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ABSTRACT

Using recent national accounts data, this paper examines whether the extensive fiscal stimulus program implemented by the Australian government in 2008-09 countered the GFC-induced economic slowdown, as measured by variation in real GDP, especially during the critical December 2008 and March 2009 quarters. With reference to the expenditure measure of GDP, it reveals that a marked rise in net exports at this time, not fiscal stimulus, was primarily responsible for offsetting the fall in domestic private investment due to the GFC. Next, the paper contends that the Australian economy most likely experienced a relatively mild recession in 2008-09 by past standards when assessed with reference to a broader set of national income and employment indicators, as is standard practice for determining and dating recessions in the United States.

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Did Fiscal Stimulus Counter Recession? Evidence from the National Accounts

To counter a predicted recession in the wake of the global financial crisis (GFC), the Australian government implemented unprecedented fiscal stimulus in 2008-09, which involved a mix of income transfers to select groups, and new public expenditure, mostly on different forms of infrastructure. This fiscal response aimed to stimulate aggregate demand through increased consumption and investment expenditure, and has been credited with saving Australia from recession (Australian Treasury Budget Papers 2010), based on a definition of recession as two consecutive quarters of declining real GDP.

More specifically, the claim that Australia avoided recession relates to the positive real GDP result recorded in trend terms for the March 2009 quarter, after the December 2008 outcome. However, two key data related questions about the performance of the Australian economy at that critical time still need to be addressed. The first is how effective fiscal stimulus was in countering the economic slowdown in terms of its own objectives. The second is whether the economy did actually avoid a recession in light of a broader set of national accounts and labour market indicators. Answers to these questions have important implications for possible fiscal responses to foreign financial crises in the future.

This paper aims to address these questions by thoroughly examining the most recent national accounts data published by the Australian Bureau of Statistics (ABS) for the interval from September 2008 to December 2009. Close scrutiny of the pattern of aggregate expenditure recorded in the national accounts, especially for the December 2008 and March 2009 quarters, reveals it was the behaviour of exports and

imports, not increased fiscal activity that was primarily responsible for offsetting the fall in private investment due to the GFC. However, the size and sign of the statistical discrepancy in the national accounts suggests the expenditure based GDP estimates need to be interpreted cautiously.

Next, the paper contends that when assessed with reference to a broader set of national income and employment indicators, as is standard practice for dating recessions in the United States, the Australian economy most likely did experience recession, although a relatively mild one by past standards.

What National Accounts Data Tells Us about Fiscal Stimulus

Historically, swings in private investment, rather than in household consumption have been the main driver of Australia's business cycle because consumption tends to be relatively stable in the face of temporary income shocks, consistent with so-called consumption smoothing behaviour. Fiscal stimulus measures aimed to offset a fall in private investment, which initially manifested predominantly as a rundown in inventories, by boosting domestic consumption and public investment expenditure.

The GFC and its immediate aftermath most affected the Australian economy in the September 2008, December 2008, March 2009 and June 2009 quarters. Over this time many other economies experienced sharp falls in GDP and were party to what the International Monetary Fund termed 'The Great Recession' in 2008-09. Table 1 includes the main trend GDP series for Australia over this time, with deteriorations in quarterly changes recorded in boldface.

Table 1 – Conventional Measures of Gross Domestic Product

	Nominal GDP %	Real GDP - Expenditure %	Real GDP - Income %	Real GDP - Production %	Real GDP per capita %
Jun-2008	3.0	0.7	0.3	0.7	0.1
Sep-2008	2.3	0.4	-0.3	0.1	-0.4
Dec-2008	0.6	0.4	-0.3	-0.2	-0.6
Mar-2009	-0.7	0.7	0.2	-0.2	-0.3
Jun-2009	-0.4	1.0	0.6	0.2	0.1
Sep-2009	0.5	0.8	0.6	0.6	0.2
Dec-2009	1.0	0.5	0.4	0.7	0.1

Source: Australian Bureau of Statistics, *Australian National Accounts*, Catalogue 5306; available at www.abs.gov.au/Ausstats

In principle, the value of the conventional GDP measure for any quarter should have the same value, regardless of whether it is based on national production GDP(P) national expenditure GDP(E), or national income GDP(I). The production (or value added) approach sums the market value of goods and services produced by industries, net of goods and services used up in the process. The income approach adds incomes which accrue from all domestic sources of production and the expenditure approach sums final expenditure on domestically produced goods and services.

