarnation, it is usually identified as the real rate of interest such that the economy is at the non-accelerating inflation rate of unemployment (the NAIRU), and in other versions this equilibrium rate is interpreted as the rate of interest consistent with the steady-inflation rate of unemployment (the SIRU) or the steady-inflation rate of capacity utilisation (the SIRCUCU). As will be discussed below, the Wicksellian natural rate of interest is at the heart of the reaction function of central banks based on the Taylor rule. If one does not believe in the relevance of this equilibrium rate of interest within the context of a monetary production economy, then it becomes clear, as argued earlier by Lavoie (1996, p. 537), 'that monetary policy should not be designed so much to control the level of economic activity, but rather to find the level of interest rates that will be proper for the economy from a distribution point of view'. As Hishiyama (1996, p. 133) puts it, the fair rate is 'a type of norm'.

In the rest of this article, we shall tackle the following issues. First, we wish to discuss briefly the changing nature of policy discourse within the mainstream and why the attractiveness of the neoclassical concepts of the natural or neutral rates of interest, which had become so popular within the mainstream, is beginning to wane because of internal contradictions arising from the conduct of monetary policy since the global financial crisis (GFC). Second, this will be followed by a discussion of the insights originally offered by Luigi Pasinetti in the early 1980s with his concept of the natural/just rate of interest. The broad Pasinetti approach can serve as an alternative framework to guide monetary policy when the principal concern of the latter is macroeconomic stabilisation through the Keynesian income-distribution channel rather than through 'the cost of capital' channel that is

essentially analysed within a loanable funds theory of the natural rate. Third, we shall try to evaluate alternative interest rate-operating rules for the conduct of monetary policy vis-à-vis the Pasinetti rule. Finally, we shall conclude on the importance of the Pasinetti rule, while still recognizing the relevance of alternative heterodox interest-rate rules in achieving socially desirable income distribution objectives.

### **MACROECONOMIC POLICY AND THE NATURAL RATE OF INTEREST**

Macroeconomic discourse has changed a great deal over the last four decades and the macroeconomic role of interest rates as policy tool has also evolved to a great extent. Unlike the earlier post-war Keynesian era, with the rise of monetarism in the 1970s, fiscal policy was downgraded because it was believed that it would merely crowd-out private sector expenditures in the market for loanable funds, while monetary policy was now perceived as an all-powerful instrument of macroeconomic stabilisation. With Keynesian discretionary fiscal policy having been largely set aside and reduced to one of achieving balanced budgets, at least over the business cycle, combating inflation was consigned exclusively to central banking, as this policy position now became virtually an article of faith within mainstream thinking. Indeed, it may be said that fighting inflation became almost the *raison d'être* of central banks. Within the mainstream thinking of the time, monetary policy came to rest on the belief that the role of central banks was solely one of controlling inflation regardless of what happened to the actual unemployment rate, because ultimately policymakers could not have any long-term impact on the real economy. Except for random shocks accompanied by short-run real effects resulting from expectations errors of economic agents, the economy gravitated around a natural long-run rate of output and unemployment. The long-term natural values of these 'real' variables of output and unemployment were presumed to be unaffected by fluctuations in short-term aggregate spending and rested, supposedly, on some Walrasian structurally embedded behaviour of these economic agents in the labour and product markets.

As is well known, to control inflation, at the time central banks relied on some mid-twentieth-century Friedmanite version of the old quantity theory framework that advocated some targeted growth of monetary aggregates, with nominal interest rates being determined endogenously by demand/supply conditions in the money market, and, in the long run, passively mirroring inflationary expectations à la Irving Fisher. By the early 1980s, it

had become clear that monetarist policy failed and resulted in the famous Volcker-era debacle, as central banks soon discovered that they could neither control broad monetary aggregates (such as M1 or M2) nor even base money. The movement of these variables were endogenous to the demand for credit and, thus, all that central banks can do effectively is to control short-term interest rates by indirectly impacting on credit demand (see Lavoie and Seccareccia, 2006; 2013; and Seccareccia and Lavoie, 2004).

Consequently, by the 1990s, macroeconomic policy had changed significantly by essentially shedding the old Friedmanite quantity theory framework, while, at the same time, by strengthening further central bank commitment to combating inflation via official inflation targeting (IT). Within this newly-emerging hybrid Wicksellian framework, the natural rate of unemployment (the NAIRU or the SIRU) remained in the analytical environment but became somewhat of a fifth wheel within the new policy framework, with the crucial role now being conferred to an equally dubious concept: the so-called natural rate of interest. In contrast, the money supply was no longer conceived as a control variable but, rather, was considered endogenous to credit demand. As the new anchor for the conduct of monetary policy, the natural rate of interest came to play a central position as these emerging IT regimes proliferated internationally until the GFC.

Within these new IT regimes, the art of central banking was reduced to monitoring the inflation rate and adjusting the central bank-administered rate in the same direction as the inflation deviation from its target rate until the gap would be eliminated. In particular, in a steady state world where the actual inflation rate coincides with the target inflation rate (usually, a 2 percent target), the central bank-controlled interest rate should remain steady since the 'market' rate coincides supposedly with the 'natural' rate. On the other hand, if the inflation rate begins to rise above the target rate, the central bank rate should increase and, when the inflation rate went below target, the central bank authorities ought to reduce the central-bank administered rate (usually the overnight rate). As exemplified by the Taylor rule reaction function, central banks react both directly to the inflation gap and also, pre-emptively, by reacting to the observed evolution of the output gap. When the two gaps are zero, the actual real rate would be at its natural level, which in the Taylor equation would be measured by the constant term of a Taylor rule empirically-estimated reaction function.

