TAXATION AND CAPITAL GAINS

by

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I wish to thank my wife for her encouragement in this work and for her interested participation in discussions which have clarified and structured my thoughts on several analytical problems. As well as a major part of the real cost of the thesis, she has borne our two daughters during its gestation.

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For the inadequacies that remain, I am responsible.
STATEMENT

This thesis is my own original work, based on the sources listed at the end of each Chapter. Full acknowledgment is made of quotations and indebtedness for specific ideas or information by use of reference numbers to the sources listed at the end of each Chapter.

29-8-76
How should capital gains be treated by a system of taxation? The answer to this question lies in the purposes the system is intended to serve and the principles on which the tax structure is founded. Part A of the thesis is devoted to identifying and interpreting these purposes and principles with reference to the question of an appropriate taxation treatment of capital gains.

The major contribution of Part A is that "real" capital gains should be taxed as income on accrual. This conclusion is reached by the process of reasoning from the general to the particular. Following reviews of the social purposes of taxation in its modern context (Chapter I), and an historical summary of writings on principles of taxation (Chapter II), Chapter III concludes in conditional approval of a broad concept of income as providing the most equitable base for personal taxation. The discussion specific to the question of the appropriate treatment of capital gains follows within the context of a personal income tax. Chapter IV concludes that "real" capital gains and losses (i.e., gains and losses determined after the costs of acquiring and holding assets have been adjusted for subsequent movement in the general price level) should be taken into account in determining taxable income. The question of whether capital gains should be taxed on accrual or on realisation is taken up in Chapters V and VI with the argument favouring the accrual basis on grounds of both basic principle and administrative convenience.

What are the distributional implications of
extending the income tax base to include capital gains?

Part B of the thesis presents estimates of the differential incidence of taxing capital gains as income on accrual in the Australian context. The estimates are based on the data contained in the Australian Survey of Consumer Expenditures & Finances conducted by Professors N.T. Drane, H.R. Edwards and R.C. Gates for the year 1966-67. The estimates consider the inclusion of gains in both real and nominal terms and with and without gains on owner-occupied residences included, and compare the consequent distributions of tax burden with the situation in which capital gains are untaxed. It is assumed that rates of tax are adjusted so that the tax revenue remains the same irrespective of the treatment of capital gains.

Chapter VII describes and presents the base data on the distribution of income, wealth, indebtedness and asset ownership on which subsequent estimates are based. Chapter VIII explains the bases of attribution of capital gains and describes the characteristics of the estimated distribution of capital gains and losses. Chapters IX and X present the differential tax incidence estimates of the alternative inclusion rules. The conclusions from this analysis are that inclusion of accrued capital gains in the tax base would defer the timing of lifetime tax liabilities, and that the differential incidence would be approximately proportional as between low, lower middle, and upper middle income groups, but progressive between high and other income groups (Chapter IX). Chapter X concludes that, assuming regular income plus "real" capital gains is the ideal base for personal taxation,
in 1966-67 horizontal equity would have been better served by taxing nominal capital gains as income than by not taxing capital gains at all. It is believed, however, that this conclusion does not extend to situations where the rate of price inflation is significantly higher than in 1966-67.
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PART A

PRINCIPLES PERTAINING TO THE
TAXATION OF CAPITAL GAINS
CHAPTER I

THE SOCIAL CONTEXT OF TAXATION

1. Introduction

The objective of the first part of this study is to deduce, as clearly and logically as possible, the characteristics of an appropriate taxation treatment of capital gains. These characteristics are identified by relating principles of taxation to the relevant features of capital gains. The argument requires, as an initial development, an understanding of principles relating to taxation.

Taxation is one of a number of policy instruments available to government. Democratic government is an institution designed to further the attainment of social ends. Thus, principles of taxation in a democratic society are derived from the role that taxation is required (or best suited) to fulfil in the pursuit of those objectives and, in part, from the objectives directly.

2. Social Economic Objectives

A broad statement of social economic objectives is contained in a Bergsonian social welfare function, the basics of which are summarised:

\[ W = W(w_1, w_2, ..., w_n) \]  \hspace{1cm} (1)

\[ \Delta W = \Delta W(\Delta w_1 + \Delta w_2 + ... + \Delta w_n) \]  \hspace{1cm} (2)

The interpretation of the first equation is that the level of social welfare \( (W) \) is sympathetically responsive to the welfare level, expressed ordinally, of each member of the

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1 See, for example, the discussion of equal treatment of equals on page 10 below.
community \((w_i\) for the \(i\)th individual). The second equation indicates the level of social welfare is also sensitive to the distribution of individual welfares; that social welfare can be increased (or reduced) by making someone better off while making someone else worse off.

This formulation of the social welfare function incorporates both allocative efficiency and distributional equity elements. Neither of these elements is dominant in an \textit{a priori} sense. An increase in production may or may not be consistent with an increase in social welfare if it has unfavourable distributional implications. A distributional improvement may, but will not necessarily, be consistent with an increase in social welfare if it occurs at the cost of some production of goods and services.

The efficiency component is the same as that contained in a Paretian social welfare function. Perfect efficiency requires that for any good costs of production, measured in terms of the most valuable alternative production forgone, should be a minimum for the level of output and that the level of production should be determined where the marginal rate of transformation between any two goods (goods being broadly interpreted to include all sources of satisfaction) is equal to consumers' marginal rate of substitution between those goods.

The social objective of efficient resource use is capable of precise conceptual definition because it is expressed independently of redistributional feasibility constraints. Whenever it is possible to reorganise resource use so as to make someone better off without making someone else worse off it is always \textit{conceptually} possible to distribute the gains from the reorganisation so that a higher level of social welfare is
attained. This feature removes abstract efficiency from the
sphere of conflict of interest and permits unanimous agreement
on the characteristics of the efficiency objective.

Attempts at a corresponding comprehensive but precise
conceptual definition of the social distributional objective
have yet to secure widespread support. In its place discussion
of distributional questions is guided by the generally accepted
principle of equal treatment of equals and individual judgments
about the correct, or socially acceptable, degree of re-
distribution (or residual inequality).

3. The Role of Government

A partial view of the economic role of government is of
an institution serving a parallel role to that of markets in
relation to the objective of efficient resource use. The
efficiency of markets depends upon the definition of private
property rights being comprehensive, and to the extent that the
consumption of a good by one person enters into the welfare
functions of others, markets are incapable of securing an
efficient level of production of that good. This is explained
in terms of marginal rates of substitution and transformation.
Efficiency requires that the sum of consumers' marginal rates of
substitution between a good with the consumption externality
characteristic and one without be equated to the marginal rate
of transformation between those goods. Determination in a
perfect market will, however, result in output levels where the
marginal rates of substitution of individual consumers are each
equated to the marginal rate of transformation.

Efficient resource allocation is attainable, when this
attribute of publicness is present, by government intervention.

The required response is a government subsidy (tax) equal to the marginal value of the favourable (unfavourable) externality.

A limiting case of externality occurs when a product is equally and compulsorily consumed by all. This occurs in relation to the system of laws and property rights, national defence, and macroeconomic stabilisation. In such instances 100% subsidisation of consumption is not only efficient, because the consumption of any one individual imposes zero social cost, but inevitable. There exist other instances where provision of services without charge is not unavoidable but is efficient because marginal use imposes no social cost. For example, the use of roads and parks where the facility is not congested.

Redistribution of income also falls within the category of goods equally and compulsorily consumed by all, and should be grouped with these goods if it were subject to an efficiency rule based on individual valuations. This would be the case if redistribution policy was governed by either utilitarian principles and reference to cardinal marginal utility of income, or a Paretian social welfare function. However, it appears to this writer that the prevailing attitude towards optimal redistribution is that it is substantially a matter for collectivist ethical judgment rather than an efficiency rule based on individual valuations.

In addition to intervening to improve the efficiency of markets by means of taxes, subsidies, and direct regulation, and supplying services where market incapacity is complete, governments have assumed responsibility for supply in areas

3 Utilitarian and cardinalist views of utility are further discussed in Chapter 2 under Interpretation of Ability-to-Pay - the Sacrifice Approach. For analyses of Paretian redistribution, see Brennan [1] and Thurow [13].
such as health services and education where markets might be expected to exhibit competence. These activities of government may be ascribed to a mixture of paternalism and pragmatism with respect to the distributional objective. Government production, as distinct from near to 100% subsidisation, of these goods appears to be attributable to a desire for detailed collectivist control over the quality of service. For example, an efficient level of expenditure on protection of private property could conceivably be determined in the market but has in fact been one of the traditional functions of government.

4. The Role of Taxation

The efficient resource use objective involves taxation directly as a means of pricing unfavourable externalities generated by certain private sector economic activity. Apart from this the efficiency objective engages the government in regulatory activities, payment of subsidies, and direct involvement in production. The distributional objective involves the government in making transfer payments. Means available to government to finance these activities include sale of government assets, borrowing, money creation, taxation, and direct conscription of resources or resource services.

The recognition that alternative means of financing government expenditure exist exposes the fallacy of the traditional, and still popular, view that taxation is necessary to pay for government activity. To the extent that taxation is preferred to the alternatives it should be on the grounds that its use is more consistent with social economic objectives. However, provided the government budget is approximately balanced over a period of several years, it is not misleading to regard taxation as the means by which the real cost of government-
provided services and welfare programs are distributed. To the extent that the tax structure is designed with reference to a distributional objective, however broadly defined, it can also be interpreted as reflecting judgments regarding an equitable sharing of the cost of government. Thus "ability to pay", adopted as a principle on which discussions of equitable taxation were based long before governments accepted a responsibility for redistribution purchasing power, continues to hold strong appeal as reference point from which tax structures are re-appraised.4

5. Principles of Taxation

The attributes required of the tax system may be inferred from a society's economic objectives and the role that taxation is expected to play in achieving those objectives.

In relation to macroeconomic stability the tax system responds appropriately to changes in aggregate demand if tax revenues respond rapidly and with a high positive elasticity. However, as discretionary regulatory activity will almost inevitably still be required, it is desirable that rates of tax can be changed at short notice, and that the impact of changed rates on aggregate spending take effect with a minimal time lag.

If the stabilisation problem is one of excessive claims for income generating an inflationary spiral, the preferred taxes will be those which enter least into cost and income-claim calculations.

Taxation is required to facilitate a resource transfer from the private to the public sector. An optimal balance between public and private sectors requires that the marginal value generated per unit of expenditure be the same in both

4 A brief account of the historical development of views on equitable taxation is given in Chapter 2 below.
sectors. The efficiency objective requires a resource transfer from private to public sector use whenever the value of additional public sector supply exceeds its cost measured in terms of the value of private sector supply forgone, and that this cost be a minimum. For policy appraisal purposes this cost is usefully viewed as being comprised of two parts: (1) the alternative production forgone if the transfer process was costless, and (2) additional costs generated by the transfer mechanism.

Taxation inevitably generates some collection and taxpayer compliance costs. Efficiency requires that these be minimised. In relation to the determination of tax liability, the prescription is that the governing statute be uncomplicated and precise, thus minimising the extent of disputation and litigation between taxpayers and the collecting agency. Further, the information required in addition to that generated by record-keeping for other purposes should be minimal.

Another kind of resource-use cost associated with taxation is attributable to the effect that taxes have in altering the relativity between prices confronting decision-making units in the private sector. The examples most relevant to the ensuing discussion are the non-neutral effects of the income tax. An income tax raises the cost, measured in terms of (untaxed) leisure forgone, of purchasing power derived from the sale of labour services. In addition, the income tax reduces the cost of current consumption measured in terms of future consumption, or accumulation, forgone.

5 These particular non-neutralities are also attributes of a general sales tax on consumption and investment goods.
Such non-neutrality results in inefficient choice to the extent that taxation causes the relative prices confronting the decision-maker to diverge from the marginal rates of transformation confronting society. The cost attributable to non-neutrality, measured in terms of value forgone as a consequence of the induced sub-optimal choice, plus collection and compliance costs corresponds to the concept of "excess burden" as it relates to taxation.  

It should be remembered, however, that non-neutrality is also capable of causing relative prices to reflect relative social costs more accurately. This occurs when taxes internalise the unfavourable external effects generated by particular activities.

Taxation is not only a mechanism for facilitating a resource transfer to the public sector, it is also a device for controlling the distribution of the real cost of this resource transfer among (and possibly even within) private sector households. The principles relating to this distributional effect are commonly styled principles in equity.

As the terms are now understood, taxation according to benefit received and taxation according to ability-to-pay, are alternative principles in equity, each being appropriate to different circumstances. Application of the benefit principle is appropriate when the benefits from particular government expenditure accrue in identifiable different measure (i.e., when quantities of output differ) to different groups within the community, provided that the distributional objective does not

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6 Most discussions of the excess burden of taxation focus on the non-neutrality aspect alone, but it seems appropriate that the concept should include all costs attributable to the resource transfer mechanism.
indicate an alternative course of action, and that the tax can be effectively administered without excessive costs of collection.

To the extent that the benefit principle is not, or cannot be applied, the alternative principle offered by discussions of equitable taxation is some interpretation of taxation according to ability. Ability-to-pay, whatever it means, is generally agreed to be not directly observable. Among the various indicators suggested for ability, the ones that have attracted most interest are income, consumption expenditure, a combination of income and wealth, and a combination of income from labour and income from capital, with each differently weighted. Definition of the distributional objective in terms of the Bergson social welfare function which is formulated in terms of individual utilities suggests tax base definition in terms of consumption possibilities. The base thus implied would include actual consumption expenditure plus net wealth to the extent that net wealth (or asset ownership) generates a return to the owner that is separate from the yield on assets derived through the market.\(^7\) It may be observed that the income base, via the "double taxation of saving" effect, has attributes of a joint consumption expenditure-net wealth base.

Even when there is agreement with respect to the definition of the base there remains the question of specifying the relationship between the base and ability. The form that this question has taken has been to enquire whether ability increases proportionately or more than proportionately with an increase in the size of the base. If the answer given to this

\(^7\) This argument for a joint consumption expenditure-net wealth base is developed in Thurow [14], and Brennan [2].
question is "more than proportionately", policy still requires to be informed how much more.

A slightly different tack of this problem is to cite equal-treatment-of-equals as the fundamental principle. This principle is advanced by Musgrave as "perhaps the most widely accepted principle of equity in taxation [3, p.160] and endorsed by Shoup as "founded in analogy with equal treatment before the law" [12, p.23]. This analogy appears to be alluded to by Mill in his rhetorical question: "For what reason ought equality to be the rule in matters of taxation?" and answer: "For the reason that it ought to be so in all affairs of government" [5, p.804].

In a sense, equal treatment of equals begs the question. No two people are identical in all respects, so one must enquire as to the relevant dimension. The answer in the present context is that people of equal taxpaying ability should be treated as equals for the purpose of taxation.

The usefulness of the equal treatment rule is not by way of any contribution to logical analysis, but rather in the moral force that it adds to conclusions. If it can be agreed that two different people possess equal ability to pay, then respect for the equal treatment rule authorises the prescription that they should be taxed equally.

In relation to the appropriate relative treatment of people with different abilities to pay, the equal treatment rule does little to assist in defining the prescription. Musgrave

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finds that equal treatment of equals implies that people in
different circumstances should be treated differently [7, p.160].
Shoup extracts the further corollary that people who are almost
equal should be treated only slightly differently [12, p.23].
However, these corollaries do not specify the rate at which
ability increases relative to the chosen indicator.

Shoup finds the equal treatment rule to have several
aspects [12, pp.23-6]. Apart from specification of the
circumstances to be taken into account in determining equality,
the requirement that there should be an equality of mis-payment
is perhaps the most important. Granted that attempting to
ensure that the degree of avoidance and evasion of tax is
uniform between different persons is not practical, the
recommendation issuing from this aspect of equal treatment is
that avoidance and evasion should be minimal. Specific policy
prescriptions arising from this are that vigilance be applied to
close avoidance opportunities, and that taxes should be
enforceable, and adequately policed to control evasion.

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CHAPTER II

EQUITABLE DISTRIBUTION OF TAX SHARES: An historical account of the discussion of this question from which some policy inferences are drawn

1. Benefit -vs- Ability-to-Pay

Where the literature on taxation seeks to express principles relating to the equitable distribution of tax shares it is dominated by notions of taxation according to benefits received from government, and taxation according to ability-to-pay.¹ In the following discussion attention is confined to taxation unrelated to individual choice regarding the use of existing public facilities. Thus benefit taxation is not considered as a user charge, but as taxation levied on any base provided there is the intention that the distribution of tax shares will correspond to differential valuations of public services.

Neither the benefit nor the ability principle is of recent origin. Seligman finds written support for ability in the late 16th century, and benefit in the early 17th. A poll tax graduated according to rank and roughly in accordance with ability was levied in England in 1380.²

¹ An account of the historical development of European thought on just taxation, as evidenced by the literary contribution of recognised scholars, is to be found in E.R.A. Seligman, [25]. Shorter statements concentrating to a greater extent on the more recent (i.e., from the latter part of the 19th century) contributions are made by W.J. Blum and H. Kalven Jr. [2] and by R.A. Musgrave [17]. F. Shehab [26] presents an account of English thought and practice, with emphasis on income taxation, from the late 17th century.

² B.E.V. Sabine [21, p.12] reports briefly on this early English experience with taxation.
From the mid-17th century support for the benefit principle is found in English writings. To quote from the most famous of these, Thomas Hobbes in 1651 proposed:

"To equal justice appertaineth also equal imposition of taxes; the equality thereof dependeth not on the equality of riches, but on the equality of debt that every man oweth to the commonwealth for his defence"[10, p. 254].

And Sir William Petty in 1662:

"It is generally allowed by all, that men should contribute to the Publick Charge but according to the share and interest they have in the Publick Peace" [20, p. 91].

Both Hobbes and Petty go on to propose consumption as the appropriate measure of benefit. In the words of Hobbes:

"Seeing then the benefit that every one receiveth thereby (i.e. from the commonwealth or sovereign power), is the enjoyment of life ... the equality of imposition, consisteth rather in the equality of that which is consumed, than of the riches of the persons that consume the same" [10, pp. 254-5].

Thus the 17th century writers, Hobbes and Petty, proposed as a measure of benefit that which Nicholas Kaldor in 1954 advanced as the most reliable index of ability [12, Chap. I]. It becomes unsurprising that Adam Smith in 1776 was able to propose that taxation in proportion to income is consistent with both the ability principle and the benefit principle. However, the reference to state protection in the statement:

"The subjects of every state ought to contribute towards the support of the government, as nearly as possible, in proportion to the revenue which they respectively enjoy under the protection of the state" [29, vol.2, p. 307]

confirms Smith as a proponent of benefit as the fundamental principle. Ability-to-pay emerges from this as an alternative description of the index of benefit rather than as a free-standing principle of equitable taxation.
This policy equivalence seen to exist between benefit and ability was challenged by J.S. Mill in 1849. Mill argued that those to benefit most from state protection are those "who were weakest in body and mind", and that consequently the benefit principle prescribes regressive taxation which is "the reverse of distributive justice, which consists not in imitating, but in redressing the inequalities and wrongs of nature" [15, p. 805].

Mill advocated taxation in proportion to income above a subsistence minimum [15, p. 806] as being consistent with equality of sacrifice [15, p. 804]. The difference between Mill and Smith was not in the policy recommendation, but in Mill's rejection of benefit as the principle on which to rest the recommendation.

Mill's assertion that benefit from state protection is inversely correlated with income does not appear to carry greater intuitive appeal than the opposing proposition advanced by Hobbes two centuries earlier, and benefit, as a basis of justification for taxation positively correlated with income, did not disappear following Mill's criticism. In 1919 Lindahl concluded that:

"The actually existing graduation of taxation is in a sense the result of the same economic principles which cause the same goods to have the same prices on the free market" [13, p.173].

This conclusion follows directly from Lindahl's assumptions of diminishing marginal utility of income and similarity of tastes, which together imply that a person with greater income will assign a greater monetary value to the marginal unit of public services when the same supply of public services is
available to all.

Wicksell, writing in 1896 and earlier than Lindahl, favoured the benefit principle but recognised its limitation with respect to the distributional objective. In Wicksell the benefit principle is associated with a parliament in which groups within the population with differing tastes in public goods and differing strengths of preferences as between public and private goods are effectively represented, and in which public expenditure programs and the distribution of the taxes required to finance them are voted on simultaneously. The virtues claimed by Wicksell were that the system provided for an efficient resource allocation within the public sector and between the public and private sectors, and that it satisfied the requirements of justice provided there was "justice in the existing distribution of property and income" [31, p. 108].

Responding in 1928 to criticism of his earlier work, Lindahl maintained the position that benefit taxation required taxation positively correlated with wealth, but agreed that the benefit principle is incapable of dealing with the distributional objective. Where

"the existing property order is not regarded as the best possible one ... it is at least theoretically possible to split the tax postulate in two: the property order is to be improved by taxation and the remaining tax burden is to be distributed in proportion with the new distribution of wealth, i.e., it is to represent taxation according to benefit in relation to the new property order" [14, p.231].

However, the problem with the benefit principle in relation to the distributional objective is not that it is devoid of redistributional capacity but, rather, that it is inflexible. To Samuelson's observation that "changing public good does
materially affect the distribution of income" [22, p.337] it must be added that expansion of the public sector in accordance with the benefit principle will tend to equalise the distribution of income in an uncontrolled way. This is because the sector in which individuals are subjected to prices that will generally be positively correlated with their incomes (proportional to their wealth according to Lindahl) is being expanded at the expense of the sector in which all are subject to the same prices. The deficiency of the benefit principle is that it does not permit the distribution of income to be determined independently of the level of public sector supply.

Because the efficiency of a particular allocation of resources depends upon the distribution of income, Samuelson has consistently opposed the analytical separation of the resource allocation and distributional objectives. Musgrave, while agreeing with Samuelson's conceptualisation, maintains that an alternative conceptual solution is possible. According to Musgrave it is possible to work back from the optimal distribution and resource allocation point to define an optimal initial distribution of resource endowment, on the assumption that cost shares for public expenditures will be allocated so as to produce the desired final distributional result [16, pp.266-70]. Musgrave finds this less conceptually elegant approach more attractive on the grounds that separation of the resource allocation and distributional objectives facilitate the derivation of useful guidelines for

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3 This point is owed to Brennan [3].

4 See [23] and [24], in addition to [22] cited above.
policy. The generalised Bergson social welfare function has not, as yet, been specified in terms that provide integrated policy guidelines.

Given that taxation is to be used as an instrument for redistributing income, and recognising that the benefit principle lacks the necessary flexibility for this objective, our attention is directed back to ability-to-pay.

2. Interpretation of Ability-to-Pay - the Sacrifice approach

Mill's proposition that:

"All are thought to have done their part fairly when each has contributed according to his means, that is, has made an equal sacrifice for the common object" [15, p.805]

appears to be the starting point of the discussion that interpreted the ability principle as requiring equality in the subjective valuation of purchasing power surrendered in taxation. With this approach, definition of equal sacrifice would provide a criterion that would resolve simultaneously the problem of securing equal treatment of those of equal ability, and an appropriate inequality of treatment of those of unequal ability. However, the discussion concentrated on the specification of a rule for dealing with unequal ability on the assumption that ability was a function of a single undefined variable called "income".

Equal sacrifice is not an unambiguous concept, and writers subsequent to Mill distinguished equal absolute, equal proportional, and equal marginal interpretations. An attempt

5 It is, of course, always true that if the information exists to treat unequals with the appropriate degree of inequality, part only of that information will be sufficient to treat equals equally.
to read any one of these specific conceptions into Mill generates internal inconsistencies in his discussion. Precisely what Mill meant by "equal sacrifice" is not clear.

To render any one of the equal sacrifice concepts operational it is necessary to know something, or assume something, about the utility-income functions of the different taxpayers. In the absence of a means of measuring or comparing utilities, the late 19th century writers assumed that a utility-income function characterised by diminishing, but ever positive, marginal utility of income was common to all persons. This assumption was sufficient to convince several writers that equal-proportional sacrifice required progressive taxation of income. Cohen Stuart demonstrated that diminishing marginal utility alone was an insufficient constraint on the utility-income function for equal-proportional sacrifice to necessarily require progressive taxation [8, pp.54-60]. F.Y. Edgeworth confirmed Cohen Stuart's conclusion, and noted that the same conclusion applied if equal-absolute sacrifice was adopted as the interpretation of equal sacrifice [9, vol.II, pp.238-40]. Unless the utility-income function could be more precisely specified, both equal-absolute and equal-proportional sacrifice could be consistent with regressive, proportional, or progressive taxation of income.

Edgeworth favoured minimum aggregate sacrifice as being consistent with the utilitarian principle of greatest aggregate happiness, and also because the assumption of

6 The evidence is presented by A.J. Cohen Stuart, [8, pp. 48-51].
diminishing marginal utility was a sufficient condition for this rule to prescribe progressive taxation, or the use of taxation to diminish inequality. Recognition that the dis-incentive effects of taxation imposed a social cost led Edgeworth to distinguish minimum sacrifice from equal-marginal sacrifice. While the latter prescribed confiscation of all income above some level, minimum sacrifice required that progressivity be moderated by attention to the utility loss that attaches to the impairment of incentives to productive activity.

