Income Distribution, Rentiers and their Role in a Capitalist Economy: A Keynes-Pasinetti Perspective[*]

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This paper finds its origins in two important developments within mainstream economics since the financial crisis, both of which analyze the economy from the viewpoint of what Schumpeter (1954) referred to as the domain of "real" analysis of a modern market economy in contrast to "monetary" analysis. Much of the mainstream has gone from the optimism of the "great moderation" associated with a low inflation environment and a slow and sustained, yet fluctuating, growth in productivity, as during the late 1990s and early 2000s, to one of pessimism associated with fears of secular stagnation in the post-2008 environment. The basis of this pessimism is the belief that the so-called Wicksellian "natural" or "equilibrium real" rate of interest has supposedly fallen so low, or perhaps has even fallen into chronically negative territory that private sector growth, reflected in the business sector desire to accumulate capital relative to the desire to save, has waned. For instance, Lawrence Summers points to the possibility that: "… changes in the structure of the economy have led to a significant shift in the natural balance between savings and investment, causing a decline in the equilibrium or normal real rate of interest that is associated with full employment." (Summers 2014, p. 69). Developing somewhat in parallel or concurrently with Summer's secular stagnation hypothesis tied to a negative natural interest rate, there has appeared the celebrated work of Thomas Piketty (2014) who, through the espousal of the neoclassical "scarcity principle" (2014, p. 6), offers also a "real" analysis of the evolution of profit and wage shares, as well as wealth distribution over long historical periods. Unlike the above story about the real rate of interest, Piketty's theoretical and empirical analyses focus on the rate of profit and suggest that the relation between the rate of profit and the rate of growth has undergone a long-term structural transformation in favour of profit earners whose share of overall income has risen over the last several decades with negative consequences on the real economy. Piketty's analytical approach to interpret this empirical evidence is based on a light blend of neoclassical marginal productivity theory together with the adoption of what may be described as a classical methodology by postulating so-called fundamental "laws of capitalism" in which institutions, especially the institutions of money and finance, play a non-essential role. Hence, instead of a falling rate profit, as in classical and Marxian writings (because of the long-term evolution of "real" variables pertaining to productivity of the land or the evolution of labour-saving technology), we now have a law of the rising share of profit, in this case because of real factors pertaining to a rising capital/output ratio.

The purpose of this paper is to consider these developments, and to introduce a different narrative that offers some new insights on the nature of the present stagnation by highlighting the

importance of the monetary side in its impact on income distribution. Indeed, although these two above-mentioned developments are of great interest, their analyses succumb to a number of criticisms, especially when taking seriously into consideration the monetary and financial side. In the process, we wish to offer an approach from the perspective of John Maynard Keynes, linked to his analysis of the role of the rentier sector in its interaction with the real economy and because, in the *General Theory*, he had expressed a "long view" on the desirability of the eventual "euthanasia of the rentier". To analyze the income distributional dimension empirically over long historical periods, we have adopted a measure derived from Luigi Pasinetti (1980-81; 1981) that is both similar yet different from the one employed by Piketty to describe the cyclical and long-term dynamic interaction between the rentier and non-rentier sectors of a modern monetary economy.

Neo-Wicksellian Real Rates of Interest and their Impact on Macroeconomic Performance

No one would have predicted a century ago that Knut Wicksell's obscure concept of the so-called "natural" rate of interest would have been so fashionable among policy makers nowadays. With the growing popularity of inflation targeting since the early 1990s, central banks needed an interest-rate anchor around which to pursue their anti-inflation policy (Clinton 2006). This, along with the rise of the New Consensus model during which time the natural rate of interest featured prominently (as in variants of the Taylor rule central bank reaction functions), central banks have become obsessed with trying to estimate such a reference rate of interest. Despite the complications associated with empirically estimating this elusive concept, the theory is a simple one. It is true that the very existence of such a will-o'-the-wisp natural rate had been put into question long ago, indeed going as far back as Sraffa (1932) and Keynes (1936) (also see Rogers (1989) for a review of the issues). However, assuming for the sake of presentation that we can meaningfully define or postulate the existence of such a Wicksellian equilibrium real rate, ρ^*, then policy makers would have a simple and efficient reference base at their disposal for the conduct of monetary policy to achieve an economy's full capacity rate of output, y^*, in a non-inflationary environment. For instance, considering a simple Taylor rule central bank reaction function:

$$i_t = \rho^* + \pi_t + \alpha(\pi_t - \pi^*) + \beta(y_t - y^*) \tag{1}$$

with, *i* being the nominal central bank interest rate, π and π^* being actual inflation and the inflation target, and $(y_t - y^*)$ being the output gap. It follows that, at any period *t*, the central bank desired real rate, ρ_t, is set by choosing a money rate, i_t, in relation to the expected inflation, such that:

$$\rho_t = i_t - \pi_t^e \tag{2}$$

with π^e being the expected rate inflation as forecasted by the central bank. It then logically ensues, that ρ derived from the central bank's reaction function will converge to ρ^* as long as $\pi_t = \pi_t^e = \pi^*$, and $y_t = y^*$. Indeed, even at the U.S. Fed, the members of the Federal Open Market Committee (FOMC), since December 2012, have now been estimating this long-run real rate. For instance, in December 2012, they predicted an inflation rate of 2 percent and a long-run nominal Fed Funds rate of 4 percent, thereby giving a real interest rate anchor for the Fed rate of 2 percent. Interestingly by December 2014 this real rate was downgraded to 1.75 percent and there is a belief that this estimate will be further lowered

(Hamilton, Harris, Hatzius, and West 2015, p. 2, 45). In this case, the object of monetary policy is to choose a real rate, ρ, that will coincide with the underlying natural rate. Hence, any fluctuation in this underlying natural rate, ρ^*, would require that the central bank adjust its real rate, ρ, in the same direction as the change in the natural rate in order maintain the economy on a stable non-inflationary growth path.

This analysis is, in its essentials, nothing more than a slightly hybrid form of Wicksell's original analysis (Seccareccia 1998, 2008). Indeed, until the financial crisis, this analysis had been quite fashionable as more and more central banks had subscribed to inflation targeting, with the inflation target being achieved through modifications of a short-term interest rate operational target. It was thought that it would be fairly easy for central banks to achieve their inflation and real rate targets by appropriate changes in the official nominal interest rate target. However, this discourse changed during and after the subprime financial crisis. First, it was realized that the short-term downturn was much larger than anything that the mainstream economic models (e.g., calibrated Dynamic Stochastic General Equilibrium (DSGE) models) could predict or handle. Second, it was also realized, after a while, that the short-term downturn generated a slowdown in medium-run or long-run GDP and employment growth that was much greater than anticipated – a case of hysteresis (Summers 2014a). As a consequence, a number of economists, such as Lawrence Summers (2014a) or Paul Krugman (2012), have come to believe that the natural real rate of interest has now fallen into the dreaded negative territory. Because the nominal interest rate, i, cannot fall any lower than zero (the zero lower bound, or what Krugman calls the liquidity trap), then, for a given rate of inflation π, even when fully forecasted and on target (i.e., $\pi_t = \pi_t^e = \pi^*$), it would be impossible to achieve potential output through more expansionary monetary policy. Indeed, because central banks appear to have been so successful in keeping inflation rates at low levels over the last 20 years or so, their task in bringing down real interest rates is even more daunting. Thus, as consequence of this downward rigidity of nominal interest rates and because of the achievement of low inflation targets, the monetary authorities cannot effectively track the (real) natural rate of interest when it apparently goes deep into negative terrain. More precisely, while the monetary authorities may succeed in bringing the real *short-term* rate of interest (such as overnight rates (the federal funds rate in the US) or the one- or three-month Treasury bill rates) in the negative territory, it is very likely that real long-term rates of interest or real lending rates may never be negative enough to achieve potential output. This story is no different from the one that was offered by Don Patinkin (1948, p. 546) almost seventy years ago, when he hypothesized that the saving and investment schedules could intersect in the negative interest rate territory, thus making it impossible to achieve full employment.