Yet, in practice, these three different approaches to GDP typically yield quite different results. For this reason, they are averaged by the ABS, with the size of the statistical discrepancy for any single measure reflecting the difference between that measure and the average of all three. The quarterly change in the average GDP measure, GDP(A), in trend terms was positive at 0.2 percent in real (or volume) terms

for the March 2009 quarter following zero growth in the December quarter, implying a recession, as defined above, was technically avoided.

Of notable interest is the behaviour of nominal GDP which fell in the March 2009 and June 2009 quarters, implying a contraction in national income. The reason the average volume measure of GDP remained positive in the March quarter, while the current price value measure shrank, is because there was a sharp fall in the implicit price deflator (or overall price level), due in no small part to heavy discounting of goods for sale at this time. Meanwhile, real GDP per head, the single most important indicator of recession used in the internationally popular macroeconomics textbook by Greg Mankiw (2010), former Chairman of the United States President's Council of Economic Advisors, fell successively over three quarters by a total of 1.3 percent.

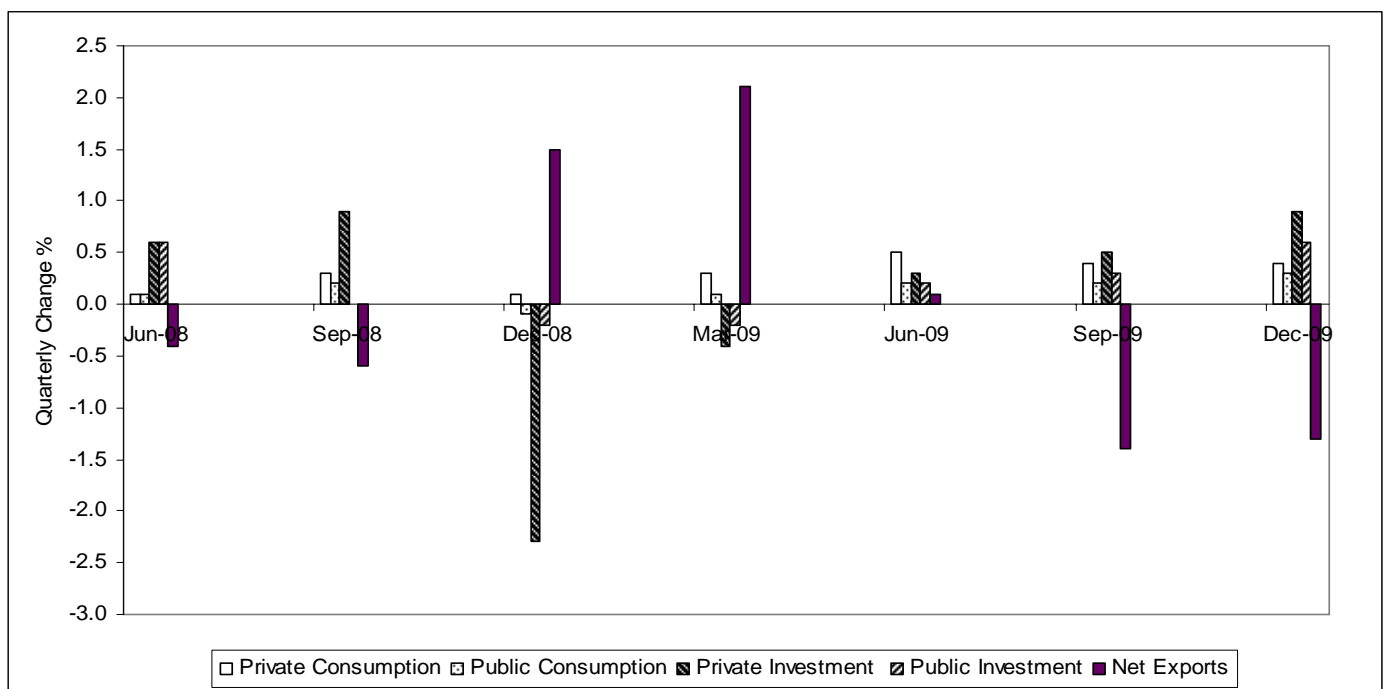
The real GDP(E) measure in Table 1 is the only conventional GDP series that did not record at least two consecutive negative outcomes. Average real GDP(A) was negative in the December 2008 quarter, yet the March 2009 GDP(E) result was sufficiently positive to make GDP(A) positive. Hence, the claim that fiscal stimulus enabled Australia avoid recession according to the media definition of recession, in the end, depends on the nature and robustness of the real GDP(E) measure for the March 2009 quarter.

