

# Fiscal Welfare Effects of Changes in Australian Income Tax 1972-73 to 1980-81

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**Publication details:**

Working Paper No. 9  
Reports and Proceedings  
858232073 (ISBN)

**Publication Date:**

1981

**DOI:**

<https://doi.org/10.26190/unsworks/896>

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# SWRC Reports and Proceedings

No 9

May 1981

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## FISCAL WELFARE EFFECTS OF CHANGES IN AUSTRALIAN INCOME TAX, 1972-73 TO 1980-81

by

Robert V. Horn



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**SWRC REPORTS AND PROCEEDINGS**

**No. 9**

**May 1981**

**Reprinted**

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**ISSN 0159 9607  
ISBN 85823 207 3**

**Social Welfare Research Centre  
The University of New South Wales  
P O Box 1 · Kensington · NSW · 2033 · Australia**

Printed on the inside and outside back cover is a complete list of the Reports and Proceedings series of the Social Welfare Research Centre.

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## ABSTRACT

The taxation system affects the fiscal welfare of individuals. Its operation is determined by a variety of economic, social and political considerations, and its impact depends not only on the tax laws themselves but also on income distribution and inflation. This paper reviews changes in the Australian personal income tax over the period from 1972/3 to 1980/1. The principal factors, such as exemption limits, tax rates, concessions for dependants and inflation are first dealt with separately, and then their combined effect is reviewed for taxpayers at various levels of income and responsibility for dependants.

The general conclusion is that the burden of income tax has increased over the period for all incomes, except for very low earners who have become tax exempt through successive tax reforms. For others, there has been a small relative shift in the tax burden from high earners to those at middle or low income levels; and also a relative shift in the tax burden from taxpayers without dependants to those with dependant children and relatives.

## ACKNOWLEDGMENTS

Carol Keens has assisted with planning the paper and some compilations. The typing was done by Geraldine McWhinney. The monograph was printed and bound by the Printing Unit, University of New South Wales.

## 1. INTRODUCTION

### 1.1 GENERAL

Richard Titmuss (1958) has grouped collective intervention to meet needs of individuals, or to serve the wider interests of society, into the categories of social welfare, fiscal welfare and occupational welfare. Fiscal welfare, or welfare policy exercised through the taxation system has received less analytical attention than the alternative of dispensing welfare through the social security system. The reason might be that fiscal measures are usually motivated by a mixture of economic and social considerations which, like the large number of variables in the taxation system, are difficult to isolate in their end effect.

There are no clear statements about the objectives of fiscal welfare by the Australian government beyond occasional references that a particular tax measure has been designed to help a particular group. Yet, a closer look at the taxation system shows that any budget change may have a differential effect on after-tax income of different classes of income earners, and also that the operation of the tax system in its effect on taxpayers depends on major economic variables, such as cyclical change and inflation. This paper tries to analyse this implicit welfare effect of the Australian personal income tax over the period 1972/3 to 1980/1, by taking the major variables first separately and then in the combined effect. As during the period there was a shift from "fiscal" to "social" welfare in child benefits, child endowment and family allowances have been treated as negative taxes so as to allow longer-term comparisons. Otherwise social security payments have not been included in this investigation.

In practice, there exists no unambiguous welfare function which would enable us to say that one particular group, say single householders, requires so much more less, or more, income to keep it on a par with say a family of a specified composition. The fiscal principle of vertical equity (see Appendix) only tells us that taxes should be graded according to the unequal position of taxpayers without providing a definite scale for inequalities. An analysis, such as attempted in this paper, can only look at inequalities between stated periods, and comment on relative changes between particular groups. In this sense we can speak of "winners" and "losers" of recent changes in the income tax system. However, in tax analysis this distinction must be used with caution, because income gains and losses should preferably be viewed in the



wider context of changes in other taxes and in government expenditure which may have a compensating effect on taxes. In this paper the reference is only to direct changes in income distribution arising from income tax. It tries to bring out that certain groups of taxpayers have improved or worsened their position, though not necessarily at each others' expense. In that narrow sense we arrive at some general conclusions from the statistical analysis, in particular :

- . The tax burden has increased over the period for taxpayers at all levels, except for very low earners, including part-time or part-year earners, who have become tax exempt in successive tax reforms.
- . For taxpayers the burden has shifted somewhat downward from high earners, who now pay relatively less, to middle and low earners, who now pay relatively more.
- . The tax burden has also shifted sideways so that taxpayers with dependants now pay relatively more than those without dependants.

## 1.2 PUBLIC FINANCE THEORY AND POLICY

### 1.21 Fiscal Functions

Public Finance theory considers fiscal functions under three broad headings (Musgrave & Musgrave 1976) :

- Allocation - the provision of social or public goods;
- Distribution - adjustments to the distribution of income and wealth;
- Fiscal Policy - internal and external stability, economic growth, etc.

The present investigation deals mainly with the distribution function in terms of absolute and relative losses or gains, resulting from the imposition of person income tax, both in general terms and as applying to changes over the past nine years. While some of the theoretical issues will be mentioned, it is not possible to subsume tax policies into a comprehensive model of economic or social theory for two major reasons : firstly, tax measures by any government are dominated by pragmatic policy decisions within a framework of factors such as equity or efficiency which can be interpreted in many ways. And, secondly, there is no agreed economic or social standard which defines allocation, distribution or stabilization in terms against which actual tax measures could be judged.

Distribution, in the traditional sense of public finance economics, is a process that is based on factor returns and pricing in a free market that determines income; it is judged as optimal if it corresponds to criteria of economic efficiency, with a vague additional injunction that it should also

correspond to what society considers a fair or just distribution. It is expected from the government that its tax system should conform to a notion of 'social justice'. This can be interpreted either as a demand for maintaining an existing state of distribution, or as a claim for redistribution of incomes in the image of some model of greater social justice. In general fiscal debate, we often find confusion between these aims of maintaining the status quo and of positive redistribution policy through tax changes; or, to put it otherwise, should tax measures only remedy injustices done to particular groups of taxpayers, say by the effects of inflation, or should it be directed by a vision of redistributive justice?

In this paper the analysis will mainly look at the actual changes of the personal income tax system which had led to relative changes in the situation of particular groups of taxpayers over recent years. It will start from the initial distributional situation and look at relative changes over the years. They will be brought out to speak for themselves, rather than being related to an ideal model which could be achieved by tax redistribution.

The income tax system in Australia, as in other countries, rests on general notions of equity and fairness, and they in turn rest on the taxpayers' ability to pay tax. But in the application of these principles major difficulties arise in finding an income scale that corresponds to ability-to-pay and in defining income itself. The "horizontal equity" principle demands that persons in similar circumstances should bear the same taxes but it leaves open questions about the specification of assessable and taxable income, and how to account for family circumstances. "Vertical equity" requires that those in different circumstances bear appropriately different taxes, which poses the problem of finding a scale of income utility that can be expressed in the rate structure. In practice, the tax systems give pragmatic answers to the definition of income as a criterion of taxable capacity and of tax scales, based on income differences, that are supposed to achieve equal treatment of taxpayers in different circumstances. Apart from equity, the system is also influenced by other considerations. Firstly, by the principles of non-arbitrariness, certainty, convenience, economy of collection, simplicity and prevention of tax avoidance (see Appendix). Secondly, by economic considerations of fiscal needs and stabilisation. Thirdly, by the political strategy of the government. And, finally, by social policy considerations that lead to special provisions based on the taxpayer's situation with regard to his family, his location and some of his commitments for his own and family's medical care, education, rates, assurance etc.

This extension of equity from the income standard to the taxpayer's personal situation is once again based on pragmatic rules rather than on a clearly defined social policy. Nor is it easily distinguishable from other tax policy considerations. For example, a change in the tax scale or the introduction of tax indexation, could be justified on equity grounds applying to all taxpayers or as tax relief for particular groups; or, an apparent social measure such as a spouse rebate or location allowance could be motivated as much by the situation of the individuals concerned as by economic incentives.

As an end result, tax measures applying to any particular group affect all other taxpayers in relative terms; and they can affect them also in absolute terms if concessions to some lead to higher charges for others or the withholding of tax reductions from them. It is difficult to analyse the amalgam of motives which lead to budget decisions. Usually such analysis is only attempted in macro-economic terms, and the social consequences are mainly considered in terms of the immediate impact of changes on particular groups. Yet social policy, in the sense that some taxpayers gain or lose net income, is always implicit in the tax system, and that becomes evident when we look at the development of income tax provisions over a period of years. Before considering the details of tax measures, we will take a brief look at some of the official statements made in connection with the budget, if only to show the shadowy role social considerations, vis-a-vis economic ones, play in this process.

#### 1.22 Budget Policy

The primary purpose of taxation is to raise funds for government expenditure. In determining the distribution of the income tax load on taxpayers some regard is paid to the incidence on different groups. - but that is usually overshadowed by fiscal and general economic considerations. When we look at the annual Budget Speeches of the Commonwealth Treasurers, we find only an occasional, and usually vague mention of the impact on taxpayers. The following are some examples taken from recent budget speeches :

15/8/1972 : "The Commonwealth views with concern the considerable increase in the relative burden of personal income taxation in recent years and the effects which that is having upon our economy and, indeed, our society. In particular, the single income family, the typical suburban family man, is being hit hard".

"The personal income tax burden is becoming more and more severe. The tax bite is being determined, not in accordance with deliberate aims of policy, but by the impact of inflation ..."

(Changes in that year included a raise in minimum taxable income and dependants' allowances and a reduction in tax rates).

17/9/1974 : "In addition to the reductions in tax on low incomes in general under the new rate scale, we see a particular need for tax relief to low income families. A special rebate of tax will be introduced for that purpose".

19/8/1975 : "A very large number of taxpayers will benefit from the changes we are making (simplified rate scale, minimum concessional rebate, concessional allowances replaced by dependants' rebates ...) But what is of greatest satisfaction to the Government is the fact that those in need will benefit substantially .... members of multi-income households .. might be supposed, on general social grounds, to be capable of contributing further".

17/8/1976 : "The most important step in relieving the burden of taxation - the indexing of personal income tax .. has been in operation .. since 1 July. It represents perhaps the most significant reform of the personal income tax system in our time, and certainly the most costly in terms of revenue foregone. We have taken this step both in fulfilment of our objective of getting the Government's hand out of taxpayers' pockets, and for wage policy reasons".

16/8/1977 : "Irrespective of the positive benefits of tax indexation, present rates of personal income tax are too high. The present tax scale is not only inequitable, it is having devastating effects on incentive and on the will to work .... we are introducing a much improved and simplified tax system that will provide very substantial benefits to taxpayers at all income levels (three-step instead of seven-step scale, raise in tax threshold, abolition of general concessional rebate) ... The most important benefit is that there are tax reductions at all levels of taxable income. Furthermore, the biggest proportional gainers are those on lower incomes at the bottom of the tax scale. In fact, the incomes of about 225000 taxpayers .. will be made non-taxable.."

No references of that type can be found in the budget speeches 1978, 1979 and 1980.

It is in the nature of such political statements that they are inclined to optimism about the benefits of change, and that they suffer from the hazards of forecasting. In hindsight, it turned out, for instance, that total tax collections in the years 1975-76 and 1977-78 rose by about 10% and 20% respectively, well above the rate of inflation in those years; and it is difficult to see how a 'very large number' or 'all' taxpayers could have become better off; or, while 225000 taxpayers were supposed to have been made non-taxable through the 1977-78 budget, the actual number of taxpayers still rose by 41000 in that year. And the much-hailed introduction of tax indexation in 1976 was in fact not carried through into subsequent years.

The quoted statements indicate the discontinuous concern by governments about the distribution of the tax burden - a concern which seems to take second place to urgent fiscal and economic policy demands. Yet, whether the government makes adjustments or not, the weight of the existing tax system itself exercises a variable distributional force, because economic growth and

cycles, demographic and industrial change, and inflation change the distribution of income in the community all the time. We have thus a differential effect by the tax system on the income of taxpayers, and in that sense an implicit social policy in its operation. Perhaps one reason why Treasurers, and indeed the textbook literature, remain rather vague about this impact lies in the complexity of the inter-action of the in-built variables - incomes, inflation, tax rates and thresholds, rebates and deductions etc., and in data deficiencies for their analysis. There is no full treatment of these forces even in the most recent major surveys of the Australian system, published in 1974/5 by the Taxation Review Committee (Asprey Report) and the Committee on Taxation and Inflation (Mathews Report).

This present paper is limited to a review of changes in personal income tax and their likely distributional consequences since that period, with particular attention to the separate variables involved which sometimes reinforce and at other times offset each other.

## 2. THE TAX SYSTEM

### 2.1 INCOME CONCEPT

In welfare theory a distinction is sometimes drawn between a person's command over resources and the satisfaction of his needs. This can be adapted to tax analysis by taking the definition of income, as representing command over resources while concessions and rebates are more specifically geared to the needs situation of particular groups of taxpayers. Such a dichotomy shows up the unsatisfactory nature of the equity concept which tries to encompass both objective resource and subjective needs features, with the result that neither can be precisely specified. As far as the taxpayer is concerned, he will measure his tax commitment both in terms of his income and of his situation as far as his family and customary expenditure are concerned; he will regard the combination of both factors as determining his ability to pay tax. In the following we will first consider the general income situation with reference to its definition for tax, exemption limits and tax scales, before looking at the provisions affecting specific groups of taxpayers as far as their family and expenditure commitments are concerned.

Looking at the relation between tax commitment and taxpayer, a popular distinction is made between direct taxes which are paid direct by the taxpayer (or on his behalf by employers), and indirect taxes levied on expenditure or factor services (sales tax, stamp duties, company and payroll taxes etc.) which are mostly shifted from the actual taxpayer to someone else (e.g. from wholesaler to consumer). (See Appendix). The main types of direct taxes use income or wealth as standard of ability to pay; or, to mention an older form, just the person, irrespective of his situation, in the case of head taxes (capitation or lump sum taxes). In practice, any tax can be shifted, i.e. income taxes in form of higher wage claims, but we need here not enter into the debate about tax incidence and shifting, and will confine ourselves to the consideration of the immediate tax liability.

For practical reasons, income for tax purposes must be strictly defined, and that specification will take account of considerations of legal enforceability, and relations to other taxes, as well as the previous mentioned precepts of certainty, convenience, economy and simplicity (Appendix); and the definition of income will also be influenced by prevailing government policies. Fiscal theorists have tried to formulate a 'wide' definition of income in tune with equity, and that identifies it with control

over scarce resources, or accrual of economic power, or consumption plus increase in net worth. The Australian income definition is considerably narrower as it excludes capital gains (from assets held for more than one year) gifts and inheritances, lottery and gambling winnings, non-pecuniary income from dwellings and other personal property; it also partly exempts retirement allowances and covers fringe benefits incompletely. These restrictions on the definition of assessable income generally favour high income earners more than low earners.

## 2.2 TAX UNIT

Tax incidence also depends on the definition of the tax unit. In Australia, this is the individual income earner, as against the family unit used for income tax in many other countries. However, some features of family taxation are also built into the Australian system, e.g.:

- a) Some tax deductions or rebates have depended at various times on the family situation, i.e. housing loan interest and some types of gifts such as donations to school building funds.
- b) The Concessional Expenditure Rebate (in 1980 in excess of \$1590) includes expenses incurred by the taxpayer's family in connection with medical, dental, optical, funeral and education costs, life assurance and superannuation and for purposes of adoption.
- c) Concessional rebates are granted for a spouse, dependent relatives and housekeepers and for sole parents.
- d) Some taxable social security payments are partly based on family status, e.g. supporting parents benefits, unemployment, sickness and special benefits (including additional benefits for spouse, children and supplementary allowance), repatriation service pensions on account of tuberculosis or unemployability and repatriation parents' pensions.

In addition to such codified regulations that take account of the family situation it might also be mentioned that a taxpayer with a family (spouse and/or children) has more scope for tax avoidance, by shifting some income to dependants and thus reducing the combined tax liability by making multiple use of the exemption limit; in addition to such 'legal' tax avoidance, he would also find it easier to attempt 'illegal' tax evasion by making inflated claims for concessional expenditure and tax rebates.

It is likely that these family provisions favour the middle and upper income earners more than low income taxpayers, in particular the deductions

mentioned under (a) and (b) above, where low earners are less likely to spend more than the statutory allowance (\$1590); and would also apply to (c) for paid housekeepers, de negativo to (d) and to the opportunities for tax avoidance and evasion.