Edgeworth was well aware that the absence of reliable means of making inter-personal utility comparisons was a limitation attaching to all versions of sacrifice principle [9, vol.II, p.235]. Henry Simons took this point regarding the doubtful nature of inter-personal utility comparison further, and charged that the proponents of sacrifice principle were merely using suspected diminishing marginal utility of income to rationalise their own predilections for a more equal distribution of purchasing power. He urged that if it was discovered that those with higher incomes also had a greater capacity for enjoying income at the margin, support for minimum sacrifice as a principle of taxation would be seriously

7 This policy implication of equal-marginal sacrifice becomes a long run (estimated as up to a generation) rather than short run implication once it is allowed that a person's conditioning by past income-consumption experience may affect his short run utility-income function. Henry Simons [28, pp.7-10] notes this proposition. Blum and Kalven [2, pp.53-44] attribute its discovery to Carver (1903); pp. 49-53.

eroded [28, pp.10-14]. If, as appears most likely, support for minimum sacrifice was contingent upon its approving equalisation of the distribution of material welfare, then equalisation rather than minimum sacrifice was the fundamental principle.

3. Interpretation of Ability-to-Pay – More Recent Views

Simons rests his preference for progressive taxation on:

"the ethical or aesthetic judgement that the prevailing distribution of wealth and income reveals a degree (and/or kind) of inequality which is distinctly evil or unlovely" [28, pp.18-9]

but eschews the support of ability-to-pay because it "cannot be conceived quantitatively or defined in terms of any procedure of measurement", and has been used as a basic "'principle' from which, as from a conjurer's hat, anything may be drawn at will" [28, p.17]. One must agree with Simons that taxation requires objective rules of measurement and that it is easy for the discussion to lapse into fruitless consideration of psychic income. However, ability need not be viewed as inextricably bound to the utility-sacrifice approach. Adam Smith appears to have envisaged a direct correspondence between income and ability [29, p.307]. Sacrifice theories were merely particular interpretations of ability.

Any argument for tax reform, or any policy recommendation for that matter, must be based on some value premise. The proposition that there should be some equalisation of the distribution of income and wealth is part of such a premise. Definition of income and wealth also forms an essential element in the premise, as without such definition the
proposition regarding equalisation is open to varied interpretation. On the generally reasonable presumption that words may be defined, or re-defined, in a manner appropriate to the purpose at hand, Simons argued for a definition of income generally unfamiliar to accounting, legal, and popular usage. As the definition is an integral part of the value premise, the objection that economists find useful a concept "from which, as from a conjurer's hat, anything may be drawn at will" has no less force when levied against a special definition of income, than when levied against a particular interpretation of ability-to-pay.

In the foregoing sense Simons has merely substituted the problem of arguing for acceptance of a particular concept of income for the problem of arguing for acceptance of a particular interpretation of ability to pay. Of these alternatives the latter is more tractable, as ability is not circumscribed in meaning by legal precedent, and enjoys some popular support as a vaguely held notion believed to be consistent with equitable taxation. In this spirit, Simons' advocation of a particular definition of income must be regarded as a major contribution to the articulation of ability-to-pay as a principle of equity in taxation. In

9 "Personal income may be defined as the algebraic sum of (1) the market value of rights exercised in consumption and (2) the change in the value of the store of property rights between the beginning and end of the period in question" [28, p.50].

10 Blum and Kalven quote the results of a disappointing pilot survey of public opinion on justice in taxation as follows: "In probing as deeply as we could for the reason why the few who did understand the progression principle thought that the rich should pay more, we were unable to find anything other than simple, unanalyzed ability-to-pay notions" [2, p. x].
particular, Simons emphasised that comprehensive definition of
the tax base to include all elements contributing to relevant
personal circumstances is a logical implication of a progressive
rate structure.

There is considerable sympathy between the substantive
position taken by Simons and that adopted by Kaldor in
specifying the circumstances that should be taken into account
in determining equality or inequality for the purpose of assessing
personal taxes. Simons argued for a tax on broad-concept income
and added that "a case may be made for supplementing the income
tax with a progressive, personal tax based on total wealth or
individual net worth" [28, p.31n]. Kaldor advocated personal
taxation at progressive rates based on consumption expenditure
because individual consumption expenditure was seen to be the
most reliable indicator of the taxable capacity embodied in
various combinations of broad-concept income and net wealth
[12, pp.46-53].

Kaldor arrived at this conclusion via a different
approach from Simons. Since taxation requires the surrender
of purchasing power it is reasonable to interpret individual
ability-to-pay as being determined by the individual's
purchasing power. According to Kaldor a person's spending power
is a composite of (1) recurrent receipts like dividends and

11 "The income tax is not a tax upon income but a tax upon
persons according to their respective incomes; and, subject
to the requirement of adherence to simple, general rules,
the objective of policy must be fairness among persons, not
fairness among kinds of receipts (whatever that might be
construed to mean) ... If income, as we define it, is a
proper basis for personal taxation, then the fact that
certain receipts are taxed separately as such is, at most,
but a crude and utterly uncompensating offset to their
exclusion in the determination of taxable income; for
equity in personal taxation, with exemptions and progressive
rates, requires that persons of very different income
circumstances should pay very different additional taxes by
virtue of the same particular receipts". [28, p.128].
wages, (2) receipts of a non-recurrent or less regularly recurrent nature such as bequests, gifts and capital gains (the aggregate of these two groups of items is identical with Simons' broad-concept income), and (3) disposable net wealth.

"Each of these three elements makes a distinct and separate contribution to a person's spending power, but of a rather different sort, so that it is not possible to reduce them to a common denominator" [10, p.31].

The absence of objective criteria for converting these different elements into common units of spending power was a leading point in Kaldor's argument that consumption expenditure, the means by which each individual performed the required conversion for himself, was superior in equity to available alternative bases for personal taxation.

Since Kaldor's time of writing, government sponsored enquiries have been conducted in New Zealand, Canada, and Australia. The New Zealand enquiry endorsed ability-to-pay as a basic principle and interpreted it as being "related to the economic wellbeing or standard of living to be enjoyed by the taxpayer" [19, pp.14-5]. The Committee went on to express the attitude that there should be "widening of the definition of income ... Making liable for tax certain incomes at present exempt ... Adopting more effective measures to combat avoidance" [19, p.97]. This attitude was manifested in the Committee's recommendations by opposition to submissions requesting increases in the deductions from income allowed for particular expenditures [19, pp.105-7], advocation of measures to incorporate certain income in kind or "fringe benefits" in assessable income [19, pp.256-261], and commendation of the introduction of a separate tax on realised capital gains following further public discussion [19, p.409]. The Committee considered personal
expenditure taxation as a replacement for, or supplement to the existing income tax, but confined its recommendation to the suggestion that these possibilities be made the subject of further government sponsored research [19, pp.340-3]. The Committee opposed the introduction of an annual personal net wealth tax for a number of reasons, including administrative difficulty and taxpayer illiquidity problems, but probably more fundamentally because the Committee did not recognise a need in equity for differential treatment between property and non-property income, provided the base of the income tax was broadened and avoidance and evasion problems associated with the income tax effectively overcome [19, pp.382-5]. The recommendation against adoption of an annual net wealth tax was made in the context of recommended retention, more effective enforcement, and some base broadening of existing taxes on bequests and gifts [19, pp.386-403].

The Canadian Royal Commission on taxation also endorsed taxation according to ability to pay, but was more detailed and specific with respect to the definition of ability. According to the Royal Commission ability is proportionate to discretionary income [7, vol.3, p.6]. A tax unit's discretionary income is a proportion of its total income. The proportion is determined on the assumption that no income below a specified lower limit is available for discretionary use, all income above a specified upper limit is available for discretionary use, and between these limits equal proportionate increases in income are associated with equal proportionate increases in the proportion of incremental income available for discretionary use [7, vol.3, pp.155-6]. Income, total economic power, and comprehensive tax
base are used interchangeably by the Royal Commission, and
defined in relation to a tax unit as being the sum of "the market
value of goods and services consumed or given away in the
taxation year by the unit, plus the annual change in the market
value of assets held by the unit" [7, vol.3, p.39].

The Royal Commission thus adopted Henry Simons' broad­
concept income as defining the base for personal taxation. Net
wealth was rejected because exclusion of human capital from the
tax base would permit non-savers to escape taxation, and because
wealth-holders would be subject to "repeated taxation of the
same assets year after year" [7, vol.3, pp.22-24]. Consumption
expenditure was rejected because the main effect of taxing
consumption rather than income would be to alter the timing of
each individual's tax payments away from middle-age in the
directions of youth and old-age, and thereby increase taxpayer

The Commission recommended that existing estate and
gift taxes should be withdrawn, as bequests and gifts would be
taxed as income to the donees [7, vol.3, p.41]. Gambling
winnings [7, vol.3, pp.526-7], and capital gains would both be
incorporated in the tax base. It was the Commission's view
that, in principle, capital gains should be taxed on accrual.
Although the valuation and liquidity problems associated with
taxation of gains on accrual were not regarded as being insoluble
the Commission recommended that "at least initially, gains
should be taken into the base upon realization" [7, vol.3, p.50].

The Australian Taxation Review Committee endorsed
ability to pay as the reference principle for questions of
horizontal and vertical equity [1, p.12]. The Committee interpreted ability-to-pay as being equivalent to "private economic wellbeing" [1, pp.12-13], and proposed that for lower income groups:

"taxation based on consumption is probably fairer than income taxation because it does not discriminate between individuals according to how they spread consumption over their lifetimes"

while higher up the income scale "horizontal equity may be held to require not only taxation of income but taxation of capital as well" because for these people "the process of accumulating wealth yields 'satisfactions' which contribute to 'well-being' directly (and independently of any income wealth may bring in)" [1, p.14]. The Committee took the view that the community judgment on vertical equity would approve tax relief and welfare payments for the lowest income groups, taxation approximately proportioned to wealth and income over the middle range, and taxation progressive relative to income or wealth at the upper end of the income and wealth spectrums [1, p.33].

The Committee did not go as far as the Canadian Royal Commission in recommending extension of the base for the income tax. It did, however, recommend inclusion of a proportion of realised nominal capital gains, excluding gains on owner-occupied residences. It was recommended that the proportion for inclusion be varied inversely according to the prevailing rate of inflation so that the gains subjected to tax would more closely approximate real gains [1, Ch.23].

The Committee recommended the retention and strengthening of existing estate and gift duties as a superior method of achieving the social objectives of a net wealth tax [1, Ch.26].
4. Conclusions with Reference to Personal Tax Structure Design

Even if one accepts the views of Hobbes, Petty and Lindahl that the distribution of benefits from government is positively correlated with income it remains, as appears to have been less than fully appreciated by Lindahl, that provision of government services financed by taxation according to the benefit principle is redistributive of material welfare in favour of the lower income groups. If, however, redistribution policy is constrained by adherence to the benefit principle in taxation, extension of the activities of the public sector may be supported on redistributional grounds while being opposed on technological grounds relating to the allocation of supply responsibility between the public and market sectors. It would be preferable, faced with such circumstances, to resolve the conflict by leaving supply responsibility with the market sector and freeing the taxation instrument from the benefit principle, so that an independent distribution policy could be pursued.  

There are, however, reasons for believing that some redistribution of income from rich to poor may be Pareto approved. The rich may gain from such a redistribution because it will reduce crime and encourage political stability. In addition, the utility functions of individuals may be interdependent and the rich may gain satisfaction from the

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12 The conflict is not wholly resolved, as the excess burden of taxation remains. There is, however, no reason to expect that the excess burden of taxation would be less if taxes are levied in strict accordance with the benefit principle.
redistribution because they are compassionate, and welcome an improvement in the living standards of the poor, or because they are envious and malicious and derive satisfaction from reductions in the incomes of other rich people.\textsuperscript{13}

If the redistributional objective is viewed in this Paretian light, taxation according to benefit can serve the redistributional objective. However, there is little evidence that policy-makers feel themselves to be constrained by Pareto approval. It appears to be closer to reality to assume that policy-makers believe that redistribution from rich to poor imposes a net cost on the rich, but that such policies should be pursued in the interests of fairness. On this interpretation of the basis of the redistributional objective, taxation according to benefit is incapable of adequately serving the objective, while taxation according to ability is capable.

It does not follow that no taxes should be levied according to the benefit principle. However, provided a redistributional objective exists, a sufficient amount of taxation must be freed from the benefit principle to permit the desired degree of redistribution. In the discussion to follow it is assumed that personal taxation is intended to serve, among other things, the distributional objective. The object of which redistribution is sought is assumed to be material welfare. The equity principle on which personal taxation is levied will be referred to as taxation according to ability to pay interpreted as capacity to satisfy material wants, or purchasing power, relative to material needs.

\textsuperscript{13} See Thurow [30] and Brennan [5] for analysis of the incorporation of these assumptions in the Paretian framework.
Complete specification of a system of personal taxation based on the foregoing premises requires:

(i) definition of the constituent elements of purchasing power, and specification of the relative weightings of these different elements in a spending power index;

(ii) definition of the constituent elements of material needs and specification of their respective weightings in a needs index; and

(iii) specification of the relationship between ability to pay and purchasing power relative to needs. This step is synonomous with specification of the tax rate structure.

Ideally, each of these steps in the design of the personal tax structure should be negotiated independently. However, to the extent that it is believed that one aspect is dealt with imperfectly, it is likely that the three aspects will be viewed as being interdependent, and a second best solution sought. For example, suppose it is believed that element Z contributes to purchasing power but has been omitted, or inadequately weighted in the index of spending power. Further, suppose that it is believed that element Z contributes proportionately more to spending power, on the average, as a person's spending power is larger. A likely policy response in this situation is to attempt to correct for this imperfection by increasing the rates of tax applicable to large spending-power groups relative to the rates applicable to smaller spending-power groups. Such a response will fail to correct inequities as between individuals in the same spending-power group, and will correct some, worsen some, and create some new

The second best approach to equity problems is discussed by Shoup [27] pp.26-7] and by Brennan [4] and [6].
inequities between individuals in different spending power groups, to the extent that element Z is not uniformly distributed within groups.

An opposite kind of example to that above is the situation in which the index of purchasing power is not effectively and comprehensively defined in order to compensate for what is believed to be an excessively progressive rate structure. There is in such second-best solutions a danger that the financially unsophisticated will be deliberately exploited. With reference to the U.S. income tax, Henry Simons was able to claim that:

"One senses here a grand scheme of deception, whereby enormous surtaxes are voted in exchange for promises that they will never be made effective. Thus, politicians may point with pride to the rates, while quietly reminding their wealthy constituents of loopholes" [26, p.219].

To the extent that the different elements which comprise individual purchasing power are not uniformly distributed within purchasing power groups, variations in the tax rate structure to compensate for an imperfectly specified index of purchasing power will generate new inequities in the tax structure. The same consequence may be expected when the index of purchasing power is not comprehensively specified, so that the impact of the rate structure on particular groups will be lessened. It is possible that attempts at compensatory second-best adjustments may increase both the number and value of the inequities perpetrated.

This is not to suggest that compensatory adjustment to improve the equity of a tax structure cannot play a useful role.
The point of the foregoing discussion is to indicate the nature of imperfections associated with a particular approach to second-best solutions to the tax equity problem, and to suggest that there is merit in pursuing first-best solutions insofar as that is possible, deferring the consideration of second-best solutions until the areas in which first-best solutions are particularly difficult or expensive (in terms of administration or complexity of governing legislation) have been identified.

Adopting this approach, it becomes appropriate to consider definition of the index of purchasing power independently of the index of needs and the rate structure. This simplification sharpens the analysis considerably. The critical question becomes that of whether different persons with their purchasing power sources differently composed, have equal or different ability to satisfy their material wants.
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References (contd)


1. Introduction and Assumptions

The major conclusions from the previous Chapter are:

(i) that personal taxation is intended to serve, among other things, a distributional objective; and

(ii) the equity principle upon which personal taxation may be understood to rest is styled taxation according to ability-to-pay defined as purchasing power relative to needs.

Given this, complete specification of a system of personal taxation requires:

(i) definition of the constituent elements of purchasing power, and specification of the relative weightings of these different elements in an index of purchasing power;

(ii) definition of the constituent elements of needs and specification of their respective weightings in a needs index; and

(iii) specification of the relationship between ability-to-pay and purchasing power, less needs.

The first two steps taken together specify the tax base, and the third step specifies the tax rate structure. An ideal approach to tax structure design can consider each of the foregoing parts separately under the assumption that the other two parts have been perfectly specified. Adjustments to compensate for irremedial imperfections in any aspect of the design can be negotiated as a final stage in the exercise.

Given this framework, the present chapter is devoted to enquiry regarding the general characteristics of an ideal index of purchasing power. The sources of an individual’s, or
household's, purchasing power have been categorised by Kaldor as regular income, irregular receipts, and net wealth [13, pp. 30-1].

Regular income includes those things customarily regarded as income and generally taxed as income, such as salaries and wages, interest, rents, royalties, dividends and profits; the pertinent characteristic of these items being that they will normally be expected by the recipient to be more or less regularly recurring.

Irregular receipts include those accretions of purchasing power expected to accrue infrequently, or with marked irregularity through time. This category includes items not unexpected to occur more than once or twice in a lifetime, such as inheritances and lottery winnings, and also items expected to accrue sporadically, such as certain capital gains, royalties, gifts, and proceeds of speculative ventures.

Net wealth is comprised of the sum of the values of a person's marketable possessions, at a point in time, less his financial liabilities. Human wealth is excluded by the definition of net wealth because of the absence of a market for human wealth.

Kaldor's conclusion that:

"each of these three elements makes a distinct and separate contribution ... but rather of a different sort, so that it is not possible to reduce them to a common denomination" [13,p.31]

clearly denies the possibility of identifying correct relative weightings so as to weld these different elements into a one-dimensional indicator of purchasing power. This conclusion is in stark contrast to Henry Simon's advocation of treating all
accretions of purchasing power in the same way, irrespective of source. Simon's position is summarised by the statement:

"that the definition of taxable income as the algebraic sum of consumption and accumulation affords the best available basis for personal taxation is the central thesis of our whole discussion" [16, p.130].

The position adopted by Simons has been endorsed and developed by the Canadian Royal Commission on Taxation [1, vol.3, chapters 7 and 8].

The approach pursued in this chapter is to enquire whether different tax units, otherwise in identical circumstances, but with purchasing power available to them in different forms and from different sources, have the same capacity to satisfy material wants. The most difficult and interesting issues raised by such an enquiry emerge in the discussion of the appropriate taxation treatment of:

(i) irregular income;
(ii) self-service (or imputed) income; and
(iii) savings.

The discussion will assume:

(a) that ability-to-pay is believed to increase more than proportionately with purchasing power less needs, so that the tax rate structure is progressive relative to the tax base; and

(b) that the general price level is constant, although relative prices vary through time. The first assumption is adopted for realism, and the second for the purpose of deferring, until the next chapter, discussion of some of the complications generated by the existence of a changing general price level.

2. Irregular Income

The annual basis on which income taxes are levied is generally made subject to some departures in the method of assessment. Tax liabilities in a particular year are, for
some taxpayers, determined by reference to the average annual income of several recent years as well as, or instead of, the income of that year. In addition, losses incurred in one or more years are permitted to be carried forward and offset against subsequent income prior to the determination of tax liabilities in future years.\footnote{1} Despite this, the basis of assessment remains very predominantly annual.

There are two sources of challenge to the adequacy of the experience of one year as an indicator of relative ability to pay. One source of challenge relies on the effects of applying a progressive rate scale to annual income; the other relates to the timing of tax payments, and is independent of the progressivity of the rate scale.

Firstly, two people may experience equal accretions of purchasing power over a period of several years, or over their equal lifetimes but, to the extent that one person's annual accretion fluctuates to a greater extent, that person is taxed more heavily. This occurs because deviations above the mean annual rate of accretion are taxed at higher rates, under a progressive scale, than those which apply when the rate of accretion deviates below the longer term average. However, it follows that this result is inequitable only if it is agreed that one year is an inappropriate time period for measuring relative ability to pay. This raises the question of identifying the conceptually correct time period for assessing

\footnote{1} In Canada the loss-offset facility extends to carrying losses backwards in time for one year, as well as carrying residual amounts, that is, loss not absorbed by the previous year's income, forward to be offset against subsequent income.
taxation in accordance with the ability principle. The discussion of these questions may be aided by the use of an example: Suppose in a particular year, person "A"'s accretion of spending power is $10,000 of regular income, and person "B"'s is $10,000 of non-recurrent receipt. The conclusion that flows easily is that provided both "A" and "B" expect to live beyond the year in question "A"'s purchasing power in that year is greater than "B"'s. The obvious reason is that "B" must make provision for future consumption out of his $10,000, while "A" need not.

The inference derived from this example is that one year - the time period conventionally adopted for measuring relative ability-to-pay - is too short. If, however, the illustrative figure of $10,000 was increased (for realism) and the time period extended to ten or twenty years, the time period would still be too short provided both persons were expected to live beyond that time period. The conclusion inferred by this is that a lifetime is the correct term for measuring relative taxpaying ability. If this conclusion is accepted as being valid there is a case in equity for assessing personal income tax with reference to lifetime accretion \(^2\) if the tax rate structure is progressive. If, however, the tax was strictly proportional relative to income, \(^3\) there is nothing in the foregoing discussion to find assessment on an annual basis inequitable by reference to the ability principle.

\(^2\) The cumulative averaging system proposed by Vickrey [19, Ch.6] would meet this requirement.

\(^3\) Strict proportionality in an income tax requires either an absence of personal exemptions, dependents and concessional deductions or rebates, or that these exemptions, deductions or rebates be permitted to be offset against income or assessed tax in other years, when they are not fully absorbed in the current year.
However, there is a further argument which suggests that assessment of tax on an annual basis would be unsatisfactory even if the tax was a strictly proportional one. Let the previous example be reconstituted on a lifetime basis: Let "A" and "B" be the same age and have the same life expectancy. Neither have independent purchasing power prior to the age of twenty-one. From age twenty-one "A" receives $10,000 per annum, which is expected to continue until his death. "B" receives a lump sum of $x at age twenty-one, and this is sufficient to purchase an annuity of $10,000.

If "B" purchases the annuity and if all other expectations are fulfilled, "A" and "B" will have enjoyed an equal capacity to satisfy material wants during their lives. The equity premises maintained thus far require that each be subjected to the same degree of personal taxation during their lifetimes, so that each would be left with the same post-tax ability to satisfy material wants.

Under proportional taxation of annual accretion at the rate t, "B"'s annuity would be reduced to $10,000 (1-t) as a consequence of the taxation of the lump sum $x at the commencement of the period. "A"'s purchasing power would be reduced to $10,000 (1-t) per annum. "B"'s purchasing power would, however, be less than this, as in addition to paying tax on the lump sum received at the commencement, he would be taxed annually on the interest component of his annuity. Ex post "B"'s lifetime gross accretion, tax, and disposable spending power would be less than "A"'s. This apparently inequitable treatment appeals as being remediable by either:

(i) deferring tax on the lump sum received by "B" at the commencement until it is drawn as principal to make up the annuity payments; or
(ii) exempting the interest component of "B"'s annuity receipts from tax.

However, both of these solutions identify this aspect of the problem of taxing equitably those whose accretion of purchasing power accrues with irregularity through time (occurrence at infrequent intervals being a particular form of irregularity through time) as being no more nor less than the so-called "double" taxation of savings that is associated with the income tax. This "double" taxation of savings argument is taken up again at section 4 below.

There exists, however, a third suggested remedy, which implies that the inequity stems from the timing of the liability to tax rather than the "double" taxation of savings. Vickrey included, as an element in his cumulative averaging proposal for income (as expenditure) taxation, the requirement that taxpayers be credited each year with interest on cumulated past tax payments. Although Vickrey intended this arrangement as a device for removing the tax dis-incentive to realisation of income when income is identified only on realisation [19, pp. 173-4], the proposition recognises the interest-disadvantage associated with paying tax earlier rather than later. This recommendation does not deal with the "double" taxation of savings argument, however, as interest is credited on payment of tax irrespective of whether the income on which the tax is assessed is consumed or saved. If, however, it is a disadvantage to pay tax earlier rather than later, it is also an advantage to accrue income earlier rather than later. Consequently, the suggestion that it is inequitable to levy tax
earlier when income accrues earlier, is not supported.

In summary, then, there is apparently valid objection to the annual basis for assessing relative ability to pay when the tax rate structure is progressive. The appropriate response to this objection is the implementation of a suitable system of averaging annual income (perhaps, ideally, on a lifetime basis) for the purpose of assessing current tax liabilities. In addition, there is objection to the annual basis of levying tax that is independent of the non-proportionality of the tax assessed relative to income. The validity of this objection rests, however, on the validity of the "double" taxation of savings objection to the income base for personal taxation. This argument is considered explicitly in section 4 below.

