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GST and the changing incidence of Australian Taxes: 1994-95 to 2001-02

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Abstract

The past decade has seen major reforms to the design of Australia's tax system. This paper outlines these reforms and examines their distributional impact across the household income spectrum.

While the authors estimated tax incidence in Australia prior to the July 2000 (ANTS) reforms (which included the introduction of a 10% GST), no comprehensive estimates of the impact of these tax reforms have been made since that date. This paper addresses this deficiency.

It finds that the personal income tax has become more income redistributive and more progressive over the period 1994-95 to 2001-02. However, the broad-based indirect tax reforms implemented over this period have become marginally more regressive and, because they have become more important as a revenue source, they now impact more adversely on post-tax income distribution. In the case of taxes other than the personal income tax and the reformed indirect taxes, they have become less regressive and have increased in importance. Overall, the progressivity of the Australian tax system and the distribution of post-tax income appears to have remained remarkably stable over the period.

INTRODUCTION

The past decade has been characterised by major changes to the Australian tax system. This has not just been confined to taxes levied by the Commonwealth. State governments have also implemented major reforms. These include the repeal of many of their financial taxes (in return for a share of the GST revenue) and the loss, following a Constitutional challenge, of their Business Franchise Taxes in 1997.

This has all occurred during a period of unprecedented economic growth. An important policy question then becomes how these Commonwealth and State changes to the tax system have impacted on households over recent years.

Interesting as this question is, it is not simply answered. After all, governments impact on the citizenry in a multitude of ways other than just through the tax revenue raised. Even if our focus was just on taxation, then there might also be a case for examining the costs of imposing and collecting these taxes - including the impact of distortions (or deadweight loss) arising from the taxes. Equally, there might also be a case to consider the impact of changes in tax-expenditures (or tax concessions). Similarly, an important issue is whether any of the tax changes were offset by government expenditure changes and whether there have been changes in regulations that might impact on the financial welfare of individuals.

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Ultimately, in order to obtain a complete picture of the impact of government on its citizenry over a period of time, the impact of all aspects of government on the community would need to be considered.

It is to this end, that the authors are undertaking a series of studies into those elements that contribute to changes in fiscal incidence in Australia over the past decade. Harding, Lloyd and Warren (2004, 2005) examine the incidence in 2001-02 of the personal income tax, a limited range of Commonwealth indirect taxes, social welfare payments and a range of government social expenditures.

The purpose of this paper is to extend the tax component of the above studies and estimate changes in the incidence of almost *all* tax revenue raised in Australia between 1994-95 and 2001-02 for which we have sufficient data to simulate incidence. Initial attention is given to outlining the broad reforms introduced over this period (which are more fully outlined in Warren (2004)). No study of changing tax incidence can be undertaken without consideration of how these changes are impacted by economic, social and demographic changes over the period of study - and it will be to this issue that we turn in third section. The fourth section provides an overview of the methodology adopted. The fifth section examines the change in gross income distribution over the period studied. The sixth section presents estimates of the changing incidence of taxes which is followed by an analysis of the impact these taxes have on income distribution and the progressivity of the overall tax system. The final section examines areas for further research.

OVERVIEW OF TAX REFORMS BETWEEN 1994-95 AND 2001-02

The current Australian Commonwealth Government was first elected on 2 March 1996. The elected Prime Minister, John Howard MP, had always shown great interest in tax related issues, especially while Treasurer in various Liberal Governments in the 1970s and early 1980s. It was therefore not surprising that tax reform soon became a focus when he assumed the Prime Ministerial position. In October 1996, the Australian Chamber of Commerce and Industry (ACCI) sponsored a National Tax Summit, which released a final communiqué presenting unified and strong support for tax reform across a range of industry and community organisations. By the end of 1996, calls for tax reform were receiving broad community and business support. On 25 May 1997, the Prime Minister announced that a taxation taskforce would be formed to report to government on the options for tax reform within three months. The Tax Reform Consultative Task Force was chaired by Senator Brian Gibson and provided the avenue for public comment to flow through to the Treasury Taskforce.

In August 1998, the Government released[279] *Tax Reform, Not a new tax, a new tax system* (which became known as ANTS). This included recommendations to introduce a GST, personal income tax cuts, welfare system changes, entity taxation and a number of other business tax reforms.[280]

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279 Treasurer, 'A New Tax System for all Australians',(Press Release No 79, (13 August 1998).

280 Commonwealth of Australia, 1998, *Tax Reform, Not a New Tax, a New Tax System* (August). <www.treasury.gov.au/contentitem.asp?pageId=&ContentID=167>For an overview of the GST debate, also see *The GST Debate -A Chronology at* <www.aph.gov.au/library/pubs/chron/1998-99/99chr01.htm>.

Since 1998, the pace of tax reform in Australia has been frenetic. The tax reform timeline below provides a brief overview of the sequencing of actual reforms implemented but does not include the many other reform proposals which did not find implementation.[281] With the GST revenue being assigned to general purpose Commonwealth grants to the States, the opportunity was also taken to use the GST revenue to fund the repeal of a number of inefficient State taxes.

The strategy mapped out in ANTS did not find easy nor comprehensive implementation. The changes to business income taxation were deferred for further consideration by the Review of Business Taxes (RBT).[282] The passage of the GST through Parliament was tortuous. The GST legislation was first tabled in the Commonwealth Parliament on 2 December 1998 but stalled in the Senate until an agreement with the Democrats on 28 May 1999 which resulted in the removal of basic foods from its base. It finally passed through both Houses of Parliament on 8 July 1999 and was given Royal Assent on 29 July 1999. This was just 11 months before its introduction on 1 July 2000. Amendments were also made to the Wholesale Sales Tax (WST) on 29 July 1999 to reduce the WST rate on goods subject to the 32% rate to 22% (except for furs and jewellery).

TABLE 1 MAJOR TAX REFORMS: 1982 TO 2002-03

Introduction of Diesel Fuel Rebate Scheme (DFRS)	1982
Introduction of CPI indexation of excise	Aug-83
Introduction of petroleum resources rent tax	Jun-05
Introduction of FBT	Sep-85
Introduction of CGT	Sep-85
Full imputation for company tax	Jul-87
Gold mining tax exemption abolished	Jan-91
State Business Franchise Taxes unconstitutional; replacement with Commonwealth excise surcharge	Aug-97
Release of ANTS I	Aug-98
Release of ANTS II (Basic Foods removed from GST base and income tax cuts reduced)	May-99
Introduction of CGT 50% discount, abolition of indexation & averaging	Sep-99
Introduction of tobacco per-stick excise arrangements	Nov-99
Abolition of Wholesales Sales Tax	Jul-00
Introduction of GST (See <www.aph.gov.au/library/pubs/chron/1998-99/99chr01.htm> for a Chronology of the introduction of the GST)	Jul-00
Abolition of State Accommodation Taxes	Jun-00
Adjustment of fuel and alcohol excise rates for GST	Jul-00
Introduction of Diesel and Alternative Fuel Grant Scheme (DAFGS)	Jul-00
Introduction of the Wine Equalisation Tax (WET) and Luxury Car Tax (LCT)	Jul-00
Abolition of FID	Jul-01
Abolition of stamp duty on share transactions	Jul-01
Abolition of fuel indexation (effective August 2001)	Mar-01
Introduction of consolidation regime	Jul-02
Introduction of National Excise Scheme for Low Alcohol Beer	Jul-02
Excise and customs duty introduced on fuel ethanol	Sep-02
Replacement of DFRS & DAFGS w ith Energy Grants (Credits) Scheme	Jul-03
Excise and customs duty introduced for biodiesel	Sep-03

Source: Warren(2004), Table 4.1

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[281] For a more detailed timeline, See Warren(2004) Table 4.1 (www.atrf.com.au).
[282] See <www.rbt.treasury.gov.au>

TABLE 2 TAX REVENUE: 1994-95 AND 2001-02

Type of tax	1994–95 $m	2001–02 $m	Change	Reformed Indirect Taxes (as separately identified in this study)
Taxes on income				
Income taxes levied on individuals	54,635	87,250	60%	
Income taxes levied on enterprises(a)	17,351	31,782	83%	
Income taxes levied on non-residents	777	-		
Total	72,763	119,032	64%	
Employers payroll taxes				
General taxes (payroll tax)	6,394	9,415	47%	
Selective payroll taxes (stevedoring industry charges)	64	-		
Other employers labour force taxes	2,687	3,760	40%	
Total	9,145	13,175	44%	
Taxes on property				
Taxes on immovable property	6,744	9,510	41%	
Taxes on financial and capital transactions				
Financial institutions transactions taxes	1,831	972	-47%	X
Government borrowing guarantee levies	54	185	243%	
Stamp duties on conveyances	2,108	7,302	246%	
Other stamp duties	1,890	1,213	-36%	X (part)
Total	12,636	19,182	52%	
Taxes on provision of goods and services				
General taxes (sales tax)	11,624	791	-93%	X
Goods and services tax (GST)		27,389		X
Excises and levies				
Crude oil and LPG (including PRRT)	9,510	12,742	34%	X
Beer	821	1,657	102%	X
Potable Spirits	188	382	103%	X
Tobacco	1,481	4,850	227%	X
Total	12,000	19,630	64%	
Agricultural production taxes	692	553	-20%	
Levies on statutory corporations	517	82	-84%	
Total	13,209	20,265	53%	
Taxes on international trade	3,479	5,214	50%	
Taxes on gambling	2,960	3,707	25%	
Taxes on insurance	1,688	2,836	68%	
Total	32,961	60,202	83%	
Taxes on the use of goods and performance of activities				
Motor vehicle taxes	3,093	4,291	39%	
Franchise taxes				
Gas taxes	18			X
Petroleum products taxes	1,427			X
Tobacco taxes	2,067			X
Liquor taxes	685			X
Total	4,197	13	-100%	
Other	451	1,010	124%	
Total	7,742	5,314	-31%	
Total: All	**135,246**	**216,915**	**60%**	

Note: 1994-95 taxation revenue is reported on a realisation basis. 2001-02 is reported on an accruals basis. The different numbers are not directly comparable but in relation to expenditure based taxes, this difference is probably not that important. Different treatment is also evident over this period in tax expenditures of petroleum products. Adjustment is made to this data not in the above table but when undertaking the Tax incidence modelling. This explains the totals difference between the above table and Table 9.
Source:
ABS Taxation Revenue 2001-02, Cat 5506.0, Table 1;
ABS Taxation Revenue 1997-98, Cat 5506.0, Table 1

Changes were also made to the method of calculating the excise on tobacco in July 1999 – moving from a weight-based system to one where the excise was determined on a per stick basis.

