

Publication of projections

The Reserve Bank is relatively unusual among central banks in that it publishes economic projections related to its current policy decision. Its reasons for this relate to the forward-looking nature of the task and the benefits of transparency.

Benefits from publishing policy projections include their value in revealing the nature of the (implicit or explicit) policy model used by the Bank, and in showing the conditional nature (quantitative as well as qualitative) of the policy path.

Were the forecasting process, and thus its outcomes, perceived to be unreliable, potential damage to credibility could occur from the publication of projections. For this reason, the conditional nature of projections is repeatedly emphasised. Nonetheless, we recognise the risk that people approach the projections as a prediction of future outcomes, whereas we intend them as a guide to our current policy thinking.

Background

1. Many central banks publish the projections they generate for the economy and key variables of interest (such as inflation). Few, however, publish them as ‘policy projections’ (the term used in this paper to connote projections used in the course of making policy decisions), that is, as an integral part of the dissemination of the policy decision and its rationale. Monetary policy impacts on the future economy after a lag, and it is increasingly acknowledged that transparency about policy actions can increase their power and efficiency. Therefore at first sight it might appear surprising that few central banks – particularly inflation targeters – publish policy projections. After all, inflation targeting has been characterised as inflation **forecast** targeting.
2. New Zealand has been something of a pioneer in publishing policy projections. Our use of projections has developed over time. The first *Monetary Policy Statements* (the documents that contain the decision about the stance of policy, and discuss its rationale), were issued roughly every six months. They contained inflation projections, and the *Statements*’ monetary policy discussion was couched in terms of inflation forecasts. They did not, however, provide full macro-economic projections, which were published separately as *Economic Projections* in the ‘off quarters’. It became apparent that updates of the *Economic Projections* were important signals of the Bank’s view of the emerging inflation story. Equally, the value of the macro-economic projections as an aid to explaining policy issues was recognised at the time of preparation of *Statements*. Accordingly, each *Monetary Policy Statement* came to incorporate full policy projections and, from 1999 onwards, the two annual *Economic Projections* were replaced with *Monetary Policy Statements*, making for the publication of a *Monetary Policy Statement* on a quarterly basis.

The role of published projections

3. There is little doubt that the best monetary policy is forward-looking, taking full account of time delays before policy actions have their impact (“policy lags”).¹ We believe that publishing policy projections assists us in implementing monetary policy for a number of related reasons, concerning the forward-looking nature of the task and the benefits of transparency.
4. Making monetary policy decisions on the basis of inflation forecasts inherently involves focusing the policy decision on the persistent components of existing inflation pressures, and filtering out those components that are likely to prove transitory. One could achieve that filtering by reacting only to the current values of indicators of inflation pressures that in the past have been shown to be dominated by persistent elements. One could equally do the filtering by constructing a projection of future inflation, and reacting to projected inflation. These approaches amount to much the same thing. Publication of our projections demonstrates clearly the choices we have made about which inflation perturbations warrant a policy response, and which ones do not. Thus, publishing policy projections can be regarded as a way of conveying the nature of the filtering mechanism being used.
5. Increasing the openness of the policy process by using published projections may assist central banks to establish a reputation for consistently aiming monetary policy at price stability, promoting a greater degree of trust in their actions. Markets know that monetary policy actions can, for a short period, boost real economic activity – the more so if unexpected – but that this temporary gain is outweighed by a greater subsequent cost.² Therefore, uncertainty about the motives of monetary policy makes it more costly to maintain price stability, given that nominal interest rates (and nominal contracts more generally) are likely to be set on the expectation of a higher inflation rate than the authorities may intend to deliver.
6. Central banks’ leverage relies on transmission mechanisms operating primarily via financial markets. At the core of such transmission mechanisms are public expectations of future central bank actions.³ We believe that publishing projections makes the transmission mechanism more powerful and efficient by helping market operators (‘agents’) to understand the policy model. Armed with an improved understanding, agents are more likely to react to new data in a manner consistent with the central bank’s reaction to the same data.
7. The quality of policy decisions can be more effectively monitored if their premises and arguments are embodied in a transparent policy forecast. Informed feedback is more likely to be offered, and more constructive dialogue may result, where critics and others feel able to fully comprehend the basis of a policy decision. It may be argued that, for this reason, the general objective of building policy credibility can be promoted by the publication of policy forecasts, in the context of greater transparency.

