AUSTRALIA’S SAVING BEHAVIOUR: A MACROECONOMIC PERSPECTIVE

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1. INTRODUCTION

Since the mid-1980s, economic policy in Australia has recognised the long-term benefits of raising domestic saving. In this regard, improving Australia’s national saving and reducing public debt have also been key priorities of fiscal policy and previous federal governments have promoted wider superannuation coverage of employees.

According to conventional measures, Australia’s domestic saving as a proportion of GDP has fallen over recent decades. For instance, gross saving has declined from some 25 per cent of GDP in the mid-1970s to under 20 per cent in the 1990s. Despite this fall however, Australia’s domestic saving rate remains comparable to saving in similar advanced economies in the Asia-Pacific region, such as Canada, New Zealand and the United States, though has consistently been less than saving rates achieved by many emerging economies in our region. See Chart 1.

Australia’s financial markets are relatively highly integrated with global financial markets and this affords ready access to foreign saving, the other major source of funds for the economy. For most of its history, Australia’s domestic investment needs have exceeded domestic saving. As a result, the economy has been a persistent net importer of foreign saving, which has complemented domestic saving and played an important role in the economic growth process. Estimates of the benefits of importing foreign saving suggest that Australia’s national income and wealth have been significantly higher as a consequence of the higher capital stock than the use of foreign saving would have enabled.

This paper focuses primarily on the behaviour of domestic saving. First, it considers how this main source of saving is measured, before canvassing broad trends and key influences. It then addresses the relationship between domestic saving, productivity and economic growth. Finally, it draws conclusions for economic policy.

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* The author is grateful to an anonymous referee for comments.

1 See Fitzgerald (1993).
CHART 1
GROSS SAVING (PERCENTAGE OF GDP),
ASIA-PACIFIC ECONOMIES, 1999

Source: www.worldbank.org/data/wdi2001/pdfs/

CHART 2
DOMESTIC AND FOREIGN SAVING (PERCENTAGE OF GDP)

2. ALTERNATIVE MEASURES OF SAVING

National saving is conventionally defined as the flow residual between income and consumption. The relationships between the main forms of domestic saving (household, corporate and public), foreign saving and the national capital account are depicted schematically below in Chart 3.

Conventional saving measures may be understated in advanced economies to the extent that national accounting convention treats public expenditure on education and health as consumption. Yet, such spending may alternatively be perceived as investment in human capital, and if re-classified as such in the national accounts, would yield higher estimated measures of national saving. The current practice of treating human capital expenditure as public consumption causes problems when making international comparisons of conventional saving measures. In particular, because governments in countries such as Australia, Canada, the United States and New Zealand spend relatively heavily on education and health, the saving of these economies tends to appear lower than for economies that spend relatively less in these areas.

Another measurement problem that arises when international comparisons are made on the basis of net saving data concerns depreciation or consumption of fixed capital. Depreciation is difficult to define and measure, and different measurement practices are adopted worldwide. Hence, international comparisons are best made using gross data.

It is also possible to devise a broader measure of saving, which allows for capital gains and losses on the asset holdings of residents, and hence reflects wealth effects. Such a measure estimates saving as the sum of the conventional saving measure, plus any net capital gain over a given period. Whereas conventional saving measures the present flow of domestic funds available for present investment, extended saving reflects total consumption possibilities.

CHART 3
DOMESTIC SAVING AND THE NATIONAL CAPITAL ACCOUNT

<table>
<thead>
<tr>
<th>Household Saving</th>
<th>National Saving</th>
<th>Investment</th>
</tr>
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<tbody>
<tr>
<td>Corporate Saving</td>
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<tr>
<td>Public Saving</td>
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<td></td>
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<tr>
<td></td>
<td>Capital Account Surplus</td>
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</table>
Following Makin (1996), the value of national wealth at the end of any period, \( W_t \), exceeds the value of wealth at the beginning of that period, \( W_0 \), to the extent of domestic investment over the period, \( I \), less net foreign liabilities incurred to fund that capital accumulation, through net foreign investment (NFI), plus any capital gain (k) over the period. Algebraically,

\[
W_t = W_0 + I - NFI + k
\]

(since NFI is just the difference between domestic investment and saving, S)

\[
= W_0 + I - (1 - S) + k
\]

Hence,

\[
ES = W_t - W_0 = S + k
\]

where ES is extended saving, the change in national wealth over the period.

The main sources of growth in national wealth are therefore conventionally defined saving, plus any revaluation of residents’ net assets. Extended saving has significantly exceeded conventional measures of gross and net saving over the past decade, as shown in Chart 4, with the notable exception of recession, or near-recession years, such as 1991-92 and 1995-96.