Much like Wicksell (1898), the level of the natural rate can change because of factors that can affect the market for loanable funds. For instance, Summers (2014a) points to a number of factors affecting both the demand for and the supply of funds: (1) there has been a decline in the debt-financed investment because of previous excessive leveraging (even if the evidence clearly suggests that this excessive leveraging was of the household sector and not of business enterprises prior to the financial crisis); (2) there is declining rate of population growth, as well as a fall in the rate of technological progress (even if the latter would perhaps have mostly to do with the low growth and low investment

rate for Kaldor/Verdoorn reasons); (3) there are changes in the distribution of income in favor of high income earners and because of higher corporate retained earnings, which have increased the economy's overall propensity to save (even if the personal saving rate seems to have risen only since the financial crisis because of households trying to deleverage); and, among other things, (4) the price of capital equipment has declined, thereby entailing less demand for funds for investment purpose (but, even here, these loanable funds writers assume that investment demand is interest elastic but, paradoxically, *not* price elastic, thus *not* leading firms to buy *more* quantities of these investment goods which would offset the fall in the price). All of these debatable factors have, therefore, operated to bring down the natural or equilibrium rate of interest in the market for loanable funds. At the same time, since allegedly there is little room to maneuver on the fiscal side because of the continued burden of a high overhanging public debt, the economy is destined to remain stuck in a state of long-term stagnation.

All of this neo-Wicksellian analysis rests on the view that interest rates are the price (or the cost) of capital in its liquid form and, therefore, with either a lower investment or an increased saving, the price of these funds ought to fall. However if there exists a zero lower bound, nominal interest rates cannot fall enough and the adjustment mechanism towards potential output has to rely on an increase in inflation, so as to lower real interest rates. To some extent, this is one of the objectives of policies of quantitative easing (QE) – the expansion of central bank balance sheets through the injection of central bank money in the financial system. The hope is that this will generate some inflationary process or that economic agents will respond to QE by raising their expectations of inflation, through their belief that an increase in bank reserves should generate an increase in the money supply and that the latter in turn should generate an increase in price inflation. So far this mechanism does not seem to have been observed. By contrast, other still more traditional economists claim that our stranded economies need price deflation, not more inflation. Their argument rests on whether or not prices and wages are sufficiently flexible downwards to trigger significant positive wealth or real balance effects prices, as first put forth by A.C. Pigou in the 1940s when he objected to Keynes's notion of underemployment equilibrium. But whatever is the case, the reason offered for the impossible return to full employment and potential output is the same: it is caused by the lack of flexibility of prices, be it interest rates or wage rates.

As a corollary to this, the secular stagnation story rests also on the belief that investment and saving are sufficiently interest elastic, with the former not being driven by Keynesian "animal spirits". Without that interest elasticity, the loanable funds story would end there. Moreover, at no time do these economists ever seriously follow through the implications that the rate of interest is not only a *cost* to borrowers, but obviously it is also a return (or an *income*) accruing to rentier wealth-holders. In a world dominated by Keynesian fundamental uncertainty, where investment spending may not be significantly interest elastic, it would ensue that a significant redistribution away from wealthy rentiers, whose propensity to consume may be low, may actually be beneficial to aggregate demand, since it would essentially be reducing the debt burden of low income households, part of whose income would otherwise be going to transfer income to high income rentier households. We shall have more to say about this redistribution effect below.

Piketty's Analysis of Income Distribution: Is there a Missing Discussion on the Role of the Rentiers

While not directly connected to the concerns raised by Summers and others on the consequences of real interest rate movements, there has been an important development in recent years with the work of Piketty who has been studying long historical series and has sought to offer an explanation of the increased share of capital, both physical and financial, out of total income in major industrial economies since the early 1980s (Piketty 2014, especially chapter 6). Much has already been written on Piketty's views. Most have applauded him, and justifiably so, for his important contribution to an understanding of the evolution of relative factor shares, as well as his historical series on the personal or size distribution of income, which coincidentally may have even brought additional fuel to such important post-financial crisis political developments surrounding, for instance, the "99% vs. 1%" Occupy Wall Street movement. Despite the political timing and some praise from a good number of more mainstream "liberal" economists (see Krugman 2014, and Summers 2014b), he has earned a lot less support from heterodox economists, such as, among others, Galbraith (2014), Patnaik (2014) Taylor (2014), and Moseley (2015).

Piketty's analysis of the share of capital rests on the view that, in a market economy, there are powerful destabilizing forces preventing the distribution of income and wealth from moving in a socially desirable direction. This arises from the fact that the rate of return on capital, r, tends to be higher than the rate of growth of income and output, g. He writes:

> "The inequality $r>g$ implies that wealth accumulated in the past grows more rapidly than output and wages. This inequality expresses a fundamental logical contradiction. The entrepreneur inevitably tends to become a rentier, more and more dominant over those who own nothing but their labor. Once constituted, capital reproduces itself faster than output increases. The past devours the future." (Piketty 2014, p. 571)

The key formula used to analyze this process, which he describes as the "First Fundamental Law of Capitalism", is nothing but a well-known simple identity defining the share of profit out of national income. Using his symbols, we get that the share of profit, α, is defined as:

$$\alpha = r\,\beta \qquad\qquad\qquad\qquad\qquad\qquad (3)$$

where α is the ratio of the flow of profit (or net revenues) to total income, r is the ratio of the flow of profit to the value of capital, and β is the capital/output ratio. Since the rate of return to capital, r, was greater than g historically, it ensues from this, according to Piketty, that there is a tendency for the capital/output ratio to rise, presumably because of the increasing saving and capital accumulation associated with this historical pattern of $r>g$. Since Piketty believes in some variant of the marginal productivity theory of distribution, then, as β rises, this ought also to have a dampening effect on the rate of return to capital, because of the assumption of diminishing returns. But would the fall in the rate of profit not offset the rise in the capital/output ratio sufficiently to prevent the share of profit from rising? To obtain that the rate of profit falls less than the rise in the capital/output ratio, thereby triggering a rising share of profit, Piketty must assume that the elasticity of substitution between capital and labor is greater than unity. Hence, as the rate of profit tends to fall in relation to the real wage, it will lead to a more than proportional change in the use of capital relative to labor, thus offsetting the

negative effect that a higher capital/output ratio has on the rate of profit because of diminishing returns.

As Moseley (2015) has shown, this whole analysis is riddled with numerous logical problems of two-way causality and circularity because of his adherence to a very conventional and dubious neoclassical theory of distribution. Perhaps, even more importantly, if one looks at estimates of the rate of profit internationally, it would depend on the period. From a postwar perspective, while the period between 1950 and 1970 suggests a downward rate of profit and a rising share of labour, the actual historical period since the 1970s during which the share of profit rises is, in fact, associated with a *rising* rate of profit with some wild fluctuations during the last decade (see Roberts 2011, 2012). Also, empirical estimates of the elasticity of substitution are significantly *less* than one, as one would expect in industrial economies dominated by linear or engineer-specified fixed proportion production relations (Rognlie 2014, p. 7). Hence one would think that Piketty would hardly need all of this theoretical paraphernalia to explain why the share of profit is rising. However, because of his underlying analysis with the use of such static concepts of elasticity of substitution and marginal products, and despite his discussion of the "caprices of technology", Piketty has surprisingly little to say about technological change driving productivity growth. He merely points to the standard Solow-type assumption that the long-run rate of growth of output must be equal to the sum of the rate of growth of the labour force and the rate of growth of productivity, with both being exogenous variables.