3. Self-service (or Imputed) Income

The exemption of leisure from the income tax base is a special case of the failure to tax self-service income. Self-service income is derived from property as well as from labour (or personal effort).

Self-service income is derived from property when property is applied to rendering consumption services to the owner directly, rather than to deriving income through the market. The most significant example, in terms of aggregate value, is that of owner-occupied housing; however, ownership of jewellery, works of art, and consumer goods generally are in the same category. Inequity arises because, to the extent that

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This is not to say that there is not merit in removing tax dis-incentives to realisation when taxation happens to be, or is unavoidably, based on realisation.
net wealth is held in assets which provide for the owner's material wants directly, part of the capacity to satisfy material wants escapes tax, and the tax-free component is not uniformly distributed.

The foregoing inequity is moderated to the extent that tax exemption is capitalised in the market values of assets which commonly generate a yield in a tax-free form, so that the average yield on these assets tends to equality with the average post-tax yield on other assets. However, even in a perfect assets market, capitalisation will only moderate this inequity, it cannot remove it. This is because the capitalisation effect must correspond to an average marginal rate of tax, which leaves a residual advantage with persons whose marginal rate of tax is greater than the average marginal rate.

While moderating the inequity that stems from the failure to tax self-service income from property, capitalisation generates another form of inequity. Whenever rates of tax are increased (reduced), the capitalisation-effect will confer capital losses (gains) on those who own assets which generate a taxed market return, and capital gains (losses) on those who own assets which generate an untaxed non-market return.

If, however, rates of tax are unlikely to be varied significantly in future, the inequities stemming from capitalisation are legitimately viewed as a sunk cost incurred when the tax was introduced, and when rates of tax were adjusted to their present level. It may also be validly argued that to improve the generality (comprehensiveness) of the tax at this point in time would generate a new set of inequities through capitalisation-effects rather than reverse the
inequities previously incurred. It does not follow, however, that it is better to live with the existing non-general tax (with its perpetual inequity that is moderated but not eliminated by capitalisation) indefinitely, than to purchase a more equitable future by increasing the generality of the tax and incurring some once-and-for-all inequities through the capitalisation process now.

The ideal base for personal taxation would include the rental value of assets conferring services on owners directly. As a practical matter the ideal could be approximated, while limiting the administrative problems of discovery (when asset-ownership is concealed) and valuation, by restricting the imputation of rental value to classes of asset believed to be of significant value,\(^5\) and so distributed that inclusion of their rental values in the tax base would cause a material improvement in the equity of the relative distribution of the shares.

Self-service income from labour is derived when an individual's personal services are applied to servicing his own (or his family's) wants directly instead of being applied to deriving income through the market. A shorthand expression for "self-service income from labour" is "leisure".

Personal taxation does not aim to tax people according to psychic income, but according to market power. Exemption of leisure from taxation will result in inequitable treatment

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\(^5\) The findings of Chapters VII and VIII below suggest that the value of owner-occupied residences account for slightly more than 50% of the total value of household gross assets. The proportion of the value of assets generating self-service income accounted for by owner-occupied residences would, of course, be greater than this.
because leisure can be readily substituted for market power. For each tax unit leisure-time has a market power equivalent, and inequitable tax treatment will occur to the extent that tax units differ in terms of the value of untaxed leisure relative to taxed market power.

If the tax base was defined to include both leisure and market power, the appropriate basis for valuing leisure would be its market power equivalent, that is, the opportunity cost of leisure time. If each individual's leisure time was valued at his wage rate and taxed as income, taxation would be neutral with respect to choice between market-derived income and leisure. The relative tax treatment of different individuals would then be made independent of their respective choices as between work (i.e., being engaged in earning market-derived income) and leisure.

If income inclusive of the value of leisure time is accepted as being the ideal base for personal taxation, but income exclusive of leisure is adopted as the actual base, the tax can be perfectly equitable provided that:

(i) the ratio of leisure-time to work-time, and
(ii) the ratio of work-income to property-income
are the same for all individuals. Equitable taxation is possible in this instance because leisure, valued at the individual's wage rate, constitutes a constant proportion of leisure-inclusive income. Thus, proportionate relativities between the average rates of tax of different tax units will be the same, irrespective of whether the average rate of tax is calculated with reference to leisure-exclusive, or leisure-inclusive, income.

To the extent that tax units differ with respect to the
proportion of total time available to them taken as leisure, tax units taking proportionately more leisure will be advantaged. To the extent that tax units differ with respect to the ratio of work income to property income, tax units with a relatively larger proportion of property income will be disadvantaged because a smaller proportion of their total income (leisure-inclusive) will be tax exempt. This is an interesting result, because one of the reasons advanced for differentially heavier taxation of income from property is that, unlike income from work, derivation of income from property does not require sacrifice of leisure. Thus, to the extent that tax units with income from property take proportionately more leisure time, the inequities that result when the tax base is defined as leisure-exclusive income will, in part, be cancelling.

Another instance in which tax units will differ with respect to the proportion of available time taken as leisure is when one member of the unit does not work (or only works part-time). If the non-working member has a lower wage rate (i.e., skill value) than the working member, then valuing the unit's leisure-time in terms of the average rate of return on the tax unit's work-time involves an over-statement. To this extent the tax advantage derived by tax units in which the wife (and mother) does not work may be over-stated. However, a tax advantage does remain. One means of partially correcting for this without incorporating the value of leisure in the tax base, may be to limit per capita exemptions, in the case of able persons of working age, to those persons actually engaged in employment or business.
4. Savings

Under an income tax, income received is taxed irrespective of whether it is consumed in the period of receipt, or saved. To the extent that income received is immediately consumed there is no further taxation. To the extent that income is saved and the wealth stored in income generating assets, however, tax is levied again when the income from these assets is received. This characteristic of income taxation has come to be referred to as the "double" taxation of savings.

The inequity perceived in the double taxation of savings may be illustrated by supposing that two individuals, otherwise in identical circumstances, experience identical time streams of income (during their equal lifetimes), except for income received on their own savings. If each consumes the whole of his lifetime accretion (dies penniless), but one saves early in life and concentrates consumption to a greater extent in his later years, then he will pay more in tax. This is regarded as being inequitable, because each had precisely the same potential to exercise purchasing power during his lifetime but, because different choices were made regarding the timing of consumption, one was taxed more heavily than the other.

Two alternative measures might be proposed to eliminate this "double" taxation of savings: either property income or saving could be exempted from tax. If property income is exempted two people alike in all respects except for the rate of return experienced on savings will be taxed differently. This is unsatisfactory, because the tax would fail to discriminate between persons who differ with respect to the
purchasing power at their disposal during their lifetimes, when the difference is not necessarily attributable choices being based on different preference structures.\(^6\)

If income saved is exempted the foregoing objection does not apply. Savings are taxed only once, and to the extent that rates of return on savings actually experienced differ the difference is incorporated in the tax base.

Adoption of this second form of correction to the tax base means, in terms of conventional usage, that the tax is no longer a personal income tax but is a personal consumption tax. This, however, is only a matter of terminology.

Kaldor has observed that, in a sense, exclusion of savings from the tax base does not entirely remove the "double" taxation of savings [13, pp.79-87]. Referring back to the example used above, we find that the person who saved early in life would continue to be taxed more heavily under a consumption tax than the person who saved less. A person who saves early and concentrates consumption in the later years of his life has a larger lifetime consumption. Under a consumption tax he is still taxed on the amount saved, plus the return on his savings. The difference is that because he is taxed later, at the time of consumption out of savings rather than at the time of saving, the amount initially saved is not reduced by the requirement that tax be paid at that point in time, and consequently the amount of initial saving and the total return from savings, will be greater. The gain to the saver from such an amendment to

\(^6\) Differences in investment outcome may be attributable, among other things, to good or bad fortune, in the sense that the actual outcomes differ from that which might reasonably have been expected at the time of investment.
the tax base is one of tax deferral, rather than one of exempting part of his lifetime accretion from taxation.7

Kaldor argues that tax deferral is precisely the adjustment that should be made in relation to the taxation of savings [13, p.84]. An income tax is non-neutral between consumption and saving because income immediately consumed is taxed according to its present value, while saving is taxed on its present value and on subsequent returns from the assets purchased.

If all saving is for future consumption, a personal consumption tax is perfectly neutral between current consumption and saving. If saving in period 0 ($S_0$) is intended for consumption of both the principal sum and the accumulated return (at the rate r) in period n, the amount available for consumption in period n($C_n$) is given by:

$$C_n = S_0(1+r)^n$$

If, however, consumption is taxed at the rate t, the amount available will be:

$$C_n^{1} = \frac{C_n}{1+t} = \frac{S_0(1+r)^n}{1+t}$$

Provided the taxpayer's rate of tax is the same in period n as it was in period 0, the tax paid on consumption deferred is:

$$t.C_n^{1} = \frac{t.C_n}{1+t} = \frac{t.S_0(1+r)^n}{1+t}$$

The tax paid in period n has a present value in period 0 of:

$$\frac{t.S_0(1+r)^n}{(1+t)(1+r)^n} = \frac{t.S_0}{(1+t)}$$

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7 To the extent that the saver fails to consume the whole of his savings during his lifetime, these savings and the return on them can be taxed by a levy on deceased estates or bequests.
which is precisely the additional amount of tax that would have been paid in period 0 if the taxpayer had not saved. The personal consumption tax is perfectly neutral as between present and future consumption because the additional tax paid as a consequence of saving is precisely equal to the value of tax deferred.

Now, the validity of the "double" taxation argument must be conceded if interest represents the full return on savings. If, however, accumulation generates self-service income apart from and independently of the market return, taxation of the market return above would leave a non-neutrality and inequity in the tax base favouring saving relative to consumption. But it would only be when self-service income from saving is of precisely equal value to the market return that the income tax would provide an optimal treatment of income saved relative to income currently consumed. Preference for an income tax over a consumption tax rests on the judgment that the value of the self-service return to saving is closer to the market return than it is to zero.

An implication of the foregoing conclusion is that it becomes appropriate to supplement an income tax with a tax on personal net wealth when the rate of generation of self-service income on net wealth exceeds the rate of interest. This is required to secure a system of personal taxation that is based on a comprehensive notion of taxation according to relative capacity to satisfy material wants.

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8 For example, in the forms of insurance and independence.

9 Appreciation of this point is owed to G. Brennan [2] and [3].
5. Summary

The question negotiated in this Chapter was one of defining a tax base that is ideal from an equity point of view given a collectively expressed preference for taxing purchasing power less needs at progressive rates. Administrative difficulties were generally ignored.

To overcome inequities generated when accretion is taxed annually at progressive rates, and time profiles of accretion differ, it was concluded that:

(i) some method of averaging the individual's annual accretion over a longer term, preferably a lifetime, for the purpose of determining annual liability to tax is a desirable feature of the tax structure, while

(ii) crediting of taxpayers with interest on previous tax payments is not required to secure equitable treatment through time when the tax is levied on an accrual, as opposed to realisation, basis.

In the discussion of the problem posed by the existence of self-service income, it was concluded that, ideally, all accretion of want-satisfying capacity should be incorporated in the tax base at its market value. As a practical matter it was conceded that, with respect to self-service income from property, this rule would have to be confined to incorporating income from assets that constitute a major or significant source of income for some segment of the population. In addition, the existing failure to tax "leisure" was identified as a source of inequity and non-neutrality. It was suggested that an administratively feasible partial solution to this problem could be available via restriction of the availability of personal exemptions.
The discussion of the "double" taxation of saving proposition regarding the income base led to the conclusion that the proposition is valid only if the accumulation of wealth does not generate an otherwise untaxed self-service return. In the event that this is so, consumption must be regarded as a superior base to income for the purpose of personal taxation. If, however, the self-service return on accumulation is closer to the interest rate than it is to zero, the income base is superior to the consumption base. If the non-market return on wealth exceeds the interest rate, it (the ideal base) will include income plus a proportion of wealth equal to the absolute excess of the rate of non-market return over the rate of interest.
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1. Sources of Capital Gain

Capital gain is generally understood to be the value of the appreciation of non-human wealth other than stock in trade. Although the value of an individual's human wealth may appreciate as the result of training, shifts in market demand, or otherwise, this experience is customarily implicitly excluded from the genre "capital gain". For purposes including the definition of an equitable base for personal taxation, exclusion of appreciation of human wealth is "justified" by the absence of a market for human wealth (as distinct from its services).

This justification for excluding appreciation of human wealth from the tax base is inadequate when it is argued that accrual rather than realisation is the correct basis for taxing capital gains (as in Chapter V below), or that the "double" taxation of savings is approved because accumulation (or ownership) of non-human wealth generates self-service income (as in Chapter III). However, the case for extending the tax base to include the value of appreciation of human wealth also requires (corresponding to the justification of taxation of both savings and the market return on non-human wealth), that it be argued that human wealth generates a self-service return that has a value closer to the market rate of interest.

1 Capital gain may be defined in accrual (above) or realisation terms.
than to zero. The logic of taxing appreciation of human wealth also requires full deductability of depreciation of human wealth. But the fact that extending the tax base to include appreciation of human wealth (i.e., the value of investment in human wealth generally) would, in an ideal lifetime system of personal taxation, only serve to alter the timing of lifetime tax liabilities is not a point in principle against this measure. The ensuing discussion may be taken to rest on the assumption that the rate of self-service return on the appreciation in human wealth *per se* is insufficient to justify incorporation of accumulation of human wealth in the income tax base. In this discussion the term capital gain is confined to refer to appreciation in the market value of non-human wealth other than stock in trade.

Thus, capital gains may result from speculation, revision of expectations regarding the future earning capacity of particular assets, changed attitudes towards risk-taking, a fall in interest rates, or a rise in the general price level. However, gains of a given magnitude from interest rate variation and price level change are, in the literature, argued to be not only different from each other, but different from gains arising from other causes in their impact on taxable capacity. Consequently the discussion of the relationship between capital gain and ability-to-pay is compartmentalised into three categories according to the cause of gain.

2. **Gains not attributable to Interest Rate or General Price Level Variation**

The gains considered in this section may be attributable to speculation, changed attitude towards risk-taking, or revision of expectations regarding the future earning
capacity of particular assets, but include the gain derived in holding, for a time, assets that confer title to income at discrete intervals (e.g., shares and debentures).

Gains with these origins are commonly termed "real" gains, while the gains attributable to general price level and interest rate variation are described as "illustory" gains. As this terminology suggests, objections to taxing gains not attributable to general price level or interest rate variation are fundamental, in the sense that they apply to gains attributable to these other causes as well.

The objection that capital gains are not income is not a logically valid element in an argument about the equity of incorporating capital gains in the base for personal taxation. However, it does serve to explain why capital gains have not been taxed as income under existing income tax legislation. In discharging their interpretive function the courts have viewed the tax as a levy on income rather than as a tax on persons according to their incomes.\(^2\) In so doing the courts have sought the meaning of the word "income" as it is used in other contexts, specifically in common and business use, rather than seeking the conceptualisation appropriate to the purpose of taxing people according to their relative financial capacities.

As a consequence, harvest tradition concept of income, which finds the distinction between income and capital to

\(^2\) Evidence of this approach is fairly widely publicised. Examples are offered by Simons [17, p.233] and by the Minority of the United Kingdom Royal Commission on the Taxation of Profits and Income [19, p.357]. One of the main emphases in Simons [17] is to illustrate the inconsistency of this conceptualisation with the rationale of personal taxation.
correspond to the distinction between the harvest and the soil, or the fruit and the tree, has been significant in its association with legal precedent established in relation to income taxation.\(^3\) Characteristics of income in the harvest context tend to distinguish capital gain as something other than income, and thereby remove capital gains from the ambit of the income tax. Thus, whether a return is distinct and separable from its source, regularly recurring, arising as a consequence of deliberate activity by its owner, and so on, are typically adopted criteria for legal discussions regarding the extent of the income tax base.\(^4\)

The logical reference for issues regarding aspects of design of an instrument of social policy is the objective, or objectives, that the instrument in question is intended to serve. Progression in the rate structure indicates an objective for the income tax beyond that of securing a resource transfer from private to public sectors. The most reasonable interpretation of this progressivity is that there exists the intention to distribute the cost of government among persons in a manner that is progressive relative to individual ability to satisfy material wants. Ideally, then, the base for the tax should be comprehensive of this ability. Subject to feasibility constraints, the appropriate test of whether capital gains, or

\(^3\) The nature and importance of the harvest tradition concept of income in this context is discussed by Seltzer [15, Chap. 2] and Conway, [4, pp.36-47].

\(^4\) Recent interpretation of the first arm of Section 26(a) of the Australian Income Tax Assessment Act as requiring that resale at a profit must be a primary purpose on acquisition before the gains could be taxed as income appears to be a consistent extension of the harvest tradition of income. See Peacock [13] for legal opinion on the interpretation of Section 26(a).
anything else, should be incorporated in the base, is whether they contribute to individual ability to satisfy material wants.

Thus, while legal definition of "income" is not part of a logical argument about the justice of incorporating capital gains in the base for personal taxation, it has had the effect of establishing a tradition of income taxation in which capital gains are outside the tax base. The force of tradition has thus become an additional obstacle to be overcome by the proponents of incorporating capital gains in the personal tax base.

A second objection takes account of the relationship between the market value of an asset and the expected future yield from that asset. It is proposed that the increase in yield will be subject to tax when it accrues in the future, and to tax as well the asset appreciation which occurs in anticipation of the higher future yields is to tax the same thing twice.

This objection is really a special case of the "double" taxation of saving proposition raised against the adoption of income or accretion as the base for personal taxation.\(^5\) However, once a decision has been taken to tax income irrespective of whether it is saved or consumed, the relevant focus is on whether capital gain differs from other income in its contribution to purchasing power.

\(^5\) See Chapter III above.
An objection that appears to be popular in business circles takes the form of suggesting that to tax capital gains would discourage risk-taking. As well as being an objection to taxing capital gains on efficiency grounds, this can be interpreted as an objection on equity grounds, because of the failure to net out the cost of risk-taking.

Dissent from this argument is possible on several grounds. Firstly, much of the speculative activity which generates capital gains is widely regarded as generating externalities, and taxation of this activity is consistent with the objective of securing socially efficient resource use.

Secondly, capital gains do not emanate solely from risky ventures. For example, the appreciation of property values that occurs as a consequence of population and economic growth is highly predictable, and the gain in the market value of a share or bond as the date for payment of dividend or interest approaches is a virtual certainty.

Thirdly, the prevailing a priori analytical position with respect to the effect on risk-taking of extending the income tax base to more comprehensively include the return

The option that an asset holder has to convert income (according to the legal definition) receipts into capital gains should be recognised as a major element in the argument that capital gains confer purchasing power in the same way as other forms of accretion.
from risky ventures is one of agnosticism. 7

Fourthly, it is inferred that the taxation of capital gains is inequitable because the gain is merely compensation for risk-bearing. However, the base for an income tax is, as a general rule, compensation. The opponents of taxing capital gains must argue that equity requires the exclusion of compensation for risk-bearing from the tax base, even though compensation for effort and waiting (or forgoing leisure and immediate consumption) are subject to tax.

The view that capital gains should be taxed as income is further opposed with reference to the irregular timing and unanticipated nature of capital gains. These objections can be understood to follow quite directly from the adoption of the harvest concept of income as defining the base for personal taxation.

Whether capital gains infrequently received by a person are also unsought and unanticipated might be expected to vary between different instances. It is plausibly suggested that the purchasers of durable assets will normally take some account of resale potential when buying. In this context legal interpretation of Section 26(a) of the Australian Income Tax

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Subject to restrictive assumptions regarding the shape of the portfolio manager's opportunity locus and preference function as between income and risk, Musgrave and Domar in 1944 [12] concluded that extension of the base of a proportional income tax with full loss offset to more comprehensively include the returns from risky ventures would encourage risk-taking. This conclusion has recently been demonstrated by Stiglitz [18], and by Feldstein [8] to be a special case, and under plausible assumptions the effect of so extending the base of the full-loss-offset proportional income tax could be to increase, leave unchanged, or decrease, the level of risk-taking. In any event, the original Musgrave and Domar conclusion was not held to apply in the context of a progressive income tax.
Assessment Act has sought to distinguish between primary and subsidiary purpose, confining taxability of gains to those instances where re-sale at a profit is identified as being the primary purpose on acquisition.  

If relative purchasing power rather than harvest-tradition income is adopted as indicating relative taxpaying ability, the question of whether gains are sought or anticipated becomes irrelevant. Gains will add to a tax unit's purchasing power according to their monetary magnitude independently of whether the gains were anticipated.

Just as capital gains are not necessarily unsought or unanticipated, they are not necessarily of irregular or infrequent timing. While it remains likely that net capital gains will be a relatively volatile element in aggregate or individual-tax-unit accretion, capital gains will not be the only element subject to considerable variation in magnitude through time. Given that taxation of accretion on an annual basis at progressive rates penalises tax units with fluctuating rates of accretion, the appropriate policy response is to adopt a longer time period for measuring relative tax-paying ability, rather than arbitrarily excluding one volatile component of accretion from the tax base.

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8 See Peacock [13].

9 To the extent that some capital gains may be more or less randomly distributed (i.e., windfalls), it could, however, be argued that gains should be ignored for the purposes of windfall taxation. If, for example, all of the participants in a lottery agreed to contribute to discharge the tax liability accruing on the lottery winnings, separation of the lottery tax from personal taxation would be Pareto approved.
In summary, if accretion of purchasing power is recognised as the appropriate base for an equitable distribution of personal tax shares, arguments for excluding capital gains from the tax base fail, because they are incapable of demonstrating that "real" capital gains confer less purchasing power than other kinds of receipt. The claims that capital gains are not income, and that capital gains may be unanticipated are irrelevant to the question under consideration. The observations that capital gains may be irregular with respect to timing, and are a form of compensation, fail to distinguish capital gains from other forms of accretion which are generally subject to personal taxation under existing income taxes.

3. Gains caused by a fall in the Interest rate

If the yield on securities of that class was to fall from 5 percent to 4 percent, the market value of a perpetuity paying $5 per annum would rise from $100 to $125. The increase in market value of securities with fixed redemption value would be less as the time period to redemption is shorter. However, if the holders of these securities were to pay tax on the appreciation in value out of the capital value of their security holdings, their annual receipts from property would be diminished. If in the example of the perpetuity above, a holder was taxed at an average rate of 20 percent, that is

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10 This conclusion must be read in the context of Chapter 3 above, where a lifetime was identified as the "ideal" time period for measuring relative ability to pay. In addition, consideration of the distinction between realised and accrued gains is deferred until Chapter 5 below.

11 This topic is discussed by Seltzer [15, pp.93-8], Conway [4, pp. 80-82] and Prest [14, pp. 298-9].
$5 on the $25 appreciation of each security held, his annual receipts from that source would be reduced from $5 to $4.80 on each of the securities originally held.

Expressed differently, a fall in interest rates makes security holders "better off" on wealth account, but generates no improvement on income account. To tax away part of the increment to wealth will reduce the annual flow of income receipts. Whether the tax merely removes part of the improvement in the bond-holder's circumstances, or reduces him to a lower level of economic welfare than that enjoyed before the fall in interest rates is determined by the bond-holder's subjective preference pattern. If his preference for annual receipts relative to market value of wealth is sufficiently strong, he will feel himself to be "worse off".

However, not only is it impractical to attempt to discriminate between tax units on the basis of their subjective preferences but, in addition, it is not required that the ability-to-pay criteria be interpreted in terms of subjective preferences in principle. Taxation in accordance with ability-to-pay requires that individuals surrender purchasing power in accordance with the command that they potentially exercise over resource services. Thus, a fall in the interest rate increases the bond-holder's purchasing power, and consistency with the ability principle, requires that this be taxed.

The implications of this point extend further. The composition of consumption differs between individuals. Consequently, changes in relative prices of consumption goods will alter the relative abilities of different individuals to
satisfy their respective wants. An attempt to account for this effect when measuring relative ability-to-pay involves making the judgment that previous price relativities were "correct" in the sense that relative ability-to-pay was reflected by relative nominal purchasing power at those prices, while at the new price relativities, relative ability-to-pay cannot be inferred directly from relative nominal purchasing power. Apart from the practical difficulties of implementing such a judgment (it would require the use of a set of individualised price indexes), the procedure would be inconsistent with the social function of prices of indicating relative scarcity or social cost, because it would confer a subsidy (tax) on the consumption of goods that have increased (decreased) in relative price since the base period. However, fortunately there is no intrinsic inconsistency between the intention to tax according to the distribution of real purchasing power and the absence of any correction for relative price movements in the assessment of real purchasing power. Provided market prices continually reflect relative scarcities, a person who suffers in the utility sense from a change in relative prices does not, as a consequence, experience a reduction in his command over the real value of scarce resources.

