The New View On Monetary Policy: The New Consensus And Its Post-Keynesian Critique

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Abstract

This paper seeks to look at the underlying framework of the New Consensus models, providing a post-Keynesian critique. In the light of this critique, the model is reformulated, with its basic structure intact, but with alternate post-Keynesian specifications of the Phillips curve being considered. It is shown that such modifications, either allow a long run trade-off between the rate of inflation and the level of output, the rate of capacity utilization and, therefore, unemployment, or, in our preferred specification, changes in output and capacity have no implications for inflation over a large range of capacity utilization.

Keywords: monetary policy, central bank, inflation, capacity utilization, post-Keynesian, New-Keynesian

JEL classification: E12, E40, E52, E58

A New Consensus (or New Neoclassical Synthesis) has arisen among neoclassical economists, which has been defined by a number of New Keynesian economists (such as Woodford 2002) and already presented in heuristic form (Romer 2000, Taylor 2000, Walsh 2002, Bofinger et al. 2002). This new view seeks to redefine the application of monetary policy by respecifying the most appropriate monetary rule. In other respects it represents a return to Milton Friedman’s analysis of the expectations augmented Phillips curve. This paper looks at the underlying framework of the New Consensus model, providing a post-Keynesian critique. In the light of that critique, the model is reformulated, with its

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The “New Consensus”

It seems ironic to call this group “new” consensus, as the underlying view of the economy has not changed, in essence since Monetarism Mark 1 associated with Milton Friedman. Like Friedman, New Consensus authors accept an upwards sloping short run Phillips curve but view the long run Phillips curve as being vertical at NAIRU, or at some similar supply-side determined concept, with monetary policy having no impact on real activity in the long run:

There is substantial evidence demonstrating that there is no long-run trade-off between the level of inflation and the level of unused resources in the economy – whether measured by the unemployment rate, the capacity utilization rate, or the deviation of real GDP from potential GDP. Monetary policy is thus neutral in the long run. An increase in money growth will have no long-run impact on the unemployment rate; it will only result in increased inflation. (Taylor 1999 pp. 29-30)

In other words, the inflation rate falls when unemployment is above NAIRU, and increases when unemployment is below it. This is now most often expressed in terms of output gaps – the spread between actual output and potential output – or in terms of capacity utilization. Expressed in terms of capacity utilization, the supply constraint of New Consensus models is given by equation (1):

$$\Delta \pi = \gamma_1 (u - u_n) + \varepsilon_1$$  \hspace{1cm} (1)

where: $\pi$ is the inflation rate
$u$ is the realised level of capacity utilization,
$u_n$ is the optimal level of capacity utilization, and
$\gamma_1$ is a positive parameter, as all greek letters representing parameters.
$\varepsilon_1$ is a non-recurrent inflation shock
This equation is the basis of the upward-sloping short-run Phillips curve and the vertical long-run Phillips curve, where any deviation of capacity, real GDP or unemployment from their normal levels leads to changes in the inflation rate. If capacity utilization is kept above its normal level, this will quickly lead to accelerating inflation. In other words, there is no long-term trade-off between any given rate of inflation and some measure of the output gap.

Like Friedman, defenders of the New Consensus view believe that monetary policy can have real effects in the short run as summarized in a conventional IS schedule. As in most macroeconomic models, they assume that investment, and hence capacity utilization, are inversely responsive to changes in the rate of interest. Provided we ignore the additional terms that are included in the more sophisticated versions of the equation, which incorporate expected terms and autonomous shocks, as in Woodford (2002), we have:

\[ u = u_0 - \beta r \]  

where: \( u_0 \) represents an autonomous components of aggregate demand; and \( r \) is the real rate of interest.

Both Friedman and New Keynesian authors strongly argue that this indicates the need for monetary policy rules. The only difference is that, while for Friedman the rule sets optimal money supply growth, for New Consensus authors “the interest rate rather than the money supply is the key instrument that should be adjusted” (Taylor 1999, p. 47). The proposed rule would have the central bank responding to both price and aggregate demand shocks (or expected such shocks). So, interest rates should be changed if inflation deviated from its target \( (\pi^T) \) or if real GDP deviates from potential GDP. There are many variants of these rules, but the best-known is the so-called Taylor rule, which, in terms of rates of utilization, is presented as:

\[ i = \pi + \alpha_1 (\pi - \pi^T) + \alpha_2 (u - u_a) + r_a \]  

(3A)
where \( i \) is now a nominal interest rate while \( r_n \) “is the implicit real interest rate in the central bank’s reaction function” (Taylor 1999, p. 50). We can say that, in Wicksellian terms, it is the central bank estimate of the ‘natural’ (real) rate of interest.