However, the important question remains unresolved: is there such a thing as a natural or neutral rate that ought presumably to be the anchor for policymakers in the conduct of monetary policy? As highlighted by

Seccareccia (1998) and, more recently, by Levrero (2019) this is an old issue taking one back almost a century when critics first responded to this questionable Wicksellian concept because of the circular or tautological nature of the theory built around it and because of its highly weak empirical foundation. As referred to in Seccareccia (1998, pp. 185-86), critics such as Williams (1931), Sraffa (1932), Keynes (1936), Myrdal (1939) and even Hayek (1941) questioned both the theoretical and empirical validity of such an elusive concept that seemed to be held up only by its own theoretical bootstraps. A good example is Williams (1931) who had pointed out long ago that:

‘I cannot help feeling that this distinction between market rate and natural rate does not advance us at all. It sounds like a solution of the difficulty, but amounts merely to another way of stating the difficulty. If the natural rate were visible, the case might be different, but only the market rate is known. The natural rate is an abstraction; like faith, it is seen by its works. One can only say that if the bank policy succeeds in stabilizing prices, the bank rate must have been brought into proper line with the natural rate, but if it does not it must not have been.’ (Williams, 1931, pp. 578-79)

Williams’ statement is in many ways prescient because the circular reasoning around this neoclassical concept continues to plague modern notions of the natural rate.

For Wicksell, the natural rate of interest had a value which, by its very nature, was unpredictable and volatile, and not a constant or stationary series as the natural rate of unemployment had sometimes been described, as in the textbook depiction of the vertical Phillips curve. Consequently, it cannot be a mere statistical average of the real rates over some given time horizon historically, as originally interpreted, say, by Taylor in 1993, since such mean value would itself be an outcome of past monetary policy. Because of this conceptual conundrum, researchers tried to estimate a time-varying natural rate based on the presumed determinants of this rate. This research has taken different forms (for an extensive review see, for example, Giammarioli and Valla (2004), Mendes (2014), Laubach and Williams (2015), and most recently Levrero (2019)).

The earliest work going back to Taylor himself is to assume that the natural or ‘neutral’ rate of interest is a univariate time series estimate based on, say, averaging over the business cycle. However, since such a rate cannot actually be a constant, a time-varying real rate based on a trend (by

using, say, the well-known Hodrick-Prescott filter) has sometimes been used as an approximation. The problem with this simple approach is that the value of the trend rate (whether of short or of long-term rates) is assumed to be independent of the real short-term rate being set by the monetary policy, which of course cannot be so, since the trend value itself is a product of current and past monetary policy.

An alternative approach has been to estimate the natural rate by adopting a multivariate explanatory analysis of real interest rates usually based on traditional loanable funds theory — that is based on such explanatory variables as saving/investment rates, stock returns, budget deficits, demographic growth, measures of capital market regulation and capital account liberalization, and so on — to estimate this elusive natural rate (see, for example, Desroches and Francis, 2007), or a set of IS curve demand-side shocks, or technology shocks and even demographics (Andres, Lopez-Salido, and Nelson, 2009; and Summers 2014). For still others, the natural rate is assumed to depend on the trend growth rate of potential output and time-varying unobserved components (Williams, 2015; Laubach and Williams, 2015).

However, surveys of the international estimates of the natural rate, even before the financial crisis, had a very wide dispersion depending on model specification, which make the results somewhat unbelievable and difficult for policy formulation. For instance, Crespo Cuaresma and Gnan (2007) were quite agnostic about the practical use of the natural rate of interest (NRI) estimates based on observations pulled out from an era of greater stability than the last decade since the GFC. They concluded that:

‘... [F]rom a practical point of view, the use of the NRI for monetary policy making meets with several major obstacles. ... [E]ven the mainstream economic literature, which this paper focuses on, puts forward various definitions of the NRI, potentially attached to different time horizons. Linked to this fact, there is a wide variety of model specifications and empirical estimation methods that may yield rather diverse results, while real-time estimates have even wider error margins.’ (Crespo Cuaresma and Gnan, 2007, p. 684)

In more recent years, there have been attempts at central bank coordination of these natural or neutral rate estimates with periodic updating both domestically and internationally to obtain consensus. For instance, following the work of Mendes (2014), in Canada there is now periodic updating of what is the benchmark neutral rate for assessing the degree of monetary stimulus, with the most recent update (at the time of writing) having been in April 2019 (see Carter, Chen and Dorich, 2019).

Despite obvious conceptual and empirical problems, central bankers have held steadfast in their commitment to the Wicksellian discourse about natural rates of interest, and, since the GFC, have argued that the incapacity of central banks to pursue effective monetary policy is because of the lower nominal bound in interest rates in a world in which negative natural rates have persisted. This nominal interest rate floor has been zero in the North American context but actually even slightly negative since 2014 in the Eurozone (as the European Central Bank began to charge interest on positive settlement balances in a desperate and somewhat futile attempt to stimulate bank lending). However, the obvious problem with this reasoning is the following: why would a negative natural rate persist for a decade? Would these natural rates not be mean-reverting to some 'normal' level as would suggest neoclassical theory? Why would real policy rates remain persistently negative despite an inflation rate that seems to be generally on target and an economy that has somewhat recovered since the 2008-2009 GFC? Moreover, examples of recent clashes over interest rate policy between the White House and the US Fed demonstrate how easily one can brush aside these benchmark rates in order to fit the preconceived views of the policymaker.

What is evident from our survey of macroeconomic policy, and especially monetary policy, is how this notion of a natural or neutral rate of interest permeates current policy framework and why it is being questioned. It rests on the belief that discretionary interest rate policy is possible, say, along the lines of the Taylor rule reaction function as long as there is a benchmark value around which a central bank can then set its own market-setting rate, which, through the traditional transmission mechanism, can have an impact on macroeconomic variables. Nowadays the ultimate target variable remains superficially the inflation rate under the policy sometimes referred to as 'flexible' IT, even though in practice many IT central banks behave *de facto* as if they have a multi-goal mandate since the GFC, with some, such as the New Zealand Reserve Bank, having reverted officially to a dual mandate (see Seccareccia and Khan, 2019).

We fundamentally reject the concept of the natural rate of interest in the sense interpreted by mainstream central bankers for reasons that had been understood almost a century ago, namely that it is essentially a circular theoretical construct that finds a questionable basis in the real world and is used purely as a *post factum* reconstruction to justify policy, as we saw after the financial crisis when it was assumed that there had been a sudden, almost mystical, collapse of the latter into negative range. Analogous to the

search for oracles in ancient times, it would seem that neoclassical economists and many policy makers have reverted to mysticism rather than science for policy guidance.

