

COMMONWEALTH TREASURY  
OF  
AUSTRALIA

# Economic Roundup

AUTUMN  
2003

© Commonwealth of Australia 2003

ISBN 642 74187 5

This work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced by any process without prior written permission from the Commonwealth available from the Department of Communications, Information Technology and the Arts. Requests and inquiries concerning reproduction and rights should be addressed to:

The Commonwealth Copyright Administration  
Intellectual Property Branch  
Department of Communications, Information Technology and the Arts  
GPO Box 2154  
CANBERRA ACT 2601  
Or posted at: <http://www.dcita.gov.au/cca>

The views expressed in the Economic Roundup are commentary only, and should not be considered as advice. You should not act in reliance upon the views expressed in the publication, but should seek independent professional advice in relation to these issues and any proposed actions.

The Commonwealth and the authors disclaim responsibility for loss or damage suffered by any person relying, directly or indirectly, on this publication, including in relation to negligence or any other default.

Copies of this publication may be purchased either on an annual subscription or single issue basis. Subscription details are:

Annual Subscriptions (including postage and GST) \$47.30

Single Issue \$11.75

Annual subscriptions are payable in advance and should be sent to:

NMM — The Treasury  
National Mailing and Marketing Pty. Ltd.  
PO Box 7077  
Canberra BC, ACT 2610

For further information regarding subscriptions, contact Roundup Publications Officer, National Mailing and Marketing Pty. Ltd., on 02 6269 1000.

Rates shown include postage within Australia and surface postage overseas. Single issue copies are available for purchase, usually the day following issue, from Government Infoshops which are located in all Australian capital cities — phone toll free on 132 447.

A copy of this document appears on the Treasury Website:  
<http://www.treasury.gov.au>

The Treasury Website also contains data relating to Commonwealth Debt Management, including quarterly data on total gross outstanding debt of the Commonwealth (central) government, that meet the coverage and timeliness requirements of the IMF Special Data Dissemination Standards. In accordance with the IMF's Special Data Dissemination Standards, quarter-ahead notice of the approximate date of release of the data on total gross outstanding debt of the Commonwealth (central) government, is given on the IMF's Data Dissemination Bulletin Board (<http://dsbb.imf.org>).

Printed by Canprint Communications Pty Limited

# Contents

## **Articles**

Preliminary assessment of the impact of <i>The New Tax System</i>	1
The role of the International Monetary Fund in crisis resolution	51
Poverty, inequality and the distribution of income in the Group of 20	65
Developments in crude oil prices	93
Key themes from the Treasury Business Liaison Program – February 2003	105
International house prices	111

## **Statistical appendix**

List of charts and tables	131
---------------------------	-----

<b>Articles in the Economic Roundup</b>	<b>147</b>
---	------------

**This issue includes data up to 14 March 2003**



# **Preliminary assessment of the impact of The New Tax System**

*The aims of 'The New Tax System' (introduced in July 2000) were to comprehensively reform revenue collection, lower personal income taxes, increase family assistance benefits and other government benefits and to create a simpler, fairer and more efficient tax system.*

*Prior to its introduction, critics of the tax reform package predicted that the changes could have serious adverse effects on the economy. The preliminary assessment in this article indicates that these adverse predictions have not been realised.*

*The article assesses the short-term macroeconomic impact of 'The New Tax System', examines the impact of tax reform on incomes, and discusses issues associated with implementation. While there have been a number of transitional impacts associated with tax reform, these appear to have 'washed out' over the first two years.*

*A comparison of the real disposable income of Australian families (by family type and quintile) before the introduction of tax reform and twelve months afterwards, shows that all groups have gained.*

*In addition, data suggest that Australia's recent tax reform experience has been relatively smooth compared with other countries that have undertaken taxation reforms broadly similar to those of 'The New Tax System'.*

<b>INTRODUCTION</b>	<b>3</b>
<b>IMPACT OF <i>THE NEW TAX SYSTEM</i> ON THE AUSTRALIAN ECONOMY</b>	<b>5</b>
<b>TRANSITIONAL EFFECTS ON THE AUSTRALIAN MACROECONOMY</b>	<b>5</b>
Economic activity	6
Dwellings	7
Household consumption expenditure	9
Labour market	12
Prices and wages	13
<b>DISTRIBUTIONAL IMPACTS</b>	<b>18</b>
Income tax cuts	18
Families	18
Older Australians — pensioners, part pensioners and self-funded retirees	20
Other benefits of <i>The New Tax System</i>	22
Impact on Australian families — a population distributional analysis	23
<b>IMPLEMENTATION OF TAX REFORM</b>	<b>25</b>
Benefits for business	25
Compliance with the tax system	26
Impact of the tax reform — over two years on	33
<b>APPENDIX A: THE EXPERIENCE OF CANADA, JAPAN, NEW ZEALAND AND SINGAPORE</b>	<b>34</b>
The nature of tax reform	34
Macroeconomic impacts of tax reform	37
<b>APPENDIX B: APPROACH TAKEN FOR DISTRIBUTIONAL ANALYSIS</b>	<b>46</b>
<b>REFERENCES</b>	<b>48</b>

## Introduction

The Australian Government announced its intention to reform the taxation system in 1998. In doing so, it argued that the then existing tax system, which had been largely designed in the 1930s, would struggle to support Australia's increasingly sophisticated, service based export economy far into the future.

In planning *The New Tax System* (TNTS), the Government's aim was to comprehensively reform revenue collection and family assistance arrangements to create a simpler, fairer and more efficient tax system that would establish a framework for economic activity in Australia that would be more relevant for the twenty first century.

In general terms, the Government's reforms sought to:

- cut personal income taxes;
- broaden the tax base by replacing the narrowly based and multi-rated Wholesale Sales Tax (WST) with a Goods and Services Tax (GST) at a single rate on a broad range of products. Broadening the tax base ensures more secure revenue over time, removing the need for ad-hoc tax initiatives;
- increase assistance to families;
- increase pensions and benefits;
- simplify the tax system by:
  - abolishing ten indirect taxes and introducing one single rate GST;
    - : with all GST revenue going directly to the States and Territories to replace general purpose funding and to compensate for the loss of other indirect tax income;
  - streamlining the structure and administration of family assistance administration arrangements; and
  - introducing the Australian Business Number (ABN) as a single identifier for all government purposes;
- improve the productivity of the investment capital of Australian businesses, particularly exporters, by removing investment distortions built into the previous system; and

- reduce opportunities for tax evasion.

The Government expected that the tax reform package would have a significant Budget cost (although less than one per cent of GDP annually) but would bring sustainability to both Commonwealth and State finances. In addition, it was designed to be consistent with the Government's medium-term fiscal strategy. The tax package was expected to be accommodated while retaining Budget surpluses over the economic cycle as required by the fiscal strategy.

Critics of the tax reform package announced in 1998 predicted that: it would send the economy into recession; alternatively, it would pour fuel on an already over-heated economy; it would lift the rate of inflation on an ongoing basis; it would lead to widespread loss of employment; compensation would be inadequate; there would be increased incentive for businesses to operate in the cash economy; business compliance costs would be raised substantially and permanently; and business bankruptcies would be widespread. These predictions do not appear to have been realised.

TNTS was introduced in July 2000 — over two and a half years ago. This article provides a preliminary assessment of the impact of TNTS in light of the concerns foreshadowed before its implementation. While there were a number of transitional impacts associated with tax reform, overall these appear to have 'washed out' largely as expected over the first two years. There do not appear to have been the large scale adverse impacts that some critics had predicted.

The article first provides an assessment of the short-term macroeconomic impact of tax reform. The second part of the article examines the impact of the tax reform on incomes. The third part discusses implementation issues.

It is still too early to make a full assessment of the long run impact of tax reform. However, the outcomes to date have been broadly consistent with official forecasts.



## **Impact of *The New Tax System* on the Australian economy**

TNTS reforms were expected to have both short-term (or transitional) effects and long-term effects on the Australian economy.

TNTS was expected to deliver a range of substantial long-term benefits, although as with other microeconomic reform, some of the benefits might take many years to be fully realised.

For this reason, it is still too early to fully analyse the anticipated positive long-term effects of TNTS on the economy, which are likely to become more apparent over the next decade. The article considers evidence of short-term or transitional effects of TNTS on the Australian economy over the past couple of years.<sup>1</sup>

As a point of comparison, Appendix A describes the experience of four other countries (Canada, Japan, New Zealand and Singapore) that have introduced tax reforms broadly similar to those of TNTS.

### **Transitional effects on the Australian macroeconomy**

In general terms, the introduction of TNTS led to a once-off change in the price of many items in the economy. The price of many goods and services rose as a result of the indirect tax reforms contained in the tax package, although some prices remained largely unchanged or even declined. The prices of most investment goods and services fell as the embedded cost of previous indirect taxes on business inputs was removed.

As expected, the prospect of changed relative prices had a short-term effect on the pattern of demand. In the lead-up to the introduction of TNTS, consumers responded in a reasonably predictable fashion to the anticipated price changes, bringing forward purchases of goods and services which were expected to increase in price and deferring purchases of products whose price was expected to fall. In a similar manner, businesses tended to defer expenditure in the expectation of lower prices for investment goods.

---

1 For discussion of the expected long-run effects see Commonwealth of Australia (1998), *Tax Reform: not a new tax, a new tax system*, pp. 155-157.

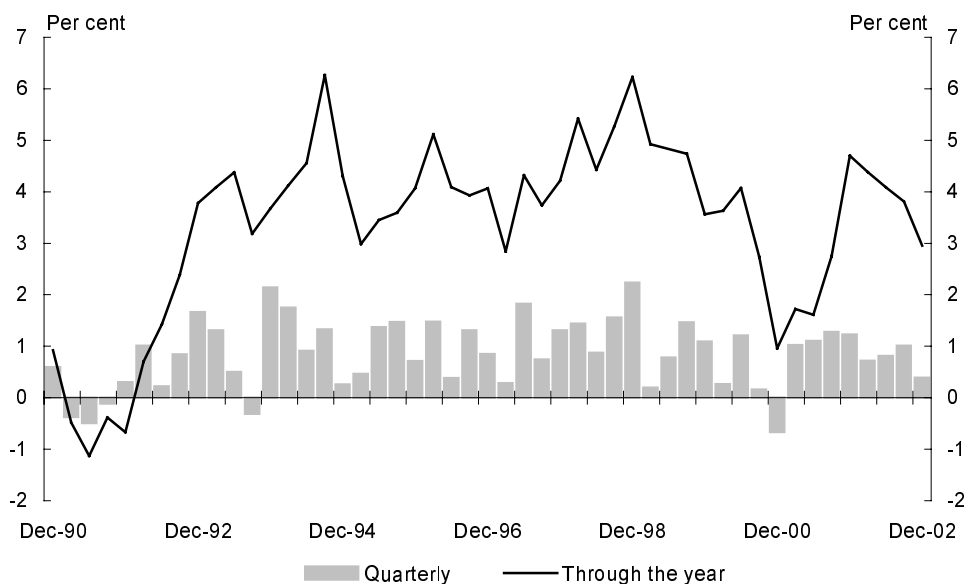
The economy temporarily slowed following the introduction of TNTS. Factors such as increases in official interest rates, higher oil prices, and the ending of expenditures associated with the Sydney Olympics are likely to have contributed to this short period of weakness, exacerbating the effects of the unwinding of some of the bring-forward of spending associated with TNTS.

## Economic activity

Since the introduction of TNTS, the economy has continued the solid growth performance of the 1990s, despite experiencing a temporary slowdown in the second half of 2000. The strong performance has occurred against a backdrop of global and regional economic weakness. In recent times, Australia has been one of the fastest growing industrialised countries and international agencies such as the OECD and IMF have indicated that they expect Australia to continue to be one of the best performing developed economies in the world.

The temporary slowdown in the second half of 2000 (Chart 1), immediately following the introduction of TNTS, followed three years of very strong (year-average) growth of between 4.0 and 5.3 per cent per year.

**Chart 1: Australian GDP growth**



Source: ABS Cat. No. 5206.0.

The weakness was concentrated in the residential construction sector and related parts of the manufacturing sector. Although the key factors contributing to the slowdown in these sectors had been identified in advance,

the timing and magnitude of their impact differed somewhat from expectations. In particular, the decline was concentrated more than expected in the September and December quarters of 2000 and the downturn was somewhat sharper (particularly in the dwellings sector) than had been anticipated.

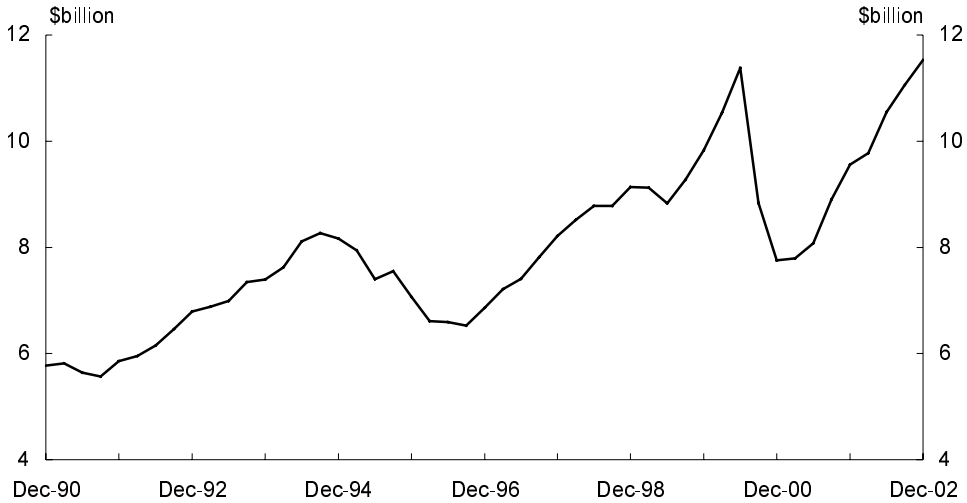
As well as the sharp decline in the dwellings sector, a number of other factors contributed to the slowdown in overall growth in the second half of 2000. The growth rate of business investment, for example, fell below average as non-residential construction continued to decline from its peak in 1998-99. A significant part of this was a result of the Olympics-related work being exhausted and the completion of several large engineering construction projects. Slower growth in investment in information and communications technology probably also reflected previous Y2K-related investment and preparation for the introduction of TNTS. The contractionary effects of higher world oil prices and interest rates were also likely to have been contributing factors.

The economic slowdown in late 2000 proved to be short-lived. Growth rebounded sharply in the March quarter 2001 and has since been very solid, averaging almost 1 per cent per quarter, despite the weak international economy and the more recent emergence of the severe drought conditions across the nation.

## **Dwellings**

The sharp but temporary decline in dwelling investment was the most significant factor contributing to the slower-than-expected growth of the economy in the second half of 2000 (Chart 2). The fall in dwelling investment directly subtracted around 1¼ percentage points from overall GDP growth in 2000-01. Excluding the direct effect of the slowdown in dwellings, and with other factors unchanged, year-average GDP growth would have been around a solid 3 per cent for the year.

**Chart 2: Residential construction — total dwelling investment**



Source: ABS Cat. No. 5206.0.

Prior to the introduction of TNTS, dwelling investment increased faster than underlying demand as homebuyers sought to bring-forward their house purchases ahead of 1 July 2000. This led to dwelling investment rising to its highest level in almost 20 years.<sup>2</sup> The decline in construction of new dwellings in 2000-01 as a whole was broadly in line with earlier expectations. However, it was much more heavily concentrated in the September and December quarters (with a cumulative decline of almost 40 per cent in those two quarters) than had seemed likely around the time of both the *2000-01 Budget* and the *2000-01 Mid-Year Economic and Fiscal Outlook*.

The decline in residential construction activity was not confined to new dwelling investment. The alterations and additions component, which comprises around 40 per cent of total dwelling investment, also fell by a record amount in 2000-01 following a sustained period of strong growth over most of the 1990s.

The fall in the alterations and additions component was also concentrated in the September and December quarters of 2000, with a decline of around 25 per cent over those two quarters. This was unexpected, especially as the magnitude of the bring-forward in this component was more modest.

---

2 As a share of GDP in the June quarter 2000.

Interestingly, according to the ABS,<sup>3</sup> the price of materials used in house building increased by around 5.3 per cent over the period in which dwelling construction boomed ahead of the TNS introduction, while prices actually fell for several quarters in the period immediately following the introduction of the GST applying from 1 July 2000.

Although the magnitude of the decline and its impact on the dwellings sector and the economy more generally was significant, the housing sector stabilised quickly and returned to strong growth in 2001. This was aided by historically low interest rates and the Government's enhanced First Home Owners' Scheme (introduced in March 2001). Dwelling investment has continued to grow strongly since that time, although leading indicators are suggestive of a slowing this year.

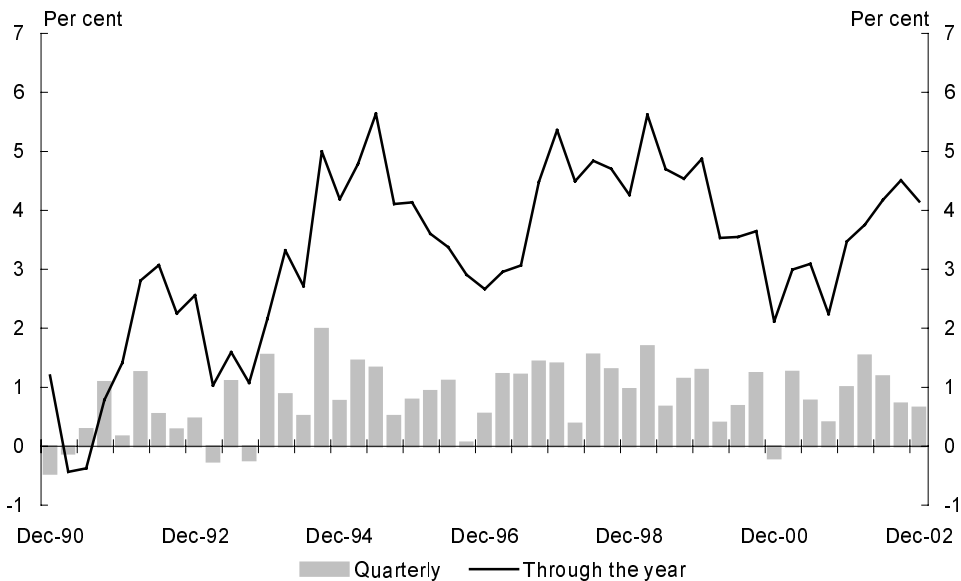
### **Household consumption expenditure**

Household consumption expenditure (Chart 3) grew by 3.0 per cent in 2000-01, slowing from the very strong rates of growth recorded in earlier years. This moderation in growth, while concurrent with tax reform, appears not to have been caused by it. Rather, the transitional effects on consumption expenditure related to the implementation of the TNS package appear to have been broadly offsetting, with a bring-forward of spending on a number of retail trade items largely offset by the deferral of purchases of other items such as passenger motor vehicles (see below). The net effect on consumption growth in 2000-01 appears to have been relatively small and in line with expectations.

---

3 See *House Price Indexes*, ABS Cat. No. 6416.0.

**Chart 3: Household consumption expenditure growth**



Source: ABS Cat. No. 5206.0.

The slower rate of overall household consumption growth in 2000-01 related to a number of factors including:

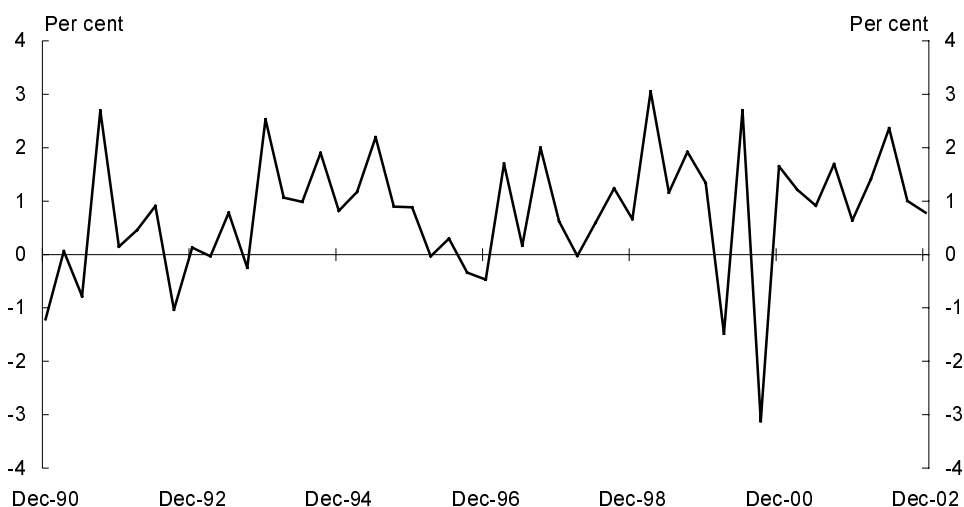
- higher fuel prices, which reduced funds available for more discretionary expenditure (the automotive fuels component of the Consumer Price Index increased by almost 12 per cent over the September and December quarters of 2000, driven by significant increases in world oil prices);
- higher interest rates during the course of 2000 (official interest rates were increased by a total of 125 basis points between January and August 2000);
- the dampening effect of the weaker housing sector; and
- slow growth in private sector wealth.

Household consumption growth rebounded strongly in the first half of 2001 as some of the factors that were constraining growth in the second half of 2000 unwound. In particular, petrol prices declined, interest rates were reduced and growth in private sector wealth increased strongly, mainly reflecting the sharp rise in property values (which increased by around 6 per cent in the first half of 2001). Total household consumption expenditure grew by 2.0 per cent over the March and June quarters of 2001 and has remained strong since.

## ***Retail sales and motor vehicle sales***

There appears to have been some transitional TNTS-related effects in retail sales (Chart 4). Large swings occurred in department store sales, household goods and clothing sectors in particular — strong growth in the June quarter of 2000 was followed by a sharp decline in the September quarter and a rebound in the December quarter. The pattern of these transitional effects was broadly anticipated.<sup>4</sup> Allowing for the usual data volatility, expenditure patterns appear to have returned quickly to what could be considered more ‘typical’ levels.

**Chart 4: Retail sales growth**



Source: ABS Cat. No. 8501.0.

There was clearly some deferral in the purchase of new motor vehicles (Chart 5) in anticipation of the lower prices available following the implementation of TNTS. Given the nature of such purchases (relatively large and infrequent) and size of the potential savings involved (TNTS significantly reduced the price of cars in Australia, replacing a 22 per cent wholesale sales tax rate with a 10 per cent GST on the purchase price of cars), it would be expected that the change in the pattern of behaviour (in this case a deferral of expenditure) would commence earlier than for many other components of household expenditure. This appears to have been the case. In contrast with the behaviour observed in the retail trade data, for example, the deferral

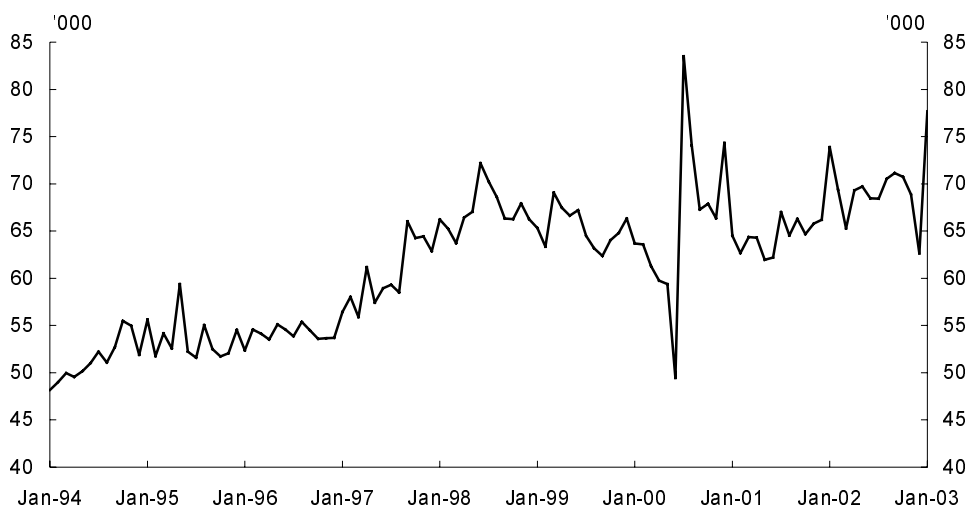
---

4 Detailed information and discussion regarding the outcomes of the PRISMOD modelling of the TNTS package can be found in Commonwealth of Australia (1998), *op cit*.

appears to have been in place for some months ahead of the introduction of taxation reform.

Looking through the volatility of the data, the motor vehicle sector appears to have returned quickly to more typical levels of activity following the implementation of the taxation reforms.

**Chart 5: Sales of new motor vehicles<sup>(a)</sup>**



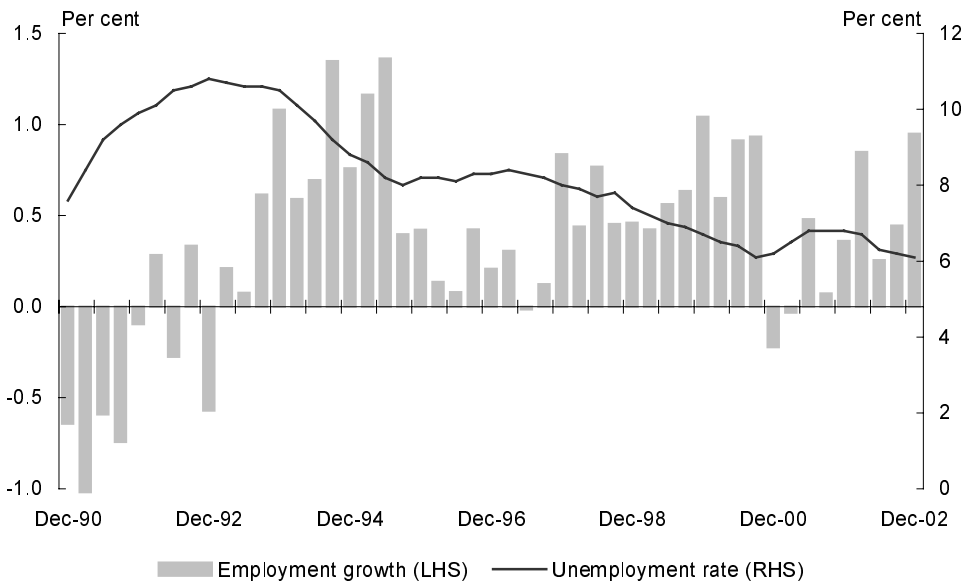
(a) Series commences in January 1994.  
Source: ABS Cat. No. 9314.0.

## Labour market

Employment (Chart 6) increased by a solid 2.1 per cent in 2000-01, with the downturn in the labour intensive construction sector (both residential and non-residential, as discussed previously), reversing a large part of the very strong employment growth that had occurred in the first two months of the 2000-01 financial year. Employment declined in the December quarter 2000, although this followed a period of sustained solid employment growth, and the unemployment rate rose to a peak of 6.8 per cent in mid to late 2001.



**Chart 6: Employment growth and the unemployment rate**



Source: ABS Cat. No. 6202.0.

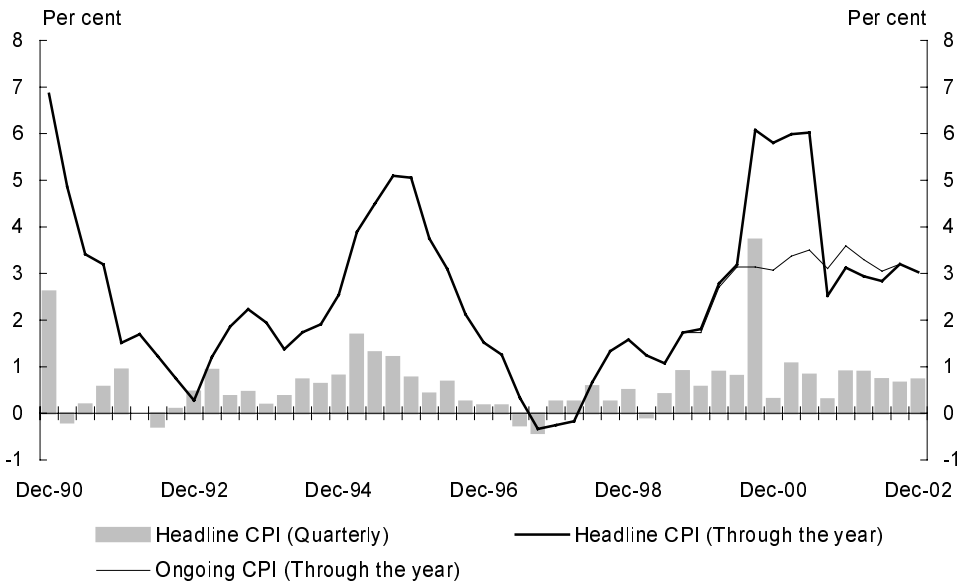
It is likely that this employment effect in the construction sector and related parts of the economy was compounded in late 2000 and into 2001 by the global economic downturn and the uncertainty this added to the economic outlook — firms are likely to have adopted a relatively cautious approach to employing new workers in light of this additional uncertainty. Higher interest rates may also have had an adverse effect on employment growth.

Since then, however, year-average employment growth has been solid, growing by around 2 per cent in the past year. The unemployment rate peaked at 6.8 per cent in 2001, markedly lower than the peak of previous employment cycles. Importantly, the unemployment rate has trended downwards over the course of 2002 to be around 6 per cent, and with solid domestic fundamentals in place, there are good prospects for these positive labour market outcomes to continue.

## Prices and wages

As noted above, the introduction of TNTS led to a once-off change in the price level of many items in the economy. An indication of the 'overall' effect on consumer prices can be observed in movements of the Consumer Price Index (CPI) (Chart 7).

**Chart 7: Headline and 'ongoing' inflation**



Source: ABS Cat. No. 6401.0, Treasury estimates.

The main price effect was recorded in the September quarter 2000, with the CPI rising by 3.7 per cent. TNTS is estimated to have contributed a little less than 3 percentage points to the overall CPI increase in the quarter, significantly lower than the 3¾ percentage points forecast in the *2000-01 Budget*. Quarterly inflation outcomes, while exhibiting some volatility, generally returned to more typical levels from the December quarter 2000. This single 'spike' in the quarterly CPI data confirms that the inflationary impact of the TNTS reforms on prices was essentially once-off in nature and did not become entrenched in inflation outcomes or inflation expectations.

The role of the Australian Competition and Consumer Commission (ACCC) in monitoring price rises immediately following the introduction of the TNTS reforms and preventing opportunistic pricing behaviour was also a factor in helping to restrain the inflationary pressures in the economy.

For the 2000-01 financial year in total, the headline CPI increased by 6.0 per cent in through-the-year terms. TNTS is estimated to have contributed around 2½ percentage points of this increase.<sup>5</sup>

Also shown in Chart 7 is Treasury's estimate of the CPI excluding the effect of TNTS — the 'ongoing' CPI series. The 'ongoing' CPI was affected by various once-off and temporary price influences over the year — such as petrol (driven by large increases in world oil prices) and fruit and vegetable prices (which were affected by adverse seasonal conditions). Excluding the effects of both TNTS and these once-off factors, the CPI would have increased by around 2¾ per cent in through-the-year terms in 2000-01, in line with the 2-3 per cent medium term inflation target band.

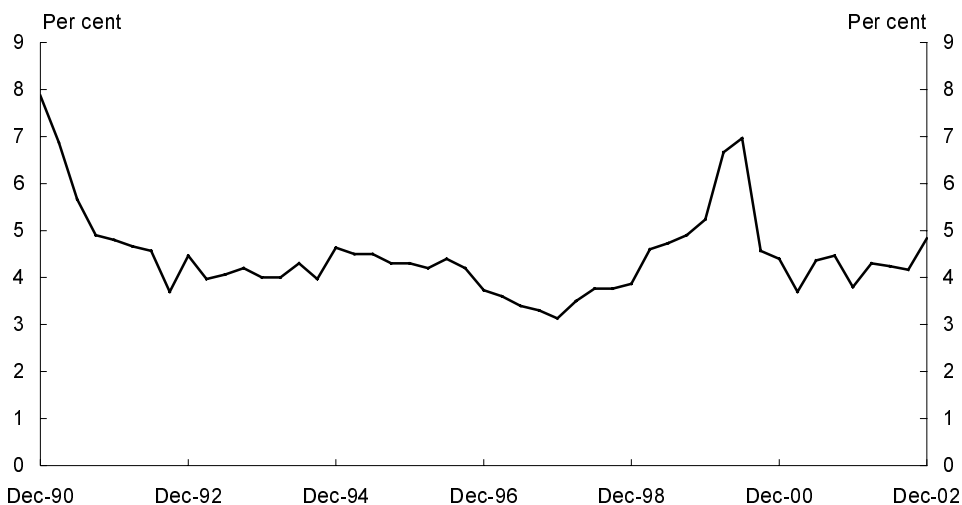
The rate of 'ongoing' inflation in 2001-02 is estimated to be a little higher than the headline CPI measure. This reflects the fact that TNTS acted to reduce the rate of headline inflation in 2001-02, through measures such as the removal of stamp duty on marketable securities, the removal of financial institutions duty and the bring-forward of input tax credits on motor vehicles. In total, these measures are estimated to have reduced the headline CPI slightly, by around ¼ to ½ of a percentage point in 2001-02. Further measures announced as part of the TNTS reform package, including the removal of bank account debits taxes, are scheduled to be introduced in coming years, and could also be expected to slightly reduce the overall CPI impact of the package, although this effect will not be directly observable in the CPI data.

---

5 Again, this was consistent with the Budget forecasts, taking into account the move by the ABS to the 14<sup>th</sup> series CPI, which had the effect of lowering the original estimated prices impact of the TNTS package (of 2¾ per cent through the year to the June quarter 2001) by ¼ of a percentage point.

In the lead-up to the introduction of the TENTS package in Australia, consumer inflation expectations increased (Chart 8). However, inflation expectations quickly returned to more typical levels.

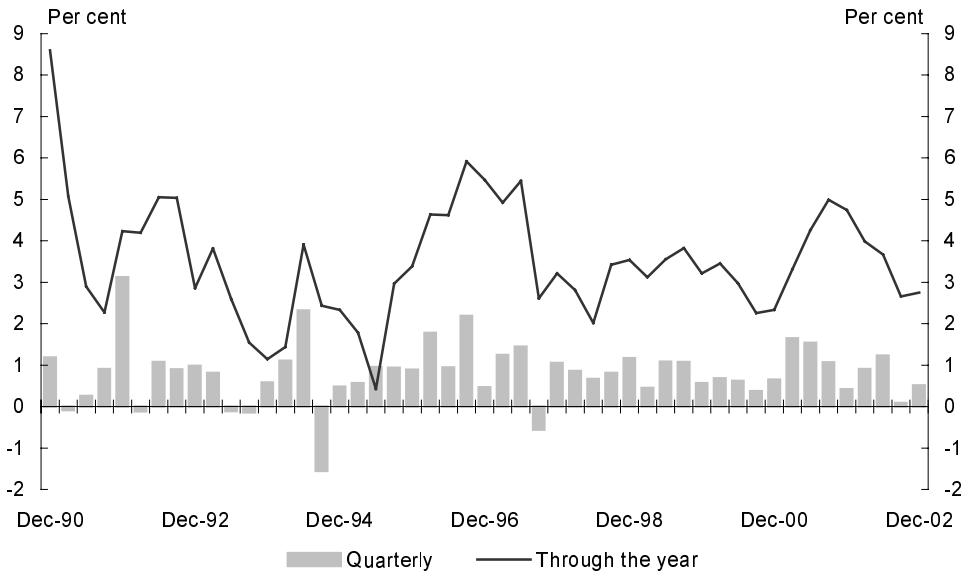
**Chart 8: Consumer inflation expectations**



Source: Melbourne Institute.

Inflation expectations play a key role in wage negotiations — if workers believe that inflation is likely to increase, and be sustained at the higher level, they will revise their wage expectations upwards. An example of this type of behaviour was observed ahead of the taxation reforms, where a number of TENTS-related clauses were written into employment contracts, set to be triggered by higher than expected inflation. In the event, such clauses proved unwarranted and although wages growth (Chart 9) peaked at 5 per cent in the September quarter 2001 (mainly due to a variety of non-TENTS reasons), they have since moderated to levels consistent with ongoing productivity gains and associated with modest inflationary pressures.

**Chart 9: Growth in wages**  
 (National Accounts basis excluding Superannuation Guarantee Charge)



Source: ABS Cat. No. 5206.0, Treasury estimates.

Overall, the data indicate that the implementation of the TNTS reforms did not bring about the adverse impacts on the Australian economy that some critics had predicted. As the discussion above demonstrates, there were a number of (broadly anticipated) transitional impacts on various economic aggregates around 1 July 2000. However, these effects appear to have largely 'washed out' over the two years since, leaving the Australian economy well-placed to maintain its position as one of the world's top-performing developed economies.

## Distributional impacts

TNTS incorporated significant personal income tax cuts and more generous family payments. There were also specific measures to compensate particular sectors of the community for the impact of the GST, such as older Australians and those outside the taxation and welfare systems.

### Income tax cuts

There were significant changes made to both the marginal rates of tax and to the income thresholds at which the rates apply.

The lowest marginal tax rate was reduced from 20 per cent to 17 per cent. The 43 per cent and 34 per cent tax rates were reduced to 30 per cent.

There was also significant change in income tax thresholds, including an 11 per cent increase in the tax-free threshold to \$6 000. The thresholds at which the 42 per cent rate and 47 per cent rates apply were increased to \$50 000 and \$60 000 respectively (noting that the Government's initial proposal was \$75 000). The new 30 per cent rate applies to a much wider range of taxable income, from \$20 001 to \$50 000. The broadening of the income range over which the 30 per cent rate applies has moderated the impact of bracket creep on taxpayers with income in these ranges.

The old and new tax scales are shown below:

**Table 1: Old and new tax scales**

Old Scale		New Scale	
Taxable Income (\$)	Tax rate (%)	Taxable Income (\$)	Tax rate (%)
0–5,400	0	0–6,000	0
5,401–20,700	20	6,001–20,000	17
20,701–38,000	34	20,001–50,000	30
38,001–50,000	43		
50,001 +	47	50,001–60,000	42
		60,001+	47

### Families

TNTS provided assistance to families beyond the personal income tax cuts, in recognition of the additional costs of children.

Under the new family assistance system, twelve types of assistance that had been available through the tax and social security systems were reduced to three. Assistance to families now comprises:

- Family Tax Benefit (Part A) (FTB(A)) helps families with the costs of raising children.
- Family Tax Benefit (Part B) (FTB(B)) provides additional assistance to single income families, including sole parents.
- Childcare Benefit (CCB) provides help to families with the costs of childcare outside the home.

In addition, the first child tax offset ('baby bonus') was introduced in 2001-02.

The new family assistance system also provided families with choice of how they receive their payments – either fortnightly through Centrelink or as a lump sum when they lodge their income tax return.

