Monetary policy, output and employment

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This article addresses the issue of why output and employment were dropped from the Reserve Bank's objective statement when the 1989 Act was passed, leaving price stability as the only objective to be pursued by the Bank when implementing monetary policy. The reason is not that output and employment are considered to be unimportant objectives. Nor is it that monetary policy has no effect on output and employment. The rationale rests on the fact that though there are linkages between monetary policy and these real variables, these linkages differ dramatically from the short-run to the long-run. There are reasons - explored in the article - why monetary policy has severe difficulties in achieving desirable results simultaneously in both the short-run and long-run. Given this, if monetary policy were to pay active attention to the short-run output and employment consequences of monetary policy actions, monetary policy's ability to best support growth in the long-run would be greatly impaired.

Introduction

In a recent poll, reported in the National Business Review, a sample of New Zealanders was asked whether an employment objective should be added to the price stability objective of the Reserve Bank. Some 64 percent said yes.

That seems consistent with the view of two of the five political parties now represented in the House. Both NZ First and the Alliance have sought to amend the current Reserve Bank legislation. Both, it would be fair to say, find the idea that monetary policy not focus on the very important issues of growth and employment is strange, to put it mildly.

If there is one issue that is guaranteed to come up in any discussion of monetary policy in New Zealand, it is this issue. Equally, if there is one thing about which supporters of the current approach are guaranteed to find it difficult to persuade people, it is the idea that it is in fact sensible to leave growth and employment out of monetary policy’s, and the Reserve Bank’s, objectives.

This article focuses directly on this question. In particular, it:

- explores the reasons why it is sensible to have monetary policy focus only on maintaining price stability;
- argues that a key reason for this is because monetary policy does have important implications for output and employment but that these impacts differ dramatically from the short-run to the long-run;
- seeks to dispel the notion that the rationale for the current approach rests on an extremist position in economics.

But before embarking on the main theme, it is worthwhile to review the essential features of the monetary policy framework in New Zealand.

I. The New Zealand framework

The Reserve Bank of New Zealand Act 1989 has four features that, in the monetary policy area, mark it out as different from previous incarnations of the legislation guiding the Bank:

- For monetary policy, the primary objective is “stability in the general level of prices.” This contrasts with the earlier objective specification, which included growth, full employment, balance of payments equilibrium and price stability.

- Once the Bank and the Government agree specific targets for monetary policy that provide concrete guidance on how to pursue that primary objective, the Bank is free to implement policy without further instruction from the Government, or the Treasury (or any other interest group). The agreement between the Bank and Government on specific targets is contained in a document called the Policy Targets Agreement (PTA), which is negotiated and signed by the Governor and the Minister of Finance. The PTA is the document that sets down the 0-2 percent CPI inflation target, and specifies the circumstances in which CPI inflation can depart from the 0-2 percent range.

- The Government can unilaterally over-ride the primary objective, by way of an Order-in-Council. Such an over-ride is thereby in writing, in public, and can only last for one year before it must explicitly be renewed. In these circumstances, a new PTA must be signed and published which specifies clearly the new target.

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The Governor, who is the person in whom all the authority is vested, can be sacked for non-performance in relation to the target set down in the PTA. To help make the threat more real, the directors on the Board are charged with monitoring the Governor’s performance, and recommending dismissal if that performance is not up to scratch.

A substantial literature exists on optimal contracts between principals (those with the primary interest in the matter at hand) and agents (those engaged to pursue the principal’s interests). Within the context of this literature, it is easy to recognise that the PTA – properly viewed as a contract between the Minister of Finance on behalf of Parliament as the principal and the Governor as the agent – and the accountability mechanism, serve as devices to reinforce the central objective established by the principal. So the real innovations are that the objective specified by Parliament is now a single-focus on price stability and the achievement of this objective is the subject of a formal contract between the principal and the agent involved in monetary policy.

Why delete mention of output and employment from the objective statement for the implementers of monetary policy in New Zealand? It surely is not that output and employment are somehow unimportant – far from it. The Governor has said often in addresses that employment is a more important objective than inflation. The remainder of this article addresses this question.