Moreover, as we have shown, even if we were to believe in these elusive concepts of a neutral or natural rate, they are conceived as equilibrium rates in the neoclassical sense of benchmark rates for market clearance that, supposedly, would not engender instabilities in the price level. The equality between the natural and market rates is thus presented as a technical solution that is neutral in the sense of achieving a desired rate of inflation, without considering other implications of monetary policy, such as its implications for income distribution. In this post-GFC world, popular concern about problems of unemployment, the environment, and income distribution highlight the need for a different interest rate policy. In particular, one can conceive of other benchmark rates that would be consistent with other possible objectives. We believe that it is time to abandon this highly problematic concept of the Wicksellian natural rate. As was mentioned previously, we would like to consider an alternative Pasinetti benchmark rate, namely one that respects the principle of distributional neutrality between what may be described as rentier vis-à-vis non-rentier income.

Most mainstream economists and traditional central bankers focus on interest rates as a *cost* whose impact will be on interest-sensitive components of aggregate spending in the economy, for whom the interest elasticity of private spending is critical in the defence of discretionary monetary policy as the most powerful instrument of macroeconomic stabilisation. Few, if any, neoclassical economists, seriously consider interest rate policy as impacting both directly and indirectly the dynamics of macro shares of the distribution of income. In opposition to the mainstream, we believe that the interest cost channel of the transmission mechanism is less significant and effective than the income distribution channel in impacting on the macro-economy. Many of the problems that have plagued modern economies have resulted from the swings in income distribution that have been compounded by orthodox discretionary monetary policy over the last four decades. The use of interest rate policy as a blunt instrument to influence interest-sensitive spending, for instance, to quell a massive housing bubble, as was the case in the US just before the subprime crisis in 2007, could trigger significant collateral damage, which could have been better resolved through a solid regulatory structure and through selective fiscal policy measures. This is why we generally oppose discretionary monetary policy when one recognises



that its effects are primarily in destabilising income distribution. What we need are policy mechanisms that can seek to reduce inequalities and better preserve the stability of the distribution of income.

In contrast to the mainstream, we can conceive of alternative benchmark ‘neutral’ rates that can be studied and justified on income distributional grounds, by focusing on the important work of Luigi Pasinetti (1980-81, 1981, 1993, and 2002). His work is reviewed below not for the realism of his models within which his views on interest rates were originally conceived, but for its implications in establishing a monetary policy framework based on normative principles that would ensure income-distributional neutrality in the long term. It is the latter that has inspired us over the years to seek specific interest rate-operating norms for monetary policy. While he adopted the unfortunate terminology of ‘natural’ rate of interest, as is commonly in use among mainstream economists and contemporary central bankers, we have always preferred the term ‘fair’ interest rate to emphasize the normative nature of his analysis.

### **PASINETTI’S ORIGINAL ANALYTICAL FRAMEWORK**

In his celebrated 1981 book, Pasinetti dedicates an entire chapter, the title of which is ‘the natural rate of interest’, to the notion of a labour-neutral rate of interest. In most of this chapter, Pasinetti deals with what he calls ‘a pure labour economy’, an economy where ‘goods are supposed to be made by labour alone’, and hence where there are neither machines nor investment (Pasinetti, 1981, p. 156). The same economy is assumed in his original 1980-81 paper in the *Journal of Post Keynesian Economics*. Thus, labour alone contributes to economic activity. In this simplified economy, the ‘natural’ prices are equal to the unit wage costs. The purpose of his ‘natural’ rate of interest is to insure that ‘each creditor will receive at maturity an amount of purchasing power, in terms of labor, which is exactly equal to the amount originally lent’ (Pasinetti 1980-81, p. 178). In his pure labour economy, ‘income is to be distributed in proportion to labor contributed to the production process’ (ibid, p. 177). The consequence of adding a natural rate of interest to this pure labour economy is that, as Pasinetti (1980-81) himself concludes, ‘all national income, whether at any given point of time or through time, is distributed to people in proportion to the labor they have contributed to the production process’ (ibid, p. 178). Given its normative connotations, this is why we prefer to denote such a rate by the name of *the fair rate of interest*.

In the pure labour economy, it is obvious that the growth rate of

labour productivity is equal to the growth rate of the real wage. Thus Pasinetti indifferently says that the nominal rate of interest ought to be equal to the growth rate of the nominal wage rate or that it should be equal to the growth rate of labour productivity plus the rate of inflation of the price level. A numerical example may help to grasp the notion of the fair rate of interest. Take an economy with a 5 per cent inflation rate. Suppose that the average wage is initially €20 an hour. Suppose furthermore that a borrower contracts a €20,000 loan. This person has thus borrowed the equivalent of 1,000 hours of labour-time. Suppose now that the average real purchasing power, that is, overall productivity, has risen by 2 per cent. Nominal wages thus have risen by 7 per cent, reaching €21.40 per hour a year later. If the rate of interest charged to the borrower is also 7 per cent, that is, if it is equal to the growth rate of overall productivity plus the rate of price inflation, the borrower will have to reimburse an amount of €21,400 the next year. However, since the average nominal wage rate has now risen to €21.40 an hour, the amount given back by the borrower is still equivalent to 1,000 hours of labour-time. As long as the actual rate of interest is equal to the fair rate of interest, as defined above, the purchasing power that is being temporarily exchanged between the borrower and the lender remains constant in labour-time. 'National income is distributed, at any given point of time as well as through time, in proportion to labor contributed to the production process' (ibid, p. 180). The fair rate of interest thus maintains the purchasing power, in terms of command over labour hours, of funds that are borrowed or lent and preserves the intertemporal distribution of income between borrowers and lenders.<sup>1</sup> In the view of Pasinetti (1980-81, p. 179), an actual rate of interest that differs from the fair rate of interest 'inevitably distorts the distribution of income and keeps it from occurring in proportion to labor contributed to the production process'. Thus, for instance, a rate of interest that is higher than the fair rate of interest distorts income distribution in favour of lenders.

