Measuring Saving in the National Accounts

This paper is released in conjunction with *National Accounts: Year ended March 2007*
Hot Off The Press published on 15 November 2007

Introduction

In common with many Organisation for Economic Co-operation and Development (OECD) countries, New Zealand's household saving rate has been declining in the past two decades. This has inevitably sparked debate on the adequacy of saving especially in the context of retirement income policy. Discussion has been particularly intense because the official household saving rate is consistently one of the lowest in the OECD and has fallen quite rapidly in the last five years. The lack of a comprehensive set of official sector income and outlay accounts and balance sheets in the national accounts has limited the range of data needed to comprehensively analyse saving behaviour. Inevitably, this has led to non-official saving and wealth estimates being derived to fill the data vacuum, sometimes at odds with the current official statistics.

This paper outlines how saving is derived in the national accounts and the relationships between national saving, sector saving, net wealth, investment and the current account balance with the rest of the world.

National saving

Saving is a flow concept and is measured as a residual, being the difference between some measure of income less some measure of expenditure or consumption. In the national accounts these measures of income and expenditure are defined quite specifically, and this is where confusion with alternative, non-official measures often starts as the latter often adopt differently defined concepts.

At its simplest level, national saving can be defined, using familiar macroeconomic notation, as:

$S = Y – C$

where S is national saving, Y is national disposable income (NDI) and C is private plus government consumption expenditure.

Note that income excludes capital gains/losses and is net of consumption of fixed capital. Gross measures of saving – including consumption of fixed capital – could be derived based on a gross income concept, but in the presentation shown here net measures are used, consistent with the national accounts definitions which, in turn, comply with international standards. Using gross or net measures does not alter the 'saving story'. The exclusion of capital gains from income (and hence saving) is important as this is often a key source of difference between the national accounts saving series and those derived independently based on changes in net wealth measures. More on this below.

The relationship between national saving, investment and the current account can be shown as follows using the familiar national accounts identity:

$GDP = C + G + I + X - M$, or, including government expenditure with private, we have
$GDP = C + I + [X - M]$

where GDP is the income-measure of gross domestic product, C is as above, I is gross investment (gross fixed capital formation plus change in inventories) and [X - M] is exports less imports. Allowing for net income and transfers paid abroad (NIT) leads to

$GDP + NIT = C + I + [X - M] + NIT$

As the LHS is equal to gross national disposable income (GNI) and the term [X - M] + NIT is the current account balance (CAB), we have:

$GNDI = C + I + CAB$

Deducting consumption of fixed capital from GNDI (to obtain NDI) and from gross investment (to obtain I_{net}), and substituting S = [NDI - C] from above, we have:

$S = I_{net} + CAB$

As CAB in New Zealand is generally a deficit, it effectively measures the saving from the rest of the world (S_{row}) flowing into New Zealand. Hence, we have the familiar S = I identity, but broken down as:

$S + S_{row} = I_{net}$

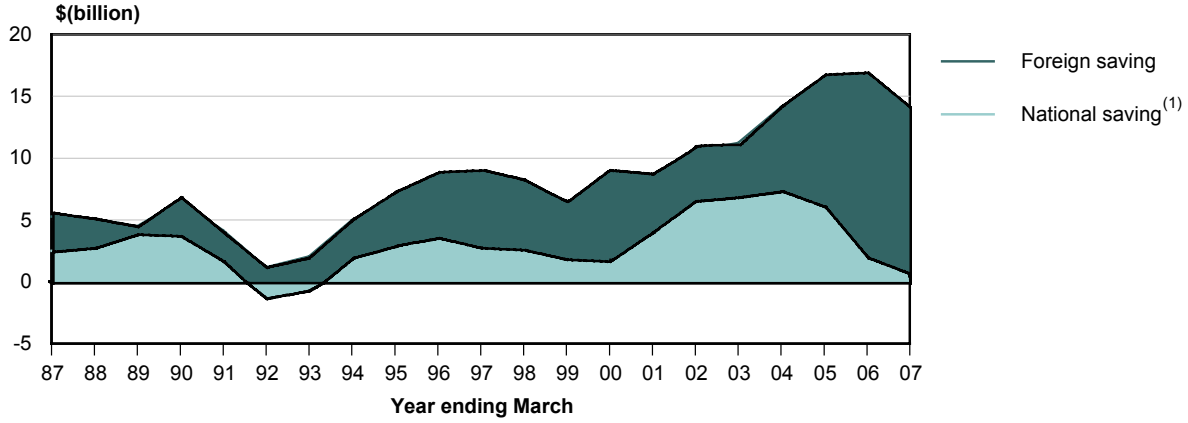
In other words, net investment in New Zealand is financed from either national saving or foreign saving.