Prior to 1976 most types of social security benefits were not subject to taxation but this exemption was withdrawn in most cases in 1976. As basic pension levels are below the tax exemption limit, taxation applies mainly to those with extra income, including age pensioners above the age of 70 who are not subject to incomes test, i.e. not very low income earners. The budget estimate of the extra tax yield from the withdrawal of exemption of major social security payments was only \$130,000 for 1976-77. It might be noted here that many social welfare analysts have advocated the taxing (and means-testing) of such benefits that applies now in Australia and have urged redistribution of the extra tax revenue to those most in need.

### 2.3 CONCESSIONAL EXPENDITURE AND ALLOWANCES

The tax system makes provision for the particular situation of taxpayers by allowing concessions for certain types of expenditure, e.g. medical expenses, or for assumed commitments, e.g. maintenance of dependants, either in the form of deductions from taxable income or of rebates from the tax otherwise payable. They do affect considerably the real tax burden of individuals, as shown in Table 1, and they amount to a substantial "cost" to the government in terms of tax income foregone. The Asprey Report (12.18) estimated that in 1971-72 they reduced the tax base by nearly 20% and involved a loss of revenue of more than one third of the sums actually raised. And even under the revised system of rebates applying only to concessional expenditure in excess of a stated norm and of child allowances having been replaced by family allowances, total rebates in 1978-79 still amounted to \$925m. or 7½% of net tax assessed.

The general argument for such concessions rests on equity as this type of expenditure is regarded as essential, and the family situation generally diminishes the ability to pay tax. They might be regarded as a kind of incentive grant to encourage activities such as saving or family formation (see Musgrave & Musgrave, 1973 and Asprey Report ch.12), which are considered economically or socially desirable. Or, as the Asprey Report commented (12.11) with respect to allowances for spouses, daughter-housekeepers, parents and invalid relatives "they are a recognition of what is at least a moral duty to give support to another adult". The emphasis is on the



cost of maintaining such dependant family members - or at least partial compensation as the rebates would not usually cover all of the actual costs.

Spouse rebates in particular raise some fundamental issues of social policy within the tax system. The traditional view is expressed in the quote above from the Asprey Report which also refers to then existing tax deduction for spouses as "a basic minimum which one spouse might be expected to spend on the other who is dependent on him". Acknowledging that the actual cost might be higher than the tax deduction, the Report says that the latter can be regarded as "a token recognition that husbands have a moral and legal duty to support their wives when dependent, and wives have similar duty when husbands have no income". This argument has recently been extended with reference to the tax situation of single as against dual earning families. A Parliamentary back-bench committee on Health and Welfare, through its spokesman Mr. Ian Wilson M.P., has claimed that the present tax system is inequitable in failing to treat individuals and families according to their capacity to pay, as families of the same composition and same total income pay different amounts of tax, to the differences in the proportions in which a spouse contributes to the family income. This has been put forward as an argument for family, rather than individual assessment, with provision for notional income splitting for single-earner families or, alternatively, for a large increase in the spouse allowance. In opposition to this view it has been stated that it runs counter to the general trend for greater economic and social independence of married women, which has led to a switch from family to individual tax assessment in some European countries, that it discourages women from taking paid employment, that the assumption of family income being always pooled is unrealistic, that an increasing number of couples live in unmarried de-facto relationships and that only 18% of Australian households in 1976 were of the classical prototype of husband-wife-dependent children. Radical opponents of family taxation, (e.g. M. Edwards, Aust. Quarterly, June 1979) have suggested that taxable capacity should take some account of the value of housework by imputing income for home activities, and that the spouse rebate should be abolished (or replaced by increased child allowances) so that "a married taxpayer with a partner who has chosen home activities, but without dependent children, should pay at least as much tax as a single taxpayer with the same money income". However, the Australian tax system has opted for relatively high spouse allowances with a major increase in 1980/81, presumably influenced by the view that during periods of major unemployment married women should be discouraged from paid work.

The tax system is based mainly on cash transactions and disregards "costless" intra-family transactions. So the services rendered by a spouse or daughter-housekeeper are not imputed into income. The concessional allowances for their maintenance are based on their dependency on the taxpayer, and the allowances are tapered off when their own separate income is above a stated limit. This limit does not apply to a paid housekeeper who acts as a spouse substitute but is not regarded as a dependant of the taxpayer and is liable herself, or himself, for tax on housekeeper and other income including the equivalent of free board and quarters.

Until 1975 all these tax concessions were granted in the form of deductions from assessable income, while since then they have taken the form of rebates from tax otherwise due. In general, concessional deductions reduce taxable income while rebates, usually set at a fraction of concessional expenditure, are deducted from tax independent of size of income. Under a progressive tax system, rebates reduce the tax liability relatively more for low than high tax earners because the tax saving is a fixed amount independent of income levels; and, in general the deduction method is more favourable to income earners paying high tax rates than at lower rates, and conversely tax rebates give relative advantage to those on low tax rates. This is demonstrated in Table 1.

Table 1

<u>EFFECT OF DEDUCTIONS AND REBATES ON TAX LIABILITY</u>						
<u>ASSESSABLE INCOME \$1000</u>			<u>Concessional Expenditure</u>		<u>TAX REBATE set at 20% of</u>	
<u>No Concessional Claims</u>			<u>= TAX DEDUCTION of \$200</u>		<u>Concess.Expenditure = \$40</u>	
<u>Tax Rate</u>	<u>5% Tax</u>	<u>\$ 50</u>	<u>Tax \$ 40;</u>	<u>Net Tax Rate</u>	<u>4%</u>	<u>Tax \$ 10; Net Tax Rate</u>
	10%	\$100	\$ 80		8%	\$ 60
	20%	\$200	\$160		16%	\$160
	40%	\$400	\$320		32%	\$360
	80%	\$800	\$640		64%	\$760

In the above example, the tax saving from concessional expenditure has been equalised at a tax rate of 20%. At lower tax rates the saving is greater under the rebate system while for higher tax rates tax deductions would be more advantageous to the taxpayer. Similarly it can be shown that with rising income tax savings from concessional expenditure are greater under the deductions than the rebates' system, or, as the Asprey Report (12.3) put it, "a poor man's wife is worth less than a rich man's". This effect is further strengthened by the experience that concessional expenditure itself is partly a positive function of income.

### 3. GENERAL TAX VARIABLES

Three major factors have to be considered in looking at movements of the incidence of income tax at different income levels : inflation, changes in exemption limits and changes in the tax scale. They will be first explained separately and then combined by looking at the tax burden in terms of constant earnings.

#### 3.1 INFLATION

Inflation which is not compensated by indexation will generally increase tax liability both in nominal and real terms. This applies not only when it pushes income into a higher marginal tax bracket but also where income remains within the same tax range. On first sight it might be thought that inflation, with unchanged tax rates, increases the tax load relatively more for lower than for higher incomes, as it erodes the advantage of the carry-forward of the tax exempt income (which diminishes with rising incomes) and of low marginal rates. However, the Asprey Report noted (Table 6C and 6.47) that the claim that the effects of inflation on tax liability are inversely related to taxable income are too simplistic; it suggested that people well up the income scale, but not at the top, might be relatively hardest hit by inflation and demonstrated this with examples for 1973/4 and 1974/5. The unevenness of the impact of inflation on tax liability is demonstrated in tables 2 and 3. Table 2 compares a given situation in Section I with the position after 10% inflation (assuming uniform spread over incomes) in Section II which is then translated back into the pre-inflation price level in Section III. In the first case shown in Table 2, that of a single-rate (proportional) income tax rate with exemption limit, inflation does not alter the real tax burden. If an exemption limit is introduced with a single tax rate, inflation does increase the tax burden, and more so for low than for high incomes (see columns III b,d) because it erodes the advantage of the tax exempt income which diminishes in relative terms with rising income. With a progressive tax scale (in Table 2 without exemption limit) the inflation effect will depend on the scaling structure and the extent to which inflation leads to extra income taxed at higher marginal rates. The example in Table 2 seems to confirm the suggestion of the Asprey Report that inflation might hit middle income earners harder than those either at the top or the bottom of the income scale.

Table 2

## GENERAL EFFECTS OF I N F L A T I O N on Income Tax

At Given Rates				Assume 10% Income Inflation				At Constant Pre-Inflation Prices			
Ia	Ib	Ic	Id	IIa	IIb	IIc*	IIId	IIIB		IIId	
Income	Tax	Av. Tax	Income after tax	Income	Tax	Av. Tax	Income after tax	Tax*	Percent. Change on Ib	Income after tax	Percent. Change on Id
Tax Rate 20% - No Exemption Limit											
\$ 5,000	\$1,000	20 %	\$ 4,000	\$ 5,500	\$ 1,100	20%	\$ 4,400	\$1,000	-	\$ 4,000	-
10,000	\$2,000	20 %	8,000	11,000	2,200	20%	8,800	2,000	-	8,000	-
Tax Rate 20% - Exemption Limit \$ 4 0 0 0											
\$ 5,000	\$ 200	4 %	\$ 4,800	\$ 5,500	\$ 300	5.5%	\$ 5,200	\$ 273	+13.7%	\$ 4,727	-1.5%
10,000	1,200	12 %	8,800	11,000	1,400	12.7%	9,600	1,273	+ 6.1%	8,727	-0.8%
20,000	3,200	16 %	16,800	22,000	3,600	16.4%	18,400	3,273	+ 2.3%	16,727	-0.4%
Tax Rates (marginal) 0 - \$5,000 10%; \$5,000-10,000 20%; \$10,000-20,000 30%; above 40%. No Exemption											
\$ 5,000	\$ 500	10 %	\$ 4,500	\$ 5,500	\$ 600	10.9%	\$ 4,900	\$ 545	+ 9.0%	\$ 4,455	-1.7%
10,000	1,500	15 %	8,500	11,100	1,800	16.4%	9,200	1,636	+ 9.1%	8,364	-1.6%
15,000	3,000	20 %	12,000	16,500	3,450	20.9%	13,050	3,136	+ 4.5%	11,864	-1.2%
20,000	4,500	22½%	15,500	22,000	5,300	24.1%	16,700	4,818	+ 7.1%	15,182	-2.2%

\*Average tax rate is the same for IIc and deflated series IIIC.

The situation looks a little different in Australia where a relatively high tax exemption limit is now combined with a restricted 3-step progressive scale, and Table 3 attempts a more realistic analysis based on 1980-81 Australian rates and an assumed 10% inflation of incomes in Section II. It then appears that in terms percentage points of average tax (IIC minus IC) the lowest income range shown is most affected by inflation, and that includes also those who would not have been liable to pay tax at all without inflation. The relative tax increase due to inflation tapers off in the middle range to 3.4% for income \$15000, but rises again for higher incomes, though not to the level of the lowest income range. However, if one takes the alternative measure of relative change in after-tax income the inflation loss in real terms drops from 2.5% for (pre-inflation) income \$5000 to 1% at \$15000 and then rises to 3.2% for \$40000.

Table 3

AUSTRALIAN INCOME TAX 1980-81 and Effect of 10% INFLATION

<u>At 1980-81 Rates</u>				<u>Assume 10% Inflation</u>				<u>At Pre-inflation Prices</u>			
Ia	Ib	Ic	Id	IIa	IIb	IIC	IId	IIIB	IIIC	Percent Change	
Income	T a x \$ %		Income after tax	Income	T a x \$ %		Income after tax	Tax*	Income after tax	Ib	Id
\$5000	\$307	6%	\$4693	\$5500	\$467	9%	\$5033	\$424	\$4575	+38%	-3%
10000	1907	19%	8093	11000	2227	20%	8733	2025	7975	+ 6%	-2%
15000	3507	23%	11493	16500	3987	24%	12513	3625	11375	+ 3%	-1%
20000	5493	28%	14507	22000	6413	29%	15587	5830	14170	+ 6%	-2%
40000	15467	39%	24533	44000	17867	41%	26133	16243	23757	+ 5%	-3%

\*Average tax rate IIb unchanged by deflation.

It is therefore difficult to generalise on the effect of inflation, as a separate factor, on tax liability, and much of the subsequent analysis will be expressed in terms of average earnings to eliminate inflation from the amalgam of other factors that influence the impact of taxation on incomes.

### 3.2 EXEMPT INCOME

Most countries provide an income threshold below which no tax is payable. This can be justified on general grounds although it is difficult to specify the most appropriate level for this threshold. In theory, it can be argued that an initial slice of income is needed for subsistence and that should not be taxed, and from that it can be further argued that this amount should be

independent of income size. Or, it might be argued that people with inadequate ability-to-pay should not be taxed, and on that basis it could be concluded that the exemption should not apply to higher income earners. From the needs, and the ability-to-pay points of view the exempt income is akin to the notion of a poverty line.

Pragmatically, the exemption of low incomes can also be justified on the grounds of "economy", i.e. minimising collection costs, and "convenience" to taxpayers. Collection costs in Australia for income tax in 1978-79 totalled \$160m., or an average of 1% of tax collected and \$20 per return lodged. Rendering a tax return is probably less onerous for regular high income earners than for low earners who are usually less versed in completing such forms. Furthermore, as much of the low income is derived from casual or intermittent work, such income tax returns are not only more difficult to render for the taxpayer, but also to check for the tax authorities.

The level of the exemption limit has been raised substantially in Australia in recent years - firstly by the introduction of a standard rebate in 1975/6 and 1976/7 which operated irrespective of rebatable expenditure and subsequently by merging and raising the exemption limit itself.

Table 4

TAX EXEMPTION LIMITS and Price Movements, Australia 1972/81

	1972/3-74/5	1975/6	1976/7	1977/8	1978/9	1979/80	1980/1	1976/80
Tax Exempt Income	\$1040	\$1040	\$1040	\$3402	\$3893	\$3893	\$4041	
General Rebate		(\$540) *	(\$610) **					
Total	\$1040	\$2520	\$2845	\$3402	\$3893	\$3893	\$4041	
Increase T.E.I.p.a.		142%	13%	20%	14%	-	4%	9.8%
Increase C.P.I.p.a.		13%	14%	10%	8%	10%	(10%)	11.0%

\*Equivalent to raising tax exemption from \$1040 to \$2520; \*\*Equivalent to raising tax exemption from \$1040 to \$2845.

Table 4 shows the changes in the tax exemption limit which however have not kept up with the rate of inflation since 1975/6. Only in the longer period, - 1972/73 to 1980/1 has the trebling of the exemption limit exceeded the rise of the C.P.I. by a factor of about 2½.

Tax exemption, at the lower end of the income scale, increases the progressiveness of the tax scale; indeed, it makes even a proportional tax scale progressive. The tax burden is redistributed upwards through the exemption limit which means that low income earners benefit relatively more

than high earners. But this augmented progression effect becomes diffused up the income scale and is diminished rapidly.

Table 5 illustrates the effect of increasing exemption limits on tax liability and progressivity. The introduction of exemption limits leads to a tax saving of a fixed amount, irrespective of income levels. In the example, exemption limits of \$2519 result in a tax saving of \$806, or with a limit of \$3893 of a further \$400 (for incomes above the new limit), and that means that in relative terms the effect diminishes with rising incomes. The system becomes more progressive through the exemption limit, and as the ratio of marginal to average tax indicates, the gains in progressiveness are greater at lower than at higher income levels.

Table 5

EFFECT OF TAX EXEMPTION LIMIT ON TAX LIABILITY AND ON PROGRESSIVITY measured by mT/aT*								
<u>Taxable Income</u>	<u>\$2500</u>	<u>\$5000</u>	<u>\$10000</u>	<u>\$20000</u>	<u>\$30000</u>	<u>\$40000</u>	<u>\$50000</u>	
<u>Exempt nil</u> Tax Due	\$ 800	\$1600	\$3200	\$6960	\$11560	\$17280	\$23280	
Av. Tax	.32	.32	.32	.35	.39	.43	.47	
Marg. Tax	.32	.32	.38	.46	.57	.60		
mT/aT	1.00	1.00	1.19	1.31	1.46	1.40		
<u>Exempt \$2520</u> Tax Due	0	\$794	\$2394	\$6154	\$10754	\$16474	\$22474	
Av. Tax	0	.16	.24	.31	.36	.41	.45	
mT/aT		2.00	1.58	1.48	1.58	1.46		
<u>Exempt \$3893</u> Tax Due	0	\$354	\$1954	\$5714	\$10314	\$16034	\$22034	
Av. Tax	0	.07	.20	.29	.34	.40	.44	
mT/aT		4.52	1.90	1.59	1.68	1.50		

Assumed tax scale : 32% to \$16000; 46% to 32000; 60% above \$32000

\*The ratio of marginal tax to average tax (of preceding period) measures extent of progressivity (see Appendix). Marginal tax above limit unaffected by change in limit.