What about the more general case, where production occurs with labour and capital goods? In Pasinetti's (1981) world of vertically-integrated sectors, where the profit rate of each sector is exactly equal to the growth rate of demand in that sector, as is well-known by Sraffians, prices will be such that they are proportional to the unweighted sum of direct, indirect and hyper-indirect labour, so that we are back to a 'pure labour theory of value' (Pasinetti 1981, p. 132), not that much different, only more sophisticated, than the one arising from the 'pure labour economy' discussed earlier. This is what Pasinetti calls natural profit rates and natural prices. It justifies the

claim, made by Pasinetti (1981, p. 171), to the effect that ‘the more general case in which production requires not only labour but also capital goods may now be considered rather expeditiously’. There still exists a fair rate of interest that ‘preserves over time the original purchasing power of all loans in terms of labour ... quite independently of whether we consider an economic system that does or does not need capital goods’ (Pasinetti, 1981, p. 172).

But what if the profit rates in the various hyper-vertically integrated sectors are not equal to the growth rate of demand in each of these sectors? While in that case we cannot say anymore that all prices are proportional to physical quantities of labour, and hence that national income is distributed in proportion to the contribution of each worker, *we contend that the principle of a fair rate of interest is still a valuable and relevant contribution*. As Pasinetti (1981, p. 174) argues, ‘a natural rate of interest may indeed exist without any rate of profit’, and hence we maintain that we should aim for a fair rate of interest even though, at first sight, one would acknowledge that it is very unlikely that a capitalist economy will entertain natural rates of profits and natural prices. The fact that, in the sphere of production, prices are not proportional to labour values should not stop us from advocating that, in the financial sphere, the monetary authorities should do their best to insure that ‘each creditor will receive, at maturity, an amount of purchasing power, in terms of labour, which is exactly equal to the amount originally lent’ (Pasinetti, 1981, p. 169). If this is so, monetary policy has a neutral effect on income distribution between borrowers and lenders.

We mentioned earlier that, only at first sight could it be said that a capitalist economy does not have natural rates of profit. But even this is not sure when analysed in terms of tendencies. The standard argument, related to the classical view and made by Pasinetti (1981, p. 173) and several other heterodox authors, as well as orthodox ones, is that there is a tendency towards the equalisation of profit rates. However, we do not ourselves subscribe to this classical view of natural tendencies for purely Kaleckian reasons having to do with the pervasiveness of monopoly and oligopoly. In addition, there is a tradition in the post-Keynesian theory of the corporate firm which says that markups set by firms will depend on the secular growth rate of the firm (Wood, 1975; Eichner, 1976, 1983; White, 2019). Furthermore, the three-sector, stock-flow consistent, agent-based model of Sepecher *et al.* (2018, p. 1063) gives some credence to natural prices. Their model shows that: ‘Although firms set their prices according to

idiosyncratic and random innovations on the markup, short-run movements in the markups within the sectors are associated with the permanent trade-off between profit seeking and market-share chasing, in a context of ever-evolving market conditions. In the long run, relative prices appear to “gravitate” around their “natural prices”, that is, around the ratio of the quantities of labor directly, indirectly, and hyper-indirectly required for the goods production in each sector’. The markups in this agent-based model are the result of an evolutionary process, whereby firms that go bankrupt are taken over by the managing team of profitable firms and thus adopt the markups and leverage ratios that have proven to be successful in the past.

Regardless of whether actual relative prices come close or not to natural prices as defined by Pasinetti, our main point, which does not preclude or necessitate this assumption about the gravitational tendency of his so-called natural price system, is that the fair rate of interest is the relevant rate for the monetary authorities to consider, especially in a world where the power of monetary policy to influence economic activity has been questioned. We now turn to complications related to this fair rate of interest, if such a rate is to be implemented by central banks.

## IMPLEMENTING THE FAIR RATE OF INTEREST

### Real wage versus productivity growth

As we pointed out earlier in Lavoie and Seccareccia (1999), *as long as the share of profit remains constant*, one would expect the growth rate of labour productivity to equal the growth rate of real wages. In that specific case, with price inflation, the fair nominal rate of interest would be equal to the average rate of wage inflation, that is, the growth rate of overall productivity plus the rate of price inflation. But if the share of labour in national income does not remain constant, what ought to be the index that would define the fair rate of interest: should we rely on the growth of the real wage or on the growth of labour productivity?

The issue can be examined by starting from the national accounts in their most simplified formulation:

$$pY = wL + rpK$$

with  $p$  standing for prices,  $Y$  real GDP,  $w$  nominal wage rate,  $L$  labour,  $r$  the rate of profit, and  $K$  the number of machines. Dividing through by  $pY$ , we get:

$$1 = \left(\frac{w}{p}\right)\left(\frac{L}{Y}\right) + r\left(\frac{K}{Y}\right) = \left(\frac{w}{p}\right)\left(\frac{1}{\lambda}\right) + \pi = \left(\frac{w}{p}\right)\left(\frac{1}{\lambda}\right) + \frac{rv}{u}$$

where  $\lambda$  stands for labour productivity,  $\pi$  the share of profits in national income,  $v$  the capital-to-capacity ratio, and  $u$  the rate of capacity utilisation, by recalling that the rate of profit can be written as  $r = \pi u/v$ . Putting the above equation in terms of the real wage  $w/p$ , we get:

$$\frac{w}{p} = \omega = \lambda(1 - \pi) = \lambda\left(1 - \frac{rv}{u}\right)$$

Obviously, if there is an increase in the profit share, the real wage will not grow at the same rate as labour productivity. Taking the logarithm of the previous equation and differentiating it with respect to time, we get:

$$\hat{\omega} = \hat{\lambda} + \frac{d \log(1 - \pi)}{dt} = \hat{\lambda} - \hat{\pi}\pi/(1 - \pi)$$

where the carret signifies a growth rate, and remembering that:  $\hat{\pi} = \hat{r} + \hat{v} - \hat{u}$ .