CHART 4

CONVENTIONAL AND EXTENDED MEASURES OF SAVING

Also see Eisner (1988).
3. DETERMINANTS AND TRENDS

From the 1950s through to the mid-1970s, Australia's saving was reasonably stable at about 25 per cent of GDP. In the 1980s, it fluctuated around 20 per cent of GDP and reached a low of 16 per cent during the 1991-92 recession. However, in the 1990s, Australia's national saving as a proportion of its GDP fell to significantly lower levels than experienced in earlier decades. Private saving, the major part of total domestic saving remained relatively stable as a proportion of GDP over recent decades. On the other hand, public saving, fluctuated considerably over this time and tended to reflect the changing stance of fiscal policy, falling during fiscal expansion and rising during fiscal contraction.

3.1 Private Saving

Standard economic theory suggests that consumption, and hence saving, mainly depends on current and permanent income, as well as wealth. Less discussed determinants of private saving are demographic factors and interest rates.

3.1.1 Demographic Factors

Demographic factors are an important medium term influence on domestic household saving patterns. For instance, if the age composition of the population changes, so too will saving, insofar as consumption behaviour differs between different age groups. If an economy experiences an increase in the proportion of retirees, giving rise to an increase in the so-called dependency ratio, then private saving is likely to fall. This is because retirees run down saving accumulated during their working lives, consistent with the 'life cycle' hypothesis. Accordingly, significant differences in age profiles, combined with the nature of the social security system and the way it provides for retirement can also further explain differences in saving rates across countries. The more generous is the publicly funded pension scheme, the lower household saving is likely to be.

3.1.2 Interest Rates

In theory the exact response of domestic saving to interest rate movements is ambiguous. A fall in interest rates makes household consumption less expensive relative to future consumption, thus discouraging saving (the so called substitution effect). Yet, the reduced income from interest receipts may also encourage households to save more (the income effect). Empirically, international studies have shown that on balance domestic saving only tends to be weakly responsive to interest rate changes, whereby a one per cent rise in interest rates affects the saving ratio by only one per cent.

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3 See Modigliani (1970).
3.2 Household-Business Saving Linkages

Within private saving there are two sub-components - household saving and corporate or business saving. The household saving component of total saving has rather dramatically declined in Australia since the mid-1970s, as it has in other advanced economies, such as Canada, the United States and New Zealand. Interestingly, in these economies, falls in household saving have often been offset by rises in business saving, and vice versa, leaving gross private saving largely unchanged. For instance, Chart 5 shows that from the 1960s to the early 1970s and again in the early 1990s when household saving was relatively low, business saving was relatively high, whereas when household saving was high from the mid-1970s to the mid-1980s, when business saving was low.

This offset may have reflected periodic changes in firms' dividend policy and shifts in the distribution of growing national income between the profits and wages shares. For instance, buoyant economic conditions can lead to a higher earnings retention rate by firms which, in effect, means firms then save more on behalf of their resident shareholders.

Moreover, improved profitability raises the capital value of firms' assets. Along with similar rises in the value of other assets such as household dwellings, this substantially improves the domestic wealth of residents. Sharp rises in national

CHART 5

COMPONENTS OF NET DOMESTIC SAVING (PERCENTAGE OF GDP)

Source: ABS National Accounts, 5206.0, Time Series Database (Ausstats)
wealth have acted in Australia at times, for example in the late 1980s and mid-1990s, to further stimulate household consumption. This has put downward pressure on the household component of private saving as traditionally measured.

3.3 Public Saving

Public sector saving is the difference between public sector income and recurrent spending, where the public sector in Australia includes the Federal, State and Local government sectors, as well as entities which are majority owned by all levels of government. Improving Australia's national saving and reducing public debt have been key fiscal priorities over recent years. Federal budgets since the mid 1980s have aimed at raising public saving and hence national saving over time.

Chart 5 shows that net public saving as a proportion of GDP was reasonably stable in the 1960s, averaging under 2 per cent, but turned negative to almost the same degree for most of the 1970s and 1980s. It became positive again in the mid-1990s, but more recently recorded negative values. Sharp falls in public saving in the early 1980s and early 1990s have reflected cyclical revenue falls, combined with discretionary rises in public consumption spending.

3.4 Public-Private Saving Linkages

Total domestic saving is the sum of private sector saving and public saving. That is,

\[ S = S_p + S_g = (Y - T - C_p) + (T - C_g) \]

where \( S_p \) is private saving, \( S_g \) is public saving, \( Y \) is national income (net of income paid abroad), \( T \) is income taxes (net of transfer payments), \( C_p \) is private sector consumption and \( C_g \) is public sector consumption.

This relationship suggests that other things equal, a rise in public expenditure tends to lower national saving to the extent that it reduces public saving. Alternatively, the relationship implies that a cut in income taxes will reduce public saving, but may have somewhat ambiguous effects on total saving because of uncertain effects on the private saving component.

For instance, an income tax rise is unlikely to alter private consumption if it is understood to be only temporary in nature. This follows because households may only change their consumption spending in response to changes in permanent disposable income, in accordance with Friedman's (1957) permanent income theory of consumption.