Advocates of fiscal stimulus would argue that a high GDP(E) outcome should be unsurprising since the explicit purpose of fiscal stimulus is to expand aggregate expenditure. The issue which then arises, however, is whether federal fiscal stimulus measures were mainly responsible for achieving the high and discrepant GDP(E) result for the March 2009 quarter. Put differently, how successfully did fiscal activity

achieve this objective with reference to the contributions of consumption and investment to expenditure between the June 2008 and December 2009 quarters?

To answer this question, it is necessary to scrutinise the GDP expenditure data during the GFC impact period in more detail, paying particular attention to the main expenditure components - private consumption, public consumption, private investment, public investment, exports and imports. In the national accounts quarter-to-quarter changes in these expenditure items are termed “contributions to growth”, the magnitude of which over the relevant time span are depicted in seasonally adjusted terms in Figure 1.

Figure 1 - Contribution to Change in GDP by Expenditure



Source: Australian Bureau of Statistics, *Australian National Accounts*, Catalogue 5306; available at www.abs.gov.au/Ausstats

With reference to the December 2008 and March 2009 quarters, what is apparent is that by far the most significant contributor to GDP(E) in those quarters was net

exports, which detracted from real expenditure growth in quarters before and after the GFC struck. The strong net export result can be explained by a sustained real exchange rate depreciation of over 25 per cent in trade weighted terms during the December 2008 and March 2009 quarters, which made exports substantially cheaper for foreign buyers and imports more expensive for domestic buyers. There was also sustained demand for commodities from key Asian trading partners, including China, over this time.

A sizeable component of the fiscal stimulus packages implemented during the GFC period focussed on cash bonuses to individuals intended to raise household income and hence private consumption indirectly. Private consumption did increase minimally in the March 2009 quarter to 0.3 percent, after contributing 0.1 percent in the December 2008 quarter. However, given the dramatic lowering of official interest rates and substantial discounting of retail merchandise over this period, the size of the impact of the federal cash bonuses, a major part of the fiscal stimulus strategy, is open to question.

At most, cash bonuses are only likely to be responsible for a fraction of the small private consumption turnaround. This pales in comparison with the net exports contribution, and is less than the private investment improvement in the March quarter. In turn, this private investment improvement was due to a significant reversal of inventory rundown, in large part due to increases in farm inventory arising from a breaking of drought.

Fiscal stimulus also involved direct government spending initiatives. Table 2 provides a more detailed breakdown of the respective contributions by level of government to consumption and investment spending over the period affected by the GFC and its aftermath. The recorded contribution from direct Federal government

consumption to a change in GDP(E) in the December 2008 quarter was actually negative (-0.1 percent), followed by nil contribution in the March quarter. These were offset by negligible positive contributions from State and Local consumption spending.

Table 2 – Public Expenditure, Statistical Discrepancy

	Federal Public Consumption %	State and Local Public Consumption %	Federal Public Investment %	State and Local Public Investment %	Statistical Discrepancy %	GDP (Expenditure) %
Jun-2008	0.0	0.1	0.3	0.3	-0.5	0.6
Sep-2008	0.1	0.1	-0.2	-0.1	-0.3	0.3
Dec-2008	-0.1	0.1	-0.2	-0.1	0.1	-0.9
Mar-2009	0.0	0.1	-0.1	-0.1	-1.0	0.8
Jun-2009	0.0	0.1	0.0	0.1	-0.4	0.7
Sep-2009	0.2	0.1	0.0	0.2	0.0	0.3
Dec-2009	0.2	0.1	0.2	0.3	0.0	0.9

Source: Australian Bureau of Statistics, *Australian National Accounts*, Catalogue 5306; available at www.abs.gov.au/Ausstats

Similarly, Federal public investment actually contributed negatively to total expenditure over the critical December 2008 and March 2009 quarters, being -0.1 and -0.2 respectively, as did public investment by State and Local governments. Total public spending increased subsequently after the worst of the GFC had passed, due to administrative delays in implementing infrastructure spending. These delays accord with numerous empirical studies of discretionary fiscal expansion in advanced economies, which tends to impact well after economic downturns begin.