The effect of tax on the tax exemption limit is reinforced by the fact that greater numbers of taxpayers earn low or middle incomes than high incomes. This is demonstrated in Table 6 which is based on the Australian income distribution in 1976-77 when approximately 4 million taxpayers, or 80% of taxpayers with income up to \$15000 paid about one half of tax collected, and the remaining 20% of taxpayers on higher incomes paid the other half. Under I a tax exemption limit of \$4000 has been assumed. Under II and III it is assumed that total tax collections were to be reduced by 12½. The alternatives are an increase in the exemption limit to \$5000, and that would free taxpayers earning less than \$5000 from tax and reduce collections from earners up to

\$15000 by 16% while earners above would only gain a reduction of 5%. Or else the exemption limit could be maintained at \$4000 and tax rates reduced instead so as to reduce tax liability in all ranges by about 12%, as shown under III. This would reduce average tax most for high incomes; but then tax collections and tax per unit from incomes up to \$15000 would be decreased by 11% and those from higher incomes by 13%.

### 3.3 TAX SCALES

Tax scales usually receive most attention when discussing the impact of income tax at different income levels. But they have to be viewed in conjunction with tax thresholds and allowable deductions and rebates when considering actual tax liability. Furthermore, to see the impact of taxation in its proper proportion, one should take into account the number of taxpayers at the various scale levels. Such considerations somewhat diminish the importance of the seemingly revolutionary changes in the Australian tax structure during the 1970s that reduced the tax steps from 29 in 1973-74 to 15 in November 1974, 7 in 1975 and 3 since 1977. The reduction in tax steps smoothed out the marginal tax rate curve but it did not greatly alter the shape of the average tax curve. The marginal rate refers to the extra amount of tax payable on extra income, and is thus of some significance in considering incentives to earn, although in practice few earners have precise control over the extra income they can earn; and many will consider their actual tax liability, which can be expressed as the ratio of tax to income, i.e. average tax, more significant than marginal tax.

The Australian income tax system has been and remains progressive in the sense that the marginal tax rate rises faster than the average rate. Such progressivity is easy to describe between two income points but more difficult to formulate for the whole income range because it depends not only on the scale (slope of the marginal tax curve), but also on the minimum point on which tax is levied, on the maximum rate and on the point at which the maximum rate comes into force. And, as previously mentioned, one should also look at the number of taxpayers at different income levels. The measure of point-to-point progressivity here used is the ratio of marginal to average tax (Liability Progression - see Appendix).



Table 6

## EFFECT OF CHANGES IN EXEMPTION LIMIT (II) AND TAX RATES (III) ON TAX LIABILITY

Number of Taxpayers		500,000	3,500,000	1,000,000	5,000,000
Income Range		\$4000-5000	\$5000-15000	\$15000+	\$4000-15000+
Average Income		\$4500	\$10000	\$20000	\$11450
I <u>Exemption \$4000</u>	Av. Tax (Marg. Tax)	3.6% (32%)	19.2% (50%)	30.1%	25.6%
	Tax per unit	\$160	\$1920	\$6020	\$2564
	Total Tax Paid	\$80m.	\$6720m.	\$6020m.	\$12820m.
II <u>Exemption \$5000</u>	Av. Tax (Marg. Tax)	- (32%)	16.0% (50%)	28.5%	22.6%
	Tax per unit	-	\$1600	\$5700	\$2260
	Total Tax Paid	-	\$5600m.	\$5700m.	\$11300m.
III <u>Exemption \$4000</u>	Av. Tax (Marg. Tax)	3.2% (28½%)	17.1% (42%)	26.2%	22.6%
	Tax per unit	\$143	\$1710	\$5244	\$2260
	Total Tax Paid	\$71m.	\$5985m.	\$5244m.	\$11300m.

Table 7 summarises the tax situation in 1973-74 under A up to income of \$6400 which was close to average earnings (male units) in that year. About 2/3 to 3/4 of all taxpayers were in the 0 - \$6400 range. Starting from \$2400, tax payable for income steps of \$800 rose from \$237 to \$1403 in rising amounts and increasing average and marginal rates, but the increases in \$ and in percentage points diminished in size with rising incomes, signifying a so-called "progressive-degressive" tax scale. This is also indicated by the decline in the ratio of marginal to average tax with rising income. To bring out the effect of the progressive tax scale, part B of the table gives a hypothetical example of a flat rate tax of 26%, above income of \$1040. Although nominally proportional, the exemption limit maintains some progressivity in the tax scale, with average tax rising from 14.8% to 21.8%, and the mT/aT ratio (which is 1 for a proportional tax) moving from 1.76 to 1.23. As before the tax scale is of the progressive-degressive type, though with reduced force of degressiveness.

Table 7

A) AUSTRALIAN INCOME TAX SCALE 1973/4				B) Flat-Rate Tax 26% above \$1040*			
Income	T a x	Marg. Tax	Ratio**	T a x	Marg. Tax	Ratio**	
\$	\$ Av.	\$ %	mT/aT	\$ Av.	\$ %	mT/aT	
1040	0			0			
2400	237 9.9%	237 17.4%		354 14.8%	354 26%		
3200	404 12.6%	166 20.8%	2.10	562 17.6%	208 26%	1.76	
4000	608 15.2%	205 25.6%	2.03	770 19.3%	208 26%	1.48	
4800	851 17.7%	242 30.3%	1.99	978 20.4%	208 26%	1.35	
5600	1117 19.9%	266 33.3%	1.88	1186 21.2%	208 26%	1.27	
6400	1403 21.9%	286 35.7%	1.79	1394 21.8%	208 26%	1.23	

\*B constructed so that average tax at top \$6400 about equals A.

Single rate changes total tax revenue; assuming equal numbers of taxpayers at each income range, a flat rate of 22% for B would yield revenue as for A.

\*\*"Liability Progression", see Appendix, indicates rising progressivity above 1.

Generally a reduction in tax steps would favour those in the upper range of the extended bracket, and (for an unchanged tax yield) it is also likely to favour high as against low income earners, in particular in the extreme case of moving to a single flat rate tax. The table below is constructed to achieve equal tax yields for five three and single tax rates. It will be seen that the reduction in tax steps shifts some of the tax load from higher to lower incomes; and that the rate of progressiveness, in terms of the ratio

of marginal to average tax, is less for three and one than for five steps. The reduction in tax steps in Australia between 1974 and 1979 coincided with changes in exemption limits, inflation and partial indexation, rising total tax yields, etc. and the combined effect of the various factors will be considered in the next section.

Table 8

EXAMPLE OF EFFECT OF REDUCING TAX STEPS with Constant Total Tax Yield

Income	Tax Rates				Tax Rates				Tax Rates			
	Tax	Av. Tax	Marg Tax	Marg /Av.	Tax	Av. Tax	Marg Tax	Marg /Av.	Tax	Av. Tax	Marg Tax	Marg /Av.
	\$ 0	10%			\$ 0				\$ 0-20000	16%		
	\$ 4000- 8000	15%			\$ 4000-12000	17½%						
	\$ 8000-12000	20%			\$ 12000-20000	25%						
	\$12000-16000	25%										
	\$16000-20000	30%										
\$ 2000	\$ 200	10%	12½%	1.25	\$ 200	10%	13¾%	1.38	\$ 320	16%	16%	1.0
\$ 6000	\$ 700	11¾%	17½%	1.50	\$ 750	12½%	17½%	1.40	\$ 960	16%	16%	1.0
\$10000	\$1400	14%	22½%	1.55	\$1450	14½%	21½%	1.47	\$1600	16%	16%	1.0
\$14000	\$2300	16½%	27½%	1.68	\$2300	16½%	25%	1.52	\$2240	16%	16%	1.0
\$18000	\$3400	19%			\$3300	18½%			\$2880	16%		
	\$8000*				\$8000*				\$8000*			

\*assuming one taxpayer at each of the five income steps.

### 3.4 TAXES IN TERMS OF EARNINGS

Table 9 shows the trend in price and earnings indicators since 1972/3. In the earlier years of that period, earnings rose considerably faster than prices but since 1974/5 the two series have moved closely together, indicating stability of real earnings or even a slight fall, in recent years.

Table 9

## AUSTRALIAN PRICE AND EARNINGS STATISTICS

	CONSUMER PRICE INDEX Six Capital Cities			AVERAGE WEEKLY EARNINGS Employed Male Unit			AWE INDEX as % CPI
	1966/7 = 100	1973/4 = 100	R i s e over previous year	Original	1973/4 = 100	R i s e over previous year	1973/4=100
1972/73	129.8	88.5	3.2%	\$101.80	86.1	16.3%	97.3
1973/74	146.6	100	12.9%	\$118.30	100	16.2%	100
1974/75	171.1	166.7	16.7%	\$148.30	125.4	25.4%	107.5
1975/76	193.3	131.8	13.0%	\$169.60	143.3	14.4%	108.7
1976/77	219.9	150.0	13.8%	\$190.70	161.2	12.4%	107.5
1977/78	240.9	164.3	9.5%	\$209.50	177.1	9.9%	107.8
1978/79	260.6	177.8	8.2%	\$225.70	190.8	7.5%	107.3
1979/80	287.0	195.8	10.1%	\$247.25	209.0	9.5%	106.7

Table 10

INCOME TAX ON FRACTIONS OF AVERAGE EARNINGS - Australia

Income Earner without Dependents\*

	$\frac{1}{2}$ AWE	$\frac{3}{4}$ AWE	1 AWE	$1\frac{1}{4}$ AWE	$1\frac{1}{2}$ AWE	$1\frac{3}{4}$ AWE	2 AWE
Tax Payable and Average Tax Rates							
1972/3	\$250 10%	\$525 13%	\$880 17%	1320 20%	1802 23%	\$2324 25%	2883 27%
73/4	328 11%	696 15%	1145 19%	1687 22%	2287 25%	2945 27%	3661 30%
74/5	335 9%	796 14%	1425 19%	2286 24%	3200 28%	4186 31%	5208 34%
75/6	512 11%	1235 19%	2006 23%	2875 26%	3863 29%	4893 32%	6106 35%
76/7	570 11%	1383 19%	2250 23%	3220 26%	4334 29%	5476 29%	6848 34%
77/8	587 11%	1468 18%	2388 22%	3367 25%	4468 27%	5713 30%	7116 33%
78/9	662 11%	1644 19%	2627 22%	3610 25%	4733 27%	6118 30%	7520 32%
79/80	842 13%	1906 20%	2970 23%	4033 25%	5478 28%	6983 31%	8508 33%
80/1	973 14%	2107 20%	3240 23%	4438 25%	6067 28%	7688 31%	9325 33%
Marginal Tax Rate and Ratio of Marginal to Average Tax Rate**							
1972/3	21% 2.2	27% 2.0	33% 2.0	36% 1.8	39% 1.7	42% 1.7	
73/4	24% 2.2	29% 1.9	35% 1.9	39% 1.8	43% 1.7	47% 1.7	
74/5	24% 2.7	33% 2.4	45% 2.4	47% 2.0	51% 2.2	53% 1.7	
75/6	36% 3.1	38% 2.1	43% 1.9	49% 1.9	51% 1.8	60% 1.9	
76/7	33% 2.9	36% 1.9	39% 1.7	45% 1.7	46% 1.8	55% 1.8	
77/8	32% 3.0	34% 1.9	36% 1.6	40% 1.6	46% 1.7	52% 1.7	
78/9	33% 3.0	33% 1.9	34% 1.5	38% 1.6	47% 1.6	48% 1.6	
79/80	33% 2.5	33% 1.7	33% 1.4	45% 1.8	45% 1.6	47% 1.5	
80/1	32% 2.3	32% 1.6	34% 1.5	46% 1.8	46% 1.6	46% 1.5	
Contribution to Tax Yield <sup>Ø</sup> (Total 100%)							
1972/3	2.5%	5.3%	8.8%	13.2%	18.0%	23.3%	28.9%
73/4	2.6%	5.5%	9.0%	13.2%	17.9%	23.1%	28.6%
74/5	1.9%	4.6%	8.2%	13.1%	18.4%	24.0%	29.8%
75/6	2.4%	5.7%	9.3%	13.4%	18.0%	22.8%	28.4%
76/7	2.4%	5.6%	9.3%	13.4%	18.0%	22.8%	28.4%
77/8	2.3%	5.8%	9.5%	13.4%	17.8%	22.8%	28.4%
78/9	2.5%	6.1%	9.7%	13.4%	17.6%	22.7%	27.9%
79/80	2.7%	6.3%	9.7%	13.1%	17.8%	22.7%	27.7%
80/1	2.9%	6.2%	9.6%	13.1%	17.9%	22.7%	27.6%

\*Income based on Average Weekly Earnings per employed male unit (A.B.S. 6302.0) with an assumed rise of 10% between 1979/80 & 1980/1.

Calculations, as in Table 33, take into account standard deductions and rebate for concessional expenditure for 1972/3-1976/7 prior of them being merged into the exemption limit.

\*\*The ratio of marginal tax over average tax of preceding period services as a measure of progressivity between tax steps; see Appendix.

Ø It is assumed here that the number of taxpayers is the same at each step. This understates the shift in the tax load from upper to lower ranges as the actual distribution of taxpayers is skewed to the left, i.e. in 1978-79 about 7% of taxpayers were in the AWE range of \$11,000-12,000, 63% were below and 30% above, as against the putative distribution in the table of about 14% on AWE, 29% below and 57% above.

Table 10 shows tax trends in terms of fractions of earnings to exclude the effect of inflation. The main general feature is the overall rise in the tax load on incomes and its relative shift from high to low earners. Average tax (tax as percent of earnings) rose substantially from 1972-73 to 1975-76, e.g. for average earnings from 17% to 23%, and it continued to rise a little until 1980-81 for earnings below AWE, while remaining steady at 23% for AWE and dropping a little for the higher earnings range. Marginal tax rates (extra tax on extra income) rose between all earnings groups until 1975/76, and have since declined, but more so for middle and high incomes than for low incomes. This reflects the reduction of tax steps in recent years which has led to a decline in tax progressiveness and is indicated by the declining ratio of marginal to average tax. Section 3 of Table 10 shows the relative shift of the tax burden from higher to lower incomes in terms of contributions to total yield (on the simplifying assumption of equal numbers of taxpayers at each step). The share of tax paid by incomes at or below AWE rose from 16.6% in 1972/3 and 17.4% in 1975/6 to 18.7% in 1980/1, with a corresponding reduction from 83.4% and 82.6% to 81.3% for higher incomes. If one were to weigh these figures by the actual income distribution (more in the lower than in the upper ranges) this shift in the tax burden from higher to lower incomes would stand out even more strongly.

### 3.5 INCOME DISTRIBUTION

It thus appears that the changes in the tax system have made low income earners worse off than high income earners in recent years; and, as will be shown later, that applies not only to single taxpayers but also to those with dependants. But some caution must be exercised in drawing conclusions for the Australian income distribution from taxation statistics. As indicated in Table 11 only a little over one half of the population above age 15 pay taxes, - at present about 70% of the men and 40% of the women. The tax reforms in 1975, in particular the raising of the exemption limit from \$1040 to about \$2000, reduced the number of taxpayers by about 400,000 or 7%, and subsequent rises in the number have not quite kept up with population growth. That means that some low income earners who previously paid tax, no longer do so.

Table 11

AUSTRALIAN POPULATION Aged 15 Years + and NUMBER OF TAXPAYERS

		<u>1972/3</u>	<u>1973/4</u>	<u>1974/5</u>	<u>1975/6</u>	<u>1976/7</u>	<u>1977/8</u>	<u>1978/9</u>
<u>Taxpayers, Numbers,</u>								
Males	000	3,317	3,459	3,467	3,300	3,527	3,576	3,560
Females	000	<u>1,759</u>	<u>1,961</u>	<u>2,085</u>	<u>1,879</u>	<u>2,000</u>	<u>1,992</u>	<u>1,978</u>
Persons	000	5,076	5,420	5,552	5,179	5,527	5,568	5,538
Population aged 15+	000	9,505	9,700	9,850	10,062	10,240	10,428	10,623
Taxpayers as % Population		53.4%	55.9%	56.1%	51.5%	54.0%	53.4%	52.1%

Secondly, the general upward drift in earnings, in particular in the early part of the period, must be considered. The proportion of those on taxable incomes equivalent to  $\frac{1}{2}$  to 1 of average earnings (out of the total between  $\frac{1}{2}$  to 2 AWE) declined from about 85% to 65% in the period, and the relative worsening in the tax position applied mainly to those in the low to middle ranges ( $\frac{1}{2}$  to 1 AWE) who did not improve their income status. As Table 10 shows, marginal tax rates in the middle and higher tax ranges were effectively reduced in the period.