This can also be rewritten in real terms by taking note that \( i - \pi = r \), so that equation (3A) becomes:

\[
(r - r_n) = \alpha_1 (\pi - \pi^T) + \alpha_2 (u - u_n) \tag{3B}
\]

In the long-term as defined by neoclassical authors, \( \pi = \pi^T \) and \( u = u_n \), so \( r = r_n \). As has been pointed out by numerous authors, the New Consensus central bank reaction function does not guarantee that the target inflation rate will ever be achieved however. This is recognized by Taylor (1999, p. 51) himself, when he says that if the central bank acts on an incorrect estimate of the natural rate of interest, “then the steady state inflation rate will not equal the target inflation rate”. The rate of capacity utilization can converge to its normal level without the steady state inflation rate converging to the target rate set by the central bank. For instance if the implicit real interest rate estimate is too high, the actual steady state rate of inflation will be too low relative to the target, and hence the central bank will need to revise downwards its estimate of the ‘natural’ rate of interest.

This problem can be avoided if the central bank reaction function is expressed in difference terms. Indeed, this is how Setterfield (2003, 2004) identifies the typical New Consensus central bank reaction function:

\[
\Delta r = \alpha_3 (\pi - \pi^T) + \alpha_4 (u - u_n) \tag{3C}
\]

Setterfield (2003) shows that a model made up of equations (1), (2) and (3C) is always stable and converges to a normal rate of capacity utilization at the target inflation rate.\(^2\) However, the second term of the central bank reaction function, given by \( \beta_8 (u - u_n) \), plays a crucial role in stability analysis.

\(^2\) Indeed, officials at the Bank of Canada have explained to one of us that the central bank need not know the ‘natural’ rate of interest. If the inflation rate settles at a rate higher than the target rate, the central bank only has to raise the real rate until the target inflation rate is achieved, a behaviour which corresponds to equation (3C).
Without it, the economy would run into a limit cycle, circling the target inflation rate without ever achieving it. What happens is that the second term of equation (3C) provides derivative control, a well-known stabilizing feature since, substituting \((u - u_n)\) by its value in equation (1), we obtain the following reaction function:

\[
\Delta r = \alpha_3 (\pi - \pi^T) + \left(\frac{\alpha_4}{\gamma_1}\right)(\Delta \pi) \tag{3D}
\]

With equation (3D), the central bank reacts to the level of, and the change in, the inflation rate. In other words, for a given current inflation rate, the central bank would impose a more punitive increase in real interest rates when inflation is quickly rising.

In summary, New Consensus authors rely on a vertical long-run Phillips curve that prevents the possibility of any level of economic activity bar that corresponding to potential output or normal use of capacity. Although monetary variables play a role in the determination of the level of economic activity in the short run, they have no real effects in the long run. The basic role of monetary variables is to push the economy to its long run equilibrium, though they play no role in the determination of that equilibrium. In other words, we have the long-term neutrality of money. In addition, the loanable funds framework is vindicated with the New Consensus model: reduced saving and larger government deficits lead to higher real rates of interest in the long run.

**The Post-Keynesian Response**

Post-Keynesian economists are critical of a number of important features of the New Consensus model described above. We can divide these criticisms into two distinct areas. Firstly, many post-Keynesians are critical of the IS curve which underlies the analysis, and of the related assumption of the efficiency of monetary policy in the short run and monetary neutrality in the long run. Secondly, all

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3 The importance of this second term for stability analysis is confirmed by the numerical analysis of Alonso-González and Palacio-Vera (2002).
post-Keynesians reject the concept of a vertical long run Phillips curve. Points 1-3 below deal with the first of these issues, while the second is the subject of the remaining points.

1. Post-Keynesians, following Keynes, reject the simple interest rate/investment relation implied in the IS model, as represented in equation (2) above. They believe, as Keynes (1936, p. 173), that between monetary policy and economic activity, “there may be several slips between the cup and the lip”. There are a number of reasons for this. Firstly, most post-Keynesians believe that the relation between interest rates and investment is more complex than the simple functions (linear or otherwise) assumed in the IS relation. In addition, many economists, following Keynes (1936, pp. 202-8) once again, do not think that there is a one for one relationship between the short term interest rate set by the central bank, and the long term interest rates or the lending rates which affect the components of aggregate demand (see, for example, Pollin 2003 and Villieu 2004 within the context of the New Consensus story). In fact, Kalecki argues, partly for this reason, that it is the quantity of credit rather than its price which influences investment (Kriesler 1997). Nevertheless, tight monetary policy associated with increased short term rates will also be associated with increased credit tightening and a corresponding fall in the animal spirit of banks, so that, at least with contractionary monetary policy, it may be reasonable to assume that there will be some effect on aggregate demand (Wolfson 1996).

