Structural Balance Policy in Chile

by

Jorge Rodríguez C., Carla Tokman R. *and* Alejandra Vega C.[*]

Since 2001, Chile's fiscal policy has been built on the concept of a central government structural balance. The Fiscal Responsibility Law, approved in 2006, gave legal force to key aspects of the structural surplus and fiscal policy. This article assesses the results of the structural surplus rule in Chile over the past six years.

1. Introduction

Since 2001, Chile's fiscal policy has been built on the concept of a central government structural balance. Unlike the effective balance, which indicates the current fiscal position, this balance reflects the medium-term fiscal outlook. In simple terms, the structural balance concept involves estimating the fiscal income that would be obtained net of the impact of the economic cycle, and spending only the amount that would be compatible with this level of income. In practice, this means saving during economic highs, when revenues known to be of only a temporary nature are received, and spending the revenues in situations when fiscal income drops.

The structural balance indicator used in Chile nets out the cyclical impact of three variables – the level of economic activity and the prices of copper and of molybdenum – that affect central government income. Thus the structural balance reflects the financial results that the central government would have shown in a particular year if gross domestic product (GDP) had been at its trend level and copper and molybdenum prices had been running at their long-term level. In this way, it is possible to distinguish between changes in the fiscal situation that are caused by policy decisions and those due to the cyclical impact of these three variables.

Since adopting this structural balance policy, the government has set itself the target of maintaining an annual structural surplus equivalent to 1% of GDP. The compliance with the rule has been particularly meritorious, given that it has not been a legal obligation but a voluntary undertaking on the part of the government.

This target was chosen for three reasons: first, because of the structural operating deficit and negative net worth of the Central Bank of Chile resulting from the bailout of the private banking system in the 1980s and the exchange rate policy of the 1990s; second, because of the existence of contingent liabilities relating principally to state-guaranteed minimum pensions and old-age benefits; and, third, due to the external vulnerability arising from currency mismatches and potential limits on foreign borrowing in local currency. After evaluating the recent performance of these three variables, the government announced that for 2008 the annual structural surplus will be equivalent to 0.5% of GDP.

Chile's six-year experience in applying the structural balance policy has revealed important benefits. In fact, there is consensus among analysts that it has had six principal advantages (Ministry of Finance of Chile, 2006). First, it has permitted the implementation of a counter-cyclical policy, attenuating the economy's swings and reducing uncertainty as to its medium-term performance. Second, it has meant an increase in public saving during periods of strong growth which has, in turn, helped to prevent currency appreciation and safeguard the competitiveness of the export sector. Third, it has reduced interest rate volatility and, fourth, has boosted the Chilean government's credibility as an issuer of international debt, reducing the sovereign risk premium it has to pay, improving access to foreign financing during negative external shocks and minimising contagion from international crises. Fifth, it has also reduced the economy's need for foreign financing and, sixth, it has ensured the financial sustainability of social policies, facilitating their long-term planning.

In the light of these benefits, there is widespread technical and political support for the maintenance of the structural balance policy, for continuing to improve some of its methodological aspects, and for its institutionalisation. Since the policy's adoption, the way in which the indicator is calculated as well as the definition of key parameters and assumptions have been made increasingly transparent, the disclosure of information to the public has been improved, and the methodology has been refined. In addition, in September 2005, the government presented a Fiscal Responsibility Bill to Congress which was approved in August 2006 (Law No. 20.128), giving legal force to key aspects of the structural surplus and fiscal policy that previously depended only on the voluntary commitment of the authority. However, this law does not bind future administrations to a specific structural balance target.

In this context, this article seeks to assess the results of the structural surplus rule over the past six years, during which it has served as the basis for drawing up and implementing the public sector budget. To this end, Section 2 describes the methodology currently in use to calculate the structural balance, looking particularly at the improvements introduced in the last few years, while Section 3 sets out the main results and implications of the six years during which the structural balance policy has been in force. In Section 4, the main aspects of the Fiscal Responsibility Law as it relates to the structural balance policy are summarised, while Section 5 identifies the future challenges for the implementation of this policy.

## 2. Structural balance methodology currently in use in Chile

2.1. *Conceptual framework*

Chile's structural balance methodology is based on the criteria used by the International Monetary Fund (IMF) and the OECD, with some adjustments to take account of the specific characteristics of the country's public sector finances. Conceptually, the central government structural balance isolates the impact of the economic cycle on public finances, providing a long-term picture of the fiscal situation in contrast to the effective balance which reflects the situation prevailing at a particular moment.

In other words, the structural balance estimates the fiscal income that would be obtained independently on the phase of the cycle, whether it be positive or negative. This involves estimating the fiscal income that would be received if the economy were growing at its trend rate and, in practice, means adjusting income in line with a parameter that captures the gap between effective GDP and its trend level.

In the case of Chile, the cyclical impact of GDP on fiscal income is evident, as seen in Figure 1 which shows a strong correlation between total fiscal income – and particularly tax revenue – and economic activity as measured by GDP.[1]

Figure 1. **Total fiscal income, tax revenue and GDP, 1988-2006**
(annual variation, percentage)
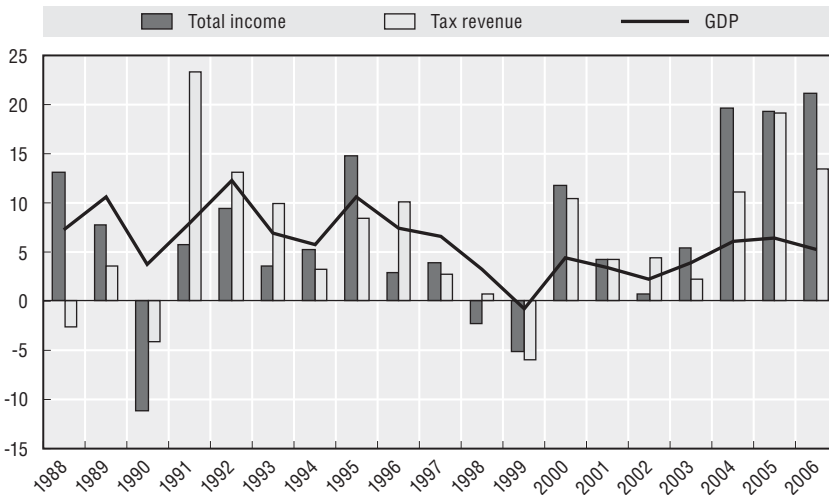
2006 = estimated.

Source: Calculated using figures from the Central Bank of Chile and the Budget Office (DIPRES) of the Ministry of Finance.

However, the behaviour of effective GDP is not the only important source of cyclical variations in fiscal income in Chile. Copper accounts for around 16% of fiscal income (some 10% from the sales of CODELCO, the state copper producer, and the remainder from taxation of private mining companies) and, as a result, the price of copper is also an important factor. As shown in Figure 2, fiscal income from copper is a direct function of the copper price, the behaviour of which is highly cyclical.

Figure 2. **Fiscal income from copper and the price of copper, 1987-2006**
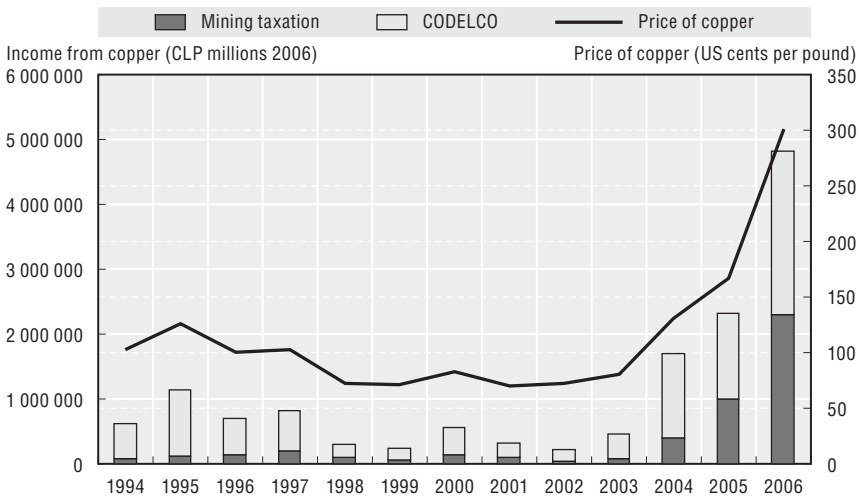
2006 = estimated.

Source: Calculated using figures from the Chilean Copper Commission (COCHILCO) and DIPRES.

A sharp increase in the price of molybdenum, a byproduct of copper marketed by CODELCO, meant that this mineral, which had previously been insignificant as regards fiscal income, also became a relevant factor as from 2005, accounting for close to 6% of total fiscal income. As a result, cyclical adjustment of fiscal income from molybdenum also became necessary since, as seen in Figure 3, there is an important correlation between its price and the income that the central government receives from the sales of CODELCO.

Therefore, in simple terms, the structural balance indicator used in Chile isolates the cyclical impact of three macroeconomic variables that affect central government income: the level of economic activity and the prices of copper and of molybdenum. In this way, it reflects the balance that the central government would have shown in a particular year if GDP had been at its trend level and copper and molybdenum prices had been at their long-term level.