Concerns about publication

8. Most central banks have been reluctant to proceed as far down the path of publishing policy projections as we have. Several reasons are advanced for this reluctance. First,

central banking has had a tradition of secrecy – one that is well on the way towards being overturned, but nonetheless one that colours the thinking. Second, there is the sense that credibility may be damaged by publishing detailed and specific policy projections if individual projection inaccuracy is mistaken as a symptom of a faulty forecasting process. Third, there is the view that policy-making involves a series of complex judgements that cannot adequately be represented by projections. Publishing policy projections might thus convey a false impression of a mechanical and pseudo-scientific exercise when the reality is quite different.

9. It is quite true that not only is the world inherently an uncertain place, but our understanding of how economic agents behave is also very limited. Moreover, our ability to read and interpret the past is greatly hampered by imperfections in our data sets – many variables of interest are inherently unobservable (eg people’s expectations), while observable variables are normally measured with approximation [see [*“Data challenges in the monetary policy process”*](#)]. Any forecast of the economy is therefore likely to be subject to amendment with the passage of time.
10. To a significant extent, the reason amendments seem to be inevitable is because it is difficult to read the current state of the economy – the “starting point” for our projections – and because the current state of the economy can evolve in unforeseen ways as new shocks appear. One reflection of this is that a significant portion of the quarter-to-quarter change in policy settings that is reflected in our published policy track six to eight quarters ahead is associated with changes in our view of the current situation of the economy. Updated starting points (comprising revisions to our previous understanding of the state of the economy, and completely new influences or information coming to bear) dominate modifications to the shape of the forward track in projections of our view of future inflation pressures. Thus, in general, as our reading of the appropriate level of the current policy stance alters from quarter to quarter, the direction of this change is reflected in the level of the stance projected six to eight quarters ahead.
11. One possible implication of this dominance of starting point updates is that projections matter less than analysis of the current state of the economy. Such an implication might provide a rationale for the apparent ability of simple Taylor rules (which use only current data) to mimic the behaviour of inflation forecast-targeting central banks.
12. However, the central task of our analysis of the current state of the economy is to discriminate between transitory and persistent components of existing inflation pressures, which is just forecasting by another name. In other words, the distinction between projections and analysis of current variables is not very great. The same uncertainties apply, no matter the technique, and we consider that the explanatory value of explicit projections provides additional benefits.
13. Our research suggests that making policy on the basis of (imperfect) forecasts improves the “efficiency” of monetary policy (i.e. the degree to which the inflation target can be maintained with dampened rather than exaggerated real economic cycles) compared with the counterfactual of using only current information. Unless the marginal effect of forecasts (over and above current data) is to take policy in the wrong direction more often than taking policy in the right direction, in general it pays to look forward.⁴ A process of regular revision maximises the prospect that policy is indeed taken in the right direction on average. The key requirement is for robust procedures, undertaken to high standards.

14. The practice of the Bank in providing quarterly projections, incorporating new information, is well established. The processes involved have been made transparent, and observers clearly understand the role played by new information in revisions to the projections. We think that our projection processes are generally regarded as robust. The degree to which we emphasise the conditionality of the projections underscores our efforts to reduce the credibility risk attaching to their publication.

Emphasising conditionality

15. Emphasising conditionality involves using published policy projections more as an aid to description of the policy choices than as detailed predictions. Our use of alternative scenarios, and our presentation of evidence of, and explanations for, quarterly revisions to data, buttress the expositional nature of our policy discussion in the context of the projections. Published policy projections of course have another role, as forecasts or ‘predictions’ of the future course of the economy and of policy. Quite naturally, if published policy projections emphasise prediction, relatively greater weight will be placed on spelling out in quantitative terms the profiles of key variables. Important numbers are likely to be identified with some precision, unclouded by a plethora of qualifications. And, significantly, it is likely that there will be a fairly tight and somewhat mechanical link between the projections and the resulting policy choice.
16. On the other hand, published policy projections whose prime purpose is exposition will place relatively less weight on the precise numbers, and relatively more on the thought processes and the ‘key drivers’ of the economic behaviour illustrated by the numbers. More than one projection might be provided, where alternative scenarios aid the exposition of the issues under consideration.⁵ The pervasive nature of the uncertainties that surround the determination of the policy decision can be highlighted, and the degree of judgement required reinforced. Relatively more emphasis will be placed on the nature of the risks and uncertainties that are relevant to the particular circumstances at hand. The policy choice will not be mechanically tied back to the projections, although those projections will of course help guide the evaluation of the options.
17. Our central argument for publishing policy projections thus relies on our being able to ensure that the projections we publish are seen primarily as an ‘expositional device’ to aid us in explaining how we believe economic activity will unfold, on the basis of what we know now. We view our projections to a significant extent as a vehicle for illustrating the nature of the (implicit or explicit) policy model used by the Bank. The projections are valued for their use in the articulation of the rationale for a particular policy path (in a forward-looking or pre-emptive policy setting), and for their use in displaying the nature (quantitative as well as qualitative) of the conditionality attached to the policy path.
18. Our published policy projections have been a mixture of the two roles. Recently, we have sought to reduce the apparent (and unrealistic) precision of the projections provided in the *Monetary Policy Statements*, by dispensing with some tracks for forecast variables whose quarterly profile was not particularly relevant to the bigger picture. The central tracks of the projections have also received a little less detailed attention in the main statement of the policy decision (Chapter 1 of the *Monetary Policy Statements*) in favour of more discussion of the contextual frame for the policy