II. Does monetary policy affect output and employment?

One potential reason for excluding output and employment objectives from the objective statement for the implementers of monetary policy would be that monetary policy has no effect on output or employment. It would self-evidently be non-sensical to direct monetary policy towards something that it could not effect.

There is indeed a school of thought within economics that maintains such a position. Though labels are often problematic, for ease of exposition we will refer to this school as the extreme New Classical school of economics (and we will use other equally problematic labels later on for the same reason).

New Classical economists tend strongly towards the view that nominal variables – prices and monetary variables - and real variables - output, employment, etc. – can be fully separated, with basically no interaction between them.

The following thought experiment illustrates the point. If New Zealand conducted a monetary reform that replaced our current currency with one that had denominations exactly half the real value of the current denominations (a $10 note would be changed for a new $20 note), then what would have changed in real terms? All prices would double – in the new numeraire – but there would be no more people working no harder on no more machines to produce no more output.

Within the currency reform experiment, “nominal” or “monetary” variables, including prices, have no real effects. Why should the situation be any different, the argument goes, for an increase in the money supply than for a currency reform? Surely society cannot enrich itself simply by creating more money? If that were the case, then the richest country would be the one that had the most central bankers toiling the most assiduously at the printing presses.

Classical economists argued that there was full separation between nominal and real variables in the long-term, but certainly not in the short-term. People would initially act as if the monetary increase was something real, but would soon learn otherwise. The New Classical economists took the next step of arguing that since people act on the basis of their expectations of the future, full separation in the long-term translates also into separation in the short-term. Extreme New Classical models of the economy treat expectations as completely forward-looking, and for all intents and purposes, error free. In such models, full separation in the short-term is achieved. Monetary variables, and thus monetary policy, have no effect on output or employment.

To the extent that less extreme New Classical economists are willing to accept that there might be some relationship between prices and output in the short-term – and those with their eyes open to empirical evidence must – they argue that it must be a result of fooled expectations. But even less extreme New Classical economists tend to argue that people will not form wrong expectations for very long, since they would be poorer as a result. Rational people, it is argued, have an incentive quickly to adjust expectations to avoid persistent error.

Empirical evidence is very much against the extreme version of New Classical economics. Monetary variables, including monetary policy, clearly affect both output and employment in the short term. Evidence is more mixed on the question of how forward-looking and rapidly adjusting are expectations. Moreover, developments in economics in recent years have reinforced an earlier understanding that factors other than the expectations formation process are relevant to the interaction between monetary variables and real variables. It can be said with some
confidence, therefore, that the rationale for the exclusion of output and employment from the Reserve Bank's objectives does not rest on the idea that monetary policy has no effect at all on output and employment.

In order to get at the rationale, we need to understand the nature of the interaction between monetary and real variables. As the next two sections explain, the nature of this interaction differs markedly as between the long-term and the short-term.

III. The long-term: inflation harms output

Starting with the long-term, inflation harms output.

For a long time, economists have held that inflation is harmful to the economy. These economists include Keynes, Bill Phillips, and most modern macroeconomists. However, showing the harm empirically, and understanding how it comes about, has greatly lagged behind the general understanding that it exists.

Only 10-15 years ago, all that the literature could point to was a range of costs that individually look fairly small, such as:

- "shoe leather" or "consumer triangle" welfare costs associated with the extra effort and time required to minimise the use of transaction balances that earned zero interest;
- "menu" costs associated with the resources required to change prices more frequently;
- and some distortions arising from the inability to inflation-proof the tax system, which lead to a misallocation of resources away from the allocation associated with highest output;
- On the other hand, some part of these costs might be offset by increased physical investment through an economy-wide substitution away from the now lower-yielding zero interest transactions balances.

Reviewing these various types of costs, Stanley Fischer puts their total at around 2-3 percent of GDP at an inflation rate of 10 percent, though he expresses surprise that adaptations of the tax system and indexation have not been used to efficiently reduce these costs.

More recent work, over the 1980s, has added in other costs of inflation relating to the effects of inflation variability, and the associated distortions of relative prices and thus resource allocation. Adding the effects of unanticipated inflation shifts (i.e. the variable inflation part) to the effects of anticipated inflation, Fischer suggests that an estimate of an inflation cost of 3-5 percent of GDP would be reasonable, at a 10 percent rate of inflation.