Thus, in general, the growth rate of real wages  $\hat{\omega}$  will not equate the growth rate of labour productivity  $\hat{\lambda}$ . For instance, if there happens to be an increase in the capital-to-capacity ratio  $v$  without a decrease in the rate of profit or without an increase in the rate of utilisation, real wages will grow more slowly than labour productivity as measured by the ratio of production to the use of labour.<sup>2</sup> Similarly, if there is a downward trend in the rate of utilisation, accompanied by a non-decreasing profit rate, the secular share of profits will rise and real wage growth will not keep up with productivity growth. Both of these trends have possibly been observed during recent decades, at least until the GFC. When there is no change in the share of profits (with the profit rate and the capital-to-output ratio being constants), which is a condition of Harrod's neutral technical progress, then the growth rate of labour productivity will be exactly equal to the growth rate of real wages.

The growth rate  $\hat{\lambda}$  also happens to be the Cambridgean measure of technical progress, à la Harrod/Robinson/Pasinetti, that is, by taking into account the fact that capital goods are themselves being produced and not primary inputs (Rymes, 1971; Pasinetti, 1981, ch. 9). By contrast, neoclassical authors, with no change in the share and the rate of profit, will tell us that the rate of technical progress, as measured from the national accounts, computed as a residual and based on their distinction between a movement along the production function and an upward shift of the production function, is only equal to  $(1 - \pi)\hat{\omega}$ . This is what has been called total factor productivity or multifactor productivity. Thus, when all labour is considered as human capital, with the share of profits arising from human and physical capital reaching unity, technical progress arising from the neoclassical measure is necessarily null, thus showing the vacuity of this kind of measure.

Coming back to the case where the share of profit is not constant, we must thus recognize that the fair rate of interest cannot be based on a measure of the growth rate of labour productivity, but ought, perhaps, instead be based on an appropriate measure of the growth rate of real wages (or more precisely the growth rate of labour compensation), since these two growth rates are unequal due to changes in the share of profits, as in a world where  $v$  rises and the rate of profit,  $r$ , remains constant. Taking inflation into account, the nominal rate of interest ought to be simply equal to the growth rate of nominal wages. Thus the fair rate of interest can be expressed more straightforwardly in nominal terms.

The choice of the growth rate of real wages, rather than the growth rate of labour productivity, is in contrast to previous work of ours, where we compared the actual real rate of interest with the growth rate of labour productivity (Lavoie and Seccareccia, 1988; Seccareccia and Lavoie, 1989; 2016), as would apply in a world dominated by Harrod-neutral technical change. Any deviation from the Harrod-neutral case would require an adjustment away from tying the real rate of interest to labour productivity growth and more in favour of tying it to real wage growth. However, once we accept to focus on the remuneration of labour, then the question arises as to which measure we should be focusing on: the real wage, the hourly wage rate, the weekly wage rate, total labour compensation (including benefits), or should it be wage compensation net of taxes.<sup>3</sup> We can already remove the last possibility, as one would presume that, for example, in a world of balanced budgets, taxes would also correspond to various services that are useful to society, so that focusing on compensation net of taxes would presuppose that government expenditures are just wasteful or are going simply into payment of rentier income as it had been the case in the 1980s and 1990s when real interest rates had been historically very high.

If central bankers are to implement the concept of the fair rate of interest, another issue needs to be tackled. What rate of interest are we talking about? As Rochon and Setterfield (2008, p. 19) ask, the question is 'which interest rate is (or should be) the object of the postulated benchmark interest rate rule', a question also asked by Tymoigne (2009, p. 110). Pasinetti (1980-81, p. 172) had in mind a rate of interest on consumer loans to households, since he was considering interpersonal lending and borrowing relations. Since consumer loans are perhaps the most important part of bank lending in financialised economies nowadays, it might be more reasonable to consider mortgage loans as the most relevant personal liability. In this case, the rate of interest on mortgage loans would be the appropriate

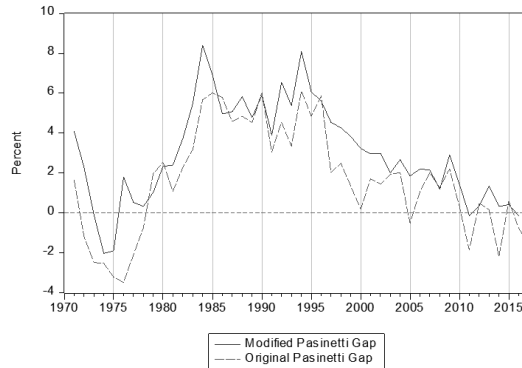
target of a fair rate of interest. But then, one still needs to decide whether we are talking about the one-year rate, the five-year rate, the ten-year rate, the 25-year rate, and so on. We would think that this depends on the institutions of each country: the most relevant rate would be the rate corresponding to the length of the fixed-rate contract which is most frequently used.

However, because mortgages carry some risk, one could argue that the rate of interest on government bonds would be the most relevant indicator. Government bonds, at least in industrialised countries outside of the Eurozone, are considered to be riskless; they would be the preferred asset of prudent rentiers. And then once again, one needs to decide what duration would be the most relevant for the target fair rate: one-year bills, five-year or ten-year bonds? Admittedly most of the rates tend to move in tandem, especially when observing them over longer historical periods, as has been quite obvious since the GFC. In addition, these co-movements would presumably be even more likely if the base rate was not changed to pursue counter-cyclical measures. In the past, we have traditionally used the return on government long-term bonds, ten years or more (Seccareccia and Lavoie, 2016; Seccareccia, 2019) because they reflect well what Keynes, for instance, would have characterised as the classic rentier asset and, for the sake of continuity, we shall consider that measure. Also because of their easy accessibility, we shall look at Canadian observations only for this exercise.

### **Some empirical measures**

Let us begin with the Pasinetti measure (the gap between inflation-adjusted (real) long-term interest rates and average labour productivity growth) and compare it with the adjusted Pasinetti Index, where real long-term interest rates are pitted against real wage growth using as measure the growth rate of all-industry real total labour compensation. This data, going back to 1970, is displayed in Figure 1 below.