It might appear that this argument is upset when it is admitted that as a consequence of a change in relative prices only that it could be desired to alter the rate structure for the personal tax. For example, if the prices of goods entering the "needs" category were to rise relative to the prices of other goods, it would be appropriate to raise the level of personal exemptions and increase the rates of tax applicable
further up the income scale. This admits that the fundamental justification for progressivity as being required for vertical equity is utility based, and this admission extends to the horizontal equity rule and the whole rationale of (distributional equity in taxation) taxation according to ability-to-pay. However, the implication that individual preference functions should be taken into account in tax base design does not follow. Extension of the tax base to incorporate potential command over resource services comprehensively without reference to individual preferences between wealth and income flows, current consumption and saving, and consumption of different goods when relative prices change, is not to assume that individual preference functions are identical, but rather to adopt as a value judgment that it is the ability to command resources to satisfy personal wants, rather than the level of want satisfaction actually attained, that should form the tax base. In terms of the utility justification of the distributional equity rules for taxation, this value judgment can be re-stated: all persons should be regarded as having an equal capacity to derive satisfaction from a given lifetime accretion of real purchasing power (real purchasing power being defined in terms of a general index of purchasing power).

In summary, our conclusion can be expressed as follows. An accepted value judgment regarding personal taxation is that the tax should be levied on purchasing power relative to needs. In assessing relative needs, provision is made for taxpayer's number of dependents, medical requirements and possibly some other items. Apart from specified needs' requirements, the tax unit is regarded as having a complete discretion over the
exercise of its purchasing power, and it would be inappropriate to take account of the way in which this discretion is exercised in assessing relative taxpaying ability.

Consistent application of this rule in the context of capital gains attributable to a decline in interest rates requires that the capital gains be recognised as accretion of purchasing power. The security holder's preference as between present value of wealth and future income can be viewed in the same light as preferences between consumption goods, which are subject to changing price relativities.

The question of the appropriate relative treatment of capital gains (and losses) generated by interest rate variation, has raised some general issues regarding the precise form and the application of the fundamental equity principles on which the tax system is (or should be) based. Consequently, the foregoing discussion has involved considerable re-statement and elaboration of our interpretation of the meaning of taxation in accordance with ability-to-pay. In the course of this discussion it was concluded that the bond-holder's capital gains attributable to interest rate variation, should be subjected to tax in the same way as other forms of accretion. This conclusion is not confined to gain on bonds. Market yields on equities and real property also fluctuate through time. To this extent the holders of these assets will also experience capital gains and losses attributable to interest rate variation.

4. Gains caused by a rise in the general price level

If the market value of a person's assets and the prices of all goods and services increase in the same proportion,
it must be concluded that the monetary appreciation of asset values does not increase the individual's command over goods and services. The problem of assessing capital gains in the context of an unstable price level is, however, part of a wider issue, and will be discussed in this context.

Ability-to-pay, defined in terms of purchasing power relative to needs, implies that the personal tax base and rate structure should be defined in real rather than nominal monetary terms. Despite this, income taxes presently in force:

(i) express the rate structure as rates of tax applicable to income measured in terms of the monetary unit at its current value, \(^{12}\) and

(ii) define the tax base in nominal, rather than real, values.

The effect of expressing the rate structure in terms of income measured in current rather than constant money values is that during inflation, an unadjusted progressive rate schedule exacts a larger real tax from the units with any given level of real income. While this can be expected to change the relative treatment of tax units in different circumstances, \(^{13}\) expressing the rate structure in current rather than constant money values

\(^{12}\) Exceptions are Brazil, Chile, Denmark and Canada, where automatic mechanisms for adjusting the tax rate schedule for price and/or wage level variation, now apply. These provisions have been in operation in Brazil and Chile for some years but were legislated in Canada as recently as 1974. In the Netherlands and Iceland, provision exists for discretionary adjustment of the tax rate structure in accordance with the movement in an index. See Australia, Department of the Treasury, [2, pp.15-17].

\(^{13}\) Gates has shown that rising prices between 1954-55 and 1967-68 reduced the progressivity of the rate schedule operative in Australia for that period [9, pp. 229-230]. The effects of inflation on the effective progressivity of the rate schedule have recently been extensively reviewed by the Australian Committee of Inquiry into Inflation and Taxation.
does not discriminate against income derived in a particular form, or from a particular source *per se*. Nor is the equality of treatment of tax units with equal incomes impaired.

In inflationary times the failure to define the tax base in real terms discriminates, in a systematic fashion, against income derived from non-human wealth. This results in both horizontal and vertical inequities.

The procedure for adjusting the tax rate schedule for inflation is relatively straightforward, although there may be some debate about the choice of index. The administrative problems associated with adjusting for price level variation so as to measure the tax base in units of constant purchasing power are more formidable.

It is logical to measure the tax base in the same unit of purchasing power as that in which the tax is paid. If the tax is paid at the end of each year, based on accretion during that year, it is appropriate to measure the tax base in terms of its purchasing power equivalent at the end of the year. To do this it is necessary to distinguish consumption and change in net wealth as separate elements of accretion, and convert consumption expenditures and commencement asset values to values in terms of the purchasing power of money at the end of the year.

Thus, price level adjustment for a particular element of consumption expenditure involves multiplying the nominal outlay at the time by \((1 + \Delta)\), where \(\Delta\) represents the proportionate change in the general price level between the time of the expenditure and the end of the year. The adjustment is complicated, because price level change may be continuous, and
consumption expenditure spread over the whole year. Consequently the size of $A$ will be different for consumption occurring at different times during the year. A simpler treatment could be to assume that both price level variation and consumption expenditure occur at a constant rate during the year. It would then be possible to make the price level adjustment by multiplying the tax unit's total consumption expenditure for the year at current prices by $(1 + \frac{f}{2})$, where $f$ is the rate of price variation per annum.

The other element of accretion, change in net wealth, can be measured at end of year purchasing power, as the sum of the current value of gross assets held at the end of the year less the current value of gross assets held at the beginning of the year multiplied by $(1 + f)$, plus the current value of gross indebtedness at the beginning of the year multiplied by $(1 + f)$ less the current value of gross indebtedness at the end of the year.

5. Price level adjustment for Capital Gains only

Income taxes presently in operation define the tax base in nominal monetary terms, and either exclude or only partially include, capital gains in the tax base. Among several reasons that might be advanced for this apparently lenient treatment of capital gains is the recognition that in inflationary circumstances, taxation of nominal capital gains will result in tax being levied when there is no real accretion of purchasing power, and that the failure to tax real capital gains is offset to some extent (i.e., in some instances) by the failure to allow real capital losses on assets of fixed nominal value.
If partial inclusion of nominal gains is adopted as a device for excluding the inflation-induced component of gain from the tax base, the appropriate proportion of nominal gains to be added to other income is given by \( p = \frac{a - f}{a} \), where \( p \) = the proportion of nominal gains to be included in the tax base, \( a \) = the rate of appreciation of nominal asset value, and \( f \) = the rate of inflation.

If this were done further adjustments are required, in equity, to include the real gain on indebtedness in the tax base, and to allow real capital losses when the rate of appreciation in nominal asset value is less than the rate of inflation (for example, on interest bearing assets of fixed nominal value). However, even to perform the limited task assigned, \( p \) would need to be calculated separately for each asset each year. The partial inclusion procedure would then amount to a price level adjustment procedure. If, however, as is the case in countries applying a partial inclusion procedure, \( p \) is assigned a fixed value, \( \bar{p} \), then purely inflationary gains will be included in the tax base when \( a < \frac{f}{1 - \bar{p}} \), and real gains will be included in the tax base when \( a > \frac{f}{1 - \bar{p}} \). It may therefore be expected that the partial inclusion approach will function as a highly imperfect method of taxing real capital gains as income.

Use of a price index, then, appeals as the most satisfactory means of separating real and inflationary capital gains. However, there is opposition to the adoption of this approach. Apart from the fact that use of a price index for identifying real capital gains would add to the complexity of
tax base measurement, it is objected that the exclusion of inflationary gains from the tax base could be deleterious to the overall equity of the tax system. These objections appear to be based on the following propositions:

(i) because equity is a relative rather than an absolute concept, a tax base defined in nominal terms is satisfactory because it measures relative purchasing power;\(^\text{14}\)

(ii) adjustment for price level change is not applied to measuring other elements of accretion of purchasing power, and to apply it in measuring capital gains will create inequities;\(^\text{15}\)

(iii) the price index used, by virtue of its being an average, must inevitably be inaccurate in its application to the separation of inflationary and real gains for particular tax units.\(^\text{16}\)

These points are considered sequentially below. The discussion of (i) and (ii) is assisted by the use of an illustrative example, which separates real from nominal accretion by means of adjusting commencement-of-period asset values. The example does not extend to converting consumption expenditure at current prices to a measure in terms of constant purchasing power units, because such an adjustment is administratively more difficult to apply, and is less important for securing equitable treatment. The implications of excluding price level adjustment of consumption expenditure are, however, noted in the discussion.

\(^{14}\) This objection does not appear to be held by reputable commentators, but could have some popular support. The inclusion of this objection is useful, in that it adds to the completeness of the discussion.

\(^{15}\) This objection is raised by Simons [17, pp.155-6], Musgrave [12, pp.168-70], and Australia, Department of the Treasury [1, pp.11-12].

\(^{16}\) Mentioned by Musgrave [12, pp.168-9] and Australia, Department of the Treasury [1, p.1].
The illustrative example, which is set out in Table 4.5.1., assumes a rate of inflation of 5 percent per annum, so that assets valued at $1,000 at current prices at the beginning of the year have a commencement value of $1,050 in end-of-year purchasing power units. In the example it is assumed, for simplicity, that no assets are disposed of and no new assets acquired. By implication it is assumed that consumption expenditure at current prices for the period is:

A: $100
B: $0
C: $150
D: $205
<table>
<thead>
<tr>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tax Unit</strong></td>
<td><strong>Form of accretion</strong></td>
<td><strong>Form of non-human wealth</strong></td>
<td>( Q_0 P_0 )</td>
<td>( Q_0 P_1 )</td>
<td>( Q_1 P_1 )</td>
<td>( Z )</td>
<td>( Q_1 P_1 - Q_0 P_1 )</td>
<td>( Q_1 P_1 - Q_0 P_0 )</td>
</tr>
<tr>
<td>A</td>
<td>Wage</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>B</td>
<td>Capital gain</td>
<td>Non-depreciating physical assets or equities</td>
<td>1000</td>
<td>1050</td>
<td>1150</td>
<td>0</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>C</td>
<td>Interest</td>
<td>Fixed nominal value securities</td>
<td>1000</td>
<td>1050</td>
<td>1000</td>
<td>150</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>D</td>
<td>Business profit</td>
<td>Depreciable equipment</td>
<td>1000</td>
<td>1050</td>
<td>945</td>
<td>205</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

\( Q_0 P_0 = \) commencement of period net wealth at commencement of period money values.

\( Q_0 P_1 = \) commencement of period net wealth at end of period money values.

\( Q_1 P_1 = \) end of period net wealth at end of period money values.

\( Z = \) accretion, other than capital gain or loss, and excluding allowance for depreciation, at current values.

\( Z + Q_1 P_1 - Q_0 P_1 = \) net real accretion (see note below).

\( Z + Q_1 P_1 - Q_0 P_0 = \) net nominal accretion.

**Note:** The term net real accretion is not strictly correct, as price level adjustment is confined to opening asset values, and not extended to consumption occurring within the period.
Table 4.5.1. depicts the accretion experience of four tax units, each with a net real accretion of $100 at end-of-period money values. All except "A" derive their accretion from non-human wealth, but each derives his income in a different form. "B", whose assets appreciate by $150 at current prices, experiences real accretion at end-of-period prices of $100. This is revealed by adjusting commencement-of-period asset values for price level change during the period. "C", whose assets have a constant nominal value, experiences an accrued capital loss of $50 measured at end-of-period prices, and this is deducted from his interest receipts of $150 to show a net real accretion of $100.

"D" experiences a business profit before depreciation of $205 at current prices. If depreciation is allowed as the difference between opening and closing values at current prices, "D" will have recorded a nominal accretion of $150. If, however, depreciation is allowed as a fixed percentage (10 percent in the example), of assets on hand at the commencement of the period valued at end-of-period prices, "D" will have recorded a real accretion of $205 - 10% ($1,050) = $100.

The objections to making price level adjustment for the purpose of measuring capital gains but not other elements of accretion will now be considered in relation to the illustrative example.

"A" - because equity is a relative rather than an absolute concept, measurement of the tax base in nominal terms is satisfactory.

Inspection of Table 4.5.1. reveals that adjustment for price level change will alter the treatment of "B", "C" and "D"
relative to "A", but will not affect the tax treatment of "B", "C" and "D" relative to each other. Certain generalisations from this result are possible.

Firstly, failure to correct for price level change is irrelevant to the relative tax treatment of persons of equal net worth; opening gross assets and indebtedness (using the adjustment procedure adopted). This conclusion is modified when equal net worth is associated with different levels of accretion (not allowed for in the example) and a non-proportional tax rate structure. Also, this conclusion is conditional upon capital losses being recognised when nominal asset appreciation is less than proportionate to the increase in the general price level (illustrated by the treatment of "C" relative to "B").

Secondly, failure to correct for price level change penalises tax units with a larger than average ratio of net wealth to real accretion when the price level is rising (as in the example), and favours them when the price level is falling. As there is in fact considerable variation in the ratio of net worth to accretion between tax units, this effect is important in times of even moderate price level instability.

Some further observations not indicated in Table 4.5.1 may be made in relation to the effects of making a price level adjustment when measuring the change in asset values, but not when measuring consumption expenditure. To the extent that consumption occurred during the period, real accretion is understated in col. 8. of the Table. Assuming steady rates of consumption expenditure and inflation during the year, this understatement can be estimated by \( u = c \frac{f}{2} \) where \( u = \) the understatement of net real accretion at end-of-period prices;

\[ 17 \text{ or, correctly, gross assets and indebtedness.} \]
c = total consumption for the period at current prices, and
f = the rate of inflation per annum.

Thus, the under-statement of net real accretion in
col. 8 is: "A": $2.50; "B": $0; "C": $3.75, and "D": $5.12.
This distribution is a direct consequence of the extreme
assumption made for the purpose of simplifying the illustration
that each tax unit had, in the period, made consumption
expenditures precisely equal to their respective net cash
receipts.

In the example the magnitude of the error introduced
making this price level adjustment is small, relative to the
error that would be attributable to not making the adjustment
when measuring asset appreciation. This is because the
adjustment should be made to only one half of consumption
expenditure, while it should be made to the whole of the opening
asset value, and also because consumption expenditure for the
period is smaller than the opening asset values.

That consumption expenditure per annum is small
relative to net wealth is a condition that will not be satisfied
for a large proportion of tax units in practice. To the extent
that tax unit consumption expenditure is proportional to real
accretion, the failure to extend price level adjustment to
consumption will have the effect of reducing, probably to a
slight degree depending upon the rate of inflation, the effective
progressivity of the tax. Horizontal equity will not be impaired
unless there are significant variations in consumption spending
between tax units with the same real accretion. The effect in
reducing the progressivity of the tax structure will be
diminished, and may indeed be reversed, if consumption
expenditure increases less than proportionately with real
accretion.

In summary, it can be concluded that the proposition that measurement of the tax base in nominal terms is satisfactory because equity is a relative concept must be rejected, even in the context of fairly moderate price level variation. However, while price level adjustment in measuring changes in asset values is important for equitable treatment, there are reasons for expecting that the failure to extend this adjustment to the measurement of consumption is not likely to cause significant inequity.

"B" - because adjustment for price level change is not applied to measuring other elements of accretion, to apply the adjustment when measuring capital gains will create inequities.

In this context comparison is made between recipient of capital gain and tax units with an entitlement to claim a deduction for depreciation, that is, between tax units "B" and "D" in Table 4.5.1. The Table indicates that both "B" and "D" experience a net real accretion of $100, but if "D" is assessed on a tax base defined in nominal terms he will be taxed on $150. In practice, the over-statement of "D"s tax base will be spread over several years.

Although the Australian Income Tax Act permits alternative methods of calculating annual depreciation of equipment [Section 56], it requires that depreciation be calculated based on historical nominal cost. If "D"s equipment was purchased at the commencement of the year in question, \( Q_0 P_0 = $1,000 \) represents its historical cost. A permitted rate of depreciation of 10 percent per annum would

\[ \text{(18) This remains true even if the so-called diminishing value method is used.} \]
thus allow "D" a depreciation claim in respect of that equipment of $100 each year. If the depreciation claim was to be allowed at end-of-year prices, "D"s claim for the year in question would be 10 percent of $1,050 = $105. Thus, "D"s tax base would be calculated as $205 - $100 = $105 under the conventional historical cost accounting permitted by the Income Tax Act, but as $205 - $105 = $100 if adjustment for price level change is extended to computation of depreciation allowance. The over-statement of "D"s tax base as a consequence of historical cost accounting and the price level increase in the year in question would be $5 per year, spread over the 10-year depreciable life of the asset, an over-statement of $50 in all. It can be concluded that equitable treatment as between capital gains recipients and tax units with an entitlement to claim a deduction for depreciation requires that the price level adjustment be made when calculating depreciation, if it is made when measuring capital gains.

The case for adjusting the valuation of stock-in-trade for price level change is identical with the case for adjusting asset values for the determination of capital gains. Two persons receiving equal nominal appreciation, one from stock-in-trade, the other from other assets, in fact experience an equal accretion of real purchasing power. Exclusion of nominal capital gains but not the nominal appreciation of stock-in-trade from the tax base involves a departure from equitable treatment.

However, by accepting the last-in first-out as a basis for determining a cost price valuation of stock-in-trade in terms of Section 31, the administration of the Australian
income tax already permits a form of price level adjustment for valuing cost of goods sold or used in production.

Given that taxation according to ability implies measurement of accretion in real terms, enough has been said to show that significant inequity will result if price level adjustment of asset values is confined to the instance where capital gains are being assessed. The principle requires that the adjustment be made to all items in tax units' balance sheets. Apart from the adjustment necessary to identify real gains and losses on assets, in an inflationary situation the adjustment is required to identify the real gains that accrue to tax units with liabilities of fixed nominal value.

Despite this, extension of price level adjustment to assessment of capital gains only may result in a more equitable tax structure than one in which price level adjustment is not permitted at all. That is, if price level adjustment was extended but confined to situations in which capital gains are assessed, or in which capital gains would be assessed except for the price level adjustment, subject to the restriction that price level adjustment may not be permitted to create or increase an allowable capital loss, this may improve the equity of the tax system. In terms of the example contained in Table 4.5.1, such treatment would alter the situation from one in which group "B" individuals were treated equitably relative to group "C" and "D", but disfavoured relative to group "B" individuals to a situation in which group "B" persons are treated equitably relative to group "A" persons, and favoured relative to group "C" and "D" persons. If this results in a reduction in the money value of inequities perpetuated through the tax system, this may be regarded as improving the equity of the system.
"C" - a single price index must inevitably be inaccurate in its application to the separation of inflationary and real gains for particular tax units.

If saving was to be understood as consumption deferral, a consumption price index would be appropriate to the separation of real and illusory gains. Such a view of the purpose of saving is, however, inconsistent with the adoption of the income base for personal taxation. Under the income base individuals are taxed according to their respective accretion of claims over resource services comprehensively, irrespective of whether the claims are exercised for consumption or to obtain the services of investment goods. On such a view the appropriate index for separating real from nominal gains is a combined index of private sector consumption and investment goods prices.

However, even if the prices of private sector consumption and investment items is accepted as the generally relevant basis for discounting gains, there are objections to the adoption of a single index. In addition to the weighting of regimen items failing to correspond to the composition of consumption spending, plus the exercise of claims to the services of capital goods for particular individuals, the prices confronting different individuals are not uniform. These differences in consumption price experience may be traced to differences in tastes and climatically induced differences in the composition of consumption, regional price differences, and market imperfections.

Of these items, differences in tastes is excluded from further consideration by the requirement of an objectively observable tax base. Even if differences in tastes could be
taken into account, it is argued above (Section 3), that the judgment that they should be taken into account is not supported in principle. In addition, it would seem to be impossible to take account of the differential price experience of different persons attributable to market imperfections (for example, when higher prices are paid because of a poor knowledge of market conditions).

The existence of a consumer price index calculated on a regional basis would allow some recognition of regional or climatically induced differences in consumption behaviour, and regional differences in price level movements. If it is judged to be relevant to take account of the differential effects of price level movements when measuring the capital gains of the residents of different regions, it should also be judged to be relevant to take account of the different price levels prevailing as between regions in determining the relative purchasing power of equivalent amounts of ordinary money income in different regions. However, if the geographical distribution of population is an aspect of government policy, there are more direct and reliable ways of pursuing this objective than using regionally based price indexes for determining the relative taxpaying ability of the residents of different regions. For example, if the income tax is to be used for this purpose, rebates of tax may be made available to the residents of particular regions.

Finally, whatever the objections to applying a single price index to all tax units, and given the judgment that the taxation of capital gains is more equitable when it is confined
to real gains, the use of the price index judged to be the most relevant and reliable available for the purpose should produce a more equitable result than the alternative of taxing real and inflationary gains alike. This is true because a price index, simply because it is an average, must approximate the experience of most people with respect to movements in the purchasing power of their money more closely than the alternative implicit assumption of zero variation in the price level.
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1. Introduction

Apart from the question of whether or not capital gains should be taxed at all, perhaps the most fundamental issues pertaining to the tax treatment of capital gains and losses in relation to personal income taxation are:

(i) whether gains and losses should be measured in terms of money values only, or whether some adjustment for price level variation should be instituted so that capital gains and losses are measured in terms of change in real purchasing power; and

(ii) whether gains and losses should be recognised for taxation on accrual, or only on realisation.

However, among the countries taxing capital gains, there is no division on these issues in terms of actual practice. Without exception, capital gains and losses are recognised on realisation only, and measured in terms of money values without adjustment for price level variation.

A case for measuring capital gains and losses in terms of change in real purchasing power was argued in the previous chapter. The task of the present chapter is to state the case in principle for taxing capital gains on accrual, rather than on realisation, and to discuss implementation problems of the accrual basis.

The implementation difficulties to be considered are that taxation of capital gains as income on an accrual basis
would create problems of taxpayer illiquidity and asset valuation, and exacerbate the problem of dealing equitably with persons whose incomes fluctuate through time.

2. The case in principle

The issue in principle is essentially one of the correct timing of liability to tax. When accretion of purchasing power is adopted as the indicator of ability-to-pay, the argument that the time of actual realisation of income or gain is the conceptually correct time to levy the tax must rest on the proposition that the income or gain in question does not represent available purchasing power until it is actually converted into cash or (and even this might be opposed) exchanged for another asset.

At one level the objection here may be identified as originating in a traditional conception of income. The basis of the argument is not so much the acceptability or otherwise of an accrual basis of accounting, (it appears to be generally accepted that debtors' and creditors' balances should be taken into account when measuring income), as it is the proposition that income must be separated from its source before it can be recognised. However, the separation, or separability criterion, extends to supporting a conception of income that excludes capital gains, realised or otherwise, entirely. But, as has been argued above, (Chapter 4), the relevant question

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1 The so-called roll-over provisions of the United States Federal Revenue Code provide that the realised gains from the sale of a person's own residence may, instead of becoming immediately taxable, be deducted from the actual cost of a "new" residence to determine the cost basis for the assessment of taxable gain on the subsequent disposal of that residence.
in principle for determining whether a particular item should form part of the base for personal taxation is not whether that item is encompassed by a particular concept of income, but rather whether that item contributes to individual ability-to-pay.

On another interpretation, the objection to taxing capital gains on accrual is based on the proposition that the gains cannot be enjoyed by way of consumption until such time as they are realised. Apart from relying upon a positive proposition that is substantially incorrect (to the extent that the current market value of owned property is a determinant of an individual's borrowing capacity, accrued but unrealised capital gains do permit a higher level of current consumption), this form of objection to taxing gains on accrual contains an implied rejection of income, in favour of consumption, as an equitable base for personal taxation. However, once it is agreed that consumption plus saving is the approved indicator of ability-to-pay, then accrued capital gains should be seen as an element of saving (which may be offset by dissaving from other sources such as increasing one's indebtedness, as a means of financing current consumption), adding to a person's stock of wealth in the same way as any other source of saving.

A possible further element in the objection in principle to taxing capital gains on accrual appears to be the possible view that until realisation in some form is effected, power of ownership over the gains has not been exercised. However, it would be strange to argue that not selling is less an exercise of ownership (as power over resources and resource services) than is selling.
The case in principle for an accrual basis of recognising income for the purpose of personal taxation can be rested on the equal treatment rule. To secure equal treatment the timing as well as the amount of tax liabilities must be taken into account. So long as the rate of interest is positive it will always be an advantage to pay tax later rather than earlier. Adoption of a realisation basis of recognising income would confer an advantage on those who, in the normal course of events, did not realise assets that had increased in value, compared with a person who had the same value of asset appreciation but, for one reason or another, disposed of some of his assets. Equal treatment relative to command over the means to satisfy material wants, therefore, requires that, in principle, capital gains be recognised for taxation purposes on accrual, or that the interest value of tax deferred be added to the tax when tax is not assessed until realisation.