Figure 3. **Fiscal income from molybdenum and the price of molybdenum, 2000-06**
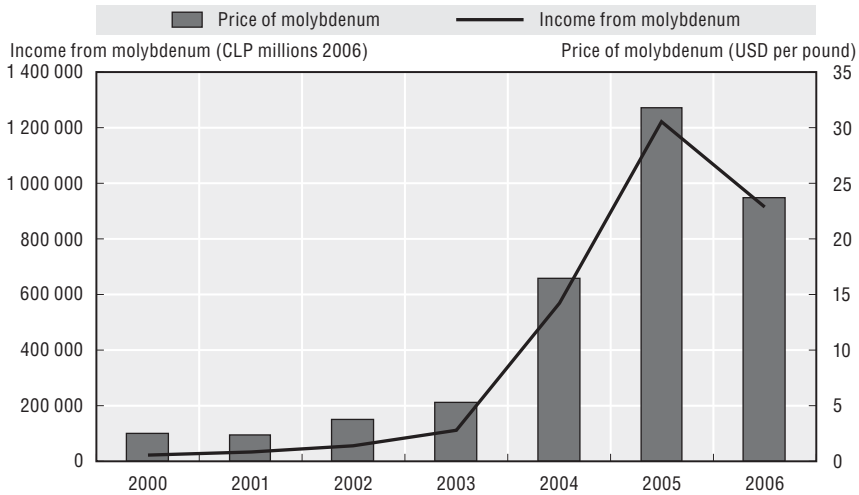
2006 = estimated.

Source: Calculated using figures from Bloomberg and DIPRES.

2.2. *Structural balance indicator*

The structural balance indicator can be expressed as:

$$(1) \quad BE_t = Be_t - TNMIN_t + \left[TNMIN_t * \left(\frac{Y_t^*}{Ye_t} \right)^{\varepsilon} \right] - TMIN_t + TMINE_t - ICC_t$$
$$+ ICCE_t - ICM_t + ICME_t$$

where:

BE_t = structural balance in period t

Be_t = effective balance (accrued) in period t

$TNMIN_t$ = net non-mining tax revenue and social security in-payments in period t

$TNMIN_t^*$ = structural net non-mining tax revenue and social security in-payments in period t

$TMIN_t$ = income from taxation of private mining companies in period t

$TMINE_t$ = structural income from taxation of private mining companies in period t

Ye_t = effective GDP in period t

Y_t^* = trend GDP in period t

ICC_t = effective transfers from CODELCO on account of copper sales in period t

$ICCE_t$ = structural transfers from CODELCO on account of copper sales in period t

ICM_t = effective transfers from CODELCO on account of molybdenum sales in period t

$ICME_t$ = structural transfers from CODELCO on account of molybdenum sales in period t

ε = GDP elasticity of tax revenue

The use of this indicator to put the fiscal policy rule into operation when drawing up the annual budget involves the following sequential steps:

● Estimation of the long-term copper price (following consultation with a committee of independent experts[2]).

● Estimation of the trend level of inputs to the aggregate output function (following consultation with a committee of independent experts[3]).

● Estimation of trend GDP using the results of the previous step and the estimated aggregate output function ($Y = A^* K^{\alpha} {}^* L^{\beta}$)[4].

● Estimation of the long-term molybdenum price.

● Adjustment of non-mining tax revenues[5] and social security in-payments according to the gap in level between trend GDP and projected effective GDP (using an estimated GDP elasticity of tax revenue [ε] of 1.05).

● Adjustment of tax revenue from mining companies (earnings tax and specific tax paid by large private mining companies).

● Adjustment of projected income from CODELCO on account of copper, net of production costs, adjusting the company's volume of sales for the difference between the projected effective price and the long-term price defined by the Committee of Experts.

● Adjustment of projected income from CODELCO on account of molybdenum, net of production costs, adjusting the company's volume of sales for the difference between the projected effective price and the estimated long-term price.

● Estimation of total structural fiscal income as the sum of revenues previously adjusted for cyclical variations.

● Calculation on the basis of structural income of the level of expenditure compatible with the structural balance target.

2.3. Recent methodological improvements

Since Chile's adoption of the structural balance policy, the way in which the indicator is calculated as well as the definition of key parameters and assumptions have been made increasingly transparent, the disclosure of

information to the public has been improved, and the methodology has been refined.

The first improvements were introduced in 2004 with the migration of Chile's fiscal accounts to the methodology suggested by the IMF (IMF, 2001), adopting an accruals-based system instead of the cash-based system that had been used until then. This made it possible to use the official fiscal accounts published by the Ministry of Finance's Budget Office (*Dirección de Presupuestos*, DIPRES) to calculate the structural balance, rather than making the intermediate adjustments to cash-based data that were required under the original methodology (Marcel *et al.*, 2001). Subsequently, in September 2005, specific cyclical corrections were introduced for tax revenue from private mining companies, which had previously been adjusted in the same way as other tax income rather than on the basis of the copper price. In 2006, a cyclical correction was introduced for income from CODELCO's molybdenum sales which had until then been treated as part of income from copper. And in January 2007, a cyclical correction was introduced for the revenues from the additional tax payments made by foreign-owned mining companies on profits remittances.

2.3.1. Non-mining tax revenue

Cyclical adjustment to non-mining tax revenue is made using the original methodology – that is, on the basis of the gap between effective and trend GDP. However, as from 2005, a distinction has been made between tax revenue from the ten largest mining companies and that from other taxpayers so as to be able to correct the former for the cyclical impact of the copper price as described below.

2.3.2. Income from mining

a. Income from CODELCO's gross copper sales

Structural income from CODELCO on account of copper sales is estimated adjusting the income effectively received for the gap between the effective and long-term copper price. Until 2005, no distinction was made between income from CODELCO that corresponded to copper sales and that which originated from the sales of byproducts such as molybdenum. However, under a methodological change introduced in 2006, income from the latter is now treated separately so as to be able to take account of cyclical variations in the price of molybdenum. This modification was called for both because of the high price of molybdenum and the relative weight that income from CODELCO's sales of this mineral began to acquire and because of the fact that the prices of copper and molybdenum are not totally correlated, as seen in Figure 4 for the period 2004-06.

Figure 4. **Copper and molybdenum prices, 2004-06**

Correlation coefficient (PCu, PMoly) = 0.16
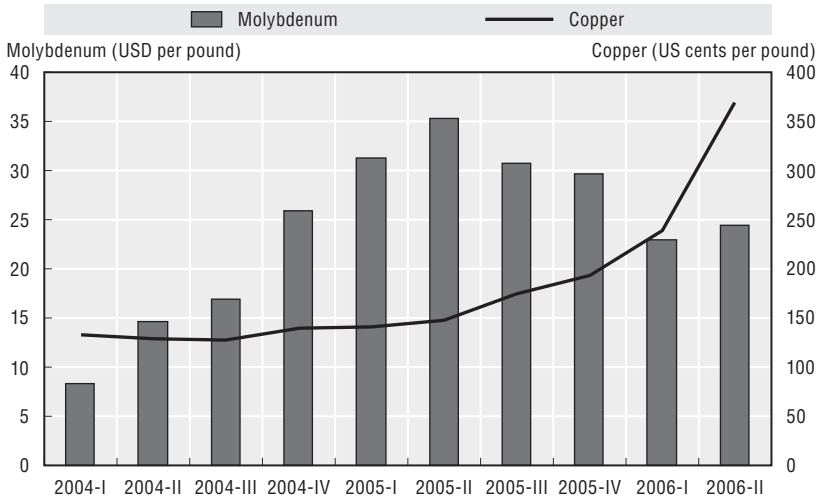
Source: Calculated using figures from COCHILCO and Bloomberg.

b. Income from CODELCO's molybdenum sales

When the original structural balance methodology was designed in 2001, the price of molybdenum was 13.5 times lower than in 2005 (USD 2.4 per pound in 2001 *vs.* USD 31.7 per pound in 2005) and molybdenum sales accounted for no more than 8% of CODELCO's income. However, this situation changed radically in the latter months of 2005 when the price of molybdenum climbed to record levels, with sales reaching close to 15% of CODELCO's total income that year. This also had a decisive impact on the importance of molybdenum as a source of fiscal income received through both tax payments and the distribution of CODELCO's profits.

For the purpose of calculating the structural balance, this created the need for a cyclical adjustment reflecting the short-term deviations in the price of molybdenum with respect to its long-term trend. Introducing an adjustment of this type in calculating the structural balance is analogous to the cyclical adjustment made to CODELCO's copper sales. It involves identifying income from molybdenum that corresponds to a trend price and isolating the cyclical effect that can mean higher or lower effective income. The cyclical adjustment to income from CODELCO's molybdenum sales can be expressed as follows:

$$(2) \; ICM_t = VFM_t * (PM_t - PREF_t) * 2\,204.62$$

where:

ICM_t = cyclical income from molybdenum in period t (in USD)

VFM_t = volume of CODELCO's molybdenum sales in period t (in tonnes)

PM_t = average price of CODELCO's molybdenum sales in period t (USD per pound)

$PREF_t$ = trend or long-term molybdenum price in period t (USD per pound)

2 204.62 = pounds per tonne converter

This adjustment is simple in operative terms, but the key issue is determining the long-term price of molybdenum. In the case of copper, the original methodology envisages consultation with a committee of experts. In the absence of such a committee for the price of molybdenum, a mechanism that combines historic criteria with the opinion of experts has been used. In this way, a long-term price of USD 12 per pound was established in 2006, similar to the average monthly price for the previous four years. Using this same methodology for the estimation of the structural balance in 2007, a long-term price of USD 14.7 per pound was obtained.

c. Tax revenue from private mining companies

The original methodology for calculating the structural balance was reasonably successful in capturing the effect on fiscal income of cyclical variations in economic activity and the copper price through to 2004. However, a new link between the economic cycle and fiscal income then began to gain importance as most of the large investments carried out by private mining companies in the previous decade completed their phase of accelerated depreciation and the companies' accounting profits began to be reflected in important taxable earnings. As a result, central government tax revenue from this source has grown strongly in recent years, with a rise in the net income from the earnings tax paid by the ten largest private mining companies from CLP 79 229 million in 2003 (Chilean pesos, 2006 values) to CLP 390 621 million in 2004, CLP 993 116 million in 2005 and an estimated CLP 2 999 526 million in 2006, representing an average annual real growth of 207.3% in 2003-06.