However, these benefits of low inflation refer to increases in the level of output. At reasonable discount rates, these gains, though permanent, may become negligible in the future. The effect of taking discounting into account is to reduce the future value of changes in the level of output, even if such a change in levels is permanent. This highlights the significance of the latest work on the costs of inflation, which point to small but significant negative effects of inflation on output growth. The importance of a connection to growth is hard to overstated. Even with discounting, small growth gains cumulate over time into large sums.

The majority of the estimates of the improvement in growth associated with lower inflation are in the region of a 1 to 1.2 percent per annum increase for a 10 percentage point reduction in inflation. There are some larger estimates (for example, Jarrett and Selody put the gain at 3 percent per annum for Canada – surely too large) and smaller estimates, but there are now several cross-country studies using different data sources and techniques that generate results clustered around that cited.

It should be noted that we still do not know for certain that the direction of causation here is from inflation to

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1 In "Monetary Reform" 1924 (see Fischer, 1994).
2 Bill Phillips ("Employment, Inflation and Growth" Economica 1962): “The average rate of rise of the retail price index between 1948 and 1960 was 3.7% per annum [in the United Kingdom]. There would be a fairly general agreement that this rate of inflation is undesirable.” (pp. 1-2, cited in Robert Leeson's obituary for Phillips, 1994)
3 Laurence Ball (1990, p3): “Indeed, since inflation is costly and the long run Phillips curve is vertical, optimal trend inflation is close to zero.” “These conclusions can be debated, but they are conventional and should appear reasonable to most macroeconomists.” Stanley Fischer (1993, p. 485): “It is now widely accepted that a stable macroeconomic framework is necessary though not sufficient for sustainable economic growth ... growth is negatively associated with inflation and positively associated with good fiscal performance and undistorted foreign exchange markets.”
4 This effect is moderated by features that restrict the ability of firms to economise on transaction balances while still maintaining the same level of output (the "money in the production function" line of argument), and by the tax distortion effect already referred to.
lower growth. Attempts to disentangle causation are generally suggestive of causation running from inflation to lower growth rather than the other way round. And there is a considerable amount of analysis that describes many reasons why inflation would damage growth performance (including the recent literature on irreversible investment, as linked to the literature on endogenous growth).

But it remains possible that inflation and low growth are both symptoms of deeper economic policy problems. Weighing this all up, Fischer is moved to conclude “However weak the evidence [on causality], one strong conclusion can be drawn: inflation is not good for growth.\"5

It is worth noting parenthetically that in the artificial extreme New Classical world of rational expectations and virtually instantaneous adjustment to equilibrium, this negative effect of inflation on output could not exist. There has to be some “imperfection” in order to explain why price movements matter for output in the long term.

One might be tempted to conclude from these arguments and this evidence that the monetary policy issue is all very clear: monetary policy that generates inflation in turn harms growth, so monetary policy should aim at minimising inflation so as to do its bit to maximise growth.

If things were so clear, however, the key innovation of the 1989 Reserve Bank Act would have been redundant. Both price stability and output (and employment) could readily coexist in the objective statement, since achieving the one would always be consistent with achieving the other. (Equally, of course, it would have been redundant to include output and employment in the objective function.) In reality, however, there are important reasons for specifically excluding output and employment from the objective statement. These reasons relate to the interaction between monetary policy, output and employment in the short-term.

IV. The short-term: monetary policy that stimulates inflation, may stimulate output

Both Classical and Keynesian economists hold that the economy does not jump straight back to, or stay in equilibrium after a change in monetary conditions. A tighter monetary policy depresses real economic activity; a looser monetary policy stimulates real economic activity. However, the positive connection between money, prices and output disappears eventually (the long-term), and, as noted already, reverses.

ment. Secondly, firms and their employees tend to set prices and wages relative to the prices and wages set by the competitors relevant to their activity. Consequently, if prices and wages of competitors are themselves adjusting only slowly to new circumstances (for the reasons described above), when each firm comes to reset prices or renegotiate wages, the slowness of adjustment elsewhere will be carried over into the firm’s new prices.