Moreover, much like the Solow-type models, the driving force behind the capital/income ratio, β, is the aggregate rate of saving relative to output growth as reflected in his so-called "Second Fundamental Law of Capitalism". He assumes, therefore, that, as the share of profit rises, the aggregate saving rate also rises because, presumably, the propensity to save out of profit is higher than the propensity to save out of wages (Patnaik 2014). As the profit share rises, this leads to a higher overall saving rate as business enterprises, and, behind them, the owners of capital save a higher share of their income, which in turn raises the capital/output ratio. While the neoclassical logic of his analysis of the rate of profit is highly problematic, the implicit recognition of these differential propensities to consume/save is important, as we shall see, in the context of our analysis of the effects of the evolution of income distribution between rentier and non-rentier sectors of the economy. Indeed, making use of the Cambridge model of income distribution as developed by Pasinetti (1962), Bernardo et al. (2014) show that Piketty's condition *r>g* suffers from a fallacy of composition and that, even if this inequality is verified, it may well be that the profit share will be declining.[†]

However, Piketty gets into even more serious theoretical and empirical conundrums and even revives inadvertently the Cambridge capital controversies because of his concept of capital. Within the neoclassical theory of the aggregate production function, the concept of capital pertains to the physical goods used in combination with labour and land to generate overall output. Hence, the average rate of profit is determined by the marginal productivity of these respective physical capital goods. However, as Galbraith (2014) highlights, Piketty's measure of capital is a purely financial one and, in the denominator

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[†] Ironically the Pasinetti (1962) paper can be found on Piketty's website. See:
http://piketty.pse.ens.fr/files/Pasinetti1962.pdf

of the rate of profit, *r*, capital is not only an agglomeration of the physical goods but also the prices multiplied by the quantities of these heterogeneous physical goods. Hence his capital/income ratio can be affected by both quantities and prices of those capital goods, which can easily distort his ratio *β* in his first fundamental equation. For this reason, it becomes difficult to know in an economy in a state of financial asset inflation/deflation what is truly happening to what essentially ought to be a physical ratio *β*. However, more important for the purpose of our analysis is the fact that Piketty regroups under "capital" all sorts of things: land, housing and domestic and foreign capital. Indeed, he recognizes the changing composition of this when he writes: "The nature of capital has changed: it once was mainly land but it has become primarily housing plus industrial and financial assets." (Piketty 2014, p. 120) Without realizing this, Piketty seems to have stumbled upon a very hybrid and all-encompassing classical/Marxian concept of capital in which the value of land (which is not a produced good and gives rise to rent) is added together with the value of produced goods, like capital equipment, and also financial assets (which are claims on physical assets), to give rise to some flow of net revenue or monetary flow of surplus value (net of wages) that one can define broadly as "profit". This is hardly the neoclassical production function where land and capital are analytically separated in order to determine their respective values of their marginal products.

Owing to the difficulty of determining analytically what is this hodgepodge of value called "capital" and because of the difficulty of understanding what is happening to the actual evolution of the rate of profit (*r*), the capital/output ratio (*β*), and thus the share of profit as a proportion of national income, *α*, we have set ourselves a less ambitious task, which is to remain much more closely associated with a strictly Keynesian division of income distribution by trying to understand the evolution of the relationship between the rentier and non-rentier sectors of the economy. Piketty does allude to rentiers and even refers to a "society of rentiers" slowly metamorphosing into a "society of managers" (Piketty 2014, pp. 276-78). However, he seems to treat these rentiers as a broad social group that is associated with the ownership of physical and financial assets that can potentially generate a monetary return, whether it is landed property, fixed capital structures and equipment, or strictly financial assets. This broad view of the rentiers, which would even include landlords of the Physiocratic/Ricardian tradition, may well pertain to the classic French usage of the term. In our analysis, we shall, however, deviate from Piketty's usage by adopting Keynes's narrower terminology, relating perhaps to classic British convention as the term evolved by the late nineteenth-century from the French *rentes* or annuities, namely the interest return to government long-term bond holders. Hence, we shall focus exclusively on a subset of what Piketty describes as rentiers, mainly those who own financial capital and whose incomes are derived primarily from the ownership of those low risk financial assets, in this case regardless of whether the latter are publicly or privately-issued securities.

Keynes's Income Class Analysis and His Views of the Rentiers

We have seen that, in recent years, the mainstream profession has been analyzing and trying to explain the evolution of "equilibrium" real interest rates that ostensibly have fallen into chronically negative ranges and, hence because $\rho^* < \rho$, its impact could be to engender long-term stagnation, as in the work of Summers (2014a). We have also seen Piketty's work that focuses critically on the relationship between the rate of profit and the rate of growth, with *r>g*. However, neither of this research considers

carefully the Keynesian implications of these changes in income distribution, when studied from the strict angle of the rentier versus non-rentier sectors.

As is relatively well known, as far back as his *Tract on Monetary Reform*, Keynes refers to the role played by the rentiers that subsequent writers, such as Aujac (1954), sought to model in terms of conflicting claims over national income and how this could impact on various economic phenomena, such as inflation. In the *Tract*, Keynes (1923) defined the rentiers as the "Investing Class" (as against the "Business Class" and the "Earning Class"), which by the time of the writing of the *General Theory*, he refers to as the "functionless investor", because, much as the Ricardian landlords of two centuries ago, "interest today rewards no genuine sacrifice, any more than does the rent of land." (Keynes 1936, p. 376). Rentiers were thus seen by Keynes as a separate income class whose interests were fundamentally opposed to those whom he considered as the productive classes of capitalist entrepreneurs and workers.

The usual presentation of post-Keynesian analysis of the 1950s, as, for example, in the Kaldorian growth models inspired by the *Treatise* "widow's cruse" theory of distribution, identified how changes in aggregate expenditure flows impacted on the functional distribution between wages and profits; but Keynes himself was less interested in the distributional issues between wages and profit of the type that interested Marx in the nineteenth century and even Piketty nowadays. His emphasis on a different aspect of income distribution was to such an extent that, in his early drafts of the *General Theory*, Keynes had originally planned a whole chapter not on the wage/profit relation but, instead, on the critical "Influence of Changes in the Distribution of Income between the Rentiers and Earners." (Keynes 1979, p. 63)

(1) *Keynes's Monetary Theory of the Rate of Interest*

Keynes's framework stood solidly in the domain of "monetary" analysis, with the "real" analysis of the type pursued by neoclassical theorists being at odds with his conception of what he described as a monetary production economy. Interest rates played some role from the angle of the cost of finance (as he pointed out in his chapter 11 of the *General Theory*); but he downplayed that role as early as in Chapter 12 of the *General Theory*. For Keynes, interest rates played a much more crucial role via the income channel or what we may describe as the income distribution transmission mechanism. Being an important component of national income, interest rates impacted accordingly on aggregate effective demand through the income channel certainly much more so than through the interest cost channel.

Despite his rejection of the loanable funds approach, Keynes was not completely at odds with Wicksellian analysis (old or new), since he did insist that short-term interest rates were under the direct control of the monetary authorities. On the other hand, in opposition to Wicksell and the modern neo-Wicksellians, long-term rates were more "recalcitrant", but yet were still indirectly influenced by the actions of the monetary authorities since ultimately current long-term interest rates depend on the "present expectations of *future* monetary policy." (Emphasis in original) (Keynes 1936, p. 203) He further wrote that, through central bank intervention: "The monetary authority often tends in practice to concentrate upon short-term debts and to leave the price of long-term debts to be influenced by

belated and imperfect reactions from the price of short-term debts …" (Keynes 1936, p. 206, also see, for a discussion, in Seccareccia and Lavoie 2004, pp. 165-66) In that sense, monetary policy determined short-term rates and, in turn, representative opinion or rentier expectations of the future behaviour of the central bank would impact, albeit imperfectly, on the long-term rate of interest, thereby making interest rates a "highly conventional" phenomenon instead of a "real" phenomenon determined by productivity and thrift, as in the loanable funds theory. Consequently, monetary policy decisions and conventions were at the very heart of interest rate determination. Indeed, it was because of this slow and imperfect reaction to central bank-induced movement in short-term rates that long-term rates tended to be more rigid; and it was on the basis of this that he constructed a whole theory of liquidity preference.

(2) *Keynes's Opposition to High Interest Rates and the Rentier Class*

One of the most striking passages at the end of the *General Theory* is Keynes statement on the euthanasia of the rentier and his desire for the slow disappearance of rentier capitalism (Keynes 1936, p. 376). Keynes felt that setting interest rates low enough in relation to inflation, consistent with high aggregate effective demand, thereby ensuring a slow redistribution of income away from the rentiers, would be an essential condition for sustained long-term growth, especially if supplemented with a strong long-term public investment policy. Hence, even though he felt that lower interest rates *per se* would not be able to kick-start an economy stuck in a recessionary environment without fiscal stimulus, a pro-rentier policy of high interest rates would abort a recovery and long-term growth; and this was so for a number of reasons.