It should also be noted that, as from 2006, a new specific mining tax was introduced and, although revenue from this tax in 2006 was confined to provisional monthly payments (PPMs), it is expected to show an important increase in 2007.

This trend and the resulting increase in the relative importance of tax revenue from private mining companies made it advisable to adjust this revenue for the cyclical effect of the copper price rather than of GDP as for tax revenue in general. This is logical because the impact of the copper price on the sales and profits of these companies means that only a part of this higher revenue is structural and the rest (the part explained by the difference between the effective and long-term price of copper) corresponds to the impact of the copper price cycle on the sales, profits and tax payments of these companies. This adjustment

more accurately captures the cyclical impact of tax revenue from private mining companies since, as seen in Figures 5a and 5b, this revenue shows a closer correlation with the copper price than with GDP.

Figure 5a. **Tax revenue from private mining companies and the price of copper, 2000-06**

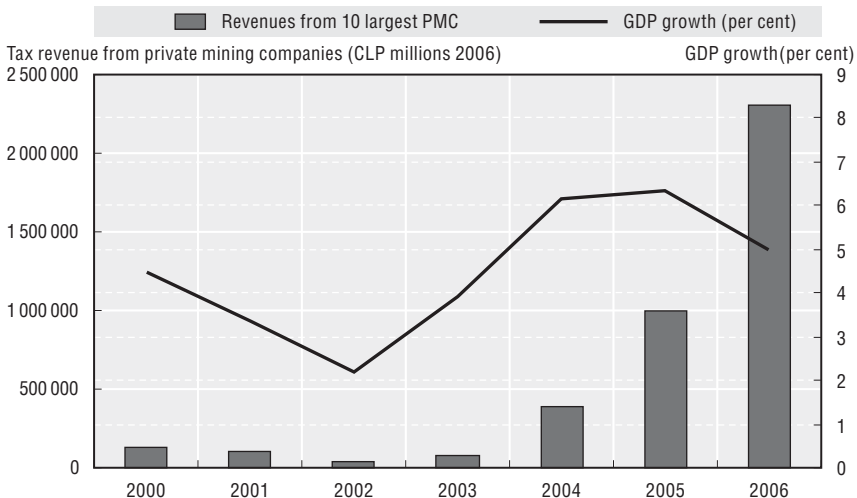Correlation coefficient (revenues from the ten largest PMC; PCu) = 0.95
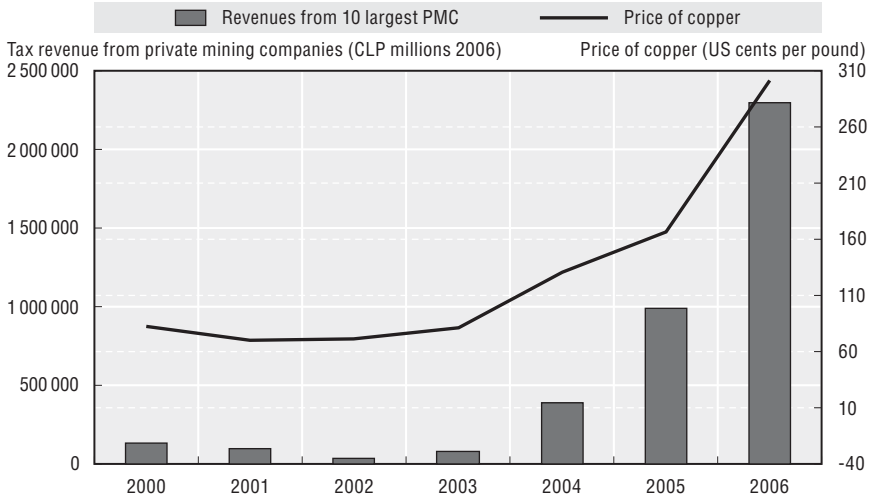
2006 = estimated.

Source: Calculated using figures from COCHILCO and DIPRES.

Figure 5b. **Tax revenue from private mining companies and GDP**

Correlation coefficient (revenues from the ten largest PMC; GDP) = 0.50

2006 = estimated.

Source: Calculated using figures from the Central Bank of Chile and DIPRES.

Therefore, the methodological improvement was designed for cyclically adjusting revenue from the earnings tax paid by private mining companies and from the specific mining tax. Like the cyclical adjustment of income from CODELCO's copper sales, both these methodologies are based on the difference between the effective copper price and the long-term price, the latter determined by the Committee of Experts.

c.1. Cyclical adjustment of earnings tax on private mining companies

The cyclical adjustment applied since 2005 to fiscal income from this source assumes that annual income from the earnings tax paid by private mining companies depends, in simple terms, on three components: *i)* the provisional monthly payments (PPMs) made in the corresponding tax year (PPM_t); *ii)* the result (positive or negative) of their annual tax return (OR_t); and *iii)* additional tax payments by foreign-owned mining companies on profits remittances (IA_t).

In other words, the methodology captures the lagged effect of the difference between the effective and long-term copper price on fiscal revenue that arises from Chile's system for payment of earnings tax. In practice, the cyclical adjustment for each year reflects the impact of the price gap on PPMs made by the companies in that year, that of the previous year's price gap on the profits they declare annually, and that of the PPMs made in the previous year on the result of their annual tax return. It should be noted that the methodology used up to December 2006 did not include cyclical adjustment of the additional tax these companies pay on profits remittances. This implicitly assumed that the profits remitted in a particular year were not a direct function of either the copper price or the economic cycle. Recent data, however, have shown a correlation between these tax receipts and the copper price. Therefore, in January 2007 a new cyclical adjustment was introduced to reflect this fact.

In line with the above, annual fiscal revenue from the earnings tax on private mining companies (R_t) can be expressed as:

(3) $R_t = PPM_t + OR_t + IA_t$

At the same time, PPMs in year t are an advance on the earnings tax that the companies will have to pay on the basis of their profits when filing their annual tax return in year t+1 and are a function of their sales in year t (expressed as $P_t{}^*Q_t$ or, in other words, of the quantity of copper sold in year t multiplied by its price) and of the tax rate applied to determine the amount of their PPMs ($Tppm_t$).

(4) $PPM_t = P_t Q_t Tppm_t$

This rate, $Tppm_t$, is adjusted in May of each year to the level that would have been required in the previous year for the PPMs made by the companies

to equal the amount determined on the basis of their annual tax returns. In other words, it is adjusted to the level at which advances in the form of PPMs would have exactly matched the result of their annual tax return, meaning that they would have neither had to pay tax nor received a reimbursement as a result of the annual tax collection process. This rate is then applied to PPMs as from May through to April of the following year.

The mean rate at which PPMs are made in year t is therefore a weighted average of the rate applied from January through to April (a third of the year), corresponding to $T_{(-1)}$ defined in May of the previous year, and the rate as adjusted after annual tax collection in April ($T_{(1)}$) which is applied to the sales of these companies from May through to December (two-thirds of the year). In other words, PPMs in year t can be expressed as:

$$(5) \quad PPM_t = P_t Q_t Tppm_t = P_t Q_t \left[\frac{1}{3} T_{(-1)} + \frac{2}{3} T_{(1)} \right]$$

Similarly, OR_t is the balance for or against the companies as determined in the annual tax collection process of year t, which corresponds to the difference between the earnings tax collected in year t and the PPMs made in the previous year (PPM_{t-1}). Therefore:

$$(6) \quad OR_t = (P_{t-1} Q_{t-1} - C_{t-1})*17\% - PPM_{t-1}$$

where C_{t-1} are the unit costs in t-1 that can be imputed to taxes in the annual return of year t.

Replacing these expressions in equation (3) gives:

$$(7) \quad R_t = P_t Q_t \left[\frac{1}{3} T_{(-1)} + \frac{2}{3} T_{(1)} \right] + (P_{t-1} Q_{t-1} - C_{t-1}) \ 17\% - PPM_{t-1} + IA_t$$

and analogously in equation (5):

$$(8) \quad PPM_{t-1} = P_{t-1} Q_{t-1} \left[\frac{1}{3} T_{(-2)} + \frac{2}{3} T_{(-1)} \right]$$

where $T_{(-2)}$ is the rate at which PPMs were made in t-3 in advance of payments corresponding to the annual tax return of year t-2.

