

DEVELOPING AN INDICATOR OF FISCAL STANCE FOR NEW ZEALAND

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1. Introduction

Assessments of short-term fiscal policy often use terminology such as a “tight (or loose) fiscal stance” or “contractionary (or expansionary) fiscal policy”.¹ The aim of this essay is to investigate an indicator of fiscal stance for New Zealand. Simple indicators of fiscal stance can form a useful part of a fiscal analysis toolkit – alongside measures of the structural fiscal position, analysis of tax and spending trends and drivers, and longer-term fiscal projections. Simple indicators of stance may enhance the *ex post* interpretation of fiscal policy as well as helping to identify relatively large *ex ante* forecast changes in fiscal policy. However, we do not see an indicator of fiscal stance as some sort of “stop” or “go” trigger for fiscal policy initiatives. Policy initiatives should also be assessed with reference to underlying micro-economic and public finance analysis. Ideally, fiscal stance indicators would be augmented with assessments derived from macroeconomic and time series models. Although assessments of fiscal stance may play an information role, our analysis constitutes a significant health warning to their unqualified use.

This essay is set out as follows. Section 2 gives a brief summary of fiscal policy in New Zealand in the 1990s. Section 3 sets out definitions of fiscal stance and discusses some of the limitations of simple indicators. Section 4 outlines issues that arise in calculating an indicator of fiscal stance. Section 5 provides estimates and sensitivity analysis of the fiscal stance for New Zealand. Finally, Section 6 provides concluding remarks.

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¹ Two typical examples include the Economist’s assessment of UK fiscal policy (“The fiscal arithmetic: Luck and judgment”, *The Economist*, March 25, 2000, p. 66) and the International Monetary Fund (IMF) assessment of Irish fiscal policy (IMF, 2001a).

2. Fiscal policy in New Zealand

Because of the limited availability of fiscal information on a consistent basis, we start our estimates of fiscal stance in the early 1990s.² Key points of New Zealand fiscal policy relevant for analysis of fiscal stance are:

- A swing from consecutive operating deficits to consecutive operating surpluses from 1994 and a significant reduction in debt.
- Fiscal projections in the mid 1990s suggested scope for a fiscal adjustment, and the then Government announced tax reductions and additional spending.
- Looking forward, the current Government is aiming to run operating surpluses.

One of the requirements of the Fiscal Responsibility Act 1994 is for the Government to set long-term fiscal objectives. The current Government's approach is to run operating surpluses sufficient to make contributions to the partial pre-funding of future pension costs (New Zealand Superannuation), while meeting capital spending demands and keeping debt at prudent levels. In setting its fiscal policy plans the Government aims to make progress toward its long-term fiscal objectives, while letting the automatic fiscal stabilisers operate in the short-term.

The Government formulates its budget to ensure that aggregate levels of taxation and spending (including forecast new operating and capital spending) are consistent with progress toward its long-term fiscal objectives. Adjustment towards fiscal objectives will result in changes to the fiscal balance over time, and therefore possible changes in the fiscal stance. These changes in the fiscal stance are not necessarily a deliberate attempt to influence aggregate demand, but are the consequence of a number of individual budget decisions and progression towards the long-term fiscal objectives.

Governments may also be concerned about macroeconomic stability and therefore the potential short-term impact of fiscal policy on aggregate demand. For example, strongly pro-cyclical fiscal policy could place additional pressure on monetary policy and lead to undesirable swings in

² The Crown Financial Statements are based on Generally Accepted Accounting Practice (GAAP) and were first published in the early 1990s.

interest rates and the exchange rate. Because large changes in the fiscal stance may have an impact on aggregate demand in the economy, they will need to be taken into account by the Reserve Bank of New Zealand (RBNZ), which operates to achieve an inflation target.

In New Zealand, co-ordination between monetary and fiscal authorities does not take the form of the authorities acting to pursue joint policy objectives. Rather, the fiscal policy and monetary policy frameworks emphasise transparency. In the case of the mid-1990s tax reductions there was active consultation between New Zealand's monetary and fiscal authorities. A fiscal stance indicator would complement existing fiscal indicators used by the New Zealand Treasury, such as the estimated structural fiscal balance (see Tam and Kirkham, 2001). A key task of this indicator is to assess the trend in the structural fiscal position (see the New Zealand Treasury's Briefing to the Incoming Government, 1996 and 1999). The fiscal balance currently used in this calculation is the OBERAC (Operating Balance Excluding Revaluations and Accounting policy Changes), which is discussed in Section 4.1.

3. Definitions, limitations and other approaches

3.1 Definitions

There is no standard definition of fiscal stance, although some measure of the fiscal balance is typically involved. In this context, changes in fiscal stance are often defined as the change in the fiscal balance, where this change is typically described as the fiscal impulse. The change measure indicates that even though the fiscal balance may be in deficit, fiscal policy can be tighter (looser) than the previous period if the deficit is smaller (larger). An increase (decrease) in the deficit (surplus) therefore represents an expansionary fiscal impulse. Wells (1995) notes two drawbacks in using the change in the fiscal balance as an indicator of fiscal policy effects:

- Both changes in private-sector demand and fiscal instruments (tax rates and spending plans) can influence the actual fiscal balance. The most common approach to this drawback is to estimate a cyclically-adjusted or structural fiscal balance.
- Because of inherent differences in each of the fiscal instruments, they should be weighted to reflect their initial impact on aggregate demand.

This leads to the use of what is sometimes termed the “weighted budget balance”.

In this essay, fiscal stance and fiscal impulse are generally defined in terms of discretionary policy that has an impact on aggregate demand. This excludes cyclical effects, which are considered non-discretionary. This definition is similar to that used by the UK Treasury (see HM Treasury, 1999). For example, consider the case of unemployment expenditure. Changes in unemployment expenditure occur through changes in unemployment numbers and/or changes in benefit rates. The effect of cyclical changes in unemployment numbers is considered non-discretionary and would be excluded from the measure of fiscal stance. The effect of changes in benefit rates is discretionary and would change the fiscal stance.