- Eligibility for payments is based on current year income and ensures equity between families regardless of how they choose to receive family assistance.
- The reconciliation between estimated and actual income that occurs when tax returns are lodged ensures that families receive their correct entitlement.
  - Families became entitled to top up payments for the first time if they overestimated their income.
  - If families underestimated their income they would receive an overpayment which would need to be repaid.
- : Since its introduction, the Government has introduced a number of measures to assist families to estimate their income and to reduce the potential for overpayments.

The rates of assistance were increased, as were the income thresholds from which family benefits begin to be reduced. The income test taper rate<sup>6</sup> was reduced from 50 per cent to 30 per cent. The payments and the income thresholds are indexed annually in line with movements in the CPI.

---

6 The rate at which benefits are reduced as a recipient's income increases.

The Family Adjustment Payment (FAP) was introduced to ensure that families were not financially disadvantaged from the changed arrangements for the provision of assistance to families. 178 families received a lump sum payment under FAP.

## **Older Australians – pensioners, part pensioners and self-funded retirees**

The key benefits delivered by the Government to older Australians were: higher pensions and allowances and increased access to the age pension; reductions to personal income and capital gains tax rates; refunds of imputation credits; and the abolition of financial institutions duty and stamp duty on marketable securities.

### ***Higher pensions and allowances and increased access to the age pension***

Increases in the age pension and other allowances were a key aspect of tax reform.

The age pension increases every six months in line with the CPI. Prior to tax reform, the Government had also legislated a commitment that the single pension rate be maintained to at least 25 per cent of Male Total Average Weekly Earnings (MTAWE) with proportional flow-ons to the partnered rate.

With tax reform, the maximum pension was increased by 2 per cent in addition to the twice-yearly increase provided for by regular indexation. The 2 per cent increase due to tax reform maintains its value over time because it increases in line with the CPI.

This tax reform increase is being paid in addition to the commitment to ensure that the single pension rate remains at 25 per cent of MTAWE. In this way, the Government is delivering a permanent real increase over and above any pension rises that otherwise would have occurred over time.

Part-rate pensioners are now also able to keep more pension for every dollar of private income they receive above the income test free areas, as a result of the reduction in the pension withdrawal rate from 50 per cent to 40 per cent.



Australian Bureau of Statistics (ABS) data shows that between March 2000 and September 2002, the CPI increased by 10.6 per cent.<sup>7</sup> In the same period, the age pension increased by 15.4 per cent (an increase of \$57.40 a fortnight in the single rate) for full rate pensioners.

The pension income and assets tests' thresholds were also raised by 2.5 per cent as part of tax reform and the pension income test withdrawal rate was lowered from 50 cents per additional dollar to 40 cents per additional dollar. This means that more older Australians are able to access a part age pension and the associated benefits of the pensioner concession card.

### ***Bonuses for older Australians***

As part of TNTS, the Government also provided bonuses to older Australians with income from savings and investments. The Government delivered over \$2.1 billion of benefits to older Australians by way of this measure alone. In all, around 2.2 million older Australians received bonuses.

Pensioners, part pensioners and self-funded retirees with income from savings and investment were eligible for a one-off, means tested, non-taxable Aged Persons Savings Bonus of up to \$1 000 where they were aged 60 years or more on 1 July 2000.

A one-off, means tested, non-taxable Self-Funded Retirees Supplementary Bonus of up to \$2 000 was available for self-funded retirees aged 55 years or more who were not in receipt of a Commonwealth income support payment and did not have business income or wage income of \$1 000 or more in the 1999-2000 financial year.

In order to allow older Australians to maximise their bonus payments, bonuses could be based on either the 1998-99 or 1999-2000 financial years.

### ***Refunds of imputation credits***

The Government flagged that the refunding of imputation credits would be one aspect of business tax reform. Following the Review of Business Tax, the Government legislated to refund excess imputation credits for dividends received after 1 July 2000.

As a result, company income received by resident individuals is taxed at shareholder marginal tax rates. Excess imputation credits are refundable. This

---

7 ABS, Consumer Price Index, Australia Cat. 6401.0.

is of particular benefit to part pensioners and self-funded retirees who may pay little or no tax. In the past, as imputation credits could only be used to offset a tax liability, imputation credits were sometimes 'wasted'.

ATO data indicate that the refunding of imputation credits provided a benefit to taxpayers of around \$540 million in 2000-01, of which around \$350 million (or approximately two-thirds of the total benefit) went to those above age 55.<sup>8</sup>

### ***The abolition of Financial Institutions Duty and stamp duty on marketable securities***

The abolition of FID from 1 July 2001 is of benefit to those older Australians who were subject to this duty when depositing funds to their accounts. The abolition of stamp duty on marketable securities is of benefit to those who own securities directly and also those who own them indirectly, for example through a managed fund.

## **Other benefits of *The New Tax System***

### ***Assistance to those outside the tax and social security systems***

The GST Assistance Scheme (GAS) was introduced to assist low-income earners who identified themselves as not being able to receive compensation from either the taxation or social security systems (and were not a dependant of such a person). The GAS payment was a tax-free payment of \$120.

Payments had to be lodged with Centrelink by 30 June 2002 and a total of 1 241 GAS payments were made, totalling \$148 920.

### ***Increased benefits and allowances***

People receiving other social security pensions, such as the disability support pension, received the same level of increased payment as age pensioners. Newstart and other allowance payment rates were also increased by 2 per cent in addition to the normal adjustments for the CPI.

Other additional allowances, such as the pharmaceutical allowance, were also increased as part of tax reform and most rates increased by 2 per cent in addition to normal CPI adjustments. Rent assistance was increased by 8 per cent in addition to the CPI adjustments.

---

<sup>8</sup> Data based on tax returns processed by the ATO to mid-June 2002.

## Impact on Australian families — a population distributional analysis

This section compares real disposable income before, and about one year after, tax reform was introduced. The approach used to examine the average distributional impact for groups in the Australian population is described in Appendix B. The analysis is based on unit record data from the ABS Survey of Income and Housing Costs.

All quintiles within each family type were found to have greater real disposable income about 12 months after the introduction of tax reform (Table 2). Real increases in disposable income ranged up to \$51 per family per week in 2000-01 dollars.<sup>9</sup> Couples were particular beneficiaries as reduced tax rates potentially applied to two earners.

The increase in real disposable income was significantly higher for couples with children and sole parents than for households without children in all quintiles except the highest income quintile.

Working families in the lower income quintiles saw greater proportional increases in their disposable incomes than those in the highest income quintiles (Table 3).

The current analysis does not include the benefits from improved childcare subsidies, nor the one-off impacts of the Aged Persons Savings Bonus and the Self-funded Retirees Supplementary Bonus.

---

9 There was not a clear monotonic (that is, steadily increasing) pattern of higher nominal differences for higher quintiles within each family type. This is due firstly, to compositional differences between the quintiles (such as, the age and number of children, the number of earners, and ratio of government benefits to private income). Secondly, compensation was delivered through the tax-benefit system, which, partly due to the interactions between taxes and benefits, did not provide for monotonic increases (*Tax Reform: not a new tax, a new tax system*, 1998, Chapter 5). There was little difference between quintiles one to four for retired single pensioners due to relatively little difference in average incomes between the quintiles (see Appendix B).

**Table 2: Real increase in average weekly disposable income<sup>(a)</sup> by family type and quintile, 1999-00 and 2000-01 in 2000-01 dollars**

Quintile	Couple without children	Retired pensioner couple	Couple with children	Self-funded retiree	Retired pensioner single	Single person in the labour force	Sole parent
	\$	\$	\$	\$	\$	\$	\$
1	16	20	36	21	13	11	36
2	12	21	51	36	13	0	42
3	8	21	37	39	12	3	46
4	15	27	41	30	13	12	40
5	34	49	32	32	22	27	34

(a) Records with the bottom 10 per cent of disposable income were excluded following ABS practice as the ABS has 'concerns with the fact that the extremely low incomes (close to nil or negative) recorded for some households in this group do not accurately reflect family living standards' (ABS, 2002).

Source: STINMOD and Treasury calculations.

**Table 3: Proportional increase in real average weekly disposable income<sup>(a)</sup> by family type and quintile, 1999-00 and 2000-01**

Quintile	Couple without children	Retired pensioner couple	Couple with children	Self-funded retiree	Retired pensioner single	Single person in the labour force	Sole parent
	%	%	%	%	%	%	%
1	4	7	8	5	7	5	13
2	2	7	8	6	7	0	12
3	1	6	4	5	6	1	11
4	1	6	4	3	6	2	8
5	2	10	2	2	7	3	4

(a) Records with the bottom 10 per cent of disposable income were excluded following ABS practice as the ABS has 'concerns with the fact that the extremely low incomes (close to nil or negative) recorded for some households in this group do not accurately reflect family living standards' (ABS, 2002).

Source: STINMOD and Treasury calculations.

## Implementation of tax reform

### Benefits for business

The reform of indirect taxation enabled the abolition of the WST. Prior to tax reform WST was a 'hidden tax' applied at a number of rates, up to 45 per cent, to a narrow range of goods, creating distortions and inefficiencies within the tax system. The multiple rates also led to confusion for some, while providing evasion opportunities for businesses with more complex distribution chains.

The WST became embedded in the cost of goods and services. Further, more than half the money raised from the WST came from taxing business inputs. As a result, the WST reduced the competitiveness of Australia's exports and import competing goods.<sup>10</sup>

As its name suggests, the GST is a tax on the consumption of most goods and services in Australia, including those that are imported. As it has a broader base and involves more taxpayers, it has an overall higher direct cost of administration and compliance than the former tax system. For many businesses, cashflow benefits largely offset this higher cost. The single rate reduces compliance costs for businesses that faced multiple rates under the WST.

However, the GST does not apply to exports of goods or to services consumed outside Australia. Unlike the WST, businesses registered for the GST are able to claim input tax credits for GST paid on inputs used to make taxable and GST-free sales. The effect is to reduce the after tax cost of exports. It also reduces the price of investment goods.

The States and Territories receive all GST revenue, so tax reform also enabled them to eliminate some inefficient indirect taxes. For example, bed taxes were abolished from 1 July 2000, and FID and stamp duty on marketable securities were abolished from 1 July 2001.<sup>11</sup>

Another benefit of tax reform was the introduction of Pay As You Go (PAYG). PAYG replaced 11 tax payment systems with a single system that improves

---

10 For further discussion on the WST see Commonwealth of Australia (1998) *op cit*, pp. 71-72.

11 Subject to review by the Ministerial Council on Commonwealth State Financial Relations, debits tax is to be abolished by 1 July 2005. (NSW has abolished debits tax from 1 January 2002.) The Ministerial Council will also review, by 2005, the need for the retention of a range of business stamp duties.

reporting requirements by allowing most businesses to use only one reporting form and to make one payment each quarter, therefore reducing the number of times that business must interact with the ATO.

These reforms delivered substantial benefits to Australian businesses through reductions in after-tax industry costs.

## **Compliance with the tax system**

Some critics claimed that the introduction of a GST would increase the incentive to evade tax. However, the combined features of the various TNS measures have made it more difficult for businesses to avoid their tax obligations.

Some of the measures that are forcing previously non tax-compliant businesses into the tax system are the need for an ABN and the withholding of tax in the absence of an ABN,<sup>12</sup> the need for a tax invoice, real time reporting of business data on Business Activity Statements (BAS) and a significantly increased field presence for the ATO.

The ATO also expects to expand its cash economy programme over 2003, including contacting around 85 000 businesses that have been identified as being in industries considered at 'high risk' of being involved in the cash economy.<sup>13</sup>

The integrity measures provided by TNS enable better data matching by cross-referencing information provided for GST purposes with that provided for income tax purposes. For example, the ATO has been able to detect ABN registrants who have not lodged income tax returns.<sup>14</sup>

---

12 A key feature of tax reform was the introduction of the ABN. Where a business is supplied with goods or services and a supplier does not quote its ABN, then under TNS businesses must withhold tax at the rate of 48.5 per cent. According to ATO data, around \$70 million has been withheld from payments to businesses not quoting their ABN since 1 July 2000. Furthermore, around 30 per cent of this amount has not been claimed back. Australian Taxation Office (2002) *Compliance Program 2002-03*, p. 20.

13 Australian Taxation Office (2002a) *Compliance Program 2002-03*, p. 20.

14 *Ibid.*

Collections of GST revenue have been broadly in line with original estimates. GST revenue collections for 2001-02 were \$26.9 billion<sup>15</sup> and for 2002-03 are estimated to be \$29.6 billion.<sup>16</sup>

The ATO's audit programme also has resulted in a net additional \$363 million GST being paid, comprising both increased assessments and reduced assessments.<sup>17</sup> Furthermore, ATO compliance programmes have identified incorrect and even fraudulent claims for refunds resulting in \$101 million in claims being disallowed, 5 prosecutions for fraud, and a further 38 cases of suspected fraud referred to law enforcement agencies.<sup>18</sup>

The number of enterprises that applied for an ABN and registered for GST exceeded expectations. It was estimated that 1.4 million enterprises would register for GST purposes by 1 July 2000, with 200 000 additional registrants expected the following year.<sup>19</sup> However, some 3.7 million enterprises have applied for and obtained an ABN,<sup>20</sup> and of these, over 2.2 million have also registered for GST.<sup>21</sup>

### ***Measures to ameliorate transitional and on-going costs to business***

The Government recognised that businesses would face some implementation and on-going costs associated with TNTS. It was also acknowledged that the level of compliance costs faced by businesses would vary between different industries and depend on whether businesses had in place good accounting and record keeping practices.

The Government adopted a two pronged approach to help minimise the administrative burden placed on business through the transition to TNTS: an extensive education and assistance campaign; and a carefully designed administrative system. Consultation was an important and integral element in both of these strategies.

---

15 Commonwealth of Australia (2002), *Final Budget Outcome 2001-02*, p. 42.

16 Commonwealth of Australia (2002), *Mid-Year Economic and Fiscal Outlook 2002-03*, p. 157.

17 Australian Taxation Office (2002a) *op cit*, p. 22.

18 *Ibid.*

19 *Regulation Impact Statement for the Introduction of a Goods and Services Tax* (1998), p. 5.

20 Data provided by the Australian Taxation Office, 25 June 2002.

21 Australian Taxation Office (2002a) *op cit* p. 22.

### *Education and assistance*

A comprehensive education and assistance programme was implemented to help ensure a smooth transition into TNTS. This broad programme assisted businesses, consumers, and the general community adapt to the significant changes in the way businesses would interact with their customers and the tax system.

In particular, the Government was concerned about the impact of the transition to TNTS on enterprises that would be brought into the taxation system for the first time, particularly in the education and charitable sectors, and enterprises with less sophisticated accounting systems. There was also an awareness that changes to the GST base from the original proposal (as a result of negotiations by the Government to ensure the full tax reform package was implemented) had made the tax system more complex than originally intended.

Targeted consultation helped determine the education and assistance initiatives to be delivered. The Government established a New Tax System Advisory Board to monitor overall implementation. This body comprised representatives of business, education and the charitable sector. In addition, the Government drew on the advice of the Small Business Consultative Committee to ensure that the assistance was delivered in the most effective way. The Committee undertook extensive consultation with representatives of small and medium businesses.

The Government set aside \$500 million to assist small and medium enterprises, community organisations and education bodies prepare for the GST. The GST Start-Up Assistance Office (GSTSAO) was established within the Treasury portfolio to administer the delivery of the \$500 million assistance programme. Many of the initiatives developed within the assistance programme were delivered by industry organisations.

The \$200 Direct Assistance Certificate (DAC) was developed as part of this programme to assist eligible small and medium enterprises, community sector organisations and educational bodies in preparing for TNTS. DACs were vouchers that could be redeemed by businesses (those with an expected annual turnover of less than \$10 million, registered by 31 May 2000) at



registered suppliers to assist with the cost of purchasing GST related products and services. Over 1.9 million DACs were issued by the GSTSAO.<sup>22</sup>

Other initiatives that formed part of the assistance programme included the GST Assist call centre, the GST Start-up Assistance and GST Assist web sites, the delivery of over 22 000 seminars and workshops and the production of over 30 publications in 24 languages.

The ATO also delivered an extensive awareness, information, education and compliance programme. The ATO delivered 5 200 speaking requests, seminars and workshops and some 170 million publications were distributed. The ATO also set up a comprehensive tax reform web site that has recorded over 286 million hits and the telephone hotlines received around 8.2 million GST related phone calls. Free advisory visits by ATO field officers were available to businesses to assist with the implementation of TNTS, and over 440 000 of these visits were conducted. Furthermore, by the end of June 2002 the ATO had received and actioned over 143 000 written requests for GST technical advice.<sup>23</sup> The ATO also set up 19 ongoing Industry Groups to work with industries to resolve and assist with implementation issues.<sup>24</sup>

The Government also provided additional assistance for charities and implemented a series of initiatives to assist the book industry.

### ***Design features***

The Government and ATO recognised the GST compliance concerns of small business.

Businesses are only required to register for GST if their turnover exceeds \$50 000 per annum (or \$100 000 for non-profit bodies). The registration threshold was introduced to achieve a balance between including all businesses in the GST net and minimising compliance costs for very small businesses.

In addition, small businesses with an annual turnover of less than \$1 million could choose to account for transactions on a cash basis. This option recognises that some small businesses account for payments and sales at the time of payment, rather than at the time of issue or receipt of an invoice. In deciding

---

22 Commonwealth of Australia (2001) *Treasury Annual Report 2000-2001*, p. 52.

23 Data provided by the Australian Taxation Office, 10 July 2002.

24 Data provided by the Australian Taxation Office, 10 July 2002.

on the \$1 million threshold, it was necessary to achieve a balance between the need for consistent treatment across businesses and avoiding excessive compliance costs for small businesses.

In addition, immediate tax deductibility was provided for small and medium sized businesses for GST related expenditure incurred prior to 1 July 2000. Another transitional measure enabled businesses to claim a credit for stock-on-hand on which WST had been paid.

Changes to the GST base to extend GST-free treatment to a number of items increased the complexity of TNTS from the Government's original policy proposal — particularly for small retailers with simple accounting systems. This is because extending the GST-free treatment to basic food and other items increased the number of businesses making both taxable and GST-free sales.

As a result, the ATO developed three simplified accounting options for those small food retailers (such as bakeries, milk bars and convenience stores) that could demonstrate that they make both taxable and GST-free sales but do not have adequate point of sale equipment to identify and record this mix of sales. These simplified accounting options, (which allow eligible small businesses to estimate their GST-free sales for the purpose of calculating GST payable or GST refunds), were developed in consultation with industry representatives and the business community.

Following extensive consultation, further refinements to the GST payment and reporting arrangements were announced by the Government in February 2001.<sup>25</sup> These changes were designed to significantly reduce the costs some businesses face in complying with the GST and the Business Activity Statement (BAS) requirements.

From the third BAS (due April 2001), businesses with an annual turnover of less than \$20 million could choose to make their quarterly GST payments on the basis of a simple remittance form, showing only total sales, GST collected on sales and GST paid on purchases. In addition, businesses with a turnover of \$2 million or less were given the option to pay quarterly GST instalments based on 25 per cent of the previous year's net GST amount, adjusted by a GDP factor.

---

25 Commonwealth Treasurer (2001), *Streamlined GST and PAYG Reporting*, Press Release No. 007, 22 February 2001.

In each of these cases, an annual report containing more detailed information is also required, on which adjustments to payments may result.

Furthermore, an option of submitting only two GST instalments each year was introduced for primary producers and certain professionals who face income fluctuations due to the seasonal nature of their business.

However, businesses were not obliged to change their reporting arrangements and were entitled to choose to continue with reporting GST on their BAS using the existing methods. A large majority of businesses chose to retain the original arrangements.

### ***Business experience***

While the Government made refinements to GST and BAS reporting arrangements in February 2001 in response to concerns of business groups and tax professionals, ATO research indicates that 90 per cent of businesses that submitted quarterly returns had chosen, as at February 2003, to stay with the full calculation and reporting of GST.<sup>26</sup>

The December 2001 *Dun and Bradstreet National Business Expectations Survey* revealed that by the end of 2001 businesses were finding the BAS increasingly easier to complete.<sup>27</sup> Specifically, 76 per cent of executives found it easier to complete the simplified BAS form,<sup>28</sup> for businesses that report and pay their GST on a quarterly basis.<sup>29</sup>

Surveys suggest that as businesses have become more familiar with the new system, compliance costs have eased as expected. The November 2001 *Dun and Bradstreet National Business Expectations Survey* found that more than 90 per cent of executives said they were 'comfortable' with the new tax system after 16 months and that the amount of time companies are spending on GST administration has fallen.<sup>30</sup> This sentiment is also found in the survey results of

---

26 Data based on tax returns processed by the ATO as at February 2003. Of the remaining 10 per cent, 6 per cent chose the option of paying GST instalments and making an annual return, while 4 per cent chose another simplified option.

27 Dun and Bradstreet (2001) *The New Monthly D&B Business Expectations Survey* — January 2002, 15 January 2002.

28 The simple remittance form for businesses that report and pay quarterly. For further detail see Commonwealth Treasurer, (2001), *Streamlined GST and PAYG Reporting*, Press Release No. 007, 22 February 2001.

29 Dun and Bradstreet (2001) *ibid.*

30 Dun and Bradstreet (2001a) *The New Monthly D&B Business Expectations Survey* — December 2001, 18 December 2001.

the *Yellow Pages Business Index – Small & Medium Enterprises* where only 6 per cent of respondents cited the GST as a concern in the May 2002 survey.<sup>31</sup>

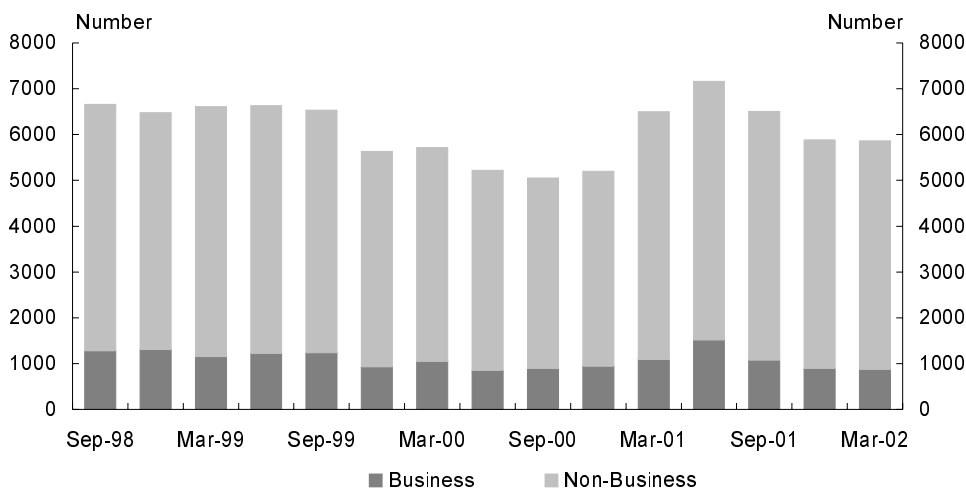
Even so, the Government and ATO are maintaining an active improvement programme to achieve further streamlining of taxation compliance requirements.

### **Bankruptcies**

A number of groups raised concerns that the Government’s tax reform package would result in an increase in the number of bankruptcies. However, from March 2000 to December 2000, which included the first 6 months of GST, the number of bankruptcies per quarter was the lowest it had been since the October to December 1996 quarter. Bankruptcies increased from January to June 2001. However, since June 2001 bankruptcies have fallen each quarter (Chart 10).

The Insolvency and Trustee Service Australia (ITSA) receives notifications of all bankruptcies and keeps records of the principal reason for bankruptcy. For the period from January to June 2001 ITSA noted that the GST was mentioned as the cause of bankruptcy in less than 0.3 per cent of total cases.<sup>32</sup>

**Chart 10: Bankruptcies (by quarter)**



Source: Data compiled from Insolvency and Trustee Service Australia Quarterly Bankruptcy Statistics, *Administrations under the Bankruptcy Act 1996 – Statistics, (Provisional)*, October 1998 – April 2002.

31 *Yellow Pages (2002) Yellow Pages Business Index – Small & Medium Enterprises*, May 2002, p. 11.

32 Attorney-General for Australia (2001) *GST Has Little Impact on New Bankruptcies*, Media Release, 18 September 2001.

## **Impact of the tax reform – over two years on**

The TANTS measures have had a profound impact on the structure of the tax system and the way in which businesses and consumers interact with that system.

Despite the broad and comprehensive nature of the reforms, it appears that the transitional impacts of TANTS have now largely washed through the economic system. By international standards, Australia's experience with the introduction of a broadly based consumption tax has been relatively smooth. Indications are that Australians are adapting to the new system, with business surveys mentioning the GST or other elements of TANTS less frequently as a factor affecting the business environment.

The implementation of well designed reform at a time of relatively strong economic fundamentals, complemented by appropriate compensation and a comprehensive education and assistance programme before, during and after the tax changes, as well as the concerted efforts of business, appear to have combined to help smooth the transition.

Contrary to the predictions of some critics, the evidence to date is that the impact of the tax changes on the macroeconomy, individuals and revenue has been broadly in line with expectations. However, the new system is still in its infancy and the full effects of reforms (such as the increased incentives for exporters from the abolition of the WST) are yet to be realised.

## **Appendix A: The experience of Canada, Japan, New Zealand and Singapore**

Various countries have undertaken taxation reforms, broadly similar to those of TENTS. This Appendix contains a brief discussion of the experience of four other such countries – Japan, Canada, New Zealand and Singapore. While an international perspective can provide a useful point of comparison, caution should be exercised when drawing specific conclusions as to the implications of overseas experience for Australia. With no two economies or tax reforms exactly alike, and circumstances in which reforms are undertaken likely to differ markedly,<sup>33</sup> it is hardly surprising that international experience varies widely between countries.

This Appendix is divided into two sections; the first section briefly describes the nature and economic circumstances surrounding the implementation of taxation reforms in the aforementioned four countries while the second section discusses some of the short-term macroeconomic effects of tax reform. Where data are available, charts are constructed to depict quarterly and through-the-year changes for some of the key economic variables for five years on either side of the date of implementation of the tax reforms.

### **The nature of tax reform**

#### ***Canada***

Changes to the Canadian taxation system were phased in from 1988-1991. Personal and corporate tax changes became effective in 1998. These changes involved broadening the tax base and lowering tax rates, and were designed to shift part of the tax burden from personal taxation to corporate taxation.

A broad-based GST was introduced on 1 January 1991 at a rate of 7 per cent. It replaced the federal manufacturers' sales tax (MST) which was a single stage tax on selected manufactured goods. Exemptions from the MST included food, clothing, prescription drugs, footwear, electricity and heating fuels. A significant proportion of revenue from this tax was collected in respect of business inputs.

---

33 In terms of, for example, the stage of the economic cycle at introduction, differences in the rate of GST and the magnitude and mix of taxes that it replaced as well as the nature and extent of any compensation package provided.

A feature of the Canadian taxation system is that provincial sales taxes are also levied, primarily on goods. The replacement of the MST with the GST, combined with other changes to the tax system, such as the introduction of a high income tax surtax and a large corporation tax, was revenue neutral.

The GST was applied to the sale of new residential housing, but a system of rebates was introduced to reduce the impact of the tax on lower-priced homes. Charities and substantially government funded non-profit organisations were eligible for a special 50 per cent rebate. Municipalities, universities, schools and hospitals were also eligible for a rebate to ensure that their overall sales tax burden was unchanged with the tax reform.

Basic groceries, drugs sold by prescription, a variety of medical devices and exports were zero-rated (GST-free). Goods and services that were exempt from the GST (input-taxed) were residential rents, housing and apartment re-sales, health services, educational services, financial services, day-care and legal aid.

The Canadian economy was in recession at the time the GST was introduced.

### ***Japan***

A comprehensive taxation reform package was introduced in Japan in April 1989. The major objective of the package was to broaden the tax base and lower the rates of personal income tax. A 3 per cent general consumption tax was introduced with effect from April 1989, replacing existing selective excise taxes. The consumption tax was introduced with very limited exceptions such as medical, educational and social welfare services.

There were major reductions in both (national) personal income tax and local inhabitant tax through lowering and simplifying rates, and introducing a higher ceiling for tax-exempt income. The changes included the lowering of the basic corporate tax rate, a reduction of inheritance tax, and the taxation of capital gains earned by individuals from securities transactions. Overall, the package resulted in a net cost to revenue. The GST was increased to 5 per cent in April 1997.

At the time of the introduction of the package, Japan was growing strongly — at an annual rate of around 5 per cent led by strong consumption growth — and unemployment was falling — reaching a level of 2.3 per cent in 1989. This period of very strong economic growth was the height of what turned out to be an asset-price ‘bubble’, which subsequently burst, with severe effects for the Japanese economy.

## ***New Zealand***

A taxation and transfer reform package was introduced in New Zealand on 1 October 1986. A 10 per cent GST replaced most indirect taxes, including a wholesale sales tax (WST) which was levied at rates between 10 and 50 per cent. Major exemptions from the GST were exports, rent and private board, financial services, sales of second-hand goods and fundraising activities. Selective taxes were retained for fuel, alcoholic beverages, tobacco products and gaming, on top of which the GST was levied. The rates on these taxes were adjusted downwards to take account of the GST.

Extensive transitional arrangements were developed to facilitate the switch from the WST to the GST. One such arrangement was the lowering of all WST rates to a maximum of 20 per cent from 1 March 1986. It has been suggested<sup>34</sup> that this acted to smooth the impact on sales and mitigated stock problems — although the incentive to defer consumption on goods where the tax rate was being lowered remained, the transitional measure had the effect of ‘staging’ the price change and thus the response of consumers and businesses alike.

On the personal income tax front, there was a move from a 5-step personal tax rate scale to a 3-step scale with a lowering and extension of the first tax rate and a substantial lowering of the top marginal rate. Compensation for the impact of the introduction of the GST on prices was provided through the benefit system with all basic benefits increased by 5 per cent. There were also changes to family support provisions designed to lower effective marginal tax rates. The rate of GST was increased to 12.5 per cent in July 1989.

When the GST was introduced in New Zealand, economic growth was weak and uneven, the inflation rate was above 10 per cent and monetary policy had to be tightened to contain inflationary pressures. There were also significant reforms that preceded the introduction of the GST such as the abolition of wage and price controls in 1984 and the floating of the (NZ) dollar in 1985.

## ***Singapore***

A GST was first introduced on 1 April 1994 at a single low rate of 3 per cent, as part of Government’s efforts to broaden Singapore’s tax base and reduce reliance on direct taxes. The tax is applied across-the-board on all goods and services with very few exemptions. The only exemptions are financial services and the sale or lease of residential properties, which are exempt (input-taxed) supplies.

---

34 See, for example, Stephens (1993).



At the time of introduction, the Government committed to not raising the rate as long as it did not need more revenue. It introduced several offsetting measures to assist Singaporeans to adjust to the new regime. These measures included: a) a cut in corporate and personal income tax rates, an increase in personal relief and a tax rebate; b) rebates for owner-occupied residential properties; c) removal of taxes on domestic telephone bills and entertainment duty; d) a cut in public utility and transport taxes and charges; e) a cut in import duties for cars and diesel and petrol duties; f) rebates on service and conservancy charges for 3-room and smaller Housing Development Board (HDB) flats, and rentals for 1 and 2-room HDB flats; g) an increase in the 'Edusave' education grant; h) an increase in public assistance; i) an increase in Singapore Allowance for pensioners; and j) an annual grant of \$3 million to citizens' consultative committees to help the needy.

Following the lowering of corporate and personal income taxes in the 2002 Budget, the Minister of Finance also announced that the GST rate would be raised from 3 to 5 per cent with effect from 1 January 2003, to make up at least part of the revenue losses from income tax reductions.

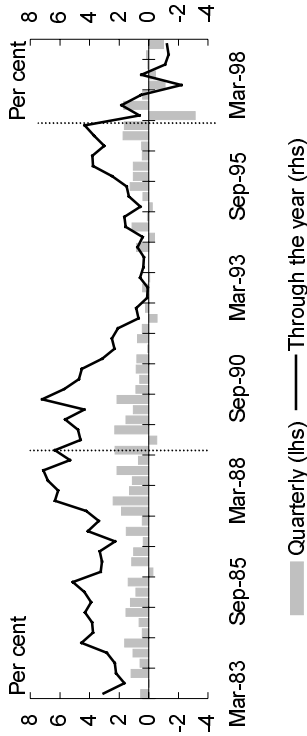
At the time the GST was introduced in 1994, economic activity in Singapore was quite buoyant. The recently announced increase in the GST rate came at a time when Singapore was just emerging from a sharp economic contraction.

### **Macroeconomic impacts of tax reform**

The international experience (Chart A1) indicates that a temporary slowdown in **GDP** growth occurred in each of the four countries under consideration, following the introduction of major tax reform packages. The quarterly decline was most pronounced in New Zealand and Canada, although these countries were experiencing a period of weakness in economic activity prior to the implementation of tax reform. In Japan and Singapore, however, GDP growth rebounded quickly and strongly.

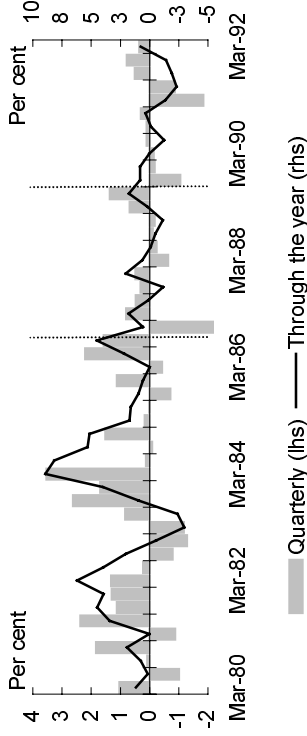
**Chart A1: GDP growth — international**

**Japan**



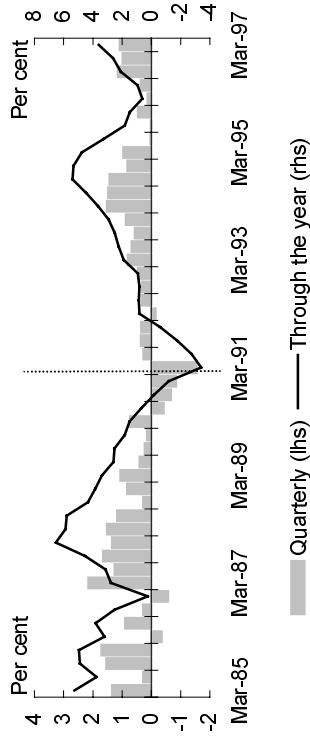
GST introduced April 1989 and rate raised April 1997.

**New Zealand**



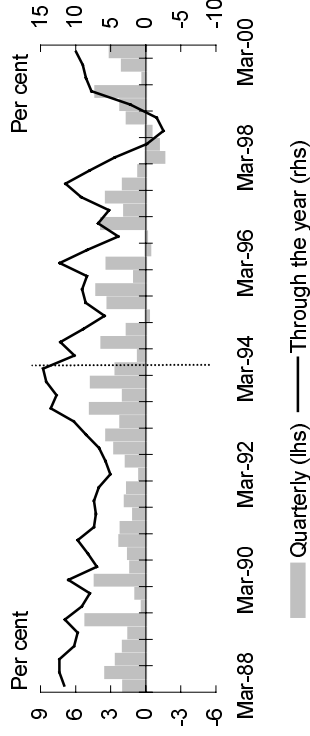
GST introduced October 1986 and rate raised July 1989.

**Canada**



GST introduced January 1991.

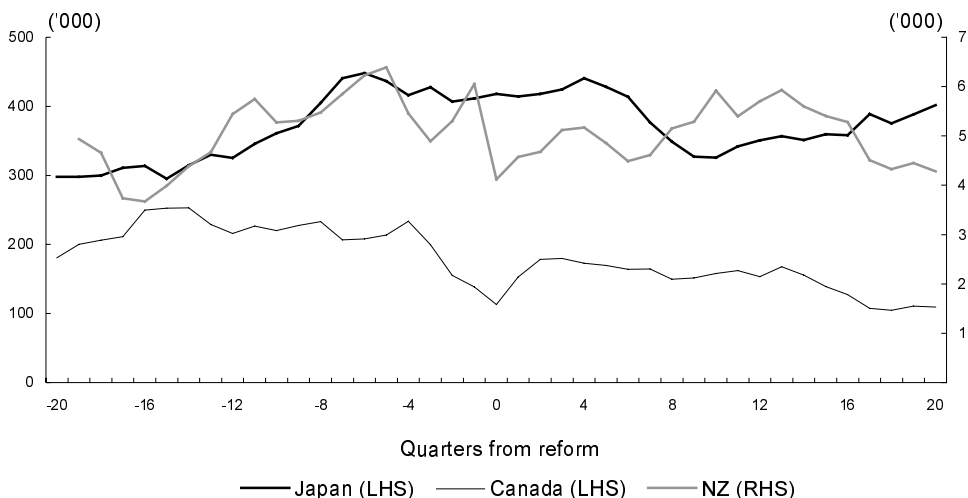
**Singapore**



GST introduced April 1994.

The international experience in relation to **residential construction** (Chart A2) is somewhat mixed, but in all cases considerably less volatile than the Australian experience. New Zealand experienced some bring-forward of construction ahead of the introduction of its tax reform package, and a consequent sharp, but short-lived, slowing in activity immediately afterwards.

**Chart A2: Residential construction — international**



Source: CEIC database, Datastream and NZ time Series.

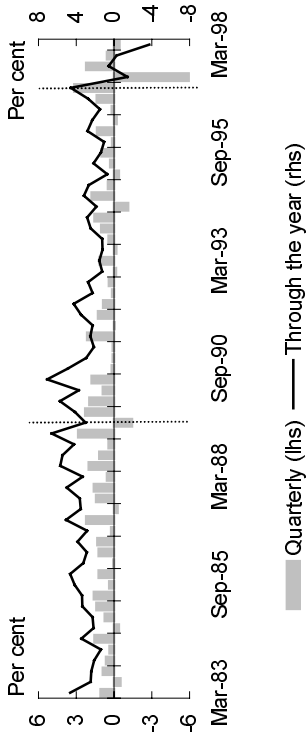
For both Canada and Japan,<sup>35</sup> it is difficult to discern any impact on residential construction associated with the introduction of indirect taxation reforms. In both cases, this is most likely a reflection of the general economic conditions at those times. In Japan, residential construction activity was already strong because of buoyant economic conditions, limiting the extent to which any bring forward in housing construction was possible. The converse holds for Canada where the economy was generally weak at the time the reforms were implemented and residential construction had already been declining for a number of quarters.

In terms of **private (household) consumption expenditure**, with the exception of Canada (again most likely reflecting the state of the economy at the time), there was a significant bring forward of consumption expenditure prior to the implementation of the tax reforms followed by a significant unwinding immediately following implementation (Chart A3).

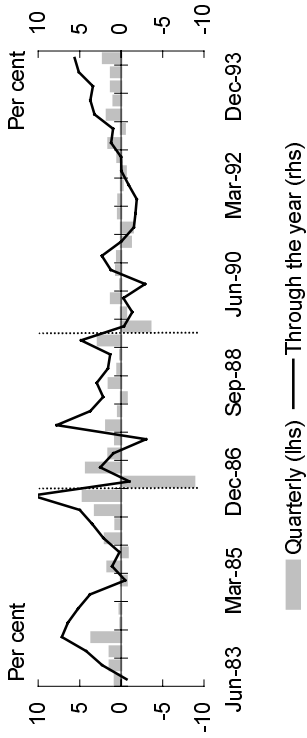
---

35 Residential building approvals followed a similar pattern in Singapore, although the analysis is hampered by limited data availability.