The above can be further simplified considering that:

$$(9) \quad Tppm_t = \left[\frac{1}{3} T_{(-1)} + \frac{2}{3} T_{(1)} \right]$$

$$(10) \quad Tppm_{t-1} = \left[\frac{1}{3} T_{(-2)} + \frac{2}{3} T_{(-1)} \right]$$

By again replacing in equation (3), fiscal revenue from taxation of private mining companies in year t can be expressed as:

$$(11) \quad R_t = Tppm_t P_t Q_t + (P_{t-1} Q_{t-1} - C_{t-1}) 17\% - Tppm_{t-1} P_{t-1} Q_{t-1} + IA_t$$

A partial derivative of this equation for the price of copper (P_t) shows the effect of changes in the copper price on fiscal revenue, when other variables remain constant:

(12) $dR_t / dP_t = Tppm_t dP_t Q_t + 17\% * dp_{t-1}Q_{t-1} - Tppm_{t-1}dp_{t-1}Q_{t-1} + \partial IA_t / \partial P$

It should be noted that this result implicitly assumes that the unit costs of the previous year (C_{t-1}) are not a direct function of the price of copper, so that:

(13) $\partial C_{t-1} / \partial P_{t-1} = 0$

If the cyclical effect on the earnings tax payments by private mining companies is defined as the same as the effect that the difference between the long-term and effective copper price has on these payments, so that $\partial P_t = P_t^{ef} - P_t^{lp}$, it can be estimated as:

(14)

$$C.Effect = TppmtQ_t(P^{ef}_t - P^{lp}_t) + 17\% * Q_{t-1}(P^{ef}_{t-1} - P^{lp}_{t-1}) - Tppm_{t-1}Q_{t-1}(P^{ef}_{t-1} - P^{lp}_{t-1} + \partial IA_t / \partial P)$$
$$\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,(a)\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,(b)\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,(c)\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,\,(d)$$

In equation (14), it can be seen that the cyclical impact of the copper price on the earnings tax paid by private mining companies in a particular year comprises four partial effects: *a)* the impact of the price gap on the companies' sales and on the PPMs they make in year t; *b)* the impact of the previous year's price gap on profits in that year as reflected in the result of their annual tax return in period t; *c)* the impact of the previous year's price gap on sales and PPMs in that year, which operates with a negative sign in their tax return in year t; and *d)* the impact of the copper's price gap on the additional tax receipt.

Regarding the additional tax receipts, it can be assumed that they depend on *i)* the additional tax rate(T_{IAt}), *ii)* the income tax rate (T_{IRt}) and *iii)* the remitted income to foreign countries before additional tax payments (REM_t). Therefore, these receipts can be described by the following equation:

(15) $IA_t = \dfrac{(T_{IA_t} - T_{IR_t}) * REM_t}{(1 - T_{IR_t})}$

Defining the remitted income as a percentage ($\hat{z}$) of profits after income tax, we obtain:

(16) $IA_t = \hat{z} * (T_{IA_t} - T_{IR_t}) * (P_t * Q_t - C_t)$

Assuming that for a determined period t, the expression $\hat{z} * (T_{IA_t} - T_{IR_t})$ is equal to a specific α_t value[6] and applying a partial derivative of this equation with respect to the price of copper, we obtain equation (17) which shows the effects of a change in the price on the tax receipts of private mining companies' additional tax, keeping everything else constant:

(17) $dIA / dP = \alpha_t * dP * Q$

It should be noted that this result implicitly assumes that $dQ/dP = dC/dP = 0$.

Defining the cyclical effect on private mining companies' additional tax receipts as the impact made by the difference in the long-run copper price with respect to its effective price on these receipts (so that $dP = P^{Ef} - P^{LP}$), the cyclical component of the additional tax is estimated as:

(18) $dIA / dP = \alpha_t * Q * (P^{Ef} - P^{LP})_t * TCN_t$

Therefore, replacing equation (18) in equation (14) determines the cyclical component of the income tax to private mining companies as:

$$(19) \quad C.Effect = Tppmt Q_t(P^{ef}_{\ t} - P^{lp}_{\ t}) + 17\% Q_{t-1}(P^{ef}_{\ t-1} - P^{lp}_{\ t-1})$$
$$- Tppm_{t-1}Q_{t-1}(P^{ef}_{\ t-1} - P^{lp}_{\ t-1} + \alpha_t * Q * (P^{Ef} - P^{LP})_t * TCN_t$$

c.2. Cyclical adjustment of revenue from the specific mining tax

As stated above, it became necessary as from 2006, when calculating the structural balance, to take account of the cyclical effect of the copper price on revenue from the specific mining tax approved in 2005. This tax is levied at a rate of 4% on the operating profits of large mining companies[7, 8] and, if it is assumed that operating costs do not depend on the copper price (an assumption equivalent to that made to determine the cyclical impact of the copper price on revenue from the earnings tax), the cyclical component of revenue from the specific tax can be calculated directly from the effect that the price gap has on copper sales and can be expressed as:

(20) $C.\ Effect\ Spec.\ Tax = 4\% * Q_t (P^{ef}_t - P^{lp}_t)$

However, it should be noted that the law established a two-year transition period for this tax (2006 and 2007) that is not reflected in the above equation, which will be valid once the tax comes into full operation. During the transition, companies are able to use 50% of specific tax payments as a credit against their annual earnings tax liabilities. As a result, both revenue and the cyclical effect of this tax are approximately 50% less than they would be were the tax in full operation, and the cyclical component of the specific mining tax during the transition period can be calculated as:[9]

$$(21) \quad C.\ Effect\ Spec.\ Tax\ in\ Trans. = \frac{4\% * Q_t(P^{ef}_{\ t} - P^{lp}_{\ t})}{2}$$

2.4. Structural surplus target[10]

The policy target established for the structural balance indicator has been a key component of Chile's fiscal policy over the past six years. During this period, the target of an annual structural surplus equivalent to 1% of GDP was set with the aim of ensuring the accumulation of assets with which to meet future public sector commitments, including particularly the contingent liabilities generated by the guaranteed minimum pension and old-age benefit. A second argument for maintaining a surplus was the situation of the Central Bank of Chile which, at the time, was running a structural operating deficit

and had a negative net worth as a result of losses arising from the bailout of the private banking system in the wake of the 1982 crisis and of its accumulation of international reserves in the 1990s. A third reason was the need to address the vulnerabilities relating to currency mismatches that can affect the cost of public debt servicing.

The presidential decree that established the principles of the government's fiscal policy for 2006-10, which were drawn up in accordance with the Fiscal Responsibility Law, stated that this target should be modified if the conditions on which it was based no longer prevail. Consistently, recent evaluations of these conditions resulted in reducing the structural surplus target for 2008 to 0.5% of GDP.[11]

3. Results and benefits of the structural balance policy after six years

Six years after the structural balance policy was introduced in Chile, there is consensus among analysts that it has had six principal advantages. In the first place, it has permitted the implementation of a counter-cyclical policy, attenuating the economy's swings and reducing uncertainty as to its medium-term performance. Second, it has meant an increase in public saving during periods of strong growth which has, in turn, helped to prevent currency appreciation and safeguard the competitiveness of the export sector. Third, it has reduced interest rate volatility and, fourth, has boosted the Chilean government's credibility as an issuer of international debt, reducing the sovereign risk premium it has to pay, improving access to foreign financing during negative external shocks and minimising contagion from international crises. Fifth, it has also reduced the economy's need for foreign financing and, sixth, it has ensured the financial sustainability of social policies, facilitating their long-term planning.

The results in terms of the estimation of the parameters used to implement the structural balance policy and of the balance itself are presented below, along with a review of the six advantages outlined above.

3.1. Long-term and trend parameters

Figures 6 and 7 show how the structural parameters used to calculate the structural balance have evolved over time. Figure 6 shows the estimations of trend GDP made each year since the policy's introduction, while Figure 7 shows the effective copper price, its ten-year moving average and the long-term price since 2000. In the case of molybdenum, the first estimation of its long-term price, made in 2005, gave USD 12 per pound.[12]
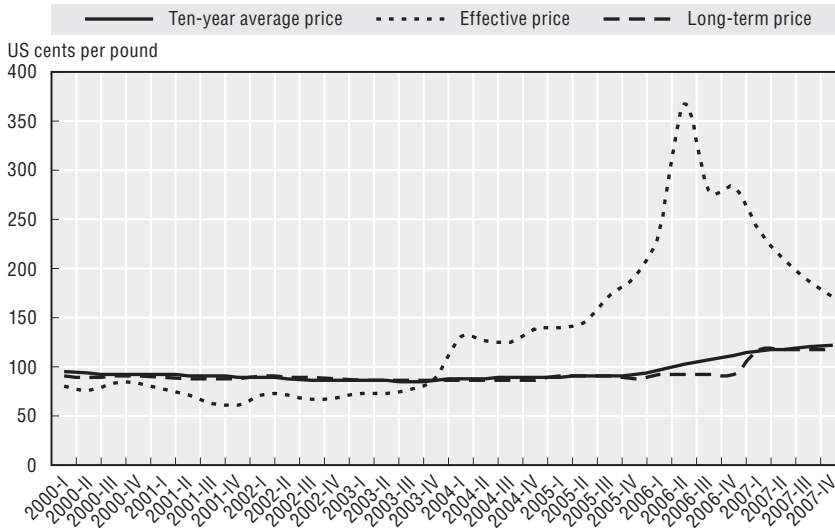
Figure 6. **Trend GDP: annual review by Committee of Experts, 2001-07**
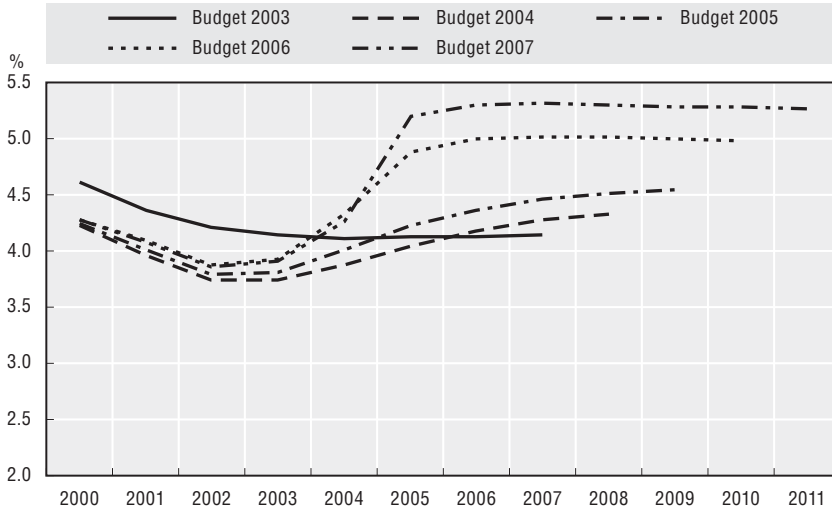
Source: DIPRES.

