

# Macroeconomic Forecasts: Purpose, Methodology and Performance

The preparation of macroeconomic forecasts is an important aspect of the policy decision making process. This article discusses the role which forecasts play in that process, noting that the contribution forecasts make lies more in terms of information relating to the balance of risks and uncertainties regarding the economic outlook and policy responses rather than in the specific point estimates of the outlook. The article also outlines the procedures used to develop these forecasts, noting that while a considerable amount of detail and rigour is involved, judgement remains a very important aspect of the forecasting process. Finally, the article identifies some factors which will inevitably result in forecasting errors, and compares past official forecasts of real GDP growth and inflation with outcomes.

## WHY FORECASTS ARE PREPARED

Forecasting movements in aggregate economic activity is an essential input in developing appropriate macroeconomic policies, and in assessing on an ongoing basis their continued relevance. The way in which forecasts form an integral part of the policy process has been described by the OECD<sup>1</sup> as follows.

‘First, any serious forecaster starts by asking himself the fundamental questions of: what is the current state of the economy; what are the forces that got it there; what are the main forces likely to be operative in the short run and over the medium term; and where are they likely to take the economy? It is forecasting that provides the major incentive to ask these questions, the answers to which are essential to any assessment of whether policy is wrongly set, whether it should change, or whether it should respond to developments likely to occur. In addition, this process forces an explicit focus on the question of what structural changes have taken place, and with what overall effects.

Second, it is just not possible to take a view on the appropriateness or inappropriateness of policy without some idea of where the economy is going. Attempts to by-pass the need for forecasting by defining rigorous *ex ante* rules for the conduct of policy have typically been unsuccessful. Economic weather conditions do not easily lend themselves to flying the economy on automatic pilot.

Third, the discipline of putting numbers to judgements about forces acting, in the sense of serious forecasting as described above, not only concentrates the mind but serves as a powerful and efficient means of information exchange. The process of discussing and assessing forecasts, and the interplay among specialists in testing the plausibility of the numbers conveys information about the state of the world that would remain compartmentalised and latent in the absence of this discipline.’

The forward-looking nature of policy deliberations, and thus the relevance of forecasting in the process, stems from the lags in the response of economic activity to variations in macroeconomic policy instruments. The need for forward-looking policy setting has often been remarked upon in recent years in the conduct of monetary policy, both in Australia and overseas, but it is no less important for the conduct of fiscal policy. In this context, the forecast horizon needs to be of sufficient length to analyse the lagged effects on activity, and other economic variables, of changes in policy instruments.

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<sup>1</sup> Shigehara, *Macroeconomic Analysis in the Economics Department*, OECD (1994), pp. 4.

The obvious importance of forecasting in policy deliberations, however, should not be mistaken as requiring highly specific or detailed numerical forecasts. While quantifying an outlook for the economy is advantageous in assisting policy formulation, specific point forecasts are not (and should not be) the prime focus of attention. Rather point-estimate forecasts should be regarded as providing a general indication of the likely environment in which forward-looking policy considerations need to be addressed.

As outlined below, the derivation of economic forecasts involves a large element of judgement. Moreover, macroeconomic policy determination involves a balancing of risks and uncertainties, both with respect to the forecasts themselves and assessments of the impact of policy changes on the economy. In many respects policy is not based on economic forecasts *per se*, but rather judgements about the risks surrounding the economic outlook and policy effectiveness.

A corollary of the above discussion is that conclusions relating to the effectiveness of forecasts as inputs in the policy process should not be based solely — or even primarily — on *ex post* evaluations of forecast accuracy (however defined), but rather on whether the forecasts provided a picture of likely developments which proved to be an adequate (or inadequate) basis for policy decisions.