Business income tax reforms emanating from the RBT had an even bumpier ride than the GST with many reform proposals not finding their way through to implementation, especially the proposed entity taxation and Tax Value Method[283] (TVM) of calculating business income.

For States, tax reforms have been more limited and centre on those precipitated by the introduction of the GST such as the repeal of accommodation taxes, the Financial Institutions Duty (FID) and stamp duties on share transactions.

Personal Income Tax
The ANTS package of reforms was introduced in July 2000. The personal income tax changes over the period of study are detailed in Table 3. More significant cuts in the rates for those on high incomes were originally proposed in ANTS for introduction on 1 July 2000 but were substantially reduced when basic food was removed from the base of the GST (partly to fund this measure).

Lump sum compensation for the inflation induced wealth effects of the introduction of the GST for those in retirement was also provided[284] but these changes have not been modelled in this study.

TABLE 3 RECENT PERSONAL INCOME TAX REFORMS AND LOW INCOME REBATE[285]

1 November 1993 - 1 July 2000			1 July 2000 to 30 June 2003		
Personal Income Tax					
Taxable Income Range: Current Values	Upper Threshold Indexed: June 2005 values	Rate	Taxable Income Range: Current Values	Upper Threshold Indexed: June 2005 values	Rate
$0-$5,400	$7,234	0	$0-$6,000	$7,006	0
$5,401-$20,700	$27,732	20%	$6,001-$20,000	$23,355	17%
$20,701-$38,000	$50,909	34%	$20,001-$50,000	$58,387	30%
$38,001-$50,000	$66,986	43%	$50,001-$60,000	$70,064	42%
$50,001and above		47%	$60,001and above		47%
Low Income Rebate					
Threshold: $20,700	$27,732		Threshold: $20,700	$24,172	
Rebate: $150	$201		Rebate: $150	$175	
Withdrawal Rate		4%	Withdrawal Rate		4%

Note: A Medicare Levy of 1.5% on incomes above a range of thresholds is also imposed

CGT changes
Australia first included capital gains into the income tax base on 19 September 1985. However, in doing so, it opted to apply it to assets purchased after that date and then only to include as income, real (inflation adjusted) capital gains. In September 1999, this concessionary approach was replaced with a 50% concession for capital gains on

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[283] See <www.taxboard.gov.au/content/tvm_index.asp>

[284] Those on the age pension were eligible for a means tested Aged Persons Retirement Bonus of $1,000 and retirees not in receipt of government benefits were eligible for a means tested Self-Funded Retirees Supplementary Bonus of $2,000. See ANTS(1998, p59).

[285] An update of the personal income tax schedules imposed since this period is presented in Table 2, Warren(2005).

assets held by individuals for more than one year[286] - with the debate on this reform focussing on the level of the discount.[287] This meant that the effective maximum rate of taxation on capital gains became 24.25% (or 50% of the top marginal tax rate of 48.5%).

Goods and Services Tax
The economic incidence of any GST is ultimately designed to fall on domestic household consumers (and possibly overseas visitors). It is not intended to be borne either by foreign households or by domestic industry. Through its method of administration (via the invoice method[288] and the destinations principle[289]), the tax is ultimately borne by final domestic household consumers - those persons who actually consume the good for the last time - not intermediate consumers (such as businesses buying inputs) or final consumers who are purchasing investment goods for use in further production and for redistribution or who are non-resident consumers.

The WST which was repealed in July 2000 only taxed directly around 16% (Warren 2004) of household final consumption expenditure, while the GST which replaced it had a much broader base[290]. While the Australian GST includes most goods and services, basic food, health and education are GST-free (or zero-rated). Financial services and residential accommodation are input taxed (or exempt).

In July 2000 when the WST was repealed and the 10% GST introduced, a number of goods subject to high WST rates and excise duties were adjusted to prevent either dramatic falls or rises in their price. This was particularly the case with petrol, tobacco, beer and wine. Under the old WST, a 37% rate was imposed on beer and 41% on wine.[291] No adjustment would have seen the price of beer fall by 25% and the price of wine by nearly 30%. In response, beer excise was adjusted up and a Wine Equalisation Tax (WET) of 29% was introduced on the wholesale value of wine sales (as noted further below in relation to excise duties).

In the case of luxury cars which were previously taxed with a 45% WST above the luxury car threshold, adjustments were made to ensure that following the repeal of the WST and the imposition of a 10% GST, luxury car prices did not fall. This was achieved through the introduction of a 25% Luxury Car Tax (LCT) imposed on the

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[286] For a summary of the changes see the Treasurer's Press Release No 58, 21 September 1999, <www.treasurer.gov.au/tsr/content/pressreleases/1999/058.asp>

[287] The stimulus for the reforms came from the recommendations by the 1999 Review of Business Taxes (RBT*) A Tax System Redesigned*, Chapter 18. Probably the most substantial and controversial study of CGT during the last 5 years has been that commissioned by the ASX for the Review of Business Taxes in 1999 which argued for CGT concessions. See <www.asx.com.au/shareholder/pdf/cgt.pdf>

[288] This is the method where invoices identify the GST on purchases so that producers know the tax on their inputs and can then claim a credit for this when working out the GST liability on outputs (or sales). This results in the producer only effectively being liable for GST on the value they added to their inputs (which arises primarily through their profits and wages and salaries). The sum of the value added by all the producers will ultimately sum to the final value of the goods being sold to final consumers. This is why what New Zealand and Canada call a GST is typically referred to as a Value Added Tax (or VAT) in most other countries.

[289] The destinations principle results in exports being GST free and import fully taxed.

[290] Note that the Australian WST also imposed significant taxes on business inputs with around half of the revenue collected coming from taxing business inputs.

[291] In mid 1997, the High Court declared State Franchise Taxes unconstitutional. Following negotiations with the States, the State franchise tax was integrated into the WST. As a result, the WST rate on beer was increased from 22% to 37% and the WST rate on wine was increased from 26% to 41%.

retail value of luxury cars above a threshold (which was \$57,009 in the 2002-03 financial year[292]).

Excise Duties and State Business Franchise Taxes
Excise duties have been subject to a number of changes over the period of study. Other than rate increases due to indexation and one off increases, there have been four main changes:

1. State Business Franchise Taxes (BFT) were declared unconstitutional in August 1997 and those BFTs on petrol, tobacco and beer were then incorporated into excise duties (and that on wine reflected in a change in the WST on wine);

2. Excise duties changed in July 2000 to reflect the introduction of the GST and to ensure that prices did not change as a result (as noted above);

3. In November 1999, the previous system of imposing excise duty on cigarettes by weight was replaced by a per stick system which, when combined with the 10% GST, resulted in a substantial increase in the taxation of tobacco;

4. Indexation of petroleum products was repealed, effective August 2001.

Company Taxation
Table 4 details changes to the company tax rate over the period of study. What is not shown is that these rate changes were largely financed through an expansion of the company income tax base, such as the removal or reduction in the number of income concessions including the replacement (except for small business taxpayers) of accelerated depreciation arrangements with an effective life system[293] (although the latter change does largely involve issues of timing).

TABLE 4 CORPORATE TAX RATES

1982-86	1986-88	1988-93	1993-95	1995-2000	2000-01	2001-01 onwards
46%	49%	39%	33%	36%	34%	30%

Source: Treasury Pocket Brief to the Australian Tax System Dec 2004
<www.treasury.gov.au/contentitem.asp?NavId=035&ContentID=866>

State Taxation
State Business Franchise Taxes (BFT) were incorporated into the Commonwealth excise duties and WST in 1997 when these taxes were declared unconstitutional. States were subsequently given the revenue raised by the Commonwealth from these new Commonwealth imposts. While a flat amount per unit of the commodity was collected across each State, the Commonwealth then left the States to reimburse retailers in their State so that the effective equivalent amount of BFT imposed on consumers of these goods was the same as before their loss of BFT.

As part of the Intergovernmental Agreement 2005 signed by States prior to the introduction of the GST, States agreed to abolish their Accommodation Taxes in July 2000 and FID, along with stamp duties on share transactions, in July 2001. Other taxes such as Bank Accounts Duty and various stamp duties on business transactions that

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[292] Information on both the LCT and WET are administered by the ATO and more information on these taxes can be found at <www.ato.gov.au>

[293] See <www.treasurer.gov.au/tsr/content/pressreleases/1999/086.asp>

were originally proposed for repeal were postponed for later review as a result of food being removed from the GST base[294]. It was expected that if all States received above the expected level of GST revenue, that by 1 July 2005 they would favourably consider repealing these taxes.

SOCIO-ECONOMIC AND DEMOGRAPHIC CHANGES

Understanding and interpreting intertemporal tax incidence results requires an appreciation of not just the nature of tax changes, but how the composition and circumstances of the household groups changed over the period studied. It is quite possible that the changes in tax revenue evident in Table 2 for example, might be due as much to changes in the circumstance and preference of the taxpayers as to changes in the base and rates of the taxes (as might be the case with alcohol and tobacco).

For this and other reasons, it is important to outline socio-economic and demographic changes over the period studied and this is the objective of this section.

Table 5 shows just how marked have been the changes in the composition of the population and the workforce between 1994-95 and 2001-02. Several points are worthy of note:

1) The population has aged over the period of study, indicated by fewer persons aged less than 15 years and more aged 65 and above.

2) The falling duration of unemployment, which reflected the declining proportion of the population unemployed.

3) There has been a fall in the number of males employed but a sizeable increase in the female participation rate (which impacts directly on household incomes as a result of there being more two-earner households).

4) An increase in the number of hours worked by over 7%.

5) A declining savings ratio, reflecting increased expenditure of disposable income (which can also reflect increased household wealth).

6) The proportion of the labour force employed full-time has fallen, especially in the case of males, but this has been offset by the proportion working in part-time positions increasing quite substantially - a result which benefits females most, particularly those who are married.

These and other changes over the period of study pose important qualifications to the empirical results presented in this paper (and their study will be the focus of future research). Moreover, it is possible that the tax reforms introduced over the period of study have themselves impacted on these indicators. Acknowledging the impact these trends can have as an explanatory variable for changes in tax incidence over the period studied is important and may avoid a misleading impression being given about the source of changes in the incidence of particular taxes. After all, the changing incidence may be just as much to do with changes in the circumstances of the household as it has to do with changes in the tax system. Table 6 sets out the changes

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[294] The Commonwealth, in an agreement with the Australian Democrats, reduced the size of the personal income tax cuts going to high income individuals and the number of State taxes to be repealed in return for basic foods being removed from the GST base.