Empirically, evidence suggests that the interest elasticity of investment is non-linear and asymmetric (Taylor 1999). While an increase in interest rates is likely to reduce investment in times of economic booms ($u > u^n$), the reverse is not true, as is well illustrated by the case of Japan in the 1990s. Reductions in interest rates are unlikely to stimulate investment in times of recession. In the words of the old adage: you can lead a horse to water but you can’t make it drink. Many economists think that using monetary policy in a recession is like pushing on string (Nevile and Kriesler 2002).
2. Partly for this reason, post-Keynesians, as do many monetary economists, believe that monetary policy takes a considerable amount of time to have any effect, especially on the inflation rate, unless interest rates are changed by drastic amounts (that may jeopardize the stability of the financial system). Monetary policy is known to be a particularly blunt instrument, with long and variable lags. Monetary policy acts upon inflationary forces by weakening aggregate demand and labour conditions (Arestis and Sawyer 2004a, 2004b). In addition, several post-Keynesians believe that, before high rates take their toll, real interest rate hikes lead to higher inflation rates, through interest cost push (Galbraith 1957, pp. 130-1; Kaldor 1982 p. 63; Taylor 2004, pp. 88-90). This was first discussed by Tooke, and is often associated with the so-called Gibson paradox, also known in the States as the Wright Patman effect and in Latin America as the Caravallo effect. It can be shown that this effect may jeopardize the neat converging features of the New Consensus (Hannsgen 2004).

3. In contrast to some New Keynesian authors who believe that “short-run non-neutrality and long-run neutrality are … as well accepted as any proposition in monetary economics” (Mankiw 1999, p. 72), post-Keynesians reject the so-called neutrality of money in both the short run and the long run. In post-Keynesian terms, this means that short-run movements in the real interest rate set by the central bank will have both short-run and long-run real effects. In other words, post-Keynesians reject the notion of a uniquely-determined ‘neutral’, ‘equilibrium’ or ‘natural’ real rate of interest.

4. Post-Keynesians deny that logic requires that in the long run the actual rate of capacity utilization ought to converge towards an exogenously given normal rate of capacity utilization. As Amitava Dutt (2003, p. 87) points out, Kaleckian economists “argue in favour of an endogenous determination of capacity utilization even in the long run on the ground that firms may not have a unique level of capacity utilization but be content if it remains within a band, or that ‘normal’ or ‘desired’ capacity utilization itself may be endogenous”.
5. Post-Keynesians reject the notion of a supply-determined natural growth rate. This critique applies equally to the classical model and to the endogenous growth models, where saving leads the way, and to the New Consensus model, where the natural rate is determined by population growth and technological progress, as in the Solow model (Taylor 2000, p. 91). Post-Keynesians believe that if the concept of a natural growth rate is to be of any assistance, it is determined by the path taken by the actual growth rate, as pointed out very early in Kaldor (1960, p. 237). “In sum, the natural rate of growth is ultimately endogenous to the demand-determined actual rate of growth ….

The natural rate is not an attractor in demand-led growth models” (Setterfield 2002, p. 5). The most likely candidate for endogenous changes in the natural rate of growth induced by high growth rates of demand is the rate of technical progress. This argument was made by Joan Robinson in her magnum opus.

But at the same time technical progress is being speeded up to keep up with accumulation. The rate of technical progress is not a natural phenomenon that falls like the gentle rain from heaven. When there is an economic motive for raising output per man the entrepreneurs seek out inventions and improvements. Even more important than speeding up discoveries is the speeding up of the rate at which innovations are diffused. When entrepreneurs find themselves in a situation where potential markets are expanding but labour hard to find, they have every motive to increase productivity (Robinson 1956, p. 96).

6. Post-Keynesians reject the vertical long-run Phillips curve and/or its associated single NAIRU. In addition, many are even skeptical about short-run trade-offs between GDP/capacity and inflation. There are two reasons for this. First, there is a large range of capacity utilization rates which are consistent with an absence of demand-led pressures, for reasons tied to the absence of decreasing returns over a large range of production levels (Lavoie 2004, p. 24). Second, it is believed that with “co-ordinated wage bargaining a constant inflation rate becomes compatible with a range of...
employment levels, and the NAIRU as the short run limit to employment is no longer unique” (Hein 2002, p. 314).