Although fiscal stance is defined in terms of discretionary fiscal policy, not all of the changes involved in the calculation will be straightforward. For example, an exogenous and non-cyclical increase in the number of hospital patients can require increased spending on healthcare. Although such exogenous factors are largely non-discretionary (for given health policy), a government will need to take them into account when making decisions. A government has the discretion over whether to accommodate non-discretionary changes, or to offset them with discretionary policy changes elsewhere in the budget.

Fiscal stance is attempting to measure whether the government’s decisions are adding to, or subtracting from, demand pressures in the economy. We focus on the non-cyclical, or structural component given the potential role of automatic fiscal stabilisers.³ For example, consider the case where forecasts indicate a significant deterioration in the overall fiscal balance. If this is due in large part to a forecast cyclical downturn, then although the change appears expansionary, it is reflecting the role of automatic stabilisers. The onset of the downturn may result in a fiscal deficit under policies that would otherwise have generated a balance or surplus.

³ Automatic stabilisers are those aspects of tax and spending systems that tend to smooth output over the economic cycle. For example, during an upswing, incomes tend to rise, resulting in higher tax receipts, while falling unemployment lowers unemployment expenditure. The strength of these stabilisers will depend on the specific features of the tax and spending systems. Often these features are the result of various policy decisions rather than any conscious decision to optimise the stabilising features of taxes and spending.

If the downturn does not eventuate then the extent of automatic fiscal stabilisation will have been less. The change in the actual fiscal balance would *ex post* appear less expansionary. Since we are interested in the stance of fiscal policy then it is important to distinguish between a loosening that arises from cyclical effects versus one that arises from discretionary changes. As discussed in the next section, the separation of cyclical and discretionary effects can be difficult. Reliance on automatic fiscal stabilisers needs to allow for their operation during both downturns and upturns, together with a reference to the medium-term fiscal position (for an assessment in the New Zealand context see Fowlie, 1999).

3.2 Limitations

Blanchard (1993) provides an important survey of the limitations to short-term fiscal indicators. First, the original purpose of the structural, or cyclically-adjusted balance (CAB) is to assess what the budget balance would be if the economy were at full employment. Changes in the CAB have subsequently been used to assess the effect of fiscal policy (e.g., an increase in the structural deficit is seen as expansionary).

However, Blanchard questions whether the CAB is well suited to this task. For example, fiscal policy operates through two main channels, the distortions created by the tax/incentive structure and the effect of fiscal policy on aggregate demand. He argues that the CAB is only aimed at this latter channel. Second, Blanchard draws a distinction between the impact effect of fiscal policy and the final effect, where the latter requires consideration of general equilibrium effects on interest rates, exchange rates and output. In Blanchard's view an indicator can only measure impact effects and even then he is doubtful about the use of the CAB. For example, a measure of fiscal impact will also depend on assumptions about the future because consumption does not depend only on current income.

A more detailed analysis along weighted budget balance lines would introduce significantly more judgement than the simple indicator of fiscal stance developed here. One of the relevant factors to consider when assessing whether a "tighter" fiscal stance will actually have a contractionary impact on the economy is the composition of the change in fiscal policy (e.g., between changes in taxes, transfer payments, investment or public sector wages).

To address some of the limitations with using a simple indicator, work in Treasury in the mid 1990s focused on developing an *Economic and Fiscal Indicator* (see Treasury's Briefing to the Incoming Government 1996, p.61). A summary of the EFI is given in the Annex. Even the EFI could not provide a complete assessment of the impact of fiscal policy on the economy because it is only a partial model. For example, it does not contain a supply side, or a monetary policy reaction function.

Finally, it is not clear from a theoretical or empirical perspective what the short-term effects of fiscal policy are. Makin (1998) provides a summary of some of the key considerations in an open-economy setting. During the 1990s a series of papers examined the effect of large fiscal consolidations, often finding that these can be expansionary. This was in contrast to the predictions of standard Keynesian-type models where a fiscal contraction reduces aggregate demand and output through multiplier effects. For example, Giavazzi and Pagano (1990) considered fiscal contractions in Denmark and Ireland during the 1980s, finding that large reductions in cyclically-adjusted fiscal deficits were associated with increases in private sector consumption. Alesina and Perotti (1996) examine seven consolidations (in Denmark, Ireland, Belgium, Canada, Italy, Portugal and Sweden), also finding positive effects on the growth of private consumption. Perotti (1999) investigates the role of initial fiscal conditions in determining the effects of changes in fiscal policy.

3.3 *Other approaches*

An indicator of fiscal stance will only ever be, at best, a guide to the initial impact of fiscal policy. For example, an increase in government spending could add to demand pressures in the first instance. However, as firms and households react to this increase in government spending, they may change their investment and consumption behaviour. A simple indicator of fiscal stance does not capture these second-round effects. The final effect of fiscal policy on aggregate demand needs to take account of the dynamic effects through time. As Blanchard (1993) argues, to make a more complete assessment of the effects of fiscal policy on aggregate demand requires a full-scale macroeconomic model.