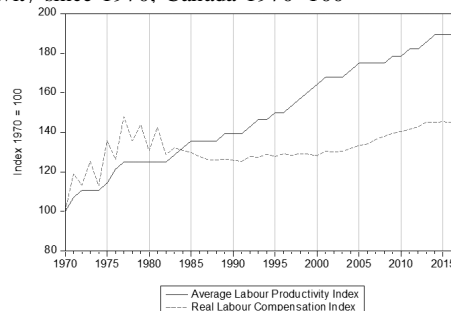
Figure 1: Evolution of Alternative Measures of the Pasinetti Index, Canada, 1970-2017



Source: Statistics Canada, Archived Content: <https://www150.statcan.gc.ca/t1/tb11/en/tv.action?pid=1410023701>; and OECD.Stat.

The two series depicted in Figure 1 above show remarkably similar patterns over the last five decades. The adjusted Pasinetti gap (the continuous line) appears systematically above the original Pasinetti gap (the broken line) since real wages have not normally kept up with average labour productivity growth. Thus, when using our alternative index of the fair real interest rate, we can say that monetary policy has been even more unfair than assessed earlier! Indeed, we can see this phenomenon more dramatically in levels when focusing on the evolution of real wages and average labour productivity indices since 1970. In Figure 2, we can see how real wages had taken the lead in the early 1970s, only to bifurcate irreversibly over the following four decades, with a gentle but sustained rise in real wages beginning during the first decade of the twenty-first century before the GFC. Interestingly, by 2016, the real wage level had not surpassed the previous peak in the late 1970s, while average labour productivity,  $\lambda$ , had almost doubled since 1970!

Figure 2: Evolution of Indexes of Average Real Labour Compensation and Average Labour Productivity since 1970, Canada 1970=100



Source: Statistics Canada, Archived Content: <https://www150.statcan.gc.ca/t1/tb11/en/tv.action?pid=1410023701>



What seems evident from this graph is that, beginning in the late 1970s, as central banks began to raise interest rates to combat inflation following the oil price shocks of the era, this led to a massive transfer of income away from labour and in favour of rentier income throughout the 1980s and early 1990s. However, after its peak transfer in the mid-1990s, the index witnesses a sharp drop which, with the exception of a small hump immediately before the GFC, has continued to fall.

These series do not, however, describe the dynamic interaction vis-à-vis a third important component of national income, profit earners. What seems evident from the previous charts is that rentier income seems to have brought down labour's share of national income until the 1990s only to see it slowly stagnate subsequently as real wages start to rise but insufficiently to catch up fully with productivity. Hence, since the 1990s, the share of profit would have hardly remained constant. Since, as we discussed in our theoretical analysis of  $\pi$ , its evolution would have affected our original statistical indicator of the Pasinetti index, let us see what may have happened to the rate of profit,  $r$  during that period. Unfortunately, we were only able to obtain a long continuous series of the rate of return on the value of capital in industry that begins in 1988 as shown in Figure 3.

Figure 3: Return on Capital, All Industries and Non-Financial Industries, Canada 1988-2017



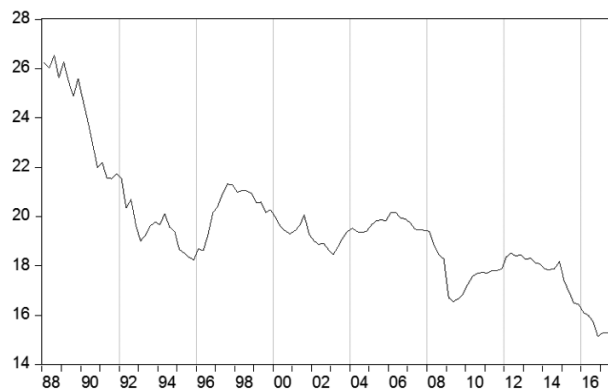
Source: Statistics Canada CANSIM Series V634653 and V623753.

There are two obvious observations: At first glance the series seems to be relatively stationary gravitating around 6 percent return with the exception of recession periods when the series drops significantly. However, if we focus on the narrower sub-period going from the early 1990s, that is, after the 1990-91 recession in Canada, until the GFC (that is the period when our Pasinetti index shows its sharpest drop), the rate of profit rose to reach a

peak in 2007, just to decline somewhat until 2015. Also the movement of the profit rate would probably have seen a similar co-movement with the capacity utilisation rate,  $u$ .

But what about the capital-to-capacity output ratio,  $v$ ? Even if such measures of  $v$  were available for industry, they would be quite equivocal for those few of us who nowadays are still familiar with the Cambridge capital controversies! However, one can make some indirect inference on the basis of evidence of the evolution of fixed capital expenditures out of GDP. Again, for that same latter period after 1988, what is evident from Figure 4 below is that the rate of net addition to the national capital stock displays a trend decline when measured by the investment/GDP ratio.

Figure 4. Business Gross Fixed Capital Formation as a Percent of GDP, Canada, 1988-2017



Source: Statistics Canada CANSIM Series V62305733 and V62305783.

Indeed, a careful look of the evidence shows that, after every recession since 1988, one witnesses a ratchet effect with the investment share following a downward stepwise pattern of never returning back fully to its previous peak. In order for the profit rate to have been sustained or increased, there would have been other factors to compensate for the trend loss of investment demand, namely growing exports because of increased trade liberalisation since the 1980s and the meteoric rise in debt-financed household spending, as the Canadian economy has become more financialised. In any case, this broad evidence would suggest that  $v$  would at best have remained constant if not have fallen during that period. Hence, given the offsetting effects of changes in  $r$ ,  $v$ , and  $u$ , the overall impact of those fluctuations was to keep our two Pasinetti measures relatively aligned, as seems to be confirmed by the two time series in Figure 1.