The first and most important reason for his opposition had to do with the view that investment could potentially be affected negatively by interest rates. Keynes used that argument to point out what came to be described as the paradox of thrift that "a rise in the rate of interest (…) will diminish investment; hence a rise in the rate of interest must have the effect of reducing incomes to a level at which saving is decreased in the same measure as investment. … saving and spending will *both* decrease." (Emphasis in original) (Keynes 1936, pp. 110-11) Depending on the interest elasticity of investment, a higher cost of long-term finance would impact negatively on capital formation and, through the multiplier effect, it would affect adversely also output and employment. Secondly, Keynes does recognize that the propensity to consume, and thus the multiplier effect, would be stronger in communities where the individual's income and wealth are low as compared to where they are high (Keynes 1936, p. 126). Already in the *General Theory*, Keynes seeks to answer exactly this question of redistribution of income in favour of rentiers, when he writes:

"What will be the effect of this redistribution on the propensity to consume for the community as a whole? *The transfer from wage-earners to other factors is likely to diminish the propensity to consume.* The effect of the transfer from entrepreneurs to rentiers is more open to doubt. But *if rentiers represent on the whole the richer section of the community* and those whose standard of life is least flexible, *then the effect of this also will be unfavourable.*" (Emphasis added) (Keynes 1936, p. 262)

High income groups (rentiers and entrepreneurs) would have a higher propensity to save than low income groups (wage earners), and, as is well known, this became the basis for post-Keynesian theories of consumption behaviour as put forth by Nicholas Kaldor, Joan Robinson and Luigi Pasinetti. The implication of higher interest rates would be quite obvious not only because of the possible negative effect on investment but also because of the negative compounding effect on consumption spending, as the higher interest rates redistribute income in favour of the rentier class whose propensity to consume is low. Thirdly, as we have argued elsewhere (1988, pp. 148-49), Keynes was opposed to a Wicksellian interest rate policy to combat inflation because he did not think that inflation was a monetary phenomenon but was the result of competing income claims on real output. A pro-rentier policy of raising interest rates in order to combat inflation would have a clear perverse effect. This is because ultimately such a policy would seek to suppress wages and profits, thus reducing the claims of the active earning classes, while at the same time raising the income of the rentiers and protect rentier creditors at the expense of non-rentier debtors, as he had so well described already in his *Tract on Monetary Reform*. Hence a central bank policy whose effect would be to raise the share of rentiers out of national income would have the effect of destabilizing economic activity both in the short term and, if it persists, over the longer term.

(3) ***Using the Pasinetti Index to Describe the Evolution of the Rentier Share***

To explore better these Keynesian preoccupations with the rentier share of income, we became interested in an alternative measure ever since the 1980s when Luigi Pasinetti had developed an analytical approach to try to explain the rentier distribution of income that neither relied on such questionable Wicksellian concepts as the natural rate of interest nor on such controversial measures of capital and profit rates that plague Piketty's analysis. In at least two important writings, Pasinetti (1980-81, 1981) developed a theoretical construct that we have elsewhere dubbed the "fair" rate of interest because of its specific normative implications (see Lavoie and Seccareccia (1999)). In the late 1980s, we tried to construct a simple empirical approximation that would allow an analyst to measure in a convenient way over long historical periods the evolution of rentier income along the lines that had been of concern to Keynes ever since his *Tract on Monetary Reform* (1923). This was done in two articles published in the late 1980s (see Lavoie and Seccareccia 1988; and Seccareccia and Lavoie 1989).

Let us first describe the concept and then work with an empirical approximation of our measure of rentier/non-rentier income. Following Pasinetti (1973, 1988; and also see Lavoie (1997)), let us suppose that we can reduce each industry in an economy into a series of vertically-integrated sub-systems in such a manner that average labour productivity in each industry can be easily defined:

$$a_{jt} = a_0 e^{\lambda_{it}} \quad \text{with } j = 1, 2, \ldots \text{ n industries} \tag{4}$$

where a_j is the average labour productivity in sector j growing at the exponential rate λ_j. Instead of adopting a Sraffian pricing system as found in Pasinetti's works, let us take a simpler post-Keynesian or Kaleckian hypothesis whereby prices are a simple mark-up on unit prime costs, and where prices in this case are reducible to labour costs as follows:

$$p_{jt} = \gamma_j w_t (a_{jt})^{-1} \tag{5}$$

where p_j is the product price in sector j, γ_j is unity plus the mark-up, and w is the wage rate, which is assumed to be uniform across sectors for simplicity.

If we now choose w as the numéraire (w=1) so that all values can be reduced to their "labour command" measure as in Keynes (1936), then it can be demonstrated from equation (5) above that prices, p_j, in terms of the numéraire would, *ceteris paribus*, be falling in exact proportion to the sector productivity growth rates, that is:

$$\pi_j = -\lambda_j \tag{6}$$

where π_j is the rate of change of p_j. This would imply that the credit advanced to each sector would have an implicit or "own" rate of return on the asset holdings of the rentier sector equal to the respective sector's productivity growth. Conversely, all debts expressed in the numéraire would carry an interest charge for the borrowers also equal to their sector growth rates in productivity.

If, for simplicity, we were now to abstract from structural problems of the price-output mix (as if the whole economy were vertically integrated) so that total production can be treated as a composite commodity and prices could be reduced to a "general" price level, then we would get the general condition that:

$$\pi = -\lambda \tag{6'}$$

where π is the rate of change of the price level in terms of the wage unit and λ is average labour productivity growth. What this suggests is that even if borrowing and lending is done at a zero nominal interest rate in terms of the numéraire, the principal of the loan in terms of its numéraire would command the same amount of labour as before as long as prices are falling at the rate λ. If instead wages and prices (for a constant mark-up) were rising at some rate not on the basis of their labour command measure but in terms of a given monetary unit, such as the dollar, then it follows that the distributional "neutral" nominal rate of interest (i) which is consistent with a zero effective interest rate in terms of labour would be equal to the growth rate of labour productivity plus the rate of inflation measured in money prices π (i.e., when measured in dollar units rather than in terms of Keynes's wage units):

$$i = \lambda + \pi \tag{7}$$

or alternatively that $\rho = \lambda$ where, as before, $\rho = i - \pi$ and which we have described elsewhere as a "fair" rate of interest (Lavoie and Seccareccia 1999). In other words, as long as real wages grow at the same rate as labour productivity, with equation (7) being fulfilled, someone who borrows the equivalent of 1,000 hours of labour will be paying back later an amount that exactly corresponds to 1,000 hours of labour at the time of the reimbursement. From this, it also would ensue that if $\rho > \lambda$ the distribution of income and wealth would be changing in favour of rentiers, and, conversely, if $\rho < \lambda$, then income and wealth would be distributed away from rentiers.

Arguably, there is an obvious jump from the simple theoretical model described above and the hybrid Pasinetti index that we shall be using to measure the redistribution of income and wealth between the rentier and non-rentier sectors of the economy. For instance, the implicit assumption of a given mark-up, γ, may be somewhat misleading in a Piketty world where the share of profit has been fluctuating over the last century. Moreover, the productivity growth series derived from the national accounts may not be as appropriate as those derived, say, from input/output tables, because of the obvious lack of vertically-integrated measures. Despite these problems, we believe that the series that we have pulled out can still serve a heuristic and useful purpose in identifying the direction of change between the rentier and non-rentier sectors of the economy over long historical periods.