The existence of sticky prices – prices that don’t jump straight away to the point that would produce the optimum long-term outcome in terms of output and employment – is easily seen to provide an explanation for:

- the positive relationship between money, prices and output that we observe in the short-run (a tightening or loosening of monetary conditions initially produces adjustment of quantities, as prices adjust slowly);

- and thus the depressing effect that a tight monetary policy stance has on real activity in the short-run.

Further, sticky prices are the source of a potential to use monetary policy to push the economy to a different level of output and employment when it is in a sub-optimal position (such as in recession). If, in recession, a stimulatory monetary policy does not simply lead to prices jumping straight-away to their ultimate long-run position, but instead produces a positive impulse to output and employment while prices adjust slowly, then it would seem possible to use monetary policy to help the economy out of recession.

Thus far, the article has noted that one of the key innovation of the RBNZ Act 1989 was to remove output and employment considerations from the set of objectives for monetary policy, and also that the current state of macroeconomics points to a potentially significant role for monetary policy systemically to influence output and employment in the short-run.

Despite initial appearances, however, there is not a contradiction here. Quite the opposite, in fact, as will shortly be explained. But first, let us put aside one possible explanation for the absence of a contradiction.

V. How long is the short-run?

As will be obvious, a lot has been made of the distinction between short-run and long-run outcomes. These terms are often used in economics in an undated sense. The long-run is after the economy has settled down following a new event, and the short-run is the period between the onset of the event and the beginning of the settling down.

To illustrate, the short-run of the New Classical school is virtually instantaneous in calendar time, allowing short-run interactions to be described as purely transitory and of little significance. In contrast, depending in large part on how sticky are prices, the short-run of the New Keynesian school might be drawn out, and is of great significance.

It would be possible for the apparent contradiction to be explained away by asserting that the short-run is indeed transitory, and of little practical significance. But, as I have already indicated, the extreme New Classical approach is contrary to the evidence. In reality, the short-run positive connection between money, prices and output is significant, and important. It is not, however, of such overwhelming and overriding importance that the long-run can be ignored.

VI. Policy making in the presence of short-run real effects of monetary policy

It is the coexistence of (a) a potential output-stabilisation role for monetary policy in the short-run with (b) the clear desirability of an inflation-minimising role in the long-run, that makes the design of monetary policy a controversial and problematic issue.

Short-run effects of monetary policy on output and employment mean that monetary policy decisions, taken with the long-run inflation-minimisation objective in mind, have output consequences that matter for people.

If these output consequences were always consistent with peoples’ interests, there would be no problem. In principle, it should be the case that the two are mostly consistent, but in practice it is often the case that they are not.

To explain, in times of recession a monetary policy aimed at price stability would tend to be on the stimulatory side of its average stance – even if adjusting slowly, the adjustment of prices in recession still involves deflationary pressures. Equally, in boom times, when an economy is over-stretching its resources, monetary policy aimed at price stability will be on the contractionary side of its average stance, which would also be consistent with output stabilisation. If even-handed, monetary policy aimed at the long-run objective of price stability should be broadly in tune with a macro-economic stabilisation policy that keeps output and employment growing at a rate that neither implies excessive stretching of the economy’s capacity, nor excessive under-employment of resources.

In practice, however, things work out quite differently.
Precisely because a tight monetary policy stance reduces growth and employment in the short-run, a tight monetary policy is harder to implement than a loose monetary policy. Whether it is because the needed decision to tighten monetary policy too often happens to fall just before an election, or it is because the decision-makers are, as human beings, loathe to cause hurt (albeit temporary, and for the greater long-term good), the history of monetary policy is one of an inflation bias.

VII. The inflation bias compounded

This inflation bias – which is one of the things that modern economic models have to explain and allow for – has two particularly awkward elements that can work to compound its size.

First, prices seem to be stickier downwards than upwards. In other words, prices do not fall as readily as they rise. In such circumstances, even if monetary policy were even-handed, in the sense of being as quick to ease as to tighten when inflation drifted from an already biased target rate, the output consequences would not be even-handed. More output and employment would be lost as monetary policy leaned against inflation pressures in boom times, than would be gained as monetary policy moved into stimulatory mode in recession times.