Considering changes in income dispersion more generally, Table 12 summarises the results of two different types of statistics. Using the Australian Income Distribution Survey of Employees one obtains a dispersion factor (see footnote to Table 12) of .224 for men, which was slightly higher (less dispersion) than the corresponding factor of .216 calculated from a similar survey in 1975. The proportion of men in the two lower income deciles fell in that period from 12.1% to 10.7%, while those in the two upper deciles rose from 32.3% to 34.0%, signifying an upward shift in the distribution. Taking the taxation statistics, which exclude non-tax paying income recipients but, unlike the other survey, include employers and self-employed earners, the dispersion factor for men fell from .29 in 1973/4 to .27 in 1978/9, and income shifted from the middle deciles to the 80% - 90% range. For women the situation was different and the changes somewhat less favourable. While the dispersion factor from the Employee Survey fell, the number in the lower income deciles fell at the expense of the middle range, while the taxation statistics point to an increase in income dispersion with more in the lower income range and fewer in the middle and upper deciles. It is not easy to reconcile the two series which are based on different populations of income recipients and refer to different periods, but it appears that, at least for taxpayers, there has been an increase in the number low income earners, both male and female, - at the expense of middle incomes for men and of higher

incomes for women. This would support our previous observation of a relative worsening in the tax position of low earners.

Table 12

DISPERSION OF INCOMES - Australia

		Dispersion Measure*	Income Distribution					Total
			Lower 10%	10-20%	20-80%	80-90%	90-100%	
Male	1975/4	.216	4.8	7.3	55.6	13.7	18.6	100%
Employees	1980/4	.224	4.3	6.4	55.3	13.8	20.2	100%
Male	1973/4	.290	3.1	6.1	59.7	7.9	23.2	100%
Taxpayers	1978/9	.270	3.9	5.5	55.6	13.8	21.2	100%
Female	1975/4	.252	5.8	6.3	58.6	12.1	17.2	100%
Employees	1980/4	.213	6.6	8.4	54.8	13.4	16.8	100%
Female	1973/4	.330	3.5	4.8	52.4	14.2	25.2	100%
Taxpayers	1978/9	.360	-- 10.8 --	--	55.2	13.4	20.5	100%

\*  $\frac{1}{2}$  Median; / A.B.S. ref.6309; ≠ A.B.S. ref. 6.47; 1973/4 C.of A. Taxation  
 $Q_3 - Q_1$  Statistics

In a more thorough analysis of Australian statistics of family incomes for the period 1968/9 to 1973/4 (Murray 1981), it was found that household income inequality in Australia has usually been understated. Claims that income in Australia is more equal than in most other countries cannot be sustained, and it is likely that the situation here is close to that in other developed countries. It also appears from this study that over the 1968/74 period income inequality between families with the same number of earners increased, while it decreased between families with different number of income earners, and that these trends cancelled each other out so that there was little overall change in the inequality of household incomes during the period. Comprehensive statistics for later years are not yet available, and it will be interesting to follow them up eventually in the light of the growing number of dual-earner households.



#### 4. CONCESSIONAL EXPENDITURE AND ALLOWANCES

The general nature and tax treatment of concessional expenditure and allowances has been described in section 2.3. Here we will deal more specifically with recent changes that have had a large impact on tax liability of individuals. As previously explained, these items can be dealt with either as deductions from taxable income or as a rebate from tax otherwise payable. Deductions, generally, favour high income earners relatively more than low earners, while the reverse applies to rebates. The tax regulations switched in 1975 for most items in question from the system of deductions to one of rebates but, as we shall see, the ensuing relative advantage to low income earners has been largely eroded by various factors influencing tax incidence.

##### 4.1 CONCESSIONAL EXPENDITURE

Looking at the situation before 1975, the Asprey Report (1975) listed 23 types of allowable tax deductions (other than concessions for dependants) which mainly fell under the headings of medical care, education, life assurance and superannuation and rates. Taking together, they reduced the income base at that time by between 10% and 15%. As this type of expenditure is to some extent correlated with income levels, high income earners 'saved' more tax from the high tax rates applying to them, and the system seemed to favour them over low earners.

The budget for 1975-76 replaced most of these deductions by corresponding tax rebates, set at the rate of 40% of such expenditure, and it further introduced a minimum concessional rebate of \$540, irrespective of whether rebatable expenditure was incurred or not. This was equivalent to saying that all taxpayers had rebatable expenditure of at least \$1350 and could deduct 40% of that amount, i.e. \$540, from their tax bill. If concessional expenditure exceeded \$1350, 40% of the excess could be claimed as an additional rebate. The minimum rebate meant in effect an increase in tax exemption from the previous \$1041 to \$2520 (see Table 4), and in that way it made the tax system more progressive. This is demonstrated in Table 13 which compares the alternatives of tax deductions and rebates with the plausible assumption that this type of expenditure increases with rising incomes. It shows that a change from the deductions to a rebate system by itself is likely to shift some of the tax burden from low and middle income earners to high incomes.

Table 13

INCOME TAX - Av. Earnings Series (AWE) - 1974/5 - No Dependants

Assessable Income	Actual Deduction Treatment			Alternative Rebate Treatment		Tax Change with Rebate
	Deductions Medical etc	Taxable Income	T a x	Taxable Income	Tax less 40% Rebate Minimum \$540	
½ AWE \$ 3850	\$ 500	\$ 3350	\$ 290	\$ 3850	\$ 390 - \$540 = nil	- \$290
1 AWE \$ 7700	\$1000	\$ 6700	\$1266	\$ 7700	\$1688 - \$540 = \$1148	- \$118
2 AWE \$15400	\$2000	\$13400	\$4590	\$15400	\$5690 - \$800 = \$4890	+ \$300

The reforms of 1975 also greatly simplified the rendering of tax returns, and their checking by the Tax Office, by eliminating the need of recording a large number of expenditure items, with the temptation to magnify them. At the same time it provided for the situation of unusually high costs, in particular for medical expenses, by allowing for rebates at the rate of 40% above the putative \$1350, for which evidential records are required as before. Most taxpayers take advantage of the minimum concession. In 1978/79 claims in excess were made by only 327000 or 6% of all taxpayers, representing 10% of total taxable income. The average claim was \$2100, as against the minimum of \$1590, and about half of it was for life assurance of superannuation payments. In 1976-77 the minimum rebatable expenditure level was raised by 11% from \$1350 to \$1525 (rebates from \$540 to \$610) in keeping with other indexation measures. But as from the following year, the general concessional rebate was merged into minimum taxable income, which was lifted from \$2845 to \$3402 in 1977-78, and only the excess over \$1590 concessional expenditure remained as a rebate, albeit at a lower rate (32% in 1977-78). Only minor adjustments were made in subsequent years :

Table 14

<u>R E B A T E S     F O R     C O N C E S S I O N A L     E X P E N D I T U R E</u>						
1975/6	Minimum	\$540	(40% of \$1350)	plus 40% of excess over		\$1350
76/7	"	\$610	(40% of \$1525)	plus 40%	"	\$1525
77/8	Incorporated in Tax Exemption			32%	"	\$1590
78/9	.....	.....	.....	33½%	"	\$1590
79/80	.....	.....	.....	33.1%	"	\$1590
80/1	.....	.....	.....	32%	"	\$1650

The adjustments, being mainly based on fairly constant percentage rates of excess expenditure, have nominally kept up with inflation. However, the limits set on tax claims for two of the major items,- \$1200 for life assurance and superannuation premiums and \$300 for rates and land taxes, have remained unchanged for seven years or more, and the varying treatment of health insurance levies has probably also somewhat reduced the tax benefit from this type of expenditure over the years. The incorporation of the minimum rebate into the tax exemption did not affect low income earners. But the changes in the rebate system since 1975 have probably slightly reduced the advantage gained by middle-income over high income earners through the shift from deductions to rebates in that year.

#### 4.2 DEPENDANT DEDUCTIONS AND REBATES

##### 4.21 SPOUSES (Also Daughter-Housekeepers and other Housekeepers)

Until 1975 the tax allowance for an income earner with a non-working spouse was granted in the form of a deduction from assessable income. This meant that the benefit, in terms of absolute amounts of tax reductions, rose with income; the difference between married and single rates in percentage points actually fell with rising incomes, as indicated in the third section of Table 16, but that refers, of course, to a rising percentage relative. The change-over to a rebate in 1975 benefited all single-earner couples because the rebate was set at the relatively high rate of \$400, but it also favoured low over high earners as it became a uniform deduction from the tax bill, irrespective of income. It also favoured couples where the second earner had a low income, because the \$ for \$ decrease in the spouse deduction for second incomes above a low threshold was replaced by a \$1 for \$4 subtraction from the spouse rebate. As Tabel 15 shows, this substantially lifted the ceiling of second-earner incomes to which some rebate was credited to the main earner.

In 1976/7 and 1977/8 came further increases in the spouse rebate, well above the rate of inflation, followed by a two-year lag which left the rebate and maximum spouse income in 1979-80 no higher in real terms than it had been in 1975/6. A relatively large increase in the rebate, from \$597 to \$800, in 1980/1 might be seen as a discouragement for spouses to take jobs, or at least such jobs that earn more than the maximum that qualifies their spouse for some rebate - and that maximum actually rose from \$2591 to about \$3500.

Table 15

S P O U S E   R E B A T E								
	1973/4	1974/5	1975/6	1976/7	1977/8	1978/9	1979/80	1980/81
<u>Spouse Rebate</u>	\$364*	\$364*	\$ 400	\$ 500	\$ 555	\$ 597	\$ 597	\$ 800
<u>Maximum Spouse Income</u> ≠								
a) Before Spouse Rebate is Reduced	\$130*	\$130*	\$ 150	\$ 170	\$ 189	\$ 203	\$ 203	\$ 272
b) To qualify for any Spouse Rebate	\$494**	\$494**	\$1750	\$2170	\$2389	\$2591	\$2591	\$3472
<u>Spouse Rebate 1975/6 Prices</u>			\$ 400	\$ 439	\$ 445	\$ 443	\$ 402	\$ 490
<u>Maximum Spouse Income @ 1975/6 Prices</u>			\$1750	\$1907	\$1914	\$1922	\$1746	\$2125

\*Income deduction; \*\* For income at average earnings level.

≠Spouse concession granted in full if spouse income does not exceed (a). Thereafter reduced, until 1975/6 \$1 for every \$1 and since then \$1 for every \$4 of spouse income.

@Equals (a) plus 4 times spouse rebate; assumed CPI rise of 10% in 1980/81.

Table 16 compares the situation of a single taxpayer with a married one with a non-earning spouse and no other dependants. It represents both the tax advantage gained through a spouse, and the extra tax if the spouse earns a separate income. In 1974/5, before the change from tax deduction to rebate, the difference between the single and married rates ranged from about \$200 for low incomes ( $\frac{1}{2}$  AWE) to \$380 for middle incomes and \$700 for high incomes (2 AWE). The deduction represented a fairly uniform 5% (5.2% to 4.5%) of the taxable income to which it was geared. The introduction of a uniform tax rebate, independent of income, increased the advantage for lower incomes (11% in 1980/1) as compared with higher incomes (3% for 2 AWE in 1980/1). But in terms of average tax, the difference between single and married incomes through the rebate system rose only significantly for low incomes - a gap of between 9 to 12 percentage points as against 6 points in 1974/5. This gap becomes smaller as income rises - i.e. about 5 points for average earnings and 3 to 4 points in the higher ranges. This means the tax loss through marriage, where the spouse earns less than the exempt income, diminishes appreciably in the middle and higher income ranges, and that applies also to the tax-based disincentive for a spouse to earn an independent income.

Table 16

## EFFECT OF SPOUSE REBATE ON TAX LIABILITY For Fractions of Average Earnings

		1972/3	1973/4	1974/5	1975/6	1976/7	1977/8	1978/9	1979/80	1980/1
<u>Spouse Rebate</u>		(\$364)*	(\$364)*	(\$364)*	\$400	\$500	\$555	\$597	\$597	\$800
as % $\frac{1}{2}$ AWE		3.6	3.7	5.2	9.1	10.1	10.2	10.2	9.3	11.3
1 AWE		4.5	4.7	5.0	4.5	5.0	5.1	5.1	4.6	4.6
$1\frac{1}{2}$ AWE		4.2	4.2	4.5	3.0	3.4	3.4	3.4	3.1	3.8
2 AWE		4.1	4.3	4.5	2.3	4.2	2.5	2.5	2.3	2.8
<u>Average Tax Rate</u>										
$\frac{1}{2}$ AWE	Single	9%	11%	9%	12%	12%	11%	11%	13%	14%
	Married	6%	7%	3%	3%	1%	1%	1%	4%	2%
1 AWE	Single	17%	19%	18%	23%	23%	22%	22%	23%	23%
	Married	12%	14%	14%	18%	18%	19%	17%	18%	17%
$1\frac{1}{2}$ AWE	Single	23%	25%	28%	29%	29%	27%	27%	28%	28%
	Married	18%	21%	23%	26%	26%	23%	23%	25%	24%
2 AWE	Single	27%	30%	34%	35%	35%	33%	32%	33%	33%
	Married	23%	26%	29%	32%	32%	30%	29%	30%	30%

\*Deduction converted to equivalent rebate. See also notes to Table 33.

#### 4.22 Dependent Children

The system of granting child benefits by way of tax allowances and social security payments has undergone major changes in recent years. But it is difficult to discern a pattern in the changes which would express a consistent fiscal-social policy with respect to children.

Up to 1974/5 tax deductions were granted for children under the age of 16, and dependent student children up to the age of 25, at the rate of \$260 for the first child and \$208 for subsequent children. This was converted into a tax rebate of \$200 and \$150 respectively in 1975/6. In addition, child endowment was paid to mothers at a rate equivalent to \$26 p.a. for the first child and thence increasing for each additional child as shown in Table 18, (1b)). In 1976/7 the tax concessions were abolished, and the social security benefit, renamed family allowance, was substantially increased (Table 18 (3)). This measure was described by the Treasurer as "one of this country's most significant reforms"; it was intended to assist families, in particular large families on low incomes who previously were not fully, or not at all subject to the tax rebate, and so was of benefit to approximately 300,000 families with 800,000 children. Fiscally it was largely a matter of redistribution; the budget cost of family allowances in 1976-77 was \$1027m., or about \$765m. more than the cost of child endowment in the previous year, and the withdrawal of tax rebates for dependent children was estimated to raise revenue by approximately \$700m. Tax-paying families became worse off to pay for the extra benefits paid to low income families who do not pay tax; and, as we shall see, this affected taxpayers with one dependent child more than larger families.

The effects on low income earners who are not liable to tax will not be considered in the present context of analysis of tax impacts. And for purposes of comparison child endowment and family allowances will be regarded as negative taxes accruing to taxpayers - i.e. a simplified assumption that married couples keep joint household accounts, although this might not apply in all cases. For further analysis it should also be remembered that endowment and family allowances are paid to the mother on a four-weekly base, while tax deductions and rebates take the form of regular or annual deductions from the taxpayer's tax bill (see Appendix Table 34).

The situation in, and up to 1974/5 is described in Table 17. There the tax saving from children rose with income. The tax deduction declined from

\$260 for the first child to \$208 for subsequent ones, but this was partly offset by the increasing rate of child endowment. Taking both together, the benefit for the first and the second child was about the same (\$176 and \$179 for average earnings), rose substantially for the third child (\$269), and then declined (\$219 for fourth child) or increased only a little for taxpayers on higher incomes.

Table 18 expresses child benefits in terms of tax savings separately for each child and cumulatively for the respective total of children, under the three systems : tax deductions and rebates with child endowment and family allowances without tax benefits. With the system of deductions (1) the tax gain per child fluctuated (for average earners) - \$150 for the first one, \$127 for the second one, \$160 for the third one, etc. With the progressively increasing child endowment added, the benefits rose from \$176 for the first child to \$179 and then \$264 for the third one, with subsequent decreases. The largest marginal gain for the third child also applied to higher incomes.

The introduction of child rebates in 1975/6 raised the level of benefits for average earners, except for the third child. The emphasis was on the first child, with a rebate of \$200 as against \$150 for subsequent ones. Compared with deductions (1), the rebates (2), raised total benefits for average earners by \$50 for the first child, and \$23 for the second one but dropped by \$10 for the third one. At higher income levels, the change to rebates meant generally a loss as against the previous system, again in particular for the third child. Even though all income levels, the margin between the second and third child was reduced, it remained larger than between other children.