Consequently, while macroeconomic forecasts are usually presented in terms of point estimates, they should more appropriately be considered in terms of the information they provide on the major factors interacting to determine the broad outlook for the economy, with due consideration given to the risks and uncertainties involved. To emphasise this point, forecasts would perhaps be better expressed as a probability range, rather than a point estimate, where the probability range represented either past forecasting errors or, preferably, a more subjective assessment of the balance of uncertainties pertaining to current circumstances.<sup>2</sup>

However, point-estimate macroeconomic forecasts are required as one input to preparing budget estimates of outlays and revenues. In this role, the economic forecasts provide parameters which form input into estimates of detailed revenues and expenditures. While this is one area in which the macroeconomic forecasts need to be presented as point estimates, it is still important to bear in mind the full range of uncertainties involved in their preparation; and thus preparing the Budget estimates requires a reasonable feel for the probabilities attaching to the forecast parameters, in order to utilise them in conjunction with other information sources (for example, recent revenue collections which might be at variance with parameter forecasts or even outcomes).

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<sup>2</sup> See, for example, the approach adopted by the Bank of England, *Inflation Report*, February 1996.

Official forecasts are usually published twice a year — at Budget time and with the mid-year review — and normally cover only the financial year under consideration.<sup>3</sup> In recent years the practice has also developed of providing forward estimates of both revenues and expenditures, covering an extra three years beyond the actual budget year. In contrast to the practice adopted for the budget year, the macroeconomic parameters on which these forward estimates are based are not forecasts but projections. In the recent post-election announcement of the revised budgetary position<sup>4</sup>, the projections were characterised as follows:

‘The projections ... represent a realistic scenario of possible economic developments premised on meeting previously announced policy objectives. The scenario makes no attempt to allow for cyclical influences on economic activity.’

Budget statements have stressed the distinction between forecasts and projections in the development of forward estimates. The considerable uncertainty which arises the longer the forecasting horizon is of particular importance in adopting this approach. Though differences occur in relation to the specific procedures adopted, most international agencies similarly do not attempt specific forecasts when undertaking medium-term analysis.

## TREASURY’S APPROACH TO FORECASTING

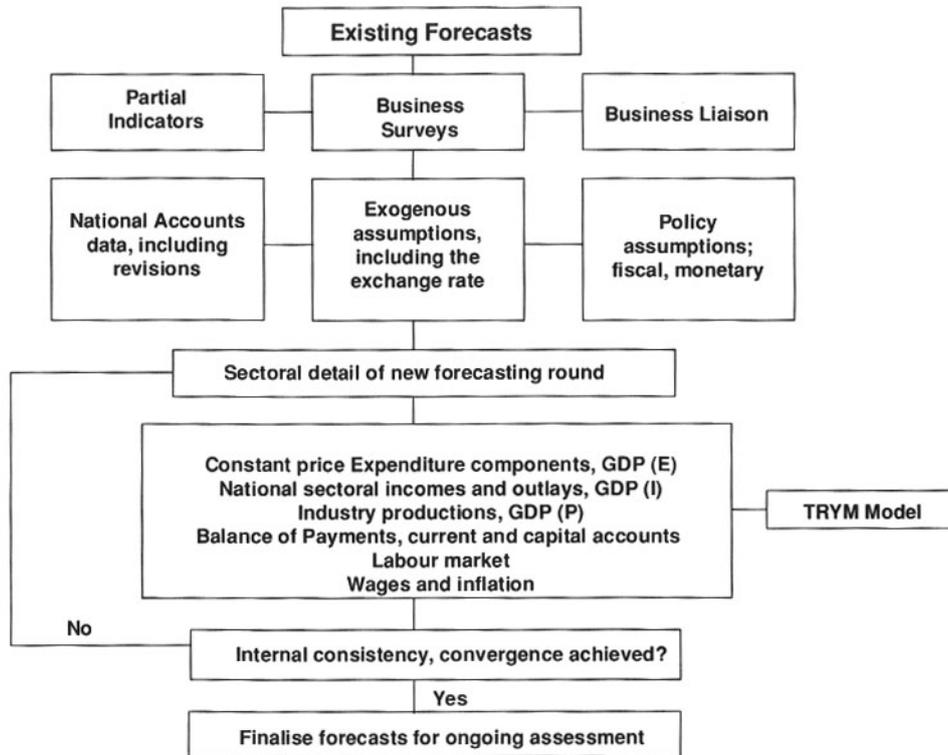
Treasury normally prepares forecasts each quarter, for internal purposes, following the publication of quarterly National Accounts. The forecasting process is summarised in Chart 1.