For that reason, we have been able to obtain times series for almost a century for both the United States and Canada that go back to 1926 based on time-series observations for both real long-term interest rates (that is nominal rates, i, less the annual rates of inflation, π (based on the Consumer Price Index), and average labour productivity growth λ (i.e., measured real output growth on a per hour basis and per employed person) derived from the national accounts and the respective country's labour force survey starting before the Great Depression. These series for the U.S. are displayed in Figure 1 below, while those for Canada are shown in Figure 2. Please take note that our hybrid Pasinetti index for the U.S. was calculated as the difference between real interest rates (where these rates were long-term rates for 10 year government bonds less the rate of inflation to approximate Keynes's conception of the rentiers who were earning a real long-term return, ρ) and measured productivity growth, λ, in terms of output per employed person (Figure 1.a) or in terms of output per hour of work (Figure 1.b). For the U.S. we have collected data going back to 1926:

Figure 1.a: The Pasinetti Index for the United States, 1926-2013
(as measured in percentage terms as the gap between real long-term interest rates and labour productivity growth per person employed)
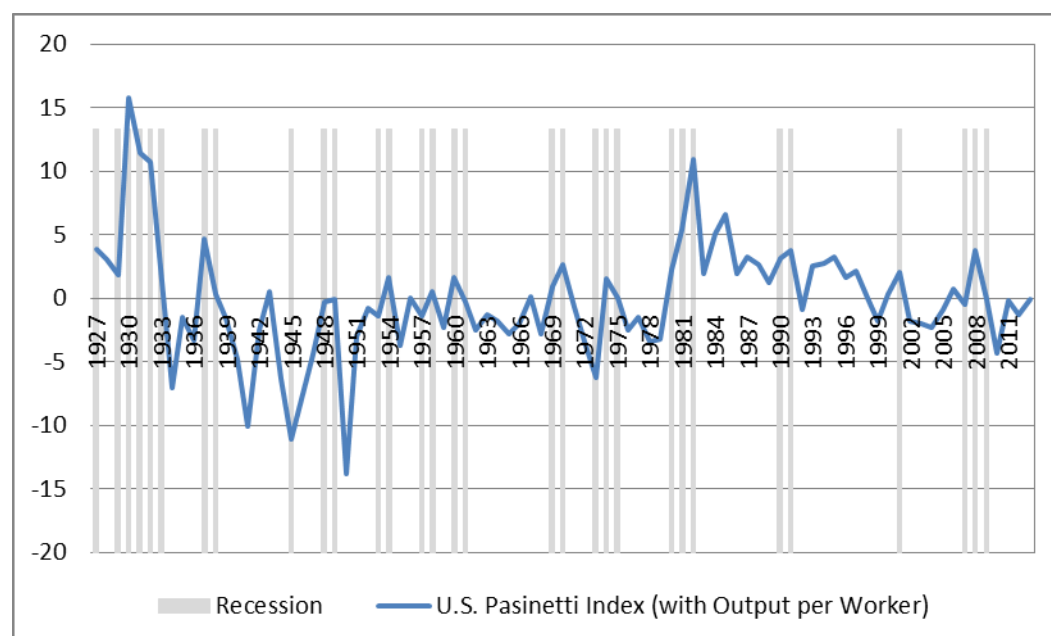
Figure 1.b: The Pasinetti Index for the United States, 1926-2013
(as measured in percentage terms as the gap between real long-term interest rates and labour productivity growth per hour)
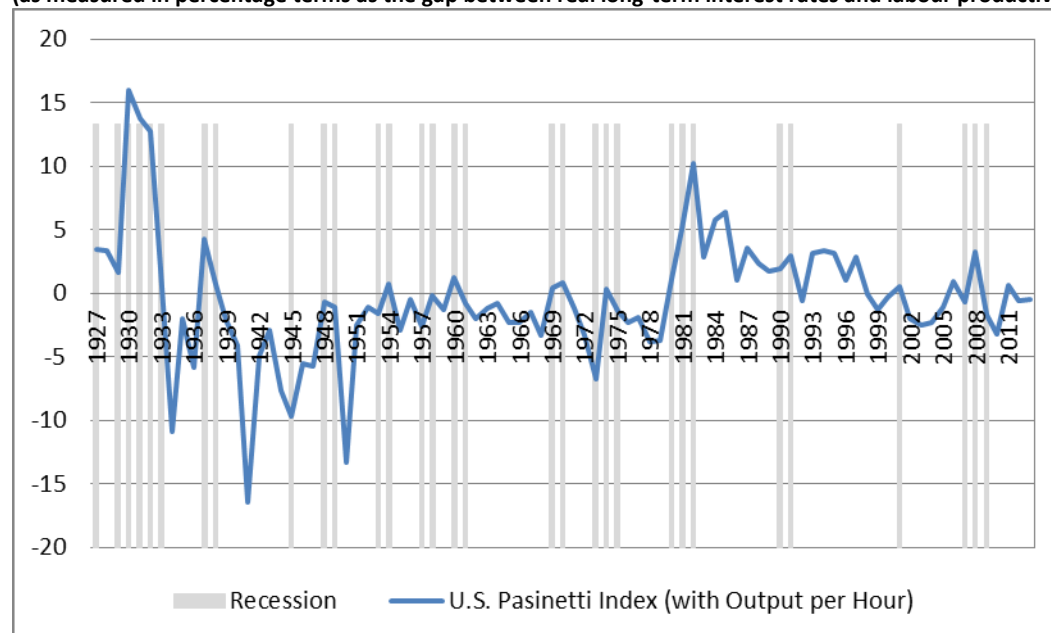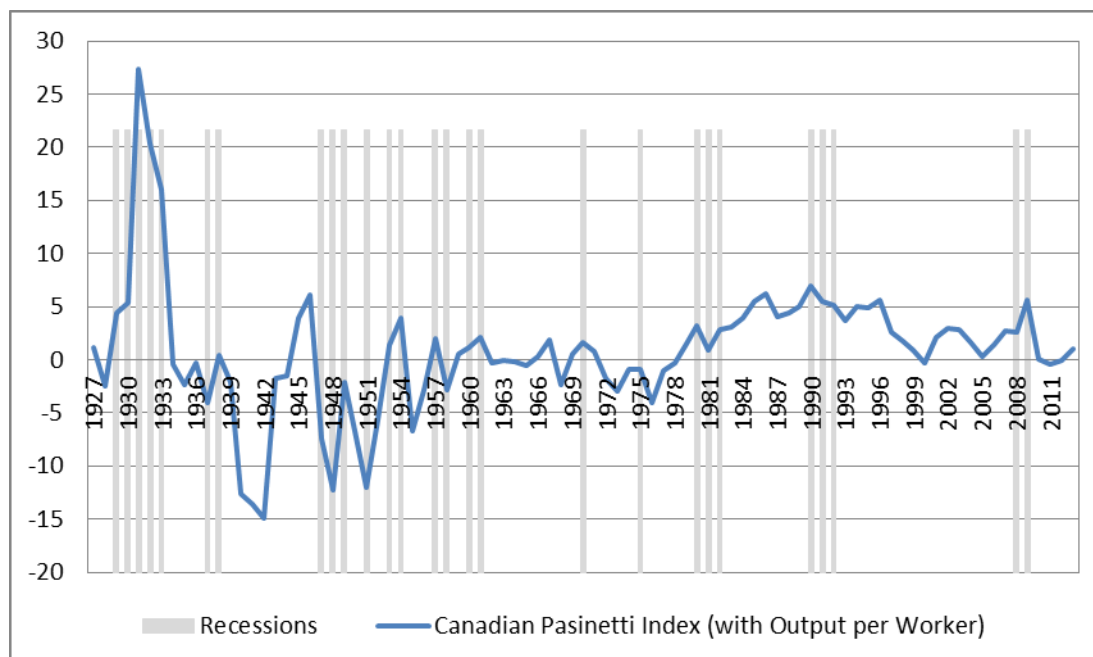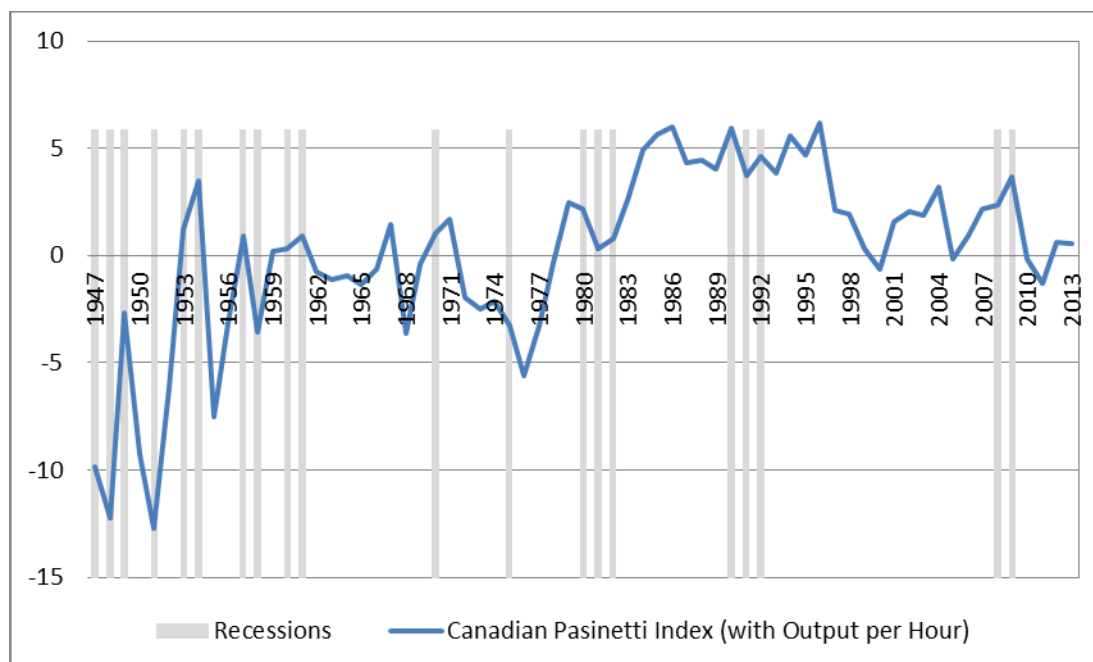