There are a number of papers that use macroeconomic models to examine the effect of fiscal policy on the economy. For example, Hall and Rae (1998) examine the effect of a fiscal expansion in New Zealand using

the NBNZ-DEMONZ model. They consider how the results are dependent on the financial market response and the monetary policy reaction, and the difference between a fiscal expansion achieved through tax cuts and increased spending. Modelling the effect of fiscal policy using the New Zealand Treasury Model (NZTM) is an area for further work.⁴

As a complement to macroeconomic models, which through their assumptions can pre-determine the effect of fiscal policy (see Blanchard, 2000), Blanchard and Perotti (1999) use a structural vector-autoregression (VAR) approach to estimate the dynamic effect of fiscal policy on US economic activity. This approach takes into account not just the initial impact on the economy, but how the impact changes through time. Blanchard and Perotti use the observation that within a quarter, there is little or no discretionary response of fiscal policy to unexpected movements in economic activity. Combining this with institutional information about the tax and transfer systems as well as the timing of tax collections allows Blanchard and Perotti to construct estimates of the automatic effects of unexpected movements in activity on fiscal variables, and, by implication, obtain estimates of exogenous fiscal policy shocks. Having identified these shocks, they then trace their dynamic effects on output. The results consistently show that positive government spending shocks have a positive effect on output, and positive tax shocks have a negative effect. The multipliers for both spending and tax shocks are typically small, often close to one.

4. Calculating indicators of fiscal stance

Notwithstanding the limitations discussed in Section 3, we consider it useful to investigate estimates of fiscal stance based on an indicator type framework. Even so, there is no generally accepted indicator of fiscal stance. Developing an indicator of fiscal stance involves making a number of judgements, such as:

- The appropriate measure of the fiscal balance – including whether this is based on cash or accrual measures, whether it is based on operating flows or includes capital, whether or not it is calculated before net interest payments (i.e., primary balance), and which data source to use.

⁴ The New Zealand Treasury Model is currently being refined and documented (for example, see Szeto, 2001).

- Adjustments to capital transactions.
- The approach taken to isolating discretionary, or structural fiscal policy – for example, whether to use the two-step method (output gap with elasticities) or an indexed method.

4.1 The appropriate measure of the fiscal balance

The most commonly reported measure of the fiscal balance in New Zealand is the operating balance from the Statement of Financial Performance. The operating balance is an accrual measure based on Generally Accepted Accounting Practice (GAAP) and so reflects accounting standards. It includes non-cash items such as depreciation and the retained surpluses of State-owned enterprises and Crown entities. It also includes revaluation effects on net present valued liabilities of the Accident Compensation Corporation (ACC) and Government Superannuation Fund (GSF), gains or losses on asset sales and accounting policy changes (for example, changes around the recognition of assets and liabilities). These items are less likely to have a direct impact on aggregate demand than other income and spending items, although they may have second round or indirect effects. Two possible alternatives are to:

1. Start with the OBERAC and exclude non-cash items, the key items being depreciation and the retained surpluses of State-owned enterprises and Crown entities.⁵
2. Focus directly on a cash measure of the fiscal balance, for example, net cash flows from operations (NCFFO) from the Statement of Cash Flows.

NCFFO is the difference between cash operating receipts and cash operating expenditures. Although the path of depreciation over time is generally smooth, actual purchases of physical assets can occur in a more lumpy fashion and will include spending that increases the asset base. An indicator of fiscal stance based on NCFFO needs to incorporate capital expenditures directly. The judgements around capital are outlined in Sections 4.2 and 5.

⁵ See the December Economic and Fiscal Update 2001, pp. 60-61 for details on the OBERAC calculation. The materiality limit for OBERAC adjustments is \$100 million.

A further point relating to the fiscal balance is the appropriate information source. Internationally, fiscal indicators are calculated from a range of sources, including budgetary accounts, the System of National Accounts (SNA) and Government Finance Statistics (GFS). Both SNA93 and revised GFS (GFS2001, see IMF, 2001b) are accrual frameworks based on statistical standards. The revised GFS framework is harmonised with SNA93 although the coverage of a particular category of transaction may differ slightly. Its primary aim is to provide a comprehensive conceptual and accounting framework for analysing and evaluating fiscal policy, especially the performance of the general government sector with a focus on taxes, spending, borrowing and lending (IMF, 2001b, pp.1-3). The fiscal balance in SNA and GFS that comes closest to our base definition is essentially “net lending/borrowing”. In GFS, net lending is the net operating balance less net acquisition of non-financial assets. The GFS net operating balance is an accrual measure of revenues and expenses that includes depreciation as an expense. Depreciation cancels out of the calculation of GFS net lending since the calculation uses net investment. Our base indicator is somewhat wider than net lending as we include selected transactions in financial assets.

It would be useful to compare indicators of fiscal stance based on GAAP with those based on SNA and GFS. Statistics New Zealand (SNZ) prepares government sector accounts on an SNA93 basis for two purposes: the Institutional Sector Accounts (ISA) and the SNZ Crown Accounts. The government sectors (central and local) in the ISA are annual March year experimental series published with a lag (they are currently only available up until 1998).⁶ The SNZ Crown Accounts are a narrower subset of the ISA government sector and are annual June year official series published with a lag of four to five months. Publication by SNZ of GFS accounts in line with the revised manual is a medium-term project. Overall this means that fiscal stance cannot be easily calculated on an SNA basis for the most recent years, or for the forecast period. Due to these data limitations, we restrict calculations to GAAP-based indicators.⁷

⁶ The central government sector (3.1) comprises government departments, offices of Parliament and most Crown entities. It excludes the RBNZ, which is included in sector 2.1 (financial intermediaries). State-owned enterprises are part of sector 1 (producer enterprises). The concept of core Crown in the GAAP financial statements excludes both State-owned enterprises and Crown entities (but includes the RBNZ).

⁷ The New Zealand Treasury is currently involved in a project with SNZ that involves a reconciliation of GAAP and SNA fiscal information.

4.2 *The appropriate measure of capital transactions*

Ideally, the indicator of fiscal stance would include capital transactions that have an impact on aggregate demand. However, it is not always clear which transactions will affect aggregate demand, and it is likely that there are varying degrees of economic impact.

It is useful to examine how other countries adjust for capital. The UK Treasury uses public sector net borrowing as an indicator of the short-term impact of fiscal policy on the economy, so as to include investment decisions. Public sector net borrowing is defined as net investment less the surplus on current budget. The capital transactions included in public sector net borrowing are capital formation (acquisition of fixed assets, stocks and valuables net of any sales), plus net acquisition of land, and net payments of investment grants. The Australian Treasury (1997, 1999) uses net lending, which is the net operating balance less net capital investment.