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<sup>3</sup> The introduction of a May Budget, in 1993, meant that the forecasts covered not only the Budget year but also the last six months of the financial year just ending.

<sup>4</sup> Treasurer’s Press Release no. 1, 12 March 1996.

**Chart 1: The Forecasting Process**



As depicted in the chart, the latest National Accounts data (including revisions) and all other available partial data provide the initial conditions for each new forecasting round. The start of a forecasting round also provides an opportunity to introduce revisions to policy assumptions (both fiscal and monetary) and other exogenous inputs (particularly exchange rate and international activity assumptions). These policy assumptions are discussed below. Information from business surveys and from Treasury business liaison, which has become of increased importance in recent years, is also introduced at this stage. This range of anecdotal information is important in specifying a starting point for the new forecasting round as well as providing a basis for making judgemental assessments throughout the round.

To facilitate policy analysis — particularly consideration of the appropriateness of current settings — the forecasts are based on the assumption that policy will remain unchanged throughout the forecasting period. While there may be differences relating to specific implementation, most official agencies overseas also characterise their forecasts as representing an unchanged policy stance. In practice, the process can be one of evolution, with a set of unchanged policy forecasts used in conjunction with general assessments of the balance of risks around the outlook to determine whether changes to current policy settings would be appropriate. If changes are implemented, their effects would then be incorporated into published forecasts which would assume

there are no further policy adjustments over the forecast period. Recognition of the unchanged policy nature of official forecasting, and its role in the consideration of appropriate policy, distinguishes official forecasts from those undertaken by the private sector, with the latter typically second guessing the timing and extent of policy responses.

A 'technical' assumption underpinning Treasury's forecasts is that interest rates are assumed to remain unchanged from nominal levels existing at the time of preparation of the forecasts. Organisations such as the United States Federal Reserve and the Bank of England also adopt an assumption of unchanged nominal interest rates when preparing economic forecasts. In contrast, the United Kingdom Treasury and the Bank of Canada forecast changes in both short-term and long-term interest rates consistent with economic fundamentals and stated policy objectives. Even where specific interest rate forecasts are introduced, different approaches are adopted for their formulation: in some cases, estimated monetary policy response functions are utilised; in other cases, more judgemental approaches are adopted, on occasions incorporating information from the futures markets.

Treasury also adopts a technical assumption relating to the exchange rate, with the usual practice being to hold the trade-weighted index and the major bilateral rates unchanged from recent levels pertaining at the time of preparation of the forecasts. Internationally, there is a general tendency for official agencies to adopt a similar approach, with the Bank of England and the Bank of Canada being exceptions. In a general sense, Australia's deregulated foreign exchange market makes it inappropriate to view the exchange rate as a policy instrument, and it could be argued that the exchange rate should be varied to reflect anticipated movements in underlying determinants.

However, Treasury's approach in this area is in large part a pragmatic one, reflecting the difficulties all analysts have encountered in satisfactorily forecasting short-run movements in exchange rates. Such difficulties are apparent from an examination of the forecasting performance of domestic private sector forecasters, who in general incorporate a variable exchange rate outlook. Attempts to forecast the exchange rate have, on average, proved to be less accurate than a no change assumption. Similarly, analysis of private sector expectations of future movements in the exchange rate over a number of years indicates that, more often than not, actual outcomes tended to fall outside the forecast range, despite that range being relatively large.

As outlined in Chart 1, once the preconditions (policy assumptions, exogenous assumptions, data revisions and anecdotal information) have been set, the forecasts are developed in terms of an iterative procedure incorporating a number of identifiable sectors. These include: detailed analysis of each of the individual expenditure components, and related determinants, underpinning the expenditure estimate of

GDP; the trade, income and capital flows underpinning the current and capital accounts of the balance of payments and their interrelationships with domestic activity; the sectoral income and outlay accounts providing estimates of GDP from the income side, as well as sectoral net lending positions; interactions between broad industry sectors, giving rise to a production-based estimate of GDP; analysis of labour market trends; and wage cost and inflation interactions.