**Amending the New Consensus**

A number of ways of modifying the New Consensus analysis to incorporate explicitly post-Keynesian considerations have been suggested. To start with point 5, both Kaldor and Lavoie (2004) identify a hidden equation in the New Consensus model. This relates to the question of why low inflation is regarded as desirable. There is nothing inherent in the model, as presented so far, which favours one inflation rate over any other. Implicit then must be an additional relation, according to which there is some optimal inflation rate which maximises the economy’s natural growth rate. Deviations from this optimal inflation rate will reduce the natural growth rate of the economy.

Assuming that the behaviour of the ‘real’ economy is neutral with respect to monetary disturbances, why should the elimination of inflation be such an important objective as to be given ‘over-riding priority’? In what way is a community better off with constant prices than with constantly rising (or falling) prices? The answer evidently must be that, in the view of the Government, inflation causes serious distortions and leads to a deterioration in economic performance, etc. In that case, however, the basic proposition that the ‘real’ economy is impervious to such disturbances is untenable (Kaldor 1982, pp. 41-42).

Lavoie suggests a post-Keynesian modification to this where, instead of the natural growth rate being dependent on the difference between actual and optimal inflation, it will be determined by the path of the actual growth rate. This is due to the assumption that increases in effective demand will lead to increases in the natural growth rate, and vice versa. As a result, despite assuming a vertical Phillips curve, as given by equation (1) or some variation of it based on the discrepancy between the actual growth rate and the natural rate of growth, the New Consensus model amended by this post-Keynesian feature will exhibit strong path dependency, “with the possibility of multiple equilibria, that make long-
run supply forces dependent on short-run disequilibrium adjustment paths induced by effective demand” (Lavoie 2004, p. 26).

When discussing the New consensus, New Keynesian authors usually refer to a vague term, the output gap. But what is the output gap? Should it be measured as a discrepancy between actual capacity utilization and normal or optimal capacity utilization, as we assumed it was in equations (1)-(3) that we outlined in the first section? Or should it be measured instead in terms of the discrepancy between the actual and the natural rate of growth, as in Lavoie (2004) or Setterfield (2004)? Or finally, should we take the output gap as being the discrepancy between the actual unemployment rate and the NAIRU (or the natural rate of unemployment)? All this would seem to depend on what is the ultimate determinant of demand inflation. Unemployment rates could be relevant if scarcity or power struggles in the labour market are the main cause of inflation. If pressures on capacity are the main cause on inflation, then capacity rates would seem to be the relevant indicator. Finally, some may argue that GDP growth is often tightly linked to capacity utilization and is the best indicator of future pressures on inflation, and hence the best indicator for central banks that are keen to use preemptive strikes, based on expected inflation rather than current inflation. This problem is reinforced by the fact that central banks usually do not make forecasts of utilization rates, whereas they do forecast output growth.

Dutt (2005) has recently shown that the use of the first or the third definition of the output gap will yield different dynamics. Dutt analyses (at least) three different cases, that may be illustrated with the help of three graphs, the first two of which can be found in Fontana and Palacio-Vera (2005). Assume a natural rate of growth of the economy, \( g_n = n + a \), equal to the growth rate of the active population and that of productivity. If the output gap and inflation dynamics depend on the rate of unemployment, with the central bank setting real interest rates to achieve eventually the (assumed unique) NAIRU, Figure 1 will trace the relevant transition path. As shown, a negative demand shock, imposed perhaps to achieve a lower target rate of inflation, will have no long-run detrimental effect on
the absolute value of capacity output and the stock of capital. There will be high rates of unemployment in the short run, and thus some transitional wastage of unutilized labour resources, but the economy will be back to its unique NAIRU after some time. This will be achieved through rates of growth that will exceed the natural rate during the latter periods of the transition.\(^5\) This is the standard neoclassical position, as it can be found in Filardo (1998, p. 35) for instance, in models that allow for short-term unemployment. As pointed out by Palacio-Vera (2005), the mechanism that used to be relied upon by neoclassical authors was the real money balances effect: in its extreme version, wages and prices being assumed to be flexible over the long run, they would fall as long as full employment would not be achieved. With New Consensus authors, according to whom inflation is persistent, deflation is unlikely and money is endogenous, the mechanism is an appropriate discretionary central bank reaction function.