TABLE 5 SELECTED INDICATORS OF THE CHANGING ECONOMIC, SOCIAL AND DEMOGRAPHIC SITUATION IN AUSTRALIA

	1994-95	2001-02	Change
Percent of population:			
0-14 years	21.5%	20.4%	-5.1%
65 years and above	11.8%	12.6%	6.8%
Mean duration of Unemployment (weeks)	57.5	51.9	
Percent of labour force:a			
Unemployed	8.7%	6.8%	
Employed - full time	68.9%	67.1%	
Employed - part time-total	22.4%	26.2%	
Employed - part time-female	16.7%	18.7%	
Labour force participation rate of civilian population 15 years and above:			
Males	73.7%	72.1%	
Female - married	54.1%	57.4%	
Female - single	51.9%	52.0%	
All groups	63.3%	63.4%	
Taxes:			
Current $b	$149.23	$216.95	45.4%
As a % of GDP	29.2%	31.0%	
Tax per capita (CPI Adjusted)	$8,257	$9,251	12.0%
Stage in economic cycle indicated by the % change in real GDP in:			
Previous year	3.8%	3.0%	
Current year	4.1%	3.0%	
One year later	4.3%	3.5%	
GDP per capita(current prices)	$25,650	$33,701	31.4%
GDP per capita(CPI adjusted prices)	$25,650	$28,225	10.0%
Index of average hours worked (ANZSIC divisions A to K and P) Index 2003 =100	92.8	99.5	
Household saving ratio (current prices)	5.1%	2.2%	
Average housing loan size: Nominal	$93,830	$133,780	42.6%
Average housing loan size: (CPI Adjusted)	$93,830	$112,041	19.4%
Full time male adult ordinary earnings (seasonly adjusted)	$673	$857	
increase (%)	31%	27%	
Ratio average housing loan / annual average male ordinary earnings	2.7	3.0	
Female - 15y and older never married (%)	21%	23%	
Financial assets of the household sector	$37,904	$49,676	31.1%
Financial liabilities of the household sector	$14,055	$21,150	50.5%

Source:

ABS 3201.0 Population by Age and Sex, Australian States and Territories Table 9. Estimated Resident Population By Single Year Of Age, Australia(a)

Year Book Australia 2002 Income and Welfare Special Article - Income Support Payments in Australia

ABS 6291.0.55.001 Labour Force, Australia, Detailed - Electronic Delivery Table 15a: Unemployed persons by Duration of unemployment since last full-time job and Sex

ABS 5204.0 Australian System of National Accounts Table 1. Key National Accounts Aggregates

ABS 5609.0 Housing Finance, Australia Table 13c. Housing Finance Commitments (Owner Occupation), By Purpose and Lender: Australia, Original (Average Loan Size - $000)(c)

ABS 6302.0 Average Weekly Earnings, Australia Table 2. Average Weekly Earnings Of Employees, Australia (Dollars) - Seasonally Adjusted

ABS 3105.0.65.001 Australian Historical Population Statistics - 7.Marriages and divorces Table 105. Estimated resident population, sex and marital status, Australia, 30 June, 1976 onwards

Reserve Bank statistics B20 Financial Assets and Liabilities of The Private Non-Financial Sectors

OECD Revenue Statistics 2003

in the sources of household income over the period 1994-95 and 2001-02. The contribution to household income from compensation of employees has increased, as would be expected with increased employment.

Similarly, with falling interest rates, we would also expect a falling contribution from interest income. The big changes have been in the contribution from dividends and from government social assistance programs. The latter has occurred despite falling unemployment and appears due to increased welfare payments to families with children and to the aged, as well as to the general increase in transfer payments that occurred as compensation for the introduction of the GST for low income households.

The other important trend is that associated with household expenditure as shown in Table 7. Here there was a marked change in the consumption patterns of households over the period. Some of this has been due to the arrival of new products (computers and mobile phones) and others to improved standards of living which result in less expenditure on durables (furniture, clothing) and more on services (recreation, health and education). The expenditure on the sins of tobacco and alcohol appear to have also increased in importance - but some of this could be due to increased taxes on these commodities - while another reason might be that these are complements to increased consumption of services (such as travel and accommodation).

Some care should also be taken in making comparisons over this period using the data in Table 7 because a 10% GST was imposed on many of these goods and services when there was no such tax before. This is the case for example with communication products. Similarly, some items remained untaxed (basic foods) which could explain why they declined in importance in household budgets.

TABLE 6 HOUSEHOLD INCOME

Income source	1994-95		2001-02		Change over period
	$m	Distribution	$m	Distribution	
Primary income receivable					
Gross operating surplus-dwellings owned by persons	37,071	8.9%	56,670	9.3%	52.9%
Gross mixed income	46,138	11.1%	64,965	10.7%	40.8%
Compensation of employees	224,612	53.9%	337,104	55.4%	50.1%
Property income receivable					
Interest	16,675	4.0%	16,150	2.7%	-3.1%
Imputed interest	22,995	5.5%	25,587	4.2%	11.3%
Dividends	5,808	1.4%	13,314	2.2%	129.2%
Rent on natural assets	18	0.0%	19	0.0%	5.6%
Total property income receivable	45,496	10.9%	55,070	9.0%	21.0%
Total primary income receivable	353,317	84.7%	513,809	84.4%	45.4%
Secondary income receivable					
Social benefits receivable					
Workers' compensation	4,522	1.1%	5,675	0.9%	25.5%
Social assistance benefits	40,795	9.8%	63,810	10.5%	56.4%
Non-life insurance claims	10,222	2.5%	12,321	2.0%	20.5%
Current transfers to non-profit institutions	7,217	1.7%	11,424	1.9%	58.3%
Other current transfers	892	0.2%	1,586	0.3%	77.8%
Total secondary income receivable	63,648	15.3%	94,816	15.6%	49.0%
Total gross income	416,965	100.0%	608,625	100.0%	46.0%

Source: ABS National Accounts: National Income and Expenditure, 2003-04, Cat No 5204, Table 46

TABLE 7 HOUSEHOLD FINAL CONSUMPTION EXPENDITURE

	1994-95		2001-02		Change over Period	
	$m		$m		%	average change
Food	31,805	11.3%	44,955	10.6%	41.3%	-9.4%
Alcoholic beverages and tobacco	10,694	3.8%	18,006	4.2%	68.4%	17.6%
Clothing and footwear	12,394	4.4%	16,472	3.9%	32.9%	-17.9%
Rent and other dwelling services	51,819	18.4%	77,092	18.1%	48.8%	-2.0%
Electricity, gas and other fuel	5,961	2.1%	8,632	2.0%	44.8%	-5.9%
Furnishings and household equipme	17,270	6.1%	23,721	5.6%	37.4%	-13.4%
Health	12,381	4.4%	21,165	5.0%	70.9%	20.2%
Transport	35,538	12.6%	49,317	11.6%	38.8%	-12.0%
Communication	5,623	2.0%	11,559	2.7%	105.6%	54.8%
Recreation and culture	33,695	12.0%	52,134	12.3%	54.7%	4.0%
Education services	5,678	2.0%	10,068	2.4%	77.3%	26.6%
Hotels, cafes and restaurants	20,855	7.4%	32,241	7.6%	54.6%	3.8%
Miscellaneous goods and services	38,085	13.5%	59,467	14.0%	56.1%	5.4%
Total	281,798	100.0%	424,829	100.0%	50.8%	

Source: ABS National Accounts: National Income and Expenditure, 2003-04, Cat No 5204, Table 52

OVERVIEW OF METHODOLOGY

It is important to appreciate that while a very wide range of Australian taxes are included within the scope of this study, this study still only examines part of the impact of government on household income distribution. The impact of Capital Gains Tax is not included, as well as non-cash benefits, tax expenditures or those costs associated with imposing and collecting taxes. Furthermore, the results presented are heavily dependent upon the quality of the household sample survey data used and our assumptions about the shifting of taxes.

Household income is increased directly by benefits in the form of regular cash payments, such as the age pension and family payments, and indirectly by government expenditures such as those on health and education. On the other hand, household income is reduced by personal income taxes (direct taxes) and by indirect taxes passed on in the higher prices households pay for goods and services (ABS, 2001a, p.3). However, unlike the ABS fiscal incidence studies, all taxes are considered (with the exception of the Fringe Benefits Tax and the income tax on capital gains) and when a tax is included, all tax revenue collected is allocated either to domestic or to foreign households. In contrast, in the case of indirect taxes, the ABS fiscal incidence studies overlooks taxes which impact directly or indirectly on all final demand expenditures other than household private final consumption expenditure.

In summary, this paper estimates the distribution in 1994-95 and 2001-02 of:

- The major social security cash transfers and family payments;
- Income tax and selected income tax rebates and concessions; and
- A very wide range of Commonwealth, State and local taxes.

The methodology used in this study is described in more detail in Appendix A of this paper.

Data source
The core data sources used in the simulation of the 1994-95 world is the 1993-94 Household Expenditure Survey (HES) confidentialised unit record file released by the Australian Bureau of Statistics and for the 2001-02 world, the 1998-99 HES confidentialised unit record file. Ideally, access to post ANTS HES survey data would have been preferable, providing a more current insight into income and expenditure by Australian households in the post-ANTS tax environment. However, 1998-99 HES data are the latest data available.