In essence, this sectoral approach enables the conceptual basis of the ABS National Accounts and Balance of Payments publications to be replicated and forecast in detail, an outcome which is desirable given the breadth of forecasts required as input for the determination of budgetary revenues and expenditures.<sup>5</sup> The requirement of such a breadth of forecasts for budget purposes distinguishes Treasury's approach from most private sector forecasts. An iterative approach is adopted to enable internal consistency to be achieved within the overall set of forecasts, taking account of the many interrelationships between sectors.

These individual sectors are not linked together as a formal econometric model, rather being incorporated as part of a large spreadsheet system. Nevertheless, there are a number of features of the existing practice – namely the detail involved, the iterative procedure adopted, and the extent to which econometric relationships underpin the analysis of the various sectors – which are similar to those which would characterise a very large-scale econometric model.

As evident from the above description, Treasury does not rely solely, or even predominantly, on an econometric model in preparing its forecasts. This is not to say that such a model is not used as an input into the process. As identified in Chart 1, the Treasury macroeconomic model (TRYM) is used as a complementary tool in the forecasting process, providing an independent source of analysis on some individual components and overall information on the internal consistency of the forecasts. Consistent with recent international trends in model-building, the TRYM model is a small-scale model, combining sound long-run properties with consideration of short-run dynamics. Rather than being built primarily for forecasting purposes, the model was designed more for policy and sensitivity analysis, and its major use within Treasury is concentrated in those areas and not in the preparation of forecasts.<sup>6</sup>

Treasury forecasts rely heavily on the incorporation of judgement, by which quantified historical relationships are melded with influences which defy quantification on a

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<sup>5</sup> In addition, the preparation of forecasts at a highly detailed level more easily enables the introduction of judgement and the assessment of the extent of any possible changes in structural relationships.

<sup>6</sup> The TRYM model will soon be publicly released in computer-accessible form with user documentation.

stable basis. Indeed, this is necessary given the changing structure of the economy and breaking down of past relationships. Moreover, reliance on judgement is not an unusual occurrence in forecasting, whether such forecasts are model-based or not. This point is emphasised by the OECD in discussing the use of the INTERLINK model.

‘It is often assumed that the Department’s projections are ‘model-based’ in the sense that the work is concentrated on developing and refining the INTERLINK model which then, in turn, somehow generates the projections when certain assumptions are fed in. In fact, we regard our projections as essentially judgemental. INTERLINK is, rather, to be regarded as a software system that imposes a certain number of consistency requirements within and across countries, at times throws up relevant indications that a forecast is at variance with what past behaviour would predict, and greatly simplifies the management of numbers. We would regard its principal value as providing the forecasters a support system that enables them to think really hard about the critical judgements that have to be made, and in no way as replacing judgement’.<sup>7</sup>

Current international practice with the use of econometric models in macroeconomic forecasting indicates a significant diversity in approach among official agencies. There are organisations (such as the German Federal Ministry of Economics and Japan’s Economic Planning Agency) which prepare forecasts in a purely judgemental manner, with no reliance on econometric models. In contrast, some organisations (such as the United Kingdom Treasury and the Bank of Canada) utilise econometric models as the core of their forecasting process, though — consistent with the above thoughts — with judgement generously applied as necessary. In between there are organisations which adopt Treasury’s approach of using an econometric model as a complementary tool in the process; examples are the Federal Reserve in the United States and the Bank of England (both of whom maintain an in-house modelling capability), and the United States Troika members<sup>8</sup> and Congressional Budget Office (all of whom rely on commercially available models).

As noted above, judgement is an important input in the forecasting process. A development in recent years which has assisted Treasury in forming judgements has been its liaison with business. While extensive liaison with the business sector has always been undertaken, it has become more structured and more extensive with the establishment of Treasury’s Sydney and Melbourne offices in early 1993.

This liaison with the business community has been developed on a scale which does not appear to be a common feature of the forecasting process in other countries.

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<sup>7</sup> Shigehara, *op. cit.*, pp. 4.