decision. Both roles are relevant for policy projections in our view, but we are cautiously shifting the balance to give more weight to exposition.

Communicating the policy assumption: exogeneity or endogeneity?

19. Initially, the projections used in policy evaluation and in the Bank's publications were conventional "no policy change" projections. Interest rates and the exchange rate were generally held constant throughout the projection horizon at their latest values⁶. Because there were circumstances in which this approach might lead to projections of inflation outside the target range (then 0 to 2 percent) within the three year forecast horizon, a presumed policy response could be illustrated by explicitly incorporating a shift in either interest rates and/or the exchange rate at some point.⁷ Despite this possibility, this was essentially an exogenous policy approach.
20. In mid 1997, we began publishing projections incorporating an assumption of policy change(s) consistent with maintaining the policy target – endogenous policy.⁸ That is, projections have routinely incorporated a presumed policy response to projected deviations of inflation from the middle of the target range, based on a simple policy reaction function calibrated to roughly mimic the kind of policy reaction consistent with the Policy Targets Agreement. Illustrating forward paths with endogenous monetary policy was made relatively straightforward with the advent of a new model, called the forecasting and policy system (FPS). The model was designed with an explicit focus on the adjustment between the short and very long runs (which requires policy endogeneity).

Internal consistency

21. One of the motivations for our move from an exogenous to endogenous policy assumption was the greater internal consistency of projections based on the latter assumption. Exogenous-policy-based projections always contain an internal inconsistency. In ours, the internal inconsistency became apparent in the shape of the yield curve and/or the forward exchange rate path assumption. Financial markets, recognising the artificiality of the three-year forecast track for inflation (perhaps heading outside the target band based on the exogenous 'no change to current policy' approach), anticipated our likely future policy actions by changing interest rates on seeing the forecast. This of course set up the next forecast for change, based on new conditions partly influenced by these new market interest rates.
22. Even using forward market rates that are consistent with no change in policy does not, however, get rid of the internal inconsistency. It is simply not internally consistent for inflation-targeting central banks to presume that they will not react to inflationary impulses that take inflation away from target.
23. The internal consistency arising from an endogenous policy assumption, as well as being an attractive property in its own right and assisting exposition (see below), also helps with the task of running alternative projections in which the state of the world turns out differently from what is expected and policy responds to that difference.

The need to identify a policy reaction function

24. Projections based on endogenous policy require a description of the policy response (in the form of a policy reaction function or policy “rule”) to be embedded in the model. Arriving at a representative rule is not straight-forward, and in principle requires disclosure (explicitly or implicitly) of the value placed on output stabilisation relative to inflation stabilisation.
25. Ideally, one would have a policy rule drawn directly from an explicit statement of this relative valuation. However, such rules – known as optimal control rules in the literature – are too complex to be useful in an expositional context (and too model-specific to be useful in a policy decision context). With simple rules (as used in our FPS), the relative valuation can remain implicit, although it is not clear that there is any particular merit in leaving it implicit. The nature of the relative value placed on inflation and output stabilisation will become evident through published model-based policy simulations and through time. It should also be noted that the same sort of relative valuation is implicit in any systematic policy, whether or not that systematic policy is accompanied by published policy projections.
26. How should one select between the alternative simple policy rules? This question is not very different from the question of how one should select from alternative policies. We forecast, and produce *Monetary Policy Statements*, in the interests of making policy more transparent. Why then shy away from articulating the nature of the **systematic component** of policy? The reason might be to avoid policy becoming mechanical – but the analytical use of a policy rule in projections does not imply unthinkingly doing what the policy rule by itself recommends.
27. In sensibly avoiding a ‘mechanical’ approach to formulating the monetary policy decision, a significant element of judgement (the ‘art’ of monetary policy) is applied. One cannot avoid a consequential degree of ‘fuzziness’ in explaining the message – it is less easy to be clear. But in our view, this is an argument *for* using projections, as an aid to clarifying the policy-makers’ thinking about the choices faced. The value of the projections for this purpose is enhanced where alternative scenarios are illustrated and discussed as a way of clarifying how the fuzziness arises.