These HES confidentialised unit record files contain a snapshot of the demographic, labour force, income and other characteristics of the Australian population in 1993-94 and 1998-99. It is important to note that the scope of the survey is restricted to those living in private dwellings and excludes those living in remote and sparsely settled areas. We made some adjustments to this file to update the private incomes and housing costs of households to estimated 1994-95 and 2001-02 levels, using such inflators as average weekly earnings and housing consumer price indexes. We also adjusted the population weights from 1993-94 to 1994-95, and from 1998-99 to 2001-02 levels, to allow for the aggregate growth in the population that occurs each year. We did not reweight the entire 1993-94 and 1998-99 surveys to account for possible changes in, for example, labour force and demographic status.
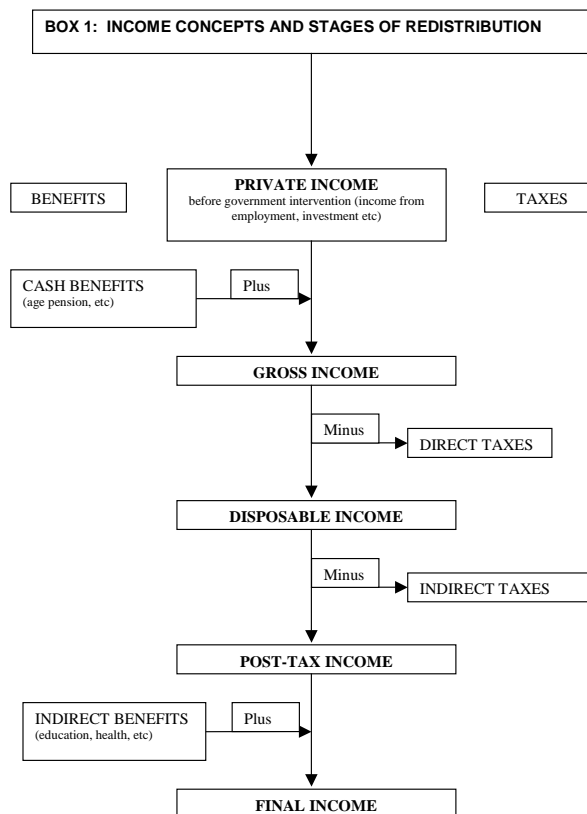
Taxes and cash transfers
In July 2000 Australia introduced a complex tax-mix shift towards indirect taxes, accompanied by extensive social security reforms. As a result, the declared values of these items in the 1998-99 Household Expenditure Survey were redundant. Accordingly, we had to impute the rules of the income tax and social security systems to estimate the income taxes paid by and the transfers received by each of the households in the HES file. This aspect of the modelling employed NATSEM's STINMOD model, which is a long-established static microsimulation model of the Australian tax and transfer system used by government departments for budget policy formulation.

To simulate the impact of the GST and excises we calculated the average tax rates applying to each of the 500 plus detailed expenditure categories contained within the HES for each household. Taxes initially borne by government or business are assumed to be shifted ultimately to consumers, either residents or non-residents. (This differs from the ABS fiscal incidence studies, which only allocate to households those indirect taxes that can be directly assigned to households through their final consumption expenditure. However, like the ABS, we do not match national accounts estimates of tax collected exactly, because of scope exclusions in the HES and under-statement of tobacco and alcohol consumption by households within the HES.)

Income concepts used
A number of income concepts are used in fiscal incidence studies, and these are summarised in Box 1. Original or private income is the narrowest definition of income used in the study, and comprises income from such sources as wages, superannuation, investments and own business. Adding direct government cash benefits to private income gives gross income, which is the income concept used in many ABS studies (e.g. ABS, 2001a). Disposable income is derived by subtracting direct (or personal income) taxes from gross income. Disposable income, after adjustment for family or household size through use of an equivalence scale, is the income concept used in the majority of recent Australian studies of income distribution and financial disadvantage

(Harding, Lloyd and Greenwell, 2001, and Saunders, 2001). The ABS has also used this income concept for ranking Australians in its latest Income Distribution Survey (ABS 2003).

```
┌─────────────────────────────────────────────────────────┐
│ BOX 1:  INCOME CONCEPTS AND STAGES OF REDISTRIBUTION       │
└─────────────────────────────────────────────────────────┘
                            │
                            ▼
┌────────────┐      ┌──────────────────────────────┐      ┌──────────┐
│ BENEFITS   │      │        PRIVATE INCOME         │      │  TAXES   │
└────────────┘      │ before government intervention │      └──────────┘
                    │  (income from employment,      │
                    │      investment etc)           │
                    └──────────────────────────────┘
┌────────────────┐   ┌──────┐              │
│ CASH BENEFITS  │──▶│ Plus │──────▶        │
│ (age pension,  │   └──────┘              ▼
│  etc)          │           ┌──────────────────────┐
└────────────────┘           │    GROSS INCOME       │
                             └──────────────────────┘
                                      │
                            ┌───────┐ │   ┌──────────────┐
                            │ Minus │─┼──▶│ DIRECT TAXES │
                            └───────┘ │   └──────────────┘
                                      ▼
                             ┌──────────────────────┐
                             │  DISPOSABLE INCOME    │
                             └──────────────────────┘
                                      │
                            ┌───────┐ │   ┌────────────────┐
                            │ Minus │─┼──▶│ INDIRECT TAXES │
                            └───────┘ │   └────────────────┘
                                      ▼
                             ┌──────────────────────┐
                             │   POST-TAX INCOME     │
                             └──────────────────────┘
┌──────────────────┐   ┌──────┐       │
│ INDIRECT BENEFITS│──▶│ Plus │──────▶│
│ (education,      │   └──────┘       ▼
│  health, etc)    │        ┌──────────────────────┐
└──────────────────┘        │    FINAL INCOME       │
                            └──────────────────────┘
```

While the payment of income tax is taken account of during the calculation of disposable income, no account is taken of the payment of other taxes or of the services that governments provide that bestow a personal benefit upon households – generally a service that they would otherwise have to buy themselves. Disposable income may thus provide an incomplete picture of the relative living standards of different types of families (Harding, 1995, p. 71). Despite providing only a partial picture, disposable income is widely used in Australian income distribution studies because the requisite data are readily available in the ABS national income surveys.

Broader income measures are used in this study. From gross income, the personal income tax is subtracted to yield disposable income from which all indirect taxes are then subtracted to obtain *post-tax income*. In fiscal incidence studies, as distinct from this tax incidence study, one would then add in the value of indirect government benefits – that is, the estimated value of health, education, welfare and housing services provided by government. The resulting income measure is termed *final income* and, in essence, this is the most comprehensive measure of the relative economic well-being of households.

Table 2 details the Commonwealth, State and local government taxation revenue collected in 1994-95 and 2001-02, all of which are allocated to households using the shifting assumptions in Appendix B.

Equivalent incomes

When attempting to compare the economic well-being of households of differing size and composition, it is important to use equivalence scales. For example, it would be expected that a household comprising four people would need more income than a single person household if the two households were to enjoy the same standard of living.

There is not, however, agreement internationally or nationally about exactly how much more income the four person household requires than the single person household to achieve the same standard of living. Like the recent ABS income distribution study (2003), our study uses the modified OECD equivalence scale. In our study, this means that we have given the first adult in each household a weight of 1.0, second and subsequent adults a weight of 0.5 points, and dependent children a weight of 0.3 points. The relevant cash income measure is then divided by the sum of the above points, to calculate the household's equivalent income. The equivalence scale applied to cash income measures are intended to capture the economies of scale that occur when individuals share households (e.g. a couple living together require only one bed and fridge rather than the two required if they lived separately).

Weighting

Another difficult issue is the appropriate 'weight' to use when analysing the results of our study. Consider two households, one containing four people and the other containing one person. If we use household weighting, then each household counts once when constructing our inequality measures and income estimates. If we use person weighting, then the first household counts four times and the second household counts once. The second approach is considered theoretically the most appropriate, as it does not assume that people living in larger households are less important than people living in smaller households when assessing the income distribution. The ABS has just moved in its most recent income distribution publication to presenting some results for persons rather than for households (ABS 2003, p. 13).

In the output tables in the following section, when dividing the population into income decile, we have used deciles of persons rather than deciles of households. Thus, the bottom decile consists of the bottom 10 per cent of Australians, rather than the bottom 10 per cent of households. Using person weighting to create the deciles ensures that our measures are not biased by systematic differences in the average household size within different deciles. As the ABS notes, this was a problem with their earlier fiscal incidence studies, in which they used deciles of households rather than deciles of persons (ABS 2001, p. 9).

Quite apart from the division of the population into income deciles, another issue is whether the results included within each output table are person or household weighted. While person weighting might be considered the most desirable alternative theoretically, for most readers the results are then more difficult to interpret and explain. Accordingly, we have followed the practice used in the most recent fiscal incidence studies carried out by the ABS and UK Office for National Statistics, in presenting averages for households within each output table (ABS, 2001a, ONS, 2003) but where deciles represent persons deciles. Likewise, when estimating the Lorenz and Concentration Curves (in Section 7), person weights are used.

INCOME DECILES

For this part of our study all Australians have been ranked by the equivalent gross income of their household, and then divided into population deciles. All of the results within the cells of the tables and figures are for households, rather than for persons. That is, the average household private income in 2001-02 of the top 10 per cent of Australians is $2,591 a week. In other words, we have only used persons when ranking Australians into each of the income deciles, and have weighted by households when filling in the cells within the tables and figures. Sensitivity analysis suggested that this made very little difference to the results.

Table 8 details the broad changes in the distribution of private (or market) incomes and gross income. What is apparent is the increasing share of private income going to those in the highest decile. Equally interesting is the improving position those in the lower deciles. Further analysis suggested that this was partly due to the falling unemployment noted in Table 5, but was also a result of compositional change, with older Australians tending to move out of the bottom two deciles to be replaced by single people of working age. What is particularly interesting is that the trend apparent in private income is not so significant with gross income. This may be the result of government transfers being relinquished as private incomes increase, which acts to offset the impact of the improving private incomes, combined with the lower allowances paid to single unemployed people relative to the pensions paid to older Australians (with the former tending to replace some of the latter in the bottom decile).

Table 8 also highlights the percentage change in private and gross incomes of each decile over the period of study. Looking at changes in nominal gross incomes over the period, those on the bottom and top of the income distribution have shown somewhat stronger gains in income, with the income increases for middle-income Australian households being more modest. However, it is also notable that there have been strong gains in income right across the income spectrum over the seven years.