Figure 7. **Effective and long-term copper price, 2000-07**
(US cents per pound)

Source: Calculated using figures from COCHILCO and DIPRES.

3.2. Central government balance

The public sector budgets drawn up since the structural balance policy was introduced have adhered strictly to the pre-determined target, while the structural balances achieved at the end of each period have shown only some small differences with respect to the target.

As seen in Table 1, the average structural balance in 2001-05 was 0.9% of GDP, and the structural balance that differed most from the target was the 0.8% surplus registered in 2003, despite a spending cut of some USD 300 million, which was outweighed by the negative impact on structural fiscal income of CODELCO's decision to postpone the sale of 200 000 tonnes of copper and of the entry into force of Chile's Free Trade Agreement with the United States in January of that year.

Similarly, the average effective balance for the period during which the structural surplus rule has been in force confirms the long-term stability that this rule imposes on fiscal management. Now that the rule has been in operation virtually over a full cycle, it can be seen that, in the medium term, the average effective balance and the structural target tend to converge.

Table 1. **Central government balance, 2001-05**
(per cent of GDP)

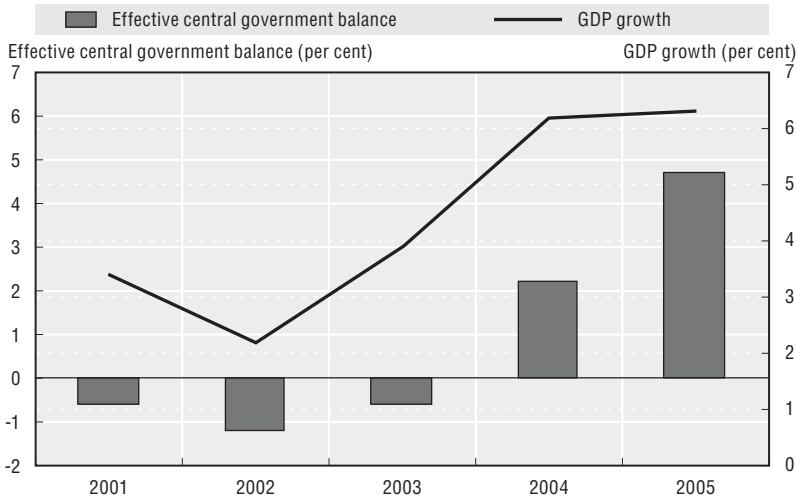|	Effective (reported in June of the following year)	Cyclical component	Structural
2001	−0.6	−1.5	0.9
2002	−1.2	−2.0	0.9
2003	−0.6	−1.4	0.8
2004	2.2	1.1	1.0
2005	4.7	3.7	1.0
Average 2001-05	0.9	0.0	0.9

Source: DIPRES.

3.3. Most significant benefits

3.3.1. Counter-cyclical policy

The structural balance policy is intrinsically counter-cyclical in that it permits fiscal deficits when the economy is performing significantly below potential and surpluses when the opposite is the case. In this way, it serves to attenuate both the economy's highs as well as its lows. As can be seen in Figure 8, this is precisely what occurred in 2001-05, helping to reduce uncertainty as to the economy's medium-term performance with the resulting positive impact on productive investment and the welfare of the population.[13]

Figure 8. **GDP growth and effective central government balance,**[1] **2001-05**
(per cent variation and per cent of GDP)

Sources: DIPRES and Central Bank of Chile.

3.3.2. *Export competitiveness*

The counter-cyclical nature of Chile's fiscal policy has had a stabilising effect not only because it has enabled the government to maintain and increase spending in recessive conditions but also because it has implied the saving of fiscal income arising from a temporary boom. In fact, as shown in Figure 9, public saving in recent years has meant an increase in gross national saving as a percentage of GDP, taking it to, and even above, levels similar to those seen in 1996 and 1997. Most importantly, this occurred despite the fact that private saving remained relatively stable and even decreased a little as a percentage of GDP.

By helping to prevent appreciation of the currency in real terms, this increase in public saving during boom periods has safeguarded the competitiveness of the export sector. This was the case because public spending is intensive in non-tradable goods, putting upward pressure on their relative price which is, in turn, reflected in real currency appreciation.[14] In addition, when public saving is low, an increase in interest rates for the purpose of keeping inflation under control is more likely, prompting an inflow of capital and, therefore, an additional real strengthening of the currency. The structural balance policy and the public saving it implies during boom periods prevent cycles of this type and their potentially damaging effects on competitiveness.

Figure 9. **Gross national saving, public and private, 1996-2005**

(per cent of GDP)
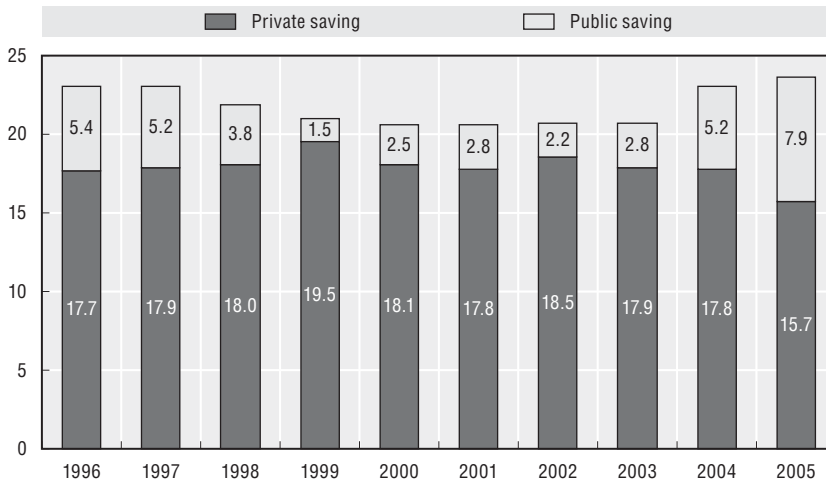
Source: Calculated using figures from the Central Bank of Chile and DIPRES.

### 3.3.3. Interest and exchange rate volatility

The portfolio management of fiscal assets has significant macroeconomic and financial consequences, particularly when the level of public saving is high. Financial market imperfections, asymmetries in access to information and different perceptions of risk make the currency in which public saving is held important because this affects interest rates and the exchange rate. If, for example, in boom periods with a high level of cyclical fiscal income, public saving is held domestically in local currency, this can generate downward pressure on the premiums associated with some financial instruments as well as pressure for currency appreciation.

However, despite the high level of public saving, these pressures have not been seen, and expectations as to the behaviour of interest rates and the exchange rate have been more stable than in the past. Indeed, one of the latest surveys of expectations carried out by the Central Bank found that a 3% depreciation over one year and 7% over two years were anticipated, indicating the absence of the abrupt changes that create a far more complicated macroeconomic situation.[15]

The paramount factor here was the government's portfolio management. As the Ministry of Finance has periodically reported since April 2006[16] and as shown in Figure 10, the assets accumulated as a result of high copper prices have mostly been held abroad and in foreign currency, helping to avoid pressure for currency appreciation.

Figure 10. **Fiscal financial assets**

Composition by currency and location, as of 30 September 2006

Composition by currency

Chilean pesos 22%

US dollars 78%

Composition by location

Chile 11%

Abroad 89%
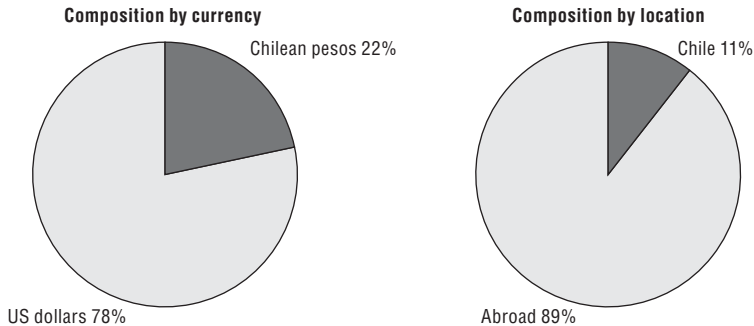
Source: DIPRES (2006b).