The last section of Table 18 further emphasises that the previous system, 1c) and 2c), gave proportionally the greatest benefit for the third child, while family allowances, 3), give it to the second child and relatively smaller increments to larger families.



Table 17

## EFFECT OF FAMILY DEDUCTION AND CHILD ENDOWMENT ON TAX LIABILITY - 1974/5

	Tax De- duction	Child End't	T a x   P a y a b l e				Family All. since 1975
			$\frac{3}{4}$ AWE	1 AWE	1½ AWE	2 AWE	
No dependants			\$796	\$1425	\$3200	\$5208	
Spouse	<u>\$364</u>		520 -\$276	1044 -\$381	2628 -\$572	4501 -\$707	
One Child	\$260	\$ 26	368 - 152	868 - 176	2405 - 223	4233 - 268	\$182
Two "	<u>208</u> \$ 468	<u>52</u> \$ 78	210 - 158	689 - 179	2181 - 224	3968 - 265	<u>260</u> \$ 442
Three "	<u>208</u> 676	<u>104</u> 182	5 - 205	425 - 264	1900 - 281	3645 - 323	<u>312</u> 754
Four "	<u>208</u> 884	<u>117</u> 299	- 5	206 - 219	1612 - 288	3326 - 319	<u>312</u> 1066
Five "	<u>208</u> 1092	<u>130</u> 429		- 206	1316 - 296	2994 - 332	<u>364</u> 1430
Six "	<u>208</u> 1300	<u>143</u> 572			1016 - 300	2655 - 339	<u>364</u> 1794

Tax Payable net of child endowment. Standard concessional expenditure as in Table 33.

Table 18

CHILD BENEFITS : Tax Deduction/Rebate, Child Endowment, Family Allowance

	1 child	2 ch.	3 ch.	4 ch.	5 ch.	6 ch.
	Child cum/	Child cum/	Child cum/	Child cum/	Child cum/	Child cum/
1a) Tax Deduction 74/5*	\$150	\$127 \$277	\$160 \$437	\$102 \$ 539	\$122 \$ 661	\$125 \$ 786
1b) Child Endow't 74/6	26	52 78	104 182	117 299	130 429	143 572
1c) Total Ded+C.E 74/5	176	179 355	264 619	219 838	252 1090	268 1358
2a) Tax Rebate 75/6	200	150 350	150 500	150 650	150 800	150 950
2c) Rebate + C.E. 75/6	226	202 428	254 682	267 949	280 1229	293 1522
3) Family All.from 76/7	182	260 442	312 754	312 1066	364 1430	364 1794
Additional Benefit as % of previous child						
1b) Child Endowment 74/6		200%	200%	113%	111%	110%
1c) Tax Ded + C.E. 74/5		108%	147%	83%	115%	106%
2c) Rebate + C.E. 75/6		89%	126%	105%	105%	105%
3) Family All.from 76/7		143%	120%	100%	121%	100%

\*Average Earnings less spouse reduction and concessional exp. ≠ no tax payable. ≠ cumulative.

Note: Child endowment rose by \$13 p.a. for each additional child without limit to number;

Family allowances fixed at \$364 p.a. for additional children subsequent to the fifth.

Minor variation between (1a) and Table 17 because the latter takes account of special rebate for taxable incomes below \$7000.

Whether child concessions through the taxation or social security systems are regarded as compensation for the cost of child rearing or part of a populist theory to encourage greater or lesser number of children, the fluctuations in the rates for additional children under the previous and current arrangements seem difficult to justify. One might surmise that the introduction of family allowances was intended to prefer two-child to one-child families - an intention reflected in child endowment rates but at that time counteracted by the structure of deductions and rebates, but such definite attitudes to the needs or desirability of larger families are not clearly expressed in the further scaling, and it is doubtful whether the family allowance system really intended to put the albeit rare case of a very large families with middle and upper incomes into a relatively worse position than they had enjoyed before.

The general merits of family allowances in terms of benefit to low-income non-tax-paying families (of any size) have been mentioned before, and there are also good arguments for shifting child concessions away from tax-paying fathers to a social security type benefit for mothers. But one result not generally foreseen in 1976, was to shift the benefit from the realm of partial indexation, that applied to taxation in subsequent years, to social security payments without applying to them the indexation increases granted to other major payments of that type. In consequence the real value of family allowances has been reduced by about 30% in the past four years, as shown in Table 19, leaving them well below the level of the pre-1976 system. Changes in tax rebates are usually merged in a general packet of adjustment to tax exemption limits, rates, etc. that is fitted to the exigencies of the budget. But an increase in family allowances, even at the modest rate of say \$1 a week for each child, would cost about \$250 m. and would thus raise major fiscal and political issues. It was similar with child endowment when rates were not changed between 1971 and 1976 although prices about doubled in that period, while income tax deductions for dependent children were substantially increased between 1971 and 1975.

Table 19

FAMILY ALLOWANCE At Constant 1976/7 Price

	Consumer Price Index	1 Child	2 ch.	3 ch.	4 ch.	5 ch.	6 ch.
1976/7	100 + 9.5%	\$182	\$442	\$754	\$1066	\$1430	\$1794
1977/8 at 76/7 prices	109.5 + 8.2%	166	404	688	974	1306	1638
1978/9 "	118.5 +10.1%	154	373	636	900	1207	1514
1979/80 "	130.5 + 10%	139	339	578	817	1096	1375
1980/81* "	143.5	127	308	525	743	996	1250

\*assuming 10% price rise over year.

It is of interest to note here some tax reform proposals. The Asprey Report supported the suggestion made in the Interim Report of the Commission of Inquiry into Poverty (1974) that the dependent child allowance in taxation should be abolished and child endowment be correspondingly increased, and held there was a good case of making it taxable in the hands of parents. It admitted that this raises a "teasing problem" to which parental income the payments should be added for tax purposes, and suggested that this should be the larger income where the child lives with both parents, and otherwise to the parent in daily charge of the child. The Federal Government Health and Welfare Committee (headed by Mr. Ian Wilson, M.P.) has proposed substantial increases in family allowances, granting equal amounts of \$390 p.a. for the first and second child (in lieu of the present \$182 and \$260 respectively), and \$468 (in lieu of \$312) for the third child (statement by Mr. I. Wilson at ACOSS Taxation and Social Welfare Seminar, Sydney 8/2/1980), which would reverse the relative advantage of the second child in the present system. This proposal also suggested to make family allowances taxable for the benefit of low income earners.

The Australian Labor Party proposed in 1979/80 the introduction of a Family Income Supplement in the form of family allowances on the basis of a sliding means test - declining from \$208 per child for incomes below \$8000 to \$52 for incomes between \$12000-14000, this supplement not being taxable. This measure was intended as an interim measure to help low income earners whose position relative to the poverty line was considered to have worsened and likely to continue to get worse under the present system.

#### 4.23 Other Dependants

The spouse rebate is the most important of dependant concession in numbers, 1.1 million and value, \$582 m. (1978/9), while the other rebates, listed in Table 20, only totalled 334,000 valued at \$31 m. This includes 221,000 zonal rebates, 72,000 for sole parents, 21,000 on account of dependant parents, 14,000 for paid housekeepers and 6,000 for invalid relatives. Zonal rebates will be discussed under 4.3. A housekeeper (as distinct from a daughter-housekeeper who is treated like a spouse) is defined as a person wholly engaged in keeping house for a taxpayer who is single, widowed or divorced or has an invalid spouse, and who cares for the taxpayer's young children or invalid relatives. The other rebates refer to taxpayers who wholly maintain :

- (a) a parent or parent-in-law, with a rebate for each of those;
- (b) an invalid child, brother or sister aged 16 years or more receiving an invalid pension or holding a certificate that he/she is permanently incapacitated.
- (c) a sole parent (parent without a partner) in sole care of a child under the age of 18 (or full-time student under 25 years) and not entitled to a housekeeper or daughter-housekeeper rebate.

As Table 20 suggests, the sole parent rebate is claimed mainly by taxpayers in the lower and middle income ranges, while the other rebates apply more often to the middle and upper income ranges. Similarly, the claims for sole parent rebate, and also for invalid relatives, are on the average close to the set maximum of \$417 and \$270 respectively, while they average out somewhat below the maximum for the other rebates, presumably due to outside income of dependants or employment for only part of the year for housekeepers.

Table 20

DEPENDANT AND ZONAL REBATES - Income Year 1978/9

	<u>Spouse<sup>∗</sup></u>	<u>Invalid Relatives</u>	<u>Parents</u>	<u>House- keeper</u>	<u>Sole Parent</u>	<u>Zone Rebate<sup>ø</sup></u>	<u>Total</u>
Number with Rebate      000	1,128	1	21	14	72	221	1,457
Rebate      \$000	582,464	150	6,344	6,779	26,801	28,977	651,515
Average Rebate \$	516	258	304	490	370	131	447
Maximum Rebate \$	597	270	539	597	417	216	
Rebate as % Tax	4.9	-	0.1	0.1	0.2	0.2	5.5
<u>Distribution: <sup>‡</sup></u>							
Income to \$9000	19%	28%	24%	27%	46%	37%	23%
\$9000-12000	31%	34%	38%	36%	32%	25%	31%
\$12000-22000	46%	34%	36%	34%	21%	34%	42%
\$22000 plus	4%	4%	2%	3%	1%	4%	4%
	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>

<sup>∗</sup> Incl. daughter-housekeeper; <sup>ø</sup> Maximum for Zone A and overseas forces \$216 and and Zone B \$36 - see section 4.3; <sup>‡</sup> Numbers by grade of taxable income; Source: Taxation Statistics 1978/9 1.27(f).

The housekeeper rebate is equal to the spouse rebate, and is treated in that sense as a spouse substitute except that her or his separate income does not limit the amount of the rebate. The housekeeper rebate seems to be the only vestige in the Australian tax-system of granting a concession for child-minding, albeit limited to the rare occasion where a parent who is single, or has an invalid wife, employs a full-time housekeeper.

In 1975, the Asprey Report stated that it was "curious" that at that time the deduction for invalid relatives was only \$260 as against deductions of \$364 for spouses, daughter-housekeepers and parents. This curious difference was heightened on the change-over to rebates in 1975/6 when they were set at \$200 and \$400 respectively and \$200 also for the then introduced sole parent rebate; and even more so subsequently when the parents rebate fell below the spouse rebate. It is difficult to find a justification for the differential treatment of such rebates in recent years, as shown in Table 21. The sole parent rebate has been increased most and stood in 1980/1 at 71% above its original level in real terms. Being related to a notional child rebate however it tapers off more rapidly when the child has independent earnings than applies to dependant's earnings in the case of other rebates. The

invalid relatives and parents rebates were kept steady in real terms until 1978/9, and after a lag they were raised 11% above 1975/6 in real terms, as against a gain of 22% for the spouse rebate in that period.

Table 21

<u>DEPENDANT REBATES in Actual and Real Terms and Dependant Incomes</u>								
	1973/4	1974/5	1975/6	1976/7	1977/8	1978/9	1979/0	1980/1
Maximum Dependant Income before rebate is reduced	\$130*	\$130*	\$150	\$170	\$189	\$203	\$203	\$272
Spouse Rebate	\$364*	\$364*	\$ 400	\$ 500	\$ 555	\$ 597	\$ 597	\$ 800
Income Cut-off**	\$494*	\$494*	\$1750	\$2170	\$2389	\$2591	\$2591	\$3472
Invalid Relative Rebate	\$260*	\$260*	\$ 200	\$ 226	\$ 251	\$ 270	\$ 270	\$ 362
Income Cut-off**	\$390*	\$390*	\$ 950	\$1074	\$1193	\$1283	\$1283	\$1720
Parents Rebate	\$364*	\$364*	\$ 400	\$ 452	\$ 501	\$ 539	\$ 539	\$ 722
Income Cut-off**	\$494*	\$494*	\$1750	\$1978	\$2193	\$2359	\$2359	\$3160
Sole Parent Rebate			\$ 200	\$ 350	\$ 388	\$ 417	\$ 417	\$ 559
Income Cut-off**			\$ 950	\$1074	\$1193	\$1282	\$1282	\$1719
At 1975-76 Prices								≠
Spouse Rebate			\$ 400	\$ 439	\$ 445	\$ 443	\$ 402	\$ 490
Invalid Relative Rebate			\$ 200	\$ 200	\$ 200	\$ 200	\$ 182	\$ 222
Parents Rebate			\$ 400	\$ 397	\$ 402	\$ 400	\$ 363	\$ 442
Sole Parent Rebate			\$ 200	\$ 308	\$ 310	\$ 310	\$ 281	\$ 342

\*Income deduction; \*\* Rebates for spouses, invalid relatives and parents are reduced \$1 for every \$4 of dependant's income (\$1 for \$1 for deductions before 1975/6), and the Income Cut-off signifies maximum dependant income that entitles the taxpayer to any rebate. Separate limits set for sole parent rebate since 1976/7. ≠ assuming 10% price rise.

The first part of Table 22 compares the tax position of the various rebates for a dependant with the situation of a taxpayer without dependants : the higher the percentage figure the less is the relative tax gain from dependants. The proportions have been calculated at average earnings level for the various years. The tax saving, in relative terms, declined on the change-over from deductions to rebates in 1975/6, and although they have since increased again they remain below the level of 1972/4. They are now equivalent to 25% of tax otherwise due for a dependent spouse, 23% for a dependent parent and a sole parent and 11% for an invalid relative, although in each case the situation is similar in that the taxpayer has the full care of a family member.

The second part of Table 22 shows the impact of the allowances, again for one dependant in each case, on average tax rates at various income levels in 1980/1. In general, the benefits of rebates is greater at lower than at higher income levels, and as the Table shows, the tax saving in percentage points declines with rising incomes. It amounts to between 6 and 11 points at low incomes ( $\frac{1}{2}$  AWE), as against about two points at high incomes (2 AWE). The differences in average tax rates for the various dependant types gradually narrow with rising incomes.

Table 22

<u>DEPENDANT REBATES AND TAX RATES</u>									
	1972/3	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/81
<u>Tax on Average Earnings :</u>									
Tax: No Dependants	\$880	1145	1425	2007	2250	2388	2627	2970	3240
<u>Tax as percent of above :</u>									
Married, no other dep.	73.5	75.4	73.2	80.0	77.8	76.8	77.3	79.9	75.3
Sole Parent, 1 child ✓	70.6	74.6	71.8	88.7	76.4	75.7	76.8	79.5	76.7
Single, 1 invalid rel.	73.6	76.9	73.6	90.0	90.0	89.5	89.7	90.9	88.8
Single, 1 dep.parent	73.6	76.9	73.6	80.0	79.9	79.0	79.5	81.9	77.7
Average Tax Rate on Fractions of Earnings 1980/1									
	$\frac{1}{2}$ AWE	$\frac{3}{4}$ AWE	1 AWE	$1\frac{1}{2}$ AWE	2 AWE				
No Dependants	13.7%	19.8%	22.9%	28.6%	32.9%				
Married, no other dep.	2.4%	12.3%	17.2%	24.6%	29.7%				
Sole Parent, one child ✓	3.3%	12.9%	17.5%	24.6%	29.6%				
Single, 1 invalid rel.	8.6%	16.4%	20.3%	26.6%	31.3%				
Single, 1 dep.parent	3.6%	13.0%	17.8%	24.9%	30.0%				

Tax calculated as in Table 33. ✓ Child endowment and family allowance treated as deduction from tax.

#### 4.3 ZONE ALLOWANCE

Zone allowances, introduced in Australia in 1945, are a device to ensure horizontal equity between persons living in remote areas and closer settled districts, with some intention also to encourage decentralisation (Asprey 12.54-56). As with child allowances, it is arguable whether such compensation is better met by a social security payment, rather than the hidden form of tax benefits that exclude low income earners who are not liable to tax. The tax allowance is divided geographically into the more or less remote Zones A and B, and the Zone A allowance also applies to members of the



military services serving abroad. In 1978-79 220,624 such zonal rebates applied valued at \$29 m. on taxable incomes (plus 38,562 valued at \$4 m. on non-taxable incomes), equivalent to 90% of taxpayers in the Northern Territory, 18% in Queensland, 8% in Western Australia, 3% in Tasmania and 1% or less in the other States. No separate figures for Zones A and B are published, but from the average figures it appears that the much greater allowance for Zone A (incl. defence forces) of \$216 plus  $\frac{1}{2}$  of dependent allowances - as against \$36 plus 4% for Zone B, was more frequent in the Northern Territory, A.C.T. (presumably defence forces), and Victoria.