TABLE 8 ESTIMATED CHANGES IN THE DISTRIBUTION OF GROSS AND PRIVATE INCOME: 1994-95 AND 2001-02

Decile of equivalent gross income	1994-95				2001-02					
	Gross Income		Private Income		Gross Income			Private Income		
	$pw	Share	$pw	Share	$pw	Share	% Change since 1994-95	$pw	Share	% Change since 1994-95
1	155	2.7%	-13	-0.3%	211	2.8%	36.7%	15	0.2%	-
2	282	4.2%	36	0.6%	390	4.2%	38.3%	65	0.8%	81.5%
3	378	4.9%	150	2.3%	512	4.9%	35.2%	227	2.5%	50.8%
4	519	5.6%	392	4.9%	697	5.7%	34.3%	512	4.9%	30.5%
5	622	7.0%	546	7.2%	847	6.9%	36.3%	720	6.8%	31.8%
6	737	8.7%	666	9.1%	984	8.5%	33.6%	898	8.9%	34.9%
7	878	10.3%	833	11.3%	1,176	10.1%	34.0%	1,114	11.0%	33.7%
8	1,023	12.8%	999	14.5%	1,376	12.4%	34.4%	1,340	14.0%	34.2%
9	1,227	16.6%	1,212	19.0%	1,618	16.2%	31.9%	1,604	18.5%	32.3%
10	1,846	27.2%	1,838	31.4%	2,598	28.2%	40.8%	2,591	32.4%	41.0%
All	758	100.0%	653	100.0%	1,029	100.0%	35.7%	893	100.0%	36.6%

Note: The income amounts in this table have not been adjusted for inflation, so the percentage changes are in nominal rather than real incomes. Deciles shown are deciles of persons ranked by the equivalent gross income of their household. The results shown in the table cells are household weighted and therefore show the results of households in these person deciles.

TAX INCIDENCE: 1994-95 AND 2001-02

The taxes imposed in Australia can be borne by both residents and non-residents depending on how the taxes are shifted. The shifting assumptions adopted in this study are detailed in Appendix B.

The resulting distribution of Australian taxes between residents and non-residents in the two periods of study is shown in Table 9. These incidence estimates are far from uncontroversial. There is a substantial debate that taxes which ultimately impact on exports such as the Payroll Tax or the petroleum excise, will in the case of a small open economy, impact not directly on non-residents but cause a devaluation in the Australian currency (the so-called purchasing power parity theory). This would force the tax back onto Australians through higher priced imports in general.

Similar debates exist about the incidence of company taxes imposed on non-resident investors. However, to the extent that comparable company income taxes are imposed in other jurisdictions, it is probably less controversial to assume that company income taxes are borne in part by non-residents than it is to assume taxes on inputs into exports are borne by non-residents.

TABLE 9 CHANGING TAX BURDEN ON AUSTRALIAN RESIDENTS AND NON-RESIDENTS: 1994-94, 2001-02

	1994-95			2001-02		
	Resident's Tax Burden ($m)	Non-Resident's Burden ($m)	% on Non-Residents	Resident's Tax Burden ($m)	Non-Resident's Burden ($m)	% on Non-Residents
FEDERAL						
Company Income Tax	12,785	3,689	22.4%	23,027	7,035	23.4%
GST				26,763	626	2.3%
Wholesale Sales Tax	10,800	824	7.1%	0	0	0.0%
Excise - Liquor	492	53	9.7%	801	108	11.9%
- Petrol	8,770	1,586	15.3%	11,958	2,576	17.7%
- Tobacco	1,487	95	6.0%	4,606	323	6.5%
- Beer	861	0	0.0%	1,677	0	0.0%
Primary Production	466	213	31.4%	372	178	32.3%
Customs Duty	2,776	143	4.9%	4,104	268	6.1%
Personal Income Tax	54,635	777	1.4%	86,112	1,138	1.3%
Fringe Benefits Tax	2,530	191	7.0%	3,391	284	7.7%
Other Indirect Taxes	440	56	11.2%	592	44	6.9%
Sub Total	*96,044*	*7,627*	*7.4%*	*163,403*	*12,579*	*0*
STATE						
Land Tax	1,778	113	6.0%	2,554	207	0
Motor Vehicles	2,991	80	2.6%	4,135	126	2.9%
Stamp Duties	4,917	270	5.2%	9,883	662	6.3%
Payroll Tax	5,719	954	14.3%	8,151	1,514	15.7%
Gambling Taxes	2,957	0	0.0%	3,704	0	0.0%
Franchise Taxes	3,908	289	6.9%	13	0	2.4%
Other Indirect Taxes	2,677	163	5.7%	2,457	169	6.4%
Sub Total	*24,946*	*1,870*	*7.0%*	*30,896*	*2,677*	*8.0%*
LOCAL - Rates	*4,549*	*309*	*6.4%*	*6,588*	*161*	*2.4%*
GRAND TOTAL	**125,539**	**9,806**	**7.2%**	**200,887**	**15,417**	**7.1%**

Note: Differences from ABS Data for 1994-95 is duie to treatment of excise rebates and other changes to ensure data series are consistent.

Table 10 outlines the changing incidence of Australian taxes over the period 1994-95 to 2001-02, showing each of the major tax groups as a percentage of gross income. By 2001-02, middle to higher income households were paying a slightly higher proportion of their gross income in personal income taxes. The effect of bracket creep was most pronounced for the top decile, who paid an estimated 29.3 per cent of their gross income in income tax in 2001-02, up from 28.1 per cent in 1994-95.

However, the impact of the GST and the taxes that it replaced have had a greater impact upon lower income households, with these reformed indirect taxes absorbing 24.9 per cent of the gross income of the bottom decile in 2001-02, up from 23.4 per cent in 1994-95. This is because those at lower income levels are typically shown to be spending much more than their income in the ABS Household Expenditure Surveys. The increasing reliance on reformed indirect taxes (as defined in Table 2) meant that for all deciles, these taxes took a larger slice of their gross income in 2001-02 than in 1994-95, with the exception of the top decile, which recorded a slight fall.

In the case of taxes other than the reformed indirect taxes and personal income taxes, it would appear that they impact quite heavily on low income groups although the trend over the period has been for the burden on the lowest and highest groups to fall and for that on the middle income groups to increase. The increasing contribution to total tax revenue by the company tax has undoubtedly contributed to this trend. This is because over the period of study, share ownership in Australia has significantly increased amongst middle income Australians with the result that the burden of this tax is being borne by these new shareholders. The exact nature of the contribution by each different tax category will be the focus of future research.

The 'All taxes' column to the right of Table 10 suggests that the taxes considered in this study made up a slightly higher percentage of gross household income in 2001-02 than in 1994-95 – up by 1.5 percentage points to 45.3 per cent by 2001-02. As shown clearly in Figure 1, the results indicate that average tax rates increased slightly more for those in the upper half of the income distribution, again with the exception of the top decile, which showed a slight fall in its average tax rate.

TABLE 10 ESTIMATED AUSTRALIAN TAXES PAID AS A PERCENTAGE OF GROSS INCOME BY DOMESTIC HOUSEHOLDS, BY DECILE OF EQUIVALENT GROSS INCOME:1994-95 AND 2001-02

Decile of equivalent gross income	Personal Income Tax		Reformed Indirect Taxes		Other Taxes		All Taxes	
	1994-95	2001-02	1994-95	2001-02	1994-95	2001-02	1994-95	2001-02
1	0.8%	0.8%	23.4%	24.9%	33.2%	32.0%	57.5%	57.7%
2	0.6%	0.9%	13.8%	14.3%	17.9%	17.3%	32.4%	32.4%
3	3.0%	3.9%	13.2%	13.7%	19.6%	18.8%	35.8%	36.5%
4	9.8%	9.9%	12.0%	12.7%	19.7%	18.0%	41.5%	40.7%
5	13.6%	14.1%	11.2%	11.8%	17.7%	17.7%	42.5%	43.6%
6	15.7%	16.2%	10.3%	10.9%	16.8%	17.3%	42.8%	44.4%
7	18.1%	18.6%	9.2%	10.2%	14.9%	15.9%	42.3%	44.6%
8	19.3%	20.6%	8.4%	8.7%	13.7%	14.4%	41.5%	43.7%
9	21.8%	22.6%	7.5%	8.3%	11.4%	14.2%	40.7%	45.1%
10	28.1%	29.3%	6.7%	6.4%	15.7%	14.6%	50.5%	50.2%
All	18.6%	19.5%	9.3%	9.7%	15.9%	16.1%	43.8%	45.3%

Table 11 shows the estimated average amount of various taxes paid by households within each decile and also the share of taxes paid by each decile. The share of income tax collected from the bottom half of the income distribution appears to have remained relatively stable. For the top half of the income distribution, the most marked change appears to have been an increase in the share of total income taxes paid by the top decile, reflecting their increasing share of gross income (as shown in Table 8).

The impact of the substantial reforms to the method of imposing and collecting indirect taxes has seen the incidence of this tax fall slightly more on those in the lower deciles, with it impacting less on those at the top of the income distribution. This is in large part due to the broadening of the base of the GST which has meant a slight redistribution of the burden of broad based goods and services taxes more towards those on middle and lower incomes. Overall, however, the distribution of the tax burden appears to have remained remarkably stable over the seven years as shown by the marginal differences in the final two right hand column in the share of all taxes paid by each decile in 1994-95 and 2001-02.

TABLE 11 ESTIMATED AMOUNT AND SHARE OF AUSTRALIAN TAXES PAID BY DOMESTIC HOUSEHOLDS, BY DECILE OF EQUIVALENT GROSS INCOME: 1994-95 AND 2001-02

Decile of equivalent gross income	Personal Income Tax		Reformed Indirect Taxes		Other Taxes		All Taxes	
	1994-95	2001-02	1994-95	2001-02	1994-95	2001-02	1994-95	2001-02
$ per week								
1	$1.30	$1.60	$36.20	$52.70	$51.40	$67.60	$88.90	$121.90
2	$1.80	$3.40	$38.90	$55.70	$50.60	$67.40	$91.20	$126.50
3	$11.40	$19.90	$49.90	$70.20	$74.00	$96.40	$135.40	$186.60
4	$50.70	$69.30	$62.30	$88.70	$102.10	$125.80	$215.10	$283.80
5	$84.70	$119.20	$69.40	$100.10	$109.90	$150.00	$264.00	$369.40
6	$115.90	$159.20	$75.50	$107.60	$123.50	$170.00	$315.00	$436.70
7	$159.10	$219.00	$80.90	$119.60	$131.10	$186.40	$371.20	$525.10
8	$197.70	$283.10	$86.40	$119.90	$140.30	$197.90	$424.50	$600.90
9	$267.50	$365.20	$92.30	$134.90	$139.70	$229.00	$499.50	$729.10
10	$517.70	$760.20	$124.20	$166.20	$289.40	$379.10	$931.40	$1,305.40
All	$141.30	$200.70	$70.70	$100.00	$120.20	$165.40	$332.20	$466.00
Share by Decile								
1	0.1%	0.1%	6.9%	7.2%	5.7%	5.6%	3.6%	3.6%
2	0.1%	0.2%	6.2%	6.1%	4.7%	4.5%	3.1%	3.0%
3	0.8%	1.0%	7.0%	7.0%	6.1%	5.8%	4.0%	4.0%
4	2.9%	2.9%	7.2%	7.5%	6.9%	6.4%	5.3%	5.2%
5	5.1%	5.0%	8.4%	8.4%	7.9%	7.6%	6.8%	6.6%
6	7.3%	7.0%	9.6%	9.6%	9.2%	9.1%	8.5%	8.3%
7	10.0%	9.7%	10.2%	10.6%	9.7%	10.0%	9.9%	10.0%
8	13.3%	13.1%	11.6%	11.2%	11.1%	11.1%	12.1%	12.0%
9	19.4%	18.7%	13.4%	13.9%	11.9%	14.2%	15.4%	16.1%
10	40.9%	42.3%	19.6%	18.6%	26.9%	25.6%	31.3%	31.3%
All	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Interpreting the above tables warrant two important qualifications. Firstly, the July 2000 ANTS package of reforms involved not only tax changes but also social welfare changes designed to offset the adverse impact of these taxes. It is not surprising therefore that the indirect tax reforms demonstrate an adverse impact on those with modest incomes. What we also need to examine is the impact these reforms have on pre and post tax income distribution - an issue we examine in the following section.