3.3.4. *Government credibility as an issuer of international debt*

From the point of view of the central government's financial situation, the structural surplus rule has meant a drop both in borrowing and in its cost. Thanks in part to the fiscal surpluses of recent years, it has been possible to prepay earlier borrowing and, despite adverse phases of the economic cycle (2001 and 2002), new borrowing has not been necessary, leading to a sustained reduction in debt level (Figure 11). In addition, fiscal discipline has made an important contribution to the drop in Chile's country risk (Figures 12, 13a and
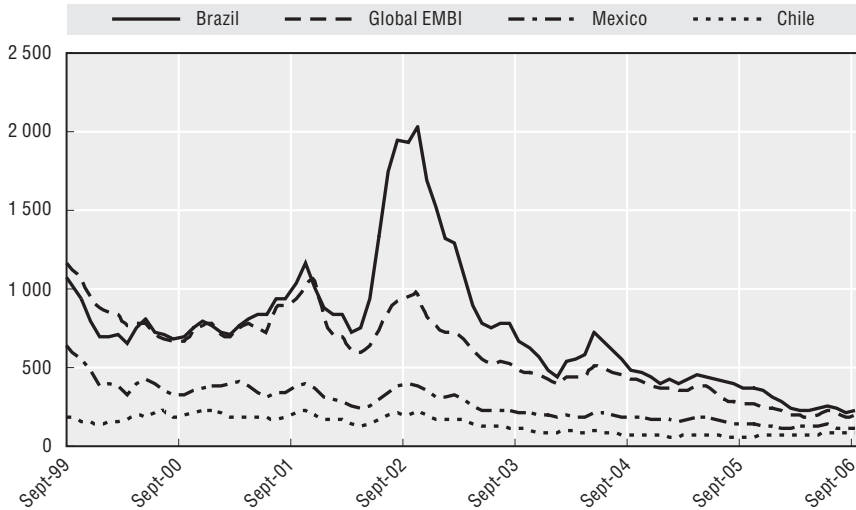
Figure 11. **Gross central government debt, 2000-06**

(per cent of GDP)

%

☐ Domestic Central Bank debt   ☐ Remainder domestic debt   ■ Foreign debt
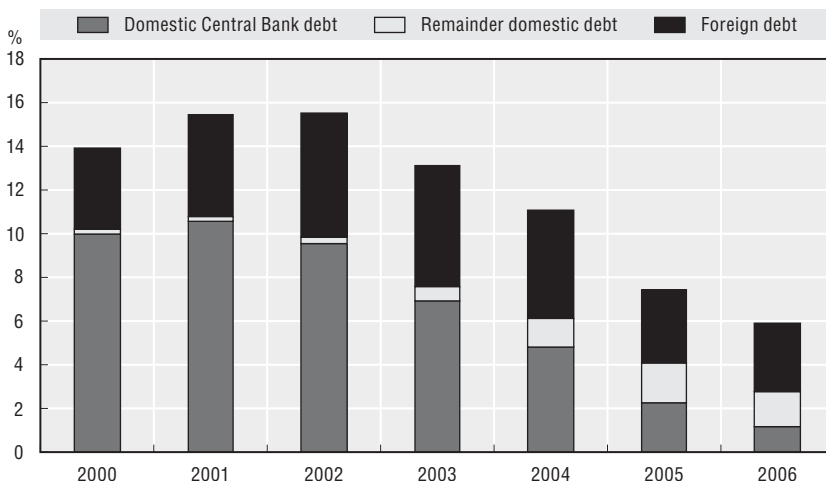
2006 = estimated.

Source: Ministry of Finance of Chile.

Figure 12. **Sovereign spreads: Chile and emerging economies,
September 1999-September 2006 (basis points)**

13b) and the interest rate on public sector liabilities and, therefore, expenditure on interest payments have dropped in recent years (Figure 14).

Figure 12 shows the evolution of Chile's sovereign risk as compared to the average for emerging economies (EMBI) and compared to Brazil and Mexico in the period from September 1999 to September 2006. In addition to being well below that of other economies, Chile's sovereign risk has, even more importantly, remained low throughout the period despite the shock to emerging economies' sovereign spread that resulted from the 11 September 2001 terrorist attacks and the Argentine crisis and moratorium of mid-2002. In the wake of these events, the sovereign spreads of emerging economies climbed sharply, particularly in the case of Brazil.

In this context, the evolution of Chile's country risk goes beyond the effect of the reduction in its borrowing level and suggests that its structural balance policy also had an impact by increasing the credibility of its fiscal policy (Lefort, 2006). An analysis of Chile's country risk before and after the introduction of the rule also indicates that this may have been the case. As shown in Figure 13a, the trend in Chile's country risk was upwards, or at least not downwards, before the announcement of the structural surplus rule but, as shown in Figure 13b, the trend started to move downwards once the rule came into operation.

As mentioned above, gross central government debt showed an important decrease between 2004 and 2006. Together with sustained efforts to

Figure 13a. **Chile sovereign spread before the structural balance policy, May 1999-December 2000 (basis points)**
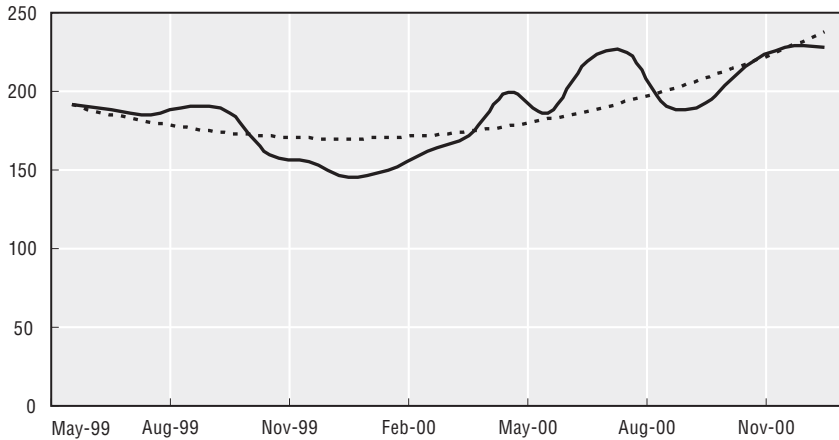
Source: Calculated using figures from JPMorgan.

Figure 13b. **Chile sovereign spread after the structural balance policy, January 2001-August 2006 (basis points)**
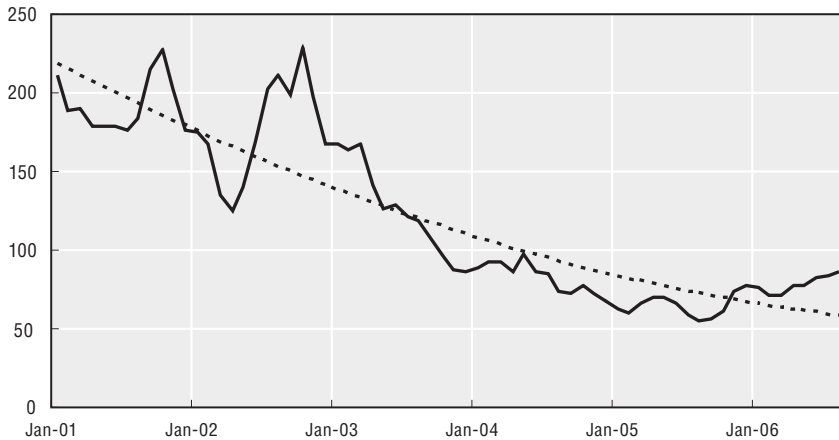
Source: Calculated using figures from JPMorgan.

take advantage of improved financial market access to prepay earlier borrowing made at higher interest rates, this meant a sharp reduction in central government expenditure on debt servicing as from 2004 (Figure 14). Moreover, expenditure on interest payments as a percentage of GDP and of total public spending held steady between 2000 and 2003 despite an increase in gross debt during this period as a result of the access to better borrowing terms.

Figure 14. **Central government interest payments, 2000-06**
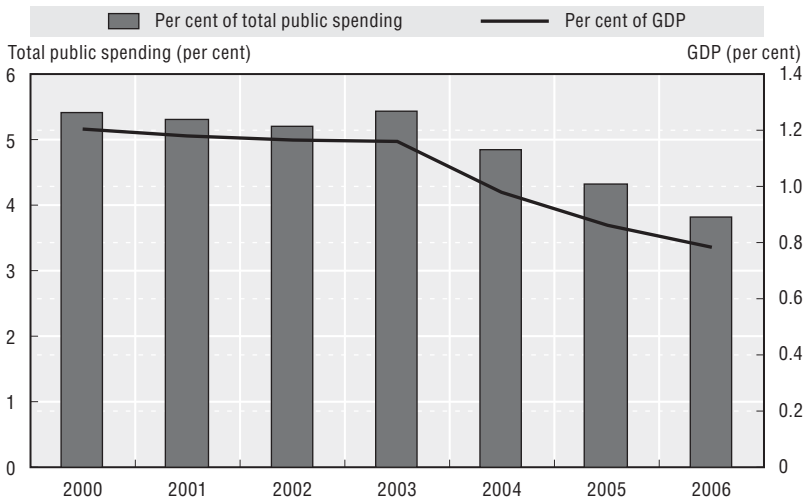
2006 = estimated.

Source: Calculated using figures from the Central Bank of Chile and DIPRES.

In other words, the increase in the credibility of the Chilean government as an issuer of international debt has reduced the sovereign premium it has to pay while, at the same time, reducing the effect of financial contagion from other countries in the region (as was very clear in the case of the Argentine exchange rate crisis of 2002). This has improved access to foreign financing during negative external shocks and reduced the borrowing costs of Chilean companies that issue international debt, for whom the country's sovereign debt serves as a benchmark.

3.3.5. *Dependence on external financing*

The structural balance policy has also helped to reduce the Chilean economy's dependence on external financing, which is an advantage given that this has historically been a volatile source of resources. This reduced dependence is a result of the policy's counter-cyclical nature and its capacity to boost public saving. At the same time, because it led to a reduction in the cost of foreign borrowing, the structural balance policy also meant that, when foreign borrowing was required, it could be obtained on far more favourable terms than when Chile's dependence on this source of financing was greater.