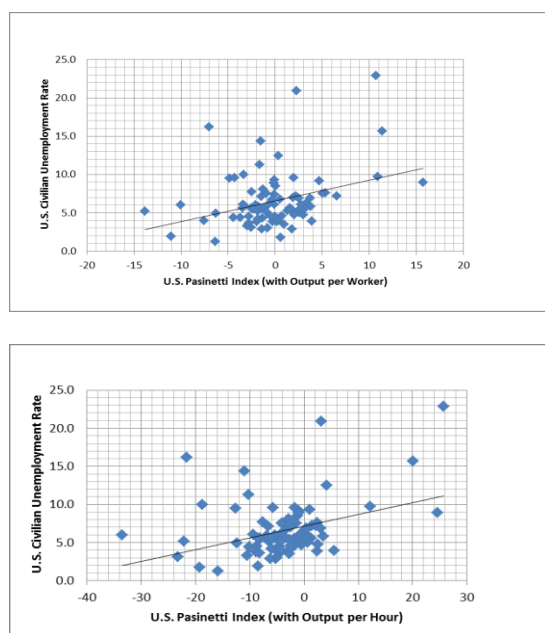Source: See Appendix

Similar graphs were produced for Canada (with the use of comparable series as those for the U.S.), namely the spread between Canadian real long-term interest rates (Canadian government bonds 10 years or more) and the rate of growth of average labour productivity. While we were able to obtain long-term series for output per person employed that were traced back to 1926 (Figure 2.a), we were able to find output per person hour for the whole Canadian business sector only starting in 1947 (Figure 2.b). In each graph we have also traced bands that coincide with respective reference cycles from the National Bureau for Economic Research (for the U.S.) and primarily from Statistics Canada (for Canada).

Figure 2.a: The Pasinetti Index for Canada, 1926-2013
(as measured in percentage terms as the gap between real long-term interest rates and labour productivity growth per person employed)

Figure 2.b: The Pasinetti Index for Canada, 1947-2013
(as measured in percentage terms as the gap between real long-term interest rates and labour productivity growth per hour)

Source: See Appendix

The evidence from these graphs, measuring the intensity of the transfer between the rentier and non-rentier sectors historically, suggests that, with few exceptions, the cyclical and long-term pattern is quite consistent with the reference cycle in the two countries. There was, for instance, a

massive transfer in favour of rentiers during the Great Depression, which eventually turned in the opposite direction in favour of the non-rentier sector by the early postwar years which, with only minor fluctuations, lasted until the late 1970s. The 1980s witnessed "the revenge of the rentiers" (to use an expression from John Smithin (1996)) as the transfer persisted in favour of rentier income until the mid-1990s. There was a subsequent decline during the late 1990s, but with some important fluctuations around a positive value until the financial crisis. Much as we had found in Lavoie and Seccareccia (1988, p. 153), broadly speaking, it appears that whenever the Pasinetti index was *becoming* positive, it would be associated with a recessionary environment.

There is similar evidence by simple graphical inspection of some scatter diagrams for both countries and both measures when the Pasinetti index (on the abscissa) is pitted against either unemployment or real GDP growth.

Figure 3.a: The Relation between the Pasinetti Index (with Output per Employed Person and Output per Hour) and the Unemployment Rate for the United States, 1926-2013

Source: See Appendix

Figure 3.b: The Relation between the Pasinetti Index (with Output per Employed Person and Output per Hour) and the Rate of Growth of Real GDP for the United States, 1926-2013
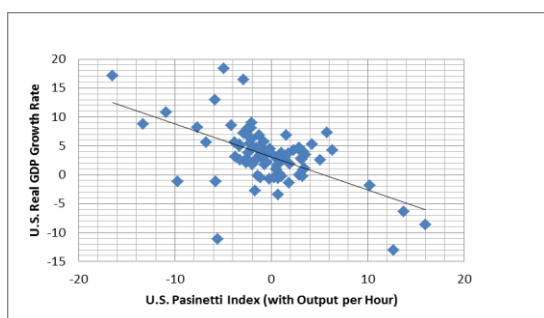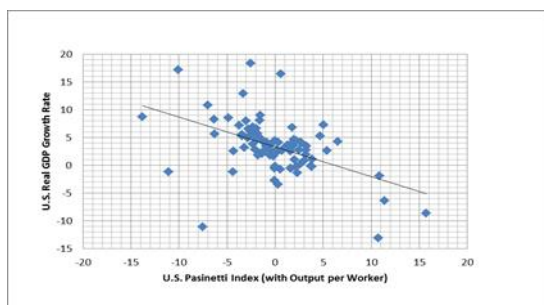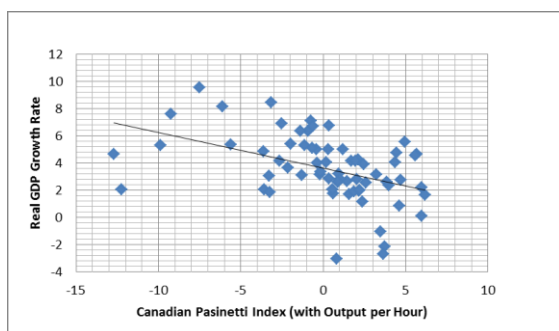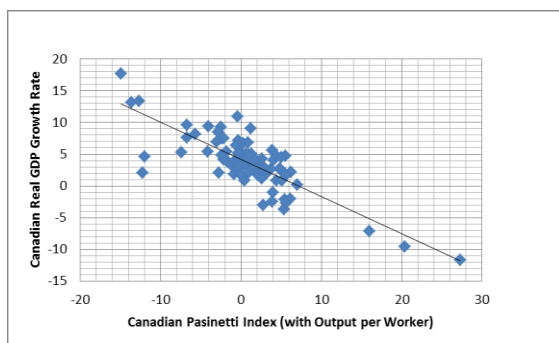
Source: See Appendix

Figure 4.a: The Relation between the Pasinetti Index and the Unemployment Rate for Canada, 1926-2013 (per Person Employed) or 1947-2013 (per Person-Hour)
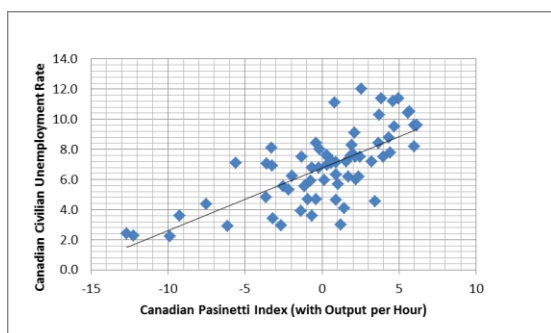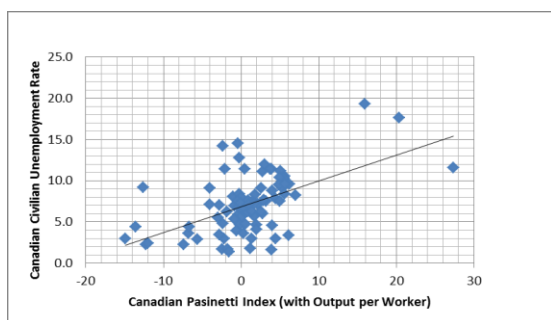
Source: See Appendix

Figure 4.b: The Relation between the Pasinetti Index and the Rate of Growth of Real GDP for Canada, 1926-2013 (per Person Employed) or 1947-2013 (per Person-Hour)

Source: See Appendix

While the evidence is broadly consistent with the view that the net transfer of income in favour of the rentiers tends to be associated with a negative macroeconomic performance, there is no doubt that there are many other variables and autonomous shocks historically that also affected the growth rates of these economies (that would explain some of the outliers in these scatter diagrams), which had nothing to do with this transfer, such as the fiscal policy position of the federal governments, net exports, and the possible Keynesian exogenous "animal spirits" driving business investment. However from the evidence presented, it would be difficult to exclude the role played by this redistribution of income in affecting macroeconomic performance and this would be so primarily for the reasons described by Keynes in the *General Theory*, that is, by affecting the aggregate consumption/saving behaviour of the economy.