**Figure 1:** The standard neoclassical assertion: demand shocks have no long-run effects on the rate of unemployment and capacity output

**Figure 2:** Demand shocks have long-run effects on the rate of unemployment and capacity output

Figure 2 illustrates the case where the output gap is a function of the discrepancy between the actual and the natural growth rates. It also illustrates the case where equations (1)-(3) based on the rate of utilization still hold, but where in addition we have the relationship

\[
g = g_n + \mu (u - u_n) \quad (4)
\]

so that the efforts of the central bank to bring back capacity utilization to its normal level also bring back the rate of accumulation to its natural level.

\(^5\) It should be pointed out that the famous Solow neoclassical growth model is of little use in analyzing the dynamics of the problem at hand, since the model starts out by assuming full labour employment and full capacity output. By definition unemployment cannot arise in that model.
In this case, as in the previous case, the economy (capacity output) eventually grows once again at its natural rate, thus allowing the rate of unemployment to remain at a steady-state level in the long run, but this steady level is now higher than what it was before the negative demand shock was inflicted to the economy. A negative demand shock has a negative effect on the absolute amount of capacity, although trend growth of capacity is the same as it was before. In this case, a higher steady-state rate of unemployment can only be avoided if the transitional high rates of unemployment induced a reduction in the proportion of the population that remains active (or that remains within the region), as in Cornwall (1977), or if it induced a reduction in the capital to labour ratio. This kind of result is also achieved in the Kaleckian model proposed by Stockhammer (2004), where negative demand shocks induce lower real wages and rising profit margins that speed up accumulation, until the economy is back to its natural growth rate, but at a higher rate of unemployment, and also in the post-Keynesian model put forth by Isaac (2005).

As pointed out above, the logic behind such a model is that inflation rates depend on the discrepancy between the actual and the natural rates of growth, or in other words between the growth rate of labour and the growth rate of active population. This means that inflation depends on the change in the rate of unemployment, rather than on the level of the rate of unemployment. From very early on, empirical evidence about the Phillips curve showed the relevance of changes in the rate of unemployment (Bowen and Berry 1963) for wage and price inflation, and this has been found time and time again (Gordon 1989; Bloch et al. 2004). Inflation stabilizes when there are no more changes to the actual rate of unemployment. The implication is that even though the central bank may be concerned about unemployment rates, rather than GDP growth rates, since wage and price inflation will stabilize once the economy is back to its natural rate of growth or to its normal rate of capacity utilization, the central bank will understand the higher steady-state rate of unemployment to be the new NAIRU. The higher NAIRU will then be attributed, ex post, to changes in supply-side factors such as higher tax
rates or some measurement of labour flexibility, and the central bankers will convince themselves that their restrictive monetary policies had no negative long-run impact on employment.\textsuperscript{6} Thus in the case illustrated with Figure 2, there is hysteresis in the rate of unemployment, and this hysteresis is purely demand-led, tied to the reduction in absolute output capacity generated by the restrictive monetary policy, in contrast to the explanations usually offered by neoclassical authors, according to which the hysteresis effects are generated by union insiders and a lazier active population.\textsuperscript{7}

Finally a third case can be illustrated, the one proposed by Lavoie (2004, 2005) and Dutt (2005), as shown in Figure 3. In this case, a negative demand shock (or tighter monetary policy) has a long-run effect both on the absolute value and the rate of growth of capacity output, as well as on the natural growth rate of the economy. This occurs even though the central bank is behaving as described by the New Consensus model, with equations (1) to (4). What happens is that there is now one additional equation, which reflects the effect of the recession on the rate of growth of productivity, along the lines suggested by authors such as Kaldor and Robinson, as indicated in the previous section. Formally, there is an increase in the rate of growth of productivity as long as the natural rate of growth does not catch up with the actual rate of accumulation (the rate of productivity growth will decline as long as the natural rate of growth exceeds the actual rate), which we can write as:

\[
\Delta g_n = \phi (g - g_n) \tag{5}
\]

Thus in such a world, after the negative demand shock, the rate of unemployment will also converge towards a steady-state level, but one which is higher. In addition, the rate of growth of the

\textsuperscript{6} As shown by Setterfield, Gordon and Osberg (1992), by modifying the definitions of various supply-side variables, and by adopting one or another mechanism to define expected inflation, there are nearly infinite possibilities in arriving at a conveniently measured NAIRU allowing the central bank to claim that the current rate of unemployment is close to equilibrium.