The other important qualification is that the composition of deciles is not stable over time. Table 12 provides some insight into this issue and indicates that over the period of our study this was an issue. Not only did the number of adult equivalents within each household decline (reflecting the trend towards smaller households), but the changing composition of some deciles (such as the 4th and 9th) was more marked.

TABLE 12 AVERAGE EQUIVALENT ADULTS PER HOUSEHOLD

Decile of equivalent gross income	1994-95	2001-02	Percentage Change
1	1.39	1.38	-0.9%
2	1.55	1.57	1.3%
3	1.69	1.67	-0.7%
4	1.90	1.86	-1.9%
5	1.87	1.89	0.9%
6	1.83	1.83	-0.3%
7	1.84	1.84	-0.1%
8	1.80	1.80	0.0%
9	1.73	1.70	-1.7%
10	1.63	1.62	-1.1%
All	*1.70*	*1.69*	*-0.5%*

Note: Equivalence scale assumed is a weight of 1 for the first adult, 0.5 for subsequent adults and 0.3 for each child.

Figure 1 presents a diagrammatic representation of the results in Table 10, illustrating the trend change more simply. While the burden of taxes appears to have increased most for those households in the 6th to the 9th decile, the results indicate a decline for those in the 4th decile due to a fall in the impact of "Other taxes" on this group. What is interesting is that despite all the reforms of the past decade, the tax burden on the lowest four deciles appears little changed.

FIGURE 1 ESTIMATED AUSTRALIAN TAXES PAID AS A PERCENTAGE OF GROSS INCOME BY DOMESTIC HOUSEHOLDS, BY DECILE OF EQUIVALENT GROSS INCOME: 1994-95 AND 2001-02
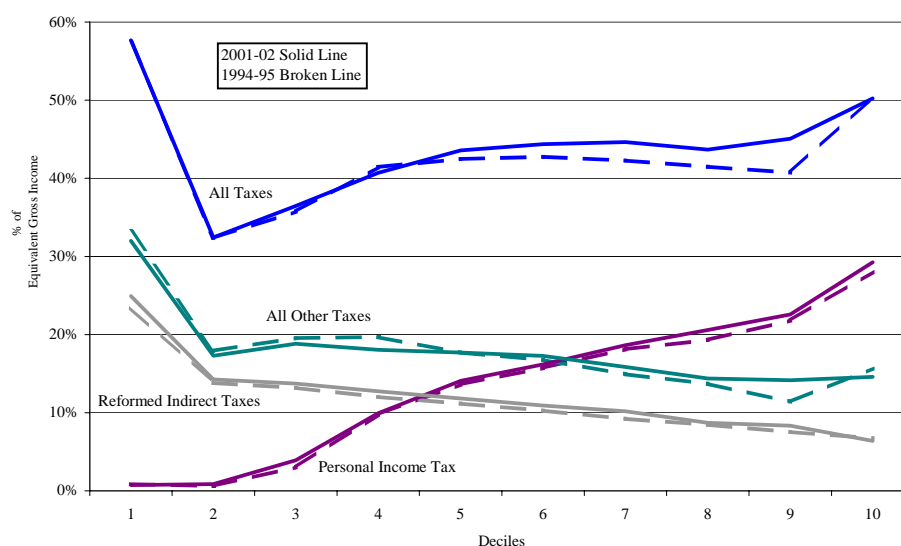
PROGRESSIVITY AND INCOME REDISTRIBUTIVE EFFECT OF TAXATION

Another informative approach to understanding what has happened to the post-tax distribution of income over our period of study is to examine changes in vertical equity in the tax system using single number indicators rather than a tabular approach. The most commonly used approaches here are through the use of concentration indexes (such as when estimating the Gini Indices), the Theil Index and the Atkinson Inequality Index[295]. Warren (1989) and Smith (2001) discuss the estimation and use of various of these measures including the:

- impact of tax changes on Gini index based income inequality measures (as when estimating concentration indexes of pre and post tax income); and

- tax progressivity measures based on concentration curves.

This study will however, focus on the use of Gini indices while, at the same time, acknowledging that such measures do have their limitations. In particular, this measure assumes a particular weighting of groups across the income distribution which is not uncontroversial. Moreover, Lorenz curve based measures such as the Gini index cannot give an unambiguous indication of a trend change when the Lorenz curves cross.

The approach taken in this study will also focus only on the redistribution between households, not within them.

Change in Income Inequality due to Taxation
The Gini index of income inequality is measured as twice the area of A in Figure 2. If we have perfect equality (a concentration curve which is the diagonal line XRS in Figure 2), then the area A would be zero and the Gini index zero. The greater the area of A, the greater the inequality. A concentration curve which maps out perfect inequality (XYS) would have a Gini index (or concentration index) of unity. Between the two extremes is the normal case (XZS) where the Gini index (or concentration index) of income inequality is greater than zero but less than unity.

FIGURE 2 CONCENTRATION CURVES

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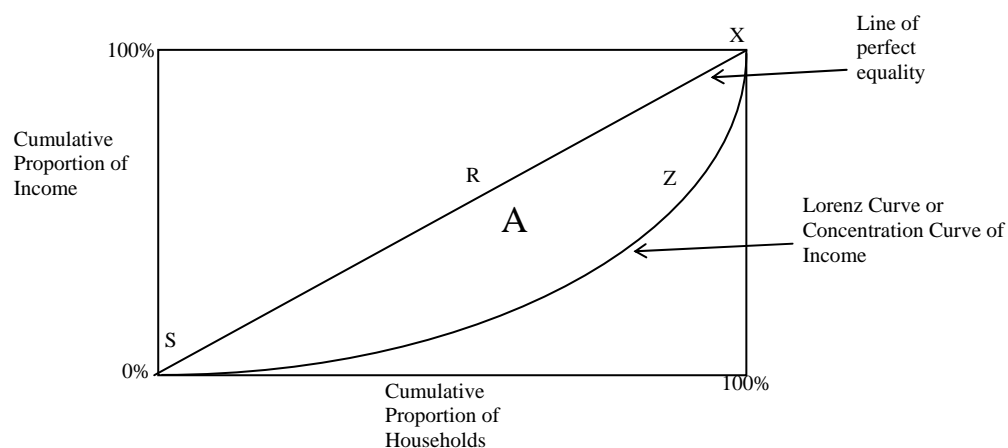
[295] See Warren(1989), Smith(2001) and ABS (2004)

If the Gini index of pre-tax income is G and the index of post-tax income is G*, we have an indicator of the impact the tax has on income distribution. If G*-G is negative then income inequality is being reduced by the tax - this is defined as an income inequality improving tax. A situation where G*-G is positive is one which worsens income inequality. Results for 1994-95 and 2001-02 are shown in Table 13 for households ranked by equivalent gross income[296].

TABLE 13 TAX PROGRESSIVITY AND INCOME REDISTRIBUTIVE EFFECT OF AUSTRALIAN TAXES ON THE DOMESTIC HOUSEHOLD SECTOR

		Personal Income Tax (PIT)	Reformed Indirect Taxes	Other Taxes	All Taxes excl PIT	All Taxes
ATR	1994-5	18.8	9.3	15.6	24.9	43.6
	2001-2	19.5	9.7	15.9	25.6	45.1
	Change	0.77	0.41	0.32	0.73	1.49
G*	1994-5	0.3027	0.3710	0.3682	0.3901	0.3276
	2001-2	0.3029	0.3763	0.3702	0.3945	0.3274
	Change	0.0002	0.0053	0.002	0.0044	-0.0002
G*-G	1994-5	-0.0516	0.0167	0.0139	0.0358	-0.0267
	2001-2	-0.0547	0.0187	0.0126	0.0369	-0.0302
	Change	-0.0031	0.002	-0.0013	0.0011	-0.0035
%G	1994-5	-21.0	7.6	5.9	13.4	-7.5
	2001-2	-22.5	8.6	5.4	14.0	-8.5
	Change	-1.46	1.01	-0.48	0.54	-0.92
P	1994-5	0.2234	-0.1628	-0.0754	-0.108	0.0345
	2001-2	0.2256	-0.1737	-0.0667	-0.1072	0.0368
	Change	0.0022	-0.0109	0.0087	0.0008	0.0023
%P	1994-5	278.5	-100.4	-78.1	-178.4	100.0
	2001-2	265.4	-101.4	-63.9	-165.2	100.0
	Change	-13.12	-0.99	14.2	13.2	0

Notes

G*	Gini index of post (selected) tax Income
G	Gini index of Gross Income (pre-tax)
G 1994-95 0.3543	
G 2001-02 0.3576	
G*-G	Gini Index of post-tax income less Gini Index of pre-tax income
%G	Contribution to % change in post-tax Gini index
P	Progressivity index (Concentration index of taxes)
%P	Percentage contribution to tax progressivity

Over the period of study, the distribution of gross income apparently worsened as measured by the Gini Index of gross income (G) (but, as noted below, as the Lorenz curves cross this effect is not robust (Atkinson, 1970). However, the impact of the changes to taxation had the effect of offsetting this change, resulting in the post-tax distribution of income being almost exactly the same in both years, as measured by the Gini index.

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[296] The equivalence scale adopted when estimating the values in Table 13 involves giving a weight on 1.0 to the first adult, 0.5 to the second and subsequent adults, and 0.3 to each child.