Concluding Remarks

With the historical backdrop of the prolonged economic trauma of the 1930s, there came Keynes's famous prophecy in the *General Theory* that "the rentier aspect of capitalism as a transitional phase … will disappear when it has done its work" (Keynes 1936, p. 376). Disappointingly, after the short interlude of *les Trente Glorieuses* (or early postwar Golden Age from 1945 to 1975), quite the opposite occurred. Since the 1980s, we have seen how rentier capitalism, especially its most virulent "financialised" form, has been devastating advanced industrial societies much like an economic wrecking ball and it has brought some of these economies, especially in the Eurozone, to the verge of social collapse. Both Summers and Piketty have correctly noted that, without some significant institutional changes that can transform contemporary capitalism, advanced capitalist economies are

doomed to remain in a state of long-term stagnation, if not outright decline. While we do not believe that Keynes had all the answers, he did plea for significant institutional transformation. What is needed is that our contemporary societies transform themselves institutionally in such a way so that our Pasinetti inequality $\rho < \lambda$ is sustained in the long term. As Summers has rightly noted, in the current circumstances there is little that can be done with ρ on the left-hand side of the Pasinetti inequality. But contrary to Summers' pessimism, there is much that can actually be done to build up the growth of λ on the right-hand side of the inequality. As Keynes wrote:

"… it seems unlikely that the influence of banking policy on the rate of interest will be sufficient by itself to determine an optimum rate of investment. I conceive, therefore, that a somewhat comprehensive socialisation of investment will prove the only means of securing an approximation to full employment; though this need not exclude all manner of compromises and of devices by which public authority will co-operate with private initiative." (Keynes 1936, p. 378).

With an enlightened state being free from "the yoke of preference for liquidity" (Parguez and Thabet 2013, p. 29), it has already been argued elsewhere (see Seccareccia 2011-12) that a long-term policy of public investment will do much not only to provide a "make-weight" in times of recession, but also to sustain strong productivity growth over the long run. It is only a sustained commitment to full employment by means of strong public investment, and coupled with low interest rate policy, that will ensure that the rentier aspect of capitalism eventually disappears.

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Notes on Data Sources Used to Compile Historical Series
(with the assistance of Paul Beckta)

U.S. Real Output per Hour_____

Title	Source	Link
Real gross private domestic product per labour hour (1926-1947)	Retrieved from: *Historical Statistics of the United States*, (Millennial Edition Online) ed. by Susan B. Carter, Scott Sigmund Gartner, Michael R. Haines, Alan L. Olmstead, Richard Sutch, and Gavin Wright, Cambridge, UK: Cambridge University Press, 2006. Original Source: John W. Kendrick, *Productivity Trends in the United States* (Princeton: Princeton University Press, 1961); and *Postwar Productivity Trends in the United States*, New York: National Bureau of Economic Research, 1973.	http://hsus.cambridge.org.proxy.bib.uottawa.ca/HSUSWeb/toc/tableToc.do?id=Cg265-272
Business Sector U.S. Labour productivity, real output per hour, seasonally adjusted (1947-2013)	Source: US. Bureau of Labor Statistics, Business Sector: Real Output Per Hour of All Persons [OPHPBS], retrieved from FRED, Federal Reserve Bank of St. Louis https://research.stlouisfed.org/fred2/series/OPHPBS/, February 12, 2015.	http://research.stlouisfed.org/fred2/series/OPHPBS

U.S. Real Output per Worker_____

Title	Source	Link
1926-1929	Retrieved From: *Historical Statistics of the United States*, (Millennial Edition Online) ed. by Susan B. Carter, Scott Sigmund Gartner, Michael R. Haines, Alan L. Olmstead, Richard Sutch, and Gavin Wright, Cambridge: Cambridge University Press 2006. Original Source: John W. Kendrick, *Productivity Trends in the United States*, Princeton: Princeton University Press, 1961, and *Postwar Productivity Trends in the United States*, New York: National Bureau of Economic Research, 1973.	http://hsus.cambridge.org.proxy.bib.uottawa.ca/HSUSWeb/toc/tableToc.do?id=Cg265-272

| 1929-1947 | Retrieved From: *Historical Statistics of the United States* , Millennial Edition Online edited by Susan B. Carter, Scott Sigmund Gartner, Michael R. Haines, Alan L. Olmstead, Richard Sutch, and Gavin Wright, Cambridge: Cambridge University Press 2006.

Original Source: John W. Kendrick, *Productivity Trends in the United States, Princeton:* (Princeton University Press, 1961, and *Postwar Productivity Trends in the United States*, New York: National Bureau of Economic Research, 1973; 1967–1970 from unpublished data supplied by John W. Kendrick. | http://hsus.cambridge.org.proxy.bib.uottawa.ca/HSUSWeb/toc/tableToc.do?id=Cg273-280 |
| Output per Worker (1947 – 2013) | Source: Centre for the Standard of Living. Original Source: Data for US from BLS series PRS84006043, PRS84006013, PRS84006033, PRS84006163 and PRS84006093. Current as of August 15, 2013. | Webpage link: http://www.csls.ca/data/ipt1.asp

Data link: http://www.csls.ca/data/ipt2014.zip |

U.S. Inflation Rate_____

Title	Source	Link
CPI 1926-2013	United States Bureau of Labor Statistics, CPI Detailed Report (complete text and tables) December 2014	http://www.bls.gov/cpi/#tables

U.S. 10 Year Treasury Yield _____

Title	Source	Link
Treasury, 10-year nominal yield	*Business Statistics of the United States, Patterns of Economic Change*, ed. by Cornelia J. Strawser, Lanham, MD: Bernan Press, 2015.	(Taken directly from hard copy of book)

U.S. Recession Dates_____

Title	Source	Link
Recessions 1926-2015	National Bureau of Economic Research	http://www.nber.org/cyc

	(NBER)	les.html

U.S. Unemployment Rate_____

Title	Source	Link
Unemployment 1926 – 1947	Retrieved From: *Historical Statistics of the United States* , Millennial Edition Online edited by Susan B. Carter, Scott Sigmund Gartner, Michael R. Haines, Alan L. Olmstead, Richard Sutch, and Gavin Wright, Cambridge: Cambridge University Press 2006. Originally From: David R. Weir, "A Century of U.S. Unemployment, 1890–1990," in Roger L. Ransom, Richard Sutch, and Susan B. Carter, eds., *Research in Economic History*, Vol. 14 (JAI Press, 1992), Table D3, pp. 341–3.	http://hsus.cambridge.org.proxy.bib.uottawa.ca/HSUSWeb/toc/showTablePdf.do?id=Ba470-477
Unemployment 1948 - 2013	US. Bureau of Labor Statistics, Civilian Unemployment Rate [UNRATE], retrieved from FRED, Federal Reserve Bank of St. Louis	http://research.stlouisfed.org/fred2/series/UNRATE#

U.S. Real GDP   _____

Title	Source	Link
Real GDP Growth 1927 – 1946	*Historical Statistics of the United States* , Millennial Edition Online, ed. by Susan B. Carter, Scott Sigmund Gartner, Michael R. Haines, Alan L. Olmstead, Richard Sutch, and Gavin Wright, Cambridge: Cambridge University Press 2006.	http://hsus.cambridge.org.proxy.bib.uottawa.ca/HSUSWeb/toc/showTablePdf.do?id=Ca9-19