This equality, and the one above it, shows that while national saving may be a residual in the national income and outlay account, the national accounting framework provides a further check on its accuracy. Given that the current account balance and the investment series are regarded as robust, this provides some assurance on the quality of the national saving figure.

Figure 1

Funding Net Investment

1987–2007



(1) National saving less statistical discrepancy.

Figure 1 shows the funding of net investment, and the split between national and foreign saving. Much of the lift in net investment in the latest years has been financed by foreign saving, that is, overseas borrowing.

Sector saving

National saving can be analysed by the institutional sectors identified in the economy, such that

$S = S_{nfi} + S_{fi} + S_g + S_{npi} + S_h$

where S_{nfi} is the saving of non-financial institutions, S_{fi} the saving of financial institutions, S_g is government saving, S_{npi} is the saving of non-profit institutions and S_h is household saving. If New Zealand had a full set of institutional sector income and outlay accounts, these sector saving residuals could all be independently estimated and reconciled both with each other and with the national saving total. Unfortunately, at present we do not have this full set, although a work programme is now in place to

develop and publish these by 2009. However, with the release of the general government sector income and outlay account (15 November 2007) more of the saving picture is now being filled with official data, and this helps to make a more reasoned judgement on the accuracy of the published household saving series.

From the above, we can define private sector saving S_p as

$S_p = S - S_g = S_h + [S_{nfi} + S_{fi} + S_{npi}]$

As S_{npi} is small and unlikely to vary greatly year-on-year (using data from the recently released satellite account for non-profit institutions, S_{npi} in 2004 is estimated to be $347 million of the $7,431 million national saving total), it can be expected that the size and fluctuations of the private saving residual in the square bracket will be dominated by business saving, that is, $S_b = [S_{nfi} + S_{fi}]$. As private saving is known with some confidence, debate on the accuracy of the official household saving series requires a discussion on how the private saving measure is split between households and businesses. If household saving was positive (and, indeed, increasing, as some recent commentators have suggested[1]) then given the track of private saving this would imply very low or negative business saving, falling very rapidly in the last five years. Given recent high economic growth and business profits this is an unlikely scenario.

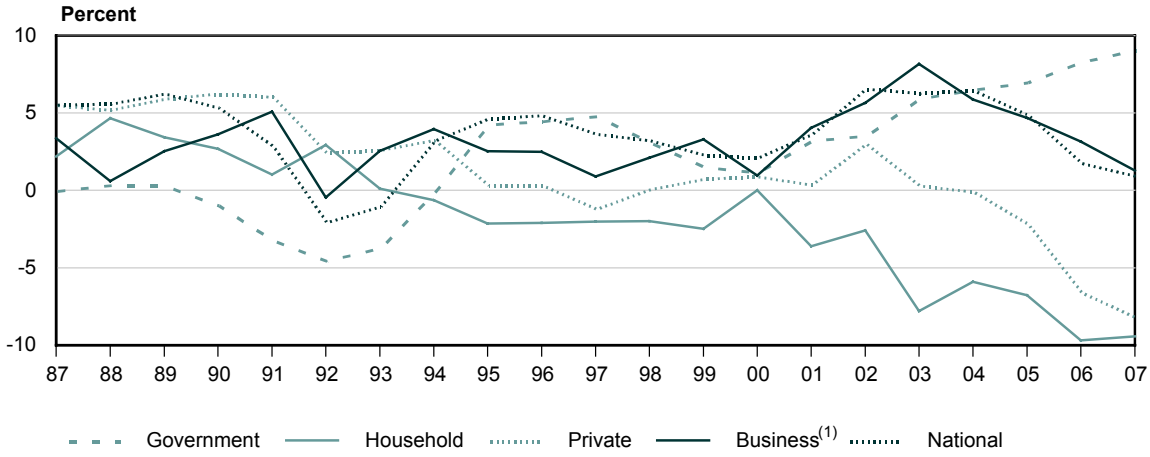
Figure 2 below graphs the key series. Total private saving has been declining for the last two decades and post-2004 has fallen steeply, and become negative. A similar pattern is evident for household saving except that negative saving has been recorded since the early 1990s and the steeper decline in the saving rate begins earlier in 2000 and coincides with the growth in government saving.

Figure 2

Saving Rates

As percentage of national disposable income

1987–2007



(1) Business plus non-profit institutions.