This lack of any significant aggregate change in overall post-tax income inequality (as shown by G*-G in Table 13) masks a change in the impact of different taxes on income distribution. The reformed indirect taxes acted to worsen income distribution but this effect was overwhelmed by an improvement in the impact of the personal income tax and a fall in the adverse impact of "other taxes" on income inequality. The primary contributor to this change was unquestionably the personal income tax.

Put more starkly, the impact of the progressive personal income tax and 'other' taxes has acted to offset the worsening distribution of the now much more important new reformed indirect taxes. This is despite the personal income tax cuts in July 2000. It probably has most to do with rising incomes and a failure to index the personal income tax schedule for the effects of inflation (the so called bracket creep issue which is evident in Table 3 and discussed in detail in Warren (2004, Figure 8.2)). As shown in Table 11, the proportion of the personal income tax coming from the top decile of the population rose over the period from 40.9% to 42.3% in 2001-02.

Tax Progressivity Measures
Even if over time a tax improves the post-tax distribution of income, this does not mean that the progressivity of the tax has increased. It is to the changing progressivity of Australian taxes that we turn to in this section.

If tax progressivity is defined as where the ratio of the marginal tax rate (MTR) to the average tax rate (ATR) is greater than unity[297], then a single number indicator of tax progressivity P can be defined as the difference between the concentration index of tax and the concentration index of pre-tax income. That is, twice the area between the concentration curve of taxes and the concentration curve of income.

P=C-G

If P is positive, the tax is progressive since a tax which is more unequally distributed then income will lessen income inequality. A value of P less than zero has the opposite effect, worsening income distribution, and is therefore regressive.

The contribution of each tax to the overall change in income inequality can be defined as:

$$\frac{G*-G}{G} = \frac{-\sum_{i=1}^{n} P_i . a_i}{(1-a)G} \qquad \text{(shown as } \%G \text{ in Table 13)}$$

where a_i and P_i are the average tax rate and the progressivity index of the ith tax respectively, and a is the average tax rate for all taxes.

The percentage contribution of each tax to the overall progressivity of the tax system is estimated using the assumption that:

$$P = \sum_{i=1}^{n} \frac{a_i}{a} P_i$$

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[297] This approach to measuring tax progressively is called liability progression.

Table 13 details the impact of the tax changes over the period 1994-95 to 2001-02 on the progressivity of the different tax groups.

As noted above, the changing impact of tax on the distribution of income arises from two sources, the height of the tax (as reflected in a_i) and the distribution of the tax (as shown in P). Changes in either will cause changes in G*. Table 13 provides estimates of changes in the progressivity of Australian taxes over the period of study. In the case of the personal income tax, its progressivity has increased, as has its average tax rate, which has resulted the income tax being more redistributive.

In the case of the reformed indirect taxes, they are both more regressive and more important, which has resulted in them worsening the post-income distribution. In the case of the "other taxes", while they are more important, because they are less regressive and this falling regressivity offsets the growing importance of these taxes, their overall effect is to improve the post-tax distribution of income relative to their impact in 1994-95.

Complications

The Gini index based result presented in Table 13, while interesting, does mask one important issue noted earlier which is often a problem for Lorenz curve based measures of income inequality. This is shown in Table 14 and indicates that the Lorenz curve for gross income distribution in Australia in 1994-95 appears to cross that for 2001-02 at the 6th decile . In the case of 'gross income less all taxes', the Lorenz curves cross at the 8th decile. This result leads us to question the robustness of the results in Table 13. It also indicates that there has been a redistribution over the period studied from the middle deciles to the top and bottom deciles. Clearly, further study needs to be made into the results in Table 13 along with the estimation of alternative pre and post tax income inequality indices.

TABLE 14 TAX PROGRESSIVITY AND INCOME REDISTRIBUTIVE EFFECT OF AUSTRALIAN TAXES ON THE DOMESTIC HOUSEHOLD SECTOR

Decile of equivalent gross income	Gross Income			Gross income less all taxes		
	1994-95	2001-02	Change in Share	1994-95	2001-02	Change in Share
1	2.7%	2.8%	0.1%	2.1%	2.2%	0.1%
2	6.9%	7.0%	0.0%	7.1%	7.3%	0.1%
3	11.9%	11.9%	0.0%	12.8%	13.1%	0.1%
4	17.4%	17.7%	0.2%	18.6%	19.3%	0.4%
5	24.5%	24.6%	-0.1%	25.8%	26.4%	-0.1%
6	33.2%	33.1%	-0.2%	34.7%	35.1%	-0.2%
7	43.5%	43.2%	-0.2%	45.2%	45.3%	-0.3%
8	56.3%	55.6%	-0.4%	58.6%	58.1%	-0.5%
9	72.8%	71.8%	-0.4%	76.0%	74.3%	-1.2%
10	100.0%	100.0%	1.0%	100.0%	100.0%	1.7%

CONCLUSIONS

This paper focuses on changes in the level and distribution of the tax burden over the period 1994-95 to 2001-02.

What this paper has shown is that over a period of major economic and social change and significant tax reform - including the introduction of a 10% GST - the post-tax distribution of income in Australia has remained remarkably little changed.

Our analysis suggests that the magnitude of income tax collected from the average household increased *and* that income tax became more progressive. In the case of the reformed indirect taxes (primarily the GST), the magnitude of such taxes collected from the average household increased *and* the distribution of these reformed indirect taxes became more regressive. In the case of 'other taxes', primarily company tax, the magnitude of such taxes collected from the average household increased *but* these taxes became less regressive.

Overall, the taxes considered in this study appeared to become marginally more progressive and more redistributive over the seven years, with the increased progressivity and importance of the personal income tax offsetting the increased regressivity and importance of broad based indirect taxes.

Some important caveats underlie these results. First, our study was based on the ABS Household Expenditure Survey unit record files and, in addition to the sampling and non-sampling error present in all such surveys, we found some systematic differences between the two surveys and also found differences between these surveys and the Surveys of Income and Housing Costs undertaken during the same period. Second, in both 1994-95 and 2001-02 we imputed the rules and incidence of the tax and social security programs as well as uprated the income and housing data in the original HES surveys to the required years. Despite our best endeavours, this necessarily creates the need for additional caution when analysing the results. Third, while the distribution of the tax burden is of great interest, it is also important to look at the distribution of the government benefits financed from such taxes and we plan to do this in future work. Fourth, given the changes in household composition within the deciles it would be desirable to more closely analyse the experience of different household types. Fifth, while this is one of the most comprehensive studies of tax incidence undertaken in Australia, this study nonetheless still excludes some important taxes or tax expenditures for which we do not have the necessary data to impute their incidence, such as capital gains tax, fringe benefits tax and the superannuation tax concessions.

With the above caveats in mind, our key conclusion is that the distribution of the tax burden and the distribution of post-tax income appeared to be remarkably stable over the 1994-95 to 2001-02 period, despite the very fast pace of change in both the tax and transfer systems, the economy, and the socio-economic characteristics of households.

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APPENDIX A: METHODOLOGY

Core data sources
2001-02

The core data source used in the simulation of the 2001-02 world was the 1998-99 Household Expenditure Survey (HES) unit record file released by the Australian Bureau of Statistics. This file contains a snapshot of the demographic, labour force, income and other characteristics of the Australian population in 1998-99. It is important to note that the scope of the survey is restricted to those living in private dwellings and excludes those living in remote and sparsely settled areas. While it is likely that there were some minor demographic and labour market changes between 1998-99 and the target year of 2001-02, such changes were considered likely to have a negligible effect on the results. However, over three years the size of the population increased substantially over the three years and, accordingly, the original ABS weights were inflated by 3.823% in the study.[298]

1994-95

The core data source used in the simulation of the 1994-95 world was the 1993-94 Household Expenditure Survey unit record file released by the ABS. To account for increase in the size of the population, the ABS weights were inflated by 1.139% but the weights were not adjusted to take account of changes to population composition or labour market changes.

For both years, the income unit used in the study was the household.

Income and housing costs
2001-02

Private incomes from such sources as wages and salaries and investment income were uprated from the 1998-99 levels shown for each household in the HES to December 2001 estimates. The uprating was relatively detailed, with procedures generally following those used in uprating income and housing values within the STINMOD model (Bremner et al, 2002, p. 17).[299] In the case of mortgages, for example, the uprating was in line with movements in ABS data from the Consumer Price Index Housing Series.

In addition we scaled private income to approximate the private income distribution in the latest ABS Survey of Income and Housing Costs.

1994-95

Private incomes were uprated from 1993-94 to 1994-95 using similar techniques.

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[298] The ABS attaches a 'weight' to the record of each household included within the HES file, which represents the estimated number of comparable households in Australia that each record within the sample data represents. This allows the 'grossing up' of results from the sample survey to estimates for the entire population living in private dwellings. (The HES sampling frame excludes the institutionalised population, such as those living in nursing homes or prisons.)

[299] During the past decade NATSEM has developed the STINMOD model, which is a static microsimulation model that simulates the current social security and income tax systems (Bremner et al, 2002; Beer et al, 2003, Lloyd 2003). The STINMOD model is used for assessing the distributional impact of policy changes by large Federal government departments, such as Family and Community Services and Treasury. A user-friendly version of the model is also publicly available. New versions of the STINMOD model are developed regularly, and one was created to run with the 1998-99 HES base data and was used in this study.

In both years, no attempt was made to adjust recorded HES income or expenditure amounts for likely under-reporting (e.g. of dividend income and cigarette expenditure).

Social security and family payments
The original ABS values for social security and family payments shown on the HES were not used in the study. They were replaced by the imputed cash transfers received by each household, estimated using NATSEM's STINMOD model.

2001-02
The social security and family payments systems simulated were those applying in 2001-02. Accordingly, the study captures the many changes in the cash transfer system introduced as part of the GST tax reform package in July 2000.

1994-95
The social security and family payments systems simulated were those applying in 1994-95. The benefits were scaled so that 92.4% of total spending on government cash payments (as given by FACS Annual Report) was allocated to households, in line with aggregate cash payments allocated in 2001-02.

Income tax and rebates
2001-02
The estimated amount of income tax paid by each household in 2001-02 was also simulated, using NATSEM's STINMOD model. Other major income tax provisions were also simulated, such as the Medicare levy, the low income tax offset and the pensioner and beneficiary rebates.

1994-95
The major income tax provisions applying in 1994-95 were simulated.

Indirect taxes
2001-02
To simulate the impact of the Commonwealth consumption based taxes (GST and Excise Duties) in 2001-02, the average tax rates were estimated for each of the 500 plus detailed expenditure categories in the HES.