**Chart A3: Private consumption expenditure — international**  
**Japan** **New Zealand**

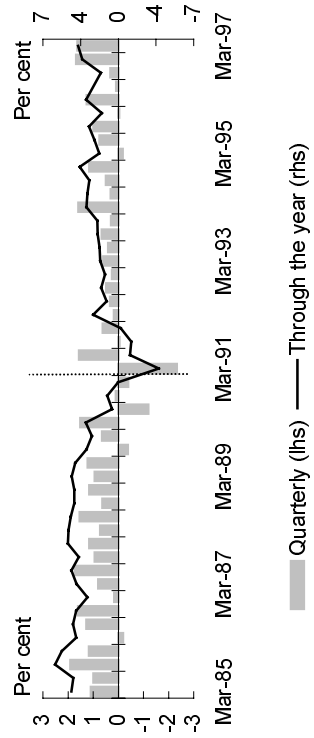


GST introduced April 1989 and rate raised April 1997.



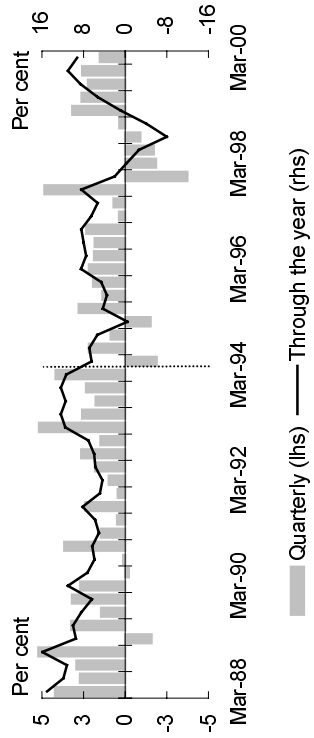
GST introduced October 1986 and rate raised July 1989.

**Canada**



GST introduced January 1991.

**Singapore**



GST introduced April 1994.

With respect to **retail trade**, the experience of New Zealand, Singapore and Japan was similar to that of Australia (Chart A4). In Canada, the apparent absence of a major bring-forward of expenditure might be largely due to weak economic conditions at the time when its tax reform was introduced.

Similar to the Australian experience, **motor vehicle purchases** in Canada declined prior to the taxation reforms and then increased following the introduction of its GST (Chart A5). This increase may be partly attributable to the lower GST rate (of 7 per cent) compared with the manufacturing sales tax rate (of 13.5 per cent) which it replaced. It should also be noted that this increase followed four quarters of negative quarterly growth and almost three years of depressed growth in motor vehicles purchases. Hence, given the very weak economic conditions in Canada at that time, it is difficult to isolate a specific 'GST-effect' from the broader economic circumstances. In contrast, there does not appear to have been a deferral of motor vehicle purchases ahead of the implementation of the tax changes in New Zealand, Singapore or Japan. This may reflect the different effect of taxation reform on motor vehicle prices in these countries.<sup>36</sup>

Internationally, a distinct once-off increase in the **CPI** is observable in the four countries under consideration — most obviously in the case of New Zealand and barely discernible in the case of Singapore (Chart A6). In each of these countries, the trend rate of inflation did not accelerate following the implementation of the taxation reforms.

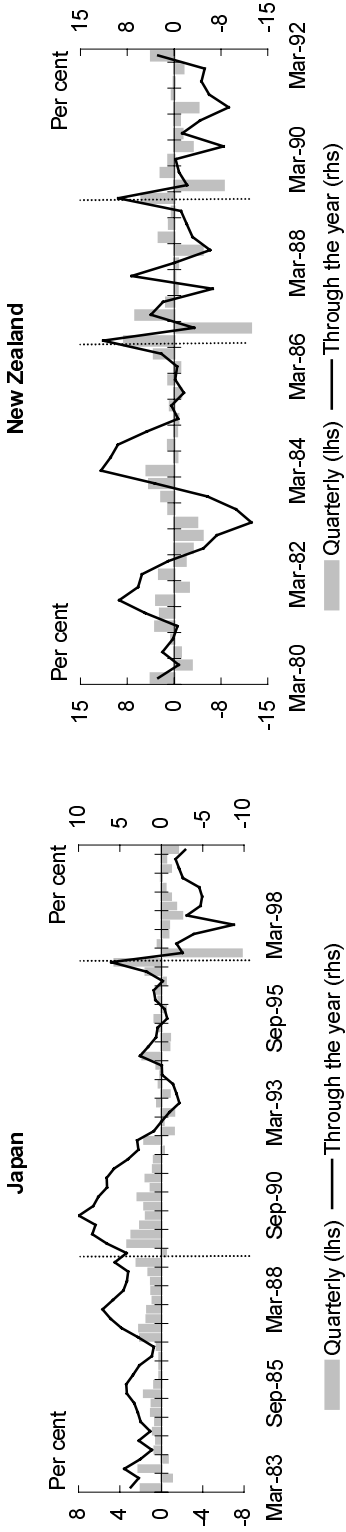
In summary, this brief review of the short-term macroeconomic impacts of the introduction of the GST in the four countries considered shows some significant variation. This may be largely attributed to the different stages of the economic cycle when GST was introduced. In particular, Japan was at the height of a 'bubble', while Canada was in recession. Economic conditions were buoyant in Singapore while economic activity in New Zealand was weak and

---

36 In Singapore, the introduction of the GST on motor vehicles was partly offset by a reduction in import duties (from 45 to 41 per cent) and motor vehicle sales were more likely influenced by the number of Certificates of Entitlement (CoE) issued and the quota premium than the taxation changes. According to the Singapore Department of Statistics, from June to October 1994 business demand for motor vehicles declined largely due to the rapid increase in the tender price of the CoE (see Department of Statistics, *Impact of the Introduction of the Goods and Services Tax on Retail Trade*, Singapore, December 1994). In New Zealand, the 30 per cent sales tax on motor vehicles was converted to a 25 per cent excise duty (with the 10 per cent GST applying), resulting in a slight overall increase in taxation of new motor vehicles.

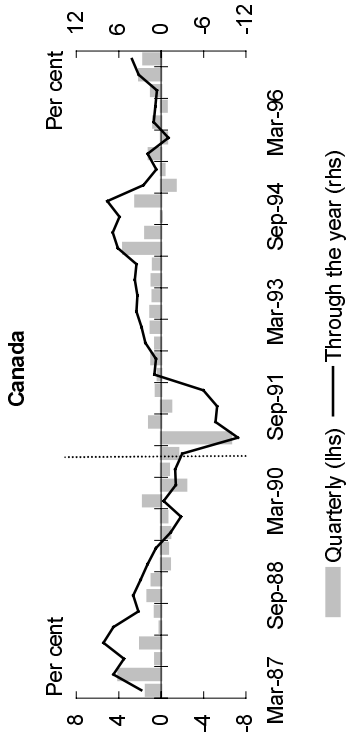
uneven. Other factors likely to have contributed to the divergent experiences include differences in the rate of the GST applied and the mix of taxes it replaced, along with the nature of any compensation package which accompanied the tax reform process.

**Chart A4: Retail trade — international**



GST introduced April 1989 and rate raised April 1997.

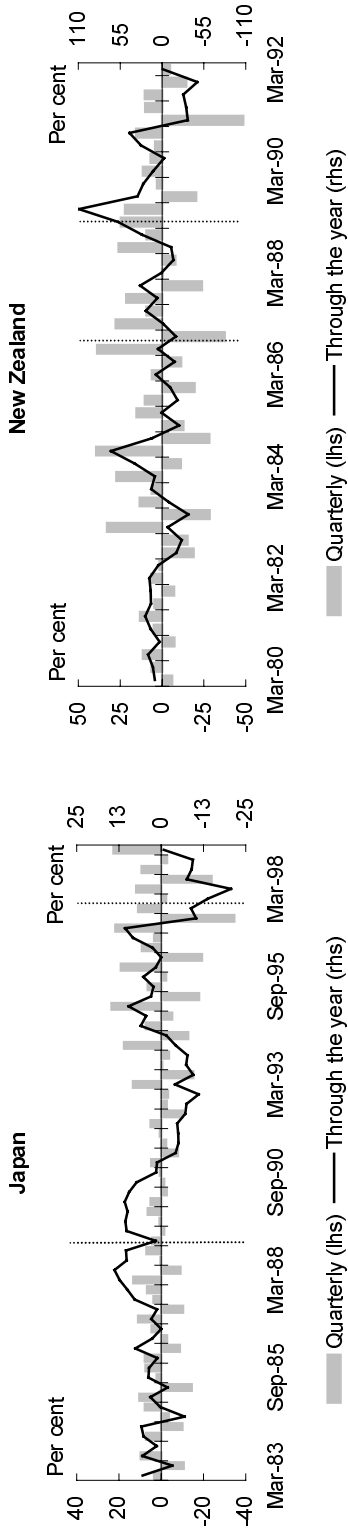
GST introduced October 1986 and rate raised July 1989.



GST introduced January 1991.

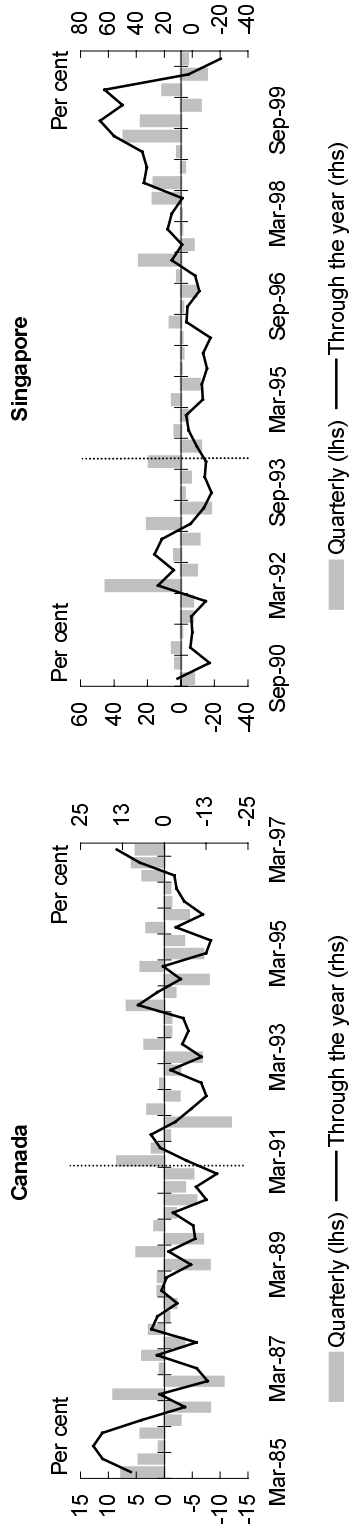
GST introduced April 1994.

**Chart A5: Motor vehicles — international**



GST introduced April 1989 and rate raised April 1997.

GST introduced October 1986 and rate raised July 1989.

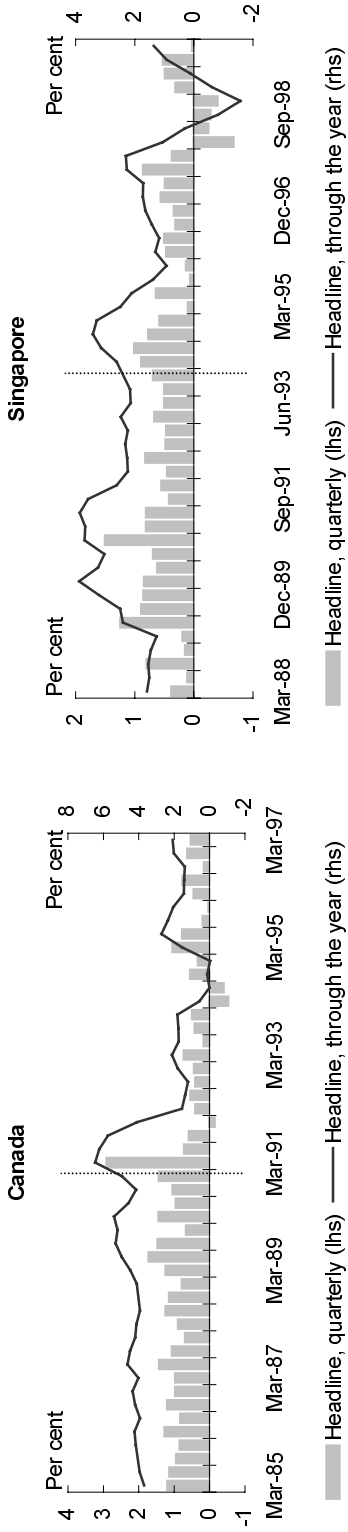
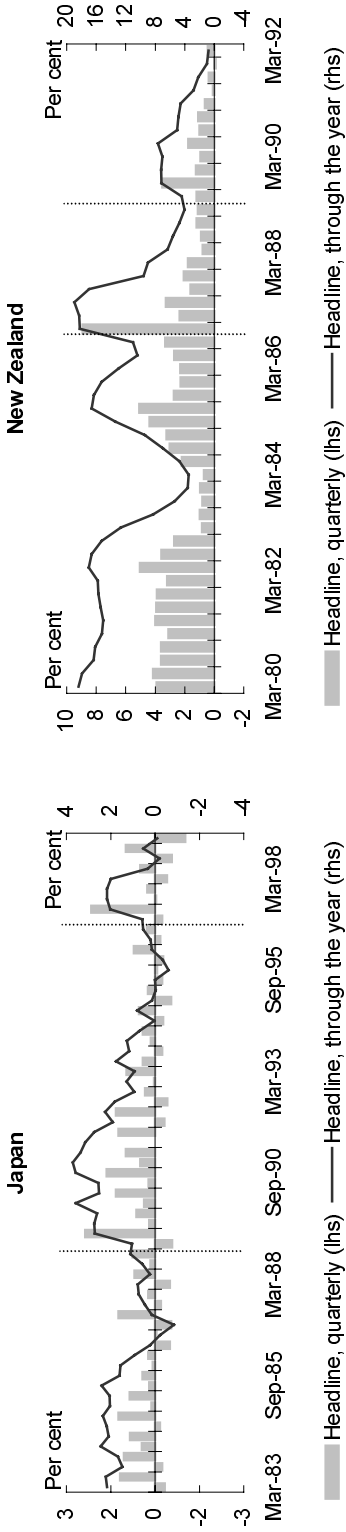


GST introduced January 1991.

GST introduced April 1994.



**Chart A6: Inflation — international**



## Appendix B: Approach taken for distributional analysis

To determine the distributional impact of tax reform, real disposable income was compared before and about one year after tax reform was introduced. This was undertaken for a number of family types divided into disposable income quintiles:

1. couples with children;
2. sole parents;
3. retired pensioner couples;
4. retired pensioner singles;
5. self-funded retirees;
6. couples without children of working age; and
7. singles in the labour force.

The family type description was defined according to the characteristics of the head of the household, as defined by the ABS in its income surveys. Retirees were defined as being at least 55 years of age and not in the labour force. Self-funded retirees<sup>37</sup> were defined as singles with disposable income greater than \$400 per week and couples with combined disposable income greater than \$600 per week at June 2000. Singles of working age were defined as adults aged greater than 24 years (the aged limit of parental income testing for Centrelink payments) who were either working or seeking work while on Newstart Allowance.

The number of families in each family type and disposable income ranges for each quintile is also provided in Tables B1 and B2 below.

---

<sup>37</sup> Retired pensioners include families whose primary income source is a pension and retirees with low disposable incomes who are ineligible for a pension. Self-funded retirees derive their income primarily from private sources.

STINMOD, a microsimulation model of taxes and benefits was used to determine nominal disposable income before and after tax reform.<sup>38</sup>

The results from STINMOD were subsequently adjusted to compare real disposable income before and after tax reform. This took into account the 6.0 per cent increase in the CPI between the June quarters of 1999-2000 and 2000-01.

**Table B1: Number of families<sup>(a)</sup> by family type and disposable income quintile, 2000-01**

Couple without children	Retired pensioner couple	Couple with children	Self-funded retiree	Retired pensioner single	Single person in the labour force	Sole parent
1,111,000	631,000	1,701,000	128,000	938,000	1,327,000	477,000

(a) Records with the bottom 10 per cent of disposable income were excluded following ABS practice as the ABS has 'concerns with the fact that the extremely low incomes (close to nil or negative) recorded for some households in this group do not accurately reflect family living standards' (ABS, 2002).

Source: STINMOD and Treasury calculations.

**Table B2: Average weekly nominal disposable income<sup>(a)</sup> by family type and disposable income quintile, 2000-01**

Quintile	Couple without children	Retired pensioner couple	Couple with children	Self-funded retiree	Retired pensioner single	Single person in the labour force	Sole parent
	\$	\$	\$	\$	\$	\$	\$
1	420	339	521	500	209	261	333
2	687	352	742	667	210	440	402
3	927	381	915	812	211	550	488
4	1,162	469	1,146	998	242	673	594
5	1,785	595	1,752	1,939	336	930	855

(a) Records with the bottom 10 per cent of disposable income were excluded following ABS practice as the ABS has 'concerns with the fact that the extremely low incomes (close to nil or negative) recorded for some households in this group do not accurately reflect family living standards' (ABS, 2002).

Source: STINMOD and Treasury calculations.

38 STINMOD is produced by the National Centre for Social and Economic Modelling (NATSEM) located at the University of Canberra using Commonwealth funding. It is based on the ABS Survey of Income and Housing Costs, which provides information on a representative sample of Australians. The survey is updated by NATSEM to capture relevant economic and population changes since the survey was undertaken.

## References

Attorney General for Australia (2001) *GST Has Little Impact on New Bankruptcies*, Media Release, 18 September 2001.

Australian Bureau of Statistics (ABS) (2002), *Measuring Australia's Progress*, Catalogue Number 1370.0, Australian Bureau of Statistics, Canberra.

— (2003), *National Accounts: National Income, Expenditure and Product*, Catalogue Number 5206.0, Australian Bureau of Statistics, Canberra.

— (2003), *The Labour Force, Preliminary*, Catalogue Number 6202.0, Australian Bureau of Statistics, Canberra.

— (2003), *Consumer Price Index*, Catalogue Number 6401.0, Australian Bureau of Statistics, Canberra.

— (2003), *House Price Indexes*, Catalogue Number 6416.0, Australian Bureau of Statistics, Canberra.

— (2003), *Retail Trade*, Catalogue Number 8501.0, Australian Bureau of Statistics, Canberra.

— (2003), *Sales of New Motor Vehicles*, Catalogue Number 9314.0, Australian Bureau of Statistics, Canberra.

Australian Taxation Office. (2002), *Cash Economy Task Force Working Paper – Future Strategies October 2002*.

— (2002) *Compliance Program 2002-03*.

— (2002a) *Compliance Program 2002-03*.

Commonwealth of Australia (1998) *Tax Reform: not a new tax, a new tax system*, AGPS, Canberra.

— (2000) *Budget Strategy and Outlook 2000-01*, AGPS, Canberra.

— (2000) *Mid-Year Economic and Fiscal Outlook 2000-01*, AGPS, Canberra.

— (2002) *Final Budget Outcome 2001-02*, AGPS, Canberra.

— (2002) *Mid-Year Economic and Fiscal Outlook 2002-03*, AGPS, Canberra.

— (2001) *Treasury Annual Report 2000-2001*, AGPS, Canberra.

Commonwealth Minister for Industry, Tourism and Resources (2002) Early Closure of Book Printing Schemes – Federal Budget 2002, 14 May 2002.

Commonwealth Treasurer (2001), *Streamlined GST and PAYG Reporting*, Press Release No. 007, 22 February 2001.

Dun and Bradstreet (2001), The New Monthly D&B Business Expectations Survey – December 2001, 18 December 2001.

Dun and Bradstreet (2002), The New Monthly D&B Business Expectations Survey – January 2002, 15 January 2002.

Insolvency and Trustee Services Australia *Administrations under the Bankruptcy Act 1996 – Statistics (Provisional) Bankruptcy Statistics*, October 1998-April 2002.

Melbourne Institute of Applied Economic and Social Research (2003), *Melbourne Institute Consumer Inflationary Expectations*, University of Melbourne, Melbourne.

Regulation Impact Statement for the Introduction of a Goods and Services Tax. 1998, Cat. No. 9837341, AGPS, Canberra.

Singapore Department of Statistics, *Impact of the Introduction of the Goods and Services Tax on Retail Trade*, Singapore, December 1994.

Stephens, R. (1993) 'Radical tax reform in New Zealand', *Fiscal Studies* 14(3), August.

Yellow Pages (2002), *Yellow Pages Business Index – Small & Medium Enterprises*, May 2002.



# The role of the International Monetary Fund in crisis resolution

*Over the past year, the International Monetary Fund (IMF) has raised the profile of 'sovereign bankruptcy' proposals to restructure unsustainable country debt. This has coincided with increasing calls over the last few years to improve the international financial architecture to better prevent and resolve financial crises.*

*The IMF has been progressing work on a sovereign debt restructuring mechanism and this issue is to be considered by members of the IMF's International Monetary and Financial Committee in April 2003. Given the attention devoted to developing the sovereign debt restructuring mechanism, it is timely to explore where the debate currently stands in the context of the Fund's role in crisis resolution.*

## Introduction

Since the IMF was established, its broad purposes have remained largely unchanged, namely, the promotion of financial stability and economic growth among its members. However, its operations — which involve the monitoring and consultation on economic developments and policy decisions of its members (surveillance), the temporary provision of financial assistance to members facing balance of payments needs, and the provision of technical assistance and support for members' efforts at capacity building — have evolved in line with changes in the international financial system and the changing needs of its member countries.

This evolution has been manifest following the Asian financial crisis, with increased recognition that the IMF needed to further advance its capacity to prevent and resolve financial crises. The imperative for such ongoing efforts has been reaffirmed by the more recent emerging market crises, most notably Argentina, Brazil and Turkey, which have demonstrated the changing nature of crises.

A key element of IMF efforts is the emphasis on crisis prevention as the most effective way to promote financial stability. In particular, the Fund has moved to strengthen its bilateral surveillance function in order to promote better policies and identify potential economic vulnerabilities in member countries as well as enhancing the multilateral and regional aspects of surveillance in recognition of the growing interdependence between economies and the risks

of contagion. In addition, the IMF, in conjunction with other international groups such as the Financial Stability Forum and the World Bank, has developed and promoted the use of international standards and codes that set out good financial and economic management practices.

Realistically, it is difficult to totally eliminate the possibility of financial crises from occurring. The objective is to reduce their frequency and impact. Consequently, effective crisis resolution strategies are also necessary. A particular focus over the past year or so has been to improve the framework for dealing with situations where a country's public debt levels are unsustainable and need to be restructured. In this regard, the IMF is currently considering a sovereign debt restructuring mechanism (SDRM) and the widespread use of collective action clauses (CACs) to facilitate sovereign debt restructurings.

The intention of this article is to review these two proposals and set out the context from which they emerged.

## **Crisis prevention**

Given the social and economic dislocation caused by financial crises, prevention is always better than cure. As such, crisis prevention has always been a key feature of the IMF's reform agenda. More recently this has involved: improving Fund surveillance, both in terms of the its quality and effectiveness, encouraging greater country transparency on an ongoing basis across policy frameworks, promoting the dissemination of economic data, and developing and disseminating internationally accepted standards and codes of good practice.

Effective IMF-supported programs, which involve the temporary use of IMF resources, are also an important part of crisis prevention and resolution. Over recent years the IMF has sought to improve program effectiveness by streamlining and re-focusing its conditionality (that is, the commitments a country undertakes when it borrows from the IMF) and reviewing the range and terms of its financing facilities. These efforts have included the objective of improving country implementation through greater program ownership and tailoring Fund programs to address the specific circumstances of its diverse membership (see Fischer 2002 for additional information on crisis prevention).

Central to the concept of crisis prevention is the promotion of domestic policies consistent with economic and financial stability. There is now broad consensus that the best defence against financial crises is to establish sound economic



fundamentals and to have a credible policy framework able to deal with economic and financial shocks.

At the heart of the Fund's efforts to encourage its members to adopt sound policies are the Fund's surveillance operations. The coverage of Fund surveillance has expanded significantly from an initial focus on monetary, fiscal and exchange rate issues to cover external vulnerability assessments, financial sector vulnerabilities, and a range of structural and institutional policies. An important development aimed at strengthening countries financial systems and reducing their vulnerability has been the in-depth financial sector surveillance undertaken through the joint World Bank and IMF Financial Sector Assessment Program.

A further important initiative has been the development, dissemination and adoption of internationally accepted standards and codes in the economic and financial areas. These standards and codes help to spread and encourage the adoption of best practice in terms of economic and financial policies. To this end, the IMF, along with several other international institutions, prepares reports on their observance by member countries.

Although emphasis must remain on the Fund continuing to pursue strategies to reduce the frequency and severity of crises, they will still occur. If investors sense shortcomings in domestic economic policies, they can retreat quickly and in large numbers. When confidence is lost, capital inflows can dry up and large net capital outflows can occur, resulting in major dislocation within the economy. A key element of the Fund's mandate is to promote the speedy resolution of financial crises when they occur. However, as the greater part of international capital flows are private flows, the private sector must have an important role in both preventing and resolving financial crises.

## **Changing nature of crises**

Notwithstanding the increased focus of the IMF on preventing crises, which gained prominence following the Mexican financial crises in 1994-95, over the past eight years there has been an average of one crisis every year in emerging market economies.

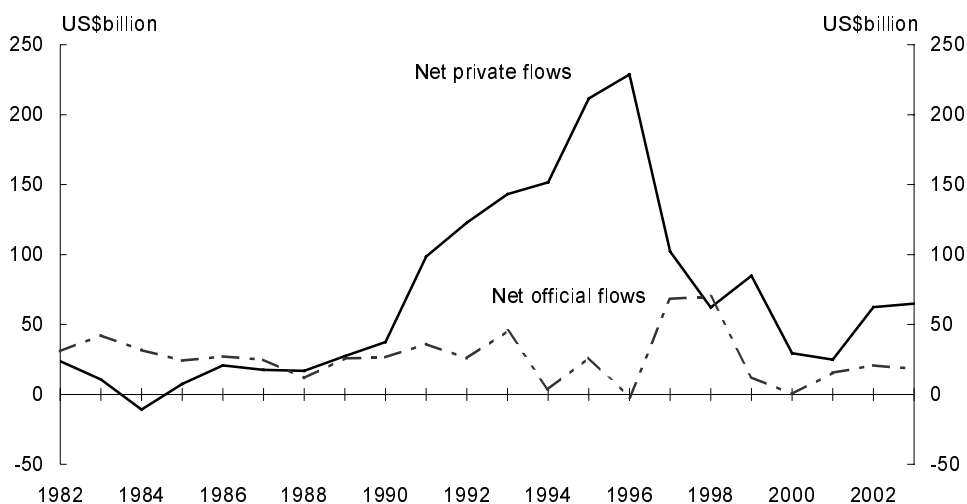
A general distinction can be drawn between the crises of the late 1990s and those of earlier decades (Parkinson, Garton and Dickson 2002). 'Old style' current account crises tended to be driven by excessive current account deficits resulting from macroeconomic policy settings that were usually inconsistent with maintaining pegged, or at least not freely floating, exchange rates. Under

conditions of lower capital mobility, such crises tended to unfold gradually as foreign reserves steadily drained away.

In contrast, financial crises of the last decade have tended to be capital account crises. These have been characterised by large external financing gaps that were the result of a combination of large pre-crisis current account deficits and large reversals of capital flows. These ‘sudden stop crises’ are driven more by balance sheet imbalances (maturity, currency and capital structure imbalances) rather than just traditional flow imbalances. The key factor in explaining the nature and severity of most recent crises has been the presence of financial vulnerabilities and the sudden loss of creditor confidence, leading to a ‘rush to exits’ as the crises rapidly evolves.

The shift generally from current account crises of the 1980s to capital account crises of the 1990s has led to crises that emerge more rapidly and are increasingly severe. Chart 1 shows that since the 1990s, private capital flows have become larger and more volatile, sometimes being subject to dramatic swings. This has led to both increased demands by individual countries on IMF resources and increased questioning of the role the IMF in resolving these crises.

**Chart 1: Emerging market economies: capital flows**



Source: International Monetary Fund, World Economic Outlook, September 2002.

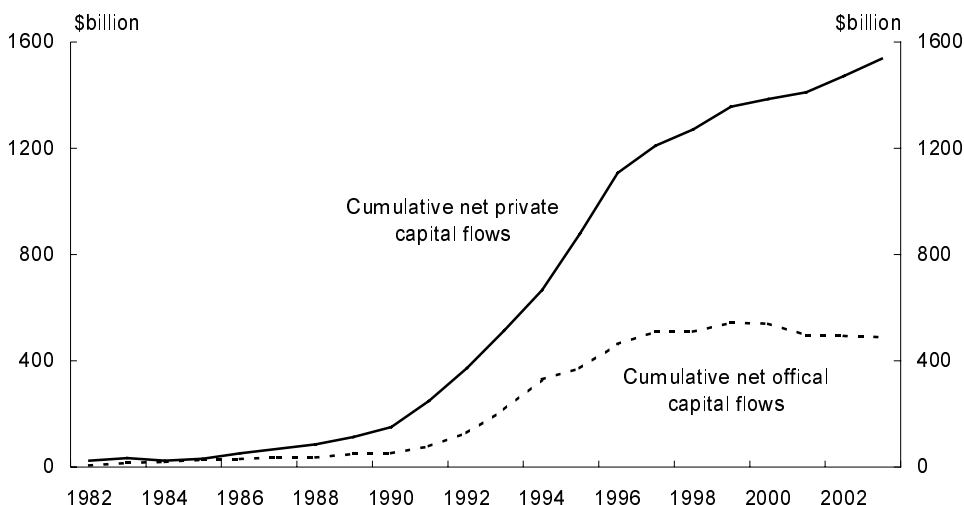
## Impact on the IMF's role

The IMF's mandate is to promote stability in the international financial system and, under adequate safeguards, to make IMF resources temporarily available to members in order to correct adverse movements in their balance of payments. Safeguards such as program conditions encourage recipient members to undertake policy reform. These conditions try to ensure that the provision of financing is associated with policies appropriate to the attainment of external viability and sustainable growth. Program 'conditionality' seeks to ensure that IMF resources will be returned to the Fund and be available for future assistance to other Fund members.

In cases where a country has had access to international capital markets, this approach has also traditionally been based around the IMF playing a catalytic role. That is, the provision of resources accompanying Fund endorsement of a program — and by extension the policy reform proposed — sends a strong signal to the private sector that the IMF is confident that the program will be successful and the Fund will be repaid at the conclusion of a program. This traditionally had the effect of mobilising private sector financing and allowing a country to regain normal market access.

Chart 2 shows the cumulative growth of capital flows in emerging markets over the past two decades. The size and increased volatility of private capital flows compared with limited official resources highlights both the role that the private sector can play in preventing and resolving crises along with the limitations the IMF faces in attempting to directly bridge countries' financing gaps when they emerge.

**Chart 2: Emerging market economies: cumulation of capital flows**



Source: International Monetary Fund, World Economic Outlook, September 2002. Chart 2 represents cumulative net capital flows to emerging market economies since 1982.

## Private sector involvement

There are a number of aspects of the role of the private sector in crisis prevention and resolution. The volatility of private capital flows can be reduced through enhanced risk assessments by investors and closer and more frequent dialogue between countries and private investors. Of course markets can only make better risk assessments if they have adequate information about countries' economic and financial conditions. However, the involvement of the private sector in both crisis prevention and resolution is enhanced through encouraging market participants to appropriately assess risks and base their investment decisions on such assessments, including bearing the consequences of such decisions. Such behaviour would limit moral hazard, that is, the possibility that the private sector may lend to a country on the belief that potential losses will be limited by official rescue packages, particularly by the IMF (see Roubini and Setser 2003 and Cline 2002 for further information on private creditor behaviour).

As noted earlier, the magnitude of recent capital account crises has resulted in exceptionally large Fund financing packages, which has in turn led to concerns that the size of such financing arrangements may raise moral hazard concerns. In an effort to ensure that the private sector has a clear understanding of the 'rules of the game' when it comes to access to the Fund's resources in capital account crises, the IMF has attempted to clarify its policies on 'exceptional' access along with lending to a country in arrears with payments to private

sector creditors. The conditions that have been set for exceptional access to IMF resources include: exceptionally large need; a sustainable debt burden under reasonably conservative assumptions; a judgement that a country will be able to return to the private capital markets in a reasonable period; and indications that the government has the ability to deliver on an agreed economic program.

The above criteria involve difficult judgements, particularly as to when a country's debt levels are considered sustainable. Judgements about debt sustainability will determine decisions as to whether IMF financing is appropriate, the size of such financing, or alternatively whether the sovereign's debt burden needs to be reduced through restructuring.

During the 1980s, achieving debt restructures was more straightforward than is currently the case given the smaller number of large private sector creditors, as well as the homogeneity of commercial creditors (usually banks), the contractual provisions in syndicated loans, and, on occasion, moral suasion applied by lender country central banks. Incentives for an orderly restructuring process were reinforced by banks' interests in maintaining good relations as a means of safeguarding future business.

The shift away from syndicated commercial lending towards a variety of tradeable financial instruments has led to a diffuse broad base of creditors spread out in different jurisdictions. This has benefits in terms of increasing the financing options of emerging market economies. However, the diversity of claims and creditor interests has the potential to generate significant coordination problems across claims and claimants in cases, should a sovereign need to seek a debt restructure (see Krueger 2002 and Sachs 2002).

There is increasing recognition in both the official sector and private markets of the need for a more orderly process for the restructuring of unsustainable sovereign debts. Disorderly restructuring can impose undue costs to both creditors and debtor countries.

Costs to debtors can be magnified by delaying an unavoidable debt restructuring and the interests of most creditors can be damaged by difficulties in securing majority agreement (also known as collective action) on sovereign debt restructuring. Due to the uncertainty of the outcome, debtors may also delay approaching their creditors until they are forced to do so.

Some creditors may also consider that their individual best interests are served by not participating in the debt restructuring (that is, choosing to 'hold-out') in the hope of subsequently receiving full repayment in line with their original

contracts. A more extreme form of hold-out action is where certain creditors decide to pursue litigation to recover the full value of their contract.

If crises are not addressed at an early stage the delay can result in larger falls in GDP, downward overshooting of asset prices and exchange rates, substantial capital flight, depletion of official reserves and possible contagion to other markets (RBA Bulletin 2002). The challenge therefore is to establish a more orderly restructuring mechanism that resolves collective action problems while creating incentives for sovereigns and creditors to reach rapid agreement on a restructuring that preserves asset values as much as possible and facilitates a return to medium-term viability. Securing a restructuring before there has been an interruption of payments is the best way to minimise the dislocation and the loss of asset values that occurs following a default.

## **Proposals**

In order to encourage concerted debtor and creditor coordination and to provide a more predictable framework for restructurings, the IMF is currently considering two complementary proposals.

- The first proposal, based on a so called ‘statutory’ approach, involves the development of a sovereign debt restructuring mechanism (SDRM), that would provide something akin to bankruptcy provisions at the sovereign level.
- The other approach, based on contractual provisions, involves encouraging the widespread use of collective action clauses (CACs) in sovereign bond contracts aimed at facilitating the same outcome as the SDRM. That is, to lower costs for creditors and debtors during a restructuring.

## **Sovereign debt restructuring mechanism**

The SDRM proposal was put forward in November 2001, by the IMF’s First Deputy Managing Director, Anne Krueger (see Krueger 2002 and Rogoff and Zettelmeyer 2002 for a historical survey), and has evolved over the past year.

As proposed, a SDRM would provide bankruptcy style provisions at the sovereign level under a statutory framework. Although there is not unanimous support for a specific proposal and all the details are yet to be settled, some of the main features of the mechanism that have been discussed include:

- activation of the procedures by the debtor;
- possible provisions for the temporary cessation of debt repayments;
- measures to address incentives for disruptive creditor litigation (partial or general stay on enforcement);
- measures to facilitate creditor coordination, including dispute resolution mechanisms; and
- safeguards to protect creditors' interests during the restructuring process.

It is envisaged that the SDRM would only be activated by the sovereign on a voluntary basis and only if external viability was unsustainable. That is, the SDRM would only be activated if there were no feasible set of sustainable economic policies that would allow a country to resolve the current crisis and return to medium term viability, without a significant reduction in the net present value of the sovereign's debt. There has, however, been some discussion that an external, independent arbiter may be needed to determine whether a sovereign's debts were unsustainable.

## **Collective action clauses**

Complementary to the SDRM, is a contractual approach that involves promoting more widespread use of CACs in individual sovereign bond contracts.

These clauses allow for a qualified majority of creditors to block legal action by a minority to force payment, and for a qualified majority to bind the minority into the terms of a restructuring. That is, CACs would allow creditor majorities to change bond terms in order to assist restructuring agreements (Buchheit and Gulati 2002 detail historical developments of CACs).

John Taylor of the US Treasury, has also proposed the addition of contingency clauses (Taylor 2002) describing the process that would be followed if a restructuring proved necessary, allowing for an initial period to initiate the restructuring talks and covering debtors and creditors representation issues.

Although CACs are already incorporated into most sovereign bonds issued in the Euromarket, they are not a feature in most other markets, including the United States where the majority of sovereign bonds are issued.

The IMF has been exploring the design and effectiveness of these CACs in facilitating restructurings, and ways to encourage their wider use in sovereign bond contracts. The official sector, including the international groups of the G-7 and G-10, has also actively encouraged the use of CACs in international sovereign bond contracts. Mexico also successfully issued bonds with CACs into the US market on 26 February 2003.

## **Potential challenges**

The SDRM proposal has two main advantages over CACs in that it solves the problems of aggregation and transition (Krueger 2002). That is, CACs are unable to bind creditors across a range of different bond and debt issues, and cannot deal with outstanding claims that do not already include a CAC provision. This is largely due to the variety of sovereign debt instruments, the extent of anonymity of holders of the debt, and the variety of legal jurisdictions in which debt is issued.

The SDRM is intended to be called upon in only the most extreme circumstances. Furthermore it is argued that the mere presence of this mechanism in the international financial architecture should encourage creditors and debtors to reach agreement on a voluntary basis, or to operate in the 'shadow of the law' (Boorman 2003).

The existence of a SDRM may encourage creditors and debtors to circumvent the system by issuing debt in jurisdictions that are not covered by the mechanism. A SDRM must therefore involve universal application. This can be achieved through a universal treaty or through an amendment to the IMF's articles of agreement, in which a majority of members could bind all members to the treaty. A key difficulty in implementing a SDRM proposal will be garnering the necessary support for such a change from the IMF's membership.

The concept and specific design issues of the SDRM has attracted a lot of debate. In particular, the SDRM has not been supported by a number of emerging markets nor large segments of the private sector. Concern has been raised that a SDRM would lead to unnecessary restructurings, that it may affect the willingness of the private sector to lend to emerging markets, and that it is not necessary as there have been successful restructurings in the past. In addition, there are concerns about the impact of a SDRM on existing contractual rights for holders of outstanding sovereign debt.