With this kind of asymmetry, the difficulty of taking the tightening decision is exacerbated, as decision makers know that the output and employment consequences are likely to be relatively more severe. Thus, the original inflationary bias is compounded.

Secondly, peoples’ expectations of likely monetary policy outcomes can act to lock in this bias. Modern macroeconomics formalises the implications of expectations of policy outcomes using the notion of “time-consistency”. Time consistency works in the following way. Individuals, it is presumed, act on the basis of beliefs about the way in which the world around them operates. That includes expectations of what is likely to happen in the future. So, if people believe that governments will or will not behave in a certain way, they will take that into account when thinking about what is likely to happen in the future.

In the context of economic policy, if, for example, people believe that future governments will not provide for their retirement or their children’s education, they will tend to put a little more aside than would be the case if they believed the opposite. How firm they were in that belief would, of course, impact on their behaviour.

How does time-consistency work in the context of the inflation bias? Having observed an inflation bias, people will be inclined to disbelieve a policy that is claimed will eventually produce price stability, despite not doing so right now. People are likely to form the view that the inflation-reduction part of the promised policy will not be enacted, or at least not with the strength that would be needed to produce price stability.

As a result, peoples’ pricing decisions will reflect the rate of inflation that they believe the policy makers will tolerate, rather than an announced lower inflation target, even if everyone thought that the lower rate of inflation would be beneficial in the long-run. This reaction makes prices particularly sticky around the rate of inflation that people believe is consistent over time (hence “time-consistency”) with the policy makers’ true preferences. Consequently, the negative short-run impact on output of a policy that tries to deliver a lower rate of inflation will be increased.

Because it now hurts more, in terms of short-run output and employment costs, to deliver the price stability outcome that is best in the long-run, the inflation bias itself becomes locked in. A sort of self-fulfilling prophecy is at work, but one based on past experience of the bias in action.

VIII. Summary thus far

This article has argued that monetary policy can have important effects on the real economy. The Reserve Bank has never denied this.

In the short-run – with the short-run being much more than the blink-of-an-eye – looser monetary policy is associated with more growth, and vice versa. As time goes by, the short-run effects change substantially, to the point where a positive short-run impact on output of looser monetary policy dissipates, to be replaced with a lasting negative inflation effect on the level and growth of output.

But the existence of the short-run effect makes it very difficult to operate monetary policy in a manner that ac-
tively takes into account the short-run effect while also aiming eventually to arrive at price stability — because tightening monetary policy hurts people in the short-run.

The inflation bias that results is compounded by asymmetries in the short-run relationship between monetary policy and output (prices are stickier downwards than upwards), and once revealed, the bias tends to get locked in by peoples’ beliefs about policy preferences.

IX. The rationale for the New Zealand framework

Coming now full circle, we can see the reason why the very existence of an important connection between monetary policy and output and employment considerations makes it sensible to take output and employment out of the objective function assigned to monetary policy.

In essence, the new monetary policy framework tells the policy implementers to ignore the short-run output and employment consequences, because the economy will be better off in the long-run as a result, and because if the implementers do not ignore those consequences, the desirable long-run position will never be reached.8

X. A Catch-22?

Some readers will be asking themselves whether the very same features that provide the motivation for leaving output and employment objectives out of monetary policy’s objective function also destroy the case for aiming at price stability.

Such a Catch-22 would work in the following way.

As already noted, once an inflation bias has been revealed, the time consistent inflation target is that which people expect to be tolerated, rather than the superior price stability target. Getting inflation below the time consistent rate will be extra costly — until such time as people change their views.

Moreover, if prices are stickier downwards than upwards, it might seem that maintaining price stability is costly. Leaning against inflation when the economy is booming would cost more in output and employment than leaning against deflation when the economy is in recession.

These concerns are partially valid, but they do not represent the whole of the story.