Table 23

ZONE AND OVERSEAS FORCES REBATE - Taxable Income 1978-79

	<u>Number with Rebate</u>	<u>Amount of Rebate</u>	<u>Average Rebate</u>	<u>Number as % All Taxpayers</u>
N.S.W.	15,093	\$ 1,121,000	\$ 74	1%
Vic.	1,491	308,000	207	0.1%
Qld.	130,613	11,070,000	85	18%
S.A.	4,835	628,000	130	1%
W.A.	36,729	7,748,000	211	8%
Tas.	5,110	303,000	59	3%
N.T.	26,462	7,738,000	292	90%
A.C.T.	291	61,000	210	0.2%
	<u>220,624</u>	<u>\$28,977,000</u>	<u>\$131</u>	<u>4% (of 5,208,120)</u>

Originally the zone allowance was granted in the form of a deduction from taxable income; the Asprey Report in 1975 recommended that they be granted as rebates from tax due, on the principle that the money value of such concessions should not vary with income, and this has been implemented from 1975-76 onward. The allowance has remained unchanged since then :

	<u>1972/3-1974/5 Deduction</u>	<u>1975/6-1980/1 Rebate</u>
Zone A (& overseas forces)	\$540 + $\frac{1}{2}$ dependants all	\$216 + 25% dependants rebate
Zone B	\$ 90 + $\frac{1}{12}$ " "	\$ 36 + 4% " "

A small upward revision, albeit lagging well behind inflation, has been built in through the fractional tie with dependants rebates, i.e. the spouse rebate which rose from \$400 in 1975/6 to \$800 in 1980/1 and a notional rebate for dependent children which has been raised from \$200 in 1975/6 to \$270 since

1978/9 for the first child, and from \$150 to \$203 for subsequent children in that period. It is noteworthy that the 'zone dwellers' have received in this indirect way at least a partial adjustment for inflation (+ 35%) on account of dependent children while family allowances have not been adjusted in the period. It is also curious that the notional rebate for the zone benefit allows 25% less for the second and each subsequent child, as against the first child, compared with a comparative drop of 20% for the child tax deduction (\$260 and \$208) up to 1974/5 and the rising scale for family allowances (\$182 p.a., \$260, \$312 etc.).

As Table 24 shows the tax saving is much greater with the Zone A rebate, \$216 or 7% in 1980-81 as against \$36 for 1% for Zone B; and also more substantial for families, \$534 or 27% for A and \$87 or 4% for B (married person with two children), than for single persons. The proportion of tax saved has declined considerably over the period because of the near-static nature of the allowance.

Table 24

TAX SAVING FROM ZONE ALLOWANCES Applied to Average Earnings

		1972/3	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1
<u>No Dependants -</u>										
<u>Zone A</u>	\$	166	175	211	216	216	216	216	216	216
% Tax Due		18.9	15.3	14.8	10.9	9.6	9.1	8.2	7.3	7.0
<u>Zone B</u>	\$	30	32	40	36	36	36	36	36	36
% Tax Due		3.4	2.8	2.8	1.8	1.6	1.5	1.4	1.2	1.1
<u>Married with 2 children</u>										
<u>Zone A</u>	\$	211	253	322	404	440	465	484	484	534
% Tax Due		44.5	43.3	46.8	34.6	33.9	33.3	30.7	25.2	26.9
<u>Zone B</u>	\$	39	48	60	66	72	76	79	79	87
% Tax Due		8.3	8.2	8.7	5.7	5.5	5.5	5.0	4.1	4.4
<u>Rebate at 1975/6 Prices:</u>										
<u>Zone A - No Dependants</u>	\$				216	199	173	160	147	132
<u>Zone B - " "</u>	\$				36	32	29	27	25	22
<u>Zone A - Married 2ch.</u>	\$				404	387	373	359	330	327
<u>Zone B - " "</u>	\$				66	63	61	59	54	53

The zone rebate, being a fixed amount, reduces average tax more for lower than for higher incomes, as shown in Table 25. The tax saving for taxpayers without dependants in Zone A declines from 10% for low incomes (3/4 AWE) to 2% at high incomes (2 AWE) and for married taxpayers with two children from 62% to 7%, with corresponding reductions also for the lower level of Zone B allowances.

Table 25

## EFFECT OF ZONE ALLOWANCES ON AVERAGE TAX RATES At Different Income Levels - 1980-81

	$\frac{3}{4}$ AWE			1 AWE			$1\frac{1}{2}$ AWE			2 AWE		
	No Re- bate	Zone A	Zone B	No Re- bate	Zone A	Zone B	No Re- bate	Zone A	Zone B	No Re- bate	Zone A	Zone B
<u>Average Tax</u>												
No dep't %	19.8	17.8	19.5	22.9	21.2	22.6	28.6	27.5	28.4	32.9	32.2	32.8
M., 2 ch* %	8.1	3.1	7.3	14.0	10.2	13.4	22.4	19.6	21.7	27.8	25.9	27.5
<u>Tax Saving</u>												
No dep't %		10.3	1.7		7.0	1.1		3.6	0.6		2.3	0.4
M., 2 ch* %		61.8	10.1		26.9	4.4		11.3	1.8		6.8	1.1

\*Family Allowance included as negative tax. See also Table 33.

#### 4.4 SPOUSE INCOME

The Australian system of separate assessment generally favours the situation of a husband and wife earning separate incomes, as against the same total income being earned by one of them because of the "doubling-up" of the exemption limit. The sole earner loses the spouse allowance but both spouses pay less average and marginal tax than they would under joint assessment. In general terms, splitting, rather than combining incomes, has the following characteristics :

- The advantage is greatest if incomes are evenly split;
- The advantage rises with the steepness of the progression scale;
- The advantage is likely to be proportionally greater for high than for low incomes;
- The advantage decreases as the spouse allowance increases, though even at the present high level of spouse rebate, it is not eliminated.

To a minor extent, the situation is also influenced by the effects of other deductions and rebates on tax liability.

Tables 26 and 27 demonstrate two major aspects of the comparative tax liability of sole and dual earners. Table 26 takes given income levels, in terms of 1, 1½ and 2 times average earnings, and relates total tax due on even or uneven split incomes to tax due on sole earnings. The loss of the spouse concession (variable with income before 1975/6 and since a fixed rebate) is more than compensated by the effective fall in tax rates, due to the effect of the exemption limit and the shift to lower marginal rates. In 1980/1, for example, a taxpayer on average earnings with a non-working wife paid tax of \$3240 less spouse rebate \$800 = \$2440. If income were evenly split between husband and wife, tax on ½ average earnings would be \$973 + \$973 = \$1946 or 80% of the sole earner case; and if income were split 3:1, ¼ earnings (\$3536) would be tax-free and the tax rate for ¾ earnings is \$2107 or 86% of the sole earner case. The table shows that the "tax-saving" from splitting tends to rise with higher income.

The tax saving varied over the period, but since 1975/6 there has been a clear downward trend with a narrowing of the gap between single and dual earners. It appears that the rise in the spouse allowance and fall in progression has reduced the previous advantage of dual earners; and also that the reduction in tax steps has narrowed the difference in tax savings between even and uneven splits.

Table 26

TAX ON SINGLE AND SPLIT INCOMES At Av.Earnings and Double Av.Earnings Levels									
	1972/3	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1
1 AWE: Tax, Sole Earner w/spouse \$	645	863	1043	1607	1750	1833	2030	2373	2440
Two Earners, on $\frac{1}{2}$ AWE \$	500	655	670	1021	1141	1175	1323	1683	1946
" $\frac{1}{4} + \frac{3}{4}$ AWE \$	525	696	796	1235	1383	1468	1645	1906	2107
Tax on Two Earners as Percent of Tax on One Earner									
1 AWE: $\frac{1}{2}$ AWE + $\frac{1}{2}$ AWE %	78	76	64	64	65	64	65	71	80
$\frac{1}{4}$ " + $\frac{3}{4}$ " %	81	81	76	77	79	80	81	80	86
$1\frac{1}{2}$ AWE: $\frac{3}{4}$ Awe + $\frac{3}{4}$ AWE %	72	73	61	72	73	76	80	79	81
$\frac{1}{2}$ Awe + 1 AWE %	77	77	67	73	74	77	80	79	81
2 AWE: 1 AWE + 1 AWE %	72	73	63	71	71	74	77	76	79
$\frac{1}{2}$ Awe + $1\frac{1}{2}$ AWE %	84	83	79	77	78	78	79	81	84

Taxes calculated on same basis as in Table 33; incl. small adjustment for other concessions.

Table 27 refers to the effect of dual earnings in terms of marginal tax rates, that is the extra tax on extra income when a spouse becomes an earner. This marginal rate is less than for a single earner, (e.g. the present rate of 32% for incomes between \$4042 and \$17,239) because the benefit of the tax exemption limit exceeds the loss of the spouse allowance. The Table shows tax due on second incomes, with first income remaining unchanged at the level one or two times average earnings. e.g., a married taxpayer in 1980/1 had the tax increased by \$800 or 33% on losing the spouse allowance; the average tax rate is then 23%, the same as for the extra earner on 1 AWE; the extra tax and lost spouse allowance (\$2440+\$800) is equivalent to 29% of the extra earnings. The extra tax rises with income levels and the size of extra income. It rose appreciably over the nine-year period, e.g. for 1 AWE/1 AWE from 21% to 29%, and more so at lower than at higher income levels.

One can conclude that the tax advantage of the separate assessment system has been reduced in recent years, and more so for low than high income earners. It is unlikely that this trend has diminished attempts at shifting portion of high incomes to spouses, e.g. property income. And it is not certain whether it has acted as an appreciable disincentive at lower income levels for wives who must now pay relatively more tax on full-time and part-time earnings. (See also R. Horn (1980)).

Table 27

## EXTRA TAX ON SPOUSE INCOME (Loss of Spouse Concession + Tax on Extra Earnings)

		1972/3	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1
1 AWE: Tax, Sole Earner w/spouse	\$	645	863	1043	1607	1750	1933	2030	2373	2440
Spouse Benefit	\$	236	281	381	400	500	555	597	597	800
Tax on $\frac{1}{2}$ AWE	\$	250	328	335	511	570	588	662	842	973
Extra Tax Cost	\$	486	609	716	911	1070	1143	1259	1439	1773
Extra Tax as Percent. of Extra Income										
<u>First</u> Income 1 AWE, <u>Extra</u> $\frac{1}{2}$ AWE	%	18	20	19	21	22	21	21	22	25
$\frac{3}{4}$ AWE	%	19	21	20	25	25	25	25	26	27
1 AWE	%	21	23	23	27	28	27	27	28	29
<u>First</u> Income 2 AWE, <u>Extra</u> $\frac{1}{2}$ AWE	%	26	28	27	22	23	22	23	24	26
$\frac{3}{4}$ AWE	%	24	26	26	25	26	26	26	27	28
1 AWE	%	25	27	28	28	28	28	28	28	29

Taxes calculated on same basis as in Table 33; incl. small adjustment for other concessions.

# 5. SUMMARY TRENDS

The graphs and attendant tables summarize tax changes for different income groups in different dependency situations. Various measures can be used for tax impact on income, but for the present purpose average tax rates (tax as proportion of pre-tax taxable income) will be sufficient. The A.B.S. series of average weekly earnings (A.W.E.), and fractions of that series ( $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{2}$ , 2), have been used as a continuous income standard. Some assumptions had to be made about concessional expenditure, in particular for 1973/5; they are based on fragmentary statistics and do not pretend to great precision, but they do not materially affect the variations in average tax rates as shown.

The following nineteen series have been constructed :

- 1) Single Person, no dependants
- 2) Spouse "
- 3) " 1 child
- 4) " 2 children
- 5) " 3 children
- 6) " 4 "
- 7) " 5 "
- 8) " 6 "
- 9) Sole Parent 1 child
- 10) Single Person 1 dependent parent
- 11) Spouse "
- 12) Single Person 1 invalid relative
- 13) Spouse "
- 14) Single Person, Zone "A", no dependants
- 15) Spouse Zone "A", 2 children
- 16) Single Person, Zone "B", no dependants
- 17) Spouse Zone "B", 2 children
- 18) Single Person, no dependants, no concessional expenditure claim
- 19) Spouse 3 children, 1 dep.parent, twice normal conc'l. exp.

The general upward trend in taxation is shown in Table 28 in terms of average tax and tax paid by individuals related to average earnings; the latter rate rose from 15% in 1972/3 to 20% in 1975/7, dropped to 19½% in 1978/9 but was up again to 21% in 1979/80 and 21.7% on budget figures for 1980/1.

Table 28

		I N C O M E   T A X   Individuals								
Income Tax - Individuals		1972/3	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1
Tax Collected \$ mill.		4089	5490	7714	9219	11054	12139	12804	15040	17070*
Taxpayers 000		5076	5420	5552	5179	5527	5568	(5568)	(5570)	(5570)
Average Tax \$ as % of AWE		806 15.2	1012 15.5	1390 18.0	1668 18.9	2000 20.2	2180 20.0	(2300) 19.6	(2700) 21.0	(3065) (21.7)

\*Budget estimate

It appears that most taxpayers have become worse off, in the sense that a rising share of their income has gone to income tax. But this movement has not been uniform between groups of taxpayers, being generally stronger for middle than for higher incomes. The direction in average tax rates from year to year is summarised in Table 29.

Table 29

GENERAL DIRECTION OF ANNUAL CHANGES IN AVERAGE TAX RATES

	$\frac{1}{2}$ AWE	$\frac{3}{4}$ AWE	1 AWE	$1\frac{1}{2}$ AWE	2 AWE	
1972/3-73/4	+	+	+	+	+	(no scale change)
73/4-74/5	-	-	-	+	+	(rate indexation)
74/5-75/6	+	+	+	+	+	(scale simplification)
75/6-76/7		n o	c h a n g e			(rate indexation)
76/7-77/8	-	-	-	-	-	
77/8-78/9	+	+	nc	-	-	(scale simplification)
78/9-79/80	+	+	+	+	+	(rate surcharge)
79/0-80/1	-	-	-	-	-	(rate surcharge removed)
1972/3-80/1	+/-	++	++	+	+	++ indicates strong rise;
75/6-80/1	+/-	+/-	+/-	-/+	-	+/- some rise, some fall
77/8-80/1	+	++	++	+	+	

More detailed statistical analysis leads to the following conclusions :

Firstly, several hundred thousand people on rather low incomes have gained from the increase in the exemption limit which makes them no longer liable to tax. This would be mostly persons on intermittent work and male and female part-time workers, with a large proportion of married women among the latter. Also low income earners ( $\frac{1}{2}$  AWE) with dependants now pay rather less tax, or none at all, compared with the early 1970's if child endowment and family allowances are treated as negative taxes.

Secondly, for the main income range, expressed here as lying between  $\frac{3}{4}$  AWE and 2 AWE, the tax increases for the lower and middle earners have generally been greater than for high income earners, in terms of proportional change. This can be observed for most series in the graphs, and in Table 30. For single persons, for example, average tax rates for those on  $\frac{3}{4}$  AWE rose by about 50%, from 13% to 20%, while for those on 2 AWE it went up by 21% from 27% to 33%. For married persons without children the respective increases were 32% and 28%, for sole parents with one child, 49% and 29% respectively, and so on.



Table 30

		AVERAGE TAX RATES									
		<u>3</u>	<u>72/3</u>	<u>73/4</u>	<u>74/5</u>	<u>75/6</u>	<u>76/7</u>	<u>77/8</u>	<u>78/9</u>	<u>79/0</u>	<u>80/1</u>
1)	Single	<u>4</u> AWE	13.2	15.1	13.8	18.7	18.6	18.0	18.7	10.7	19.8
		1 AWE	16.6	18.6	18.5	22.8	27.7	21.9	22.4	23.1	22.9
		2 AWE	27.2	29.8	33.8	34.6	34.5	32.7	32.0	33.0	32.9
2)	Married no child	<u>3</u>									
		<u>4</u> AWE	9.3	10.9	9.0	12.6	11.9	11.2	10.4	13.6	12.3
		1 AWE	12.2	14.0	13.5	18.2	17.7	16.8	17.3	18.4	17.2
		2 AWE	23.2	25.5	29.2	32.0	31.7	29.8	29.2	30.4	29.7
5)	Married 3 ch'n.	<u>3</u>									
		<u>4</u> AWE	0.5	2.6	-	2.3	1.7	2.0	3.3	6.2	5.2
		1 AWE	4.2	6.4	5.5	10.4	10.0	9.8	10.9	12.4	11.8
		2 AWE	17.3	20.1	23.6	27.5	27.4	25.7	25.4	26.9	26.6

See Table 33

The redistribution of the tax burden downward from higher incomes is typified by the reduction in the top marginal rate from 70% in 1953/4 (et ante) to 66 2/3% in 1974/5, 65% in 1975/6 and 60% in 1977/8. It is demonstrated in greater detail in Table 31 in terms of relative changes of average tax rates for various dependency situations. In practically all instances the increase in the rate diminishes between the income range equivalent to 3/4 and double earnings, whether one compares 1980/1 with 1972/3, 1974/5 or 1977/8. If one extends the comparison to the situation where 1/2 earnings are taxable, i.e. for taxpayers who are single without dependants (series 1 & 18) or married without children (series 2) the rates of increase are rather less than for 3/4 earnings, indicating that low income earners above the exemption limit including part-time or part-year earners, have not become worse off relative to higher earners.