The impact on aggregate demand will depend on the nature of the capital transaction. For example, sales of existing assets represent a transfer of resources and are unlikely to have a significant effect on demand. In addition, for a small open economy like New Zealand, many large government capital items are imported, for example defence assets, and therefore will not impact on domestic demand.

4.3 *Approaches to identifying discretionary fiscal policy*

There are a number of approaches that can be used to remove the effect of the economic cycle and so estimate the structural fiscal balance (see Giorno, Richardson, Roseveare and van den Noord, 1995; Bank of Italy, 1999; van den Noord, 2000). Most approaches use a two-step methodology that uses estimates of the output gap together with a set of elasticities of tax and spending to output. The New Zealand Treasury calculates a structural fiscal balance based on this two-step method (see Annex).

Tam and Kirkham (2001) find that the calculation of the structural balance for New Zealand using the two-step method is very sensitive to the output gap calculation, although trends in the balance appear more robust. An advantage of using the Treasury's approach to identify discretionary fiscal policy is that it is widely understood, and is already a published fiscal

indicator. There are a number of disadvantages in using Treasury's approach as a basis for measuring fiscal stance:

- The current methodology used by the Treasury does not make any adjustment for cyclical variations in interest rates and inflation (see, for example, Bouthevillain and Quinet, 1999). However, this problem has become less important as inflation rates have declined and become more stable. Furthermore, an adjustment can be made by excluding net interest payments and focusing on the primary balance (Blanchard, 1993).
- It is sensitive to estimates of potential output, which are uncertain, especially toward the end of the sample period and into the forecast horizon – the periods where discretionary policy and stance may be of most interest. Blanchard (1993) points out that the CAB was not designed as an indicator of changes in discretionary fiscal policy, and it relies needlessly on the uncertain calculation of potential output.

Instead, Blanchard suggests the use of an indexed approach. His suggested indicator of discretionary fiscal policy has become known as the Blanchard Fiscal Impulse (BFI) (see for example, Alesina and Perotti, 1995, 1997; and various papers in Bank of Italy, 1999). The BFI is defined as the value of the primary surplus which would have prevailed, were unemployment at the same value as in the previous year, minus the value of the primary surplus in the previous year, both as a ratio to GDP in each year (see Blanchard, 1993). Blanchard removes net interest payments as a simple way of adjusting the balance for changes in inflation and real interest rates. Fluctuations in net interest payments are also considered non-discretionary. The BFI is essentially a cyclical adjustment that eliminates from the fiscal balance changes in taxes and transfers due to changes in the unemployment rate (Alesina and Perotti, 1997).

Although the BFI approach avoids the need to estimate potential output, Kearney, McCoy, Duffy, McMahon and Smyth (2000) note that it assumes a stable relationship between changes in unemployment and economic activity, which may not be appropriate (especially during periods of structural change).

Another approach is to use a structural VAR that takes into account any feedback between fiscal policy and the economic cycle (see Bouthevillain and Quinet, 1999; Kearney *et al.*, 2000). The structural balance estimated via the two-step method attempts to remove the effect of the economic cycle on the fiscal balance, but ignores the fact that the fiscal

balance also may affect the economic cycle. Bouthevillain and Quinet (1999) and Kearney *et al.* (2000) estimate a two-variable structural VAR model that decomposes fluctuations in the deficit-to-GDP ratio into those arising from shocks to output (assumed to have permanent effects) and changes in the deficit itself (assumed to have transitory effects).⁸

However, Kearney *et al.* have shown that the structural VAR method can be unreliable in the presence of structural change. Other disadvantages of this method are that the identifying procedure is subjective so that the estimates are sensitive to small changes in the restrictions. In addition, the structural VAR method is not simple to update when additional data becomes available, making it difficult to monitor an indicator based on a structural VAR approach on a regular basis.

5. Estimates of the fiscal stance for New Zealand

This section estimates the fiscal stance for New Zealand from 1992 until the end of the current forecast horizon (year ended June 2006). This section tests sensitivities of a base indicator to some of the key judgements outlined in the previous section. The key judgements made in calculating the base indicator are:

- Net cash flows from operations before net interest payments (i.e., finance costs less interest, profits and dividends) is used as the measure of the primary fiscal balance.
- The capital adjustment is reasonably detailed and attempts to capture the capital transactions that impact on aggregate demand.
- Treasury's two-step structural adjustment method is used to remove the effect of the economic cycle on the fiscal balance because it is already a method used by the Treasury, and it is reasonably simple to update. The adjustment is applied only to the operating part of the primary fiscal balance. The capital component is not cyclically adjusted.

Table 1 lists the five key capital items, along with a judgement about whether these are likely to impact on aggregate demand. Deciding which

⁸ Buckle, Kim and Tam (2001) use a structural VAR to explicitly model the interaction between a set of economic variables and the budget balance in New Zealand. However, their focus is not on the structural fiscal position *per se*, but rather the *ex ante* fiscal balance required to achieve, with a given probability, a desired *ex post* budget balance for alternative short-term fiscal planning horizons.

capital transaction should be included in the adjustment involves a trade-off between simplicity and completeness. A simple indicator would make an approximate estimate of capital that affects demand. A more complete indicator would look at each item and make adjustments for capital expenditure that affects demand. For example, it could remove defence capital expenditure from purchases of physical assets, and refinancing of hospital loans from advances to hospitals. Based on Table 1, capital in our base indicator includes:

- Net purchase of physical assets, excluding defence.
- Increases in student loans.
- Advances to hospitals, excluding refinancing of existing loans.
- Net purchase of investments, excluding the sale of Contact Energy, Auckland and Wellington airports, Forestry Corporation, “At work” insurance, Radio spectrum sales, and excluding the purchase of Air New Zealand.⁹
- The forecast of future new capital spending excluding expected defence capital spending.