For instance, in a study of G7 economies for the period 1980 to 2007, IMF economists Leigh and Stehn (2009) conclude that fiscal stimulus in the form of capital spending arrived on average around a year after the onset of a downturn. This is consistent with earlier studies by Auerbach (2003), Gali and Perotti (2003) and Lane

showing that in practice fiscal stimulus in the past has been either weakly countercyclical or procyclical in OECD economies.

The main expenditure items from the national accounts contributing to GDP(E) for the March 2009 quarter can be expressed as:

$$\begin{aligned} & \textit{Private Consumption (0.3\%)} + \textit{Public Consumption (0.1\%)} - \textit{Private Investment (0.4\%)} \\ & - \textit{Public Investment (0.2\%)} + \textit{Net Exports (2.1\%)} - \textit{Statistical Discrepancy (1.0\%)} \\ & = \textit{GDP (0.8\%)} \end{aligned}$$

In sum, the net contributions of private and public consumption totalling 0.4 percent was insufficient to offset the negative contributions from private and public investment (inclusive of inventory changes) of 0.6 percent and was minor in relation to the contribution from net exports of 2.1 percent.

It is also important to note that, at -1.0 percent, the statistical discrepancy between the GDP(E) measure and the GDP(A) measure in the March 2009 quarter was very large by historical standards. This suggests an overstatement of measured expenditure relative to measured production. Given the magnitude of this discrepancy, it raises serious doubts about the robustness of the GDP(E) series for the March quarter. Yet, this particular GDP series is central to achieving the positive real GDP(A) result that justifies the claim that Australia avoided recession at that time.

Did Australia Avoid Recession in 2008-09?

The definition of recession as two consecutive quarters of falling real GDP is popular with media commentators and market economists and is tacitly approved by Australian Treasury and the Reserve Bank of Australia. However, this definition lacks support from academic economists and policymakers abroad. Disapproval of this narrow and somewhat arbitrary interpretation of recession is expressed in

numerous mainstream macroeconomics texts, including one co-authored by Ben Bernanke, Chairman of the United States Federal Reserve (Abel, Bernanke and Croushore 2007).

Relying on just one indicator of macroeconomic activity, such as real GDP, is inappropriate because economy-wide data estimation is always subject to a margin of error, especially in the face of a major shock such as the GFC, as evidenced by large statistical discrepancies in the national accounts. As shown above in Table 1, two successive quarters of negative growth were recorded in nominal GDP, the real production and income based measures of GDP, and real GDP per head. The real GDP(E) measure was the only series that did not fall over two successive quarters.

For decades in the United States a panel of independent economists under the auspices of the National Bureau of Economic Research has declared and dated recessions with reference to a battery of economic indicators, not just conventional real GDP series. Using a broader set of macroeconomic data series than the standard real GDP(A) measure is warranted in Australia as well, and a range of national income measures with subtle differences in meaning is available for this purpose.

Alternative national income series for Australia gleaned from the most recent set of national accounts are included in Tables 3, all of which reveal at least two successive negative quarterly outcomes. Though routinely ignored in economic commentary, the real gross and net domestic and national income series are especially important measures of Australia's international macroeconomic performance because they reflect the impact of the terms of trade (or ratio of prices received for exports to prices paid for imports) on the economy.

Table 3 – Other National Income Measures

	Real Net Domestic Product	Real Gross Domestic Income	Real Gross National Income	Real Net National Disposable Income	Real Net National Disposable Income per Capita
	%	%	%	%	%
Jun-2008	0.3	2.2	2.5	2.7	2.2
Sep-2008	-0.3	1.2	1.6	1.5	1.0
Dec-2008	-0.4	-0.3	-0.2	-0.5	-1.1
Mar-2009	-0.1	-1.2	-1.2	-1.8	-2.3
Jun-2009	0.4	-0.5	-0.6	-1.0	-1.5
Sep-2009	0.5	0.3	0.3	0.1	-0.3
Dec-2009	0.4	0.7	0.7	0.6	0.2

Source: Australian Bureau of Statistics, *Australian National Accounts*, Catalogue 5306; available at www.abs.gov.au/Ausstats.

Derived by adjusting the volume measure of GDP for changes in the international purchasing power of national income which, in Australia's case, occurs due to fluctuating export commodity prices, these series are broader measures of national economic wellbeing than the standard real GDP measure used in the media definition of recession. Specifically, real gross domestic income is derived as:

$$GDP(A) \text{ in constant prices} - \text{Exports in constant prices} + \text{Exports at current prices deflated by the Implicit Price Deflator for Imports.}$$

In other words, real GDP is adjusted by revaluing exports in terms of the implicit price deflator.