The approach is based around the 1996-97 Input-Output data updated to 2001-02 National Accounts final demand and tax aggregates. The modelling approach adopted involves three steps.

Step 1 estimates a price model using 1996-97 Input-Output data. The indirect tax share of the value of 107 commodities in each of the seven final demand sectors is then estimated using this data but updated to 2001-02 using Australia National Accounts data.

Step 2 acknowledges that taxes can only be borne by individuals and then allocates those taxes which impact on the seven final demands[300] in 2001-02 to Australian residents or non-residents households.

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[300] The seven final demands are private final consumption expenditure, government final consumption expenditure, private gross fixed capital expenditure, general government gross fixed capital expenditure, public enterprise gross fixed capital expenditure, change in stocks, and exports.

Step 3 estimates how the 2001-02 taxes that are estimated to fall on Australian resident households in Step 2 ultimately impact on the individual households as reported in the HES unit record data. This is done by estimating the effective indirect tax rates on the 107 Input-Output commodity classification and linking this classification to the commodity classification adopted in HES.

The ultimate output is a series of effective indirect tax rates that can be applied to the HES unit record data for 2001-02, enabling an estimation of the indirect tax burden for each household in the HES data.

One issue warranting clarification is the indirect taxes modelled. This is important because in any comparative study, a consistent definition should be adopted to enable a meaningful intertemporal (2001-02 vs 1994-95) comparison of the results to be made. It is here that this study confronts an important issue. As shown in Table 1, over the period of study, a substantial change was made in the mix of income tax and indirect taxes in Australia. Indirect taxes were significantly increased and income taxes cut, centring on the introduction of the GST. In addition, a number of State taxes were repealed and subsumed into the GST (including the Accommodation tax, stamp duties on shares, FID and in some states such as NSW, BADT). In return, the States received compensation through being allocated the revenue from the GST, which is distributed through the Commonwealth Grants Commission.

1994-95
To simulate the impact of all indirect taxes in 1994-95, the average tax rates was estimated for each of the 500 plus detailed expenditure categories in the HES.

The same three step modelling approach adopted for 2001-02 was also adopted in the case of 1994-95, in this case scaling down the Input-Output 1996-97 data to 1994-95.

As indicated in Table 2, all Commonwealth, State and local taxes were modelled over the period 1994-95 to 2001-02. Those indirect which were the target of numerous reforms over this period were separately identified in the table because these are of particular interest.

APPENDIX B: TAX SHIFTING ASSUMPTIONS

Table A.1 details the basic tax shifting assumptions adopted in the results reported in the body of this paper. The allocation of taxes to domestic households is a three stage process.

1   The allocation to 7 final consumers, of those taxes whose statutory incidence (who initially (or legally) pay the tax) is producers. These final consumers comprise domestic households, the government, industry and foreigners (Section A in Table B.1)

2   The allocation of the tax estimated to be incurred by these final consumers to domestic households (Section B in Table B.1)

3   The allocation of those taxes whose statutory incidence is on the domestic household sector to the domestic household sector (Section C in Table B.1)

Of those taxes incident on dividends paid by corporation operating in Australia, a proportion equal to the level of foreign ownership of incorporated enterprises in Australia are allocated to foreign households.

It has also assumed that while only persons in private dwellings were included in the households expenditure surveys, the composition of the included groups was not dramatically different from that of the population as a whole.

- PCEDIS allocated to households on the basis of their expenditure on a range of specific commodities
- TOTPCE allocated to households on the basis of their total consumption expenditure
- TOTINC allocated to households on the basis of their share in the burden of all taxes
- PCEINV allocated to households on the basis of their consumption of the goods produced in industries undertaking private investment
- PCEPUB allocated to households on the basis of their consumption of goods by public enterprises
- PCERAH allocated to households on the basis of their consumption of goods in which government invests
- FOREIGN taxes allocated to foreign households
- BUSINC allocated to households on the basis of their business income
- DIVIDEND allocated to households on the basis of dividend receipts
- WAGES allocated to households on the basis of wages and salary income

TABLE B.1 TAX SHIFTING ASSUMPTIONS

	PFCE	DIVIDENDS	BUSINESS INCOME	WAGES	TOTAL

A. Shifting of Taxes whose Statutory Incidence is on Producers

TAXES ON INTERMEDIATE INPUTS

		PFCE	DIVIDENDS	BUSINESS INCOME	WAGES	TOTAL
1	COMPANY TAX	0.5	0.5	0	0	1

Commodity Taxes (taxes on commodity inputs)

		PFCE	DIVIDENDS	BUSINESS INCOME	WAGES	TOTAL
2	RST/GST	1.0	0	0	0	1
3	WHOLESALE SALES TAX	1.0	0	0	0	1
4	EXCISE-CRUDE OIL LEVY	1.0	0	0	0	1
5	-PETROL	1.0	0	0	0	1
6	-TOBACCO	1.0	0	0	0	1
7	-ALCOHOL - BEER	1.0	0	0	0	1
8	- OTHER	1.0	0	0	0	1
9	FRANCHISE- BEER	1.0	0	0	0	1
10	- OTHER ALCOHOL	1.0	0	0	0	1
11	- PETROL	1.0	0	0	0	1
12	- TOBACCO	1.0	0	0	0	1
13	PRIMARY PRODUCTION	0.5	0	0.5	0	1
14	GAMBLING TAXES	1.0	0	0	0	1
15	MOTOR VEHCILE TAXES	1.0	0	0	0	1
16	STAMP DUTIES	1.0	0	0	0	1
17	OTHER COMMODITY TAXES	1.0	0	0	0	1
18	FID	1.0	0	0	0	1
19	---	1.0	0	0	0	1
20	---	1.0	0	0	0	1
21	SUBSIDIES	0	0	1.0	0	1

Indirect Taxes (taxes on the carrying on of business)

		PFCE	DIVIDENDS	BUSINESS INCOME	WAGES	TOTAL
22	PAYROLL TAX	1.0	0	0	0	1
23	RATES AND LAND TAX	1.0	0	0	0	1
24	PRIMARY PRODUCTION TAXES	0.5	0	0.5	0	1
25	GAMBLING TAXES	1.0	0	0	0	1
26	MOTOR VEHICLE TAXES	1.0	0	0	0	1
27	STAMP DUTIES	1.0	0	0	0	1
28	OTHER INDIRECT TAXES	1.0	0	0	0	1
29	FBT	1.0	0	0	0	1
30	LAND TAX	1.0	0	0	0	1
31	TAX ON INSURANCE	1.0	0	0	0	1
32	----	1.0	0	0	0	1
33	SUBSIDIES	0	0	1.0	0	1
34	CUSTOMS-COMPETING	1.0	0	0	0	1
35	-COMPLEMENTARY	1.0	0	0	0	1

COMMODITY TAXES ON FINAL DEMAND

		PFCE	DIVIDENDS	BUSINESS INCOME	WAGES	TOTAL
36	RST/GST	1.0	0	0	0	1
37	WHOLESALE SALES TAX	1.0	0	0	0	1
38	EXCISE- CRUDE OIL LEVY	1.0	0	0	0	1
39	- PETROL	1.0	0	0	0	1
40	- BEER	1.0	0	0	0	1
41	- ALCOHOL	1.0	0	0	0	1
42	- TOBACCO	1.0	0	0	0	1
43	FRANCHISE - BEER	1.0	0	0	0	1
44	- ALCOHOL	1.0	0	0	0	1
45	- PETROL	1.0	0	0	0	1
46	-TOBACCO	1.0	0	0	0	1
47	PRIMARY PRODUCTION	0.5	0	0.5	0	1
48	GAMBLING TAXES	1.0	0	0	0	1
49	MOTOR VEHICLE TAXES	1.0	0	0	0	1
50	STAMP DUTIES	1.0	0	0	0	1
51	OTHER COMMODITY TAXES	1.0	0	0	0	1
52	FID	1.0	0	0	0	1
53	---	1.0	0	0	0	1
54	---	1.0	0	0	0	1
55	SUBSIDIES	0	0	1.0	0	1

TAXES ON IMPORTS FINAL DEMAND

		PFCE	DIVIDENDS	BUSINESS INCOME	WAGES	TOTAL
56	CUSTOMS DUTIES	1.0	0	0	0	1

B. Treatment of Taxes by Final Consumers when Shifted to Forward

FINAL DEMAND SECTOR SHIFTING OF TAXES

		PCEDIS	FOREIGN	DIVIDENDS	BUS INC	WAGES	TOTAL
1	Household Final Consumption Expenditure	1.0	0	0	0	0	1
		TOTPCE	TOTINC	TOTINC			
2	Household Government	0	0.75	0	0	0	1
		PCEINV		DIVIDENDS		WAGES	
3	GFKE Private	0.5	0	0.5	0	0	1
		PCEPUB	TOTINC	TOTINC		WAGES	
4	GFKE Govt Enterprises	1.0	0	0	0	0	1
		PCERAH		TOTPCE	TOTINC		
5	GFKE General Government	0.25	0	0	0.75	0	1
		PCEDIS	FOREIGN	DIVIDENDS	BUS INC	WAGES	
6	Increase in Stocks	0.5	0	0.5	0	0	1
		PCEDIS	FOREIGN	DIVIDENDS	BUS INC	WAGES	
7	Exports	0.25	0.5	0.1	0	0.15	1

C. Taxes with Statutory Incidence on Households

		Households	TOTPCE	Dividends	Business Income	Wages	Total
57	Rates on Households	1.0	0	0	0	0	1
58	Stamp Duties - Owner Occupied direct	1.0	0	0	0	0	1
59	Gambling Taxes: State Govt	1.0	0	0	0	0	1
60	: Private	1.0	0	0	0	0	1
61	: Pokies	1.0	0	0	0	0	1
62	: Casino	1.0	0	0	0	0	1
63	: Racing	1.0	0	0	0	0	1
64	: Other	1.0	0	0	0	0	1
65	State Car Taxes: Rego	1.0	0	0	0	0	1
66	: Stamp Duty	1.0	0	0	0	0	1
67	: Car Licence	1.0	0	0	0	0	1
68	GST on : Owner Occupiers	1.0	0	0	0	0	1
69	: Fringe Benefits	1.0	0	0	0	0	1
70	FBT	1.0	0	0	0	0	1
71	FID	1.0	0	0	0	0	1
72	Land Tax on Renters	1.0	0	0	0	0	1
73	Taxes on Insurance	1.0	0	0	0	0	1