5.1 Base indicators

Table 2 sets out the calculation of the base indicators of the fiscal balance and fiscal impulse (using information from the December Economic and Fiscal Update, 2001). It begins with net cash flows from operations (NCFFO) and shows the adjustments made to arrive at the fiscal balance. The change in this fiscal balance gives the indicator of fiscal impulse. The calculations are effectively for the core Crown (as distinct from Total Crown where the core is consolidated with State-owned enterprises and Crown entities on a line-by-line basis).¹⁰ It is worth noting that because of the various adjustments, the level of the fiscal balance does not match the more frequently cited structural OBERAC. The base indicator of fiscal balance, relative to nominal GDP, is plotted in Figure 1.

⁹ Proceeds from sales of State-owned entities are excluded, because they make the series volatile and distort the indicator of fiscal impulse. They are also unlikely to impact directly on aggregate demand compared to other capital transactions.

¹⁰ Advances and net purchases of investments (excluding asset sales/purchases) are included in the capital adjustment as a proxy for new investment spending by Crown entities. Extending the indicator to better capture the role of Crown entities is an area for further investigation.

Table 1

Capital transactions

<i>Capital transaction</i>	<i>Likely impact on aggregate demand</i>	<i>Reason</i>
Net purchases of physical assets (net of sales).	Yes for most except defence purchases.	Defence assets are largely imported.
Net increases in advances (this is largely loans to students and hospitals).	Yes for student loans. Yes for loans to hospitals (excluding refinancing of existing loans). No for other advances.	Student loans mostly spent on consumption goods. Loans to hospitals are largely spent on investment.
Net purchases of investments (this includes capital injections to State-owned enterprises and Crown entities, purchase and sale of existing entities).	Yes for investment. No for purchase/sale of existing entities.	Most capital injections are likely to be spent on investment. Purchases and sales of existing entities represent a transfer of resources.
Forecast for future new capital spending – an amount for capital spending included in forecasts.	Yes for most. No for defence.	Some will be spent on purchases of physical assets. Some will also be spent on defence, which is mostly imported.
Contributions to New Zealand Superannuation Fund (involves investing in financial assets).	Unlikely.	Likely to have little direct effect. A large portion will be invested offshore.

Fig. 1

Base indicator of fiscal balance
(years ended June, percent of GDP)

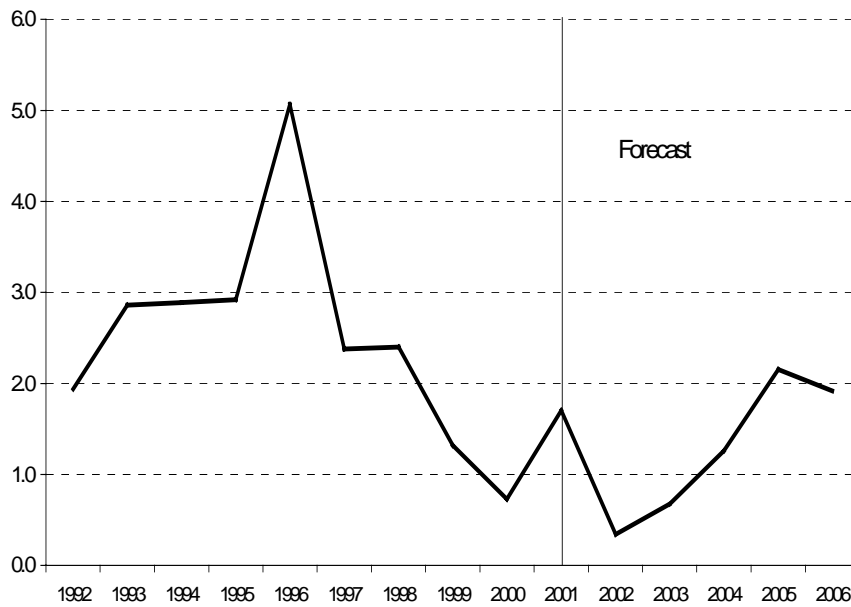


Figure 1 suggests a tightening of fiscal policy in the early 1990s, followed by a loosening until the late-1990s. This reflects the 1996 and 1998 tax cuts (which occurred in the 1997 and 1999 fiscal years) and increases in primary expenditure.¹¹ Under our definitions, a positive fiscal impulse indicates a tightening relative to the previous year (note that 1992 is lost because fiscal impulse is calculated as a change). Figure 2 plots the fiscal impulses.

¹¹ New Zealand's fiscal consolidation was concentrated in the early to mid-1990s, whereas OECD countries generally consolidated in the latter half of the decade. Analysis by the OECD (1999, Figure I.9, p. 21) indicates that over the period 1995 to 1999, only two out of 20 OECD countries experienced a fall in their estimated structural fiscal balance, New Zealand and Japan. (In order to facilitate the cross-country comparison, the OECD use different fiscal information to that used here. But the general point of an easing still holds).