The linkages between public saving, private saving and total domestic saving are of course also subject to the ambiguities raised by the Ricardian Equivalence theorem. In its most general form, this approach suggests that households will perceive any rise in public debt stemming from a fall in public saving as an increase in future tax commitments at the time the public debt matures. Consequently, this will encourage households to raise private saving. Hence, falls in public saving would be offset by rises in private saving. In its strictest form, the offset would be one for one.⁵

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Empirical studies however have shown that the actual extent of the offset is positive, but considerably less than unity. For instance, International Monetary Fund studies conclude that for a range of economies, changes in the fiscal position yield an offset of around 0.6. In Australia’s case, various studies have revealed even lower offset values.

4. SAVING, PRODUCTIVITY AND GROWTH

Since saving enables capital accumulation, there should be a positive association between saving and GDP growth. Such an association is broadly apparent from Chart 6, which shows that economies with higher saving shares of GDP tended to grow the fastest in the 1990s, though of course it does not reveal whether saving causes growth or whether growth causes saving.

This section proposes an alternative geometric framework for analysing the inter-relationship between domestic saving, productivity and income determination in discrete time. This macroeconomic framework provides a means of understanding how the causality between saving and economic activity runs both ways and that discrete changes in national output and income depend on both current and previous accumulation behaviour.

Standard growth theory models national output and income generation as a continuously smooth process, whose path inevitably leads to a long run stationary or steady state. However, the continuous time analysis usually employed in standard and more recent growth theory does not explain how or why the pattern of measured output actually varies from period to period over the short term.

With reference to Figure 1, initial consumption is $C_0$ out of initial income of $Y_0$, as shown on the horizontal axis. This yields saving of $S_0$ which determines the size of the capital stock for use between $t_0$ and $t_1$, through the 45° degree line. With capital stock per worker of $K_1$, the volume of aggregate output and income per worker is measured as the distance between $Y_0$ and $Y_1$. However, there is incremental saving during this time which, as additional investment, augments the original capital stock thereby creating a higher level of real capital for use next period.

The distance between $Y_1$ and $Y_2$ measures output per worker from $t_1$ and $t_2$. The stock of capital, $K_2$ for use between $t_1$ and $t_2$ is therefore comprised of the inherited stock plus the extra accumulation. Cumulative output per worker is the distance from the origin and positive period-to-period output growth is reflected in the distance between any $Y_t$ and $Y_{t+1}$ exceeding that between any $Y_t$ and $Y_{t+1}$. Figure 1 therefore shows that output growth per worker stems from the economy’s...

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7 It draws on Makin (2002).
8 Solow (1956, 1957) and Swan (1956) proposed the neoclassical model, whose precepts originate in the classical theory of Smith (1776), Malthus (1798) and Ricardo (1817).
CHART 6
SAVING AND GROWTH, SELECTED ECONOMIES, 1990-1999

FIGURE 1
CAPITAL ACCUMULATION AND INCOME GENERATION
accumulation rate, as well as the curvature of the period-specific capital productivity curve, each of which incorporates the latest technological advances and the many other factors affecting total-factor productivity.

The slope of any production curve at the point of intersection above any $Y$, equals both the marginal productivity of capital and the real domestic interest rate. Hence, the more productive capital is, the flatter is the production curve and the higher is the domestic interest rate.

4.1 Higher Saving Versus Improved Productivity

It is evident from Figure 1 that the rate of accumulation and productivity together determine macroeconomic performance over short, as well as longer time spans. A question therefore arises as to which source of growth should be given the higher policy priority—increasing national saving or improving productivity?

This suggests that higher output may be attained more easily through improved productivity rather than higher saving, because accumulation over any interval will only be a relatively small proportion of the pre-existing capital stock in advanced economies. Furthermore, higher productivity generates higher output more quickly than higher saving since the latter will only work to raise output and income per worker after a lag.

The importance of productivity growth in determining output and income in advanced economies stems from the fact that total-factor productivity gains imply more efficient use of the entire capital stock. Accordingly, this implies that economic measures in advanced economies aimed at raising total-factor productivity, such policies that strengthen competition between firms, warrant a higher priority as a means to higher national income, than attempts to boost national saving.

5. CONCLUSION

Domestic saving, the difference between national income and consumption, provides an economy with funds to finance its investment requirements. In turn, additional investment augments the economy’s capital stock, which allows for greater production of output, economy-wide. Irrespective of whether an economy is relatively closed or open, part of the higher income that results from additional capital accumulation is saved. Hence, it follows that saving increases growth and growth increases saving so that the arrows of causality run both ways. Consequently, the national saving rate contributes to an economy’s growth performance, and hence to its long run living standards.

Ultimately however, saving is but one source of economic growth and wealth augmentation. Productivity is at least as important. National wealth is especially likely to expand into the future as a result of further capital productivity gains that stem from microeconomic reform. Although there have been significant overall productivity gains from the microeconomic reform program of the 1990s, considerable scope remains for improvement. This could be achieved through further elimination of unnecessary and duplicative federal, state and local government regulations, improved management performance of private and public enterprises, and by raising the quality of human capital.
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Source: ABS National Accounts 5206.0 (Time Series Database - Ausstats)

Note: The June 2001 Publication of 5206.0 made substantial changes to saving measures in the historical series. Refer to paper publications for further details.
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