However, ultimately the superiority or otherwise of the accrual basis in equity depends upon how successfully it can be administered relative to the realisation basis.

Anticipated administrative difficulties of the accrual basis are discussed below, and administrative difficulties actually experienced by countries taxing capital gains on realisation are discussed in the next chapter.

3. Taxpayer Illiquidity

An objection that is likely to be raised against taxation of capital gains on accrual is that the tax liability may impose severe liquidity problems on the taxpayer, and indeed may force the realisation of some assets. If this objection is to be accepted, however, it must be accepted as
an objection to the use of the accrual basis generally in income taxation, and not merely in relation to capital gains, or it must be shown that taxation of unrealised capital gains will impose more serious liquidity problems than the taxation of other income not received in cash.

Section 19 of the Australian Income Tax Assessment Act provides that income does not have to be "actually paid over" to be assessable. In addition, the law courts have determined that where an accrual basis of accounting is required to "correctly reflect the true income" then an accrual basis must be employed in the determination of taxable income. Commercial Clearing House Australia Ltd. report that trading income generally, and the income of certain professional practices, must be returned on an accrued basis [6, para. 607].

However, if accrued capital gains were brought within the tax base, the frequency with which tax liabilities arise without there being an associated cash flow (that may be diverted to meet the tax liability) would increase substantially. Consequently, the question of appropriate relative treatment of taxpayers in receipt of a cash flow, and those who are not, would gain in practical importance. For convenience in the following discussion, taxpayers whose tax base is closely matched by a cash flow are designated Group "A", and those whose tax base substantially exceeds an available cash flow are designated Group "B".

To the extent that both groups of taxpayers intend to consume out of their respective accretions there is no difficulty. Group "B", in order to consume, must either realise part of their assets, or borrow. In both cases a cash receipt
is generated, placing Group "B" in the same position as Group "A", that is, their consumption capacity is reduced by the prior claims of taxation to the funds available.

In relation to taxpayers intending to save, it may be useful to subdivide Groups "A" and "B" into those interested in divisible asset holdings such as company shares, and those interested in indivisible (i.e., in relation to the taxpayer's total wealth, or income) assets, for example, real property or unincorporated business.

Firstly in relation to divisible assets, the effect of taxing the income of a Group "A" saver is that he will be able to purchase a smaller volume of assets only. Equity would seem to require that the asset appreciation of a Group "B" saver be taxed equally, even if it compels the sale of part of his asset portfolio.

In relation to indivisible assets, taxation of Group "A" persons will either lengthen the saving period, or increase the amount of borrowed funds required to purchase an asset of specific value, $x. The Group "B" person is in the position of already owning an asset of $x value, and is being taxed on its current appreciation. This liability to tax may force sale of the asset, which is effectively equivalent to lengthening the saving period of a Group "A" person, or oblige the Group "B" owner to borrow to retain ownership. Again, it would not appear that equitable treatment requires discrimination in favour of taxpayers not in receipt of a current cash flow.

The generalised emergent conclusion is that the possible illiquidity of capital gains recipients does not present a case in equity for not taxing gains on accrual. In passing it might
be noticed that the Australian income tax already contains provisions (Sections 206 and 207) by which taxpayers facing liquidity problems may be assisted.

4. Valuation

The weight of published opinion is against the adoption of an accrual basis for taxing capital gains because of, among other issues dealt with in this chapter, the problems of asset valuation. This is one point on which the majority and the minority of the U.K. Royal Commission on the Taxation of Profits and Income were in agreement [17, pp.26, 371-2]. Authors who favoured an accrual basis on other grounds have found the valuation problem to be an insurmountable objection. The elements of the valuation problem may be listed:

(i) the taxpayer compliance and collection agency administration costs involved in valuing, listing, and checking asset values;

(ii) the difficulty of finding a sufficiently objective basis of valuation that excessive disputation between taxpayers and the taxing authority would be avoided;

(iii) the avoidance that would result if valuation was confined to a limited range of easily valued assets. This avoidance would be reflected in a diversion of wealthholding into assets not subject to periodic revaluation (in times of rising asset values), resulting in taxation inequities and resource misallocation.

The valuation problem may not be as difficult of solution as might at first glance appear. Almost all capital gains would be accounted for by the asset categories:

2 Downing et.al., [10, p.122], Taxation Review Committee, [2, pp. 81,415].
(1) real property;
(2) listed shares;
(3) life assurance and superannuation, and
(4) unincorporated business goodwill and unlimited shares.  

Of these, official valuation of real property is required for other purposes, and revaluations take place at approximately five yearly intervals. Although official valuations are generally believed to be under-estimates of market value, researchers have found this to be a popular misconception.

Market values of listed shares are known and published. Average market values during the last month of the financial year would be a better basis for valuing shares than closing market values of the year, the reason for this being that market prices at a particular point in time can be fairly readily manipulated to show an artificially low value, but an attempt to sustain this value through time would generally prove prohibitively expensive. Life assurance policies could be valued at "paid-up value", and superannuation funds valued by reference to the assets of the fund (frequently life assurance policies). The only class of asset presenting real difficulty of valuation is the goodwill of unincorporated business, and the very similar goodwill element in the value of unlisted shares.

Thus, for assets generating very much the major part of capital gains, current market values, or reasonable approximations to current value, are readily available. The task of listing assets and liabilities at current value in

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3 See Chapter 8, Table 8.2.3. However, full identification of real gains and losses requires, as well, a record of ownership of assets and liabilities of fixed nominal value, see Chapter 8, Table 8.3.4.

4 See Neutze [13, p.70].
in income tax returns would not be unduly onerous, as the average number of items to be listed would be small, even though items of fixed nominal value would need to be included.

Secondly, of the asset classes, real property, listed shares and life assurance, it is only real property valuation that the taxpayer may have a basis for disputing, and even in this case the incentive to dispute valuation is not as strong as marginal rates of tax suggest. In the case of property and net wealth taxes, errors in property valuation affect the amount of tax payable, whereas in the instance of a gains tax such errors will only affect the timing of the tax liability, provided rates of tax are stable from year to year, and a satisfactory system of averaging is available.

With respect to the third element of the problem, the goodwill element in unincorporated businesses and unlisted shares remains the only major area readily available to absorb wealth diverted away from real property, listed shares, and life assurance. A means of removing the tax incentive for diverting wealth to these areas would be to assess gains on realisation (including transfer on death or by gift as constructive realisation), average the gains over the holding period (using the compound interest formula), re-compute the tax liability for each year of the holding period, and levy an interest charge on the amount of the tax liability that has been deferred.  

A more ambitious approach to the valuation problem associated with the taxation of capital gains on accrual was

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5 Helliwell [12] recommends the assessment of all capital gains on a realisation basis, subject to an interest charge on the deferred liability.
advocated by Martin David and Roger Miller before the U.S. House of Representatives Committee on Ways and Means in 1969 [9]. David and Miller proposed that all material accrued gains could be brought to account by:

Method A, using an official report of market prices;

Method B, which involved periodic (5 year) valuation by qualified auditors, with interim adjustment according to indexes of market value, and enforced by commitment to sell at a given percentage above valuation; and

Method C, based on government valuation for rating purposes.

Of these methods, A would be applied in relation to listed securities, B in relation to unlisted securities and unincorporated enterprises, and C to real property not elsewhere included [9, pp. 4281-2].

5. Fluctuating incomes

Inclusion of accrued capital gains will increase the fluctuations through time in the magnitude of the tax base for individuals in receipt of capital gains to the extent that:

(1) the volume of capital gains fluctuates more than the volume of income from other sources, and

(2) variations in the aggregate volume of capital gains and income from other sources are positively correlated.

To this extent the case for incorporating averaging provisions in the personal tax structure is strengthened when accrued capital gains are brought within a tax base from which capital gains were previously exempt.

The Australian income tax already contains some limited averaging provisions. Primary producers are automatically subject to a system under which the average rate of tax to be
applied to the current year's income is the rate applicable
to the average annual income of the current and the preceding
four years, provided that both the current year and average
income is not more than $16,000, and further, provided that
the taxpayer has not exercised his generally irreversible
right to withdraw from the averaging scheme (Sections
149-158 AC). Authors and inventors may have the average rate
of tax to be applied to the current year's income determined
as the rate applicable to their normal income, plus one-third
of their abnormal income of the current year (Sections
158 B-E).

The categories of taxpayer for which averaging
provisions are provided are particularly likely to experience
fluctuations in level of income, but the Australian arrangements
may be criticised in that they apply to taxpayers with income
from particular sources rather than taxpayers actually
experiencing fluctuation in income. In addition, the averaging
provisions only provide relief from the progressiveness of the
rate structure for taxpayers experiencing a rising level of
income. If the source and timing of receipts are to be
regarded as irrelevant to ability-to-pay, it is necessary that
averaging provisions should provide relief to all taxpayers
experiencing significant fluctuation in income level
independently of the direction of the current movement in
income level. A simple averaging procedure that satisfied
these requirements, now referred to as "block-averaging", was

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6 Special provisions operate when either the current year or
average income exceeds $16,000, and the averaging
provisions cease to apply when both current year and
average income exceeds $16,000.
proposed by Henry Simons in 1938, [16, pp. 153-5]. In 1966 the Canadian Royal Commission on Taxation recommended that block averaging provisions already available to farmers and fishermen be made available to all taxpayers experiencing significant fluctuation in income [5, Vol.3, Chap. 13]. However, the reforming legislation of 1971, while providing some limited general relief when an individual's income rises significantly, [4, Section 118], did not extend the application of the block averaging provisions, or provide a relief arrangement that would operate when a taxpayer's income falls.
REFERENCES


CHAPTER VI

A CASE FOR AN ACCRUAL BASIS FOR TAXING CAPITAL GAINS CONTINUED: PROBLEMS ASSOCIATED WITH THE REALISATION BASIS

1. Introduction

In terms of equity the conceptually correct treatment of capital gains under an income tax is to tax real capital gains (and allow deduction of real capital losses) as income on accrual. In the previous chapter difficulties associated with the administration of the accrual basis were identified, but argued to be not insurmountable. However, existing taxation of capital gains in the United States, United Kingdom, and Canada is on a realisation basis. The experience of the United States in particular has provided a basis for observing problems arising when capital gains are taxed on realisation. In the present chapter it is argued that these problems are attributable to the realisation basis rather than to the taxation of capital gains per se. These problems could be avoided entirely if capital gains were taxed on accrual.

2. Property transferred other than by ordinary sale

When realisation is adopted as the basis on which gains are recognised for taxation purposes, administration of the tax requires a definition of realisation. To define realised capital gain simply as the excess of the proceeds of disposition over a person's acquisition and maintenance costs in relation to a particular asset may be interpreted as precluding

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1 This proposition is supported by the discussion in Chapters III, IV and V above.
recognition of a realised gain when title to an asset is
transferred by *inter vivos* gift or bequest. If transfers and
bequests are not treated as realisations for the purpose of
assessing capital gains, the effect is to provide a simple
means for avoiding the tax on capital gains entirely.

In the United States, capital gains or losses are not
recognised as being realised when the title to property is
transferred by *inter vivos* gift or bequest. When property is
transferred for a price, but a personal relationship is
presumed to exist between the parties to the transfer, gains
are recognised but losses are not.

In the case of transfer by *inter vivos* gift, the
non-recognition rule extends to the treatment of the donee
in that, along with the property, the donee acquires the same
basis for calculating taxable gain on subsequent sale as would
have applied to the donor. When, however, property is
transferred on death, market value at the time of death is
treated as the cost of acquisition to the transferee for the
purpose of calculating the taxable gain or allowable loss on
subsequent disposal. By these rules the liability to tax on
accrued capital gains is:

 transferred to the donee, but deferred to
subsequent realisation in the instance of
*inter vivos* gifts;

effectively forgiven in the instance of assets
held until death.

In commenting on estimates of the proportion of gains
accrued during the holding period, which escape tax by passing
into a deceased estate, Martin David concluded that 75 percent
was a "minimum reasonable estimate" in relation to corporate
shares [11, pp.99], and in relation to gains on all assets,
that:

"if unrealised gains that accrued in past years were subject to taxation at death, the annual increment in the tax base would substantially exceed current reported net gains" [11, p.101].

The United States income tax treatment, in not recognising the accrued gains or losses of the transferor in the instance of *inter vivos* gifts and bequests, is explained by Seltzer as being a consequence of the Supreme Court applying the realisation criteria in the context of a physical, rather than value, concept of capital [17, pp. 36-42]. This does not, however, explain why Congress legislated the operation of a carry-over for determining the "cost" basis of the donees in the instance of *inter vivos* gift, while permitting the stepped-up basis in the instance of bequest.

In the United Kingdom the present treatment of transfers on death is effectively the same as those operative in the United States. However, transfers by *inter vivos* gift in the United Kingdom are treated as realisations at current market value, and the donor is assessed on appreciation accruing during his term of ownership.

In summary, in the United Kingdom accrued gains (but not losses) on property the subject of *inter vivos* gift, are recognised and taxed as gains of the donor, while in the United States such accrued gains are not recognised, and the donee acquires the donee's basis of cost on which subsequent gains on

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2 David, [11, p.155].

3 See Wheatcroft and Park [22, para. 8-01], and Whiteman *et al.*, [23, para. 8-04].

4 Wheatcroft and Park [22, para. 7-11].
realisation are calculated. Both the United Kingdom and the United States systems effectively forgive tax liabilities attaching to accrued gains on property which becomes the subject of a bequest by permitting a stepped-up basis for determining "cost" to the legatee.

These arrangements may be criticised as interfering with efficient market incentives for the deployment of resources, by encouraging the sale of assets that have depreciated in value, and the retention of assets that have appreciated in value, and also on equity grounds because they provide a means of avoiding taxation as an element of accretion of purchasing power.

It might be argued that a person who has disposed of an asset without monetary compensation should not be regarded as having realised a capital gain. However, existing income taxes generally do not permit the deduction of gifts or bequests in determining the donor's taxable income. This treatment, which accords the making of gifts and bequests the same status as discretionary consumption expenditure, is appropriate as it recognises that the making of gifts and bequests is an exercise of discretion over purchasing power, and not in the nature of an outlay incurred for the purpose of gaining income.

Consistency with this treatment would require that the making of *inter vivos* gifts and bequests of property be viewed as a realisation at the prevailing market value, of the property in

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5 The allocative efficiency argument is developed in Section 5 below.

6 Exceptions to this rule are frequently made in relation to gifts made to charitable organisations.
The need for recognition of transfer by gift or bequest as a realisation of assets for capital gains tax purposes is made even more pointedly if one is to consider, as an example, two deceased estates similar in all respects including the lifetime capital gains of the decedent but differing in that the gains were realised immediately prior to death in one instance but not in the other. Different treatment in such circumstances cannot be defended as being equitable.

While the full taxation of accrued gains on death does not require adoption of accrual as the general basis on which capital gains are taxed, it may be politically difficult to sustain full taxation on death under a system in which realisation is the general basis for assessment. Unrealised gains may account for a considerable proportion of particular deceased estates, and heavy taxation at the time of a death in the family may be regarded as imposing hardship, by virtue both of the amount and the timing of the liability to tax. In addition, efficient resource use may be impaired to the extent that due provision for this tax liability is not made and severe disruption, or even forced sale, of otherwise efficiently conducted family enterprises is entailed in discharging the

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7 The reformation of the Canadian income tax in 1971, which extended the base to include one-half of realised capital gains, provided that transfers on death and by inter vivos gift, except for interspousal transfers, be deemed to be realisations at market value for the purpose of determining the income tax liability of the transferror.

8 David finds that evidence compiled by McClung "suggests that half the shareholdings of decedents could be taxed if gains were presumed realised at death"[11, p.99].
liability to tax. These charges will be reinforced if a form of estate duty or death taxation is applied along with the tax on accrued capital gains. It is noted that the Canadian Federal estate tax was repealed on the restructuring of the income tax to incorporate taxation of capital gains. 9

The advantage of a general accrual basis for taxing capital gains, in the present context, is that the magnitude of untaxed gains at death will be very much diminished. Consequently the tax liability arising on death will not be of a sufficient magnitude to stimulate political opposition on grounds of hardship imposed. Nor will the argument in terms of severe disruption of business activity be justified.

Another set of circumstances in which the realisation basis for recognising taxable gains is in some difficulty is where the asset-holder's discretion over realisation is preempted by circumstances beyond his control. Although these gains should be subject to tax in order that the recipients be not treated unduly favourably relative to those who do not accrue capital gains to the same extent, it is arguable that taxpayers should be offered some relief in such instances so that they will be treated equitably relative to wealthholders who have not suffered the disadvantage of losing their discretion over the timing of the disposal of their assets. This case has been recognised in the United States by permitting a roll-over (i.e., no taxable gains are recognised on the realisation, and the cost

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9 See Bucovetsky and Bird [5]. Because the tax on the estates of deceased persons is based on capital value independently of whether the estates include unrealised capital gains, this tax substitution is not distributionally neutral.
basis of the assets realised is adopted as the cost basis of the replacement assets) when the proceeds of disposition are in the form of compensation by government for compulsory acquisition, or settlement of an insurance or damages claim for loss. It is a virtue of the accrual basis that when it is applied to forced disposal of assets it would create no difficult horizontal equity problems of this type.

3. Gains accumulated over several years

Taxation of capital gains on realisation will commonly result in asset appreciation that has accrued over several years being taxed in a single year. If gains are taxed as income under a progressive rate structure, this "bunching" of gains is likely to cause the capital gains recipient to pay more in tax than the recipient of an equal amount of regular income.

Counter to this, discretion over the timing of asset realisation permits the capital gains recipient to:

(i) time realisations strategically so as to offset fluctuations in income from other sources; and

(ii) defer realisation, and thereby derive an advantage equal to the interest value of the tax liability deferred.

Despite these opportunities that the realisation basis offers to taxpayers, the disadvantage that may be associated with the "bunching" of gains remains, and is incorporated in the argument used to persuade legislators that capital gains should not be subjected to rates of tax as high as those applied to other income.

Roll-over provisions have been extended to apply to gains on the disposal of owner-occupied residences as well, see David [11, pp.13-17].
Immediately capital gains are made subject to lower rates of tax than income from other sources, the problem becomes one of restricting the concession to the class of receipt intended. Just as the exclusion of capital gains from the tax base creates an incentive for people to convert income flows into capital receipts, so does the concessional treatment of capital gains. The difference lies only in the strength of the incentive. However, when a concessional, as opposed to zero, rate of tax is applied to capital gains, both legislators and the courts may be more willing to recognise particular forms of receipt as capital gain, because such recognition does not allow the gain to escape tax entirely. Thus, taxation of capital gains on a concessional basis may lead to increased erosion of the tax base. Effectively, the tax base may become smaller when capital gains are included than when capital gains are tax exempt, even though net capital gain is positive.

The complexity of the U.S. Internal Revenue Code as it relates to the taxation of capital gains is attributed to the desire to accord preferential treatment to capital gains, restrict the extension of this preferential treatment, and limit the deductability of losses, rather than a desire to ensure that capital gains are brought within the scope of the tax. 11

Until 1922, realised capital gains were taxed at the same rates as income from other sources. The decision to apply concessional rates was restricted to "long term" gains, and a

11 Summaries of legislated changes in the U.S. Internal Revenue Code as it relates to the taxation of capital gains is provided by Conway and Smith [10, Section 11], and Seltzer [17, pp. 20-4]. A recent summary of the statutory provisions is provided by David [11, Chap.11].
a minimum holding period of two years was prescribed as a necessary condition for concessional treatment. From 1942 the minimum holding period was shortened to six months. The extent of the concessional treatment is that long term gains are taxed a one-half the rate applicable to other income, subject to a maximum rate of 25 percent.

The extension of preferred treatment to long term capital gains has required a specification of the types of asset to which the preferential treatment applies. Specifically excluded from preferred treatment is trading stock, or property normally sold in the course of the taxpayer's business. Despite this, gain on the sale of certain assets that would be treated as ordinary taxable income under the Australian income tax, notably livestock, which accounted for slightly more than 6 percent of reported gains in 1959 and 1964, receive the preferential treatment accorded long term capital gains.

The present United Kingdom treatment of capital gains bears considerable similarity to that of the United States. There is a difference in historical experience, however. While law courts in the U.S. adopted a concept of income that included realised capital gains, the English courts have refused to recognise capital gains per se as income for tax purposes.¹⁴

¹² 1959 and 1964 being years for which the relevant data is reproduced in Bailey, [4, p.41] and David [11, p.74].

¹³ United States entry to the field of taxing capital gains was by means of a U.S. Supreme Court decision to the effect that the term "income" when used in the Income Tax Acts of 1913 and 1916, included casual gains on the sale of assets. See Conway and Smith [10, pp.43-4].

¹⁴ The U.K. courts have found capital gains to be taxable as income, not because the receipts were capital gains but on other grounds such as that the gains were actively sought. See United Kingdom Royal Commission on Taxation, [21, para.86].
Consequently, the U.K. entry into the field of taxing capital gains has been by means of legislation for that purpose. In 1962, Case VII was added to Schedule D of the Income Tax Act with the effect that short term capital gains would be taxed as income. In 1965 special capital gains tax legislation was introduced to tax realised long term capital gains at rates lower than those applied to other income. Thus, unlike the U.S., the U.K. taxes long term capital gains as capital gains, not as income subject to concessional treatment.

When the tax on short term gains was introduced in 1962, the tax applied to realisations within three years of purchase in the case of real property, and within six months for all other assets. On the introduction of the tax on long term gains in 1965, the division between long term and short term was altered to a uniform one year applicable to all assets.

The form of the concessional treatment of long term gains is that one-half of gains up to £5,000 stg., plus any excess over this amount, are added to and taxed as other income. Alternatively, the taxpayer may elect to have his long term gains taxed at a flat rate of 30 percent.

Canada, like the U.S. and the U.K., taxes capital gains more lightly than income from other sources. However, no division is made between long term and short term gains. One-half of all capital gains is added to, and taxed with, other income.

15 A discussion of the 1962 and 1965 legislation is available in Conway and Smith [10, pp.26-36].
16 The tax on capital gains was incorporated with a number of other tax reforms in Bill No. C-259 of 1971 [6], which received Assent in December 1971.
17 [6, Sections 38 and 31].
In summary, the tax treatment of capital gains in the U.S., the U.K. and Canada, is characterised by:

(i) application of lower rates of tax on capital gains than on income from other sources; and

(ii) except in Canada, specification of minimum holding periods required to qualify for the lower rates of tax.

This treatment may be criticised on equity grounds, because capital gains which confer ability-to-pay equal to other income are not taxed equally with other income, and on resource allocation grounds in that the holding period requirement reduces the fluidity of capital markets.

Arguments that may be raised to support preferential treatment of capital gains are firstly, that even real capital gains do not contribute to taxpaying ability equally with other forms of income; secondly, the capital gains actually taxed included nominal as well as real gains; and thirdly, taxation on a realised basis penalises the recipient of capital gains by treating as income of a single year, gains that have accrued over several years.

Of these arguments the first is rejected as being invalid. Although for some taxpayers real capital gains may be equal to or greater than nominal gains, this appears to usually not be the case, and the general validity of the second argument is accepted. However, this second argument, while relevant in the context of U.S., U.K., and Canadian treatment of capital gains, is not relevant to the present discussion, which is concerned with the taxation of real gains.

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18 See Chapter IV above.

19 See Chapter VIII, Table 8.3.2, below.
Thus, when real gains only are subject to the tax, only the third argument – which relates to the "bunching" of realised gains in time – remains to justify the application of lower rates of tax to capital gains. Even this argument is not free from objection. It may be legitimately pointed out that the asset-holder has a discretion over the timing of realisations of both gains and losses, and this can be utilised to confer benefits in the forms of tax liability deferral and the smoothing out through time of fluctuations that would otherwise occur in receipts subject to progressive taxation.

However, this objection may be held to be insufficient. When asset-holders regulate the timing of asset disposals according to taxation rather than productivity-before-tax criteria, socially efficient resource use is impeded. Further, the opportunity for securing equitable tax treatment through time by realising losses is denied to the successful investor who holds no assets that have depreciated in value.

The rationale of the "bunching" argument as a justification for the application of lower rates of tax to realised capital gains than those applied to other income is that the gains of several years are taxed as accretion of a single year, and a progressive rate structure applied to accretion on an annual basis taxes accretion that is concentrated in time more heavily than accretion that is more evenly distributed through time. Adoption of an accrual basis for taxing gains would thus avoid this argument for special rates of tax on capital gains, not because accrued gains would
necessarily constitute a more even flow through time, but because it would no longer be true that the gains of several years are being taxed in a single year. The temporal instability or rates of accrual of capital gains may still present a powerful case for the availability of averaging provisions when capital gains are taxed on accrual.