1 Alternative flow-based measures of household saving have been derived using data from the Household Economic Survey (HES). Statistics New Zealand has strongly cautioned against using the HES data to derive macro saving series for households. The Bascand (2006) paper showed that major adjustments are required to raw HES data in order to derive (approximate) equivalent household saving measures, and without these adjustments HES-based saving measures are quite misleading. (Refer Bascand G., J.Cope, D.Ramsay, Selected Issues in the Measurement of New Zealand's Saving(s), Statistics New Zealand, 2006.)

Saving and net wealth

In figure 2, the flow measure of saving has been derived as the difference between defined income and consumption expenditure series. In a full set of national accounts and balance sheets, an alternative and (theoretically) equivalent derivation is possible using data on changes in net wealth. For households, for example, it can be shown that:

$\Delta W = S_h + R + CT + OT$

where ΔW is the change in household net wealth from one period to the next, S_h is household saving, R is the revaluation of real and financial assets and liabilities, CT is capital transfers from other sectors, including from overseas, and OT is other changes in net wealth holdings that may occur due to other factors such as the loss/gain in real assets as a result of destruction or discovery or asset/liability reclassification. Ignoring OT, it can be seen that

$S_h = \Delta W - R - CT$

In other words, an alternative household saving figure can be derived by taking the change in household wealth from one period to the next and deducting the contributions to that change that have come from revaluations and capital transfers.

In recent years household net wealth (as measured by the household balance sheet published by the Reserve Bank of New Zealand) has increased significantly, due largely to the rapid rise in house prices. This has led to what appears to be the paradoxical situation of household net wealth increasing significantly, despite the official household saving rate being negative and declining. In this situation, the declining saving series has been completely swamped by the dwelling revaluation effects. Accordingly, attempts to use this alternative approach to derive saving need to ensure that all other factors that contribute to net wealth such as asset revaluations are fully removed. In the absence of official household balance sheets and revaluation accounts this is not a simple exercise. A number of the saving series produced by analysts and commentators using this approach retain all or some of these other factors. In some cases, the series produced have adopted alternative saving definitions – for example, based on income measures that include capital gains. In both cases, the series are not strictly comparable to the official flow based saving measures. Discussion on saving could be muddied through confusing saving (flow) measures with net wealth (stock) measures and comparing conceptually different saving series.

The work of Hodgetts [2] at the Reserve Bank, uses a variant of the net worth approach, which uses official estimates and financial account identities, linking flows to balance sheet variables. Although the authors regard their results as indicative only, their analysis is thorough and rigorous. Hodgetts derives a household saving series that corroborates the declining saving rate and indicates that households have been dissaving in recent years (post-2000). However, while the authors' work supports the general trend portrayed by the official saving series, and provides a convincing thesis for the decline into negative saving, it does indicate a higher level of household saving in most years and does not fall as rapidly in the latest years. Further work on reconciling the two series is warranted.

2 Hodgetts B., P.Briggs, M. Smith, Household Saving and Wealth, Reserve Bank of New Zealand, 2006

Is the official household saving series robust?

The household saving series is taken from the household income and outlay account. Although published annually, Statistics New Zealand labels the account "experimental" and this descriptor has sometimes been taken to imply that the statistics contained in the account are inaccurate or unreliable. This assessment is not warranted. The term has been used for two reasons:

- The methodologies and data used to derive a number of the account variables are expected to change when the account is redeveloped, that is, the methodology is subject to change. Modifications leading to improvements in the account can be expected over the next two years.

- In the absence of a full set of institutional sector income and outlay accounts it is not possible to fully reconcile a number of key inter-sectoral income and transfer flows (such as interest, dividends, donations, etc).

The account has been released in its present stage of development as there is considerable interest in the statistics it contains and it is believed that these statistics are 'fit-for-purpose', that is, they are sufficiently accurate for release and for use in macro-economic analyses. While proposed enhancements will modify and improve the series – which will affect the saving residual – these are not expected to significantly alter the overall saving picture the account portrays.[3]

The sections above have shown how saving measures calculated within the national accounts framework are linked and related to other variables, two characteristics that provide some assurance on their quality. National saving, government saving, investment and the current account balance are all robust measures which provide some confidence in the derived private saving residual. The household saving measure, while subject to future methodological enhancement, is considered fit for use and plausible explanations can be put forward to explain the 'household saving story'.

3 One of the acknowledged key deficiencies in the published account is the understatement of income directly earned overseas, either in the form of income on directly held overseas investments or via contract income or salary directly earned overseas. Including this omitted income could be expected to raise the level of saving, but would be unlikely to alter the saving trend or remove the dissaving recorded in the latest years.