In terms of the design of a SDRM, there have been debates on the range of debts that would be covered under such a mechanism. The latest proposal is that the SDRM would apply only to sovereign debt issued in external jurisdictions and not domestic debt (covered by domestic law courts) or official bilateral debts (subject to Paris Club negotiations). However, debate is continuing on the debts to be covered under the proposed SDRM, including the involvement of official debt and Paris Club activities.

Although the international community has been encouraging the widespread use of CACs as a means of facilitating debtor and creditor workouts, there has been little progress to date in their take up outside of their traditional areas. In 2001, sovereign bonds governed under English law constituted 17 per cent of the face value of bonds in the Emerging Market Bond Index, and 50 per cent of the number of bonds issued. However, the take up of CACs could be rapid. For example, if CACs had been introduced to all new emerging market bonds in 1996 following their endorsement by the G-10, by 2001 they would have been included in 70 per cent of all bonds outstanding (IMF 2002).

There might have been a number of possible disincentives driving the reluctance to extend the use of CACs, including: market practice and convention; and the short-term costs associated with 'first mover' disadvantages, including the potential signalling that a restructuring may be more likely. However, recent empirical evidence on the pricing of bonds with and without CACs (Gugiatti and Richards 2003) suggests that the reluctance to adopt CACs in bonds contracts is not well founded. Indeed, Mexico's successful sale of US\$1 billion worth of bonds with CACs into the US market earlier this year suggests an acceptance of CACs by the market.

Although the SDRM and CACs have been at the centre of the debate on crisis resolution mechanisms, additional proposals such as voluntary codes of conduct to facilitating sovereign debt restructurings have recently emerged. These proposals are evolving rapidly and can be expected to be a continued focus of international debate in the period ahead.

## **Australia's position**

Australia is a strong supporter of efforts to reform and strengthen the international financial architecture so as to reduce global financial instability. As such, support has been given to efforts to develop the SDRM and CAC proposals as a means of providing more orderly arrangements for sovereign debt restructurings. Debate on the SDRM has helped to generate additional momentum for improvements in this area, including the need to encourage the

wider use of CACs. Australia will continue to support parallel efforts in order to build on the substantial progress that has been made to date.

Notwithstanding this support, these proposals should not be seen as providing a 'silver bullet' solution for addressing financial instability in emerging markets. Rather, they should be viewed as useful tools for use in the extreme situations where sovereigns have to restructure debts.

Even with more effective mechanisms for involving the private sector in crises prevention and resolution, there will be a need for official financing in crises. Debt restructuring may be able to avoid a disorderly 'rush to exits' by creditors, but it will not ensure that pre-crisis levels of capital inflows will be resumed. The standard rationale for official financing to cushion adjustment will still apply. Importantly, the involvement of the private sector in crisis resolution is but one element of a broader agenda, and it is essential that international momentum continue to advance reform of the international financial architecture.

## References

Boorman, J, *A New Approach to Sovereign Debt Restructuring: An IMF Proposal Panel*, Transcript of an IMF Economic Forum, January 2003.

Buchheit, L and Gulati, M, *Sovereign bonds and the collective will*, Georgetown University Law Centre, Washington, March 2002.

Cline, W, *Private sector involvement: definition, measurement and implementation*, Institute for International Economics, July 2002.

Fischer, S, *Financial crises and reform of the international financial system*, NBER working paper, Cambridge, October 2002.

Gugliatti, M, & Richards, A, *Do collective action clauses influence bond yields: new evidence from emerging markets*, Reserve Bank of Australia, March 2003.

International Monetary Fund, *IMF Board discusses collective action clauses in sovereign bond contracts*, IMF public information notice, July 2002.

Krueger, A, *A new approach to sovereign debt restructuring*, International Monetary Fund, April 2002.

Parkinson, M, Garton, P, & Dickson, I, *Regional financial arrangements: What role in the international financial architecture?*, Australian Treasury, March 2002.

Reserve Bank of Australia, *Recent proposals for reform of sovereign debt restructuring*, Reserve Bank of Australia Bulletin, August 2002.

Rogoff, K, & Zettelmeyer, J, *Bankruptcy procedures for sovereigns: a history of ideas, 1976-2001*, IMF staff paper, International Monetary Fund, 2002.

Roubini, N, & Setser, B, *Improving the sovereign debt restructuring process: problems in restructuring, proposed solutions and a roadmap for reform*, New York University, February 2003.

Sachs, J, *Resolving the Debt crisis of low income countries*, Harvard University, 2002.

Taylor, J, *Sovereign debt restructuring: a US perspective*, US Treasury, April 2002.



# Poverty, inequality and the distribution of income in the Group of 20

Xavier Sala-i-Martin and Sanket Mohapatra<sup>1</sup>

*In the 2001 centenary edition of the Economic Roundup, Treasury presented the evidence then available of narrowing in the last decades of the 20<sup>th</sup> century of inter-country inequality, and continuing reduction in the proportion of the world population in extreme poverty.<sup>2</sup> Subsequent research – such as that presented below – has used new ways of presenting available (albeit still imperfect) data. It supports stronger claims than in the centenary Roundup. The absolute number in poverty has begun to fall, notwithstanding global population growth, for the first time in the history of the statistics. Moreover we can now picture how narrowing inter-country inequality has outweighed widening national inequality in some countries, so that global inequality has apparently begun to narrow.*

*Most estimates of poverty and inequality use only household surveys of income or expenditure. These estimates have been criticised for not accounting for the role of public spending in influencing poverty and inequality, and because for many countries, surveyed household income or expenditure have been falling below estimates of similar concepts from national accounts by an increasing margin over time. Professor Xavier Sala-i-Martin of Columbia University published several influential studies in 2002 that addressed these problems by combining survey estimates of distribution with national accounts estimates of consumption or income levels.<sup>3</sup>*

---

1 The views expressed in this article are those of the authors and are not necessarily those of the Commonwealth Treasury.

2 'Global poverty and inequality in the 20<sup>th</sup> century: turning the corner?' *Economic Roundup*, May 2001 pp. 1-52.

3 Sala-i-Martin, X.: April 2002, *The disturbing 'rise' of global income inequality*, Working Paper 8904, National Bureau of Economic Research; and May 2002, *The world distribution of income (estimated from individual country distributions)*, Working Paper 8933, National Bureau of Economic Research. Other researchers have since used similar approaches. See: Bourguignon, F. & Morrisson, C., September 2002, 'Inequality Among World Citizens: 1820 – 1992', *American Economic Review*, Vol 92 No 4, pp. 727 - 744. Bhalla, S.S. 2002, *Imagine There's No Country: Poverty, Inequality and Growth in the Era of Globalization*, Institute for International Economics, Washington DC, available at [http://www.iie.com/publications/publication.cfm?pub\\_id=348](http://www.iie.com/publications/publication.cfm?pub_id=348).

*During 2001 and 2002, the Group of Twenty (G20)<sup>4</sup> large economies compared their experiences of the policy challenges from globalisation, including their experiences of poverty and inequality. Treasury asked Professor Sala-i-Martin to apply his methodology to illustrating poverty and inequality trends in the G20 economies. The resultant paper, co-authored with Sanket Mohapatra and reprinted below, was distributed to Finance Ministers and Central Bank Governors at their meeting in November last year.<sup>5</sup> While it draws upon earlier published work, its database has been widened to include estimates for all G20 member economies except Saudi Arabia (for which no data was available). National data limitations also mean estimates for South Africa and Argentina are of lower quality than for the other economies.*

*While the paper's data and methodology mean its results are not directly comparable with World Bank numbers, it estimates that extreme poverty in the G20 fell from 380 million people in 1970 to 40 million by 1998, and that the Gini coefficient of inequality across the population of the G20 fell by about 8 per cent.*

## **Introduction**

Over recent years, the G20 grouping of systemically important economies has examined, by case studies among its member economies and a workshop, how the trends of globalisation may be affecting living standards, poverty and inequality. The objective has been to better understand the advantages, problems and policy challenges arising from globalisation.

Sala-i-Martin (2002) has developed a methodology to combine the best quality information on income and distributional levels and trends for the widest number of countries. This approach yields clear pictures of how national income distributions have changed over the last 30 years, to produce changing patterns of intra-country distributions, inter-country distributions, and global distributions of income.

---

4 The G20 was established in 1999 to provide an informal mechanism for dialogue among systemically important countries within the framework of the Bretton Woods institutional system. Member countries include: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, México, Russia, Saudi Arabia, South Africa, Korea, Turkey, the United Kingdom, the United States and the European Union. The Managing Director of the IMF and the President of the World Bank, as well as the Chairpersons of the International Monetary and Financial Committee and Development Committee of the IMF and World Bank, participate fully in the discussions.

5 The paper was first published in November 2002 as Discussion Paper #0203-10 in the Discussion Paper Series of Columbia University's Department of Economics.

This paper uses that methodology and some approximate extensions of the available data, to explore these same trends among the G20 economies as a group, and between the G20 and the broader world. Such an approach may be helpful in illustrating the broad trends in income, poverty, and inequality among a small but diverse group of important economies, whose ranks include both rich and poor countries, and countries that have recently experienced economic crises as well as strong economic growth.

## Methodology

We briefly describe the methodology developed by Sala-i-Martin (2002) and how we apply it to estimate the individual country distributions of the G20 group. We also construct an aggregate distribution for the entire group and use it to compute poverty rates and headcounts as well as various inequality indexes.

### Step 1: Estimating yearly income shares between 1970 and 1998

We use the income shares estimated by Deininger and Squire, which have been extended with the World Development Indicators (WDI) of the World Bank.<sup>6</sup> These studies report income shares for five quintiles for a number of countries for selected years based on national-level income and expenditure surveys. Let  $s(ikt)$  be the income share for quintile  $k$ , for country  $i$  during year  $t$ . Using these data we have three broad groups of countries:

- Group A: Those for which the income shares are reported for more than one year. The G20 countries in this group are Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russian Federation, Turkey, United Kingdom, and the United States.
- Group B: Those for which we have only one observation between 1970 and 1998. The only G20 country in this group is South Africa.
- Group C: Those for which we have NO observations of income shares. The only G20 country that belongs to group C is Argentina.

---

6 The data can be found in <http://www.undp.org/povert/initiatives/wider/wiid.htm>

For the countries in group A, we plot the income shares over time and we observe that they tend to follow very smooth trends.<sup>7</sup> In other words, although the income shares estimated by Deininger and Squire and the World Bank are not constant, they do not seem to experience large movements in short periods of time. Instead, they seem to have smooth time trends.<sup>8</sup> Using this information, we regress income shares on time to get a linear trend for each country. We use the projected income shares from these regressions to fill the holes for the missing years.

For the countries in group B, we take the single estimate of the shares for the year in which these are available. We then project back and forth for other years using the average slopes of the ‘neighbouring countries’ for which we have data. We define ‘neighbouring countries’ as those that belong to the same ‘region’ as defined by the World Bank. In particular, since the only G20 that belongs to group B is South Africa, we use the single point estimate of the income shares for South Africa and we use the time slopes estimated for the rest of ‘African Countries’.

For the countries in group C (for which, remember, we have no data on income shares), we use the average income shares of the neighbouring countries. Since the only G20 country in this group is Argentina, this means that we use the average income shares for all Latin American countries as proxies for Argentina’s.

## **Step 2: Estimating country histograms**

Once we have estimated the income shares,  $s(ijk)$ , we assign a preliminary level of income to each fifth of the population using Purchasing Power Parity (PPP)-adjusted per capita GDP from the Summers-Heston data (Summers and Heston (1999), and Heston, Summers and Aten (2001)).<sup>9</sup> We divide each country’s population in five groups and assign to them a different level of income. In this intermediate step, each individual is assumed to have the same level of income within each quintile. In other words, we construct country-specific histograms for each year and for each country.

---

7 Discussion Paper #0203-10 in the Discussion Paper Series of Columbia University’s Department of Economics illustrates this process in diagrams, not reproduced here, for China, India, the US and Indonesia.

8 Obviously, these trends can only be temporary since income shares are bounded between 0 and 1.

9 Saudi Arabia, despite being important enough to be a member of the G20, is excluded from our analysis due to unavailability of both PPP-adjusted per capita GDP and data on income shares. Therefore, we have 18 of the 19 countries in the G20 in our sample.



### Step 3: Estimating each country's income distribution.

We next estimate a kernel density function for each country and each year using the five quintiles estimated in the previous section. The key parameter that needs to be specified or assumed is the bandwidth of the kernel. The convention in the literature suggests a bandwidth of  $w=0.9*sd*(n^{-1/5})$ , where  $sd$  is the standard deviation of (log) income and  $n$  is the number of observations. Obviously, each country has a different standard deviation so, if we use this formula for  $w$ , we would have to assume a different  $w$  for each country and year. Instead, we prefer to assume the same bandwidth  $w$  for all countries and periods. One reason is that, with a constant bandwidth it is very easy to visualise whether the variance of the distribution has increased or decreased over time. Given a bandwidth, the density function will have the regular hump (normal) shape when the variance of the distribution is small. As the variance increases, the kernel density function starts displaying peaks and valleys. Hence, a country with a distribution that looks 'normal' is a country with small inequalities, and a country with a weird distribution (with many peaks and valleys) is a country with large income inequalities.

The average  $sd$  for the United States between 1970 and 1998 is close to 0.9, the average Chinese  $sd$  is 0.6 (although it has increased substantially over time) and the average Indian  $sd$  is 0.5. For many European countries the average  $sd$  is close to 0.6. We settle on  $sd=0.6$ , which means that the bandwidth we use to estimate the Gaussian kernel density function is 0.35. We evaluate the density function at 100 different points so that each country's distribution is decomposed into 100 centiles.

Once the kernel density function is estimated, we normalise it (so the total area under it equals to one) and we multiply by the population to get the number of people associated with each of the 100 income 'categories' for each year. In a way, what we do is to estimate the incomes of a 100 centiles for each country and each year between 1970 and 1998.

Charts 1 to 18 display the results for the 18 countries (there are 19 countries in the G20 group, but the Summers-Heston data set does not report any GDP data for Saudi Arabia, so we exclude this country from our analysis). The figures also plot two vertical lines, which correspond to the World Bank's official poverty lines: the one-dollar-a-day (US\$1/day) line and the two-dollar-a-day (US\$2/day) line.<sup>10</sup> Since the World Bank defines 'absolute poverty' in 1985 values and the Summers and Heston data that we are using

---

10 Ravallion et al. (1991) define poverty in terms of consumption rather than income.

are reported in 1996 dollars, the annual incomes that define the US\$1/day and US\$2/day poverty in our data set are US\$532 and US\$1 064 respectively.

As an example, let us focus our attention on the Chinese distribution (see Chart 5). The distribution for 1970 is hump-shaped with a mode US\$898. About one-third of the function lies to the left of the US\$1/day poverty line (which means that about one-third of the Chinese citizens in 1970 lived in absolute poverty) and close to three-quarters of the distribution lies to the left of the US\$2/day line. We see that the whole density function 'shifts' to the right over time, which reflects the fact that Chinese incomes are growing. The incomes of the richest Chinese increases substantially (the upper tail of the distribution shifts rightwards significantly). The incomes of the poor also experience significant improvements. By 1998, the distribution has a mode at US\$2 000 and it appears that a local maximum starts to arise at US\$4 900. The fraction of the distribution below the one-dollar line is now less than 3 per cent and the fraction below the two-dollar line is less than one-fifth. An interesting feature to notice is that the distribution seems to be more 'dispersed' in 1998 than it was in 1970 or 1980. This reflects the well-documented increase in income inequality within China. In sum, over the last twenty years, the incomes of the Chinese have grown, poverty rates have been reduced dramatically and income inequalities within the most populous nation in the world have increased.

Charts 1 to 18 display the evolution of the distribution functions for each of the G20 countries over time (excluding Saudi Arabia). It is interesting to point out that for countries like Australia, Canada, France, Germany, Japan, Mexico and Turkey, the bottom 20 per cent of the population seems to lag behind in 1970. By 1998, this segment of the population seems to have caught up with the rest of the distribution. That is, for these countries, the 'hole' between the bottom quintile and the rest of the population seems to have 'filled up' over the last 30 years.

#### **Step 4: Integrating over countries to construct the G20 income distribution**

We have now assigned a level of income to each individual in a country for every year between 1970 and 1998. We can use these individual income numbers to estimate a Gaussian kernel density function that proxies for the world distribution of individual income.

Previous researchers have used kernel densities to estimate world income distributions. For example, Quah (1996, 1997), Jones (1997), and Kremer,

Onatski and Stock (2001) estimate it by assuming that each country is one data point (and the concept of income is per capita GDP). Instead, we use the individual incomes estimated in the previous section. Thus, our unit of analysis is not a country but a person.

Charts 19 to 22 report the estimates of the density functions for 1970, 1980, 1990 and 1998.<sup>11</sup> To see how the G20 distribution is constructed from the individual country functions, we also plot the distributions for the individual countries in the G20 in the same graph. Finally, the same figure reports the World Income Distribution as estimated by Sala-i-Martin (2002).

## **Analysis of the distribution of income for G20 countries**

We start our analysis with Chart 19, which displays our 1970 estimates. Since we have computed it so that the area under the distribution is proportional to the country's population, the 'tallest' distribution corresponds to China, followed by India and the United States. These individual distributions correspond exactly to the ones reported in Charts 1 to 18. In the earlier figure, each panel reported a single country for various years whereas now we report all the countries together for a single year.

The world distribution of income is the aggregate of all the individual country density functions. The G20 distribution is the aggregate of all countries in the G20. We notice that the World Distribution and the G20 Distribution are quite similar. The reason is that the G20 account for 63 per cent of the world's population. The modes of both the G20 and the World distributions in 1970 occur at US\$900, below the two-dollar poverty line. About one half of the area under the G20 distribution lies to the left of the two-dollar line and almost one fifth-lays below the one-dollar line. The fraction of the G20 and world population living in poverty in 1970 was, therefore, staggering.<sup>12</sup> The distribution seems to have a local maximum at US\$8 700, which mainly captures the larger levels of income of the United States, Japan, and Europe. Russia seems to be somewhere in between.

The picture for 1980 (Chart 20) is very similar to that of 1970. The maximum is slightly higher at US\$1 022, still very close to the two-dollar line, and the local

---

11 As mentioned earlier, the bandwidth used is 0.35.

12 While the poverty estimates for 1970 are indeed staggering, they are of an order of magnitude consistent with other estimates, as demonstrated in Sala-i-Martin (2002).

maximum of the rich is now at US\$10 100 which suggest that the world was slightly richer in 1980 than in 1970, but the picture looks basically identical.

Things start changing in the 1980s and 1990s (Charts 21 and 22 correspond to 1990 and 1998 respectively). The distributions for 1970 and 1980 look very similar, but the whole density function for 1990 has moved appreciably to the right, and more so by 1998.<sup>13</sup> We notice that as China, India, and Indonesia start growing (their individual distributions shift to the right), the lower part of the world distribution (which contains most of the people in the 1970s and 1980s) also shifts rightward. Within countries, we see that, while the Indian distribution retains the same shape, the Chinese density function becomes flatter and more dispersed. This reflects the fact that Indian inequality has not increased as dramatically over this period as China's. The fraction of the G20 distribution of income to the left of the two poverty lines declines dramatically. By 1998, less than one-fifth lies below the two-dollar line (down from over 43 per cent in 1970) and around 1 per cent lies below the one-dollar line (down from 16 per cent in 1970). The G20, therefore, has had an unambiguous success in the war against poverty rates during the last three decades.<sup>14</sup>

Charts 23 and 24 put the G20 distributions for the four years in the same graph. This allows us to see its evolution more easily. We see that the distribution is shifting to the right on average, which means that the average citizen of the G20 is richer or that the mean growth rates have been positive. We also see that the top of the distribution also shifts to the right, which means that the 'rich get richer'. It is interesting to see that the bottom of the G20 distribution appears to shift even more to the right so that 'the poor also get richer', but whether the poor have in fact gained relatively more than the rich is a question to which we return with some summary quantitative measures below.

---

13 The policy interest in this is, of course, what happened around the late 1970s or early 1980s to make things change? One partial answer is Chinese reforms: first agricultural and then trade (see for example David Dollar, p12 in the RBA/Treasury Conference Volume <http://www.rba.gov.au/PublicationsAndResearch/Conferences/2002/index.html>) Another more general answer is that many populous developing countries (not just China and then India) started to take advantage of the rapid growth in global trade in manufactures: [http://publications.worldbank.org/ecommerce/catalog/product?item\\_id=370788](http://publications.worldbank.org/ecommerce/catalog/product?item_id=370788)

14 Progress against poverty in the G20 actually accelerated through the 1980s and 1990s. It is interesting to note that the upsurge in 'anti-globalization' protests in recent years actually coincided with faster progress against poverty and an accelerating decline in inter-country and global inequality.

Finally, the middle of the distribution experiences substantial improvement: what used to be an 'empty area' around US\$9 000 is now filled up by the top of the Chinese, Indian and Russian distributions. In fact, the G20 distribution for 1998 exhibits three local modes: one at US\$1 950, one at US\$5 400 and the last one at US\$19 000.

## Poverty rates and headcounts

Once the income distributions have been estimated, we can compute the fraction of the overall population that earns incomes below particular levels. In particular, one can estimate the fraction of G20 population that earns incomes below the US\$1/day that is defined to be the 'absolute poverty line' or the US\$2/day line, which is usually called the 'poverty line'. Chart 25 and Table 1 reports the estimates of these two poverty rates for the G20. We see that the fraction of the G20 population with income below US\$1/day has fallen from 15 per cent to 1 per cent. The fraction below US\$2/day has fallen from 43 per cent to 12 per cent.

The total amount of people with income levels below the poverty lines have also declined dramatically: the number of G20 citizens living with incomes below US\$2/day has declined from 1.1 billion in 1970 to 450 million in 1998. The number of people with less than one dollar a day has decreased from 380 million to 40 million in 1998.<sup>15</sup> Chart 26 and Table 1 report the absolute numbers in poverty corresponding to the estimated poverty rates of Chart 25.

Our estimates of the poverty rates are substantially lower than those reported by the World Bank (see for example, Ravallion and Chen (1997)). There are two reasons for these discrepancies. First, we compute the fraction of the population that earns incomes below US\$1/day whereas the World Bank tends to report consumption. Although it is not clear that consumption estimates are better (for example, consumption does not take into account the public spending that substitutes for private consumption expenditures such as schooling, hospitals, roads or other public services), Sala-i-Martin (2002) checks the potential size of this bias. He uses the methodology used in the present paper to estimate 'consumption' poverty rates and he shows that the rates would triple. Thus, the consumption poverty adjustment for G20 for change the 1990 rates from 4 per cent to 12 per cent and the 1998 rates would increase

---

15 The fall in poverty numbers from 1970 to 1998 were notwithstanding a growth in G20 population of 1 277 million over that period, mostly in the poorer countries. China, India and Indonesia together contributed 939 million, or 74 per cent, of the total increase.

from 1 per cent to 3 per cent (and the overall number of poor would increase from 40 million to 120 million).

A second important difference between our estimates and those of the World Bank is that we scale individual income shares by GDP or Consumption as reported by the National Accounts, whereas the World Bank adjusts by the average consumption reported by the surveys. It is well known that surveys tend to underestimate true consumption since people tend to under-report their consumption (or income). Bhalla (2002) estimates that the ratio of the mean consumption of the surveys to National Account consumption is as low as 0.73. If we divide our estimated poverty rates by 0.73 we would find that our consumption poverty rates for US\$1/day would be 4.11 per cent or 164 million people. With the adjustments, the US\$2/day poverty rate in 1998 would be 49 per cent or 1.8 billion.

For those readers who want to compare poverty lines, Chart 24 reports the Cumulative Distributive Functions (CDF) corresponding to the distributions in Chart 23. The CDF is useful because the image tells us the fraction of the distribution that lies below any given point. Thus, the reader can pick a poverty line and the image of that line on the CDF illustrates the fraction of the population living below that particular line. Notice that, no matter what poverty line one chooses to pick, the poverty rates in G20 have been falling dramatically.

## **Income inequality among individuals in the G20**

The next step is to use the distributions to analyse the evolution of various inequality measures (see Cowell, 1995, or Sala-i-Martin, 2002, for the exact formulae used in computing the indexes). The inequality indexes provide a quantitative measure of the dispersion of individual incomes in the G20 countries.

Chart 27 shows the estimate of the popular Gini coefficient for the G20 countries. We find that the income inequality measured by the Gini coefficient has declined by around 8 per cent between 1970 and 1998. The across-country Gini, which assumes that all individuals in a country have the same per capita income and therefore does not take into account within-country differences in incomes, follows a very similar pattern to the overall Gini, though the decline in the across-country Gini is distinctly larger during the 1990s.

Three other 'non-decomposable' measures of income inequality are shown in Charts 28 to 30.<sup>16</sup> The variance of logarithmic incomes (or varlog) in the G20 shows a small increase during the 1970s, but decreases substantially in the next two decades by over 22 per cent. A similar but more marked downward trend is observed for the across-country component in the 1980s and 1990s. The two Atkinson indices  $A(0.5)$  and  $A(1)$ , with a coefficient of inequality aversion of 0.5 and 1 respectively, also confirm the declines in overall dispersion and across-country dispersion of individual incomes during the last two decades.

The G20 'global' inequality measures demonstrate that large gains have been made in reducing income disparities across people in the G20 group of countries, particularly in the 1980s and 1990s. When we compare the G20 'global' and across-country inequality measures, the reductions in across-country dispersion seem to follow a very similar trend to the G20 global measures, but the decline is greater in magnitude during the 1980s and 1990s. This has been largely due to the high growth rates achieved by the two most populous members of the G20 — China and India — relative to the other G20 member countries following economic reforms and financial liberalisation measures. While PPP-adjusted per capita income grew at an annual average of 6 per cent in China and by 3.9 per cent in India between 1980 and 1998, the mean annual income in the rest of the G20 member countries (excluding Saudi Arabia) grew at only 1.7 per cent per annum.

In order to precisely measure the relative contribution of across-country and within-country components in the decline in income dispersion across individuals the G20 countries, we use 'decomposable' inequality indices. Inequality indices belonging to the Generalized Entropy Index (GEI) class are decomposable into across-country and within-country components.

Three popular GEI inequality indices are shown in Charts 31 to 33. In addition to the 'global' and across-country dispersion of individual incomes, there is now a third curve representing the within-country component of the aggregate dispersion (the sum of the within and across components adds up to the overall dispersion). The three decomposable measures are the Mean Logarithmic Deviation (or  $GEI(0)$ ); the Theil Index (or  $GEI(1)$ ); and the Coefficient of Variation (CV) Square (or  $GEI(2)$ ). All three measures appear to follow very similar trends between 1970 and 1998.

---

16 Non-decomposable means that the overall inequality cannot be decomposed as a sum of across-country and within-country components. The Gini coefficient, variance of log incomes (VarLog) and the Atkinson class of indices belong to this class of measures.

Our first finding on examining the within and across-country components of the three decomposable indices is that the within-country component is a relatively small fraction of the total dispersion. For the Mean Logarithmic Deviation (MLD), only 19 per cent of the G20 differences in incomes could be explained by within country inequalities in 1970. The share of within country component rose over time, but was still only 35 per cent in 1998. The corresponding fractions for the Theil Index were 24 per cent and 32 per cent. The bulk of the dispersion of individual incomes in the G20 group is therefore explained by the across-country component.

The second finding is that the pattern of evolution of the overall dispersion and the across-country component look very similar, though there has been a larger decline in the across-country component in the 1990s. While the overall MLD decreased by over 14 per cent in the 1990s, the across-country component of G20 inequality declined by 25 per cent in the same period.

The third interesting finding is that the slight increase in the within country component during this period was not large enough to offset the effect of a reduction in the across-country component. All three GEI indices declined during the sample period – the MLD by 21 per cent, the Theil Index by 15 per cent and the CV Square by 8 per cent. The reduction in the overall dispersion of individual incomes in the G20 group in the last two decades was therefore achieved primarily due to across-country convergence in aggregate per capita incomes among the G20 countries.

It is worth noting that the slight increase in the within country component is 'on average'. Some G20 members appeared to have experienced narrowing intra-country inequality. While there is considerable variation in the evolution of the income distribution across the G20 member countries, it appears that Indonesia and Korea (from the developing countries in the G20), and Germany and France (among the developed members of the G20), have had narrowing inequality between 1970 to 1998.

The important lesson we draw from the analysis of the inequality indices is that income disparities across the citizens of the G20 group have declined primarily due to increase in aggregate growth rates in the populous countries of the G20 group. This decline in income disparities among the G20 member countries has taken place during a period where several important and populous developing countries in the G20 have implemented economic and financial liberalisation measures, welcomed trade and foreign investment, and have integrated further into the global economy.



## Conclusions

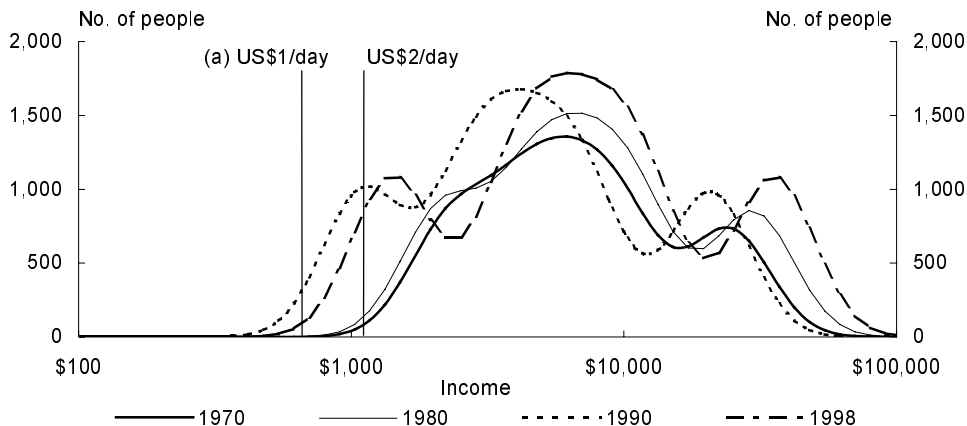
The G20 members have enjoyed enormous progress against poverty, especially over the last 20 years. That is true even though some members have experienced setbacks from economic crises over that time.

The income distribution diagrams show that it is possible to have much less poverty with some widening (on average) in intra-country inequality. While overall inequality in the G20 (and the world) has come down, on average narrowing inter-country inequality has dominated slightly widening intra-country inequality to produce narrower inequality in the G20 as a group. But that is on average, not all members have experienced widening intra-country inequality, and some that have, had started from unusually narrow distributions (for example, China and Russia under central planning and state ownership of the means of production). This suggests that starting points, national circumstances and national policies are still powerful influences on inequality.

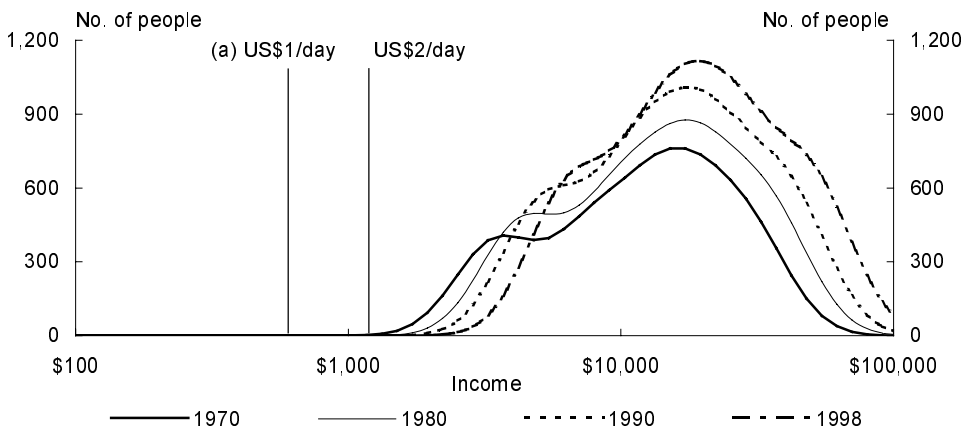
These complex patterns of changes show us that we should think twice about simplistic characterisations of global economic change 'making the rich, richer, and the poor, poorer'. In fact, the poor in the G20 (and the broader world) have been getting richer in unprecedented numbers, and are beginning slowly to reduce the relative gap with the rich. We need to think more carefully about absolute poverty, relative poverty, inter-country inequality and intra-country inequality. What do we really care about most, and why? What can we change, and how?

The success of the G20 economies has been remarkable, but success does not mean victory. The number of poor is still embarrassingly large: in 1998, about 450 million people still had an income of less than US\$2 dollars per day. And even if the G20 economies are succeeding, the world at large is losing an important battle: the battle of Africa. In the 1970s, poverty was essentially an Asian phenomenon. It is now mainly an African problem. And, while the most powerful nations of the world can be happy about their performance and their success, they cannot be entirely happy with the state of the planet. The lessons learned in the G20 countries need to be applied to Africa. And they need to be applied fast.

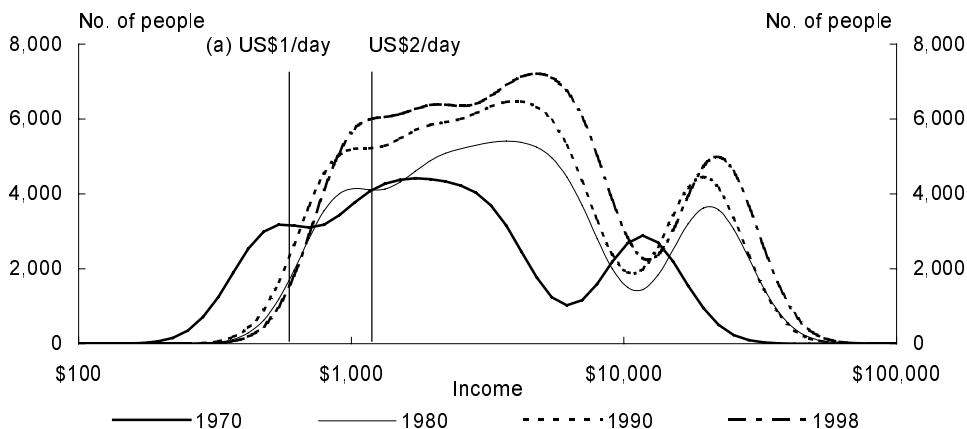
**Chart 1: Income Distribution — Argentina**



**Chart 2: Income Distribution — Australia**

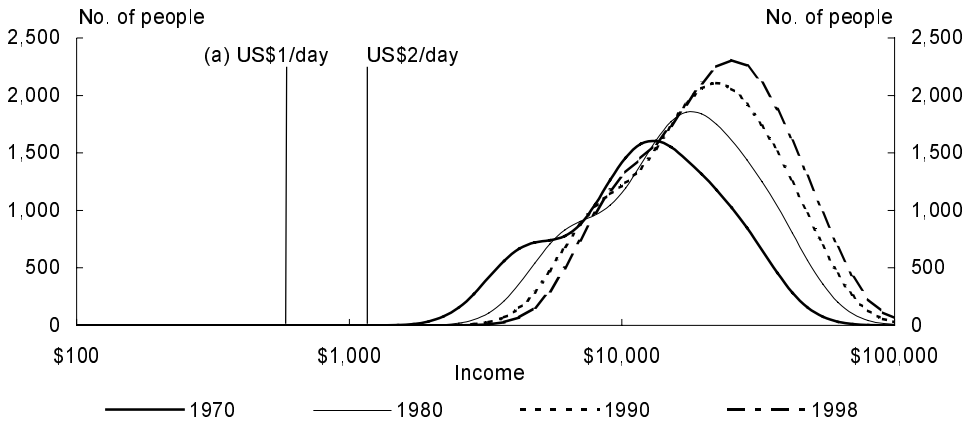


**Chart 3: Income Distribution — Brazil**

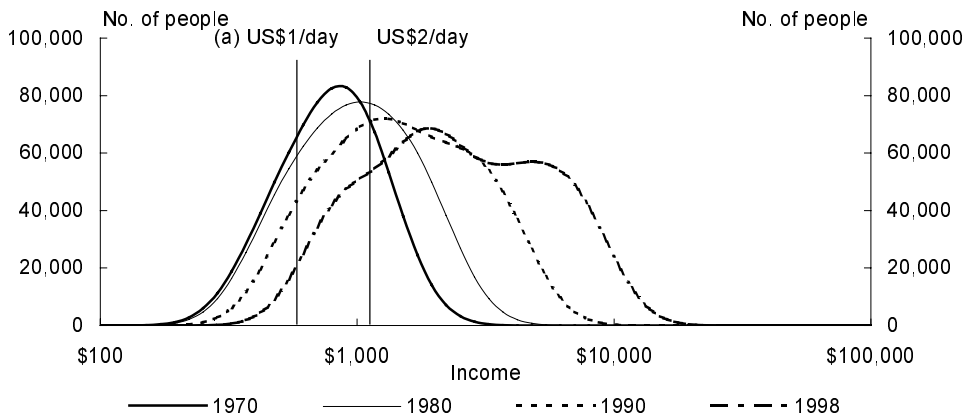


(a) Equivalent in 1996 prices to US\$1 or US\$2 a day income poverty line in 1985 prices.