However legislators, in extending lower rates of tax to realised capital gains, appear to have been concerned with the effect that the realisation basis has of taxing the gains of several years as income in a single year, rather than the effect that the progressive rate structure has in penalising unstable rates of accretion. Thus in the U.S. and the U.K., the preferential rates of tax have been restricted in application to gains on assets held for more than a minimum specified interval of time. Consequently, movement to an accrual basis would remove the main existing accepted justification for taxing capital gains at lower rates than those applicable to other income. In addition, there would no longer be any need for legislative specifications relating to the term of asset ownership.

However, although adoption of an accrual basis together with an adequate system of averaging can overcome the equity and efficiency defects attaching to the realisation basis with

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20. The objective of excluding speculative and trading gains from the "preferential" treatment accorded long term capital gains has evidently been regarded as being of some significance by legislators (see Conway and Smith, [10, pp. 28, 51, 53, 57, 63]. However, it is not accepted here that the motivation of the recipient is relevant to the taxation treatment of specific items of accretion.
its attendant rate structure and minimum holding period specifications, adoption of an accrual basis is not essential to this purpose. Implementation of an adequate system of averaging through time, and provision that realised capital gains may be apportioned retrospectively over the period of ownership (and past tax assessments revised), would answer the case in equity for preferential treatment advanced under the "bunching" argument.

4. Capital losses

If capital gains are treated equally with other forms of income, equity and resource allocation criteria require that capital losses be treated equally with other kinds of loss. Generally this would require that capital loss offset against other income be not specifically restricted.

However, when realisation is the basis of determination of tax liability, unrestricted deductability of realised capital losses from other income would place property holders in a particularly favourable position. The strength of their position lies with their discretion regarding the timing of realisation. Losses may be realised, while gains are not, thus increasing the magnitude of tax deferral. If death is not treated as realisation in relation to the recognition of capital gains and losses, the extent to which tax may be avoided completely is increased, as losses may be realised during a lifetime while gains are not.

These alternatives are discussed by Seltzer [17, pp.295-313], Conway [9, pp.197-201], and David [11, pp.165-91]. Helliwell [15] proposes an apportionment formula that includes provision for charging the taxpayer interest on the deferred tax liability. Conway [9, pp.228-35] raises some general criticisms of holding period provisions.
The most extreme example of advantage from discretion over the timing of realisation has been designated "wash sale". This occurs when an asset holder realises assets that have depreciated in value but at the same time purchases identical replacement assets (e.g., sells a parcel of shares in a particular company, and at the same time buys another parcel of shares in the same company). This would allow an asset holder to claim a realised loss while his asset portfolio remains unchanged.

Legislators have responded to these problems by not allowing wash sales as realisations, and by limiting the extent to which capital losses may be deducted from other income. This creates an asymmetry of treatment as between gains and losses. While capital gains may be added to other income without limit, the deductability of capital losses from other income is restricted.

Another area of difficulty arises when the extension of concessional rates to gains requires, for symmetrical treatment required inter alia as an aspect of equity, that capital losses reduce a tax liability only at the lower rates of tax. When this requirement is recognised in the legislation, the incentive to avoid tax by having other income recognised as capital gains has added to it an incentive to avoidance in the form of having capital losses recognised as ordinary income losses.

In the United States the extent to which capital losses may be deducted from other income extends to short term as well as long term losses. If in a particular year a taxpayer experiences a net short term capital loss, this loss is deducted firstly from long term capital gains of the same year, and
secondly, against other income of that year, up to a limit of
$1,000. Any loss residue may be carried forward and set off
firstly against short term gains, secondly against long term
gains, and thirdly, against other income up to $1,000 in any
one year. The loss-carry-forward period is limited to five
years for companies, but is unlimited for individuals.

If a net long term capital loss is experienced in
a particular year this is deducted, firstly on a dollar-for-
dollar basis from net short term capital gain of the same
year and, secondly, two dollars of long term loss to one dollar
of other income from other income of the same year, up to a
limit of $1,000 of income. Any residue is carried forward
and set off against long term gains, short term gains, and
other income in the same manner in subsequent years. Once
again the loss-carry-forward period is limited to five years
for companies, but is unlimited for individuals.

The United Kingdom legislation provides that short
term losses may be offset against subsequent short term gains
only. A similar restriction applies to the offset facility for
long term capital losses. However, there is no restriction on
the carry-forward period.

In Canada, where there is no division between long
and short term capital gains, one-half of a taxpayer's net
capital losses in any year may be set off against income
of that year, taxable income of the preceding year, and taxable
income of succeeding years subject to the constraint that not
more than $500 of other income be cancelled by capital losses
in any one year.

Thus, loss offset provisions have two aspects.
Intra-period loss offset relates to the situation where a loss incurred in a particular activity, or in a particular form, is deducted from other income or gain of the same period in determining a taxpayer's net base on which tax is assessed for that year. Inter-period loss offset relates to the situation where a net loss incurred in a particular year is carried forward (or backward), and deducted from current income or gain in determining tax liability for succeeding years, (or revising tax liability for preceding years).²²

Acceptance of the principle that relative taxpaying ability should be determined by aggregating an individual's income and gains from different sources logically implies acceptance of intra-period loss offset as being required for equitable treatment. Similarly, recognition that the conventional accounting time period is too short for measuring relative ability to pay implies inter-period loss offset as being required by equity.²³

Opposition to income and gain taxation is frequently voiced on the resource allocation ground that such taxation discourages risk-taking. It has been argued by Arrow and Lind [1] that the substantial absence of markets for insuring against business risks results in a sub-optimal degree of risk-
pooling, and consequently a sub-optimal degree of risk-taking in the private sector. Acceptance of this conclusion implies approval of taxation provisions which encourage risk-taking, and disapproval of provisions which discourage risk-taking, on resource allocation criteria.

A risk averter will weigh risk of loss against expected gains in choosing between business opportunities. A tax on gains that embodies full loss offset provisions will reduce both the expected gain and risk of loss to the individual on any project. A priori analysis suggests that the response of a risk averter to the imposition of such a tax may be to reduce, leave unchanged, or increase the total (i.e., social) risk attaching to his business activity. However, if restrictions are imposed on the loss offset facility so that government participation in a favourable outcome is proportionately greater than government participation in an unfavourable outcome, then after-tax expected income is reduced by a greater proportion than is the risk borne by the individual, and the likelihood that the tax will encourage (discourage) risk-taking is reduced (increased).

Thus while full intra-period and inter-period loss offset provisions are favoured by equity criteria, and possibly favoured by resource allocation criteria, countries taxing capital gains restrict the extent to which capital losses may be offset against other income. These restrictions are made necessary, however, because capital gains and losses are only

24 "Risk" being defined in terms of some measure of dispersion of the (subjective?) probability distribution of expected outcomes.

25 This agnostic conclusion is the result of recent analyses of this question by Stiglitz [20], and Feldstein [14].
recognised for taxation purposes on realisation, and asset holders possess a discretion to realise losses but not gains. Adoption of an accrual basis for recognising gains and losses, in removing this discretion, clears the way for unrestricted offset of capital losses against other income.

5. Locking-in effect

Locking-in effect in relation to capital gains taxation refers to the effect of the tax in discouraging the realisation of assets. The structure of the capital gains tax provisions in the U.S. and U.K. provides three sources of dis-incentive to realisation of appreciated assets:

(i) taxation of short term gains at higher rates than long term gains encourages retention of appreciated assets until the lower rates of tax apply;

(ii) taxation on realisation only encourages retention of appreciated assets, as the accrued tax liability is equivalent to a conditional interest-free loan to the asset holder; and

(iii) forgiveness of the tax on accrued gains at death encourages retention of appreciated assets until death.

In relation to assets that have declined in value, corresponding loss provisions provide an inducement to realisation:

(i) within the short term period, in order that the losses qualify in full for deductability from other income;

(ii) in any case, sooner rather than later, as non-realisation amounts to providing an interest-free loan to the government; and

(iii) certainly before death, or the tax deduction entitlement will lapse.

The inequality of treatment that results when asset holders can avoid or defer tax liability on appreciated assets
is raised in Sections (2) and (3) above, and in Chapters III and V. Attention here will be confined to the nature of the resource mis-allocation argument that is associated with locking-in effect, and attribution of the effect among the causes listed above.

The possibility of consequent inefficient resource use is most easily seen in relation to real property and physical assets. Such assets may not be transferred to different ownership and higher yielding activity because of the tax incentive favouring retention by an existing owner. An illustration is delay imposed on the conversion of land from farming to suburban residential use.

The less obvious link between owners being locked-in to paper securities and inefficient use of real resources is discussed by Conway [9, pp. 305-7]. Points accepted by Conway are:

(1) that reduced liquidity of equities should reduce the flow and/or raise the cost of this form of investment financing, and

(2) that an asset holder may be discouraged from disposing of assets presently held in order to participate in the financing of a new venture [9, p.305].

Conway appears to be on less sure ground when he rejects the proposition that discouragement of asset switching will increase market instability by reducing the supply of securities [9, p.307]. The basis of Conway's rejection is that asset switching does not increase the net supply of securities on the market because such behaviour adds equally to both the demand and supply sides of the securities market. However, it is not only the overall securities market demand and supply
situation that is capable of influencing the deployment of real capital, but also the demand and supply situation relating to particular securities.

If the market price of a particular equity rises, some holders who would switch to another security may be discouraged from doing so by the prospect of being taxed on realised gains.\textsuperscript{26} Consequently, the selling pressure that dampens the rate and magnitude of increase in market price for particular equities is diminished, allowing the price of the security to rise above the level justified by the average market estimate of future earnings and discount for risk and time preference.\textsuperscript{27} The effect of this is to reduce the cost of financing expansion or new ventures below the social opportunity cost for firms experiencing market appreciation of their shares.

An opposite effect applies when the market value of particular equities falls. Equity holders who have experienced some capital loss are subject to a tax inducement to sell which further depresses the market value of the company's shares, thereby raising the cost of new finance to that company above the social opportunity cost.

\textit{A priori} arguments show how locking-in may occur. The U.S. experience with capital gains taxation offers some

\textsuperscript{26} This is recognised by Conway [9, p.306].

\textsuperscript{27} Conway [9, p.307] says that the market would not permit the yield to move too far out of line. This confidence in the rationality of the stock market is in sharp contrast with Keynes' [16, pp.153-8] view in 1936. Ultimately at issue is the significance of the induced departure from efficient market behaviour, and this complex and specialised problem is not pursued here.
evidence of the importance of the different causes of locking-in.

In relation to the effect of differential treatment of long and short term gains and losses for U.S. from 1950 to 1964:

(i) net short term gains as a proportion of total gains ranged between 2 - 5 percent, while net short term losses as a proportion of total losses ranged between 22 - 38 percent; and

(ii) short term losses exceed short term gains in ten of the fifteen years, while total net losses averaged 12 percent of total net gains for the period. 28

This apparently strong support for the expectation that the differential treatment of long and short term gains and losses will strongly and effectively encourage short term realisation of losses, and deferral of gain realisation to qualify for long term treatment, is not sustained by additional information available. Conway presents additional data, an extract of which is reproduced in Table 6.5.1:

TABLE 6.5.1

<table>
<thead>
<tr>
<th>Holding period</th>
<th>Gross gains</th>
<th>Gross losses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short term - up to 6 mths</td>
<td>5.4</td>
<td>21.3</td>
</tr>
<tr>
<td>Long term - 6-12 mths</td>
<td>6.0</td>
<td>21.7</td>
</tr>
<tr>
<td>1-2 yrs</td>
<td>8.2</td>
<td>25.3</td>
</tr>
<tr>
<td>more than 2 yrs</td>
<td>67.1</td>
<td>27.0</td>
</tr>
<tr>
<td>not available</td>
<td>13.3</td>
<td>4.7</td>
</tr>
<tr>
<td>Total:</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Conway [9, p.313].

28 Conway, [9, pp.310-1].
The data in Table 6.5.1 is consistent with the expectation that, whether for tax reasons or otherwise, losses will be realised early while realisation of gains is deferred. However, any impact of differential long and short term tax treatment on the timing of realisation is not apparent. Gain realisations in the 6-12 month holding period are not significantly greater than short term gains, and loss realisations in the 6-12 month period are approximately the same as short term losses.

In relation to the locking-in effect of the interest value of tax deferral and forgiveness of tax on death Bailey [4, pp.15-24] uses U.S. data on share value appreciation (i.e., gain accrual) and aggregate gain realisation from 1925-1961 together with alternative models of shareholder realisation behaviour to conclude that more than 67 percent, but less than 90 percent, of all accrued gains pass untaxed into deceased estates. While this information is of powerful significance to an appraisal of the equitability of the U.S. treatment, it makes no comparison with the proportion of unrealised gains that might be held at death in the absence of the gains tax.

Ultimately we are left with persuasive a priori grounds for expecting locking-in induced by differential treatment according to holding period and forgiveness on death to be significant, and for some locking-in encouraged by the interest value of tax deferral, but little firm corroborative evidence that these effects have in fact been important. Consequently, the virtue of an accrual basis of taxation in avoiding the generation of locking-effects continues to rest on expected asset holder behaviour unconfirmed by conclusive empirical
In conclusion it should be noted, however, that a full accrual basis of taxation is not necessary to remove incentives to locking-in. The Canadian legislation of 1971 provides for constructive realisation on death,29 and does not distinguish between long and short term gains and losses. The remaining incentive to locking-in is the interest value of tax deferral, and this can be overcome by means of an interest charge computed when realisation occurs.30

6. Conclusion

In Chapters IV and V it was argued that the equity principle underlying a personal income tax requires that real capital gains be taxed as income on accrual. It was recognised that the accrual basis for taxing capital gains presents implementation problems, but argued that reasonably equitable solutions that did not involve unacceptable levels of administration and compliance costs were available.

The present chapter, in considering the difficulties and imperfections associated with taxing capital gains on realisation, has reviewed relevant provisions of United States, United Kingdom, and Canadian taxing legislation, and drawn on the experience of the United States' administration of the realisation basis. Under the realisation basis:

(i) there is a case for special consideration when a taxpayer loses his discretion over the timing of the realisation of his assets;

29 Except when a spouse is the beneficiary.

30 A proposal for charging interest on tax liabilities deferred by non-realisation of gains is raised by Helliwell [15].
(ii) non-recognition of transfers by *inter vivos* gift and bequest as realisations at market value for tax purposes creates the opportunity to escape tax on capital gains entirely. However, treatment of transfers at death as a realisation at market value implies a level of taxation on deceased estates that could be politically difficult to maintain;

(iii) the "bunching" of gains of several years in the year of realisation is appealed to as supporting a case for exempting capital gains from the full progressivity of the income tax rate schedule;

(iv) the awarding of preferential rate treatment for capital gains leaves an incentive to convert ordinary income into capital gains and capital losses into income losses, and results in litigation and complex statutory provisions regarding the distinction between capital gain and loss and ordinary income gain and loss.

(v) the asset-holder's discretion to realise gains but not losses prevents symmetrical tax treatment of capital gains and losses.

These features of existing tax treatments of capital gains and losses not only imply inequitable treatment, but also provide incentives for inefficient resource use. The failure to provide symmetrical tax treatment of gains and losses may be expected to discourage risk-taking. The preferential rate treatment for capital gains is an incentive to invest in assets that yield a capital gain rather than an income return. The interest value of tax deferral, and the forgiveness of tax on accrued gains held at death provides an incentive to realise capital losses but not realise capital gains.

Adoption of an accrual basis for taxing capital gains provides the means for avoiding all of these problems. In addition, the accrual basis enjoys the virtue that the
record-keeping required is simpler than that necessary for the operation of a realisation basis. Under an accrual basis, reference back to historical data need never be for a period longer than one year, and the problem of lost data relating to purchase and holding costs is overcome. Related to this, it is easier to separate real from nominal gains when an accrual basis is operated, because values of all assets and items of indebtedness should be updated according to a price index movement annually.

An accrual basis for taxing capital gains is the preferred basis in terms of consistency with the rationale of the personal income tax. It is believed that the foregoing discussion makes a persuasive case to the effect that an accrual basis for taxing capital gains may be more amenable than a realisation basis to effective and equitable administration.
REFERENCES


PART B

DIFFERENTIAL INCIDENCE ESTIMATES OF ALTERNATIVE TAXATION TREATMENTS OF CAPITAL GAINS

The data used in the present chapter and the data for Chapters VII, IX and X are drawn from the Expenditure component of the Australian Survey of Consumer Expenditure and Finance 1985–86, undertaken by Professor Diana Edwards and Gates (21). Although the Expenditure component of the survey contains a larger sample (9,458 households compared with 7,714), the Finance component is adopted as the data source here because it contains the information on household assets and depreciation necessary for the estimation of capital gains tax burdens.
CHAPTER VII

THE DISTRIBUTION OF INCOME AND WEALTH

1. Introduction

Estimates of the incidence in Australia of alternative tax treatments of capital gains are presented in Chapters IX and X. These estimates are derived by attributing capital gains to particular assets in accordance with observed appreciation rates (Chapter VIII). The capital gains experienced by particular households will be positively correlated with the magnitude of the household's asset ownership, and the degree to which that asset portfolio is concentrated in assets experiencing higher rates of appreciation in value. Because of this relationship the present chapter, as well as presenting data that is interesting in its own right as a partial description of relative economic well-being in Australian society, provides some advance indication of the kinds of results that are obtained in Chapter IX.

2. The data

The data used in the present Chapter and the basic data for Chapters VIII, IX and X are drawn from the Finances component of the Australian Survey of Consumer Expenditures and Finances 1966-68, undertaken by Professors Drane, Edwards and Gates [2]. Although the Expenditures component of the Survey contains a larger sample (5,459 households compared with 2,754) the Finances component is adopted as the data source here because it contains the information on household assets and
liabilities, and more detailed information on income sources.

Although the data were collected and are stored in a form that permits identification of ownership of income and assets by individuals, the unit of reference for the Survey was the household, defined as a group of individuals living in the same dwelling and using, or relying upon, common cooking facilities. The one exception made to this rule is that a person boarding with a family is regarded as comprising a separate household. The sample for the Finances component (referred to hereafter as the Survey of Consumer Finances, or ASCF), was drawn from major cities and main country towns, as detailed in Table 7.2.1.

**TABLE 7.2.1**

**Survey of Consumer Finances - Sample Composition x Area**

<table>
<thead>
<tr>
<th>Area</th>
<th>No. of households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney</td>
<td>672</td>
</tr>
<tr>
<td>Melbourne</td>
<td>710</td>
</tr>
<tr>
<td>Brisbane</td>
<td>273</td>
</tr>
<tr>
<td>Adelaide</td>
<td>238</td>
</tr>
<tr>
<td>Perth</td>
<td>140</td>
</tr>
<tr>
<td>Hobart</td>
<td>56</td>
</tr>
<tr>
<td>New South Wales - country</td>
<td>220</td>
</tr>
<tr>
<td>Victoria - country</td>
<td>111</td>
</tr>
<tr>
<td>Queensland - country</td>
<td>128</td>
</tr>
<tr>
<td>Canberra</td>
<td>23</td>
</tr>
<tr>
<td>Wollongong</td>
<td>30</td>
</tr>
<tr>
<td>Geelong</td>
<td>35</td>
</tr>
<tr>
<td>Newcastle</td>
<td>98</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>2,754</strong></td>
</tr>
</tbody>
</table>

In the Survey, household income is disaggregated by the components:
(i) income from employment
(ii) unincorporated business income
(iii) miscellaneous income
(iv) property income (rent, interest, and dividends)
(v) regular annuity or superannuation income
(vi) capital items (lump sum payments from superannuation or private trust funds, assurance policy bonuses cashed, assurance policies matured or surrendered.
(vii) capital gains (gifts and other capital receipts)

Inclusion of *inter vivos* gifts and bequests in item (vii), capital gains, makes this item unlike that envisaged in capital gains taxation. A primary concept of income adopted in the succeeding discussion is designated regular income, and is comprised of the sum of items (i) - (v) from the list above. Thus defined, regular income approximates assessable income as presently defined under Australian income tax legislation.

Household gross assets is comprised of the sum of the values as at 30 June 1967 of real property, motor vehicles, bank accounts and cash, securities, equity in life assurance policies, equity in superannuation funds, and net worth of unincorporated businesses owned by the household. Household debt is comprised: debt on real property, principal debt on motor vehicles and appliances, bank loans, other loans, and budget accounts. Household net worth is equal to gross assets less debts.

3. The distribution of income and net wealth

The distribution of household regular income and household net wealth from the Survey of Consumer Finances is presented, by decile class intervals, in Tables 7.3.1 and 7.3.2. The ratios of standard deviation to mean value for these distributions are 0.859 for regular income, and 1.667 for net wealth. That this ratio is almost twice as large for the net wealth distribution indicates that, as is typically the case
<table>
<thead>
<tr>
<th>Decile</th>
<th>Regular Income Class Interval</th>
<th>No. of Households</th>
<th>Aggregate Regular Income for Decile</th>
<th>% of Survey Total Regular Income</th>
<th>Average Regular Income for Decile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>42 &amp; less</td>
<td>275</td>
<td>600</td>
<td>0.01</td>
<td>2</td>
</tr>
<tr>
<td>2nd</td>
<td>42-2083</td>
<td>276</td>
<td>293,200</td>
<td>2.78</td>
<td>1,062</td>
</tr>
<tr>
<td>3rd</td>
<td>2083-2641</td>
<td>275</td>
<td>662,880</td>
<td>6.28</td>
<td>2,411</td>
</tr>
<tr>
<td>4th</td>
<td>2641-3097</td>
<td>276</td>
<td>795,969</td>
<td>7.54</td>
<td>2,884</td>
</tr>
<tr>
<td>5th</td>
<td>3097-3524</td>
<td>275</td>
<td>911,033</td>
<td>8.63</td>
<td>3,313</td>
</tr>
<tr>
<td>6th</td>
<td>3524-4000</td>
<td>275</td>
<td>1,034,602</td>
<td>9.80</td>
<td>3,762</td>
</tr>
<tr>
<td>7th</td>
<td>4000-4578</td>
<td>276</td>
<td>1,174,705</td>
<td>11.13</td>
<td>4,256</td>
</tr>
<tr>
<td>8th</td>
<td>4578-5390</td>
<td>275</td>
<td>1,368,169</td>
<td>12.96</td>
<td>4,975</td>
</tr>
<tr>
<td>9th</td>
<td>5390-6800</td>
<td>276</td>
<td>1,655,317</td>
<td>15.68</td>
<td>5,998</td>
</tr>
<tr>
<td>TOP</td>
<td>6800 &amp; above</td>
<td>275</td>
<td>2,660,431</td>
<td>25.20</td>
<td>9,674</td>
</tr>
<tr>
<td>Total:</td>
<td></td>
<td>2,754</td>
<td>10,556,914</td>
<td>100.00</td>
<td>3,833</td>
</tr>
</tbody>
</table>
**TABLE 7.3.2**


<table>
<thead>
<tr>
<th>Decile</th>
<th>Net Wealth Class</th>
<th>No. of Households</th>
<th>Aggregate Net Wealth</th>
<th>% of Survey Total Net Wealth</th>
<th>Average Net Wealth for Decile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>521 &amp; less</td>
<td>275</td>
<td>-539,221</td>
<td>-1.49</td>
<td>-1,961</td>
</tr>
<tr>
<td>2nd</td>
<td>521-2594</td>
<td>276</td>
<td>378,746</td>
<td>1.05</td>
<td>1,372</td>
</tr>
<tr>
<td>3rd</td>
<td>2594-6974</td>
<td>275</td>
<td>1,322,578</td>
<td>3.66</td>
<td>4,809</td>
</tr>
<tr>
<td>4th</td>
<td>6974-9726</td>
<td>276</td>
<td>2,329,858</td>
<td>6.44</td>
<td>8,441</td>
</tr>
<tr>
<td>5th</td>
<td>9726-11469</td>
<td>275</td>
<td>2,914,257</td>
<td>8.06</td>
<td>10,597</td>
</tr>
<tr>
<td>6th</td>
<td>11469-13231</td>
<td>275</td>
<td>3,384,526</td>
<td>9.36</td>
<td>12,307</td>
</tr>
<tr>
<td>7th</td>
<td>13231-15328</td>
<td>276</td>
<td>3,930,546</td>
<td>10.87</td>
<td>14,241</td>
</tr>
<tr>
<td>8th</td>
<td>15328-18861</td>
<td>275</td>
<td>4,666,207</td>
<td>12.91</td>
<td>16,968</td>
</tr>
<tr>
<td>9th</td>
<td>18861-25991</td>
<td>276</td>
<td>6,017,142</td>
<td>16.64</td>
<td>21,801</td>
</tr>
<tr>
<td>TOP</td>
<td>25991 &amp; above</td>
<td>275</td>
<td>11,749,979</td>
<td>32.50</td>
<td>42,727</td>
</tr>
<tr>
<td>Total:</td>
<td></td>
<td>2,754</td>
<td>36,152,632</td>
<td>100.00</td>
<td>13,127</td>
</tr>
</tbody>
</table>
FIG. 7.3.1

Australian Survey of Consumer Finances [2]
Distribution of household regular income 1966-67
and household net wealth, 30th June, 1967

% of regular income and Net wealth

Percentage of Households
### TABLE 7.3.3

Australian Taxation Statistics [1]. Distribution of taxpayer actual income 1966-67

<table>
<thead>
<tr>
<th>Decile</th>
<th>Actual Income Class Interval ($; 000)</th>
<th>No. of Tax-payers</th>
<th>Aggregate Actual Income for Decile</th>
<th>As a % of Total Actual Income for Population</th>
<th>Average Actual Income for Decile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>417 - 988</td>
<td>492,707</td>
<td>356,477</td>
<td>2.53</td>
<td>724</td>
</tr>
<tr>
<td>2nd</td>
<td>989 - 1404</td>
<td>492,707</td>
<td>591,808</td>
<td>4.20</td>
<td>1,201</td>
</tr>
<tr>
<td>3rd</td>
<td>1405 - 1763</td>
<td>492,708</td>
<td>781,118</td>
<td>5.54</td>
<td>1,585</td>
</tr>
<tr>
<td>4th</td>
<td>1764 - 2131</td>
<td>492,707</td>
<td>959,960</td>
<td>6.81</td>
<td>1,948</td>
</tr>
<tr>
<td>5th</td>
<td>2132 - 2489</td>
<td>492,707</td>
<td>1,139,351</td>
<td>8.08</td>
<td>2,312</td>
</tr>
<tr>
<td>6th</td>
<td>2490 - 2846</td>
<td>492,707</td>
<td>1,313,226</td>
<td>9.31</td>
<td>2,665</td>
</tr>
<tr>
<td>7th</td>
<td>2847 - 3248</td>
<td>492,707</td>
<td>1,497,357</td>
<td>10.62</td>
<td>3,039</td>
</tr>
<tr>
<td>8th</td>
<td>3249 - 3794</td>
<td>492,708</td>
<td>1,724,607</td>
<td>12.23</td>
<td>3,500</td>
</tr>
<tr>
<td>9th</td>
<td>3795 - 4866</td>
<td>492,707</td>
<td>2,083,695</td>
<td>14.77</td>
<td>4,229</td>
</tr>
<tr>
<td>TOP</td>
<td>4867 &amp; over</td>
<td>492,707</td>
<td>3,655,490</td>
<td>25.92</td>
<td>7,419</td>
</tr>
<tr>
<td>Total:</td>
<td>4,927,072</td>
<td></td>
<td>14,103,089</td>
<td>100.00</td>
<td>2,862</td>
</tr>
</tbody>
</table>
FIG. 7.3.2


% of Households

% of Taxpayers
in such comparisons, net wealth is less equally distributed than income. This observation is confirmed by the Lorenz curves of Fig. 7.3.1.