The differences between the measures Real Gross Domestic Income and Real Gross National Income and Real Net National Disposable Income in Table 3 reflect adjustments for capital consumption, and income remittances and transfers abroad. It is noteworthy that in 2008-09, all of these measures recorded their most significant falls since the early 1990s recession.

Macroeconomists are interested in turning points in national income, as variously measured, because they directly influence employment and unemployment levels. It is therefore appropriate to supplement the set of national income series in Tables 1 and 3 with aggregate labour market data. Table 4 includes a selection of labour market indicators which reveal that employment conditions unambiguously worsened over the interval under scrutiny. Consistent with historical experience, these indicators tended to lag the deteriorations in the GDP(P) and GDP (I) series over the GFC interval.

Most notably, hours worked fell by 1.3 percent in the March quarter after a 1.1 percent fall in the December quarter and by 3.2 percent between the September 2008 and June 2009 quarters, whereas unemployment rose by 1.1 percent and 1.5 percent over these respective periods.

Table 4 - Labour Market Indicators

	Hours Worked %	GDP Market sector %	Hours Worked Market Sector %	Nominal Non-farm Compensation of Employees %	Unemployment Rate %
Jun-2008	0.7	0.7	0.7	2.6	4.2
Sep-2008	0.1	-0.1	-0.1	1.8	4.3
Dec-2008	-0.5	-0.6	-1.0	1.1	4.6
Mar-2009	-0.8	-0.5	-1.3	-0.2	5.7
Jun-2009	-0.4	0.2	-0.7	-0.5	5.8
Sep-2009	0.1	0.6	-0.1	0.2	5.7
Dec-2009	0.3	0.8	0.3	0.4	5.5

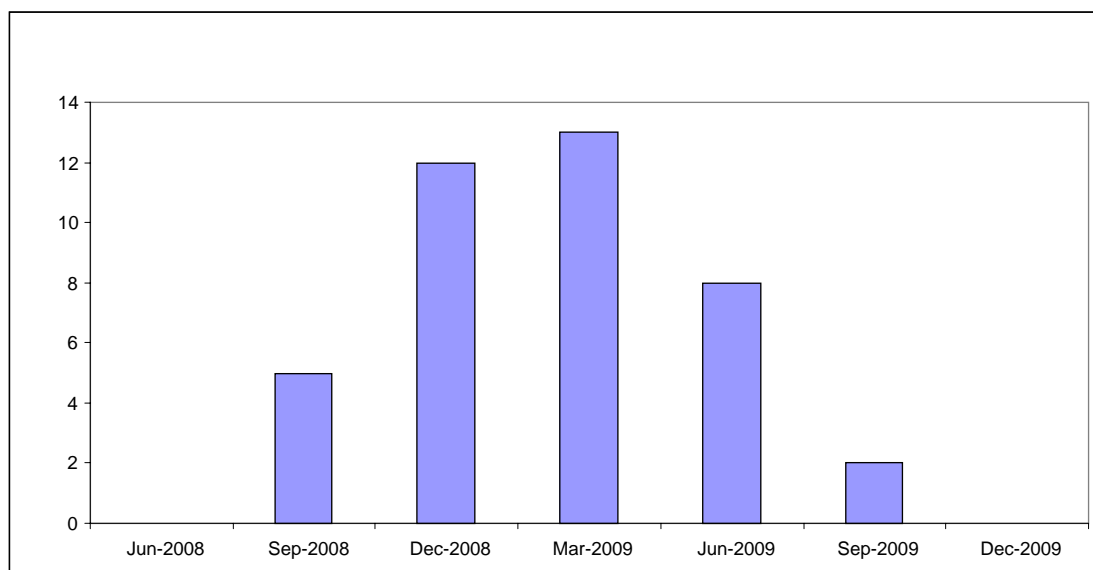
Source: Australian Bureau of Statistics, *Australian National Accounts*, Catalogue 5306; available at www.abs.gov.au/Ausstats

Reserve Bank of Australia; available at www.rba.gov.au/statistics.