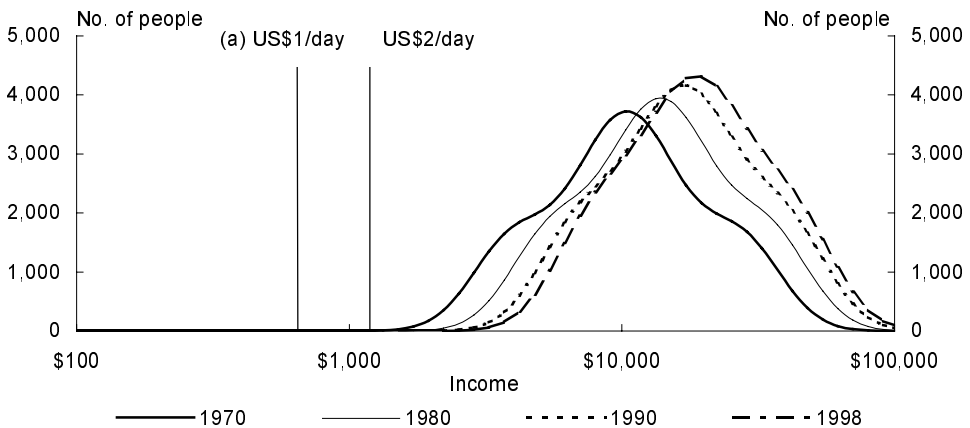
**Chart 4: Income Distribution — Canada**



**Chart 5: Income Distribution — China**

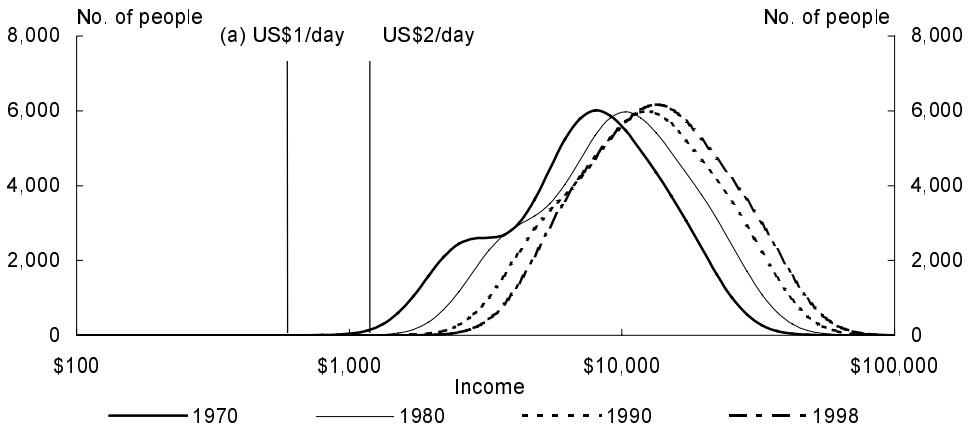


**Chart 6: Income Distribution — France**

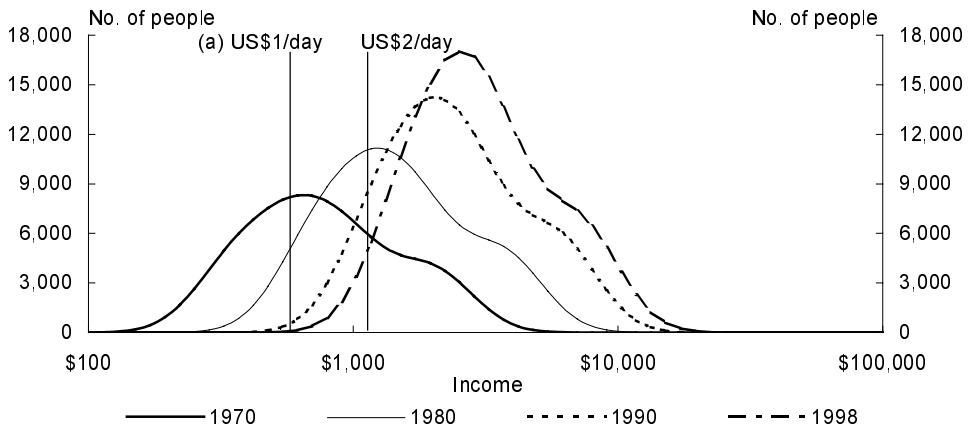


(a) Equivalent in 1996 prices to US\$1 or US\$2 a day income poverty line in 1985 prices.

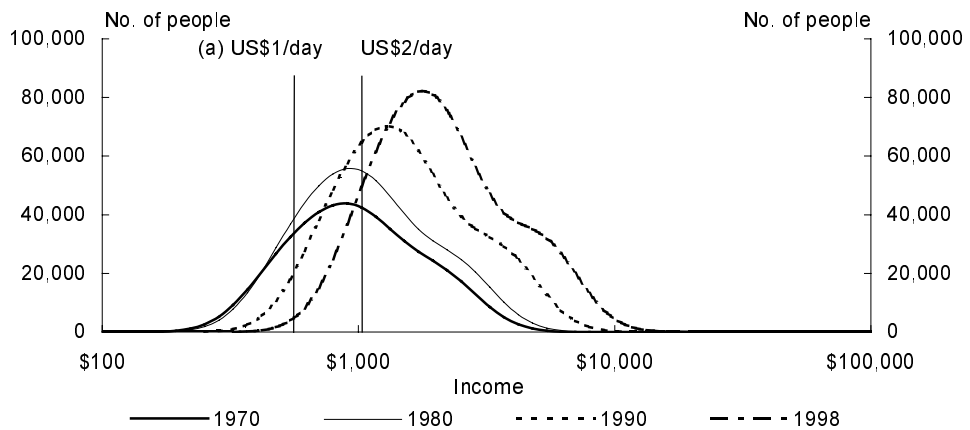
**Chart 7: Income Distribution — Germany**



**Chart 8: Income Distribution — Indonesia**

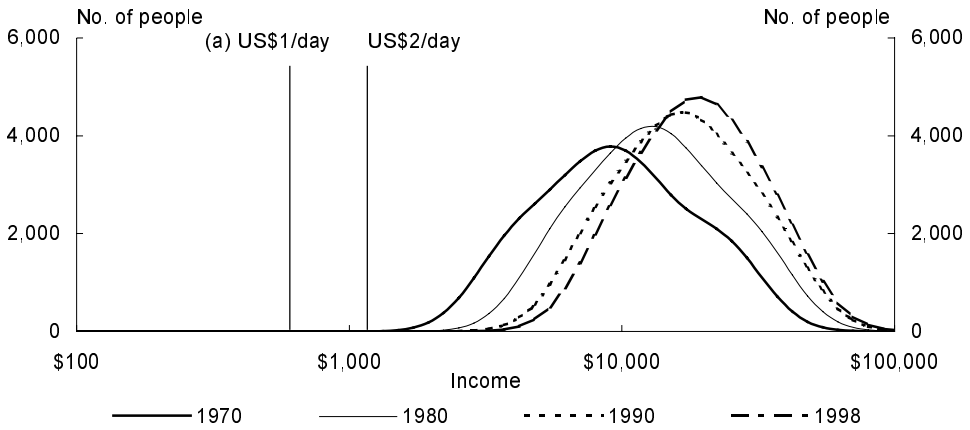


**Chart 9: Income Distribution — India**

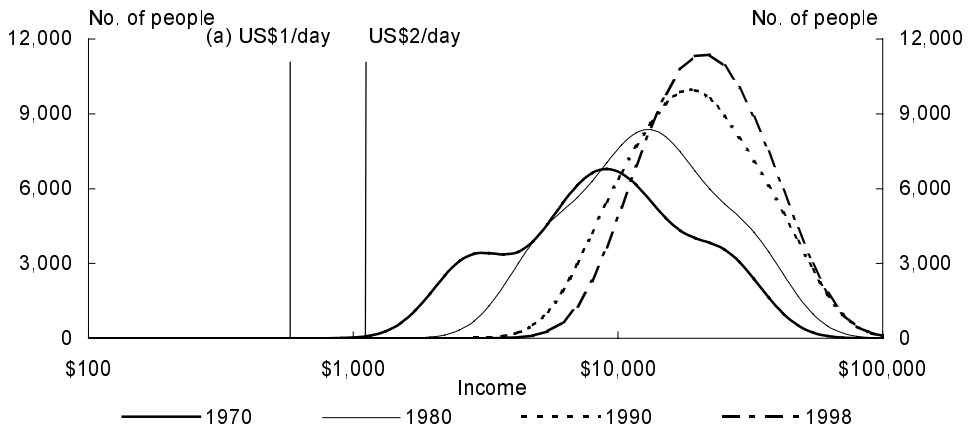


(a) Equivalent in 1996 prices to US\$1 or US\$2 a day income poverty line in 1985 prices.

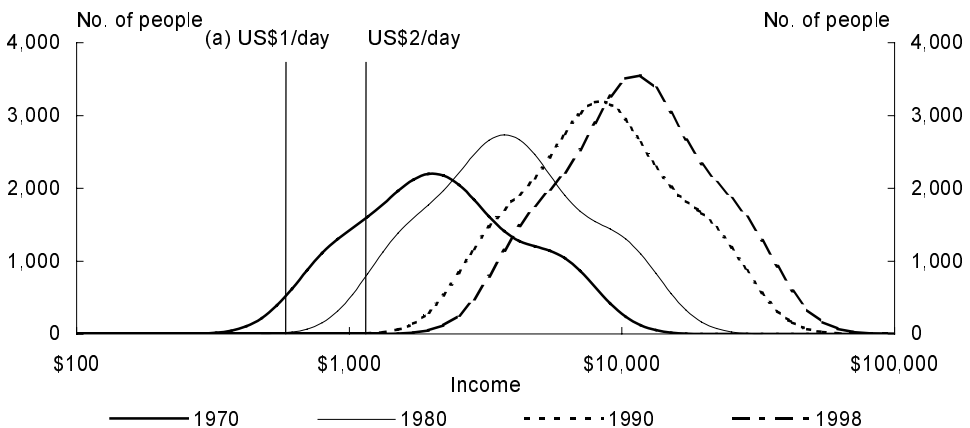
**Chart 10: Income Distribution — Italy**



**Chart 11: Income Distribution — Japan**

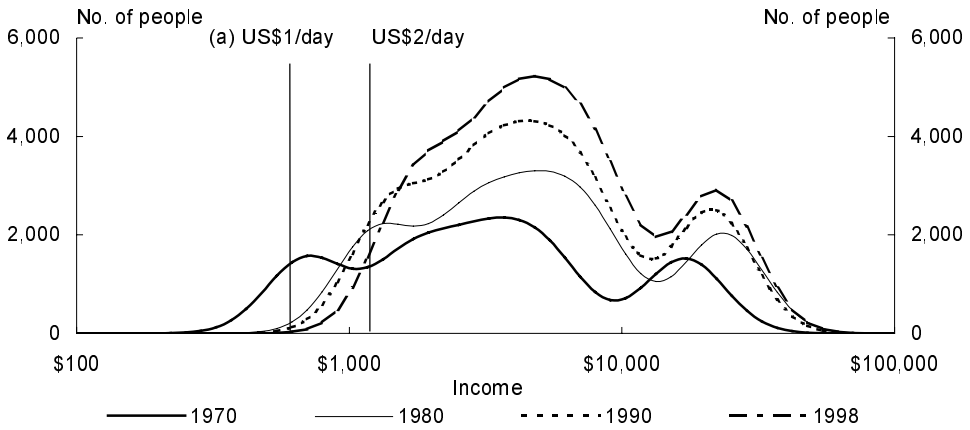


**Chart 12: Income Distribution — Korea, Republic**

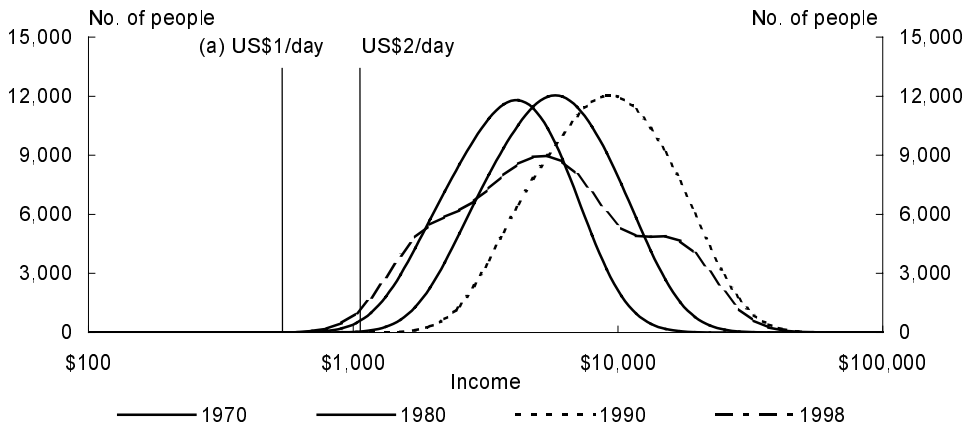


(a) Equivalent in 1996 prices to US\$1 or US\$2 a day income poverty line in 1985 prices.

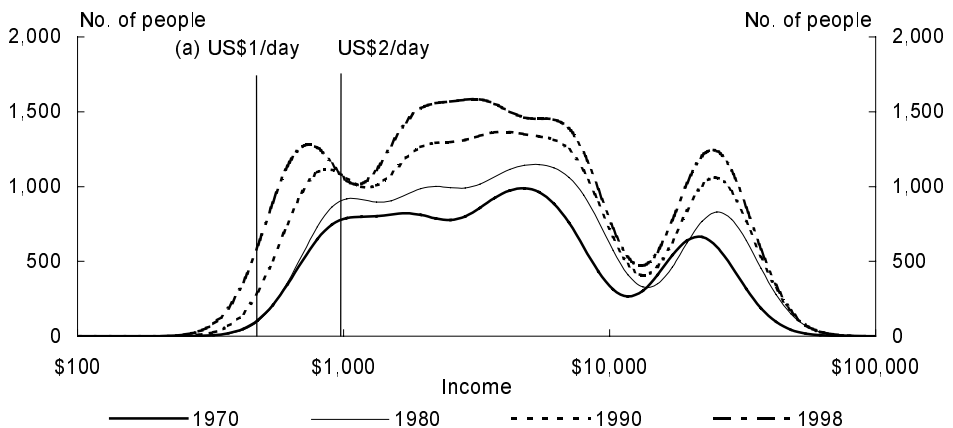
**Chart 13: Income Distribution – Mexico**



**Chart 14: Income Distribution – Russian Federation**

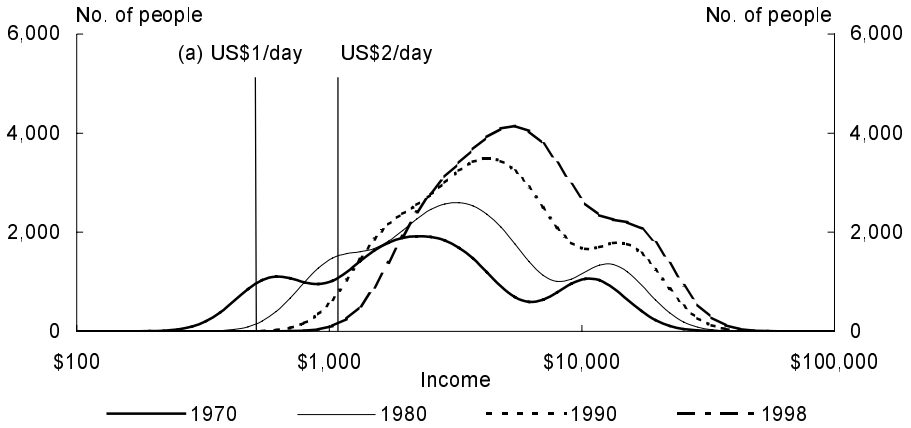


**Chart 15: Income Distribution – South Africa**

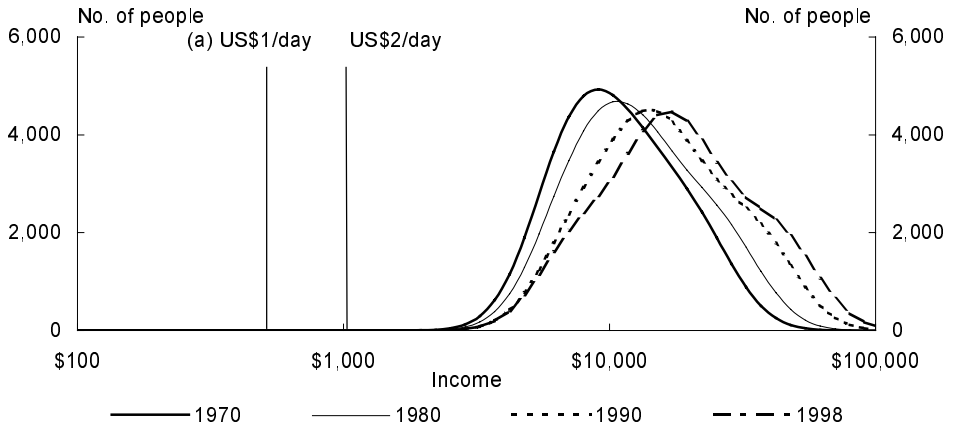


(a) Equivalent in 1996 prices to US\$1 or US\$2 a day income poverty line in 1985 prices.

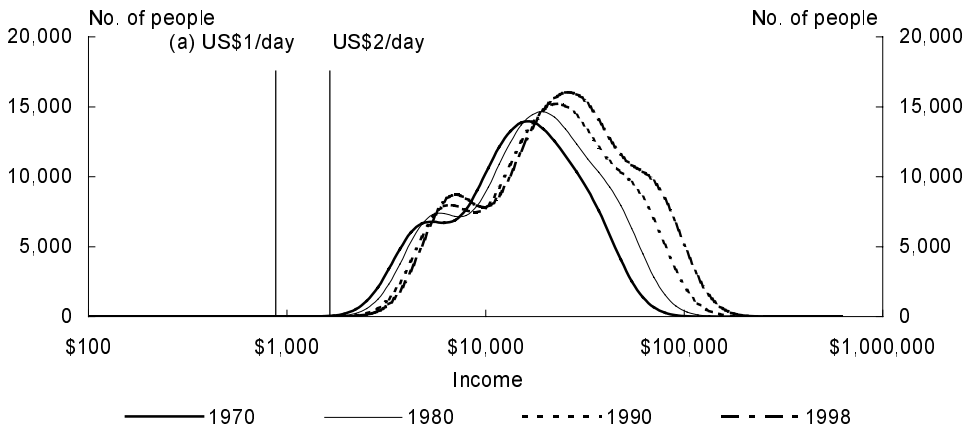
**Chart 16: Income Distribution — Turkey**



**Chart 17: Income Distribution — UK**

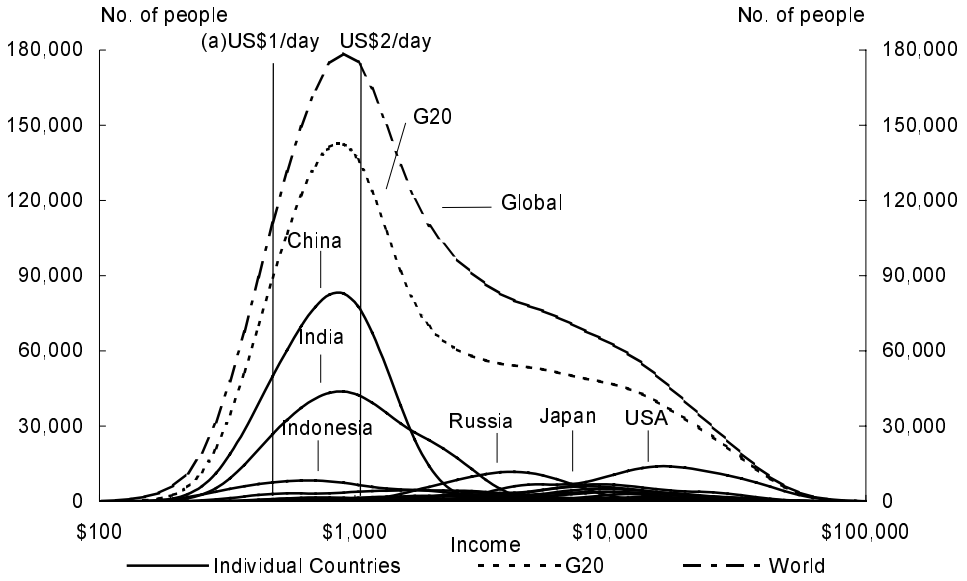


**Chart 18: Income Distribution — USA**

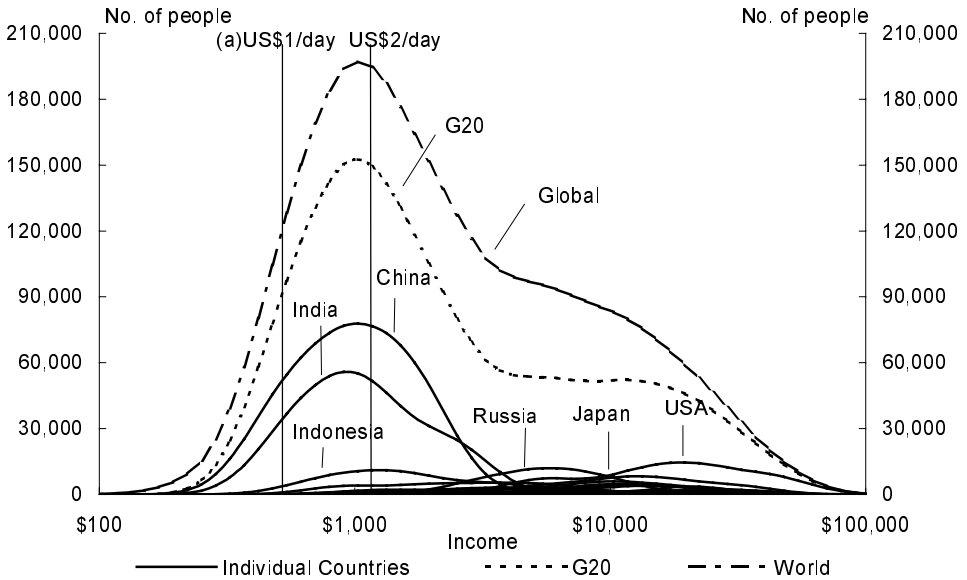


(a) Equivalent in 1996 prices to US\$1 or US\$2 a day income poverty line in 1985 prices.

**Chart 19: G20 and Global Distributions — 1970**



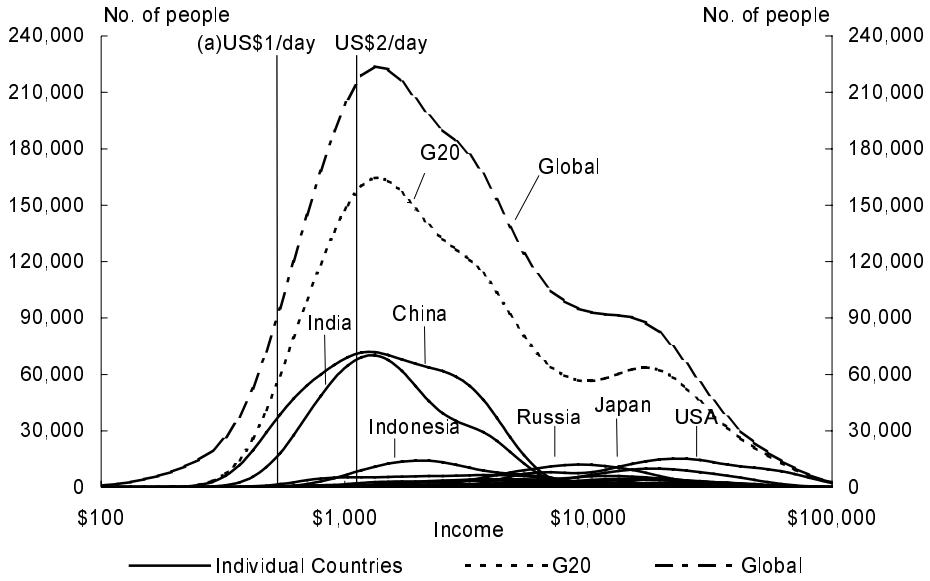
**Chart 20: G20 and Global Distributions — 1980**



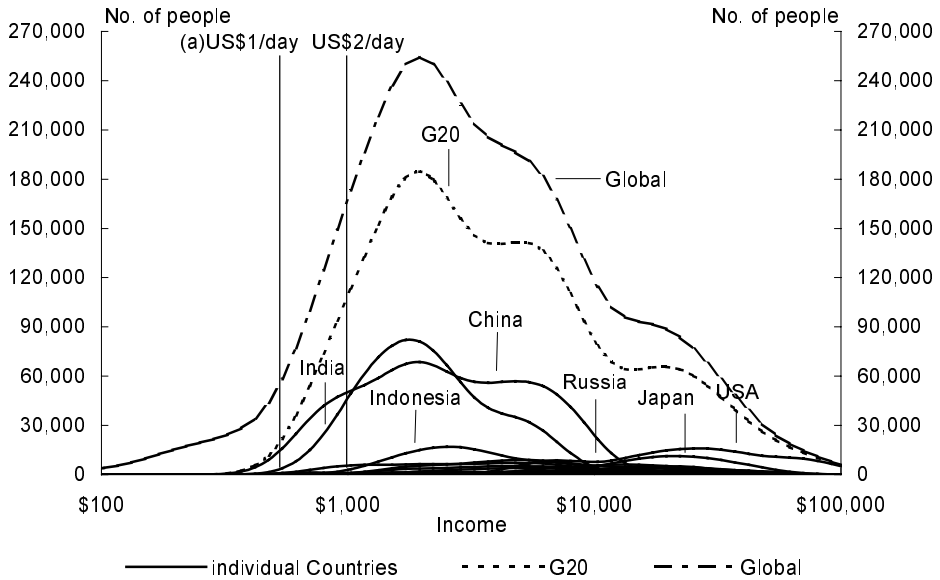
(a) Equivalent in 1996 prices to US\$1 or US\$2 a day income poverty line in 1985 prices.



**Chart 21: G20 and Global Distributions — 1990**

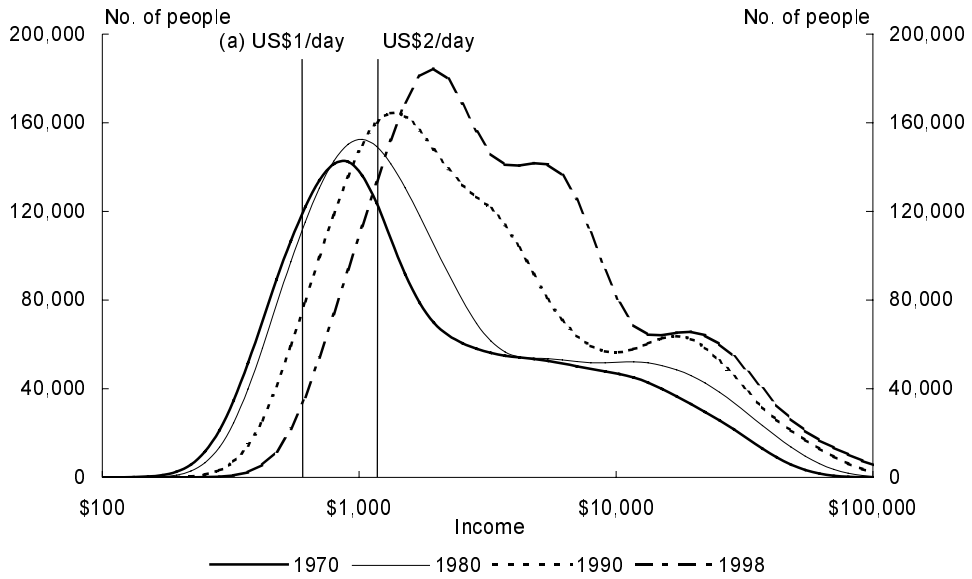


**Chart 22: G20 and Global Distributions — 1998**

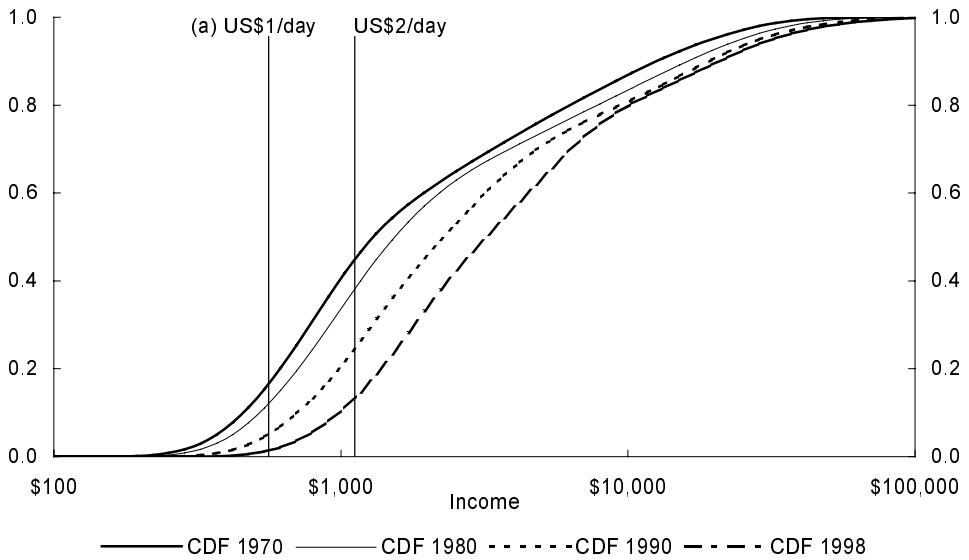


(a) Equivalent in 1996 prices to US\$1 or US\$2 a day income poverty line in 1985 prices.

**Chart 23: Evolution of G20 Income Distribution**

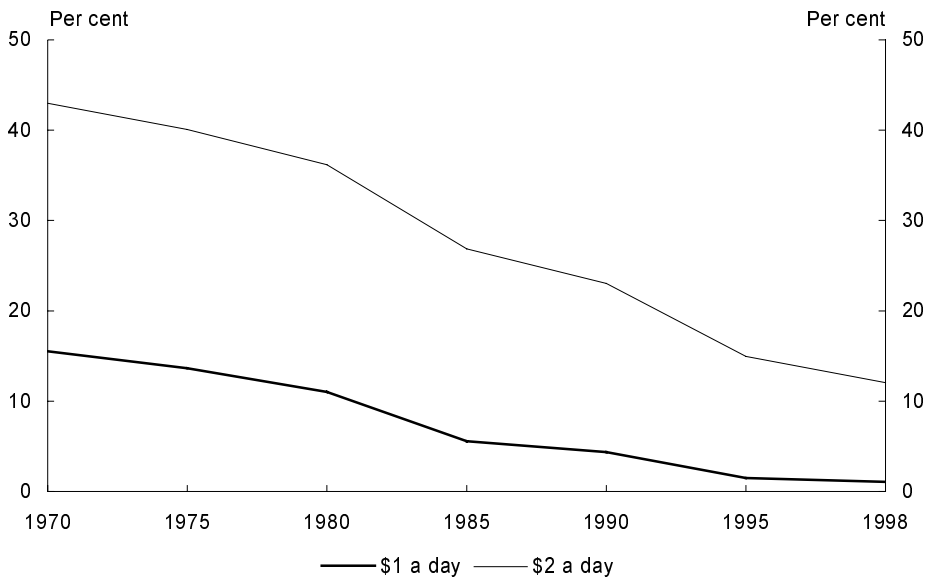


**Chart 24: Evolution of G20 Income Distribution (CDF)**

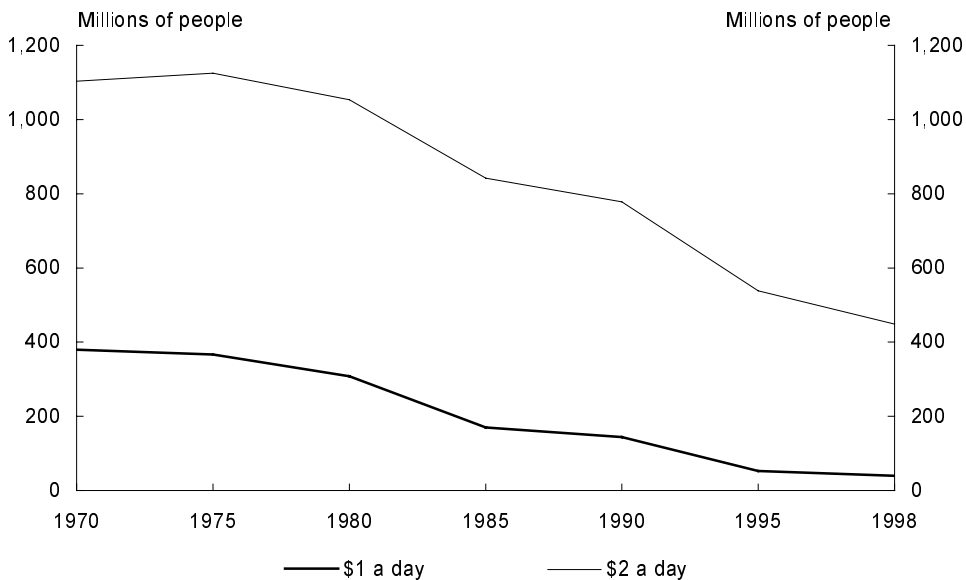


(a) Equivalent in 1996 prices to US\$1 or US\$2 a day income poverty line in 1985 prices.

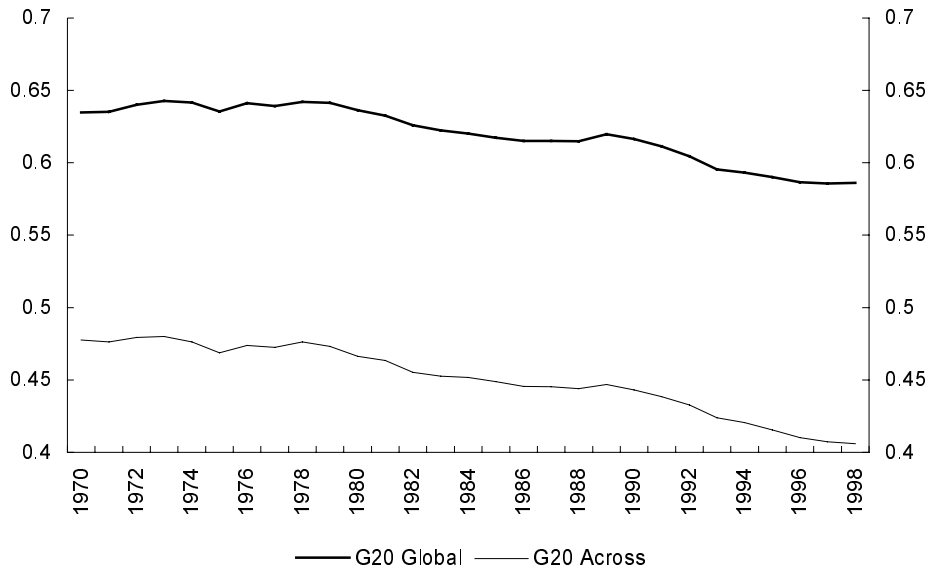
**Chart 25: Poverty rates — G20 Countries**



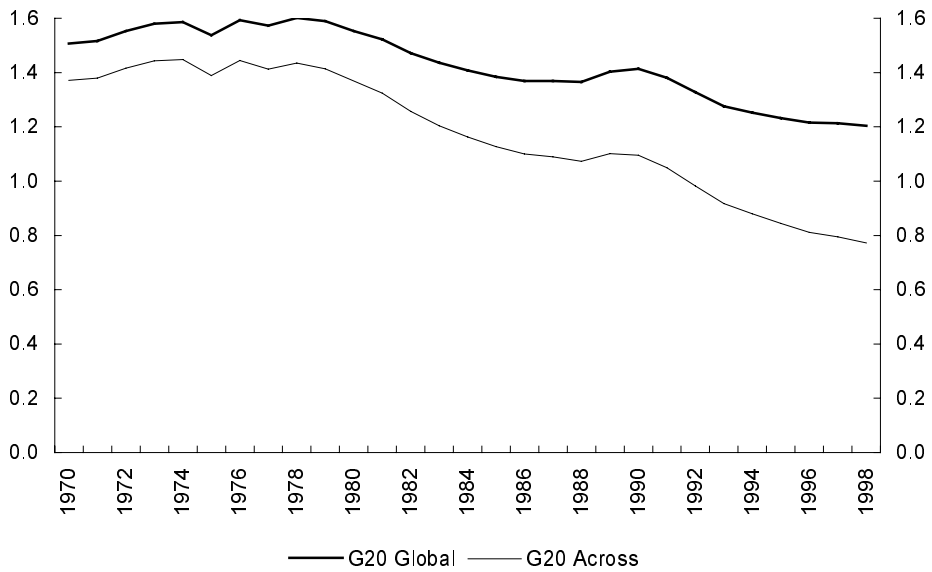
**Chart 26: Poverty headcounts — G20 countries**



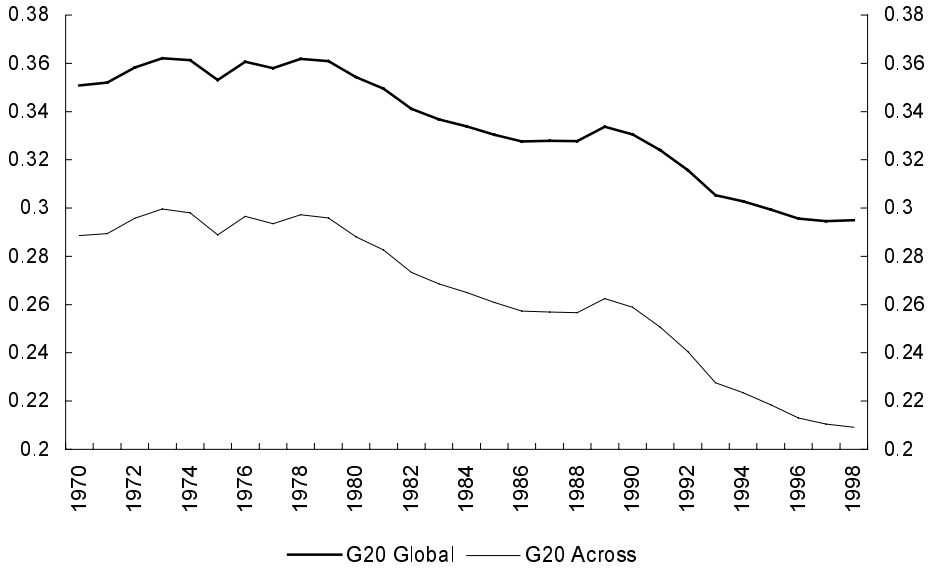
**Chart 27: G20 Income Inequality — Gini Coefficient**



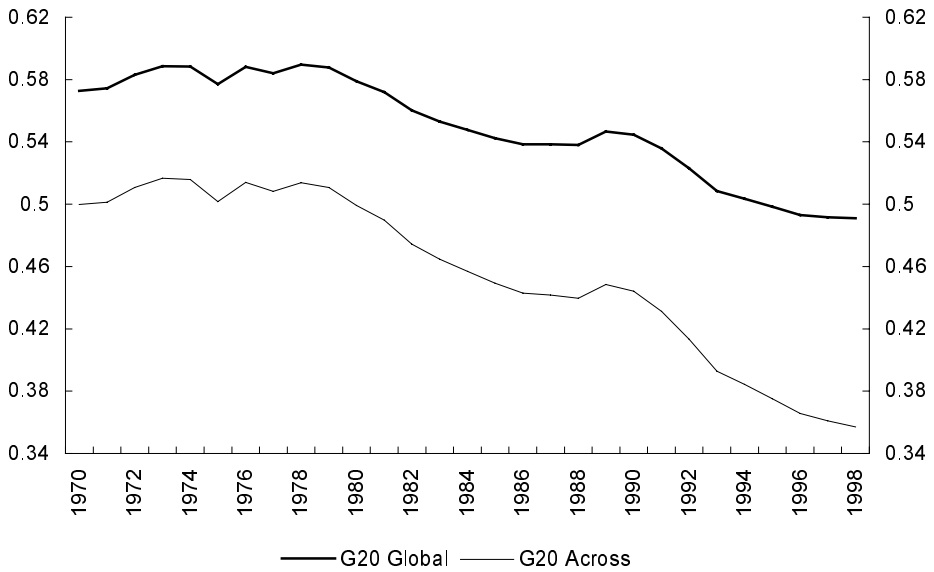
**Chart 28: Variance of Log Income for G20**



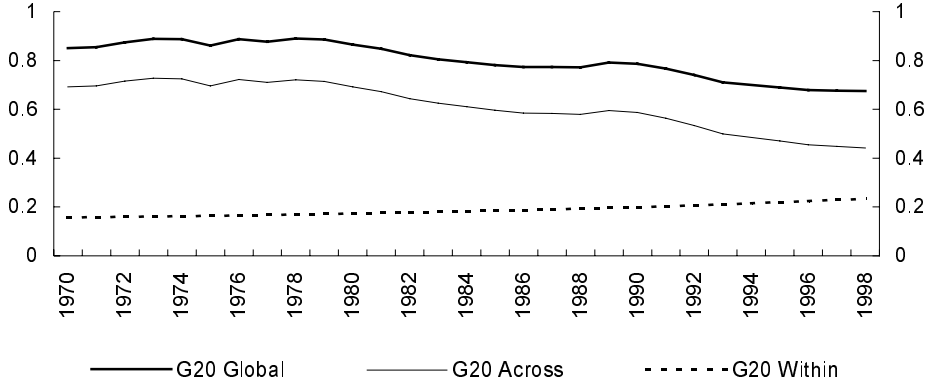
**Chart 29: G20 Income Inequality — Atkinson (0.5)**



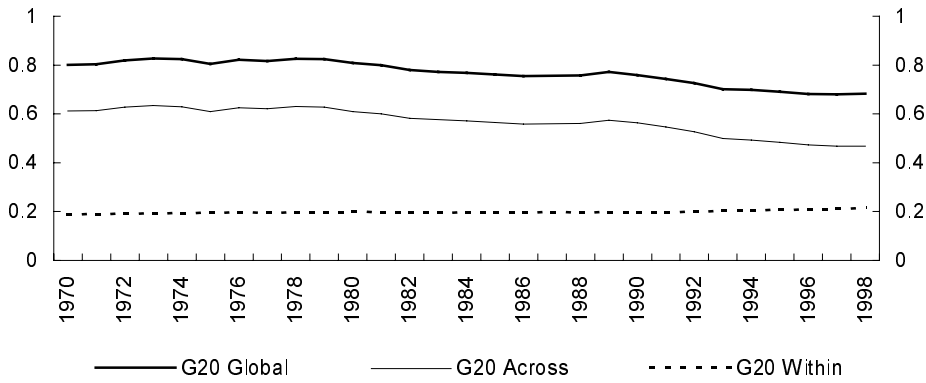
**Chart 30: G20 Income Inequality — Atkinson (1)**



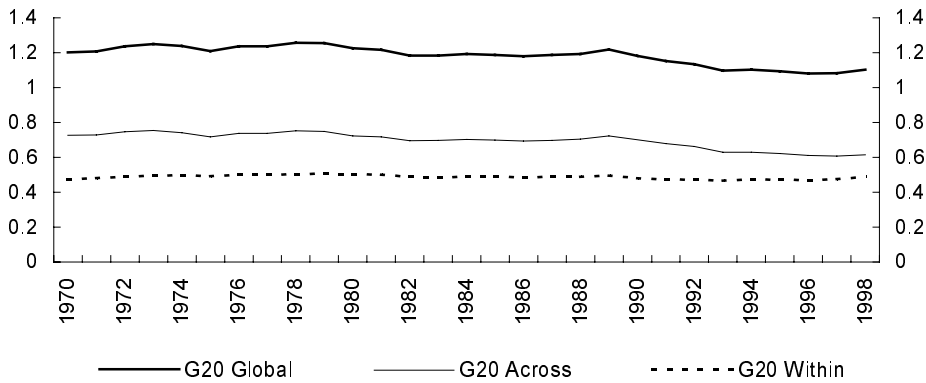
**Chart 31: Inequality Decomposition for G20 —  
MLD (or GEI (0))**



**Chart 32: Inequality Decomposition for G20 —  
Theil Index (or GEI (1))**



**Chart 33: Inequality Decomposition for G20 —  
CV Square (or GEI (2))**



**Table 1: Poverty in the G20 (per cent)****G20 Poverty Rates**

	<b>\$1 a day</b>	<b>\$2 a day</b>
1970	0.16	0.43
1975	0.14	0.40
1980	0.11	0.36
1985	0.06	0.27
1990	0.04	0.23
1995	0.01	0.15
1998	0.01	0.12

**G20 Poverty Counts (million)**

	<b>\$1 a day</b>	<b>\$2 a day</b>
1970	380	1104
1975	366	1125
1980	308	1053
1985	170	842
1990	144	779
1995	53	538
1998	40	449

## Bibliography

Atkinson A. B. and A. Brandolini, (2001), 'Promise and Pitfalls in the use of 'Secondary' Data-Sets: Income Inequality in OECD Countries as a Case Study', *Journal of Economic Literature*, vol XXXIX, number 3, pp.771-800, September.