Thirdly, taxpayers and non-taxpayers with dependent children have become relatively worse off at all income levels, more so for more children, due to the static fixing of child endowment and subsequently family allowances (if those are treated as negative taxes). For married persons on average earnings, for instance, average tax went up from 12% to 17% over the eight years if they had no dependent children, from 10% to 16% if they had one child, and from 4% to 12% if they had three children. For those on higher earnings the proportional increase was less but still with a widening gap, e.g. for 1 1/2 AWE the respective figures were 18% - 25% for no child, 16% - 23% for one child and 12% - 21% for three children. One might mention here also the previously observed effect of the shift from child endowment plus tax rebates to family allowances which made those with one child or with very large families worse off relative to other families.

Table 31

## P E R C E N T A G E   C H A N G E   -   A V E R A G E   T A X   R A T E S

Index 1980/1 with Base Years 1972/3, 1974/5, 1977/8 respectively

	1980/1 as % 1972/3					1980/81 as % 1974/5					1980/81 as % 1977/8				
	$\frac{1}{2}$ AWE	$\frac{3}{4}$ AWE	AWE	$1\frac{1}{2}$ AWE	2AWE	$\frac{1}{2}$ AWE	$\frac{3}{4}$ AWE	AWE	$1\frac{1}{2}$ AWE	2AWE	$\frac{1}{2}$ AWE	$\frac{3}{4}$ AWE	AWE	$1\frac{1}{2}$ AWE	2AWE
1) Single	145	150	138	126	121	158	144	124	103	97	127	110	104	104	100
2) Spouse, no child	42	132	141	133	128	70	137	127	106	102	407	110	102	106	100
3) " 1 child		153	160	142	134		167	141	113	105		118	105	105	101
4) " 2 "		188	187	153	141		169	157	117	108		140	109	107	102
5) " 3 "		1000	281	176	154			213	126	113		267	121	111	104
7) " 5 "				289	193			153	125	125			198	121	107
9) Sole Parent, 1 ch.		149	149	135	129		147	132	107	101		117	106	105	101
10) Single, Dep. Parent		110	145	135	129		142	130	107	102		110	95	104	100
12) " Invalid R.		177	166	144	140		179	149	115	106		110	104	104	100
13) Spouse "		117	140	134	130		131	126	107	93		110	103	103	100
14) Zone A, single	180	180	158	137	128	181	162	135	109	101	154	116	107	102	101
15) " spouse 2ch.			292	190	163			215	132	98			120	110	103
16) Zone B, single	129	154	140	128	122	138	147	125	104	98	112	111	104	104	101
17) " spouse 2ch.		203	198	158	145		250	164	120	109		149	110	108	102
18) Single, no conc.	127	131	119	113	110	135	123	104	92	89	127	110	104	104	101
19) Spouse, 3ch. 1parent				228	188				202	151				111	104

See Table 33

Fourthly, the adjustments to tax rebates (and their preceding deductions) have varied causing relative shifts between them, but in general they have lagged behind trends in inflation and earnings, with exception of a real increase in the spouse rebate on lower incomes. The advantage of the sole parent rebate has been partly whittled away by the lag in child benefits; as Table 31 shows, the increase in tax rates for a sole parent with one child has been greater than for single persons, e.g. for those on AWE it was 49% instead of 38% for the 1972/3-1980-81 period, although married persons with one child, with a rise of 60% in the tax rate were even worse off. Similarly, persons with or without dependents who claim zone allowances have generally experienced greater tax increases than those outside the zone; this disadvantage is particularly evident in the lower and middle income groups (see series (14)&(17) as compared with (1)&(4) in Table 31. Single persons with a dependent parent or invalid relative had also faced greater tax increases than single persons without such dependants (series (10)&(12) as compared with (1), although in this case this does not apply to married persons.

The relative lag in child and other dependant allowances is highlighted by comparing series(18) which applies to persons without dependants and no other than statutory concessional deductions and series (19) which takes the case of a married person with three dependent children and twice normal concessional expenditure. As Table 32 shows, in the case of no dependants tax on average earnings rose from 19% to 23% over the eight years, as against a rise from 1½% to 6% in the case of four dependants; for 1½ AWE the increases were from 25% to 29% and from 7% to 16% respectively. This once more brings out the general trend of tax rates for higher incomes rising less than those for low incomes, and tax rates for taxpayers without dependants, rising less than those for taxpayers with dependants. In that sense taxpayers on higher incomes and taxpayers without dependants have been the relative winners, and those on lower incomes and with dependants the relative losers of the changing impact of income tax during the past nine years.

Table 32

AVERAGE TAX RATES - Percentage Change								
Series (18) No Dependants						(19) Four Dependants		
	$\frac{1}{2}$ AWE	$\frac{3}{4}$ AWE	1 AWE	$1\frac{1}{2}$ AWE	2 AWE	1 AWE	$1\frac{1}{2}$ AWE	2 AWE
Av. Tax Rate 1972/3 %	11	15	19	25	30	$\frac{1}{2}$	7	12
74/5 %	10	16	22	31	37		8	15
77/8 %	11	18	22	27	33	4	14	22
80/1 %	14	20	23	29	33	6	16	22
<u>Increase</u> 72/3-80/1 %	18	27	19	13	10	129	128	88
74/5-80/1 %	35	35	4	-8	-11		102	51
77/8-80/1 %	27	27	4	4	1	39	11	4

See also Table 33.

Finally, although the Australian tax system of separate assessment of husband and wives still treats second earners, such as wives in jobs or with property income, more favourably than would be the case with joint assessment, this advantage has been reduced in recent years, and more so at low than at high income levels, through the increase in the spouse rebate and the reduction in tax steps and their diminished progression.

Table 33

AVERAGE TAX (Income Tax as % of Taxable Income) - Australia  
Related to Fractions of AVERAGE EARNINGS - Single Earner Households\*

	$\frac{1}{4}$ AWE	$\frac{3}{4}$ AWE	1 AWE	$1\frac{1}{4}$ AWE	2 AWE		$\frac{1}{4}$ AWE	$\frac{3}{4}$ AWE	1 AWE	$1\frac{1}{4}$ AWE	2 AWE
1) Single Person, no dependants						2) Married Person, no dependants					
1972/3	9.45	13.23	16.63	22.69	27.23		5.82	9.29	12.18	18.46	23.17
73/4	10.66	15.08	18.60	24.79	29.76		6.99	10.86	14.03	20.58	25.57
74/5	8.69	13.77	18.47	27.66	33.76		3.47	8.97	13.53	22.72	29.19
75/6	11.58	18.67	22.75	29.20	34.62		2.51	12.62	18.21	26.03	32.04
76/7	11.50	18.59	22.70	29.13	34.53		1.42	11.87	17.65	25.63	31.73
77/8	10.79	17.97	21.92	27.34	32.66		0.60	11.18	18.64	23.70	29.75
78/9	11.28	18.68	22.39	26.89	32.03		1.10	10.38	17.30	23.27	29.15
79/80	13.07	19.73	23.07	28.37	33.04		3.86	13.55	18.43	25.01	30.37
80/1	13.74	19.83	22.87	28.55	32.91		2.44	12.30	17.22	24.55	29.74
3) Married Person, 1 child						4) Married Person, 2 children					
1972/3	2.33	6.94	9.89	16.47	21.43		0.07	4.32	7.49	14.45	19.73
73/4	4.46	8.60	11.84	18.77	23.74		1.54	6.11	9.51	16.76	22.03
74/5	-	6.36	11.25	20.79	27.45		-	4.82	8.93	18.85	25.73
75/6	-	9.21	15.65	23.94	31.38		-	6.15	13.25	22.34	29.04
76/7	-	9.42	15.81	24.07	30.35		-	5.93	14.07	22.26	29.00
77/8	-	8.95	15.06	22.28	28.45		-	5.83	12.81	20.66	27.19
78/9	-	9.83	15.67	21.95	27.95		-	6.88	13.45	20.41	26.38
79/80	-	11.67	17.02	24.28	29.63		-	8.98	14.93	22.41	28.12
80/1	-	10.59	15.83	23.41	28.71		-	8.14	14.00	22.14	27.76
5) Married Person, 3 children						6) Married Person, 4 children					
1972/3	-	0.52	4.19	11.74	17.32		-	-	0.77	8.96	14.94
73/4	-	2.59	6.39	14.29	20.14		-	-	3.18	11.69	17.73
74/5	-	-	5.52	16.43	23.63		-	-	2.67	13.93	21.57
75/6	-	2.31	10.37	20.34	27.54		-	-	7.34	18.25	25.98
76/7	-	1.73	9.95	20.10	27.37		-	-	6.80	17.87	25.75
77/8	-	1.95	9.76	18.66	25.69		-	-	6.90	16.69	24.21
78/9	-	3.33	10.92	18.58	25.39		-	-	8.09	16.76	24.01
79/80	-	6.21	12.42	20.75	26.94		-	2.51	10.00	19.08	25.69
80/1	-	5.20	11.76	20.63	26.62		-	2.26	9.56	19.11	25.48
7) Married Person, 5 children						8) Married Person, 6 children					
1972/3	-	-	-	6.00	12.49		-	-	-	2.96	9.93
73/4	-	-	-	9.01	15.41		-	-	-	6.19	13.06
74/5	-	-	-	11.38	19.41		-	-	-	8.78	17.21
75/6	-	-	4.11	16.06	24.33		-	-	-	13.76	22.61
76/7	-	-	3.08	15.42	23.86		-	-	-	12.90	21.98
77/8	-	-	3.51	14.40	22.48		-	-	0.17	12.11	20.78
78/9	-	-	4.94	14.63	22.42		-	-	2.20	12.75	21.01
79/80	-	-	7.13	17.14	24.24		-	-	4.63	15.43	22.95
80/1	-	-	6.95	17.35	24.16		-	-	4.38	15.59	22.49
9) Sole Parent, 1 child						10) Single, 1 dependent parent					
1972/3	4.87	8.65	11.74	18.18	22.97		5.85	9.30	12.23	18.50	23.22
73/4	4.94	10.59	13.88	20.63	25.77		5.59	11.15	14.30	20.92	25.98
74/5	3.10	8.72	13.26	23.00	29.37		3.78	9.17	13.60	23.22	29.54
75/6	6.45	15.25	20.19	26.96	32.51		2.51	12.62	18.22	25.65	31.52
76/7	0.77	11.44	17.33	25.35	31.47		2.39	12.51	20.01	25.96	31.92
77/8	0.63	11.00	16.59	23.30	29.22		1.59	11.84	18.53	24.03	30.00
78/9	0.11	11.88	17.20	23.03	28.72		2.09	12.56	17.80	23.60	29.40
79/80	3.77	13.53	18.34	24.75	29.94		4.70	14.16	18.88	25.32	30.59
80/1	3.28	12.85	17.53	24.55	29.56		3.55	13.03	17.77	24.92	30.01

	<u>1 AWE</u>	<u>2 AWE</u>	<u>1 AWE</u>	<u>1 1/2 AWE</u>	<u>2 AWE</u>
<u>11) Married, 1 dependent parent</u>					
1972/3	3.86	7.35	10.25	16.78	23.17
73/4	3.88	8.94	12.18	19.00	24.09
74/5	-	6.47	11.64	21.20	22.36
75/6	-	6.58	13.68	22.40	28.86
76/7	-	5.79	13.09	22.26	28.95
77/8	-	5.05	12.13	20.33	27.00
78/9	-	5.78	12.62	19.92	26.43
79/80	-	7.97	14.17	21.97	27.85
80/1	-	5.56	12.02	20.87	26.80

<u>13) Married, 1 invalid relative</u>					
1972/3	3.32	7.59	10.38	16.80	21.59
73/4	4.11	9.16	12.27	19.05	23.95
74/5	-	6.81	11.59	21.02	27.61
75/6	-	9.60	15.95	24.14	30.39
76/7	-	8.83	15.37	23.78	29.68
77/8	-	8.11	14.15	21.86	28.14
78/9	-	7.70	14.06	20.88	27.15
79/80	-	9.72	15.48	22.84	28.51
80/1	-	8.89	14.56	22.57	28.07

<u>15) Married, Zone A, 2 children</u>					
1972/3	-	0.49	3.50	10.33	15.90
73/4	-	2.12	5.39	12.93	18.60
74/5	-	-	4.76	14.90	22.43
75/6	-	-	8.67	19.28	26.75
76/7	-	-	8.66	19.30	26.78
77/8	-	-	8.54	17.81	25.05
78/9	-	1.38	9.33	17.67	24.32
79/80	-	3.96	11.17	19.96	26.31
80/1	-	3.11	10.23	19.63	25.87

<u>17) Married, Zone B, 2 children</u>					
1972/3	-	3.59	6.75	13.72	18.98
73/4	0.83	5.35	8.72	16.11	21.45
74/5	-	2.92	8.16	18.18	25.16
75/6	-	5.15	12.50	21.84	28.67
76/7	-	4.95	12.37	21.78	28.63
77/8	-	4.90	12.11	20.19	26.84
78/9	-	5.98	13.78	19.97	26.04
79/80	-	8.16	14.31	22.01	27.88
80/1	-	7.30	13.38	21.73	27.45

<u>19) Married, 3 ch., 1 dep. parent</u>					
1972/3	-	-	0.44	7.12	11.91
73/4	-	-	0.23	8.51	13.76
74/5	-	-	-	8.01	14.80
75/6	-	-	-	12.48	21.20
76/7	-	-	-	12.59	20.90
77/8	-	-	4.38	14.42	21.60
78/9	-	-	6.20	14.44	21.43
79/80	-	-	7.61	16.77	22.98
80/1	-	-	6.10	16.20	22.41

	<u>1 AWE</u>	<u>2 AWE</u>	<u>1 AWE</u>	<u>1 1/2 AWE</u>	<u>2 AWE</u>
<u>12) Single, 1 invalid relative</u>					
5.85	9.30	12.23	18.51	23.22	
5.59	11.15	14.30	20.92	25.98	
3.78	9.17	13.59	23.22	29.54	
7.04	15.65	20.48	27.54	33.17	
6.95	15.55	20.41	27.48	33.06	
6.18	14.90	19.61	25.56	31.14	
6.67	15.62	20.09	25.41	30.55	
8.88	16.94	20.97	26.71	31.64	
8.63	16.42	20.31	26.62	31.29	

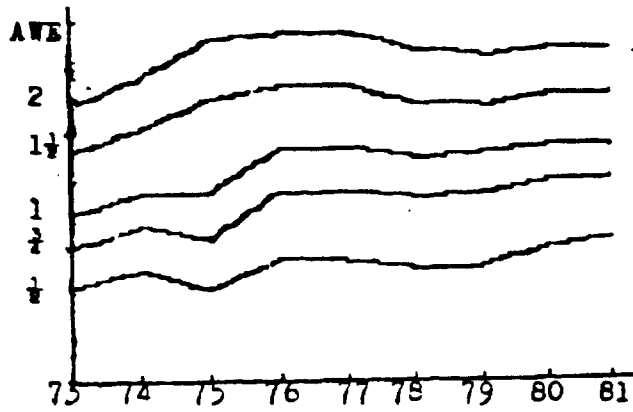
<u>14) Single, Zone A, no dependants</u>					
5.94	9.87	13.49	20.05	25.19	
6.68	11.73	15.76	22.34	27.68	
5.89	10.97	15.74	25.26	31.84	
6.68	15.41	20.30	27.56	33.39	
7.14	15.69	20.52	27.68	33.43	
6.92	15.35	19.83	27.12	31.67	
7.59	16.23	20.55	25.66	31.12	
9.72	17.50	21.39	27.25	32.20	
10.69	17.80	21.27	27.54	32.15	

<u>16) Single, Zone B, no dependant</u>					
8.80	12.62	16.06	22.24	26.85	
10.04	14.49	18.09	24.38	29.41	
8.23	13.27	17.97	27.26	33.44	
10.76	18.13	22.34	28.93	34.07	
10.78	18.11	22.33	28.89	34.35	
10.12	17.53	21.59	27.12	32.50	
10.66	18.27	22.08	26.68	31.86	
12.57	19.36	22.79	28.18	32.06	
11.37	19.49	22.55	28.39	32.79	

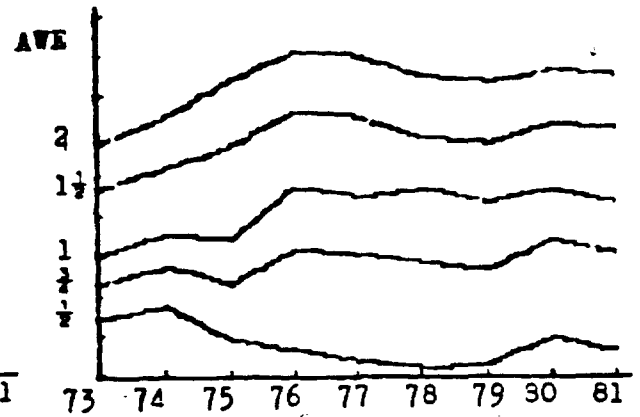
<u>18) Single, no dep., no conc. exp.</u>					
10.79	15.12	19.18	25.20	29.96	
12.12	17.22	21.36	27.61	32.50	
10.15	16.09	21.96	31.08	36.97	
11.58	18.67	22.75	29.20	34.53	
11.51	18.59	22.70	29.13	34.53	
10.79	17.97	21.92	27.34	32.66	
11.28	18.68	22.39	26.88	32.03	
13.07	19.73	23.07	28.37	33.04	
13.74	19.83	22.87	28.55	32.91	

\*All families with single earner.  
Child endowment & Family Allowance treated as deductions from tax due.  
Concessional expenditure estimated for 1972/5 and small adjustment for claims in excess of statutory rebate since on assumption that they are a function of income and dependants.  
AWE 1980/1 assumed to rise by 10% above 1979/80.