Combining the above national income measures in Tables 1 and 3 with the labour market indicators in Table 4 provides a more comprehensive picture of Australian macroeconomic conditions as a result of the GFC than that conveyed by the media definition of recession based on only one national accounts series. As shown in Figure 2, when worsening quarterly outcomes for a larger set of indicators are taken as a whole, a pattern emerges of an economy that deteriorated further in the critical March 2009 quarter, not one that avoided recession, arbitrarily defined. However, taken together the additional indicators suggest the downturn was relatively mild by historical standards and the result of international economic and financial factors.

It should also be noted that these data, drawn mainly from the national accounts, are by no means an exhaustive set for assessing the business cycle. Including additional indicators (some leading, some co-incident, some lagging) for national wealth, building approvals, firms' profitability, retail sales and other activity measures would be expected to provide further evidence of a recession at this time.

Figure 2 - Frequency of Recession Indicators



Source: Australian Bureau of Statistics, *Australian National Accounts*, Catalogue 5306; available at www.abs.gov.au/Ausstats
Reserve Bank of Australia; available at www.rba.gov.au/statistics.

When dating the duration of recessions in the United States, how long national income significantly deviates from trend growth, known as the growth cycle measure of the business cycle, is also taken into account; see Hall and Taylor (1993). The growth cycle approach defines recessionary intervals as those when activity persists below long term trend growth, whereas the above national accounts series simply reflect levels of economic activity,

Conclusion

The case for fiscal stimulus was based on the presumption that it would work along lines first proposed by Keynes (1936); that macroeconomic activity was demand-determined in the short run and that public spending could increase domestic aggregate demand. What this interpretation ignores, however, is the role that the nominal exchange rate can play in insulating the real domestic economy from the worst effects of a foreign financial shock, as modelled more formally in Makin (2010).

Using raw data from Australia's national accounts, this paper establishes that net foreign demand, as reflected in quarterly changes in exports and imports, not federal fiscal stimulus, was primarily responsible for countering the GFC-induced economic slowdown over the December 2008 and March 2009 quarters. Indeed, the federal government's direct contribution to the change in domestic consumption and investment was minimal at that time with its major impact arriving several quarters after it was deemed necessary.

Considered in isolation, the somewhat arbitrary media measure of two successive quarters of declining real GDP provides a misleading picture of macroeconomic conditions. The statistical discrepancy, especially the discrepancy

associated with the GDP expenditure measure, was very large by historical standards during the GFC period, suggesting a broader set of national income measures from the national accounts should be used.

Taken together, numerous national income measures and employment indicators suggest Australia, through no economic fault of its own, most likely experienced a mild recession by historical and international standards in 2008-09. Ideally, whether and when recessions do occur in Australia should depend on the comprehensive assessment and judgement of an independent panel of academic economists in the spirit of the approach practised in the United States.

References

Abel, A., Bernanke, B. and Croushore, D. (2007) *Macroeconomics* 6th ed Addison Wesley, New York.

Auerbach, A. (2003) "Fiscal Policy: Past and Present" *Brookings Papers on Economic Activity*, 75-138.

Australian Bureau of Statistics, *Australian National Accounts: Concepts, Sources and Methods*, Catalogue 5216,

Australian Bureau of Statistics, *Australian National Accounts: National Income, Product and Expenditure*, Catalogue 5306,

Australian Treasury (2010) *Budget Papers 2010-2011*, Australian Government Printing Service, Canberra.

Gali and Perotti (2003) "Fiscal Policy and Monetary Integration in Europe" *Economic Policy* 37, 533-572.

Hall, R. and Taylor, J. (1993) 4th edition, *Macroeconomics*, Norton, New York.

International Monetary Fund (2008) *World Economic Outlook*, September, IMF, Washington DC.

Lane, P. (2003) "The Cyclical; Behaviour of Fiscal Policy: Evidence from the OECD" *Journal of Public Economics*, 87, 2661-2675.

Leigh, D. and Stehn, J. (2009) "fiscal and Monetary Policy During Downturns: Evidence from the G7" IMF Working Paper WP/09/50, international Monetary Fund, Washington DC.

Keynes, J.M. (1936) *The General Theory of Employment, Interest and Money* Macmillan, Houndsmills, UK.

Makin, A. (2010) "How Should Macroeconomic Policy Respond to Foreign Financial Crises?" *Economic Papers* 29(2), 1-10.

Mankiw, G. (2010) *Macroeconomics*, 7th ed, Worth, New York.

Reserve Bank of Australia (2010) *Statistical Tables*
Available at <http://www.rba.gov.au/statistics/index.html>