<sup>8</sup> Comprising the Council of Economic Advisers, the United States Treasury, and the Office of Management and Budget.

Roughly on a quarterly basis, prior to the release of the National Accounts and the commencement of each forecasting exercise, Treasury officers (from the Sydney and Melbourne offices and from Canberra) undertake a round of interviews with representatives of a range of large and medium-scale businesses (usually slightly in excess of 100 firms, covering 10 per cent or more of total employment, and selected to provide a broad cross-section of the economy). Firms are consulted on recent and prospective trends in their business, usually focusing on indicators such as production, stocks, employment, investment, wages and prices. Importantly, these discussions are not focussed on quantitative outcomes but the influences which may be impacting on a firm's performance and business decisions. The interest is not in any individual firm's results, but in the aggregate picture of developments — and thinking — in the economy. The information gathered assists in monitoring the current state of the economy — a particularly important and time-consuming element of any forecasting exercise, given that the starting point for any forecast is the recent past and available partial economic data concerning developments in that period are scarce — as well as providing some indication of expected near-term developments.

In other countries, greater reliance is placed on incorporating information from the private sector through the formation of economic panels which provide advice to either the Government or the department. These economic panels typically consist of private sector forecasters (often from the financial sector) and academics, though business representatives may also be included. The information gathered in this way differs significantly from the 'own business' outcomes which are the focus of Treasury's business liaison, in that they deal more with alternative sets of economic forecasts rather than business conditions. This process of private sector panels is adopted most formally in the United Kingdom and Germany, with the formation of independent forecast panels which publish alternative forecasts and policy advice.

## FORECASTING PERFORMANCE

Despite the detail and rigour of the forecasting process, errors will inevitably occur for a number of reasons. As noted previously, however, the key test of the performance of any forecast is not its accuracy *per se* but whether it provided an adequate basis for policy decisions.

Some forecasting errors are largely unavoidable, related — for example — to shocks that cannot be predicted; a relatively recent example of such an event was the drought in 1994-95, the severity of which was unexpected and which had significant direct and indirect impacts during the course of the forecasting period.<sup>9</sup>

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<sup>9</sup> Compared with general expectations, the May 1994 Budget forecasts were unusual in anticipating a decline in farm product in 1994-95. Nevertheless, in the event, the decline was much more severe than expected.

Some errors can also flow from assumptions about exogenous factors not being validated; for example, from a domestic perspective, developments in the international economy might diverge from those assumed, with possible implications for a range of variables (including trade volumes, the terms of trade, financial variables, and general confidence levels). Ongoing policy assessment could also result in changes to policy settings being introduced during the course of the forecast period, resulting in variations from the unchanged policy assumptions underpinning the forecasts.

Another factor which can impact on forecasting performance is the seemingly inevitable, and often substantial, revision to the available economic data on which any forecast is based. A recent example was the revision to business investment data, with the timing and strength of the upturn in expenditure in the early 1990s being significantly revised with the incorporation of Tax Office data to supplement earlier survey findings.

Such revisions also have significant implications for any serious *ex post* evaluation of forecasting performance, particularly when the period of analysis is quite lengthy and can encompass not only 'normal' revisions (for example, more complete survey information and new annual benchmarking data) but also those resulting from periodic rebasing of constant price series and from changes to measurement concepts. A question which has been addressed in some detail in the literature is whether such evaluations should be conducted by comparing forecasts for a particular period with initial estimates of outcomes or those currently published (ie more final outcomes).

Although that choice may affect conclusions relating to the size of forecast errors and the presence of any bias in the forecasts, there is no obvious consensus as to which approach is more appropriate. There is one view that the appropriate comparison should be with the initial data, on the basis that — although forecasters are essentially concerned with providing an indication of what is 'truly' happening in the economy at a given time — they are unlikely to be overly concerned with forecasting outcomes inclusive of data revisions which could be incorporated only after many years.<sup>10</sup> An alternative view is that the most up-to-date information available is appropriate, in order to gauge accuracy relative to what 'actually' happened rather than what was initially thought to have occurred.<sup>11</sup> Reflecting these disparate views, the evaluations reported below use both initial and final estimates, where appropriate.