\textsuperscript{7} A further reason for a hysteretic rate of unemployment may arise if the central bank also adjusts its view of what it considers to be the normal rate of utilization of capacity. This is linked to our fourth critique of the New Consensus, as described in the previous section. Multiple equilibria may also arise when normal rates of capacity utilization are endogenous and move with actual rates, as shown by Lavoie (1996) and Dutt (1997).
economy will be permanently lower. This is consistent with the empirical results of León-Ledesma and Thirwall (2002). The implications of this third case are of course much more dramatic, and perhaps have not yet been emphasized enough. The costs in terms of output lost are growing exponentially and are not limited to the transitional phase. Beyond hysteresis of the rate of unemployment, what we have is hysteresis in the rate of growth of the economy. This possibility certainly reinforces the relevance of demand-driven Keynesian or Kaleckian growth models, as pointed out by Setterfield (2002).

**Figure 3: Demand shocks have long-run effects on the rate of unemployment and the rate of growth of capacity output**

**Amending the Phillips curve**

We now develop our sixth critique of the New Consensus model. As pointed out earlier, New Consensus authors still rely on a long-run vertical Phillips curve, where demand inflation is the key. In his alternative to the New Consensus model, Setterfield (2004) concentrates on the nature of the Phillips curve, pointing out that demand-type considerations are not the only influence on the inflation rate. Cost considerations, as well as institutional variables reflecting the wage and price setting process will have significant influence on the inflation rate. As a result, he replaces the vertical Phillips curve of equation (1) with one representing these more intricate explanators of inflation:

\[ \pi = \gamma_2 \pi_t + \gamma_3 u + \pi_c \]  

(1A)

Where: \( 0 < \gamma_2 < 1 \)

And \( \pi_c \) “is a vector of institutional variables that affect aggregate wage and price setting behaviour” (Setterfield 2004, p. 40)

Setterfield (2004) shows that with this kind of Phillips curve, as given by equation (1A), added to New Consensus equations (2) and (3), one obtains once more a multiplicity of possible long-run
rates of growth and capacity utilization, where $\pi = \pi_{-1} = \pi^T$. Comparisons of long-run positions show that higher inflation targets allow for higher rates of capacity utilization and higher growth rates.

However, further modifications need to be made in order to more fully capture the essence of post-Keynesian analysis. In particular, many post-Keynesians (but not all) are dubious of the notion that inflation needs to rise with increased capacity utilization. As mentioned in point 6, they argue that, for large ranges of output, there seems to be little impact on inflation. This is compatible with post-Keynesian pricing models of mature economies. In these economies, for most sectors, price is determined as a mark-up over costs. Regardless of which notion of cost is used, prime, variable, normal or full, cost pressures will remain constant over a large range of capacity utilization, as long as commodity prices can be held down (as Kalecki and Kaldor would argue). So with labour productivity constant, and with mark-ups also tending to remain constant, there need not be any increased pressure on prices with expansions of capacity over that range.

In other words, changes in capacity utilization need only be inflationary at levels of capacity near full utilization. Similarly, only at very low levels of capacity would we expect some reduction of the inflation rate. In other words, there would only be a tradeoff between inflation and unemployment at very low and very high levels of capacity utilization, with the inflation rate constant for levels of a large intermediate range of capacity. In this case, the Phillips curve would be horizontal for large ranges of output and employment (Freedman, Harcourt and Kriesler 2004; Palacio-Vera 2005; Semmler and Zhang 2004).

This would lead to the replacement of the Phillips curve equations (1), or (1A) with an equation of the following type:

$$\pi = \gamma_4 (u - u_m) + \gamma_5 (u - u_F) + \pi_n \quad (1B)$$

Where: $u_F$ represents full capacity utilization, above which the inflation rate rises

$u_m$ is some low level of capacity utilization, below which the inflation rate falls
γ_4 = 0 for u > u_m and γ_4 > 0 for u < u_m
γ_5 = 0 for u < u_f and γ_5 > 0 for u > u_f

π_n represents the rate of inflation associated with the normal range of output, subject to supply side shock.