Formal analysis of the time consistency issue reveals that it is certainly possible for a price stability target to be time consistent, so long as the policy makers’ reputation for chasing price stability is sufficiently strong. Getting from one state – featuring a positive inflation bias – to the price-stable state before reputation can be built is, of course, the difficult matter.

The jury is still out on the question of how readily a reputation for price stability can be built by institutional change, the style of policy implementation, and the development of a track record. New Zealand experience is certainly consistent with the idea that it is initially very costly to shake off a reputation for tolerating inflation. A part – but by no means the whole – of the slow growth of the New Zealand economy over the second half of the 1980s and the first two years of the 1990s (and the accompanying rise in unemployment) can be attributed to the disinflationary actions of monetary policy.9 But recent research by Laurence Ball – a leading New Keynesian – suggests that a relatively low cost disinflation might still be possible even with sticky prices and a bad inflation history. What it requires is a high speed disinflation, rather than a drawn out one, with the fast disinflation being more credible (more supportive of a favourable reputation) than the slower one. Parenthetically, it is worth noting that New Zealand’s disinflation effort started in 1984, with price stability being achieved in 1991.

On the question of asymmetric price adjustment, there are two interrelated reasons for being confident that an objective of price stability is not captured by a Catch-22 trap. First, if the asymmetry did exist with equal force at all inflation rates, then any inflation target is subject to the same concern. In such a situation, inflation should ratchet up continuously, because inflation surprises would not be followed by costly disinflation, but surprise falls in inflation (which usually happen when the economy is weak) would not necessarily be locked in.

Second, the asymmetry does not in fact appear to be invariant to the level of inflation. Specifically, in attempting to locate the source of the asymmetry, the price stickiness literature has identified an interaction between the asymmetry in price adjustment and trend inflation. Rather than spelling out the details, it suffices to say that higher inflation tends to lead to more rapid price adjustment, with

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8 It is noteworthy also that the politicians, who set up the current framework, found it easier or more fruitful to tie their own hands indirectly (by passing the implementation task to the Reserve Bank) rather than directly.

9 As can a significant part – but not the whole – of the recent rapid economic growth and fall in unemployment be attributed to the relaxation of monetary policy following attainment of price stability and to the efficiency gains arising from price stability itself.
price jumps becoming increasingly more common than price falls. Asymmetry increases as trend inflation increases. Hence, without trend inflation, at least one source of the asymmetry disappears.

XI. The permanence of short-run output costs

Finally, there is a last issue to be dealt with.

If the only way to ensure price stability is to prevent monetary policy decisions from being influenced by short-run output considerations, does that mean that the economy will constantly be paying the price of greater short-run variability in output than might have been the case if monetary policy were freed to help smooth output? In other words, is there a price that must be paid for a policy that guards against an inflation bias?

The answer is that if there is a cost, it is much smaller than might appear at first sight. There are three main reasons why the cost shrinks, compared with what some might think:

First, as already noted, once the inflation bias has been dealt with by a policy structure that aims monetary policy consistently at price stability, monetary policy actions will frequently be the same as those that would have been produced by monetary policy aimed at output stabilisation.

Secondly, much of the concern about the output consequences of monetary policy stems from the fact that monetary shocks have, in the past, been an important source of economic cycles. Booms have been kicked off by loose monetary policy, while recessions have been caused by tight monetary policy. A monetary policy that is aimed at price stability is constrained, in most circumstances, to not engender booms or recessions.

Thirdly, the chief circumstance in which monetary policy might still engender boom or recession is where the economy is subjected to a supply shock. In the New Zealand monetary policy framework, this is taken into account. The Policy Targets Agreement specifically allows for a departure from the price stability track in the presence of significant supply shocks.

XII. Conclusion

The essential conclusion of this discussion is that there is no contradiction between the key innovation of the RBNZ Act 1989 – which was to focus the objective statement given to the Reserve Bank solely on price stability – and the current state of macroeconomics – which points to a potential role for monetary policy systematically to influence output and employment in the short-run.

Although it is often tempting to lump proponents of the current approach to monetary policy in with economists who believe that the short-run output consequences of monetary policy are transitory and trivial, it is wrong to do so. Without significant and important short-run output consequences, there would not be a policy issue.

References


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