### **ALTERNATIVES TO THE FAIR RATE OF INTEREST**

We said earlier that Pasinetti's natural rate of interest did not attract much attention. However, over the last ten years, a few authors (besides ourselves) have acknowledged or advocated the concept of a fair rate of interest, for instance, Gnos and Rochon (2007), Setterfield (2009) and Sawyer (2009). Surfing on the obvious difficulties of central banks to control inflation and economic activity, the articles by Rochon and Setterfield (2007; 2008) have done much to popularise the notion of a monetary policy based on a 'park it' approach, where interest rates set by central banks are not the result of efforts to pursue discretionary counter-cyclical policies, as implied by the Wicksellian approach that presently is still fashionable. These two authors distinguish three possible targets for the 'park it' policy: the fair rate of interest, the Smithin rule, and the zero nominal rate, dubbed the Kansas City rule. More recently a few authors, such as Asensio and Hayes (2010), Argitis (2011) and Tatliyer (2017) have reconsidered these three options, underlining their advantages and disadvantages. Readers are encouraged to read these papers to figure out for themselves which of the three targets seems more appropriate. Here we present our own brief observations and understanding.

The Kansas City rule proposed by Forstater and Mosler (2005), and endorsed by Wray (2007) and Tymoigne (2009), is a consequence of the whole approach taken by advocates of Modern Monetary Theory (MMT). The central bank should explicitly announce that the target overnight rate, in nominal terms, is zero, or as Wray (2007, p. 138) put it, 'set the overnight rate at zero and keep it there'. Forstater and Mosler (2005) argue that when all government expenditures, or the government deficit, are financed through the central bank, and if the central bank does not set a corridor including a rate of interest paid on reserves, then the overnight rate (in nominal terms) will fall to zero as banks taken together will be accumulating excess reserves, as happened in another context immediately after the GFC with quantitative easing policies. In this sense, and under these conditions, they affirm that the zero nominal rate is the 'natural rate' of an economy with a sovereign currency. This says nothing about the other rates of interest (the prime lending rate for instance), which assets could carry a positive return, and even perhaps a positive real return if inflation is low enough. Most economists, including post-Keynesian ones, would consider that this proposal is unlikely to be sustainable, although the Federal Reserve for a long while, the Bank of Japan and the European Central Bank have had experience with zero nominal overnight rates of interest, with no

catastrophic consequences yet. But these experiments, and even negative rates of interest on reserves, seem to be part of an activist approach, based on counter-cyclical monetary policies rather than on the ‘park it’ approach. In a true ‘park it’ approach, the Kansas City rule would imply that the overnight interest rate remain at zero even when the economy is booming with possibly rising inflation rates, and one would suspect that damaging speculative bubbles on the stock market and in real estate would develop. This would not necessarily be so under the Pasinetti rule, since nominal interest rates would be eventually rising in a broad inflationary environment.

The second proposal associated with the ‘park it’ approach is that of John Smithin (1996, p. 86), who believes that ‘the objective for the central bank should be to stabilize after-tax real interest rates at low but still positive levels (say no more than 1 per cent or 2 per cent)’. So this is a real, rather than a nominal, interest rate-operating rule. Over time, however, Smithin has not completely stuck to his guns, sometimes oscillating even in the same article between a view that ‘the optimal value of the real rate of interest for rentiers is actually zero’ and one that ‘a more reasonable practical stance, in terms of actual politics, might simply be to suggest that the real interest target should be low but still positive’ (Smithin, 2007, p. 114). At the time it was not very clear what interest rate Smithin had in mind. In one of his more recent publications, however, this is clarified to mean the target overnight rate. Smithin (2014, p. 26) writes: ‘we arrive at the conclusion that the real policy rate, and therefore real interest rates in general, should preferably be stable at *low* levels’, reasserting again that, ‘to achieve this, the real policy rate should be low but still positive’. Smithin believes that this would be a small break from current monetary policy, as the nominal policy rate would have to move up with the inflation rate, so as to keep the real rate constant. Aspromourgos (2011), another well know heterodox economist, takes a position, which is very close to that of Smithin. His argument is based on Keynes’s support for a permanent ‘cheap money’ policy, which Aspromourgos interprets as a zero riskless real interest rate. Just like Smithin, he acknowledges that this real rate could be slightly positive, but lower than the range advocated by Smithin, as he mentions a 0.25 to 0.50 per cent range (Aspromourgos, 2011, p. 642).

Smithin (2007, p. 114) contends that his suggested rule ‘is obviously different from the alternative concept of the “fair” interest rate’. We wish to argue that this ‘obvious’ claim is certainly debatable. Smithin (2007, p. 115) points out, and rightly so it seems, that the main difference is that the fair rate of interest ‘would allow possessors of existing financial capital a

share in the rewards from *current* increases in productivity. On the other hand, a zero, or a low constant, real interest rate simply preserves (or, if positive, slightly enhances), the original purchasing power of accumulated financial capital'. This, however, is not quite how Pasinetti sees things in his pure labour or natural economy, since what Pasinetti has in mind is workers lending part of their income to other workers; he does not have capitalists lending past accumulated savings. Smithin (2007, p. 115) even contends that his zero or 2 per cent real interest rate is 'arguably the more fair'.

Similarly, Aspromourgos (2011, p. 652) argues that in an actual capitalist economy his zero real rate of interest is more ethical than Pasinetti's natural rate, which is necessarily positive and potentially large when productivity growth is high, contending that Pasinetti's norm in such a system 'conforms to no plausible principle of equity'. He also alleges that Pasinetti (1981, pp. 173-175) himself 'rejects the applicability of his natural interest norm to capitalist economic systems'. This, however, is not our reading of Pasinetti (1981). Our interpretation is that in those pages Pasinetti is trying to explain why mainstream economists tend to confuse the interest rate and the profit rate: the reason, so he says, is that in the current institutional setup, there is a tendency 'towards the equalisation (when account is taken of risk) of the real rate of interest and the over-all rate of profit' (Pasinetti, 1981, p. 175). While this equalisation proposition has been endorsed by some Sraffian authors (Pivetti, 1985, p. 87), with the similar claim that the normal rate of profit is equal to the long-term rate of interest plus an independent and stable normal reward for enterprise, it is highly debatable in itself. But the main point that we wish to make here is that Pasinetti (2002, p. 327) has been quite explicit in affirming that his definition of the *just* rate of interest 'is applicable to all economic systems ... regardless of whether their type of economic organizations is based on market, socialistic, or any other mixed institutional systems'. This is also the claim that we have been making throughout our article.