**Figure 4: The PUP curve: the post-Keynesian short-run Phillips curve**

For a large range of capacity utilization u such that u_m < u < u_f, we have that Δπ = 0, as shown in Figure 4. We may wish to call this graph the Prices-Utilization-Possibilities curve, or PUP (since the curve looks like a puppy). In this case, if the current inflation rate is the target rate, central bank policy should set the interest rate at a fair rate, based on income distribution considerations, in particular the distribution between debtors and creditors, and allow fiscal policy to set the output/capacity level, as more recently recommended by Arestis and Sawyer (2003); or else its reaction function would be of the Taylor rule type, so that it would maintain monetary policy as an instrument in manipulating effective demand to acceptable levels. In other words, with r_f being the fair rate of interest, which is replacing the natural rate of interest r_n, equation (3B) would become:

\[ r = r_f + \alpha_5 (\pi - \pi^T) + \alpha_6 (u - u_f) \]  

(3E)

so that if \( \pi = \pi^T \), and \( u < u_f \), monetary policy would be expansionary.

From the above discussion, we can see that there are at least two ways to modify the vertical (expectations augmented) long run Phillips curve, derived from upward sloping short run curves. The first is in the more traditional manner suggested by Setterfield, where the inflation rate of the previous period, (the effects of expectations) is only partially transmitted to the current inflation rate. This relation yields a series of upward sloping short run Phillips curves which transmit into an upward sloping long run Phillips curve, allowing for the possibility of an inflation/capacity utilization trade-off over the long run.

The second way is to argue that for a large range of output (capacity utilization rates) higher levels of utilization will not lead to higher rates of inflation for given inflationary expectations. In other
words, the (short run) expectations augmented Phillips curve is flat for a certain range. As there is no change in actual inflation over that range, there will be no change in inflationary expectations (with the target inflation rate set by the central bank possibly playing a key role).

We can compare the PUP formulation to the standard version of the short run expectations augmented Phillips curve which runs as:

\[
\pi = \pi^e + \gamma_6 (u - u_n) + \varepsilon_1
\]  

(1C)

For our model, from equation (1B), over the normal range of output, we have:

\[
\pi = \pi_n + \varepsilon_1
\]

which is the same inflation rate as from equation (1C) if we amend the upward sloping short run Phillips curve, i.e. \(\gamma_6 = 0\).

So over this range of output, increases in the level of capacity utilization will have no impact on the inflation rate in the short run. However, the flat short run Phillips curve means that there is no reason for inflation to change (over this range) in the long run. In other words, the mechanism whereby the upward sloping short run Phillips curve is transmitted to a vertical long run Phillips curve will not hold in the case of a horizontal Phillips curve, as increased output will not, in the short run, be inflationary. In this case, the long run Phillips curve will also be horizontal over the relevant range, as shown in Figure 5. In such cases, what is crucial is cost-inflation, as reflected in the rising costs of commodities, as well as the credibility of the target inflation rate set by the monetary authorities.

**Figure 5: the Post-Keynesian long-run Phillips curve**

There are some obvious policy lessons to be drawn from this horizontal segment of the long-run Phillips curve. Central banks that have driven down utilization rates below the \(u_m\) level shown in Figures 4 or 5, in their desire to reduce inflation rates to their target level, ought not keep rates of utilization around this \(u_m\) level. It would seem, from the experience gathered in knocking down inflation rates, that \(u_m\) is the utilization rate equivalent of the NAIRU, the non-accelerating inflation
rate of capacity utilization, or what we called $u_n$ in equations (1)-(3). But that would be a mistaken interpretation. There exists in fact a multiplicity of such rates of utilization $u_n$, within the $u_m$ to $u_f$ range. Indeed, to each rate of capacity utilization on the flat segment of the PUP curve would correspond a different real rate of interest. For instance, following equation (2), the real interest rate associated with a target rate of capacity utilization $u_n = u_m$ would need to be much higher than the real interest rate associated with the alternative higher target of $u_n = u_f$. There is thus a multiplicity of such ‘natural’ rates of interest as neoclassical authors would call them. It would be quite possible for the economy to operate near the $u_f$ rate of utilization, without any increase in the rate of inflation, but with lower rates of unemployment (and possibly higher rates of output and capacity growth), thus avoiding an enormous waste of unused physical and human resources, a point also emphasized by Fontana and Palacio-Vera (2005).

There is empirical support for the horizontal Phillips curve. In a series of articles, Robert Eisner (1995, 1996) has made some econometric estimations for the American economy showing that while the short-run Phillips curve had the usual shape when rates of unemployment were high (with rates of utilization below $u_m$ in Figure 1), it was completely flat for middle range and high range rates of unemployment (between utilization rates $u_m$ and $u_f$; presumably the American economy did not often find itself beyond $u_f$). Low rates of unemployment – and hence through Okun’s equation, high rates of capacity utilization – had no accelerating impact on inflation whatsoever.