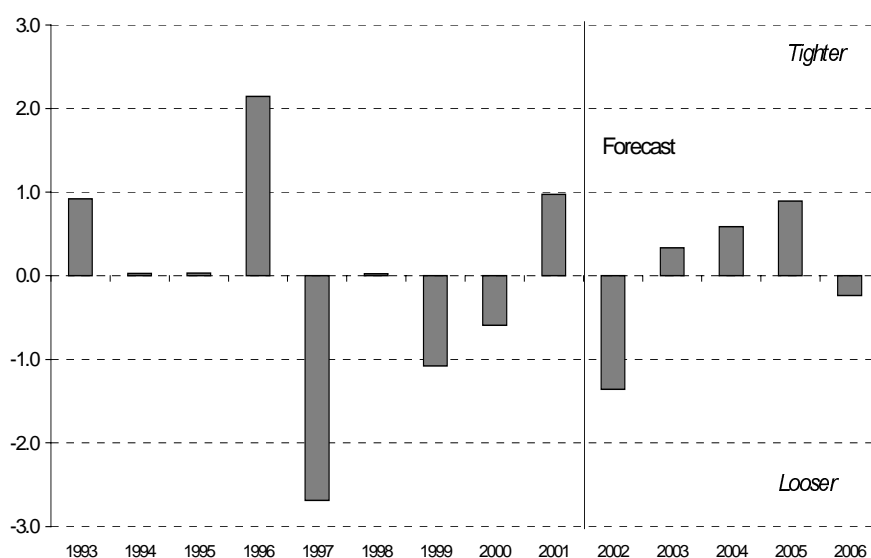
Table 2

Base indicators

Year ended June	2001	2002	2003	2004
\$ million	Actual	Forecast	Forecast	Forecast
Total cash from operations	38,471	39,891	41,094	43,713
Total cash to operations	36,549	38,238	39,307	40,963
Net cash flows from operations (NCFFO)	1,922	1,653	1,787	2,750
Cyclically-adjusted NCFFO	1,864	1,718	1,984	2,614
Net interest payments	1,607	1,294	1,467	1,520
Cyclically-adjusted primary NCFFO (a)	3,471	3,012	3,451	4,134
Capital adjustment				
Net purchase of physical assets (excluding defence)	842	1,172	926	872
Net increase in advances to students	668	727	771	791
Net increase in advances to DHBs (excluding refinancing)	0	33	100	100
Net purchase of investments, including health and other (excluding sale of Contact Energy, AKLD and WGN airports, Forestry Corporation, NZS Fund)	16	440	233	220
Capital contingency provision (excluding expected defence and investment in Air New Zealand)	0	234	590	518
Total capital adjustment (b)	1,526	2,606	2,620	2,501
Fiscal balance (= a - b)	1,945	406	831	1,633
Fiscal balance (% GDP)	1.7	0.3	0.7	1.3
Fiscal impulse (% GDP)	1.0	-1.4	0.3	0.6
<i>Memorandum items</i>				
Depreciation	925	965	1,000	1,002
Nominal GDP	114,275	118,980	123,271	129,725

Fig. 2

Base indicator of fiscal impulse
(years ended June, percent of GDP)



Whether a particular fiscal impulse actually has an expansionary or contractionary effect depends on some of the issues and limitations raised in Section 3 (i.e., levels of government debt, expectations surrounding the permanence of the change, the stance of monetary policy and the mix of tax and spending changes behind the impulse). For these reasons it is inappropriate to compare fiscal impulses of approximately equal magnitude (e.g., 1993 and 2001 in Figure 2) as having equal effects on aggregate demand.

Alesina and Perotti (1995) use a classification system to identify significant fiscal expansions and contractions.¹² Re-writing the Alesina and Perotti definition for the budget balance instead of the budget deficit, the fiscal stance, as measured by the fiscal impulse is:

¹² The classification system uses the Blanchard Fiscal Impulse (BFI) measure as the relevant fiscal indicator.

...when the fiscal indicator is:

Neutral	between -0.5 and 0.5% of GDP
Loose	between -0.5 and -1.5% of GDP
Very loose	less than -1.5% of GDP
Tight	between 0.5 and 1.5% of GDP
Very tight	more than 1.5% of GDP

Using this system, historical fiscal impulses from the base indicator in Figure 2 were reasonably “tight” in 1993, 1996, and 2001 and “loose” in 1997, 1999 and 2000. Only two of the historical impulses, in 1996 and 1997, exceed the very tight/loose boundaries. In the case of 1996, there was a relatively large capital adjustment in 1995, followed by a smaller adjustment in 1996. Although most components of the capital adjustment evolve relatively smoothly through time, net purchases of investments are reasonably volatile, with a large positive value of around 1% of GDP in 1995. The year ending June 2001, which is the last actual observation, shows a tightening compared to 2000. The change in the capital adjustment between these two years is modest and the tightening reflects an increase in the primary structural (cash) surplus. Looking forward, the base indicator fiscal impulses are on average closer to neutral as the impulses are broadly in the -0.5 to +0.5 range (Figure 2).

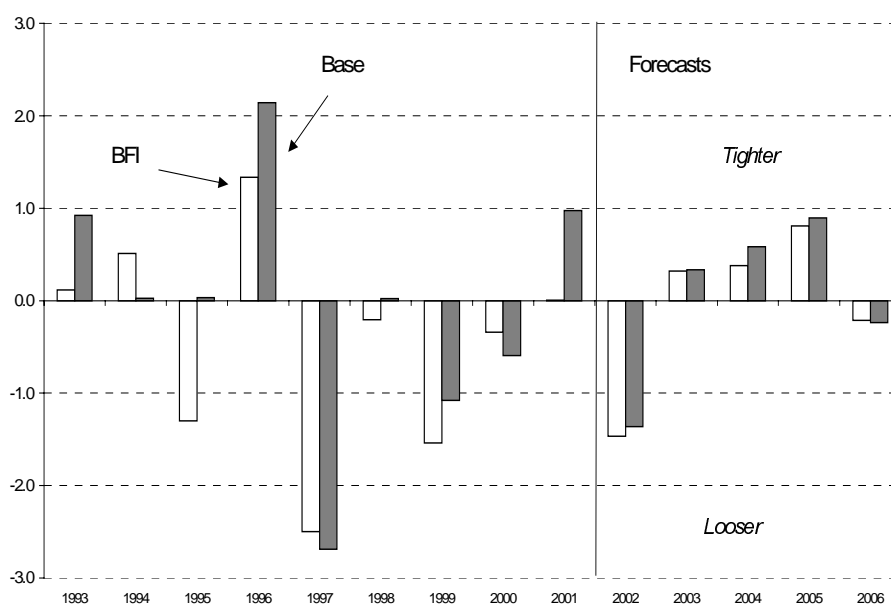
5.2 Approach to identifying discretionary policy

This section compares the two-step method of cyclical adjustment with the Blanchard Fiscal Impulse (see Annex for detail). Note that the same capital component is included in each method.