Expositional gains

28. In the context of the weight we give to the role of exposition in publishing policy projections, the issue of choosing between endogenous monetary policy or constant-policy-based projections becomes one of what best assists comprehension. To our mind, at the margin it is easier to explain our reasoning in terms of what interest rates might need to do in order to keep inflation on target, given the way we currently see the persistent pressures on inflation.⁹ On the other hand, it is a little harder to describe the future path in terms of a departure of inflation from target when we do not intend to let that departure happen. A further expositional advantage is to be able to illustrate the implications of alternative scenarios within a consistent framework.

Alternatives to published projections

29. Although publishing the policy projection aids observers’ discovery of the underlying model used by the policy-maker, it is not the only discovery process available. Discovery-by-observation (of a sequence of policy decisions) is the most obvious

alternative, perhaps coupled with reference to official articles and speeches on the workings of the economy. This is, in effect, the US model. Clearly, the discovery process works better when the authorities' goal has been stable over time, and the amount of 'noise' in the relevant data is low. Whereas the former is the case in the New Zealand context, the latter is not. However, even where objectives are stable and noise is low, it can be argued that publishing policy projections speeds discovery – which may be important when circumstances change. In addition, as already noted, publishing policy projections makes it harder to shift objectives without disclosing the existence of such a shift.

Conclusions

30. We favour publishing policy projections as an integral part of our *Monetary Policy Statements*, using an endogenous policy assumption. We feel that there are particular benefits with regard to transparency. While acknowledging the risks to credibility given the inherent inaccuracy of forecasts, we think that they can be overcome with an appropriate balance between the use of projections as a prediction of future outcomes, and as an expository device that illustrates the key policy issues.
31. Over recent years, we have perhaps presented projections in more detail than is warranted for the role that they play, and have tied the discussion of the policy decision too *mechanically* to the projections. These thoughts encourage us to move *Monetary Policy Statements* further in the direction of downplaying the detail associated with the central projection path, increasing the emphasis on the policy issues revealed, and more clearly outlining the uncertainties that are part and parcel of the art of setting monetary policy.

Endnotes

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- ¹ A possible exception is monetary policy under an exchange rate target, where the lag between interest rate actions and exchange rate responses may be very short indeed.
 - ² It does not matter, for this point, whether that cost is associated with the damage done by the higher inflation that usually results, or by the contractionary monetary policy necessary to get rid of a resulting inflation problem.
 - ³ See Woodford, M (1999), "Optimal Monetary Policy Inertia", NBER Working Paper No. W7261, and Woodford, M (2000), "Pitfalls of Forward-Looking Monetary Policy", *American Economic Review* Vol 90, No 2 for a particular aspect of this.
 - ⁴ See Drew, A and B Hunt (2000), "Efficient simple policy rules and the implications of output uncertainty", *Journal of Economics and Business*, Vol 52, No 1-2, and other references therein.
 - ⁵ The use of one central scenario, or even one or two alternatives, may not adequately convey the degree of forward uncertainty in any projection. The 'fan chart' approach of the Bank of England (adopted recently by Brazil), which shows a widening band of projection outcomes over time, has strengths in this regard.
 - ⁶ "Latest values" could mean a representative recent quarterly average of daily data, or a single point in time, depending *inter alia* on whether there had been a recent shift in interest rates and/or exchange rates.

⁷ See for example, [*Monetary Policy Statement, December 1996*](#).

⁸ Some attach the label “conditional” to projections that use the no-policy-change assumption. That label is avoided here, given that projections are conditional on all of the assumptions used.

⁹ It should be noted that this comment is made in the context of current governance arrangements. Were the policy decision to be made by a committee, the conclusion regarding the desirability of an endogenous central scenario might differ.