This advantage is clear when the effects of the 1982 crisis are compared with those of the crisis that occurred in 2001 under the structural balance policy. In both cases, as seen in the External Conditions Index (ICE) shown in Table 2, Chile faced adverse external conditions, but the impact in terms of access to financing was very different. A year after the 1982 crisis, the inflow

of foreign capital showed a drop of 69%, while a year after the 2001 crisis, the reduction, although important, was significantly smaller. In the former case, this resulted in a 13.2% contraction of public investment in 1983 whereas, in 2002, it expanded by 7.8%, due – among other reasons – to the fact that the public sector had access to external financing at low interest rates.

Table 2. **External crises and foreign financing**

Variable	1982-83	2001-02
ICE[1]	−4.0	−5.1
Incoming foreign investment	−69%	−39%
Public investment (real growth)	−13.2%	7.8%

1. The External Conditions Index (ICE) is expressed as a percentage of GDP and reflects the effects of changes in terms of trade, export volumes and capital inflows.
Source: Calculated using figures from the Ministry of Finance and the Central Bank of Chile.

3.3.6. *Financial sustainability of public policies*[17]

Finally, the sixth advantage of the structural balance policy is that it has made it possible to ensure the financial sustainability of public policies, permitting the long-term planning of social programmes. In this context, it is important to remember that, as a small and open economy, Chile is exposed to sporadic and often unpredictable events that affect its economic performance. Historically, events outside Chile's control have affected the welfare of its citizens because the country, in general, and the government, in particular, have had to adjust their level of investment and consumption in line with economic conditions.

One clear instance of this phenomenon occurred in the wake of the crisis of the mid 1980s, with social spending dropping from 15.7% of GDP in 1987 to 12.7% in 1990. However, since the structural balance policy was introduced, traumatic economic adjustments have not been required and, for example, in 2002, public spending was not drastically affected despite the fact that economic growth reached only 2.2% and copper was running at just USD 0.70 per pound.[18] In the absence of the structural balance rule, this scenario would have meant only minimal growth, or even a freeze, of public spending. However, although fiscal income rose by only 0.7%, total spending increased by 4.2% and social spending by 3.8% without producing macroeconomic imbalances, an increase in country risk or an increase in economic volatility, any of which would, in the medium term, have meant a negative impact on the population.

In the framework of the structural balance rule, the greater sustainability of public spending is a consequence of tying it to structural rather than effective income, which is far more volatile. In the period 2000-06, structural

income expanded at an average annual rate of 5.8%, with a standard deviation of 2.5% and a minimum and maximum of 2.4% and 7.7%, respectively. By comparison, the average annual expansion of effective income in this period was 11.4%, but with a standard deviation of 9.2% and a minimum and maximum of 0.7% and 20.7%, respectively.

As a result, despite cyclical fluctuations in effective income, spending expanded steadily at an average annual rate of 4.9%, with a standard deviation of 2.2% and a minimum and maximum of 1.6% and 7.4%, while social spending rose at an average annual rate of 4.6%, with a standard deviation of 1.3% and a minimum and maximum of 2.2% and 5.8%. This indicates that the structural balance policy has served as a mechanism that stabilises public spending in that, as seen in Figure 15, spending has fluctuated less than income.

Figure 15. **Central government income and spending, 2000-06**
(CLP millions 2006)
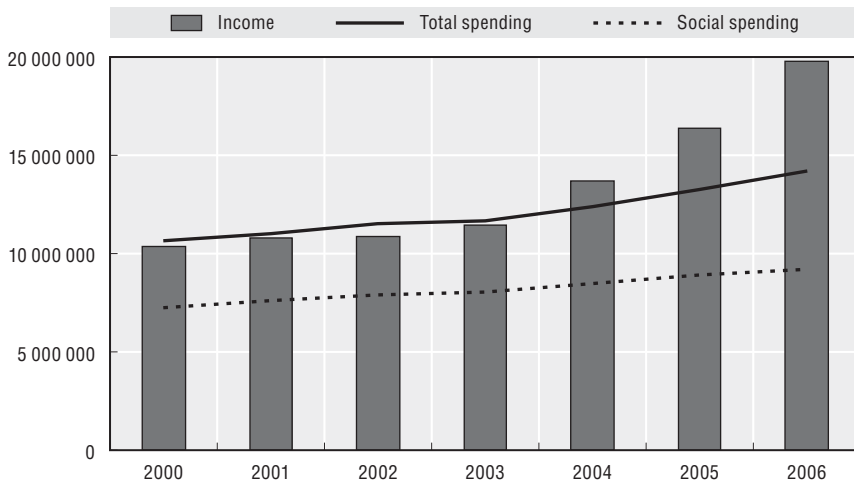
2006 = estimated.
Source: DIPRES.

A similar conclusion is reached if central government spending is examined over a longer period. By measuring spending volatility as the gap between its effective level and trend level[19] (Table 3), it can be seen that, in the period 1970-2000, the average gap had an absolute value of 5.7%, reaching 7.1% in 1980-89 and 3.1% in 1990-99. By comparison, in the period 2000-05, under the structural balance policy, the average gap had an absolute value of just 2.2%.

Table 3. **Index of volatility of central government spending,**[1] **1970-2005**

Period	Volatility index
1970-89	7.1%
1990-99	3.1%
1970-99	5.7%
2000-05	2.2%

1. This index measures the average as the absolute value of the deviation of spending from its trend level, obtained through a trend regression of the data of the respective sample for each period.
Source: DIPRES (2006a).

A further way in which the structural balance policy contributes to the financial sustainability of public policies is through the protection it provides from the effects of external crises and, therefore, the lower probability that a drastic adjustment will be required. This stabilising impact of the structural balance policy can be seen when comparing the effects of the external shocks of 1982 and 2001. As shown in Table 4, these shocks were of similar magnitude but, in the period in which the structural balance policy has been in force, the economy continued to expand at a mean rate of 2.8% compared with an average GDP contraction of 8.2% in the period in which the policy was not in use. Similarly, in the former case, unemployment did not exceed 10% of the labour force while, in the latter, it reached over 20%. In addition, after the shock of 2001, public spending increased by 1.9% whereas, after the 1982 crisis, it contracted by 4.0%.

Table 4. **Macroeconomic results: external crises and fiscal policy**

Variable	1982-83	2001-02
ICE[1]	–4.0	–5.1
Variation in GDP[2]	–8.2%	2.8%
Average unemployment	20.4%	9.0%
Variation in public spending[2]	–4.0%	1.9%

1. The External Conditions Index (ICE) is expressed as a percentage of GDP and reflects the effects of changes in terms of trade, export volumes and capital inflows.
2. In the year following the respective crisis.
Source: Calculated using figures from the Ministry of Finance, the Central Bank of Chile and DIPRES.

However, the effect of the structural balance policy on the financial sustainability of public policies is not only due to the fact that it anchors public spending to the behaviour of structural fiscal income – a more stable and sustainable variable than effective income – and provides protection from external crises. It is also the result of the reallocation of public resources previously devoted to debt servicing and of the generation of additional income in the form of earnings on public savings.

Both the savings on debt servicing and this additional income can be used to finance social programmes and investments that stimulate economic growth. This can be clearly illustrated by comparing the fiscal budgets of 1991 and 2007. These are similar in that they represent the largest expansion of public spending since 1990 (8.9% in both cases) but, while in 1991, 14% of public spending corresponded to interest payments on debt, in 2007 this figure will be less than 2%. This important reduction in interest payments has allowed the reallocation of resources, which ultimately has meant that a greater percentage of the budget can be devoted to social spending. In fact, it is projected that in 2007 social spending will represent 68% of total public spending as compared to 62% in 1991.[20]

4. Institutionalisation of the structural balance in the framework of the Fiscal Responsibility Law

In view of the positive results of the voluntary application of the structural balance methodology and the consensus as to its advantages, the government presented a bill to Congress in September 2005 to institutionalise key aspects of the structural surplus and fiscal policy that previously depended exclusively on administrative decisions and the will of the authority. This bill, approved by Congress as the Fiscal Responsibility Law (Law No. 20.128), came into force in August 2006, reinforcing both the credibility achieved through the implementation of a disciplined and responsible policy as well as the policy's transparency.

It is important to highlight the wide and transversal support that this legal initiative received. It not only indicated that the policy's benefits are perceived and valued by a broad spectrum of opinion, but also demonstrated the responsible attitude of members of Congress and other politicians, the majority of whom considered that a further advance in fiscal discipline was appropriate.

The Fiscal Responsibility Law was envisaged in the Letter of Agreement, signed by the Ministry of Finance and Congress, as part of the process of approval of the 2005 budget. In addition, it drew on recommendations made by organisations such as the International Monetary Fund, the Inter-American Development Bank, the World Bank and the OECD as regards best international practices on fiscal responsibility and transparency.

In terms of the structural balance policy, the most important aspects of the Fiscal Responsibility Law are described below.

4.1. *Establishment of principles of fiscal policy*

Under the law, the President is obliged to establish the principles of the administration's fiscal policy within 90 days of taking office and to expressly

declare the implications this will have for the structural balance. In line with this requirement, a decree was published on 29 November 2006 setting out the principles of the fiscal policy of President Michelle Bachelet's government.

4.2. Annual calculation of structural balance

The law also requires governments to provide information about the structural situation of public finances, reflecting the sustainability of the fiscal policy to be implemented and the macroeconomic and financial implications of their budget policy. The calculation of the public sector structural balance has, therefore, become an obligatory part of the programming of fiscal finances.

4.3. Contingent liabilities

Under the law, the state administration must disclose information about the undertakings it has entered into through fiscal guarantees, with the Budget Office (*Dirección de Presupuestos*, DIPRES) reporting annually on the total amount and nature of the liabilities for which a state guarantee has been provided. This information is important because these contingent liabilities are one of the factors currently considered in establishing the exact structural balance target.