According to Figure 3, the BFI tells a broadly similar story to the base indicator. However, the magnitude of fiscal impulses according to the Alesina and Perotti classification system can differ. For example, in 2001 the BFI suggests a neutral fiscal impulse, whereas the base indicator suggests a tightening. Both indicators tell a very similar story over the forecast period. This is reassuring, because forecasts of potential output used in the calculation of the base indicator are uncertain. However, it is likely that the similarity of the indicators reflects the relatively small economic cycle and stable unemployment rates over the forecast period compared to history, so that there is less difference between the different methods of adjusting for the cycle.

Fig. 3

Comparisons of discretionary measures
(years ended June, percent of GDP)



5.3 Capital adjustments

The capital adjustment complicates the calculation of fiscal impulse because it requires judgements to be made around which capital items should be adjusted for. Figure 4 looks at the sensitivity to different capital adjustments. The base indicator of fiscal impulse is compared with two measures that use alternative capital definitions:

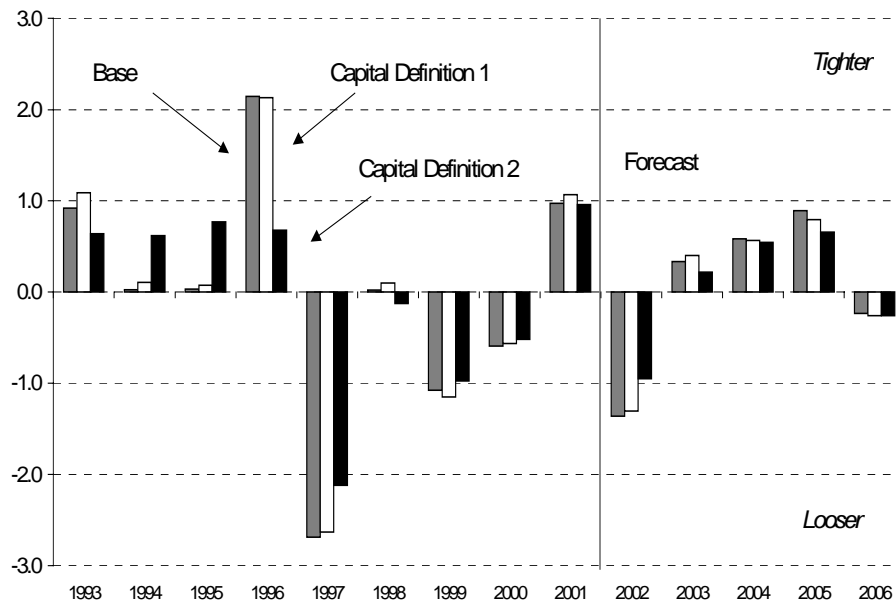
1. The first definition adjusts only for net purchases of physical assets (excluding defence), net purchases of investments (excluding asset sales and purchases) and forecast future new capital spending (excluding defence and Air New Zealand). Advances are excluded.
2. The second definition adjusts only for net purchases of physical assets and forecast future new capital spending (excluding defence). Advances and net purchases of investments are excluded. This measure is arguably a better proxy of direct resource claims and brings the balance closer to a net lending concept.

The alternative capital definitions result in changes to the level of the fiscal balances and the indicators of fiscal impulse. Because it excludes net purchases of investments, capital definition 2 is less volatile and the associated fiscal impulses are generally somewhat smaller than the other two indicators. In particular, the 1996 fiscal impulse “spike” apparent in Figure 2 is reduced.

Factors that would cause the base indicator to diverge from an indicator with a narrower capital adjustment include large changes in student loans, net purchases of investments and advances. Overall, this suggests that although making a capital adjustment has not made much difference in the past, it is important to consider a broader capital adjustment to ensure that the indicator is robust to changes in capital spending.

Fig. 4

Fiscal impulse – alternative capital adjustments
(years ended June, percent of GDP)



6. Concluding remarks

This essay has outlined the conceptual issues around thinking about changes in fiscal stance, and developed an indicator for New Zealand. Although the general approach of governments has been to allow automatic fiscal stabilisers to operate, for macroeconomic stability reasons government may be interested in the impact of fiscal policies on aggregate demand. It is useful to have an indicator of changes in fiscal stance as a first approximation of fiscal impact. We have outlined some key decisions that need to be made in calculating an indicator of fiscal stance. The base indicator calculated reflects intuitive judgements about the changes in the stance of fiscal policy in New Zealand over the last decade and looking forward.

It appears that the indicator is not very sensitive to the key judgements. However, these results could be a function of the relative stability of the time period considered. The magnitude and lumpy nature of capital transactions mean that the adjustments could be important in the future, and the more complex base indicator is more likely to be robust.

As with any indicator, the indicator of fiscal stance has limitations. At best it provides only an indication of the first round impact of fiscal policy on demand. There are other factors that need to be taken into account when assessing the full impact of fiscal policy on the economy, for example, the composition of the change in fiscal policy. Only a full-scale macroeconomic model, complemented with time series analysis can provide a complete assessment of the impact of fiscal policy on the economy.

ANNEX

**THE NEW ZEALAND TREASURY APPROACH
TO ESTIMATING THE STRUCTURAL FISCAL BALANCE**

The Treasury's approach utilises an estimated output gap and the sensitivity of tax receipts and unemployment expenditure to output. The output gap is measured as:

$$gap_t = (Y_t - Y_t^*) / Y_t^* \quad (\text{A.1})$$

where: Y_t = actual real GDP in year t
 Y_t^* = potential real GDP in year t .