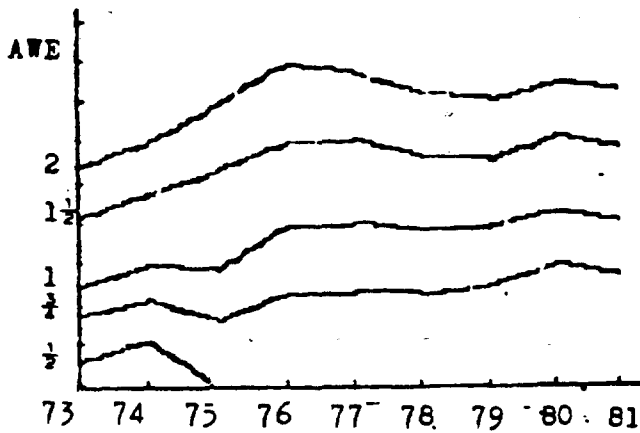
AVERAGE TAX RATES - Australia; Years ended June 1973-1981



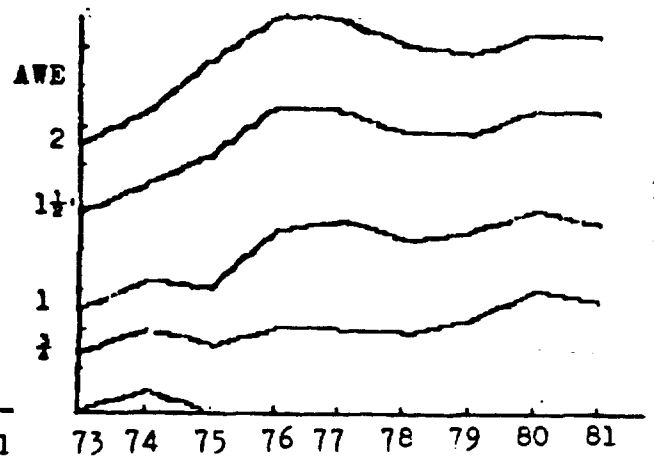
No Dependants



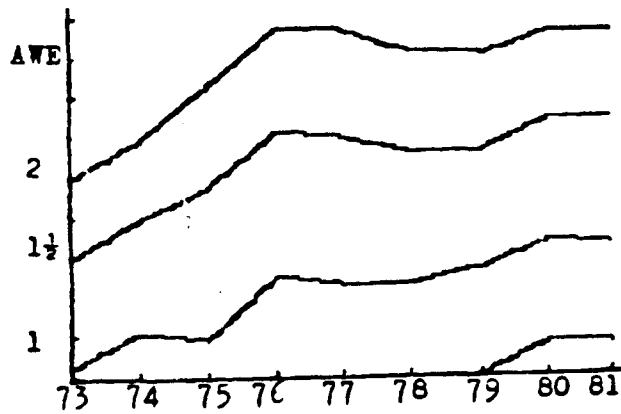
Dependant Spouse



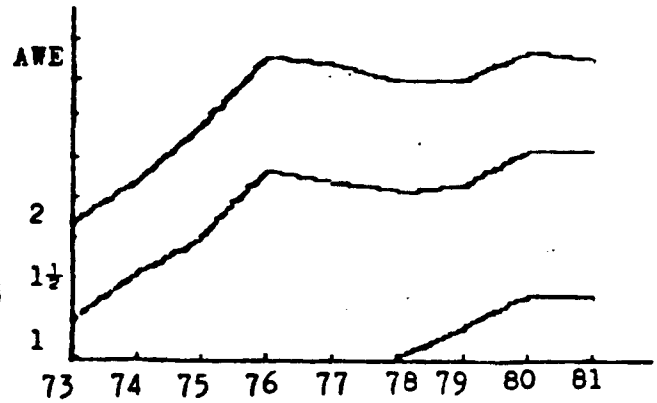
Spouse, 1 child



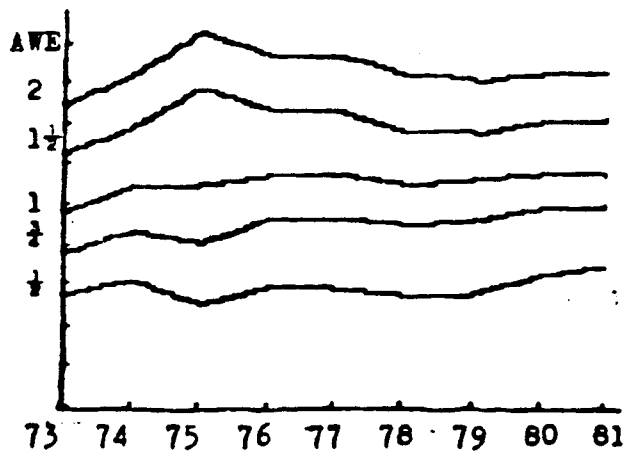
Spouse, 2 children



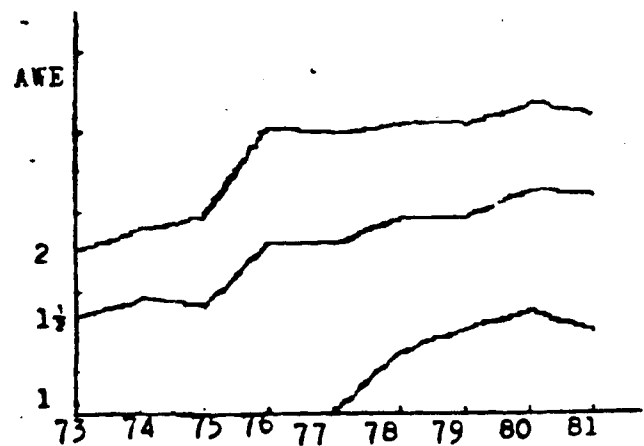
Spouse, 4 children



Sole Parent, 1 child



Single, No dependants



5 dependants (spouse,  
3 children, 1 parent)



## 6. APPENDIX : TAX PRINCIPLES AND DEFINITIONS

In Public Finance Theory, the major fiscal functions are usually divided into the following three categories : (R.A. Musgrave - 1959).

- a) Allocation of national resources, in particular the provision of public (social) goods and services which the private market sector does not, or not sufficiently provide, e.g. health, education.
- b) Distribution, or redistribution, of incomes, e.g. through progressive taxes or transfer payments.
- c) Stabilization ("fiscal policy" in the narrower sense) to achieve policy goals of high employment, stable prices, external balance and economic growth.

These functions are applied separately and jointly to taxation and public expenditure. They all depend on policy judgment rather than on definitely stated "objective" criteria, about the division of private and public sector spheres, about desirable income distribution, about the priorities in stabilization, or about the priorities of the major functions themselves. The general principles stated below are not absolute either but must be considered relative to express or implicit economic and social policies.

### SOME PUBLIC FINANCE "PRINCIPLES"

Equity Principle in taxation is usually linked with the ability-to-pay concept and identified with the notion of Fairness of the tax system. It refers to :

- a) Horizontal Equity of equal taxes for people in equal positions;
- b) Vertical Equity for taxes being graded according to the unequal position of people.

Ability-to-pay is the rationale for progressive taxation. Economic theory has tried to base the structure of progressiveness, to correspond to vertical equity, on calculation of 'tax sacrifice' based on utility rules; however, this theory does not yield unambiguous practical guidelines for progressive scaling. It has been said that the progressiveness of a rate structure is a political, rather than an economic, decision.

(P. Groenewegen - 1979, p.76).

Efficiency Principle is a term used in two senses :

- a) It may refer to "Neutrality" effect on consumer choice. Taxes, in

particular selective sales taxes or concessional income tax deductions, may affect income disposal, and those taxes are regarded as most efficient that least disturb consumer choice and thus do not create an "excess burden". E.g. preferential tax treatment of bond interest or business capital expenditure might lead to investment in bonds or new machinery which would not have taken place otherwise, or a high petrol tax might discourage motoring. However, such "inefficiency" might express deliberate policies to influence spending. The term efficiency is used in this sense by Musgrave & Musgrave (1976) ch.21 and in the Asprey Report (1975) 3.23-3.26.

b) Efficiency can also be defined as the characteristic of a tax structure that best achieves budgetary policy objectives as listed under Fiscal Functions above. (P. Groenewegen - 1979, p.76).

The test of efficiency is then not the effect on the taxpayer but the usefulness of the tax-system in carrying out policy aims.

Other general tax principles, some going back to W. Petty (1662) and Adam Smith (1776) are less controversial. They include :

Certainty : the taxpayer should clearly know his tax liability;

Non-Arbitrary : no arbitrary discrimination between taxpayers;

Convenience : levying taxes in a way convenient to taxpayer, e.g. P.A.Y.E.

Economy : tax collection costs should be relatively low;

Simplicity : taxes should be simple to administer with minimal compliance cost to taxpayer;

Non-Avoidance : Possibility of tax evasion (illegal reduction of tax liability) and tax avoidance (legal use of tax laws to reduce tax liability) should be minimised.

Tax Incidence is a term used in different senses :

(Musgrave & Musgrave p.379; Groenewegen p.67).

- a) Absolute Incidence refers to the distributional effect of a particular tax change, while holding other taxes and public expenditure constant;
- b) Differential Incidence refers to the substitution of the whole or part of a particular tax by another tax, while holding total tax collections constant;
- c) Budget Incidence relates a tax change to a compensating expenditure change, leaving the overall budget position unchanged.

In considering, for instance, the effect of an increased income tax rebate, one can look (a) at the effect it has relative to other income taxpayers, and/or (b) at the effect of a compensating rise in another tax, say sales tax; or perhaps of a compensating rise in income tax rate; and/or (c) at the effect of a compensating cut in budget expenditure.

Analysis of Tax Incidence also leads on to the question Tax Shifting, that is the extent to which individual taxpayers pass on the tax burden to others, either forward (wage income tax through higher wage claims, company tax through higher prices) or backward (company tax through reduced wages).

Work Incentive reaction to tax, in particular progressive income tax and change in tax rate, can be either a Substitution Effect in the form of reduced work hours, e.g. willingness to work overtime, because extra earnings become less attractive than extra wages, or an Income Effect in the form of increased work hours to maintain previous after-tax income, e.g. because of fixed debt commitments. 'Empirical evidence suggests that labour supply to the economy as a whole is fairly inelastic to the wage rate, 'though it is generally agreed that very high marginal tax rates would act as a disincentive'. (Musgrave & Musgrave p.407). (Groenewegen p.109). In the Australian context it must be considered that not many workers have a free choice to work overtime or weekend jobs but that reduced (or low) after-tax income of husbands is a factor in wives seeking work, in particular in the context of heavy consumer-debt commitments of most low and middle income families.

Tax Expenditures are tax preferences (concessions or deductions) which could be alternatively covered by direct government expenditure in the form of subsidies or matching grants, e.g. gifts to charities, housing loan concessions, preferential tax on bond interest.

#### A C T U A L INCOME

less income not so defined for income tax, e.g. legacies, lottery wins, some capital gains

less exempt income, e.g. family allowances, repat. pensions

= A S S E S S A B L E INCOME, e.g. earnings, rent, interest, dividends

less allowable (concessional) deductions, e.g. expenditure incurred in earning income, approved gifts, subscriptions

= T a x a b l e INCOME - Tax Payable (gross)

less Tax Rebates

Tax Payable (nett)

Progressiveness can be simply, though not unambiguously, described between two income points in the following ways :

- a) by taking mT at both points, which ignores actual tax liability;
- b) by relating mT between points 1 and 2 to aT at point 1 ("liability progression") where the ratio for a progressive tax is >1.
- c) by relating the difference between aT at points 1 and 2 to the income difference between the two points ("average rate progression") where the ratio for a progressive tax is >0.
- d) By comparing after-tax income at points 1 and 2 ("residual income progression").

$$\frac{(Y_2 - T_2) - (Y_1 - T_1)}{(Y_1 - T_1)} \cdot \frac{Y_1}{(Y_2 - Y_1)} \quad \text{where the ratio for a progressive tax is } < 1.$$

These methods view progression from different points of view and yield different results when applied to the same data (see Musgrave & Musgrave pp.285-287). For the present purpose the method b) mT:aT has been mainly applied as an indicator of progressiveness.

#### SOCIAL SECURITY PAYMENTS FOR CHILDREN

In this paper child endowment and family allowances have been treated as deductions from tax due. It is arguable whether social security payments should be regarded as negative taxes, in particular as they are paid to the mother while with families with children the father is usually the main taxpayer. However, this method was adopted here because the abolition of tax deductions for children in 1975 was explicitly linked with the establishment of the family allowance at a much higher level than the previous child endowment and omitting either of them would have statistically exaggerated the 'net' tax burden for families, and more so for large than for small families. Table 34 compares average tax rates for a taxpayer with dependent wife and two children exclusive and inclusive of social security benefits for children. It will be seen that exclusion does not change appreciably the general pattern of rising tax rates over the period with relatively greater increases for the lower and middle income groups (3/4 and 1 AWE) than for the higher income range.

Table 34

AVERAGE TAX RATE For Taxpayer With DEPENDENT WIFE AND 2 CHILDREN

		Excl. Social Security Child Benefit					Net of Soc. Sec. Benefit				
		$\frac{1}{2}$ AWE	$\frac{3}{4}$ AWE	1 AWE	$1\frac{1}{2}$ AWE	2 AWE	$\frac{1}{2}$ AWE	$\frac{3}{4}$ AWE	1 AWE	$1\frac{1}{2}$ AWE	2 AWE
1972/3	%	3.0	6.3	9.0	15.4	20.5	0.1	4.3	7.5	14.4	19.7
73/4	%	4.1	7.8	10.8	17.6	22.7	1.5	6.1	9.5	16.8	22.0
74/5	%	-	5.0	10.1	19.5	26.2	-	4.8	8.9	18.9	25.7
75/6	%	-	7.8	14.4	23.1	29.6	-	6.2	13.2	22.3	29.0
76/7	%	-	11.9	17.6	25.2	31.7	-	5.9	14.1	22.2	29.0
77/8	%	-	11.2	16.9	23.3	29.2	-	5.8	12.8	20.7	27.2
78/9	%	-	11.9	17.2	22.9	28.3	-	6.9	13.4	20.4	26.4
79/80	%	-	13.6	18.4	24.7	29.9	-	9.0	14.9	22.4	28.1
80/81	%	-	12.3	17.1	24.2	29.3	-	8.1	14.0	22.1	27.8

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