Bhalla, S., *Imagine There's No Country: Poverty, Inequality and Growth in the Era of Globalization*, Institute of International Economics, Washington, DC.

Cowell, F.A., (1995), *Measuring Income Inequality*, 2<sup>nd</sup> Edition, Harvester Wheatsheaf, Hemel Hempstead.

Deininger, K. and L. Squire, (1996), 'A New Data Set Measuring Income Inequality', *World Bank Economic Review*, Vol. 10, pp. 565-91.

Heston, A. R. Summers, and B. Aten, (2001), *Penn World Table Version 6.0*, Center for International Comparisons at the University of Pennsylvania (CICUP), December.

Sala-i-Martin, X (2002), 'The World Distribution of Income', NBER Working Paper 8933, May.

Summers, Robert and Heston, Alan., (1991), 'The Penn World Table (Mark 5): an expanded set of international comparisons, 1950-1988', *Quarterly Journal of Economics*, 106(2), May, 327-68.

Ravallion, M. and S. Chen, (1997), 'What Can New Survey Data Tell Us About Recent Changes in Distribution and Poverty?' *World Bank Economic Review* 11: 57-82.

Ravallion, M., Datt, G., and van de Walle, D. (1991), 'Qualifying Absolute Poverty in the Developing World', *Review of Income and Wealth*, 37, 345-361.



# Developments in crude oil prices<sup>1</sup>

*Oil prices have risen substantially over recent months, driven by underlying demand and supply imbalances, short-term supply constraints in Venezuela and heightened geopolitical uncertainties. This article reviews developments that have been affecting oil prices and the potential implications of higher oil prices for the global economy.*

## Recent oil price developments

In the months following the terrorist attacks of 11 September 2001, oil prices (West Texas Intermediate) declined to a 2 year low of US\$17.50 per barrel due to market concerns regarding a possible slowdown in the United States (US) and the global economy. The decision by the Organisation of Petroleum Exporting Countries (OPEC)<sup>2</sup> to cut crude oil exports and signs of a more robust global recovery contributed to oil prices quickly returning to pre-September 11 levels in early 2002. In the period since then, a number of factors have contributed to oil prices rising to their highest level since the Persian Gulf War in the early 1990s:

- the uncertainty associated with possible oil supply disruptions in Iraq (Iraq has the second largest proven oil reserves) has resulted in a 'premium' estimated to be between US\$4-US\$8 per barrel being factored into recent market prices;
- OPEC oil production (and supply) have been affected by disruptions to supply from Venezuela;
- world inventory levels have declined considerably with US commercial inventories now at their lowest levels since 1975; and

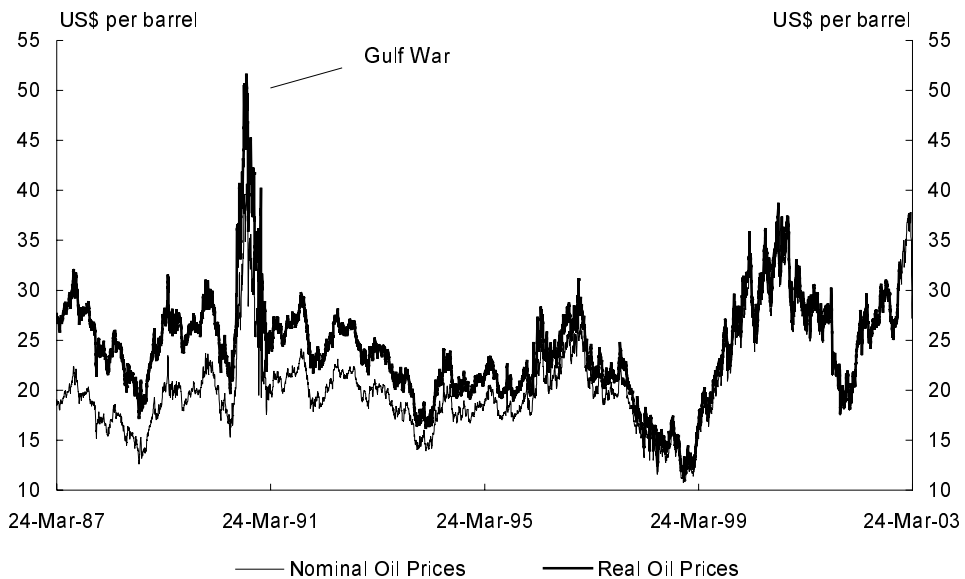
---

1 Postscript: President Bush announced on 18 March 2003 that President Hussein had 48 hours to leave Iraq and war was subsequently declared on 20 March. Oil prices had fallen by 16 per cent on 19 March 2003 from post 1990/1991 Gulf War highs in the previous week. During the first week of the war oil prices were volatile. By 26 March 2003, 7 out of the 500 oil wells in Iraq's Southern oil field (which supplies between 40 and 60 per cent of Iraqi oil) had been set alight. Furthermore, civil unrest in Nigeria has resulted in its oil production of 2 million barrels per day declining by around one third. Nigeria is the world's seventh largest oil exporter and the United States' fifth largest source of oil.

2 OPEC is an international organisation of eleven developing countries reliant on oil revenues as their main source of income. The current members are Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates and Venezuela.

- despite increased efficiency in the use of oil and increased substitution towards other sources of energy over recent decades, total world oil demand has been further boosted recently by colder than normal weather in North America and Asia, a sharp increase in Chinese imports, and a decline in Japanese nuclear energy output.

**Chart 1: Oil prices, West Texas intermediate crude (daily)\***



\* Oil prices have been deflated using the US GDP deflator in 2002 dollars.  
Source: Data Stream.

Oil prices have recently been at their highest levels since the 1990/1991 Gulf War highs in nominal terms, and have been above US\$25 per barrel since June 2002. This sustained increase differs from the behaviour of oil prices during the early 1990s Gulf War when oil prices increased substantially over a relatively short period of time before war was declared, and then dropped to an average of US\$22 per barrel for the period of the military conflict.<sup>3</sup> While the increase in real oil prices is more muted, the upturn in prices to date suggests that the global economic recovery is likely to be constrained in the short term irrespective of future developments.

3 War was announced on 17 January 1991 and was officially over on 27 February 1991.

## Recent developments in global oil demand

Over recent decades the world economy has reduced its relative dependency on oil when measured in terms of oil per dollar of real Gross Domestic Product (GDP). For example, in 2001, US oil consumption per dollar of real GDP was 10.4 thousand Btu (British thermal unit), down from 12.7 in 1991 and 18.8 in 1971.

Nevertheless, a number of factors have recently increased demand for oil. These include colder than normal weather in Asia and North America, low Japanese nuclear output increasing the demand for oil as an energy substitute and higher Chinese demand. These factors resulted in world oil demand increasing by 0.4 million of barrels per day (mb/d) over 2002.<sup>4</sup>

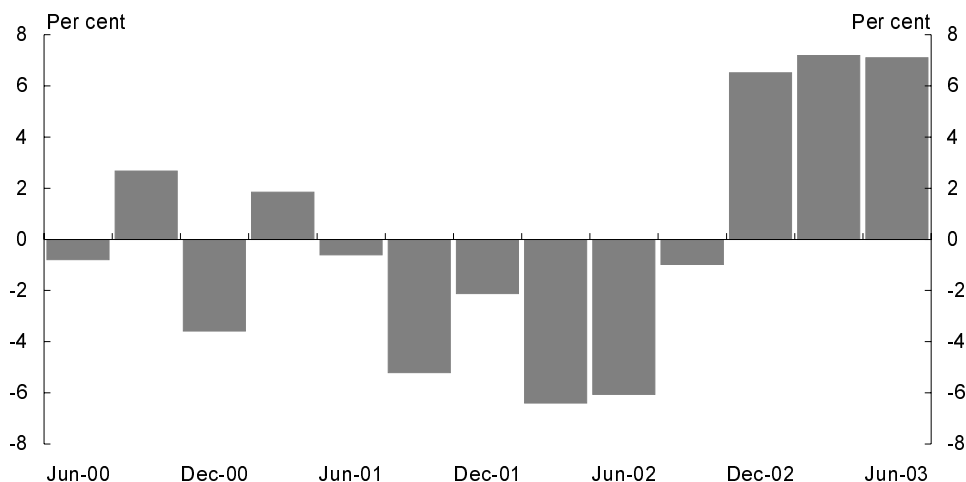
In 2003, world oil demand is expected<sup>5</sup> to *increase* by an additional 0.5 to 1.1 mb/d, with US demand remaining robust due to unseasonably colder weather and slowly recovering industrial activity. The substantial increase in Chinese demand in 2002 is likely to be temporary due to stronger than usual seasonal factors associated with the Chinese New Year. However, Chinese demand for oil has been increasing and is expected to grow by 2.7 per cent in 2003, nearly double the increase in world demand. Japanese nuclear power output is expected to decline further in 2003, underpinning ongoing Japanese demand for oil. Japanese demand for crude oil is expected to increase by over 7 per cent compared with a year earlier, in the first half of 2003 (Chart 2).

---

4 Source: International Energy Agency (IEA).

5 In 2003, OPEC forecasts a rise in demand of 0.5 mb/d while IEA forecasts a rise of 1.1 mb/d. Source: OPEC, Monthly Oil Report, 18 February 2003. IEA, Monthly Oil Report, 17 February 2003.

**Chart 2: Japanese demand for crude oil  
(through the year growth)**



Source: International Energy Agency, Monthly Oil Report, February 2003.

## Developments in global oil supply

### OPEC and Non-OPEC supply in 2002

While demand has been increasing, world oil production *declined* slightly by 0.2 million barrels per day in 2002 due to a 1.6 mb/d<sup>6</sup> decline in OPEC production outweighing a non-OPEC production increase of 1.4 mb/d. Around half of the additional non-OPEC production came from Russia.

In 2002, OPEC oil production declined due to its decisions to reduce production in the first half of 2002, as well as the nationwide strike in Venezuela that began in December 2002. The strike in Venezuela has caused major oil supply disruptions, with production declining from about 3.4 mb/d in November 2002 to around 0.9 mb/d in December 2002, declining further to about 0.6 mb/d in January 2003, before increasing to around 1.5 mb/d in February 2003. In the period immediately ahead, there is doubt that Venezuela's oil production will return to pre-strike levels, as some of

---

6 These IEA estimates of OPEC production compare with OPEC estimates of a decline of 1.9 million barrels per day.

Venezuela's older oil fields are not expected to reopen post strike, and a number of oil pipelines have been damaged during the strike.<sup>7</sup>

### Projected OPEC and Non-OPEC supply in 2003

Abstracting from developments in Iraq, non-OPEC oil supply is expected to rise by around 1.4 mb/d in 2003, with North America and the Former Soviet Union being the major contributors.<sup>8</sup>

Unlike non-OPEC producers, OPEC member countries have been adjusting production levels in response to changing market conditions. In light of the supply disruption caused by the strike in Venezuela, on 12 January 2003 the OPEC-10<sup>9</sup> decided to raise their oil production ceiling from 23 mb/d to 24.5 mb/d, with effect from 1 February 2003. The OPEC meeting held on 11 March 2003 maintained these quotas.

In the event of any disruption to Iraqi oil exports, OPEC has stated that oil production will be increased further. Saudi Arabia has already increased its production in February 2003 above its quota of 7.96 mb/d to around 8.5 to 9.0 mb/d in response to falling production in Venezuela. However, looking further ahead, there would appear to be only limited capacity for oil producing countries to ramp up production in response to any further disruptions to the world's oil supply. Saudi Arabia (which accounts for the vast bulk of spare production capacity within OPEC) can increase production to around 10 mb/d within 30 days and to around 10.5 mb/d within 90 days. Nonetheless, with Saudi Arabia already increasing production in February, it would seem to have limited excess capacity (only 0.8 to 1.3 mb/d), representing less than half of Iraq's current oil exports.<sup>10</sup>

---

7 Although the general strike ended on 2 February 2003, oil workers (with the exception of oil harbour pilots who represent 10 per cent of total oil workers) remain on strike. In addition, many skilled workers who were on strike have been fired and replaced with unskilled workers.

8 IEA, Monthly Oil Report, February 2003.

9 OPEC member countries (Algeria, Indonesia, Iran, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela) excluding Iraq.

10 Source: Energy Information Administration (EIA). Saudi Arabia's excess capacity is based on estimated March 2003 production of 9.2 million barrels per day.

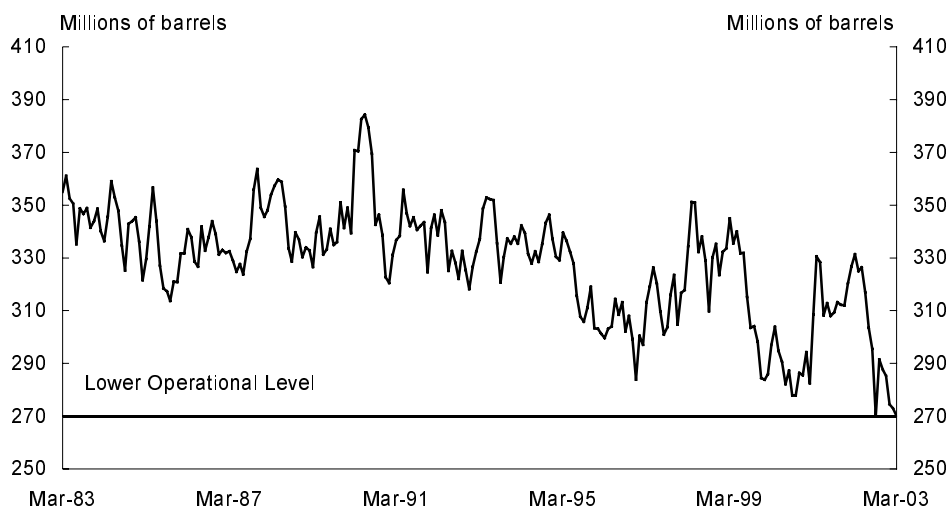
Another factor impacting on oil supply is Nigeria’s capacity to continue exporting at the rate of 2 mb/d. In both Nigeria and Venezuela there has been social unrest, which is expected to increase in the lead up to elections in both countries in April 2003.

## Developments in global oil stocks

Declining oil production and stronger demand resulted in world private sector oil stocks declining, particularly towards the end of 2002. The industrial oil stocks of Organisation for Economic Cooperation and Development (OECD) countries declined in January 2003, to be about 8 per cent or 211 million barrels lower than levels recorded a year earlier. The fall in the OECD’s oil inventories was dominated by large declines in commercial oil inventories in the US.

Since the beginning of 2003, US commercial crude oil inventories have fallen to their lowest level since 1975 and crude oil stock levels are a little above the Lower Operational Inventory level<sup>11</sup> of 270 million barrels (Chart 3).

**Chart 3: US Commercial crude oil inventories**



Source: Energy Information Administration.

11 The Lower Operational Level represents the size of oil stocks that the industry considers essential for smooth market operations.

If commercial oil stocks in the US decline further, the US Government may release crude oil from its *Strategic Petroleum Reserve (SPR)*, which is a stockpile of oil that was established in the mid 1970s to help combat oil supply shocks. Since the beginning of President Bush's term in office in January 2001, the SPR has grown by over 10 per cent and currently contains a record 599.3 million barrels.

The SPR has a maximum drawdown capability of 4.1 mb/d for 90 days, with oil beginning to arrive in the marketplace 15 days after a presidential decision to initiate a drawdown.<sup>12</sup> The reserve could currently supply oil to the US market for approximately 180 days assuming maximum withdrawal.

## **Disruptions to the world's oil supply**

By some measures, the 1990-91 Persian Gulf War resulted in the largest average fall in the world's gross oil supply experienced to date, although oil production was only disrupted for 4 months.<sup>13</sup> During the Gulf War, world oil supplies declined by over 4 million barrels per day (including the disruptions to Iraqi-held oil facilities in Kuwait). The relatively short-lived nature of the price increase in the Gulf War reflected both the short duration of military conflict as well as moves made by Saudi Arabia in late 1990 to increase production, which largely offset the disruption to Iraqi and Kuwaiti supplies. In addition the US released reserves from the SPR and members of the International Energy Agency (IEA) also released oil from their emergency reserves when war was announced in 1991.<sup>14</sup>

While the oil supply outlook remains very uncertain, the combined effect of the strike in Venezuela and possible supply disruptions in the Middle East have the *potential* to tighten oil supplies considerably. If production in Venezuela were to remain around 2.5 million barrels per day below its normal production level (as experienced in January 2003); and if Iraq's current daily production of around 2.4 mb/d were to be disrupted, the world's oil supply could be around 5 mb/d less than in November 2002 (Chart 4). The world's oil

---

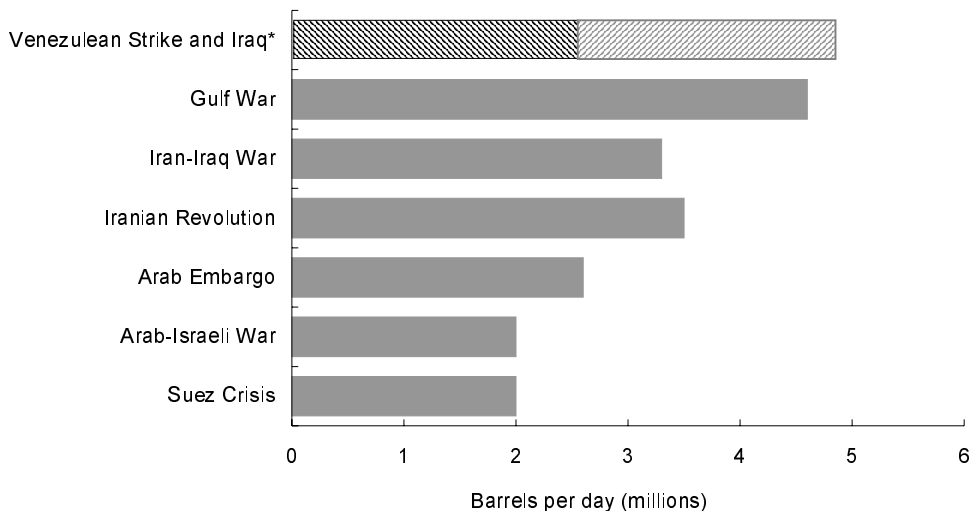
12 Source: US Department of Energy. The SPR drawdown rate declines to 3.2 mb/d for days 91-120, to 2.2 mb/d for days 121-150, and to 1.3 mb/d for days 151-180.

13 The total decline in oil production during the Persian Gulf War was less than that experienced during the Iranian Revolution and in three other oil shocks due to the short duration of the disruptions to oil supplies in 1990/1991.

14 IEA members are currently holding nearly 4 billion barrels of public and industry oil stock, which represent at least 114 days of net imports.

supply could decline further if Kuwait’s oil production of 2.1 mb/d is also disrupted. Even without Kuwait being attacked, its government has announced that in the event of military conflict with Iraq, its northern oil fields producing between 0.4 to 0.7 mb/d would be shut down.

**Chart 4: Oil supply disruptions — average gross supply shortfall**



\* Assumes oil production in Venezuela remains at January 2003 production levels (▨); all of Iraqi oil supplies are disrupted (▧); and OPEC and non-OPEC countries do not increase supply.  
Source: Energy Information Administration.

Compared to the 1990/1991 Persian Gulf War, there appears to be *less excess oil production capacity* now than in 1990. Based on oil production levels in March 2003, OPEC’s excess capacity is likely to be around 2.1-2.6 mb/d (1.5-2.0 mb/d excluding Iraq). This represents the second lowest spare capacity availability over the past three decades, trailing only the low point reached in 1991. As already noted, in the event of any disruptions to oil production in Iraq, it is estimated that higher oil production by Saudi Arabia could only cover around half of Iraq’s reduction in exports.

The impact of any oil supply disruption will depend on the duration of uncertainty and the spread/containment of any military conflict. Current demand and supply imbalances suggest that oil prices are unlikely to fall to very low levels in the short term.

The recovery in Middle East oil production would depend upon the extent of damage to oil infrastructure and the restoration of stability. Furthermore, to address the current imbalances in the oil market, private oil stocks would need to be rebuilt, which could provide some support for oil prices.



## Economic impact of higher oil prices

The risks to the global economy arising from higher oil prices appear to be relatively clear — all major world economic downturns over the last 30 years have been associated with large rises in oil prices. As a guide to the potential link between oil prices and global economic growth, the International Monetary Fund (IMF) estimates that a permanent \$US 5 per barrel increase in oil prices reduces the level of global output by a  $\frac{1}{4}$  of a percentage point from baseline over 4 years.<sup>15</sup>

A sustained rise in oil prices would be expected to translate into higher production costs and increased inflation, lower profitability and reduced incomes, depressed consumer and business confidence (and spending), and ultimately, more subdued economic growth.

The transmission of high oil prices through the economy can be complex, with the direct impact of higher oil prices on GDP growth being difficult to disentangle because of other developments taking place simultaneously. For example, during previous oil shocks, policy responses to higher inflation via higher interest rates (Chart 5) also worked to constrain short-term economic growth.

A number of factors might work towards some weakening in the historical relationship between higher oil prices and lower economic growth. The current very low inflationary global environment may see central banks being more willing to see through short-term inflation pressures arising from higher oil prices, if the increases in inflation are expected to be temporary. For countries currently experiencing deflation, even the longer-term inflationary pressures arising from the oil price shock might not be resisted. In addition, the world economy has continued to reduce its *relative* dependency on oil over the last decade.

These developments aside, strong linkages between high oil prices and global output growth are likely to remain. With the recent rise in oil prices coming at a time of a relatively weak global economy and uncertain global equity markets, it can be expected to constrain global economic growth in the short term irrespective of what happens from here on.

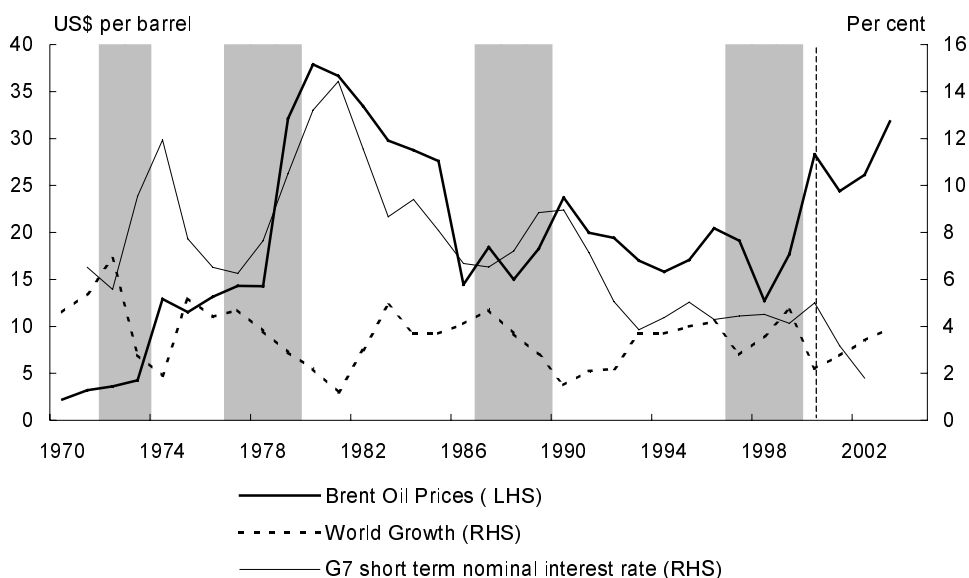
---

15 Hunt, B., Isard, P., Laxton, D, The Macroeconomic Effects of Higher Oil Prices, IMF Working Paper, 2001. The baseline is where the economy would have been if the shock had not occurred.

Higher oil prices have already resulted in higher import prices for net importers of oil, increased inflation and a deterioration in these countries' terms of trade.

While OPEC, the Former Soviet Union, and other net exporting countries are already likely to have gained from higher oil prices, the US (the world's largest consumer of oil), Korea, China, Japan, Western Europe and India are likely to have experienced a deterioration in their balance of payments.

**Chart 5: Developments in oil prices, world economic growth and nominal interest rates**



Note: World GDP growth forecasts in 2003 are sourced from Treasury's *Mid-Year Economic and Fiscal Outlook 2002-03*. Brent Oil price represents year-to-date averages for 2003. Shaded columns represent periods of substantial rises in oil prices.

## Conclusion

Oil prices started rising from mid 2002 and have been very high since December 2002. The increase in oil prices has been due to a number of factors including: the rise in geopolitical uncertainties; stronger demand arising from colder than normal weather in North America and Asia; lower Japanese nuclear output; and strong Chinese demand. At the same time, world oil supplies have declined due to reductions in OPEC supply, especially from December 2002 when oil production in Venezuela declined due to strikes. Tightening supply conditions and strong demand has placed additional upward pressure on oil prices.

In 2003, demand and supply imbalances are expected to continue, indicating that even if uncertainties are resolved relatively quickly, oil prices could remain relatively high and volatile in the near term.

In the event of oil supply disruptions in the Middle East there is a possibility that oil supplies might tighten further. Under these circumstances, it is highly likely that countries would begin to release oil from their strategic reserves.

There has been a relatively strong historical relationship between high oil prices and lower global economic growth. While this linkage is likely to remain intact, the current very low inflationary environment in the world could see central banks responding differently to the inflationary impact of higher oil prices than they have in the past.

With the recent rise in oil prices impacting on top of an already relatively weak global economy and declining equity markets, these ongoing uncertainties are likely to moderate the strength of global economic recovery in the short term.



# Key themes from the Treasury Business Liaison Program – February 2003

*The following is a summary of findings from Treasury's business liaison conducted in February 2003.<sup>1</sup>*

*Contacts in the non-farm sectors of the economy suggested that activity in the second half of 2002 was strong, and in many cases was stronger than anticipated. Contacts remained generally positive about the outlook for 2003. However, sentiment continues to be tempered by an uncertain international environment and the drought.*

*Treasury greatly appreciates the commitment of time and effort made by the Australian businesses and industry associations that participate in this program.<sup>2</sup>*

## Overview

The February business liaison round comprised approximately 70 interviews, with the bulk of these meetings being conducted in Sydney and Melbourne. The meetings were supplemented by phone interviews with contacts in other states.

The business liaison round focused on investment activity and profitability. In addition, conditions in the farm sector continued to be closely monitored. Treasury met with contacts in the following industries in February: agriculture, construction, transport and storage, communications, tourism and accommodation, manufacturing, mining and energy, and finance.

As in the November 2002 business liaison round, sentiment concerning the outlook was generally positive, but tempered by uncertainty around global economic conditions and geopolitical tensions. However, while still positive, sentiment appears to have softened slightly in early 2003.

---

1 A detailed explanation of the Treasury Business Liaison Program is provided in the Treasury *Economic Roundup Spring 2001*. Further information is contained in the November 2002 business liaison summary report in the *Summer 2003 Economic Roundup*.

2 Summary reports of Treasury's business liaison reflect the views and opinions of contacts. A summary of business conditions reported by liaison contacts is provided for the information of readers. While Treasury's evaluation of the economic outlook is informed by findings from business liaison, a much wider range of information and data is utilised to ensure a rigorous assessment of the Australian economy.

The drought continues to depress the farm sector as well as indirectly affecting other businesses downstream. Contacts noted that the full price effects of the drought are yet to be felt, particularly on produce such as meat.

## **General business conditions and profitability**

Many contacts reported strong trading conditions and profitability in the second half of 2002. Profitability appears to have been driven by increasing sales volumes rather than changes in profit margins. Manufacturing contacts in sectors that are benefiting from the construction cycle continued to comment that their businesses are running at or near capacity.

In addition to industries benefiting from the high levels of construction activity, businesses that had recently undertaken significant measures to control costs reported improved profitability, or expected improved profits over the next year. In many cases competitive pressures prompted the cost cutting.

Although the recent appreciation of the dollar has assisted some firms through lower import costs, not all firms are positively affected. Businesses exporting goods and services in \$US terms have generally reported a decline in margins and profitability due to the appreciating Australian dollar, along with a loss in cost competitiveness.

Businesses were cautiously optimistic about profitability going forward. However, expectations have been dampened by the uncertainty surrounding international conditions. Some businesses felt that they were reasonably well insulated from such developments, unless the wider Australian economy was derailed.

According to tourism contacts, activity has been holding up surprisingly well in recent months, with occupancy rates being relatively steady. Nevertheless, contacts in the tourism and accommodation sector expressed concerns about the outlook for inbound tourism should international risks crystallise. Additionally, contacts continued to indicate that the corporate travel segment remains weak.

## **Business investment**

Conditions for business investment remain favourable with low interest rates, reports from liaison contacts of high profitability, high levels of capacity utilisation and robust domestic demand. While liaison interviews cover a wide range of business activities, the importance of investment as a driver of economic growth in the period ahead suggested that investment warranted greater focus during Treasury's February business liaison round.

### ***Non-residential construction***

Activity in the non-residential construction sector remains high. While the strength of non-residential construction was evident across Australia, Melbourne was particularly strong for office developments though some contacts pointed to the potential for oversupply to emerge in this market. The construction of new industrial space was also strong in most cities. However, contacts suggested that there might be limitations to industrial developments arising from the lack of affordable sites around major city centres.

### ***Engineering construction***

Contacts reported that most engineering construction projects are on track with contracts being signed as planned and running to budget. Additionally, there are a number of very large public and private investment projects planned to commence in 2003.

The combination of high levels of activity in non-residential and engineering construction has resulted in some contacts reporting activity at 20 per cent or more above normal levels. In addition, for many contacts there are at least 15 to 18 months of work on their books — record levels in some cases.

Consistent with this substantial activity, shortages in labour are being reported in some trades (for example, plasterers and painters). However, partly as a result of forward contracts, the cost of other inputs has been contained to-date. Emerging cost pressures in the construction industry were discussed in more detail in the summary report of the November business liaison round in the *Summer 2003 Economic Roundup*.

In addition to the businesses directly involved in construction, high levels of activity in engineering construction are also benefiting other businesses. For example, contacts in manufacturing that provide inputs into construction and engineering projects, are also reporting high levels of activity.

### ***Plant and equipment***

The outlook for plant and equipment investment remains firm according to business liaison contacts in February.

Most contacts reported capital expenditure intentions either slightly above or around average levels. However, contacts in sectors such as aviation, parts of manufacturing, and security services, reported plant and equipment investment intentions that were well above average. A high proportion of businesses' capital expenditure intentions related to long-term business planning rather than current conditions alone. Although, some business contacts noted that they needed to increase capital expenditure just to maintain capacity and meet current demand.

### **Residential construction**

Contacts in the construction industry suggested that the high levels of activity in residential construction experienced in 2002 have continued into early 2003, although forward orders are beginning to decline. Most contacts reported having at least another 3 to 6 months of work on their books.

In the November 2002 business liaison round contacts expected residential construction to decline in the second half of 2003. This was still the case in the February 2003 round.

- However, some contacts felt that low interest rates may continue to drive relatively high levels of residential construction activity well into 2003.
- In contrast, other contacts continued to note a level of over-supply emerging in inner-city apartments and pointed to evidence of demand slowing.

Finance contacts indicated that borrowers were continuing to make mortgage payments in excess of minimum repayments, and that the level of defaults had not increased.



## Update from agricultural contacts<sup>3</sup>

Recent rains were noted by some contacts as a positive early sign that the drought would break. Indeed, sentiment among agribusiness contacts appeared to be quite positive during February. Nevertheless, contacts acknowledged that further solid rainfall would be required to put the drought behind them.

- Contacts have typically been forecasting crop production to rebound to average levels in 2003-04 — assuming the drought breaks.
- Contacts in the agricultural sector indicated that decisions around planting for the coming season would be made in ensuing weeks, based on regional rainfall, and depended on dam levels in other cases.

While the effects of the drought have already been seen in a large reduction in farm employment and exports, and increasing prices for some farm produce, contacts noted that the full extent of price effects from the drought are yet to felt. For example, meat prices are likely to rise once the drought breaks as farmers retain their stock to rebuild their herds, which could take around 2 to 3 years.

## Wages and input costs

In general, wage increases are expected to be moderate in 2003. Most industry contacts indicated that they were not facing any general skill shortages, with the exception of the construction industry and the health sector. Wage increases of around 3 to 4 per cent per annum were anticipated by most contacts, offset by expected productivity gains in many cases.

Other input costs have increased in recent times, including the price of petrol. Additionally, several contacts highlighted that rising oil prices would add to the cost of other oil-based inputs, such as plastics. However, in the case of imported inputs, contacts noted that they had benefited to some extent from the recent appreciation of the dollar.

Increases in insurance premiums continue to be widely noted as a source of significant cost pressure for businesses. However, consistent with previous

---

3 Further information is contained in the November 2002 business liaison summary report in the *Summer 2003 Economic Roundup*.

liaison findings, future increases are expected to be more moderate. Several contacts also noted difficulty in finding adequate insurance coverage and some reported that their businesses were taking on larger 'excess' amounts or greater 'self-insurance' in their policies.

## **Hiring intentions**

Recruitment agency contacts reported positive hiring intentions in particular industries, including health, education and construction. Recruitment agencies expect a positive employment outlook for construction, transport and logistics, and travel and tourism.

Most businesses contacted in February reported either unchanged employment levels or plans to slightly increase employment over the period ahead. Businesses involved in residential construction activity noted that their employment levels were substantially above average and that they expected numbers to ease over the second half of 2003.

# International house prices

*This article examines developments in house prices in a number of countries over recent years. It shows that while the magnitude of house price movements have differed across countries, the recent trend of rising prices in Australia has also been experienced in some other developed countries.*

*This article also examines changes in housing affordability arising from changes in house prices, interest rates, housing debt and disposable income in the United Kingdom, Australia and the United States. Finally, the relationship between house and share prices is also discussed.*

## Introduction

Calendar 2001 witnessed a US recession and a global economic slowdown that were mild relative to the experience of the early 1980s and 1990s. The muted nature of the slowdown reflected resilient household consumption in many developed economies, a factor that also provided the foundation for the subsequent mild recovery in activity. The sustained strength of household consumption in many developed economies appears to have been supported by low interest rates and the positive wealth effects of rising house prices, notwithstanding sharp declines in equity prices.

As Dr Alan Greenspan, Chairman of the Board of Governors of the US Federal Reserve System, has noted:

‘the extraction of equity from homes has been a significant support to consumption during a period when other assets were declining sharply. Were it not for this phenomenon, economic activity would have been notably weaker in the wake of decline in the value of household financial assets.’<sup>1</sup>

The rise in house prices across a number of developed countries has supported household consumption and overall economic growth (including through housing construction) during a period of relative weakness in the global economy. Nevertheless, it has also raised concerns that house price bubbles

---

1 Testimony of Dr Alan Greenspan before the Joint Economic Committee, US Congress 13 November 2002.

may be forming in these markets.<sup>2</sup> Concerns about the formation of bubbles reflect the economic disruption associated with the bursting of past asset price (including house price) bubbles in the late 1980s and early 1990s in the United Kingdom, Japan, Canada and the Nordic countries. Past corrections have generally been triggered by a number of factors (or combinations thereof) including: higher interest rates; a fall in household income; and share market corrections. In the current global macroeconomic climate of uncertain income growth and volatile equity prices, any sudden unwinding of house prices could cause a sharp fall in consumption demand in many developed countries, although the contribution of housing to overall wealth varies widely between countries.<sup>3</sup> In addition, a decline in house prices has the potential to reduce construction of new houses, which would also impact negatively on the purchase of durable goods for houses.