With respect to factors resulting in forecast error, a final — and maybe most significant — source is simply misreading the forces acting in the economy, perhaps by failing to recognise the strength or weakness of certain developments. A special instance of this

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<sup>10</sup> Jansen, W.D. and Kishan, R.P., 'An Evaluation of Federal Reserve Forecasting', *Journal of Macroeconomics*, Winter 1996.

<sup>11</sup> Donihue, M.R., 'Evaluating the Role Judgement Plays in Forecast Accuracy', *Journal of Forecasting*, vol. 12, 1993.

could, for example, occur where structural changes are under way which invalidate past interrelationships estimated from historical data. The delay by most forecasters in recognising the lower inflation environment of the early 1990s, partly stemming from the impact of increased competitive pressures on the pass-through of labour and other costs (with consequent effects on profit margins), is a case in point.

It is this final source of error which is normally the focus of *ex post* evaluation of forecasting performance. However, the initial three sources mentioned above — unpredictable shocks, errors in exogenous assumptions, and data revisions — can all be important contributors to forecast error, but it is extremely difficult — if not impossible — to identify separately their contribution.

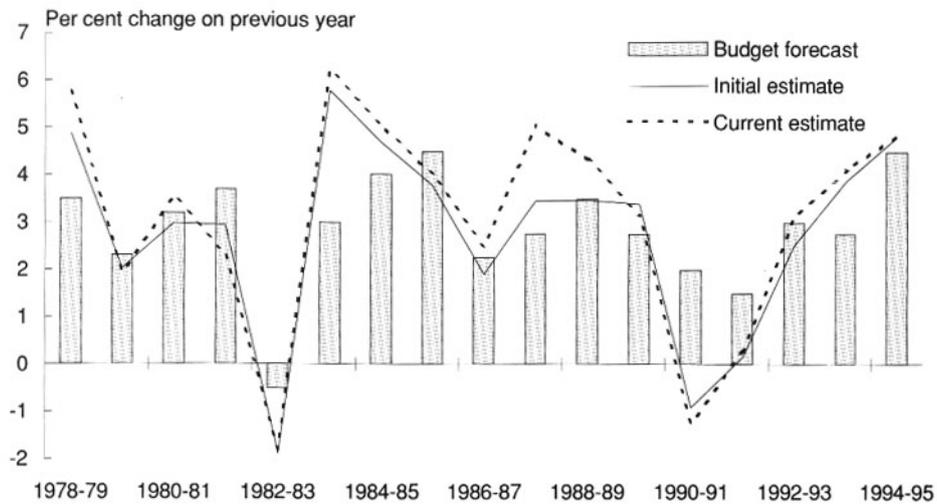
With that in mind, what can be concluded about the performance of official forecasts? In answering that question here, consideration is focussed on two variables of particular importance in policy deliberations — real GDP growth and the CPI — though, as is apparent in the earlier discussion, a much broader range of macro aggregates is forecast and could thus be assessed in similar fashion.

Information used in the assessment is sourced from Budget forecasts from 1978-79 to 1994-95, inclusive. A comparison of Budget forecasts for real GDP growth with actual outcomes, based on both initial estimates and currently published estimates, is presented in Chart 2. A similar comparison of CPI inflation forecasts is presented in Chart 3.<sup>12</sup>