Table 7.3.3 presents the distribution of "actual income" among Australian taxpayers for the income year 1966-67. "Actual income" is defined as the total of income from all sources, including tax exempt income for Australian residents, and total income from sources in Australia for non-residents, [1, p.5].

The relative inequality of the distribution of family regular income in 1966-67 from the Survey of Consumer Finances as compared with that of taxpayer "actual income" for that year from Taxation Statistics, is compared in Fig. 7.3.2. Apparent reasons for differences in the inequality of the distributions include:

(i) omission of incomes of less than $416 from the Taxation Statistics;

(ii) the Taxation Statistics being individually based while the ASCF data is household based. An effect of this is that young people not yet married, and widows and widowers who are probably relatively low income recipients, receive a one person weighting in the Taxation Statistics, but may receive a family weighting in the ASCF data.

4. The distribution of net wealth by household regular income and age of head

The income prospects of an individual may be expected to rest primarily on his ability and motivation. For an employee the attainment of more highly paid positions will depend upon such things as educational qualifications, training, experience, seniority, and demonstrated ability. For the persons who establish their own businesses the enterprises
should prosper with the cultivation of a clientele, establishment of the business name, experience of the proprietors, and the expansion of the capital base of the firm. Without attempting to be thorough, these constitute reasons for expecting household income to increase with the age of the household head up to the time when the head approaches the age of retirement.

Motives for saving include the acquisition of consumer durables for use during one's lifetime, provision for consumption of durable and non-durable goods during retirement, and possibly the making of bequests. The capital accumulation of a family unit is the aggregate of net savings from income, inheritances, and gifts received, and other windfalls. It may be expected that for most families, net wealth will increase until the head reaches the age of retirement, and decline thereafter.

Both family income and family net wealth are expected to be positively correlated with age of household head up to early or late middle-age, and inversely correlated with age of head after middle-age. In addition, family net wealth might be expected to contain some income generating assets, and current income is likely to be indicative of past accumulation possibilities. For these reasons, one expects to find a strong positive correlation between family income and family net wealth.

The expected positive correlation between household income and net wealth is not wholly confirmed by Table 7.4.1:
TABLE 7.4.1

Australian Survey of Consumer Finances [2] (ASCF) – Household Data: Distribution of households, average regular income, average net wealth, and average age of head by regular income class.

<table>
<thead>
<tr>
<th>Regular Income Class $</th>
<th>No. of Households</th>
<th>Average Regular Income 1966/67 $</th>
<th>Average Net Wealth 30.6.67 $</th>
<th>Average Age of Head (yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1,000</td>
<td>404</td>
<td>133.0</td>
<td>7,727.4</td>
<td>65.6</td>
</tr>
<tr>
<td>1,000 - 1,999</td>
<td>114</td>
<td>1,521.4</td>
<td>7,668.1</td>
<td>50.3</td>
</tr>
<tr>
<td>2,000 - 2,999</td>
<td>494</td>
<td>2,536.5</td>
<td>6,666.5</td>
<td>45.6</td>
</tr>
<tr>
<td>3,000 - 3,999</td>
<td>629</td>
<td>3,456.4</td>
<td>8,745.8</td>
<td>41.3</td>
</tr>
<tr>
<td>4,000 - 4,999</td>
<td>421</td>
<td>4,415.9</td>
<td>10,788.2</td>
<td>42.5</td>
</tr>
<tr>
<td>5,000 - 5,999</td>
<td>289</td>
<td>5,422.1</td>
<td>12,622.1</td>
<td>43.6</td>
</tr>
<tr>
<td>6,000 - 6,999</td>
<td>154</td>
<td>6,464.9</td>
<td>15,583.2</td>
<td>44.5</td>
</tr>
<tr>
<td>7,000 - 8,999</td>
<td>151</td>
<td>7,816.0</td>
<td>20,318.4</td>
<td>45.2</td>
</tr>
<tr>
<td>9,000 - 11,999</td>
<td>64</td>
<td>10,127.5</td>
<td>37,000.3</td>
<td>51.0</td>
</tr>
<tr>
<td>Over 11,999</td>
<td>34</td>
<td>19,193.1</td>
<td>58,441.6</td>
<td>48.8</td>
</tr>
<tr>
<td>All households:</td>
<td>2,754</td>
<td>3,833.3</td>
<td>11,184.8</td>
<td>47.2</td>
</tr>
</tbody>
</table>
For incomes up to the class $2,000-$2,999 there is a net (but weak) negative correlation between income and net wealth. An explanation for this, however, appears to be offered by the average age of head column. As income rises from the range under $1,000 to the range $2,000-2,999, the average age of household head falls from 65.6 years to 45.6. That is, the lowest income groups are dominated by older families, whose net wealth reflects a lifetime's accumulation, whereas the middle income groups contain a much larger proportion of young families in their early years of accumulation. For income groups above the $2,000-$2,999 range, the correlation between average income and average net wealth is uniformly positive.

The relationship between both regular income and net wealth and age of household head is illustrated in Table 7.4.2. Regular income increases with age of head up to the age of head range 45-54 years, and declines thereafter, while net wealth increases up to the age of head range 55-64 years.

**Table 7.4.2**
ASCF [2] household data: distribution of households, average regular income, average net wealth, and average age of head x age of household head class

<table>
<thead>
<tr>
<th>Age of Household Head Class (yrs)</th>
<th>No. of households</th>
<th>Av. regular income 1966/1967</th>
<th>Av. Net Wealth 30.6.67</th>
<th>Av. Age of head (yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>75</td>
<td>$3,068.1</td>
<td>$1,593.0</td>
<td>22.3</td>
</tr>
<tr>
<td>25-34</td>
<td>562</td>
<td>$3,957.0</td>
<td>$6,118.5</td>
<td>29.9</td>
</tr>
<tr>
<td>35-44</td>
<td>698</td>
<td>$4,457.7</td>
<td>$10,518.5</td>
<td>39.6</td>
</tr>
<tr>
<td>45-54</td>
<td>588</td>
<td>$4,725.6</td>
<td>$14,326.0</td>
<td>49.2</td>
</tr>
<tr>
<td>55-64</td>
<td>393</td>
<td>$3,822.2</td>
<td>$15,355.2</td>
<td>59.2</td>
</tr>
<tr>
<td>64+</td>
<td>438</td>
<td>$1,622.5</td>
<td>$12,430.7</td>
<td>72.1</td>
</tr>
<tr>
<td>Total:</td>
<td>2,754</td>
<td></td>
<td></td>
<td>47.2</td>
</tr>
</tbody>
</table>
### TABLE 7.4.3

ASCF[2] Household Data: Distribution of households (N) and Average Net Wealth (W) by regular income and age of head classes.

<table>
<thead>
<tr>
<th>Regular Income Class - $</th>
<th>Under 25</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>Over 64</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N.</td>
<td>W.</td>
<td>N.</td>
<td>W.</td>
<td>N.</td>
<td>W.</td>
</tr>
<tr>
<td>Under 1,000</td>
<td>10</td>
<td>$494.6</td>
<td>12</td>
<td>$2066.8</td>
<td>16</td>
<td>$479.4</td>
</tr>
<tr>
<td>1,000 - 1,999</td>
<td>8</td>
<td>431.5</td>
<td>15</td>
<td>4463.5</td>
<td>22</td>
<td>4080.2</td>
</tr>
<tr>
<td>2,000 - 2,999</td>
<td>21</td>
<td>1567.0</td>
<td>117</td>
<td>4526.6</td>
<td>116</td>
<td>6571.5</td>
</tr>
<tr>
<td>3,000 - 3,999</td>
<td>20</td>
<td>1590.9</td>
<td>185</td>
<td>5416.1</td>
<td>207</td>
<td>8344.4</td>
</tr>
<tr>
<td>4,000 - 4,999</td>
<td>8</td>
<td>1863.3</td>
<td>109</td>
<td>6323.7</td>
<td>134</td>
<td>10780.2</td>
</tr>
<tr>
<td>5,000 - 5,999</td>
<td>4</td>
<td>2074.5</td>
<td>70</td>
<td>8212.2</td>
<td>83</td>
<td>11532.2</td>
</tr>
<tr>
<td>6,000 - 6,999</td>
<td>0</td>
<td>-</td>
<td>30</td>
<td>8941.9</td>
<td>48</td>
<td>16080.4</td>
</tr>
<tr>
<td>7,000 - 8,999</td>
<td>3</td>
<td>4524.3</td>
<td>18</td>
<td>11847.8</td>
<td>54</td>
<td>16383.1</td>
</tr>
<tr>
<td>9,000 - 11,999</td>
<td>1</td>
<td>9572.0</td>
<td>4</td>
<td>16500.3</td>
<td>10</td>
<td>37928.1</td>
</tr>
<tr>
<td>Over 11,999</td>
<td>0</td>
<td>-</td>
<td>2</td>
<td>1796.0</td>
<td>8</td>
<td>39672.3</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>1593.0</td>
<td>562</td>
<td>6118.5</td>
<td>698</td>
<td>10518.5</td>
</tr>
</tbody>
</table>
The purpose of Table 7.4.3 is to further illustrate the relationship between net wealth and income, and age of household head. Reading down the columns one observes the movement in the average net wealth of income groups as income increases, while variation in age of household head is restricted within specified limits. Reading across the rows, movement in average net wealth of households grouped by age of head is observed as age of head increases, while variation in household income is limited to a specified range.

Reading down the columns permits 52 observations of movement in group average net wealth as income increases, age of household head held approximately constant, and reading across the rows allows 48 observations of movement in group average net wealth as age of household head increases while income is held approximately constant. There are 100 observations of movement in group average net wealth in all. Our expectation is that net wealth will generally increase with income, and will increase with age of household head except perhaps for the movement from the 55-64 years age group to the over 64 group. In fact, a positive correlation between net wealth and income and net wealth and age of head is recorded for 87 of the 100 observations.

Each of the comparisons made involves samples from the sub-groups in the parent population, (roughly the national population). In Table 7.4.3 there are 58 of these samples, and the average sample size is 47.5 households. Of the 13 instances in which a positive correlation was not observed there are 11 instances in which one of the samples involved in the observation is below average size, and 8 instances in which both
samples are below average size. The grouped data of Table 7.4.3 are suggestive of a very reliable positive correlation between net wealth and income, and net wealth and age of household head.

Although Table 7.4.3 indicates the direction, and is suggestive of the reliability of relationships in the ungrouped data, it does not readily permit conclusions about the strength of the relationships in question. To gauge the importance of the relationship between net wealth and income, linear least squares regressions for the entire sample and for each subgroup identified by age of household head have been computed. These regressions are presented in Table 7.4.4 and Fig. 7.4.1.

The positive correlation between net wealth and income is confirmed in each of the regressions, and the proportion of sample mean net wealth "explained" by the dependent variable, income, is 70.8 percent for the total sample, and varies between 41.1 percent and 111.7 percent for the sample subgroups. The values obtained for all support the hypothesis that the relationships identified in the samples make significant inferences about the respective parent populations at the 99 percent confidence level. The values of $r^2$ indicate that 13.3 percent of the variance in net wealth for the total sample is explained by the regression, and that between 7.3 percent and 32.4 percent of the variance in net wealth in each of the subgroups is explained by the respective regressions. In summary, it would appear that the positive correlation between net wealth and income is very significant, but that variations in income explain only a relatively small proportion of the variation in net wealth even when age of head as a cause of variation in net wealth is substantially eliminated.
<table>
<thead>
<tr>
<th>Age of Household Head Class (yrs)</th>
<th>No. of Households</th>
<th>Regression equation ($)</th>
<th>$\bar{R}$&lt;sup&gt;(a)&lt;/sup&gt;</th>
<th>$r^2$</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sample</td>
<td>2754</td>
<td>$W = 3262.5 + 2.06671R$</td>
<td>0.708</td>
<td>0.133</td>
<td>20.56</td>
</tr>
<tr>
<td>Under 25</td>
<td>75</td>
<td>$W = -70.4523 + 0.542167R$</td>
<td>1.044</td>
<td>0.106</td>
<td>2.94</td>
</tr>
<tr>
<td>25-34</td>
<td>562</td>
<td>$W = 2362.92 + 0.949086R$</td>
<td>0.614</td>
<td>0.073</td>
<td>6.64</td>
</tr>
<tr>
<td>35-44</td>
<td>698</td>
<td>$W = 6195.57 + 0.969771R$</td>
<td>0.411</td>
<td>0.125</td>
<td>9.97</td>
</tr>
<tr>
<td>45-54</td>
<td>588</td>
<td>$W = -1674.21 + 3.38585R$</td>
<td>1.117</td>
<td>0.324</td>
<td>16.78</td>
</tr>
<tr>
<td>55-64</td>
<td>393</td>
<td>$W = 2732.72 + 3.30239R$</td>
<td>0.822</td>
<td>0.271</td>
<td>12.05</td>
</tr>
<tr>
<td>Over 64</td>
<td>438</td>
<td>$W = 6628.81 + 3.57588R$</td>
<td>0.467</td>
<td>0.149</td>
<td>8.75</td>
</tr>
</tbody>
</table>

(a): $b$ is the calculated rate of change in net wealth relative to the rate of change in income. $\bar{R}$ and $\bar{W}$ are the mean values of income and net wealth for the respective sub-groups.
FIG. 7.4.1

Regressions of accumulated net wealth on regular income - ASCF [2] data with households grouped by age of head (in yrs)

It seems likely that average income is an index of the quality of incomes, and for the youngest group, there has been some increase in the levels of accumulation, the quality of incomes as a proportion of wealth, and the degree of inequality.

In summary, it is relevant to be extending research on income, wealth, and inequality to consider how it affects income and wealth, and to examine the relative contribution of income and wealth to inequality. The results presented in Table 7.4.1 indicate that the regression equation can be used in conjunction with the variance in happiness, and the values of x indicate only one instance in which the regression equation can be used for the variable income. However, it appears that age is an important factor in the

Net wealth ($,000) 
* denotes regular income ($,000)
\( \times \) denotes mean values for group
It is perhaps surprising that income as an explanator of variation in net wealth is weaker for the two youngest age groups than it is for the total population when the influence of age on net wealth is present along with income. However, it seems likely that current income is an indicator of past income and, for the youngest groups, there has been little time for differences in income to be reflected in differences in levels of accumulation. The quality of income as a predictor of net wealth also declines for the oldest groups. This could reflect some moderation of income demands by those approaching and passing retirement age when the level of provision for retirement needs is judged to approach adequacy.

5. The distribution of indebtedness by household regular income, net wealth, and age of head

Indebtedness is relevant to the succeeding discussion of capital gains. Incurring debt is a means of securing assets on which capital gains may accrue, and in inflationary periods the debt itself is a source of real capital gains. The ability to incur debt is expected to be positively correlated with income and net wealth, and inversely correlated with age as expected future earning capacity and life expectancy decline. Regressions of indebtedness on net wealth for the total sample, and for age sub-groups are presented in Table 7.5.1.

Except for the under-25 groups, the regressions indicate a negative correlation between net wealth and indebtedness. However, the values of $r^2$ indicate only one instance in which the regression explains as much as 2 percent of the sample variance in indebtedness, and the values of $t$ indicate only one instance in which the regression equation can be regarded as making a significant (at the 95 percent confidence level)
### TABLE 7.5.1


<table>
<thead>
<tr>
<th>Age of Household Head Class (yrs)</th>
<th>No. of Households</th>
<th>Regression Equation - $</th>
<th>$r^2$</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sample</td>
<td>2754</td>
<td>$D = 2,167.18 - 0.00275W$</td>
<td>0.000</td>
<td>-0.82</td>
</tr>
<tr>
<td>Under 25</td>
<td>75</td>
<td>$D = 765.707 + 0.104861W$</td>
<td>0.020</td>
<td>1.21</td>
</tr>
<tr>
<td>25-34</td>
<td>562</td>
<td>$D = 3,123.309 - 0.047367W$</td>
<td>0.004</td>
<td>1.53</td>
</tr>
<tr>
<td>35-44</td>
<td>698</td>
<td>$D = 2,590.6 - 0.035489W$</td>
<td>0.013</td>
<td>3.07</td>
</tr>
<tr>
<td>45-54</td>
<td>588</td>
<td>$D = 2,102.94 - 0.003787W$</td>
<td>0.000</td>
<td>0.52</td>
</tr>
<tr>
<td>55-64</td>
<td>393</td>
<td>$D = 1,171.9 - 0.005912W$</td>
<td>0.003</td>
<td>-1.17</td>
</tr>
<tr>
<td>Over 64</td>
<td>438</td>
<td>$D = 314.601 - 0.00077W$</td>
<td>0.001</td>
<td>-0.50</td>
</tr>
</tbody>
</table>

......
inference about the parent populations.

Table 7.5.2 shows the distribution of average indebtedness when the sample population is disaggregated by income and age of household head. Reading down the columns one observes the movement in average indebtedness as income increases, while age of household head is constant. Of 54 observations, 34 show indebtedness to increase with income, and 18 show indebtedness to decline as income increases. However, of the 18 observations of an inverse relationship, 13 occur when the sub-sample is of less than average size. It might be concluded that the Table is suggestive of a weak positive correlation between indebtedness and income.

Reading across the rows in Table 7.5.2, we observe the movement in level of indebtedness as age of household head increases and variation in income is restricted. An inverse correlation between indebtedness and age of head is revealed in 36 of the 48 observations. A positive correlation between indebtedness and age of head dominates in the comparison of the under-25 and the 25-34 years groups, the negative correlation begins to dominate when comparison is between the 25-34 and 35-44 age groups, and this dominance of the negative correlation increases for the next comparison, and becomes absolute for the last two comparisons. It might be concluded that the correlation between indebtedness and age of household head is positive up to some age of head within the interval 35-44 years, and is negative beyond that age.
<table>
<thead>
<tr>
<th>Regular Income Class - $</th>
<th>Under 1,000</th>
<th>1,000 - 1,999</th>
<th>2,000 - 2,999</th>
<th>3,000 - 3,999</th>
<th>4,000 - 4,999</th>
<th>5,000 - 5,999</th>
<th>6,000 - 6,999</th>
<th>7,000 - 8,999</th>
<th>9,000 - 11,999</th>
<th>Over 11,999</th>
<th>Total:</th>
</tr>
</thead>
<tbody>
<tr>
<td>N.</td>
<td>D.</td>
<td>N.</td>
<td>D.</td>
<td>N.</td>
<td>D.</td>
<td>N.</td>
<td>D.</td>
<td>N.</td>
<td>D.</td>
<td>N.</td>
<td>D.</td>
</tr>
<tr>
<td>Under - 1,000</td>
<td>10</td>
<td>0.0</td>
<td>12</td>
<td>$2323.3</td>
<td>16</td>
<td>$295.9</td>
<td>35</td>
<td>$643.6</td>
<td>54</td>
<td>$345.6</td>
<td>277</td>
</tr>
</tbody>
</table>
6. The composition of Gross Assets by household regular income and age of head

The immediate determinants of a household's real capital gains in a particular year are the household's indebtedness and the magnitude and composition of its gross assets. Data on the distribution of indebtedness and net wealth have been presented in preceding sections. The present section looks at the distribution of the composition of gross assets.