The effects of any potential downturn in house prices could be exacerbated by the increase in the marginal propensity to consume from household wealth that has been facilitated by the increasing use of houses as securities for loans over the last decade. For example, in the US, mortgage refinancing is currently at its highest level ever<sup>4</sup>, valued at about US\$1.75 trillion in 2002.<sup>5</sup> Refinancing applications in the US currently represent around 70 per cent of all mortgage applications, compared to around 30 per cent in December 2000. The impact on US household consumption from declining housing prices would appear to be slightly higher than the impact from lower share prices, although the relative impacts are not clear.<sup>6</sup>

---

2 Concerns expressed in Australia have largely related to investment in medium density dwellings in the inner city markets of Sydney and Melbourne. For a comprehensive analysis of the increased role played by investors in the Australian housing market, see *Recent Developments in Housing: Prices, Finance and Investor Attitudes*, Reserve Bank of Australia Bulletin, July 2002.

3 According to the IMF's *World Economic Outlook April 2002*, housing accounts for around 30-40 per cent of household wealth in Western Europe and almost 25 per cent in the US, compared with over 60 per cent in Australia (Commonwealth Treasury calculations).

4 Refinancing is popular in the US because of the use of fixed interest rate mortgages. In such cases when interest rates are lowered, financing costs can be reduced by re-mortgaging. However, it is interesting to note that in the US, re-mortgaging is being used largely to increase debt outstanding and not to accelerate repayments.

5 Dr Greenspan included this US Federal Reserve estimate in his remarks before the annual convention of the Independent Community Bankers of America on 4 March 2003.

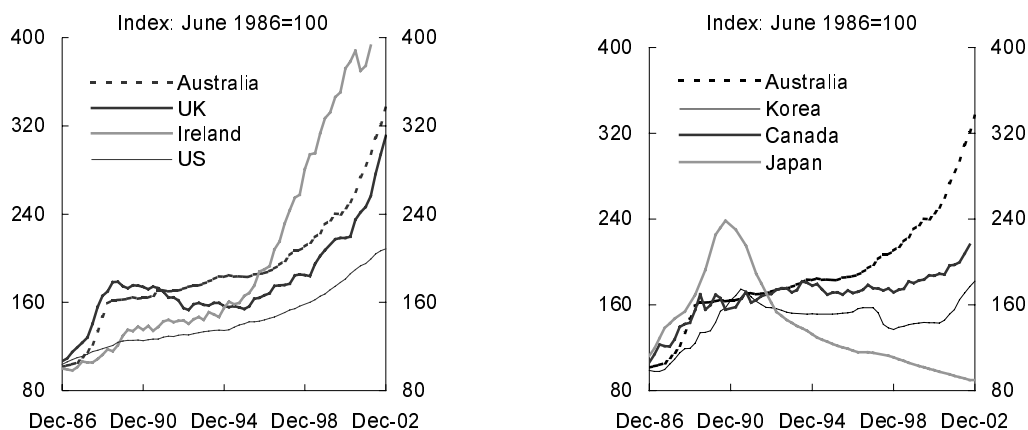
6 In the US, estimates of the effect of share prices on consumption range between 3-5 cents per dollar, whereas housing wealth's effect on consumption ranges between 4-6 cents per dollar. See Boone L, Giorno C and Richardson P (1998), *Stock market fluctuations and consumption behaviour: some recent evidence*, OECD Economics Department Working Papers, No. 208.

This article examines recent developments in international house prices and focuses on housing affordability and its determinants: house prices; mortgage interest rates; household disposable income; and housing debt levels. The impact of share price movements on house prices is then examined. The Appendix provides further context for the recent increases in house prices in Australia.

## Recent developments in international house prices

Chart 1 compares recent developments in nominal house prices in a number of developed countries including Australia. While house prices have risen over the last five years in Australia, they have also risen in a number of other developed countries, although this phenomenon has not been global. For instance, Japan has experienced substantial deflation in house prices since the early 1990s and house prices in Hong Kong and Singapore have fallen substantially over the last five years.

**Chart 1: Nominal prices for existing houses<sup>7</sup>**

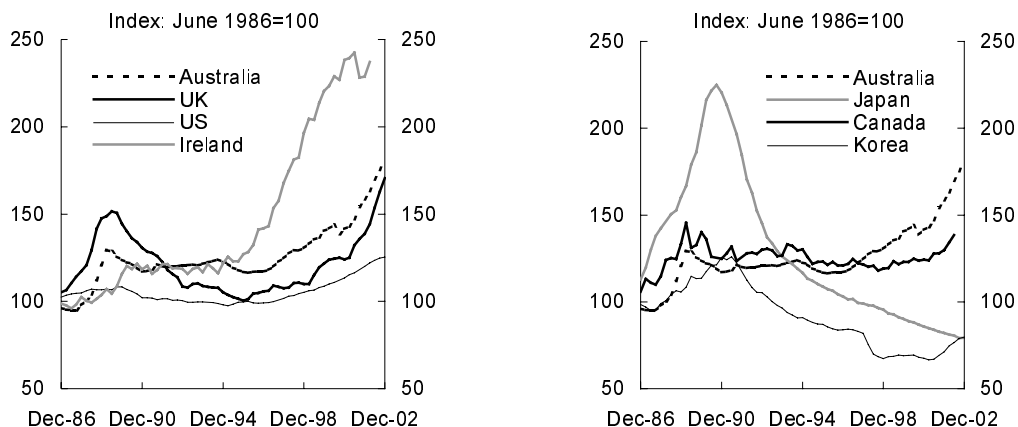


Source: Australian Bureau of Statistics (ABS) for Australia; Office of Federal Housing Enterprise Oversight (OFHEO) for the US; Halifax for the UK; Bank of International Settlements for Ireland and Canada; CEIC Database for Japan and Korea.

<sup>7</sup> In Australia, established houses are defined by the ABS as detached residential dwellings on their own block of land regardless of age (ie, including new homes sold as house/land packages and second hand houses). Figures for other countries are essentially compatible with Australian data.

Chart 2 compares real house prices,<sup>8</sup> and shows that house price increases have been more muted in real terms. Chart 2 also shows that some countries have experienced extended periods of falling real house prices over the period shown.

**Chart 2: Real (CPI adjusted) prices for existing houses**



Source: Australian Bureau of Statistics (ABS) for Australia; Office of Federal Housing Enterprise Oversight (OFHEO) for the US; Halifax for the UK; Bank of International Settlements for Ireland and Canada; CEIC Database for Japan and Korea.

Table 1 summarises developments in house prices for selected countries over recent years. In particular, Ireland, the UK, Australia, and to a lesser extent, the US have all experienced relatively strong growth in property prices in both nominal and real terms.

**Table 1: Nominal and real (CPI adjusted) house price movements for selected countries to the December quarter 2002**

	Nominal		Real	
	Last five years (percentage change)	Last two years	Last five years (percentage change)	Last two years
Ireland <sup>(a)</sup>	103.4	18.2	65.6	6.1
United Kingdom	77.0	42.4	58.5	37.4
Australia	70.0	36.9	46.3	28.8
United States	38.3	15.2	23.3	10.6
Canada <sup>(b)</sup>	19.3	13.1	11.2	10.9
Korea	15.8	27.1	-2.7	17.9
Japan	-21.8	-9.2	-20.0	-7.7
Singapore	-27.0	-15.8	-28.2	-16.1
Hong Kong	-60.6	-23.9	-54.8	-19.8

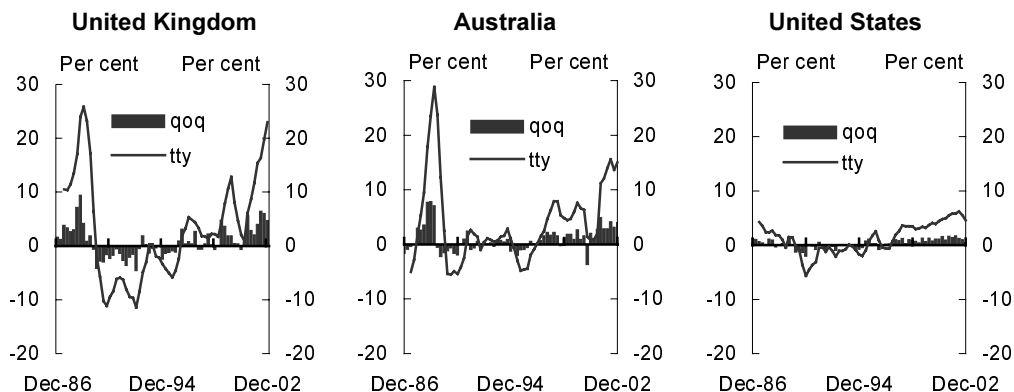
(a) Data for Ireland are available to the March quarter 2002 only. Consequently, percentage changes have been calculated from the March quarter 1997 and the March quarter 2000 to the March quarter 2002.

(b) Data for Canada are available to the June quarter 2002 only. Consequently, percentage changes have been calculated from the June quarter 1997 and the June quarter 2000 to the June quarter 2002.

8 Consumer price index (CPI) adjusted.

The remainder of this article concentrates on how demand side factors in the UK, the US and Australia have influenced real house prices and housing affordability.

**Chart 3: Growth in real house prices**



Source: Australian Bureau of Statistics (ABS) for Australia; Office of Federal Housing Enterprise Oversight (OFHEO) for the US; Halifax for the UK; Bank of International Settlements for Ireland and Canada; CEIC Database for Japan and Korea.

Both Australia and the UK experienced a boom in real house prices in the late 1980s. Following that peak, the UK experienced a large fall in real house prices of over 30 per cent over the period to late 1995 (Chart 2), while real house prices in Australia declined by a little less than 10 per cent over this period. Despite not experiencing any boom in real house prices in the late 1980s, real prices in the US declined by around 9 per cent to late 1995 (Chart 2). As shown in Table 1, the UK, Australia and to a lesser extent the US have all experienced real house price growth over the late 1990s and early in the 2000s. One major common factor experienced by all three countries over the last decade has been a structural move to a much lower interest rate environment.

In the UK, the late 1980s boom was associated with high demand from first home buyers, who accounted for over half of mortgage loans. Nearly thirty per cent of these first home buyers did not make a deposit on their house, making them extremely vulnerable to rising interest rates and negative owners' equity. Indeed, the recession of the early 1990s saw distress in parts of the UK market, with some new home buyers seeing their equity turn negative as house prices fell below the mortgage outstanding. First home buyers in the UK have not played such an important role in the demand for houses in the current episode. Around forty per cent of mortgage loans in the UK are currently to first time buyers, with an insignificant number of these making zero down payments. Compared with the late 1980s, the current UK housing

market appears to be less susceptible to a serious deterioration in the equity of first home buyers in the event of any downturn in house prices.

In Australia, there are a number of major differences between the house price boom in the late 1980s and the current situation.<sup>9</sup> During the late 1980s, the boom was largely concentrated over the two year period to the March quarter 1989, when real house prices grew by nearly 36 per cent. This compares with the recent rise in real house prices being spread over a much longer period, with real prices growing by over 46 per cent in the five years to the December quarter 2002.

Another major difference between the 1980s and the recent episode relates to the coverage of house price growth across Australia. In the late 1980s boom, house price growth was more concentrated in Sydney and Perth and to a lesser extent Melbourne, whereas the more recent period of price increases has spread widely (although not evenly) to most Australian capital cities and to many coastal zones. In addition, investors in the Australian property market have been much more prevalent during the recent run up in prices as against in the 1980s.<sup>10</sup> This partly reflects the relative ease and lower cost of investors entering the housing market than in the late 1980s. The introduction of the Goods and Services Tax in Australia in July 2000 and the associated First Home Owners' Scheme has also impacted on the Australian housing market.<sup>11</sup>

Real house prices in the US have been more stable than in the UK or Australia since the late 1980s. In contrast to Australia or the UK, shares rather than houses make up the major proportion of household wealth in the US. Share prices rose more strongly than house prices in the US during the economic boom of the 1990s, despite lower interest rates, higher income, and improved housing affordability there.

---

9 Some of the factors mentioned here are also contained in *Recent Developments in Housing: Prices, Finance and Investor Attitudes*, Reserve Bank of Australia Bulletin, July 2002.

10 According to the ABS (Catalogue 5609: Housing Finance for Owner Occupation and Catalogue 5671: Lending Finance), about 30 per cent of the total lending in the housing sector went to investors in 1989, compared with about 42 per cent in the first three quarters of 2002. *Recent Developments in Housing: Prices, Finance and Investor Attitudes*, Reserve Bank of Australia Bulletin, July 2002, provides additional information on the impact of investors on the housing market.

11 For additional information see, *Preliminary assessment of the impact of The New Tax System*, Commonwealth Treasury, Economic Roundup Autumn 2003.



In the US, the rate of increase in housing prices slowed in very late 2002 and there are tentative signs that the rate of increase in house prices may have slowed in the UK and Australia in early 2003.

## **Housing affordability**

Housing affordability is a measure of the ongoing costs of purchasing housing in relation to income. Affordability and accessibility of housing are associated with: the price of housing; household disposable income; mortgage interest rates; and the amount borrowed. Despite the rapid rise in house prices in the UK, Australia and the US over recent years, a combination of lower interest rates and higher disposable income has meant that houses in these countries are still more affordable than they were during the boom of the late 1980s.

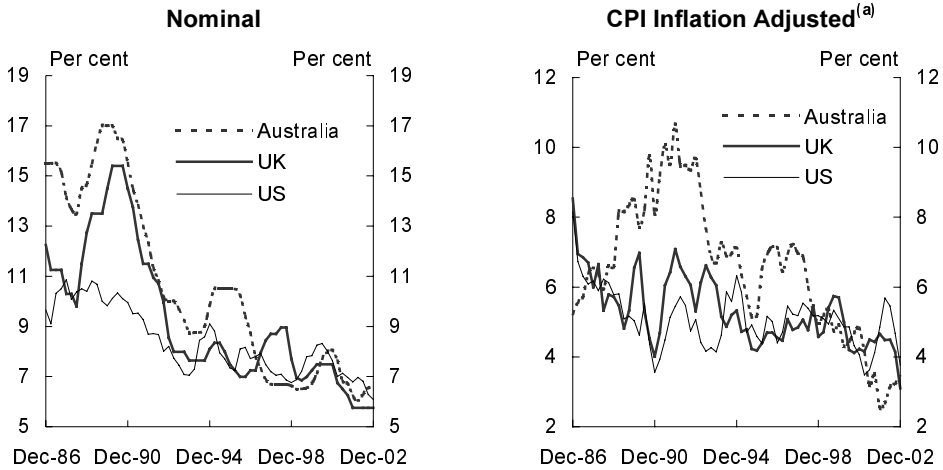
## **Interest rates and the debt-servicing ratio**

A house is an asset that delivers consumption services over many periods. House prices therefore are affected by current and expected future interest rates. Other things being equal, a higher interest rate lowers the price that people are prepared to pay for a house. On the other hand, if house prices and disposable income are unchanged, a lower interest rate improves the affordability of housing.

In various countries there is a mix of variable and fixed interest rates used to finance housing. The main mortgage interest rate in the US is the 30 year fixed mortgage interest rate. In Australia, the major lending rate for housing is the variable standard lending rate and in the UK the benchmark is the variable mortgage lending rate for Building Societies.

Chart 4 shows that the commonly used mortgage interest rates, in both nominal and real terms, are currently substantially lower than those of the late 1980s and early 1990s for all three countries. The move to a much lower inflationary environment has allowed interest rates to be substantially reduced. In addition, increased competition in financial markets has also reduced the margins that mortgage providers receive between their cost of funds and mortgage interest rates. Sustained lower interest rates appear to have been a major factor supporting higher house prices. Lower mortgage interest rates have substantially improved the capacity of households to service any given loans.

**Chart 4: Mortgage Interest Rates**



(a) The CPI inflation adjusted interest rate for Australia is derived by using a *CPI excluding the New Tax System* series constructed by the Treasury.

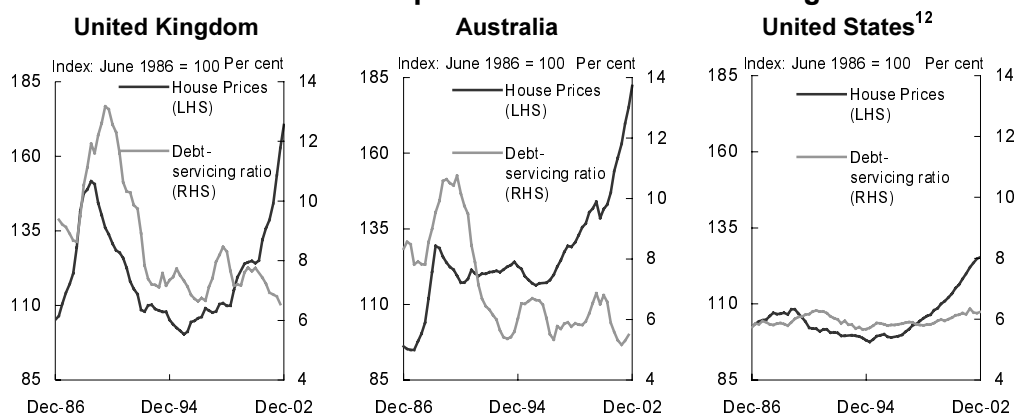
Source: Federal Reserve for the US; RBA Bulletin for Australia; and the UK Building Societies for the UK.

The debt-servicing ratio provides an indication of households' ability to service mortgage repayments given the level of interest rates, the size of the mortgage and disposable income.

The sustained fall in interest rates, combined with rising house prices, has pushed up the ratio of mortgage debt to income. Debt to income ratios have also increased substantially due to the increase in the availability of different forms of mortgage equity withdrawal.

Increases in real house prices to date in Australia, the UK and the US appear to be currently sustainable when viewed solely from the perspective of household debt-servicing capacity (Chart 5). Nevertheless, these debt-servicing ratios are averages and some households may face difficulties in servicing mortgages.

**Chart 5: Real house prices and the debt-servicing ratio**



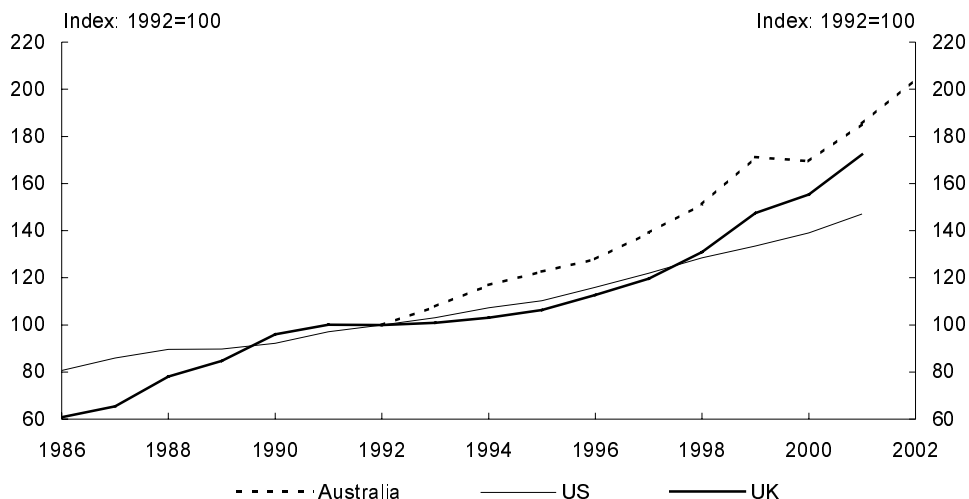
Source: ABS for Australia; Halifax and NSO for the UK; and OFHEO and Federal Reserve Bank for the US; and Commonwealth Treasury calculations.

Since the 1990 peak, the debt-servicing capacity of households in the UK and Australia has improved significantly, as evidenced by the halving of the debt-servicing ratio. This fall in the debt-servicing ratio despite a period of rising house prices is in sharp contrast to the experience in the late 1980s. The debt-servicing ratio in the US has not changed significantly over the period shown.

While debt servicing ratios have improved significantly for the UK and Australia and remained steady for the US, the average housing mortgage size has increased substantially over the 1990s (Chart 6). The increase in the average housing mortgage size is likely to make housing borrowers more sensitive to any future increases in interest rates or declines in disposable income.

12 The US measure of the debt-servicing ratio incorporates both principal and interest repayments, whereas the UK and Australia measures are for interest repayments only. The US debt-servicing ratio would be even smaller if it applied to interest repayments only.

**Chart 6: Average first home buyers mortgage loan size**



Sources: Office of the Deputy Prime Minister for the UK; ABS for Australia (data are only available from 1992); and National Realtors Association for the US.

## Disposable income

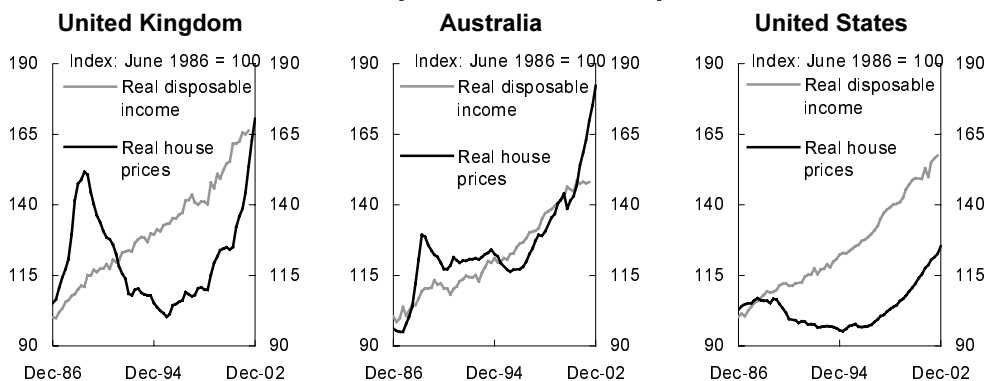
Higher disposable income increases overall purchasing power including demand for houses, and is thus expected to raise house prices.<sup>13</sup> On the other hand, for given house prices and interest rates, any increase in disposable income boosts housing affordability.

All three countries have also experienced significant growth in real disposable income over the 1990s. Real disposable income increased by about 66 per cent in the UK, 57 per cent in the US and by 48 per cent in Australia since 1986 (Chart 7).

---

<sup>13</sup> Higher purchasing power not only raises house prices through higher demand for houses, but also increases demand for better quality housing. Such hedonic changes are not taken into account in this article.

**Chart 7: Real house prices and real disposable income**



Source: ABS for Australia; Halifax and NSO for the UK; and OFHEO and Bureau of Economic Analysis for the US.

Real disposable income has grown faster than real house prices in the US and at about the same rate in the UK over the period since 1986. In Australia, real house prices have tended to grow faster than real disposable income, especially over the last year.<sup>14</sup>

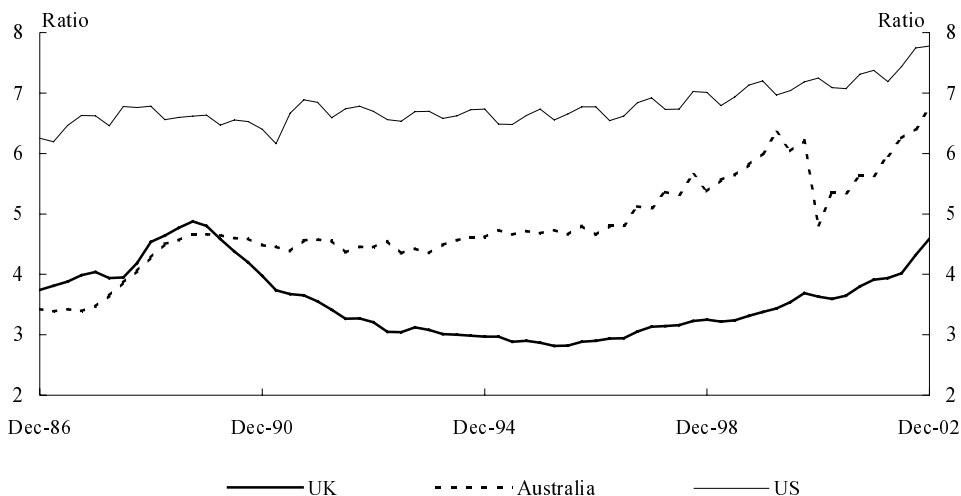
Chart 8 shows the ratio of average house prices to average annual earnings<sup>15</sup> in the three countries. The ratio is higher in the US than in Australia or the UK. Average house prices in Australia in the September quarter 2002 were 6.8 times average annual earnings, compared to a ratio of about 4-5 times during the period to the mid 1990s. The ratio in the UK rose to nearly 4.9 in the late 1980s before falling to below 3 in the mid 1990s. It stood at about 4.6 in the September quarter 2002. The ratio has increased gradually from around 6 to almost 8 in the US throughout the period since 1986.

---

14 The real disposable incomes used are national aggregates rather than household disposable income. Many households in all three countries would have benefited from the increase in two income earning households.

15 Average annual earnings are derived from the average weekly earnings of employees from these countries. Labour market data have been sourced from the ABS for Australia, NSO for the UK and Datastream for the US.

**Chart 8: Ratio of median house prices to average annual earnings**



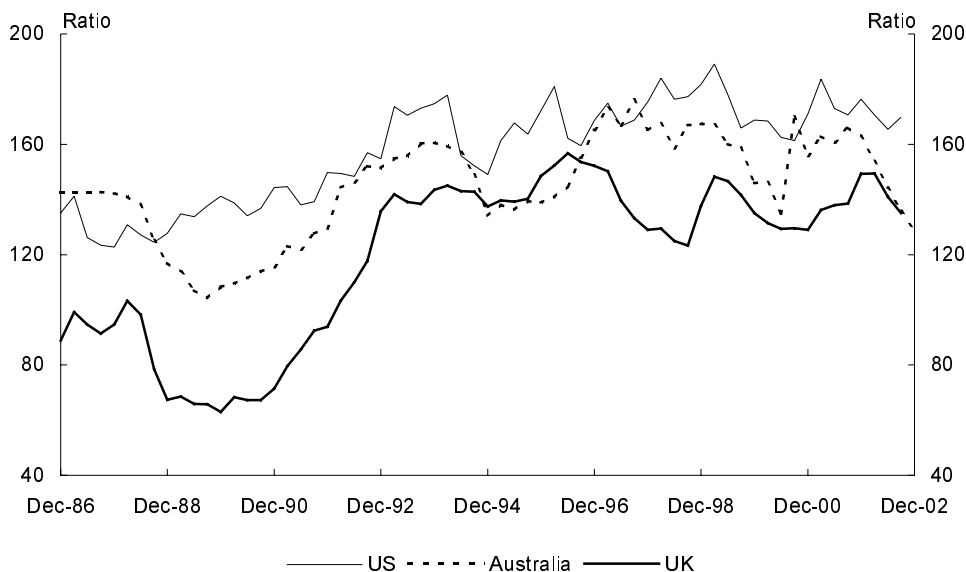
Source: ABS for Australia; ONS and Halifax for the UK; and Datastream and OFHEO for the US.

## Housing affordability

Combining the above-mentioned factors of mortgage interest rates, the level of borrowing, house prices and disposable income, housing affordability is the ratio of average household disposable income to the income necessary to meet repayments on an average established house purchased by a first home buyer. An increase in the index represents an improvement in affordability.

Chart 9 shows the affordability indices are still significantly above the late 1980s troughs in the UK and Australia despite higher housing prices in each country.

**Chart 9: Housing affordability**



Source: Commonwealth Bank of Australia/Housing Industry Association for Australia; National Realtors Association for the US; Office of Deputy Prime Minister and the National Statistics Office (NSO) for the UK; and Commonwealth Treasury calculations.

In Australia, housing affordability decreased substantially prior to late 1989 when housing interest rates (which reached 17 per cent) and house price growth were both high. Substantial reductions in interest rates since 1990 have been the major factor working to improve housing affordability. The housing affordability index in Australia has declined over recent quarters due to higher house prices, but in the December quarter 2002 housing affordability was around 23 per cent higher than the trough reached in 1989.

In the US, housing affordability declined by nearly 12 per cent between 1987 and 1988 when interest rates averaged over 10 per cent. In 2002, mortgage interest rates in the US were around 6.5 per cent. The decline in interest rates and higher disposable incomes over the 1990s have supported affordability in the US, with the affordability index in the September quarter 2002 being about 23 per cent higher than in 1989.

In the UK, housing affordability declined by 39 per cent from the beginning of 1988 to the end of 1989. During this period, housing interest rates increased from around 10 per cent in the first half of 1988 to over 14 per cent by the end of 1989 and house prices grew by nearly 20 per cent over the same period. In 2002, the average mortgage interest rate in the UK was 5.75 per cent and the housing affordability index in the September quarter 2002 was around

105 per cent higher than in late 1989, although it has been declining over recent quarters.

## **House prices and share prices**

The two major components of household wealth are financial and non-financial assets, proxied by deposits in financial institutions, shares and housing assets. Increases in asset valuations were the driving force behind the sharp increases in net household wealth during the 1990s in most developed economies. The effect of increases in wealth on consumption has been increasing over time, as financial institutions have provided instruments to allow wealth to be consumed in the current period.

A recent BIS study<sup>16</sup> found a positive relationship between changes in share and house prices over the medium to longer term. This reflects the positive stock market wealth effect on housing demand more than offsetting any substitution effect between the two asset classes. However, the correlation between these assets is uncertain and often varies between countries due to different preferences. In addition, house prices are usually affected by country specific developments, whereas share prices are more prone to global influences.

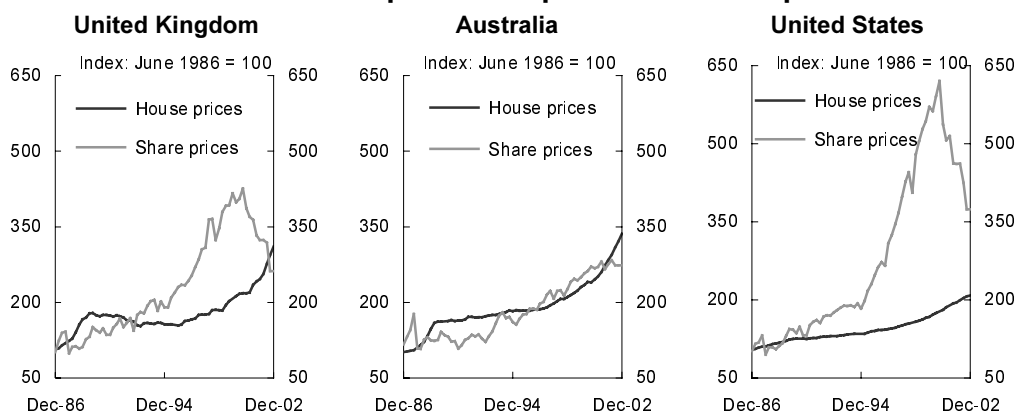
Chart 10 shows the different trends between house and share prices in the UK, Australia and the US over the last fifteen years.

---

16 Gregory Sutton, Bank of International Studies, *Explaining Changes in House Prices*, Quarterly Review, September 2002.



**Chart 10: House prices compared with share prices**



Source: ABS and Datastream for Australia; OFEHO and Datastream for the US; and Halifax and Datastream for the UK.

While share prices in the US soared in the second half of the 1990s, they have corrected sharply since early 2000, although share prices in the US have still grown substantially more than house prices since 1986.

In the UK, share price growth has generally exceeded that of house prices, but the situation has reversed over recent quarters, with the share market correction and the strong increase in house prices since 2000.

In Australia, growth in share market prices has been much more muted than in the US. House price growth has been broadly similar to share price growth over the period since the share market correction in 1987.

While the sharp decline in global share prices since early 2000 is likely to have resulted in a move to the 'security' of bricks and mortar in the short term, as noted earlier, the wealth effect from the fall in global equity prices over the longer term may eventually reduce the demand for housing.

## Conclusion

Over the last 15 years, different countries around the world have experienced varied movements in house prices. Countries such as the UK, Australia and to a lesser extent the US have experienced substantial house price growth (which has supported household consumption growth) over recent years, while other countries such as Japan have seen house prices fall substantially.

In the UK, Australia and the US, the move to a lower inflationary environment has allowed substantially lower interest rates. Lower interest rates combined

with rising real disposable income has supported higher house prices and mortgage debt levels. Debt servicing ratios do not suggest that average households are currently under financial stress servicing their housing loans.

Lower interest rates and higher real disposable income mean that despite rises in house prices, housing is significantly more affordable now compared with the boom period in the late 1980s.

Nevertheless, new house owners have taken on higher levels of debt compared to their income. This makes them more vulnerable to any future interest rate increases (bearing in mind that interest rates are at near historical lows) or a loss in real disposable income. While there are signs that house price growth may have started to abate, any continuation of house price growth at rates experienced over recent years would reduce housing affordability.

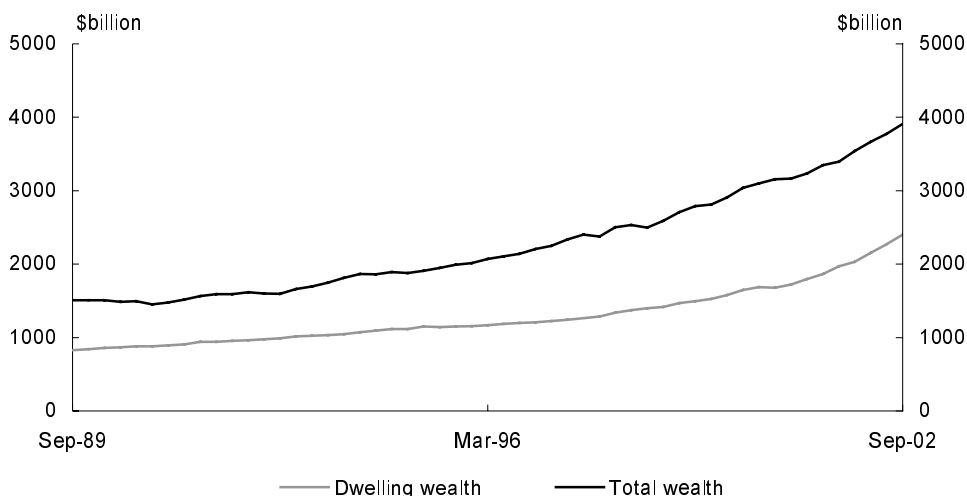
## Appendix

### Dwelling ownership as part of Australian household portfolios

This appendix provides some context for the recent increases in house prices in Australia. It presents data showing dwellings as part of household portfolios, the age distribution of home purchases and some disaggregation of debt servicing burdens.

The increases in housing prices over the last decade have contributed to growing household wealth. Chart A1 indicates the proportion of household wealth held in dwellings and its growth relative to total household wealth. The chart indicates that other forms of household wealth have grown as well as that held in the form of dwellings.

**Chart A1: Household wealth**



Source: Commonwealth Treasury.

More recently, public debate regarding rising residential prices has touched upon whether younger, first home owners have been squeezed out of the housing market. Table A1 presents a profile of home purchases by age cohort. These data indicate that the proportion of the under 35 year old cohort — the age group often considered most vulnerable to increasing house prices — did not change much over the course of the 1990s. The sharp increase in the proportion of 45-54 year olds purchasing homes over this period may reflect increased investor activity by this age group.

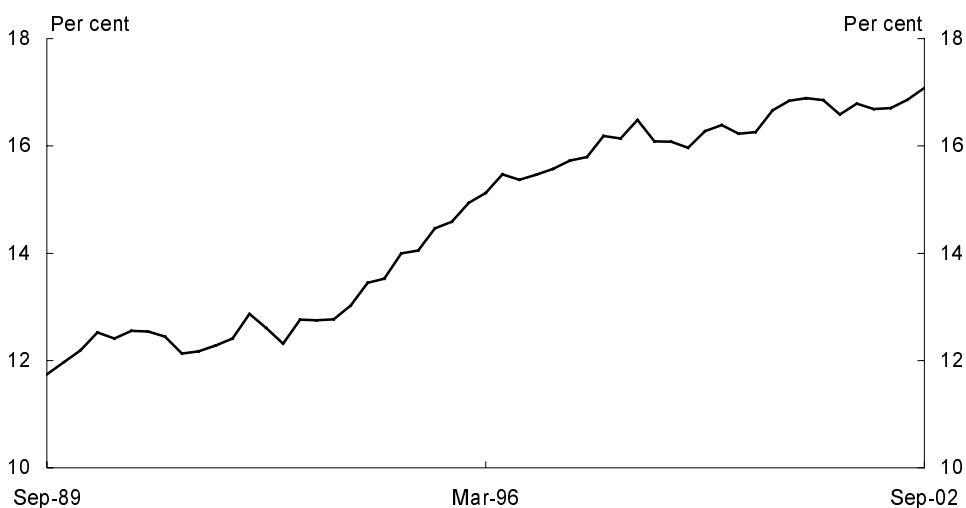
**Table A1: Home purchase by age cohort**

	1990	1994-95	1996	1997-98	1999-2000
<b>&lt;35</b>	19.5	18.8	16.4	18.9	17.0
<b>35-44</b>	44.9	43.6	41.0	44.0	46.9
<b>45-54</b>	28.6	32.2	34.7	36.7	41.2
<b>&gt;54</b>	7.6	7.6	7.6	8.8	10.8
<b>Total</b>	22.2	22.4	21.4	23.6	25.0

Source: ABS Survey of Income and Housing Costs.

Given the recent increase in Australian housing prices, there has been interest in what has happened to the structure of household debt. Chart A2 presents aggregate household liabilities as a ratio to household assets. This illustrates that since 1989 the ratio of liabilities to assets has risen (by around 50 per cent). The chart shows that in aggregate, household liabilities were less than 20 per cent of assets. That is, in spite of the increase in liabilities, in 2002 households held a little over five dollars of assets for every dollar of liability.

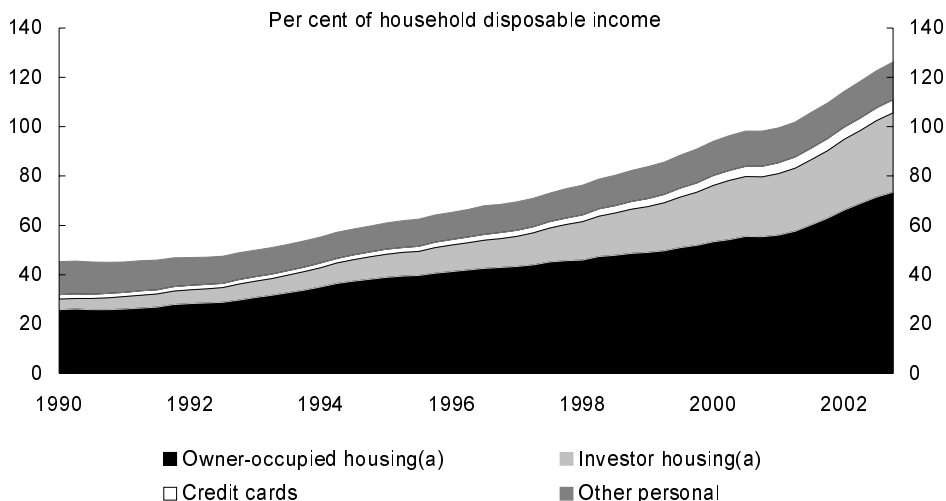
**Chart A2: Ratio of household liabilities to assets**



Source: ABS Cat. No 5232.0 Financial Accounts.