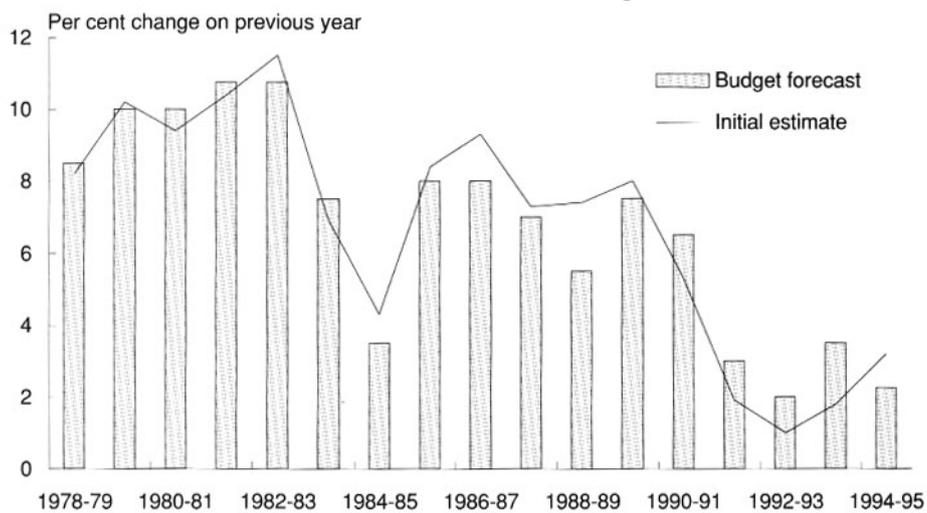
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<sup>12</sup> Note that CPI data are not revised, resulting in a single estimate of actual outcomes.

**Chart 2: Gross Domestic Product Budget Forecasts**



**Chart 3: Consumer Price Index Budget Forecasts**



In conducting *ex post* forecast evaluations, analysts tend to focus on two particular questions — are forecasts biased<sup>13</sup> and, on average, how accurate are they?

Consideration of the information provided in the charts, and of the Average Errors presented in Table 1, suggests little evidence of **bias** in Budget forecasts of either real GDP growth or CPI inflation, particularly if initial estimates of actual outcomes for GDP growth are employed in the comparison. However, these average errors provide no indication of **accuracy**, since frequent large errors of offsetting magnitude would still result in a low average outcome.

<sup>13</sup> That is, whether forecasts tend, on average, to overestimate or underestimate actual outcomes by a significant margin.

**Table 1: Evaluation of Budget Forecasts of GDP and CPI (percentage points)**

	Average Error	Summary Statistics: Average Absolute Error	Standardised Root Mean Square Error
<b>Real GDP growth</b>			
Initial estimates	0.05	0.94	0.36
Current estimates	-0.26	1.21	0.40
<b>CPI inflation</b>	-0.01	0.82	0.13

Source: Budget Statements

Statistics which provide a better indication of accuracy are the Average Absolute Error (which abstracts from the direction of error, thereby eliminating the effect of offsetting errors on the calculation) and the Standardised Root Mean Square Error (which more readily enables a comparison of average absolute errors across different variables, since it places errors into perspective relative to the size of the variable under consideration). Information on these two statistics, for the two variables under consideration, is also provided in Table 1.

The average absolute error involved in Budget forecasts of real GDP growth is a little under 1 percentage point, if compared against initial estimates of actual outcomes, or around 1¼ percentage points, once allowance is made for the subsequent substantial upward revisions to actual outcomes now evident in current published data. There is a natural tendency to underestimate the amplitude of the cycle; as evident in Chart 2, official forecasts underestimated the extent of both recessions which occurred during the period of analysis as well as, at some stage, underestimating the strength of the recovery.<sup>14</sup> Nevertheless, the forecasts have provided a good indication of the direction of change in growth of overall activity in the economy, an important consideration in policy deliberations; on every occasion, the direction of change has been correctly forecast.<sup>15</sup>

The average absolute error involved in Budget forecasts of CPI inflation is a little over ¾ percentage points. As is evident in Chart 3, the forecasts were particularly close to actual outcomes in the period up to 1986-87. Two factors contributed to the relative deterioration in performance in the latter part of the period. One is the change in ABS methodology related to the treatment of mortgage interest charges in the calculation of the CPI.<sup>16</sup> Given the unchanged interest rate assumptions underpinning Budget

<sup>14</sup> In the more recent experience, underestimation of the strength of the recovery occurred at a later stage than was the case during the 1980s, with initial expectations of a rebound in 1991-92 being unfulfilled.

<sup>15</sup> An initial consideration of Chart 2 may provide an incorrect impression of this. Bear in mind that the relevant comparison is not between successive Budget forecast rates of growth. Rather it is whether the Budget forecast for a given year, relative to the previous actual outcome, gives a correct indication of movements in actual outcomes. An incorrect visual impression is most evident for the mid-1980s forecasts.