Somewhat similar empirical results were also achieved by Filardo (1998, p. 45), an economist at the Kansas City Reserve Bank. He defines three zones, corresponding to a weak, a balanced, and an overheated economy, and discovers that so-called balanced economy has a flat Phillips curve. As long as the output gap is within a limited range, any deviation from normal capacity has no effect
whatsoever on the rate of inflation. The short-run Phillips curve that he draws, in terms of output gaps or rates of utilization, is exactly identical to the PUP curve of Figure 4.\(^8\)

Bloch, Dockerty and Sapsford (2004) also provide empirical support for the flat Phillips curve, at least in the case of the US economy. They show, as has been argued in the previous section, that wage inflation is responsive to changes in the rate of unemployment rather than in the level of unemployment, thus repudiating the neoclassical Phillips curve. In addition, they show that profit markups on unit prime costs in the manufacturing sector do not rise with higher economic activity; on the opposite, they tend to be countercyclical. The Phillips curve would thus appear to be flat. The crucial inflationary factor, which can lead to vertical shifts of the horizontal segment of the Phillips curve, is thus the price of primary commodities: the prices of these commodities are very sensitive to world demand. Increases in the prices of commodities, that is increases in the cost of the inputs of finished goods, get fully reflected into higher prices of finished products. Price inflation then passes through fully to wage inflation, thus generating a price-wage spiral, as workers try to catch up. There is indeed a flat segment of the Phillips curve, as long as all countries do not expand in step.

**Conclusion**

Most post-Keynesian economists reject key elements of the New Consensus model. In particular, they disagree with the underlying IS curve as well as the vertical long-run Phillips curve. It has been shown that accepting all the basic equations of the New Consensus model amended with the suggested post-Keynesian modifications or additions will fundamentally change the model’s conclusions. In particular, our specified amended Phillips curve will yield Kaleckian results, with

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\(^8\) We discovered this after labouring to describe this alternative post-Keynesian Phillips curve. The student of one of us, Peng Wang, has preliminary results that confirm Filardo’s view. Based on U.S. data of 1970-2003, Wang finds that the Phillips curve is flat for rates of capacity of utilization that stand between 77 and 83%. 
important roles for fiscal and monetary policy in influencing the level of output, capacity utilization and employment. There exists a multiplicity of utilization rates with stationary inflation.

On the basis of the various amendments that have been proposed, post-Keynesians assert that restrictive monetary policies and preemptive strikes against inflation may not be necessary within a large range of capacity utilization. Slowdowns to fight inflation do have a cost, which can be measured as either higher permanent rates of unemployment or lower participation ratios to the labour force. In addition, these self-imposed recessions may lead to lower average future growth rates in economic activity. We thus fully agree with Dutt’s assessment that “policies to check the growth of aggregate demand during expansion without clear strong inflationary tendencies have a cost in terms of long-run growth rates” (2005, p. 31). At best, despite these restrictive anti-inflationary monetary policies, the economy will eventually manage to recover trend growth, but at a higher rate of unemployment. The argument above has raised serious questions about the advisability of such restrictive policies.
References


Appendix

The New Consensus model, Mark I

\[ \Delta \pi = \gamma_1 (u - u_n) \]  
\[ u = u_0 - \beta r \]  
\[ r = r_n + \alpha_1 (\pi - \pi^*) + \alpha_2 (u - u_n) \]  

The New Consensus model, Mark II

\[ \Delta \pi = \gamma_1 (u - u_n) \]  
\[ u = u_0 - \beta r \]  
\[ \Delta r = \alpha_3 (\pi - \pi^*) + \left( \frac{\alpha_4}{\gamma_1} \right) (\Delta \pi) \]  

Setterfield’s Model

\[ \pi = \gamma_2 \pi - 1 + \gamma_3 u + \pi_c \]  
\[ u = u_0 - \beta r \]  
\[ \Delta r = \alpha_5 (\pi - \pi^*) \]  

Our Model

\[ \pi = \gamma_4 (u - u_m) + \gamma_5 (u - u_{fe}) + \pi_n \]  
\[ \gamma_4 = 0 \text{ for } u > u_m \text{ and } \gamma_5 > 0 \text{ for } u < u_m \]  
\[ \gamma_4 = 0 \text{ for } u < u_{fe} \text{ and } \gamma_5 > 0 \text{ for } u > u_{fe} \]  
\[ u = u_0 - \beta r \]  
\[ r = r_f + \alpha_5 (\pi - \pi^*) + \alpha_6 (u - u_{fe}) \]