As pointed out by Rochon and Setterfield (2008, p. 20), at least as long as the Smithin rule is understood as a zero real rate of interest, 'technically, the difference between the Smithin and the Pasinetti rules amounts to no more than the choice of the numeraire (the general price level versus the nominal wage) used to measure the "real purchasing power" of rentiers'. The choice of that numeraire amounts to a choice between two concepts of what constitutes fairness. The problem with the Smithin rule, interpreted as a low but still positive real rate of interest, is that there is nothing to tell

us how close or how far from zero should the real rate be. By contrast the fair rate rule delivers a precise indication – the real rate of interest should be equal to the growth rate of the real wage – and it provides a clear reason for it: ‘an amount of money equivalent to one hour of labor time, if lent at that normal rate of interest, will still be worth one hour of labor time when recovered with the interest payments’ (Lavoie, 1996, p. 537). Furthermore, since the fair rate can be assessed as the nominal rate of interest being equal to the growth rate of nominal wages, there is no need to discuss whether expected or actual inflation rates are any different, as would be the case with the Smithin rule. The fair rate can be assessed in nominal terms.

From a pragmatic point of view, however, both rules are likely to give very similar numbers. Smithin has argued that the real rate of interest could be in the 1 per cent to 2 per cent range. It is very likely that the increase in the average real wage, in normal times, will also be in that range, thus implying that this would also be the range of the fair real rate of interest. We have really very little disagreement in substance, especially since we all reject the current system that gave rise to what Smithin once dubbed the ‘revenge of the rentiers’ that began to take hold of central bank policy beginning in the mid-to-late 1970s and until the GFC. The concept of the fair rate of interest provides more flexibility: it would apply just as well to a developing economy with very high rates of technical progress and to economies, historically, with near zero productivity growth, as was the case before the First Industrial Revolution. Similarly, it applies just as well to economies with low or high wage or price inflation.<sup>4</sup>

Finally, it may be worth noting one of the objections raised by Malinvaud (1995) against Pasinetti’s definition of a fair or just rate of interest. His first objection (Malinvaud, 1995, p. 67) may well be quite relevant here since it is similar to the one made by Aspromourgos (2011). In the real world, accumulated wealth and financial assets do not necessarily arise from saving out of labour income, but may also result from inheritance or chance, including capital gain (not to mention from theft or large scale fraud as was revealed during and after the GFC!). If, perhaps *à la* Marx, financial wealth is not acquired primarily from human effort, resulting in the accumulation of one’s own past labour in the Lockean sense, which was seemingly Pasinetti’s principal consideration, then the protection of an individual wealth-holder’s labour commanded value over time may certainly be put to question. However, while the Pasinetti rule surely cannot be expected to address the matter of past financial misdemeanours and criminal actions or actions that

can be addressed through tax policy, it should be recognised that today rich wealth-holders do not rely so much on interest-bearing assets to sustain or increase their large portfolio. Rather much of this financial wealth is in the form of group pension wealth that goes towards supporting broad classes of retired workers who are, indeed, benefiting from their past labour. So this objection looks more like a red herring.

### **CONCLUDING REMARKS**

After over a decade since the GFC, when many of what had been established norms and principles in the area of macroeconomic policy have been challenged, especially in this new era of secular stagnation, it is time for a new outlook that focuses on the growing concerns of the modern world, namely matters pertaining to economic justice and income distribution. This is especially so in the area of monetary policy where there is a complete lack of interface between the theories that supposedly guide policy and the actual practise of contemporary monetary policy. As recently stated (Seccareccia and Lavoie 2019), we want to appeal to all those economists who remain dissatisfied with current orthodoxy to abandon these outmoded theories about the natural or neutral rates of interest widely held among central bankers, which lack a true basis in modern economies and often disguise their own normative biases and the interests that they may serve. The Pasinetti rule – that the long-term nominal rate of interest ought to equal the growth rate of nominal wages – merely asserts openly a normative principle of income distributional neutrality: an economic agent borrowing the monetary equivalent of one hour of labour time should not be required to pay back more than the equivalent of one hour of labour time one year later. The Pasinetti rule offers a ‘park it’ solution (or automatic pilot) to guide interest rate policy so that public policy authorities can focus on what is the most important tool available to achieve full employment and macroeconomic stabilisation through more activist fiscal policy commitment. There may well be other viable monetary policy rules, such as the Smithin rule, and perhaps others that have been proposed in recent years by heterodox economists; but, as we have argued above, the Pasinetti rule has certain features that, in our humble opinion, make it very appealing on normative grounds.

### **ACKNOWLEDGMENT**

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## NOTES

- 1 As Pasinetti (2002, p. 325) puts it, ‘there is no difference between labour ‘embodied’ and labour ‘commanded’ in a pure labour economy’ as, for instance, Adam Smith had already long ago recognized in his *Wealth of Nations*.
- 2 A larger capital-to-capacity ratio ought, in general, be associated with a higher profit share and not with a lower profit rate, at least as long as one believes in the Cambridge equation,  $r = g/s_p$ , since the profit rate is constrained by the growth rate of the economy (for a given propensity to save out of profits). Thus even if all profits were saved, a higher capital-to-capacity ratio would require higher profit margins (or a higher rate of capacity utilisation) since  $r = \pi u/v$ .
- 3 There is also the question of the heterogeneity of labour, as evoked by Malinvaud (1995, p. 68). The growth rate of the compensation received by highly-skilled or supervisory workers has risen much more quickly than that of unskilled or non-supervisory labour. How can this be accounted for? Since we are merely considering an average wage rate, we are abstracting from distributional changes among workers themselves whose incomes have seen significant bifurcation resulting especially from globalisation.
- 4 In the case of wage deflation, the fair nominal rate of interest would have to be negative; we now know from recent experience that this is not impossible, as long as these negative rates are not too far from zero.

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