U.S. Nominal GDP   _____ _____

Title	Source	Link
Nominal GDP Growth 1927 – 1947	US. Bureau of Economic Analysis, Gross Domestic Product [GDP], retrieved from FRED, Federal Reserve Bank of St. Louis	https://research.stlouisfed.org/fred2/series/GDP

U.S. GDP Price Deflator   _____

Title	Source	Link
GDP Price Deflator 1947 –	US. Bureau of Economic Analysis, Gross	https://research.stlouisfe

2013	Domestic Product: Implicit Price Deflator [GDPDEF], retrieved from FRED, Federal Reserve Bank of St. Louis	d.org/fred2/series/GDPDEF/

Canadian Real Output per Hour _____

Title	Source	Link
Output per hour in "Business sector excluding Owner's Occupied Dwellings and Private Households, Canada"	Sources: Statistics Canada, CANSIM tables 383-0029, 383-0021 and 383-0005 (terminated)	Obtained from Andrew Turvey at Statistics Canada

Canadian Labour Force (Employed) _____

Title	Source	Link
Labour Force (1926 – 1946)	Statistics Canada, CANSIM Table 380-0044 - Civilian labour force, annual (Persons) *Terminated*	http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=3800044&pattern=Civilian+labour+force&tabMode=dataTable&srchLan=-1&p1=1&p2=-1

Canadian Nominal GDP_____

Title	Source	Link
GDP (1926 – 1946)	Source: *National Income and Expenditure Accounts* (Volume 1, The annual estimates 1926-1974), Catalogue 13-531 Occasional System of National Accounts, Statistics Canada, 1975	Taken from hard copy
GDP 1947 - 1980	Source: Statistics Canada. Table 380-0502 - Relation between gross domestic product (GDP) at market prices, gross national product (GNP) at market prices and net national income at factor cost, 1968 System of National Accounts (SNA), quarterly (dollars)	http://www5.statcan.gc.ca/cansim/pick-choisir?lang=eng&p2=33&id=3800502
GDP 1980-2013	Source: Statistics Canada, Table 380-0064 Gross domestic product, expenditure-based, annual (dollars x 1,000,000)	http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=3800064

Canadian GDP Deflator_____

Title	Source	Link
GNE Implicit Price Index (1926 – 1961)	*Historical Statistics of Canada* (Second Edition), Series K172-183, Implicit Price Indexes of Gross National Expenditures, 1926 to 1975	Source Link: http://www.statcan.gc.ca/pub/11-516-x/sectionk/4057753-eng.htm#7 Data Link: http://www.statcan.gc.ca/pub/11-516-x/sectionk/K172_183-eng.csv
1961-2013	Source: Centre for the Study of Living Standards, Aggregate Income and Productivity Trends: Canada vs United States, 1961-2011 Table 1: Aggregate Income Trends in Canada, 1961-2013 Original Source: CANSIM Table 380-0064	Webpage link: http://www.csls.ca/data/ipt1.asp Data link: http://www.csls.ca/data/ipt2014.zip

Canadian Real Output per Worker_____

Title	Source	Link
Datasets used to build 1926-1946 real output per worker	Number of Workers source: Statistics Canada, CANSIM Table 380-0044 - Civilian labour force, annual (Persons) *Terminated* Nominal GDP Source: Source: National Income and Expenditure Accounts Volume 1, The annual estimates 1926-1974, Catalogue 13-531 Occasional System of National Accounts, Statistics Canada, 1975 GDP Price Deflator source: *Historical Statistics of Canada* (Second Edition), Series K172-183, Implicit Price Indexes of Gross National Expenditures, 1926 to 1975	Number of Workers link: http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=3800044&pattern=Civilian+labour+force&tabMode=dataTable&srchLan=-1&p1=1&p2=-1 Nominal GDP: from 1975 hard copy GDP Price Deflator Source Link: http://www.statcan.gc.ca/pub/11-516-x/sectionk/4057753-eng.htm#7 Data Link: http://www.statcan.gc.ca/pub/11-516-

		x/sectionk/K172_183-eng.csv
Real Output per Worker (1946 – 2013)	Source: Centre for the Study of Living Standards Original Source: Data for Canada from Aggregate Productivity Measures, CANSIM II v1409154, v1409157, v1409155 and v1409153 for 1981-2010 converted to annual averages, linked to series v719180, v719402, v719846 and v720290 for previous years, and re-based to 2005=100. Current as of August 15, 2013. Table 6: Annual Indexes of Productivity in the Business Sector in Canada and the United States, 2009=100, 1946-2013	Webpage link: http://www.csls.ca/data/ipt1.asp Data link: http://www.csls.ca/data/ipt2014.zip

Canadian Over 10 Year Treasury Yield _____

Title	Source	Link
Government of Canada Marketable Bonds – Average Yields – Over 10 Years*	Bank of Canada, Data and Statistics Office.	http://www.bankofcanada.ca/wp-content/uploads/2010/09/selected_historical_v122487.pdf

* Rates shown for 1926 to 1936 are monthly averages for selected long-term bond issues.
* Rates shown for 1936 to 1948 are theoretical 15-year bond yields based on middle of the market quotations.
* The yields refer to direct debt payable in Canadian dollars, excluding extendible issues and Canada Savings Bonds. Prior to 1975 some extendible issues are included but their inclusion does not materially affect the average yields. The rates shown from 1949 to 1958 are arithmetic averages of yields at month-end. From 1959 the yields shown are calculated from Wednesday mid-market closing prices and are for the last Wednesday of the month.
* The yields refer to direct debt payable in Canadian dollars, excluding extendible issues and Canada Savings Bonds. Prior to 1975 some extendible issues are included but their inclusion does not materially affect the average yields. The rates shown from 1949 to 1958 are arithmetic averages of yields at month-end. From 1959 the yields shown are calculated from Wednesday mid-market closing prices and are for the last Wednesday of the month.

Canadian Inflation Rate_____ _____

Title	Source	Link
CPI 1926-2013	Source: Northwest Territory Bureau of Statistics Originally from Statistics Canada, Consumer Price Index for Canada, Monthly	http://www.statsnwt.ca/TSR/series.php?seriesid=V41690973

	(V41690973 series.)	

Canadian Recession Dates_____

Title	Source	Link
Recessions 1926 - 2008	William Baumol, Allan S. Blinder, Marc Lavoie and Mario Seccareccia, *Macroeconomics: Principles and Policy*, Toronto: Nelson Education, 2009.	Directly from book
Recessions 2008 – present	C.D. Howe Institute Business Cycle Council Issues Authoritative Dates for the 2008/2009 Recession	http://www.cdhowe.org/c-d-howe-institute-business-cycle-council-issues-authoritative-dates-for-the-2008-2009-recession/19382

Canadian Unemployment Rate_____

Title	Source	Link
Unemployment 1926 – 1975	Source: Statistics Canada Table 380-0044 Civilian labour force, annual (persons x 1,000)	http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=3800044&pattern=Civilian+labour+force&tabMode=dataTable&srchLan=-1&p1=1&p2=-1
Unemployment 1976 - 2013	Source: Statistics Canada Table 282-0087 Labour force survey estimates (LFS), by sex and age group, seasonally adjusted and unadjusted, annual (persons unless otherwise noted)(1,11,13)	http://www5.statcan.gc.ca/cansim/a03?lang=eng&pattern=282-0087&p2=31

Canadian Real GDP Growth Rate_____

Title	Source	Link
Real GDP Growth 1927 – 1946	Source: *National Income and Expenditure Accounts* Vol. 1, The annual estimates 1926-1974, Catalogue 13-531 Occasional System of National Accounts, Statistics Canada, 1975	Directly from book
Real GDP Growth 1947-1980	Source: Statistics Canada. Table 380-0502 - Relation between gross domestic product	http://www5.statcan.gc.ca/cansim/pick-

	(GDP) at market prices, gross national product (GNP) at market prices and net national income at factor cost, 1968 System of National Accounts (SNA), quarterly (dollars)	choisir?lang=eng&p2=33 &id=3800502
Real GDP Growth 1981-2013	Source: Table 380-0064 Gross domestic product, expenditure-based, annual (dollars x 1,000,000)	http://www5.statcan.gc.c a/cansim/a26?lang=eng& id=3800064