4.4. Pension Reserve Fund

The law created a Pension Reserve Fund (FRP) against the future increase in expenditure on state-financed minimum pensions and old-age benefits. This fund seeks to spread over time the financial burden that these liabilities will involve for the state and, at the same time, to clarify and explicitly incorporate this responsibility, which is another of the factors currently considered in establishing the exact structural balance target.

For the FRP, the law established a contribution equivalent to the previous year's effective fiscal surplus, with an upper limit of 0.5% of GDP and a guaranteed minimum of 0.2% of GDP. Over the first ten years of its life, the fund cannot be drawn upon and can thereafter be used to finance up to a third of the increase in total expenditure each year on guaranteed pensions and old-age benefits as compared to total expenditure on these items in 2015. It is foreseen that the fund will be exhausted 15 years after the Fiscal Responsibility Law came into force, providing that, as assumed, withdrawals from the fund in a calendar year do not exceed 5% of the expenditure on minimum pensions and old-age benefits envisaged in the budget for that year.

With regards to the FRP's assets, which can be held in local or foreign currency, the law establishes that they may be invested in Chile or abroad in the same asset classes permitted for private pension funds, with the

exception of shares. Portfolio management services for the FRP must be put out to public tender although, if the Ministry of Finance so decides, investments can also be made by the Treasury Service.

4.5. *Economic and Social Stabilisation Fund*

The law authorised the government to set up an Economic and Social Stabilisation Fund (FEES) to absorb the existing Copper Income Stabilisation Funds (created by Decree Law No. 3.653 of 1981 and by BIRF Loan Agreement No. 2625 CH), establishing norms for the operation and management of this fund, contributions and other matters. The FEES is designed mainly to serve as a complement to the fiscal rule based on the structural balance and to provide the government with a stable financial horizon by ensuring that part of fiscal surpluses are saved to finance the budget when it shows a deficit. In this way, the fund will serve to insulate social spending from the swings of the economic cycle and of the prices of copper and molybdenum, while harnessing public saving to the strengthening of the Chilean economy's competitiveness.

4.6. *Capitalisation of the Chilean Central Bank*

As a third use for fiscal surpluses, the law authorised the government, represented by the Ministry of Finance, to capitalise the Central Bank of Chile, using for this purpose part of the previous year's effective surplus up to an annual amount equivalent to 0.5% of GDP for a period of five years. In the third year after the law's entry into force, the Ministry of Finance must commission an economic and financial study of the impact of this capitalisation on the Central Bank's projected balance sheet over a period of 20 years. This is important because the negative net worth of the Central Bank is one of the factors currently considered in establishing the exact structural balance target.

Under the law, payments to the Central Bank are determined by the government, but cannot exceed the effective fiscal surplus that remains once the government has complied with its contribution to the FRP. In other words, the FRP has priority over other possible uses of the previous year's effective surplus. The remainder of the effective surplus, not used either for the FRP or to capitalise the Central Bank, can be paid into the FEES.

4.7. *Investment portfolio*

The law sets out general norms as to the powers of the Ministry of Finance to invest the assets held in these new funds and other fiscal assets. In line with the terms of the FRP, the law establishes that portfolio managers will be hired for the FEES or, if the Ministry of Finance so decides, investments may

be made directly by the Treasury Service. In addition, the Ministry of Finance is also empowered to entrust management of part or all of these resources to the Central Bank which may manage them either directly or, following a tender, through third parties.

If the Ministry of Finance uses third parties for portfolio management or for some of the operations associated with the administration of these financial assets, it must periodically commission independent audits of the state of the funds and their management by these third parties. In addition, the law requires that the Ministry of Finance publish quarterly reports about the state of these funds.

Similarly, the law requires the creation of a Financial Committee to advise the Ministry of Finance on decisions regarding the investment of fiscal resources and the instructions it issues.

4.8. Management of public sector assets and liabilities, information on evaluation, and identification of investment projects

The law contains norms designed to improve the management of the public sector's assets and liabilities: 1) it made permanent a norm that had been incorporated into the budget law on an annual basis regulating operations which commit the government to future payments and, therefore, affect institutional financial responsibilities and those of the state as a whole; and 2) it introduced a norm empowering the Ministry of National Property to charge for the use of properties it manages in order to reflect the real institutional cost of their use and promote the more efficient use of state properties. The law also includes new norms for the homologation of information and evaluation systems that refer to investment projects.

4.9. Unemployment contingency programme

The Anti-unemployment Contingency Programme, which previously required annual approval under the budget law, became permanent with the law establishing its objective, conditions and financing in order to put the government in a position to address possible problems of high unemployment at a national, regional or local level. In practice, the programme can be activated whenever the conditions established by the law are met – that is, when the national three-month rolling average unemployment rate, measured by the National Statistics Institute (INE), exceeds its average for the previous five months, or when it reaches at least 10%. In addition, the programme can be activated when these conditions are not met but unemployment reaches at least 10% in one or more regions or specific provinces, in which case its resources can be used in those localities of the region or province with the highest unemployment rates, or when

unemployment reaches at least 10% in a specific locality even though the rate for the corresponding region or province is less than 10%.

5. Concluding remarks

The transparent and rigorous use of the structural surplus rule in drawing up and implementing the government budget, as a public and credible commitment, has consolidated the principles of fiscal prudence, macroeconomic consistency and harnessing public finances to the service of the country's citizens. The entry into force of the Fiscal Responsibility Law represents a further step in the institutionalisation of key aspects of the structural balance and fiscal policy, reflecting widespread consensus as to the benefits of the fiscal rule.

This consensus arises from the fact that, during the six years it has been in use, the structural balance rule has proved to have a number of advantages. It has permitted the implementation of a counter-cyclical policy, attenuating the swings of the economy and reducing uncertainty as to its medium-term performance. It has meant an increase in public saving during boom periods, thereby helping to prevent currency appreciation and to safeguard the competitiveness of the export sector. In addition, it has reduced interest rate volatility and increased the Chilean government's credibility as an issuer of international debt, reducing the sovereign premium it has to pay, improving access to foreign financing in the face of negative external shocks and minimising contagion from international crises. Moreover, it has ensured the financial sustainability of public policies, facilitating their long-term planning.

These auspicious results are not, however, an argument for not continuing to refine the structural balance policy as, in fact, has been happening since it was introduced. In this period, the way in which the indicator is calculated and key parameters and assumptions are defined has been made increasingly transparent, the disclosure of information to the public has been improved, and the methodology has been refined. This practice of constant improvement must be maintained in the future and, as has been the case until now, must be based on technical criteria. In this context, the key current challenge is the practical implementation of the structural balance's institutionalisation under the Fiscal Responsibility Law. This law introduced a series of elements that must be taken into account when defining the specific structural balance target, in addition to the permanent challenge of assessing the real fiscal risk factors that affect this decision, as was done in the choice of modifying it for the 2008 budget.

Finally, there are a number of methodological challenges that need to be addressed. These include the determination of the best methodology for estimating the long-term price of molybdenum, a study of the correlation

between the costs of mining companies and the copper price to determine whether these also require cyclical correction, and an assessment of the difference between the accrued and cash-based effects of cyclical and structural tax revenue.

Notes

1. For a more detailed statistical analysis of this relationship, see Chapter VII of DIPRES (2004).

2. The report of this committee for the 2006 budget can be found in Appendix I of DIPRES (2006a).

3. The report of this committee for the 2006 budget can be found in Appendix II of DIPRES (2006a).

4. In order to obtain these values, it is necessary to project the relevant variables that serve as inputs to this function. These are gross fixed capital formation (K), the labour force (L) and total factor productivity (A).

5. A distinction between revenue from mining and non-mining taxes was introduced in 2005.

6. Observed values of $\hat{z}$, T_{IA}, and T_{IR} are used for this purpose.

7. This is the rate consistent with the nature and size of the country's ten largest mining companies, given that the law distinguishes between sales brackets.

8. It should be noted that this rate does include an adjustment to take account of the fact that this tax is considered expenditure for the purpose of determining the earnings tax.

9. In this case, there is also a lag between payment of the specific tax and use of this credit. However, given the relatively low weight of this tax as a proportion of total tax revenue (0.4% in 2006), the estimation of its cyclical impact has been simplified by including both effects in the same year.

10. This section is based on Ministry of Finance of Chile (2006).

11. For further details see Velasco *et al.* (2007) and Engel *et al.* (2007).

12. In drawing up the budget for 2007, a long-term copper price of USD 1.21 per pound, trend GDP growth of 5.3% and a long-term molybdenum price of USD 14.7 per pound were used.

13. Larraín and Parro (2006) estimate that the introduction of the structural balance policy made it possible to reduce the volatility of GDP growth by between 32% and 33% in 2001-05.

14. García and Restrepo (2006) simulated the general equilibrium for an economy which exports a partially state-controlled commodity and applies a fiscal rule similar to the one used in Chile. They found that, in the case of a temporary positive shock in the commodity's price, most of the real currency appreciation and drop in exports that occur without the fiscal rule are avoided when it is used.

15. For more details, see De Gregorio (2006).

16. For more details, see DIPRES (2006b).

17. For a more detailed discussion, see Rodríguez C. (2006).

18. By comparison, the 2007 public sector budget was drawn up using an estimated copper price of USD 2.05 per pound.

19. This exercise is described in more detail in DIPRES (2006a).

20. In terms of resources, the 2007 budget represents an 11.2% expansion of social spending, the largest of the last 20 years.

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