<sup>16</sup> For a detailed discussion of the treatment of interest costs in the CPI see *Home Ownership and Interest Charges* in the January 1989 edition of the Economic Roundup.

forecasts, it is reasonable to expect that — in the context of the current ABS methodology — these forecasts would overstate actual outcomes when interest rates were falling (as was the case in the early 1990s) and underestimate actual outcomes in periods of rising interest rates (as in 1994-95). The impact of this interest rate effect tends to be confirmed by evaluating forecasts for the private consumption deflator which, although it is also a general measure of consumer prices, does not include impacts of mortgage interest rates in its calculation.<sup>17</sup> Over the late 1980s and early 1990s, the average absolute error associated with forecasts of the consumption deflator are significantly lower than those of the CPI.

Nevertheless, taking into account the interest rate effect does not explain all of the relative deterioration in performance, particularly in the early 1990s. As such, this suggests that a second factor could have been the difficulty experienced by official forecasters in identifying the low-inflation environment of the 1990s, stemming from increased competitive pressures relative to both domestic and external sources of supply.

The preceding comments all relate to the accuracy of Budget forecasts in their own right. It is also interesting to consider relative accuracy, in relation to official forecasters overseas.

Published information evaluating the forecast performance of official agencies overseas is limited but, on the available information, official forecasts of GDP growth and CPI inflation in Australia are comparable with international experience in terms of accuracy. As indicated in Table 2, average absolute errors associated with forecasts for real GDP growth for agencies in Canada, the United States, the Netherlands, and the United Kingdom over the 1980s range between 1 and 1¼ percentage points, results which are similar to those for Australia. Similarly, average absolute errors associated with forecasts of CPI inflation by these agencies range from a low of 0.30 percentage points (for Canada) to a high of 1.55 percentage points for the United Kingdom. Outcomes for official forecasts in Australia are comparable with, or better than, these outcomes, with the exception of Canada.<sup>18</sup>

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<sup>17</sup> In the household income and outlay accounts of the National Accounts, mortgage repayments are treated as a disbursement of household income, rather than as part of household consumption expenditure. Thus, while mortgage payments affect the net spending position of households, they are not directly measured as part of consumer expenditure either in nominal or constant price terms, and are thus not reflected in the price deflator.

<sup>18</sup> The treatment of interest rates in the measurement of the CPI (which affects Australia and the United Kingdom), and forecast methodology relating to interest rates, need to be borne in mind in this comparison.

**Table 2: International comparison of Official Forecasts (Average absolute errors)**

	<b>GDP</b>	<b>CPI</b>
Canada (1982-92)	1.36	0.30
United States (1982-92)		
Office of Management and Budget	1.06	1.02
Congressional Budget Office	0.90	0.75
Netherlands (1982-92)	1.31	0.75
United Kingdom (1980s)	1.05	1.55
New Zealand		1.00

Sources: Ernst and Young, *Review of the Forecasting Accuracy and Methods of the Department of Finance, Canada*, September 1994. HM Treasury, *Economic Forecasting in the Treasury*, Government Economic Service Working Paper No. 14, April 1994.

## CONCLUSIONS

As well as providing some brief comments on the procedures which Treasury follows in preparing its macroeconomic forecasts and its past performance related to those forecasts, the preceding sections have identified the primary purposes of those forecasts as being to provide information necessary for the calculation of Budget estimates and as an input into consideration of the appropriateness of policy settings. In this latter context, it is important to recognise that policy determination incorporates large elements of judgement in balancing the risks associated with implementing particular decisions. Forecasting is important in policy formulation, not for the particular point estimates provided in terms of the outlook, but for the information on the principal forces interacting to determine likely developments in the economy and on the range of major uncertainties surrounding those developments. Thus, forecasting's prime role in the policy process is in assisting in an assessment of the risks involved when balancing judgements about the timing and extent of particular policy measures. For this reason, more attention has been devoted in recent Budget Statements to a discussion of the uncertainties surrounding the forecasts, a practice which is likely to be enhanced in future.