In a similar vein, Chart A3 presents the composition of household debt as a proportion of household income since 1990. This indicates both that debt as a ratio of income had increased and that the composition of debt has changed. Debt associated with owner occupied housing is the bulk of household debt and has grown as a proportion of income over the period. However, it is clear that debt related to investment in rental properties has grown substantially as a proportion of household debt portfolios.

**Chart A3: Household debt\***



\* excludes unincorporated enterprises.

(a) Shares based on bank lending data.

Source: Household Debt: What the Data Show, The Reserve Bank of Australia Bulletin, March 2003.

The increasing level of household debt related to dwellings raises the question of households' ability to service debt and whether increasing levels of aggregate debt have created financial stress for income groups. Table A2 presents data on mortgage repayments as a portion of household budgets by income quartiles (the fourth quartile being the highest income group). It indicates that for all income groups the ratio of repayments to income fell.

**Table A2: Mortgage repayments/gross income for purchasers \***

	1990	1994-95	1996	1997-98	1999-2000
Quartile 1					
<b>Quartile 2</b>	<b>32.9</b>	<b>32.9</b>	<b>32.3</b>	<b>29.1</b>	<b>26.4</b>
Quartile 3	24.4	24.3	24.5	23.4	21.9
Quartile 4	16.7	15.4	15.1	14.7	13.7
<b>Total</b>	<b>20</b>	<b>18.7</b>	<b>18.4</b>	<b>17.6</b>	<b>16.7</b>

\* Data for income quartile 1 is intentionally left blank as expenditure patterns do not reflect reported income. This may be because of access to savings or other sources of wealth, or because reported income includes low or negative business income. (ABS Year Book Australia 2003)

Source: ABS Survey of Income and Housing Costs.



# Statistical appendix

## List of charts and tables

### Charts

#### International economy

1. Selected international indicators 132

#### National accounts

2. Contributions to trend quarterly GDP growth 134

### Tables

#### National accounts

1. Components of Gross Domestic Product 135
2. Contributions to change in Gross Domestic Product 136
3. Gross value-added by industry 137

#### Incomes, costs and prices

4. Real household income 138
5. Wages, labour costs and company income 139
6. Prices 140
7. Labour market 141

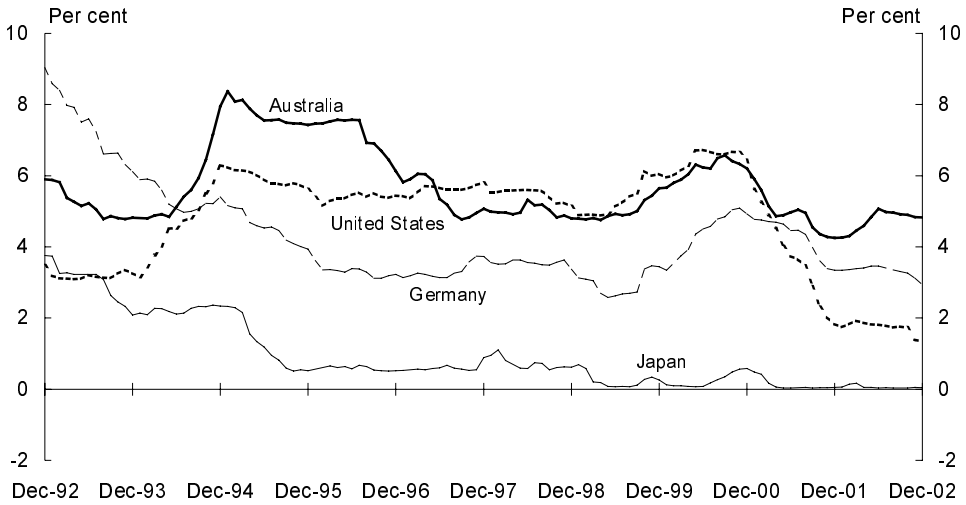
#### External sector

8. Current account 142
9. Australia's external liabilities 143
10. Australia's income flows 144
11. Selected economic indicators 145

### Key to tables

- n.a. not available  
n.y.a. not yet available  
.. change less than 0.05 per cent

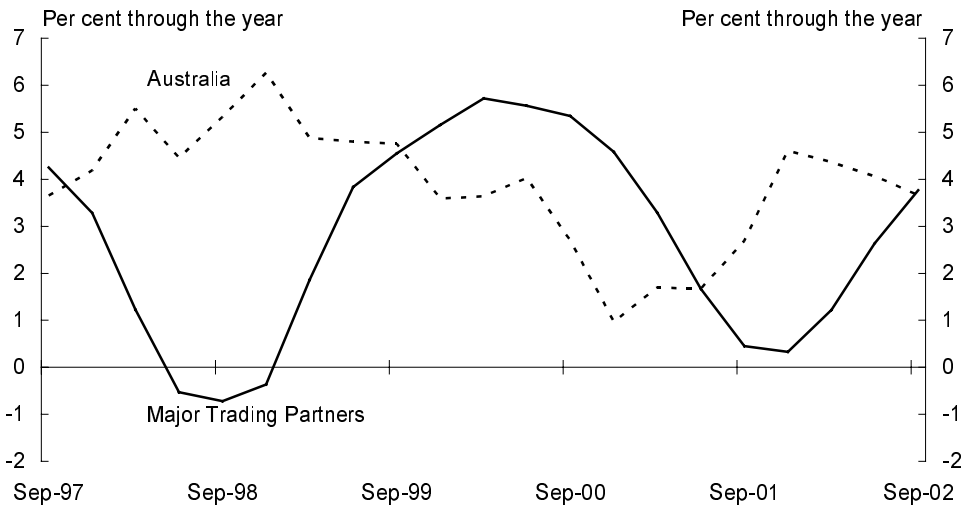
**Chart 1: Selected international indicators**  
**Panel A: Short-term interest rates<sup>(a)</sup>**



(a) Short-term interest rates are monthly averages and are defined as follows: US — 3-month certificates of deposits, Japan — 3-month certificates of deposit, Australia — 90-day bank accepted bills and Germany — 3-month FIBOR.

Source: OECD Main Economic Indicators.

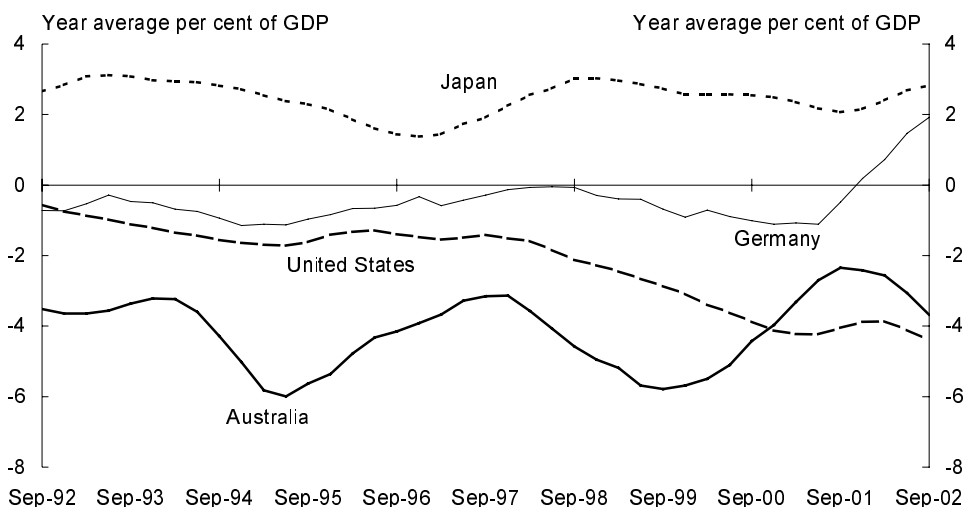
**Panel B: Real output<sup>(a)</sup>**



(a) Seasonally adjusted real GDP growth for each major trading partner is weighted by their respective shares of total Australian merchandise exports averaging from 1998-99 to 2000-01. Major trading partners are Japan, US, South Korea, New Zealand, China, Taiwan, Singapore, UK, Hong Kong, Indonesia, Malaysia, Italy, Thailand, Canada, Germany, the Philippines and France.



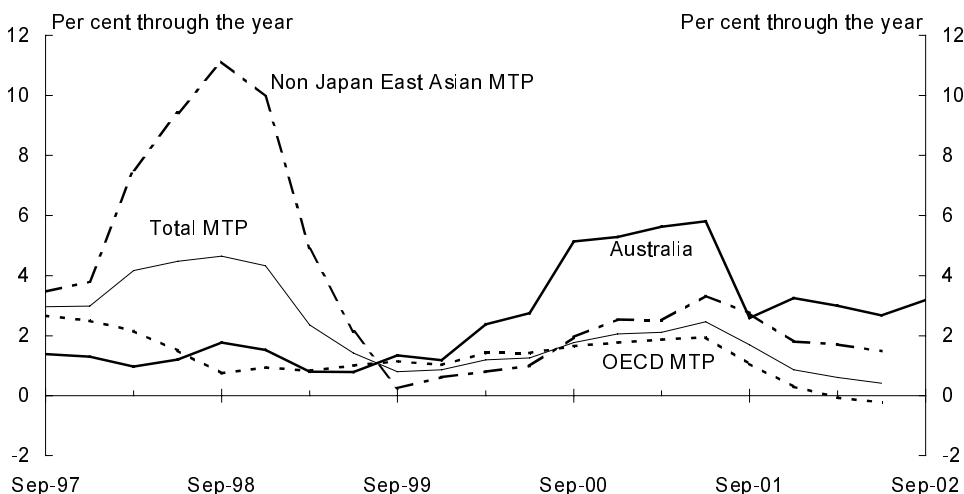
### Panel C: Current account balances<sup>(a)</sup>



Data are seasonally adjusted.

Source: Data are from statistical agencies of respective countries, except for Germany which is from the OECD Main Economic Indicators.

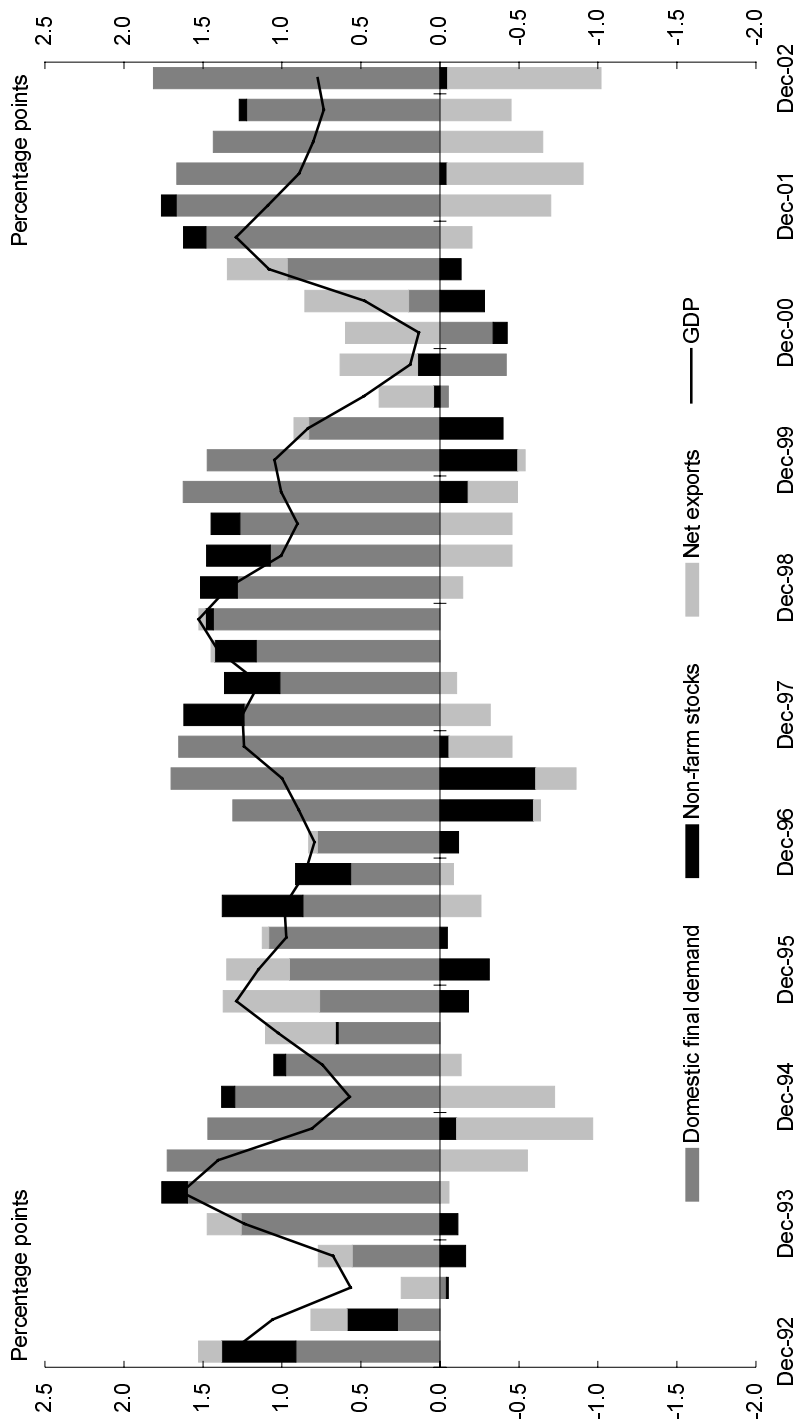
### Panel D: Consumer price inflation<sup>(a)</sup>



(a) The aggregate inflation rates are derived from the weighted average of inflation rates of individual trading partners, with the weights being their respective shares of Australian total merchandise trade from 1998-99 to 2000-01. Major trading partners are Japan, US, South Korea, New Zealand, China, Taiwan, Singapore, UK, Hong Kong, Indonesia, Malaysia, Italy, Thailand, Canada, Germany, the Philippines and France.

Source: Data for Japan, US, South Korea, New Zealand, Taiwan, Singapore, UK, Hong Kong, Indonesia, Canada and Germany are from the ABS All Groups CPI (excluding housing) measure. For the rest of Australia's MTPs (China, Malaysia, Italy, Thailand, the Philippines and France), the CPI are from each country's respective all groups CPI series which exclude the effects of mortgage interest rate changes.

**Chart 2: Contributions to trend quarterly GDP growth**  
(Chain volume measures)



Source: ABS Cat. No. 5206.0.

**Table 1: Components of Gross Domestic Product (chain volume measures)**

Year	Final domestic demand										Imports	Exports	GDP
	Household consumption	Private investment in dwellings	Private business fixed investment	Private final demand	Public final demand	Domestic final demand	(Percentage change on preceding year)						
1999-00	4.1	14.3	7.8	5.6	3.8	5.2	9.4	12.5	4.0				
2000-01	3.0	-20.9	-4.6	-0.1	1.7	0.3	7.3	-1.3	1.8				
2001-02	3.4	19.5	5.3	5.0	4.5	4.8	-1.5	2.3	4.0				
<b>Quarter</b>													
2001 Dec	1.0	6.9	2.1	1.6	1.8	1.6	-0.7	2.5	1.1				
2002 Mar	1.3	5.8	3.6	1.9	0.8	1.6	0.1	3.8	0.9				
Jun	1.1	5.2	4.1	1.8	0.2	1.5	0.6	3.6	0.8				
Sep	0.9	5.2	4.1	1.5	0.1	1.5	0.1	3.0	0.8				
Dec	0.7	4.8	3.9	1.7	1.9	1.5	-0.4	2.8	0.7				
<b>Quarter</b>													
2001 Dec	1.0	7.4	2.3	1.6	3.7	2.1	-3.2	3.9	1.2				
2002 Mar	1.5	2.3	0.6	1.4	0.9	1.2	2.4	3.9	0.7				
Jun	1.2	7.9	5.9	2.5	0.2	1.9	0.8	4.4	0.8				
Sep	0.7	4.9	2.9	1.0	-0.4	1.2	-0.8	1.0	1.0				
Dec	0.6	4.2	8.5	2.5	3.4	2.5	-0.4	7.0	0.4				
<b>Quarter</b>													
2001 Dec	3.2	16.4	3.7	4.5	3.9	4.3	-0.2	-0.6	4.0				
2002 Mar	3.8	29.7	7.8	6.2	4.8	5.7	-1.0	5.2	4.5				
Jun	4.2	28.5	11.4	6.9	4.6	6.3	-0.7	10.5	4.2				
Sep	4.3	25.2	14.6	7.0	2.9	6.4	0.1	13.6	3.6				
Dec	4.1	22.7	16.6	7.1	3.0	6.3	0.4	13.8	3.2				

Source: ABS Cat. No. 5206.0.

**Table 2: Contributions to change in Gross Domestic Product (chain volume measures)**

Year	Final domestic demand				Change in inventories				GDP	
	Household consumption	Private investment in dwellings	Private business investment	Private fixed investment	Private final demand	Public final demand	Total final demand	Private non-farm		Farm & public authority
1999-00	2.5	0.8	0.9	4.4	0.8	5.2	-0.4	0.0	-0.8	4.0
2000-01	1.8	-1.3	-0.6	-0.1	0.4	0.3	-0.3	-0.1	1.9	1.8
2001-02	2.1	0.9	0.6	3.9	0.9	4.8	-0.1	0.1	-0.9	4.0
<b>Quarter</b>	<b>(Contribution to change in GDP - Trend)</b>									
2001 Jun	0.4	0.3	0.1	0.9	0.1	1.0	-0.1	-0.1	0.4	1.1
Sep	0.5	0.4	0.1	1.1	0.4	1.5	0.1	0.0	-0.2	1.3
Dec	0.6	0.4	0.2	1.3	0.3	1.6	0.0	0.0	-0.7	1.1
2002 Mar	0.8	0.3	0.4	1.5	0.1	1.6	0.0	0.0	-0.8	0.9
Jun	0.7	0.3	0.5	1.4	0.1	1.5	0.0	-0.1	-0.7	0.8
Sep	0.5	0.3	0.5	1.3	0.2	1.6	0.0	-0.1	-0.7	0.8
Dec	0.4	0.3	0.4	1.2	0.3	1.6	0.0	0.0	-0.7	0.7
<b>Quarter</b>	<b>(Contribution to change in GDP - Seasonally adjusted)</b>									
2001 Jun	0.5	0.2	-0.2	0.5	0.1	0.5	0.4	-0.1	0.5	1.1
Sep	0.2	0.5	0.3	1.3	0.1	1.4	0.0	-0.1	0.1	1.3
Dec	0.6	0.4	0.3	1.3	0.8	2.0	-0.1	0.4	-1.5	1.2
2002 Mar	0.9	0.1	0.1	1.2	0.0	1.2	0.1	-0.2	-0.3	0.7
Jun	0.7	0.4	0.6	1.8	0.1	1.9	-0.2	-0.1	-0.8	0.8
Sep	0.4	0.3	0.5	1.2	0.0	1.2	0.4	-0.2	-0.4	1.0
Dec	0.4	0.3	0.9	1.7	0.8	2.5	-0.4	0.2	-1.7	0.4

Source: ABS Cat. No. 5206.0.

**Table 3: Gross value-added by industry (chain volume measures)**

Year	Agriculture, forestry & fishing		Manufacturing		Electricity, gas & water		Wholesale trade		Accommodation, cafes & restaurants		Transport & storage		Finance & insurance		Property & business services		Government & administration		Health & community services		Cultural & recreational services	
	7.6	5.7	1.0	2.1	5.7	5.0	4.3	5.0	4.0	7.0	6.3	5.9	0.7	1.3	4.5	2.7	3.7					
1999-00	7.6	5.7	1.0	2.1	5.7	5.0	4.3	5.0	4.0	7.0	6.3	5.9	0.7	1.3	4.5	2.7	3.7					
2000-01	-0.5	8.3	2.7	1.3	-15.6	-0.4	1.7	2.9	5.2	0.8	1.0	6.7	2.6	1.9	4.4	6.9	2.5					
2001-02	6.0	-0.5	4.0	-0.4	11.7	3.7	5.4	4.1	5.1	2.4	3.1	5.5	1.1	1.5	4.9	1.3	4.2					
(Percentage change on preceding year)																						
<b>Quarter</b>	(Change on previous quarter - Trend)																					
2001 Sep	1.8	-0.3	1.6	-0.1	4.6	1.7	1.1	0.6	1.2	0.6	0.9	1.9	-0.2	0.3	0.6	2.4	1.3					
Dec	4.0	-0.3	1.6	0.4	2.9	1.5	1.4	-0.1	1.0	0.9	0.8	1.1	0.1	0.3	0.0	0.8	0.2					
2002 Mar	2.5	-0.6	1.1	0.4	3.6	1.6	1.7	0.8	1.4	1.4	1.0	0.2	0.6	0.3	0.7	0.4	-0.6					
Jun	-4.4	-0.5	0.7	0.4	5.3	1.3	1.4	1.8	1.9	1.4	1.1	-0.3	0.8	0.4	1.1	0.9	0.1					
Sep	-9.2	0.2	0.4	0.6	5.7	1.0	0.9	1.9	1.8	1.0	1.1	-0.3	1.0	0.4	1.1	1.5	1.0					
Dec	-9.0	0.9	0.3	0.9	4.8	0.9	0.5	1.1	1.2	0.7	0.9	-0.3	0.8	0.3	1.0	1.4	1.8					
<b>Quarter</b>	(Change on previous quarter - Seasonally adjusted)																					
2001 Sep	0.2	-1.7	0.7	-0.5	4.6	0.5	1.3	2.7	1.1	-0.2	1.1	2.1	1.5	0.3	-1.1	3.3	-1.2					
Dec	4.5	1.5	1.6	2.1	4.5	3.7	1.1	-2.8	0.1	0.5	0.8	0.5	-1.0	0.3	1.6	-0.3	2.3					
2002 Mar	5.9	-0.2	1.7	-0.5	-0.8	0.5	2.0	1.1	2.2	2.4	0.5	0.9	0.9	0.4	-0.6	0.4	-0.6					
Jun	-3.7	-2.7	0.5	0.1	7.6	0.0	1.6	3.2	1.3	1.3	1.6	-1.1	1.3	0.4	2.0	0.3	-2.5					
Sep	-12.9	1.0	0.2	0.9	8.1	4.1	0.9	1.8	2.8	0.3	1.2	0.0	0.4	0.4	1.2	2.5	3.3					
Dec	-12.6	2.7	0.5	1.3	2.0	-2.0	0.0	0.0	0.5	1.2	0.3	-0.1	1.3	0.4	0.6	1.4	2.5					
<b>Quarter</b>	(Change on year earlier - Trend)																					
2001 Sep	1.7	2.4	1.7	-1.6	-0.8	1.0	4.4	5.5	5.0	0.5	2.2	7.3	1.1	1.7	8.9	-0.9	9.2					
Dec	6.4	0.2	4.0	-1.1	10.5	3.5	5.0	4.2	4.9	2.0	2.9	6.7	0.4	1.6	6.2	1.1	6.7					
2002 Mar	9.0	-1.3	5.3	0.1	16.7	5.6	5.6	3.0	5.1	3.3	3.5	5.2	0.6	1.4	3.6	3.6	3.0					
Jun	3.7	-1.7	5.2	1.1	17.5	6.3	5.7	3.1	5.6	4.3	3.8	2.9	1.3	1.4	2.4	4.6	1.0					
Sep	-7.5	-1.2	3.9	1.8	18.7	5.6	5.6	4.4	6.3	4.6	4.0	0.6	2.5	1.4	3.0	3.7	0.7					
Dec	-19.1	0.0	2.6	2.3	20.9	4.9	4.7	5.7	6.5	4.4	4.1	-0.8	3.2	1.4	4.0	4.2	2.4					

Source: ABS Cat. No. 5206.0.

**Table 4: Real household income<sup>(a)</sup>**

	Non-farm employees	Non-farm average earnings	Non-farm compensation employees	Gross mixed income	Household income	Household disposable income
<b>Year</b>	(Percentage change on preceding year)					
1999-00	2.2	1.7	3.9	4.3	4.7	4.2
2000-01	2.7	-0.9	1.7	2.4	2.4	4.6
2001-02	0.9	2.0	3.0	12.8	1.8	2.0
<b>Quarter</b>	(Percentage change on preceding quarter - Seasonally adjusted)					
2001 Dec	0.4	-0.2	0.3	-0.6	0.4	0.8
2002 Mar	0.6	0.2	0.8	3.1	0.7	1.2
Jun	0.5	1.0	1.5	0.0	1.1	0.5
Sep	0.8	-0.3	0.5	-5.6	0.0	-0.2
Dec	0.9	0.0	0.9	-2.1	0.5	0.2
<b>Quarter</b>	(Percentage change on year earlier - Seasonally adjusted)					
2001 Dec	0.5	2.3	2.7	14.4	2.4	3.0
2002 Mar	1.2	1.8	3.0	13.7	2.1	3.4
Jun	1.4	2.0	3.5	12.6	1.9	1.4
Sep	2.3	0.7	3.1	-3.3	2.3	2.3
Dec	2.9	0.9	3.8	-4.8	2.3	1.7

(a) Deflated by the implicit price deflator for private final consumption expenditure.

Source: ABS Cat. Nos. 5204.0 and 5206.0.

**Table 5: Wages, labour costs and company income**

Year	Average weekly earnings (survey basis)		Unit labour costs			Factor shares	
	Full-time adult ordinary time earnings <sup>(a)</sup>	All persons total earnings <sup>(a)</sup>	Non-farm average earnings (national accounts basis) <sup>(a)</sup>	Nominal <sup>(b)</sup>	Real <sup>(c)</sup> (Index)	Wage share <sup>(d)</sup> (per cent)	Profit share <sup>(e)</sup> (per cent)
1999-00	3.3	2.2	3.4	1.9	95.7	54.5	23.6
2000-01	5.3	5.5	3.5	4.2	96.4	54.8	23.3
2001-02	5.5	4.2	4.3	1.1	95.8	54.2	23.5
<b>Quarter</b>	<b>(Percentage change on preceding quarter - Seasonally adjusted)</b>						
2001 Dec	1.1	0.7	0.4	-0.2	-1.3	54.0	23.8
2002 Mar	1.5	1.1	0.9	1.5	0.5	53.9	23.8
Jun	0.8	0.5	1.2	0.9	0.4	54.1	23.6
Sep	1.4	1.3	0.6	-0.7	-1.4	54.1	24.3
Dec	1.1	0.9	0.5	1.1	0.5	54.3	24.3
<b>Quarter</b>	<b>(Percentage change on year earlier - Seasonally adjusted)</b>						
2001 Dec	5.7	4.9	4.7	0.1			
2002 Mar	6.2	4.2	4.0	1.2			
Jun	5.2	3.7	3.7	1.3			
Sep	4.9	3.6	3.1	1.4			
Dec	4.8	3.9	3.2	2.8			

(a) All numbers derived from seasonally adjusted data.

(b) Ratio of nominal hourly labour costs (non-farm compensation of employees, plus payroll tax and fringe benefits tax less employment subsidies, per hour worked by non-farm wage and salary earners) to average hourly productivity (real gross non-farm product per hour worked by all employed persons).

(c) Nominal unit labour costs as defined in footnote (a) deflated by the derived implicit price deflator for gross non-farm product. (Base for index: 1998-99 = 100.0). Compensation of employees as a share of total factor income.

Gross operating surplus of corporations as a share of total factor income.

Sources: ABS Cat. Nos. 5204.0, 5206.0 and 6302.0.

**Table 6: Prices**

	Consumer Price Index <sup>(a)</sup>		Implicit price deflators <sup>(b)</sup>	
	All groups	All groups excl housing	Gross non-farm product	Household final consumption expenditure
<b>Year</b>	(Percentage change on preceding year)			
1998-99	1.2	1.2	0.5	0.9
1999-00	2.4	2.0	2.3	1.6
2000-01	6.0	5.4	4.2	4.6
2001-02	2.9	2.9	2.0	2.2
<b>Quarter</b>	(Percentage change on preceding quarter)			
Dec	0.3	0.4	0.1	0.7
2001 Mar	1.1	1.2	1.4	0.9
Jun	0.8	1.0	0.7	0.8
Sep	0.3	0.0	-0.5	0.1
Dec	0.9	1.0	0.5	0.6
2002 Mar	0.9	0.9	1.3	0.7
Jun	0.7	0.7	0.4	0.2
Sep	0.7	0.5	0.9	0.9
Dec	0.7	0.8	0.6	0.5
	0			
<b>Quarter</b>	(Percentage change on a year earlier)			
Dec	5.8	5.3	4.4	4.7
2001 Mar	6.0	5.6	4.0	5.0
Jun	6.0	5.8	3.7	5.0
Sep	2.5	2.6	1.7	2.5
Dec	3.1	3.2	2.2	2.4
2002 Mar	2.9	3.0	2.1	2.2
Jun	2.8	2.7	1.7	1.6
Sep	3.2	3.2	3.1	2.4
Dec	3.0	2.9	3.2	2.4

(a) Based on the weighted average of eight capital cities consumer price index.

(b) Quarterly figures are derived from seasonally adjusted data.

Sources: ABS Cat. Nos. 6401.0 and 5206.0.



**Table 7: Labour market**

	ANZ Bank job advertisements series	Employed persons			Unemployment		Participation rate (per cent)
		Full-time	Part-time	Total	Rate (per cent)	Persons ('000)	
<b>Year<sup>(a)</sup></b>	(Percentage change on preceding year)						
1998-99	15.2	1.6	3.7	2.2	7.4	691.7	63.1
1999-00	15.7	2.5	3.4	2.7	6.6	634.5	63.4
2000-01	-22.5	1.5	3.8	2.1	6.4	625.5	63.7
2001-02	-12.1	-0.6	5.8	1.1	6.6	656.8	63.7
<b>Quarter<sup>(a)</sup></b>	(Percentage change on preceding quarter - Seasonally adjusted)						
2002 Mar	6.2	0.8	1.6	1.0	6.6	655.8	63.9
Jun	4.0	-0.2	0.9	0.1	6.3	629.3	63.6
Sep	-1.3	0.4	0.7	0.5	6.2	616.4	63.5
Dec	1.0	0.5	1.9	0.9	6.1	614.6	63.8
<b>Quarter<sup>(a)</sup></b>	(Percentage change on a year earlier - Seasonally adjusted)						
2002 Mar	-6.5	0.0	6.8	1.8			
Jun	9.9	0.3	4.9	1.5			
Sep	7.7	1.2	3.8	1.9			
Dec	10.0	1.5	5.2	2.5			
<b>Month</b>	(Percentage change on preceding month - Seasonally adjusted)						
2002 Feb	-4.4	-0.3	1.7	0.2	6.6	652.5	63.9
Mar	-4.2	0.5	-0.6	0.2	6.3	622.3	63.8
Apr	12.9	-0.8	0.4	-0.5	6.3	621.6	63.4
May	-5.3	1.1	-1.2	0.5	6.3	622.5	63.6
Jun	-0.4	-1.0	3.1	0.1	6.5	643.9	63.7
Jul	-0.5	-0.3	-0.4	-0.3	6.2	609.4	63.3
Aug	0.5	1.3	0.0	1.0	6.2	622.7	63.8
Sep	3.0	0.2	-1.6	-0.3	6.2	617.1	63.5
Oct	4.2	-0.9	2.9	0.2	6.0	598.6	63.4
Nov	-1.4	0.9	0.1	0.6	6.1	616.8	63.8
Dec	-12.5	0.7	0.1	0.6	6.2	628.4	64.2
2003 Jan	4.3	1.1	1.4	1.2	6.1	619.9	64.7

(a) All figures refer to period averages.

Sources: ANZ Bank and ABS Cat. No. 6202.0.

**Table 8: Current account**

Year	Balance on		Net income balance	Net current transfers	Current account balance		Net income balance		Volume of		
	merchandise trade	goods & services			(\$ million)	Percentage of GDP	Percentage of current account balance	Percentage of GDP	Exports of goods & services	Imports of goods & services	Terms of trade <sup>(e)</sup>
1999-00	-12945	-14289	-18150	218	-32221	-5.1	56.3	-2.9	143133	-154607	97.0
2000-01	-30	875	-19077	32	-18170	-2.7	105.0	-2.9	153511	-152636	100.0
2001-02	-725	-1581	-20014	-17	-21612	-3.0	92.6	-2.8	151238	-156155	102.2
<b>Quarter</b>						(Seasonally adjusted)					
Sep	1936	1934	-4905	15	-2956	-1.7	165.9	-2.8	38194	-36799	101.3
Dec	-565	-870	-4964	-64	-5898	-3.3	84.2	-2.8	36988	-38226	101
2002 Mar	-206	423	-5066	25	-5464	-3.0	92.7	-2.8	37882	-39699	103.7
Jun	-1829	-2136	-5188	5	-7319	-4.0	70.9	-2.8	38173	-41431	102.7
Sep	-2344	-2777	-5473	-22	-8272	-4.5	66.2	-3.0	37880	-41839	102.9
Dec	-5001	-5489	-5963	-125	-11577	-6.2	51.5	-3.2	37747	-44756	103.4
<b>Month</b>						(Seasonally adjusted)					
2002 Feb	-428	495									
Mar	-156	-313									
Apr	-402	492									
May	-529	-604									
Jun	-742	-863									
Jul	-632	-826									
Aug	-750	-868									
Sep	-932	-976									
Oct	-964	-1125									
Nov	-946	-1106									
Dec	-2886	-2995									
2003 Jan	-1167	-1365									

(a) The ratio of the implicit price deflator for exports of goods and services to the implicit price deflator for imports of goods and services, 2000-01 = 100, calculated on a National Accounts basis.

Sources: ABS Cat. Nos. 5368.0, 5302.0 and 5206.0.

**Table 9: Australia's external liabilities**

	Public sector gross debt	Private sector gross debt	Total gross debt	Net debt	Net external liabilities
(Levels of Australian foreign liabilities)					
(\$A million)					
<b>As at end</b>					
2000 Jun	63445	358326	421771	277804	326505
2001 Jun	68950	429825	498775	313472	361034
2002 Jun	68236	458027	526263	330650	387283
2001 Sep	71732	448357	520090	323176	379638
Dec	67824	440060	507884	322446	370669
2002 Mar	70219	439152	509371	327908	376053
Jun	68236	458027	526263	330650	387283
Sep	71106	475956	547063	347847	407609
Dec	n.y.a	n.y.a	n.y.a	353966	413176
<b>As at end</b>					
(Percentage of GDP)					
2000 Jun	10.1	57.0	67.1	44.2	51.9
2001 Jun	10.3	64.2	74.5	46.8	53.9
2002 Jun	9.6	64.3	73.8	46.4	54.3
2001 Sep	10.6	66.2	76.8	47.7	56.1
Dec	9.8	63.7	73.6	46.7	53.7
2002 Mar	10.0	62.6	72.6	46.7	53.6
Jun	9.6	64.3	73.8	46.4	54.3
Sep	9.8	65.7	75.5	48.0	56.2
Dec	n.y.a	n.y.a	n.y.a	48.2	56.3

Source: ABS Cat. Nos. 5302.0 and 5206.0.

**Table 10: Australia's income flows**

	Public sector gross debt	Private sector gross debt	Total gross debt	Net debt	Net external liabilities
(Gross and net interest payable, and net investment income)					
(\$A million)					
<b>Year ended</b>					
2000 Jun	3455	13756	17210	13300	18013
2001 Jun	3105	16290	19395	14770	18908
2002 Jun	3107	15161	18268	14006	19899
<b>Quarter ended</b>					
2001 Sep	751	3954	4705	3640	5277
Dec	742	3708	4450	3396	4441
2002 Mar	808	3764	4572	3518	5018
Jun	806	3735	4541	3452	5163
Sep	719	3546	4265	3159	6008
Dec	n.y.a.	n.y.a.	n.y.a.	2969	5246
<b>Year ended</b>	(Percentage of exports of goods and services)				
2000 Jun	2.7	10.9	13.7	10.6	14.3
2001 Jun	2.0	10.6	12.6	9.6	12.3
2002 Jun	2.0	10.0	12.0	9.2	13.1
<b>Quarter ended</b>					
2001 Sep	1.9	9.9	11.8	9.2	13.3
Dec	1.9	9.6	11.5	8.8	11.5
2002 Mar	2.2	10.1	12.3	9.4	13.5
Jun	2.2	10.2	12.3	9.4	14.0
Sep	1.9	9.3	11.2	8.3	15.7
Dec	n.y.a.	n.y.a.	n.y.a.	7.6	13.5

Source: ABS Cat. No. 5302.0.

**Table 11: Selected economic indicators**

Year	Inventories to total sales <sup>(e)</sup>	Imports to domestic sales <sup>(a)</sup>	Saving ratio <sup>(b)</sup>	Nominal exchange rates		Real exchange rate	
				USD / AUD <sup>(c)</sup>	Trade weighted index <sup>(c)</sup>	Export weighted index <sup>(d)</sup>	
1999-00	0.877	0.384	2.1	0.6290	55.2	105.1	
2000-01	0.864	0.412	3.8	0.5379	50.3	100.1	
2001-02	0.819	0.389	1.9	0.5239	50.8	102.7	
<b>Quarter</b>							
2001 Sep	0.847	0.39	2.5	0.5138	49.3	99.5	
Dec	0.827	0.39	2.2	0.5123	49.6	100.2	
2002 Mar	0.809	0.387	1.9	0.5181	51.0	103.7	
Jun	0.793	0.389	1.0	0.5515	53.4	107.4	
Sep	0.784	0.384	0.0	0.5478	50.9	103.8	
Dec	0.768	0.398	-0.5	0.5579	52.0	105.0	

(a) ABS National Accounts measure. All numbers derived from seasonally adjusted data.

(b) Ratio of household saving to household disposable income derived from seasonally adjusted data.

(c) Exchange rates refer to the period average.

(d) Treasury estimate using GDP deflators.

Sources: ABS Cat. Nos. 5206.0, 5302.0.



# Articles in the Economic Roundup

Details of articles published in the past two editions of the Economic Roundup are listed below:

## **Summer 2003**

Key themes from the Treasury Business Liaison Program –  
November 2002  
Australian net private wealth

## **Spring 2002**

2001-02 in review: strong growth in the midst of an international  
slowdown  
Sustainable development — to what end  
Renewable energy — a clean alternative?  
Risks to the global economic outlook — Implications for the  
Asia-Pacific region

Copies of these articles are available from the Treasury. Written requests should be sent to The Manager, Economic Conditions Unit, Department of the Treasury, Langton Crescent, Parkes, ACT, 2600. Telephone requests should be directed to Ms Stephanie Tsikleas on (02) 6263 3797.

Copies may be downloaded from the Treasury web site (<http://www.treasury.gov.au>).

The index of articles and other major Treasury publications is published on the Treasury website, at <http://www.treasury.gov.au>. The website provides a comprehensive list of press releases, speeches, publications, annual reports, legislation, discussion papers, submissions and articles released by the Department. Information on the Treasury website can be downloaded in PDF and RTF formats, or read online.