A positive (negative) value for gap_t indicates that actual real GDP is above (below) potential real GDP. The method currently used by the Treasury in estimating the output gap for the purpose of the structural balance is the Hodrick-Prescott (HP) filter.¹³

The structural balance is calculated using cyclically adjusted receipts, cyclically adjusted expenditure on unemployment, and other operating expenditure components.

The responsiveness of receipts to output depends on two effects, the responsiveness of the tax type to a change in its base ($e_{T,B}$) and the responsiveness of the tax base to a change in output ($e_{B,Y}$). Cyclically-adjusted receipts are calculated as:

$$R_{i,t}^* = R_{i,t} (1 + e_{i,T,Y} \times (-gap_t)) \quad (\text{A.2})$$

where: $R_{i,t}^*$ = cyclically adjusted nominal receipt item i in year t
 $R_{i,t}$ = actual nominal receipt item i in year t
 gap_t = output gap in year t
 $e_{i,T,Y} = e_{i,T,B} \times e_{i,B,Y}$ for each receipt item i .

The elasticities for different receipt items, with respect to output, are as follows:

¹³ Tam and Kirkham (2001) use a structural time series model (STAMP) to estimate potential output. They examine the sensitivity of the estimated structural balance to alternative methods of calculating potential output.

Receipt item	Elasticity
Individual income tax	1.12
Company tax	1.10
Withholding tax/Other direct tax	1.10
GST	1.10
Excise duties	1.00
Other indirect tax	1.00
Interest, profits and dividends	0.00
Other receipts	1.00

The cyclically adjusted unemployment rate is derived using the output gap and an Okun coefficient β , which is assumed to be 0.5.

$$U_t^* = U_t - \beta(-gap_t) \quad (A.3)$$

where: U_t = actual unemployment rate in year t
 U_t^* = benchmark unemployment rate in year t .

Cyclically adjusted unemployment expenditure is assumed to move proportionally to the ratio of unemployment to benchmark unemployment.

$$UE_t^* = average\ benefit_t \times beneficiaries_t \times \left(\frac{U_t^*}{U_t}\right) \times 52 \quad (A.4)$$

where: UE_t^* = cyclically adjusted unemployment
expenditure in year t
average benefit_t = average weekly benefit in year t
beneficiaries_t = unemployment beneficiaries in year t .

The Blanchard Fiscal Impulse indicator

The Blanchard Fiscal Impulse (BFI) is an indicator of discretionary fiscal policy, and is defined as the value of the primary surplus which would have prevailed, were unemployment at the same value as in the

previous year, minus the value of the primary surplus in the previous year, both as a ratio to GDP in each year.

$$BFI_t = (r_t(U_{t-1}) - g_t(U_{t-1})) - (r_{t-1} - g_{t-1}) \quad (\text{A.5})$$

where: r = primary government receipts (% GDP)
 g = primary government operating expenditure (% GDP)
 U = unemployment rate.

The BFI has been calculated using the equations, elasticities and Okun coefficient from the Treasury's structural adjustment approach. The Okun relationship provides the link from output to unemployment and is specified as:

$$\frac{Y_t - Y_{t-1}}{Y_{t-1}} = \frac{1}{\beta}(U_{t-1} - U_t) \quad (\text{A.6})$$

Now convert (A.2) into changes in output from the previous year, rather than deviation in output from potential:

$$R_{i,t}(Y_{t-1}) = R_{i,t} \left(1 + e_{i,T,Y} \frac{Y_{t-1} - Y_t}{Y_{t-1}} \right) \quad (\text{A.7})$$

Convert (A.7) into changes in unemployment from the previous year by substituting in the Okun relationship (A.6) above. Convert (A.4) into the relationship between current and lagged unemployment, rather than current and benchmark unemployment. This gives an equation for each receipt item, and an equation for unemployment expenditure:

$$R_{i,t}(U_{t-1}) = R_{i,t} \left[1 + e_{i,T,Y} \frac{1}{\beta}(U_t - U_{t-1}) \right] \quad (\text{A.8})$$

$$UE_t(U_{t-1}) = \text{average benefit}_t \times \text{beneficiaries}_t \times \left(\frac{U_{t-1}}{U_t} \right) \times 52 \quad (\text{A.9})$$

$R_{b,t}(U_{t-1})$ is a measure of a receipt item in year t had the unemployment rate of the previous period prevailed. Similarly, $UE_t(U_{t-1})$ is unemployment expenditure in year t had the unemployment rate of the previous period prevailed. $R_t(U_{t-1})$ is total receipts in year t at the previous years unemployment rate, and is derived by aggregating the adjusted receipt items. $G_t(U_{t-1})$ is derived by combining adjusted unemployment

expenditure with other operating expenditures. The BFI can be calculated by substituting $R_t(U_{t-1})$ and $G_t(U_{t-1})$ into the equation for the BFI (A.5) above, and converting to % of GDP.

The New Zealand Treasury Economic and Fiscal Indicator

The *Economic and Fiscal Indicator* (see Treasury's Briefing to the Incoming Government 1996, p.61) indicates whether fiscal policy is tighter or looser in one year relative to another year. The key difference between the EFI and other indicators of fiscal stance is that the EFI attempts to take into account the composition of government expenditure and taxes.

The approach taken was to consider how a change in fiscal policy affects the components of aggregate demand (consumption, investment, government spending, and net exports), including the feed through parameters and elasticities. The indicator is the sum of the effect of the change in fiscal policy on each of these components. The key benefit of the EFI is that it takes into account the composition of fiscal policy, so that it may provide additional information in the case of a balanced budget change in fiscal policy. It also accounts for different reactions by different households, by assuming that some households are liquidity constrained while others are not.

The key disadvantages of the EFI are that the calculation is subjective and relies on judgements around economic theory and parameters such as elasticities, it is not cyclically adjusted and it is not internationally comparable. In addition, changes in the operating balance were found to proxy reasonably well any changes in the EFI under a variety of scenarios.

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