Table 7.6.1 shows the composition of the value of gross assets by income classes. Real property, of which the family home is the dominant element, emerges as by far the most important asset type, followed by equity in superannuation schemes and bank accounts and cash. Real property accounts for a declining proportion of gross asset value as income increases. Equity in superannuation arrangements is of considerable importance to upper, but of less importance for the highest, income groups, and fades to negligible importance for the low income groups. Bank accounts and cash are of greatest relative importance for the lowest and highest income groups. Motor vehicles and life assurance are of relatively minor importance for all groups, and of least importance in the asset portfolios of the lowest income groups. Equities (shares) and value of own business account for a significant proportion of gross asset value only for the highest income groups. The negative value of own business for the $2,000-$2,999 income class is attributable to a negative average value of own business a little over $10,000 for that income class in the group with household heads aged 65 and over.
### TABLE 7.6.1

ASCF [2] Household Data: % composition of value of gross assets by asset type by regular income class

<table>
<thead>
<tr>
<th>Regular Income Class - $</th>
<th>Real Property</th>
<th>Motor Vehicles</th>
<th>Bank A/cs and Cash</th>
<th>Bonds &amp; Debentures</th>
<th>Equities</th>
<th>Loans</th>
<th>Life Assurance</th>
<th>Super-annuation</th>
<th>Value of Business</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1,000</td>
<td>81.9</td>
<td>1.6</td>
<td>11.7</td>
<td>1.1</td>
<td>1.7</td>
<td>1.2</td>
<td>0.7</td>
<td>0.0</td>
<td>0.0</td>
<td>100.0</td>
</tr>
<tr>
<td>1,000 - 1,999</td>
<td>74.8</td>
<td>2.8</td>
<td>11.8</td>
<td>1.8</td>
<td>1.2</td>
<td>1.3</td>
<td>2.4</td>
<td>1.0</td>
<td>2.9</td>
<td>100.0</td>
</tr>
<tr>
<td>2,000 - 2,999</td>
<td>85.2</td>
<td>4.8</td>
<td>8.6</td>
<td>1.4</td>
<td>3.8</td>
<td>0.6</td>
<td>3.5</td>
<td>3.7</td>
<td>-11.6</td>
<td>100.0</td>
</tr>
<tr>
<td>3,000 - 3,999</td>
<td>74.1</td>
<td>4.4</td>
<td>6.0</td>
<td>0.4</td>
<td>2.5</td>
<td>0.8</td>
<td>3.7</td>
<td>7.3</td>
<td>0.9</td>
<td>100.0</td>
</tr>
<tr>
<td>4,000 - 4,999</td>
<td>65.5</td>
<td>3.9</td>
<td>7.1</td>
<td>1.2</td>
<td>2.1</td>
<td>1.6</td>
<td>4.0</td>
<td>11.3</td>
<td>3.3</td>
<td>100.0</td>
</tr>
<tr>
<td>5,000 - 5,999</td>
<td>64.3</td>
<td>4.4</td>
<td>8.0</td>
<td>1.2</td>
<td>2.7</td>
<td>0.6</td>
<td>3.9</td>
<td>13.4</td>
<td>1.5</td>
<td>100.0</td>
</tr>
<tr>
<td>6,000 - 6,999</td>
<td>59.5</td>
<td>4.3</td>
<td>8.1</td>
<td>1.5</td>
<td>4.5</td>
<td>0.2</td>
<td>4.0</td>
<td>15.7</td>
<td>2.1</td>
<td>100.0</td>
</tr>
<tr>
<td>7,000 - 8,999</td>
<td>52.6</td>
<td>3.6</td>
<td>9.5</td>
<td>2.0</td>
<td>3.3</td>
<td>1.0</td>
<td>3.4</td>
<td>21.8</td>
<td>2.8</td>
<td>100.0</td>
</tr>
<tr>
<td>9,000 -11,999</td>
<td>45.5</td>
<td>2.9</td>
<td>6.7</td>
<td>3.1</td>
<td>8.0</td>
<td>3.3</td>
<td>3.2</td>
<td>16.7</td>
<td>10.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Over 11,999</td>
<td><strong>38.9</strong></td>
<td><strong>3.0</strong></td>
<td><strong>10.5</strong></td>
<td>0.8</td>
<td><strong>15.6</strong></td>
<td><strong>1.8</strong></td>
<td><strong>5.0</strong></td>
<td><strong>8.2</strong></td>
<td><strong>16.2</strong></td>
<td><strong>100.0</strong></td>
</tr>
<tr>
<td>All Households:</td>
<td><strong>66.2</strong></td>
<td><strong>3.8</strong></td>
<td><strong>8.2</strong></td>
<td><strong>1.3</strong></td>
<td><strong>3.9</strong></td>
<td><strong>1.1</strong></td>
<td><strong>3.5</strong></td>
<td><strong>10.2</strong></td>
<td><strong>1.8</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Table 7.6.2 shows the percentage composition of the value of gross assets for groups identified by age of household head. This shows real property to increase in importance up to the age group 25-34 years, decline after that, but rise again in importance for the oldest group. Bank accounts and cash are of greatest relative importance for the youngest and oldest groups, and equities for the oldest groups. Superannuation and value of business increase in importance up to the age group 55-64.
**TABLE 7.6.2**

ASCF [2] Household Data: % composition of the value of gross assets by asset type by age of household head

<table>
<thead>
<tr>
<th>Age of H/hold Head Class (yrs)</th>
<th>Real Property</th>
<th>Motor Vehicles</th>
<th>Bank A/cs and Cash</th>
<th>Bonds &amp; Debentures</th>
<th>Equities</th>
<th>Loans</th>
<th>Life Assurance</th>
<th>Super-annuation</th>
<th>Value of Business</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>52.3</td>
<td>9.7</td>
<td>24.8</td>
<td>3.3</td>
<td>0.2</td>
<td>0.2</td>
<td>4.5</td>
<td>4.5</td>
<td>0.7</td>
<td>100.0</td>
</tr>
<tr>
<td>25-34</td>
<td>73.6</td>
<td>5.5</td>
<td>7.9</td>
<td>0.4</td>
<td>1.0</td>
<td>0.9</td>
<td>3.6</td>
<td>6.0</td>
<td>1.1</td>
<td>100.0</td>
</tr>
<tr>
<td>35-44</td>
<td>69.0</td>
<td>3.9</td>
<td>5.8</td>
<td>0.5</td>
<td>2.1</td>
<td>0.5</td>
<td>4.1</td>
<td>10.4</td>
<td>3.7</td>
<td>100.0</td>
</tr>
<tr>
<td>45-54</td>
<td>64.1</td>
<td>3.8</td>
<td>7.4</td>
<td>1.1</td>
<td>2.6</td>
<td>1.4</td>
<td>3.9</td>
<td>11.3</td>
<td>4.3</td>
<td>100.0</td>
</tr>
<tr>
<td>55-64</td>
<td>55.3</td>
<td>3.3</td>
<td>7.9</td>
<td>1.3</td>
<td>5.8</td>
<td>1.7</td>
<td>3.9</td>
<td>16.9</td>
<td>4.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Over 64</td>
<td>71.3</td>
<td>2.3</td>
<td>13.5</td>
<td>3.7</td>
<td>9.9</td>
<td>1.1</td>
<td>1.2</td>
<td>4.5</td>
<td>-7.6</td>
<td>100.0</td>
</tr>
<tr>
<td>All Households:</td>
<td>66.2</td>
<td>3.8</td>
<td>8.2</td>
<td>1.3</td>
<td>3.9</td>
<td>1.1</td>
<td>3.5</td>
<td>10.2</td>
<td>1.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>
REFERENCES


CHAPTER VIII

THE DISTRIBUTION OF CAPITAL GAINS

1. The basis of attribution of gains

The total of a household's accrued nominal capital gains during a year is the sum of:

(i) the net proceeds on asset disposal during the year, less the value of those assets at the beginning of the year, and capital expenditure on those assets during the year; and

(ii) the value of assets held at the end of the year, less their value at the beginning of the year, or their acquisition cost if acquired during the year, plus holding costs.

It has not been possible up to this stage to fully identify household capital gains for the ASCF [7] sample according to the strict interpretation of this definition, and alternative methods of attributing capital gains to households have been employed. The estimates of household gains on real property and equities have been made by applying average appreciation rates to the ASCF data on value of household assets held at 30th June 1967. Estimates of nominal gains from life assurance and superannuation made in the ASCF have been adopted, and the ASCF method of estimation is described below.

It is recognised that the use of average appreciation rates on real property and equities will result in an equalised distribution of estimated capital gains among the holders of any given magnitude and composition (by asset type) of assets. Estimates of individual household gains will be in error to the extent that the household experienced an appreciation rate on
its assets other than the average rate for specific asset types. The error will be greatest where a common appreciation rate has been assumed for a group of assets within which the appreciation rates of specific assets have been widely divergent. It is expected that this type of error is greatest in relation to equities where a common appreciation rate has been assumed for the share portfolios of all households, and for the real property of households resident in Victoria, where an average State-wide appreciation rate has been adopted. Because it has been possible to apply the appreciation rates disaggregated to local government areas in New South Wales and Queensland, it is expected that the error in estimating capital gains on real property for the residents of these States is not great. Further detail on the data used for these States, and for Adelaide, Perth, Hobart and Canberra is provided below.

Nominal capital gains (NG) on specific assets have been calculated:

\[ \text{NG} = V_1 - V_0 \]

where \( V_1 \) = the known value of the asset at the end of the year (30.6.67), and \( V_0 \) = the calculated value of the asset at the beginning of the year (30.6.66).

\[ V_1 = V_0 + aV_0 \]

where \( a \) = the nominal appreciation rate identified for the asset in question. Therefore, \( V_0 \) is calculated:

\[ V_0 = \frac{V_1}{1 + a} \]

The procedure adopted for converting nominal gains to real gains has been to raise the assumed value of assets at the

---

1 It is possible that errors relating to different assets may be, in various degrees, cancelling for particular households.
beginning of the year (30.6.66) according to the movement in the Consumer Price Index (calculated by the Commonwealth Bureau of Census and Statistics) from June quarter 1966 to June quarter 1967 (i.e., 3.00 percent) to obtain an opening asset value at "end-of-year prices", and then deduct this opening value from the actual end-of-year value. This procedure has been applied to all household assets, not only those for which nominal gains have been recorded, and extended to calculate the real gain on household indebtedness during the year. It is argued in Chapter IV above (pp. 83-85), that the average nation-wide movement in the price of consumption and private sector investment goods is the most appropriate basis for separating real from illusory capital gains for the purpose of a national income tax. However, it is believed that the Consumer Price Index is a reliable surrogate for the year in question.

The basis of the estimates of nominal capital gains used in the succeeding discussion is explained in further detail by asset type, below.

Real Property

For sample, households identified as being resident in Sydney, Brisbane, Hobart, Newcastle, Wollongong, New South Wales country towns and Queensland country towns (54 percent of the total sample population), the movements in the official (Valuer-General's Department) "unimproved capital values" have been adopted.

These movements in value have been calculated from 1963 to 1969 in New South Wales, [2], and Hobart [4], where revaluations have been mainly at 6-year intervals; from 1964

\[2\] Within Sydney, location of household residence and movement in land values has been further disaggregated into fifteen groups of local government areas.
to 1969 in Brisbane [3], where revaluations occurred in 1964 and 1969, and from 1962 to 1969 in Queensland country towns [3], where revaluations were mainly at 7-year intervals. The revaluation occurring over the interval of several years straddling 1966-67 was then converted to an average annual rate of appreciation for each area for the period, with the compounding allowed for, and this was then adopted as the nominal rate of appreciation of real assets for households resident in the various areas for the year 1966-67.

It is appreciated that the movement in "unimproved capital values" is not entirely appropriate as an estimator of the rate of increase in value of real property, because real property values include the value of site development. Official statistics of "improved capital values" are available for New South Wales, Queensland, and Tasmania, but were not used due to the absence of means of estimating site development expenditure, which must be deducted from the increase in improved value to permit calculation of capital gain.

There is some evidence to suggest that the movement in unimproved site values over-estimates the rate of appreciation of real property values. Dr. G.M. Neutze has made a study of real property values in the Sydney area municipalities of Bankstown [8], Randwick [9], and Liverpool [10], covering periods from 1945 to 1966. These studies centred on one Census Collector's District in each municipality, rather than on the whole municipality, and excluded property subject to change in land use between valuation years, in order to exclude the effect of new construction on a property on its value. In every case the compound annual rate of increase in unimproved values was found to be greater than the rate of increase in improved values,
and by amounts ranging from 3 percent to 74 percent over the long term.

Alternative sets of data were available to ascribe gains on real property to residents of the Melbourne area. The succeeding tabulations etc. are based on a nominal appreciation rate of 7.3 percent, which is the average annual compound rate of increase in the official "estimated improved capital value: of rated properties in the State of Victoria from 30.9.65 to 30.9.69 [5], (years selected to exclude the major revaluation in Melbourne in 1965, but to include the widespread revaluation of 1969).

The alternative data was made available by the federal Department of Urban and Regional Development. This data, collected by the Victorian Valuer-General's Office [13], is of mean sale price per square metre of land involved in transactions disaggregated by local government area within the Melbourne Statistical Division. This data is available on an annual basis from 1967, and in the year 1967-1968, apparent movements in value in areas corresponding to the sixteen districts identified in the ASCF ranged between a depreciation of 20.8 percent in the Springvale-Dandenong-Cranbourne-Berwick area to an appreciation of 25 percent in the Oakleigh-Waverley area. A disadvantage of data based on transactions cases only is that apparent changes in value may be the product of a change in sample composition. Substituting gains estimated using this data did not appreciably alter the pattern of distribution of gains within the ASCF sample of households from that described in Sections 2. and 3. below, and the results have not been included in the discussion.
For households resident in Geelong and Victorian country towns, the average annual compound appreciation rate of 7.3 percent calculated from the movement in official "estimated improved capital values" of rated properties in Victoria from 30.9.65 to 30.9.69, has been adopted.

For Adelaide, the federal Department of Urban and Regional Development made available data collected by the South Australian Valuer-General. This data is based on the mean value of residential blocks in the newly developing fringe areas of Adelaide, and commences from 1968. The increase in average value from 1968 to 1969 of 5.2 percent has been adopted, being the apparent appreciation rate in real property nearest to 1966-67 available.

For Perth the Department of Urban and Regional Development made available data collected by Mr. J.E. Worthington of the Western Australian Institute of Technology [14]. This data consists of mean values, by districts, of residential lots changing ownership, and includes both established and newly developed areas. The average movement from January-June 1967, the first period available, to January-June 1968, was 16.2 percent, and this has been adopted as the appreciation rate for real property in Perth for 1966-67.

For Canberra, the National Capital Development Commission publishes (see [6]), data on the number and value of newly serviced residential blocks sold. The average value of these blocks has fluctuated considerably from year to year, but fell from $2,285 in the minor peak year of 1964-65 to $2,094 in the next minor peak year of 1968-69. A decline of 2.2 percent
has been adopted as representing the average movement of real estate values in Canberra in 1966-67.

**Equities**

From June 1966 to June 1967 the Sydney Stock Exchange "all ordinaries" share price index increased from 231.4 to 252.6 [12], an increase of 9.16 percent over the June 1966 level. An appreciation of 9.2 percent has been assumed for all share portfolios in 1966-67.

**Bonds and debentures**

The Reserve Bank of Australia in its quarterly Statistical Bulletin [11], publishes yield figures for Government Securities with different terms to maturity. From June 1966 to June 1967, the yield on securities with two years to maturity fell from 4.94 percent to 4.52 percent (a fall of 8.50 percent); the yield on Securities with ten years to maturity fell from 5.17 percent to 5.03 percent (a fall of 2.78 percent), while the yield on Securities with twenty years to maturity remained stable at 5.25 percent. The weighted average period to maturity of Australian Government Securities was nine years and three months in June 1966, and ten years in June 1967.

The movement in the yield on ten-year bonds was adopted as being representative of the movement in yields on bonds and debentures generally, and taken as implying an opposite and approximately equiproporportionate movement in market prices. The nominal gain on portfolios of bonds and debentures was taken to be at the rate of 2.7 percent.
Life Assurance and superannuation

The ASCF [7] data includes estimates of capital gains on life assurance and superannuation. The gain on life assurance is defined as the excess of the increase in the policy holder's equity over premiums paid during the year. In the case of superannuation the gain was assumed to be equal to the employer's contribution to the scheme. These estimates have been adopted in the following estimates of the relative distribution of capital gains and losses.

Unincorporated businesses

The ASCF data does not include values for the goodwill of unincorporated businesses. However, the real property and securities etc. of unincorporated businesses are identified and valued as at 30.6.67, and capital gains have been attributed to these assets in the same way as has been done for non-business assets.

2. The distribution of nominal capital gains by household regular income and age of head

Table 8.2.1 shows the results of bivariate least squares regressions of estimated household nominal capital gains on household regular income for the entire ASCF sample, and for sub-groups classified by age of household head. The values of $t$ indicate that all of the regressions are significant indicators of the relationship between household nominal capital gains and regular income for the parent populations, and the correlation is uniformly positive. The values of $r^2$ indicate that household regular income "explains" about 15 percent of
the variance in nominal capital gains for the population as a whole, only 6 percent for households with heads aged 25-44 years, and 40 percent for households with heads aged 65 years and over. The relatively good fit for households with heads over retirement age suggests that wealth could be an important determinant of both regular income and nominal capital gains for this group. However, the correlation between wealth and regular income for this group (Table 7.4.4, p. 145) is not as strong as the correlation between regular income and nominal capital gains.

**TABLE 8.2.1**

Regressions of estimated household nominal capital gains (NG) on household regular income (R) for ASCF households classified by age of head

<table>
<thead>
<tr>
<th>Age of head (yrs)</th>
<th>Regression equation ($)</th>
<th>$r^2$</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>NG = -861.291 + 0.316101R</td>
<td>0.1975</td>
<td>4.24</td>
</tr>
<tr>
<td>25-34</td>
<td>NG = -5608.83 + 1.57877R</td>
<td>0.0589</td>
<td>5.92</td>
</tr>
<tr>
<td>35-44</td>
<td>NG = -2875.79 + 0.843754R</td>
<td>0.0645</td>
<td>6.92</td>
</tr>
<tr>
<td>45-54</td>
<td>NG = -2625.27 + 0.767330R</td>
<td>0.2267</td>
<td>13.11</td>
</tr>
<tr>
<td>55-64</td>
<td>NG = -2107.42 + 0.787743R</td>
<td>0.1697</td>
<td>8.94</td>
</tr>
<tr>
<td>Over 64</td>
<td>NG = 127.123 + 0.516403R</td>
<td>0.4039</td>
<td>17.17</td>
</tr>
<tr>
<td>All households:</td>
<td>NG = -2017.88 + 0.749243R</td>
<td>0.1476</td>
<td>21.83</td>
</tr>
</tbody>
</table>
Table 8.2.2 suggests that nominal capital gains are very significant, relative to regular income for all age groups, with the possible exception of the group with age of head less than 25 years. Nominal gains expressed as a proportion of regular income (which excludes capital gains) is uniformly positively correlated with age of head (aggregate figures for age groups), and ranges from 3.5 percent for the group with heads aged less than 25 years, to 59.5 percent for the group with heads aged 65 years and more.

The most interesting (and possibly surprising) aspect of
the distribution of nominal gains revealed in Table 8.2.2 is that the ratio of nominal gains to regular income is generally inversely correlated with regular income up to the regular income class $7,000-8,999. The ratio rises as we move from the $7,000-$8,999 regular income group to the $9,000-$11,999 group but falls, on the average, as we move from that group to the group with regular incomes of $12,000 and over. This suggests that extension of the base of the personal income tax to include capital gains may reduce the progressivity of the tax relative to regular income over most of the regular income range.

Table 8.2.3 shows estimated nominal capital gains from different asset types as a proportion of total estimated nominal capital gains for the ASCF sample population and for sub-groups identified by level of regular income. Appreciation in value of own residence accounted for 80 percent of all estimated nominal gains, with superannuation, other real property, and equities each accounting for a further 5-6 percent. The proportion of nominal gains contributed by own residence is inversely correlated with regular income (falling to 74 percent for household regular income in the $6,000-$9,000 range, and to 47 percent for the group with regular income in excess of $12,000). Gains from superannuation are most important for the middle income groups, while real property other than own residence, and equities as sources of gain are most important for the highest income groups. Equities are estimated to contribute 25 percent of the gains for households with incomes of $12,000 or more.
### TABLE 8.2.3

Source of estimated household nominal capital gains by property type by regular income class - ASCF sample of households

Nominal capital gains by source as a percentage of group total nominal capital gains

<table>
<thead>
<tr>
<th>Regular Income ($) Class</th>
<th>Own residence</th>
<th>Other real property</th>
<th>Bonds and debentures</th>
<th>Equities</th>
<th>Life Assurance</th>
<th>Superannuation</th>
<th>Unincorporated business assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1000</td>
<td>94.3</td>
<td>3.1</td>
<td>0.4</td>
<td>1.9</td>
<td>0.2</td>
<td>0.2</td>
<td>0.0</td>
</tr>
<tr>
<td>1000-1999</td>
<td>81.0</td>
<td>12.5</td>
<td>0.7</td>
<td>1.5</td>
<td>0.7</td>
<td>0.6</td>
<td>3.0</td>
</tr>
<tr>
<td>2000-2999</td>
<td>84.8</td>
<td>5.4</td>
<td>0.5</td>
<td>4.0</td>
<td>1.1</td>
<td>2.2</td>
<td>2.1</td>
</tr>
<tr>
<td>3000-3999</td>
<td>85.6</td>
<td>4.6</td>
<td>0.2</td>
<td>3.1</td>
<td>1.2</td>
<td>4.9</td>
<td>0.5</td>
</tr>
<tr>
<td>4000-4999</td>
<td>83.2</td>
<td>3.2</td>
<td>0.5</td>
<td>2.9</td>
<td>1.6</td>
<td>7.1</td>
<td>1.5</td>
</tr>
<tr>
<td>5000-5999</td>
<td>79.7</td>
<td>6.4</td>
<td>0.5</td>
<td>3.6</td>
<td>1.5</td>
<td>8.3</td>
<td>0.0</td>
</tr>
<tr>
<td>6000-6999</td>
<td>73.9</td>
<td>5.7</td>
<td>0.6</td>
<td>6.2</td>
<td>1.9</td>
<td>11.2</td>
<td>0.4</td>
</tr>
<tr>
<td>7000-8999</td>
<td>73.9</td>
<td>5.3</td>
<td>1.1</td>
<td>5.5</td>
<td>1.5</td>
<td>12.8</td>
<td>0.0</td>
</tr>
<tr>
<td>9000-11999</td>
<td>55.0</td>
<td>12.7</td>
<td>1.6</td>
<td>12.5</td>
<td>1.2</td>
<td>9.3</td>
<td>7.7</td>
</tr>
<tr>
<td>Over 11999</td>
<td>46.9</td>
<td>12.2</td>
<td>0.4</td>
<td>25.0</td>
<td>2.2</td>
<td>6.5</td>
<td>6.9</td>
</tr>
<tr>
<td>All households:</td>
<td>79.8</td>
<td>5.8</td>
<td>0.6</td>
<td>5.1</td>
<td>1.3</td>
<td>6.0</td>
<td>1.5</td>
</tr>
</tbody>
</table>
3. The distribution of real capital gains by household regular income and age of head

Table 8.3.1 shows the results of simple least squares regressions of estimated real capital gains on regular income for the ASCF sample population in total, and for sub-groups classified by age of household head. As with the regressions of estimated nominal gains on income, the correlation is uniformly positive, and the values of t permit the conclusion that the regressions are significant indicators of the gains-income relationships for the parent populations. However, regular income is weaker as an "explanator" of real capital gains than it is for nominal gains. While regular income "explains" about 30 percent of the variance in real gains for the group with heads aged 65 or more, it "explains" less than 9 percent of the variance in real gains for the sample population in total.

TABLE 8.3.1
Regressions of estimated household real capital gains (RG) on household regular income (R) for ASCF households classified by age of head

<table>
<thead>
<tr>
<th>Age of head (yrs) Class</th>
<th>Regression equations (S)</th>
<th>( r^2 )</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>RG = -752.932 + 0.269141R</td>
<td>0.1893</td>
<td>4.13</td>
</tr>
<tr>
<td>25-34</td>
<td>RG = -6395.97 + 1.74267R</td>
<td>0.0400</td>
<td>4.83</td>
</tr>
<tr>
<td>35-44</td>
<td>RG = -3515.04 + 0.931211R</td>
<td>0.0343</td>
<td>4.97</td>
</tr>
<tr>
<td>45-54</td>
<td>RG = -2904.41 + 0.751767R</td>
<td>0.1263</td>
<td>9.20</td>
</tr>
<tr>
<td>55-64</td>
<td>RG = -3387.40 + 1.02167R</td>
<td>0.0492</td>
<td>4.50</td>
</tr>
<tr>
<td>Over 64</td>
<td>RG = -85.5248 + 0.432186R</td>
<td>0.2959</td>
<td>13.54</td>
</tr>
<tr>
<td>All households:</td>
<td>RG = -2246.37 + 0.736111R</td>
<td>0.0866</td>
<td>16.15</td>
</tr>
</tbody>
</table>

It is sometimes suggested that it is not necessary to distinguish between real and nominal capital gains for taxation
purposes, because the two will tend to equality. This proposition will be entirely valid if the ownership of gain yielding assets is financed entirely by borrowing: the application of price level adjustment to both sides of the asset holder's balance sheet will generate cancelling effects - the illusory element in the nominal gain on the asset will be matched by a real gain on the debt issued to finance the ownership of the asset. Table 8.3.2 indicates, however, that in practice these two elements do not cancel. They do, approximately, for the group with age of household head in the range 25-34 years, with incomes of $12,000 or more, but overall real gains are only two-thirds as large as nominal gains. It can also be noticed that two sub-groups in the

### TABLE 8.3.2

Estimated household real capital gains as a percentage of estimated household nominal capital gains by regular income and age of household head classes (ASCF sample population)

<table>
<thead>
<tr>
<th>Regular Income Class ($)</th>
<th>Under 25</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>Over 64</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1000</td>
<td>-255</td>
<td>90</td>
<td>75</td>
<td>67</td>
<td>62</td>
<td>68</td>
<td>68</td>
</tr>
<tr>
<td>1000-1999</td>
<td>42</td>
<td>86</td>
<td>74</td>
<td>70</td>
<td>62</td>
<td>63</td>
<td>68</td>
</tr>
<tr>
<td>2000-2999</td>
<td>56</td>
<td>79</td>
<td>77</td>
<td>68</td>
<td>64</td>
<td>65</td>
<td>71</td>
</tr>
<tr>
<td>3000-3999</td>
<td>59</td>
<td>81</td>
<td>74</td>
<td>69</td>
<td>61</td>
<td>65</td>
<td>72</td>
</tr>
<tr>
<td>4000-4999</td>
<td>87</td>
<td>77</td>
<td>70</td>
<td>67</td>
<td>62</td>
<td>54</td>
<td>68</td>
</tr>
<tr>
<td>5000-5999</td>
<td>-176</td>
<td>77</td>
<td>75</td>
<td>65</td>
<td>51</td>
<td>55</td>
<td>68</td>
</tr>
<tr>
<td>6000-6999</td>
<td>-</td>
<td>76</td>
<td>69</td>
<td>64</td>
<td>64</td>
<td>45</td>
<td>67</td>
</tr>
<tr>
<td>7000-8999</td>
<td>81</td>
<td>37</td>
<td>67</td>
<td>55</td>
<td>41</td>
<td>56</td>
<td>56</td>
</tr>
<tr>
<td>9000-11999</td>
<td>73</td>
<td>70</td>
<td>64</td>
<td>62</td>
<td>55</td>
<td>43</td>
<td>58</td>
</tr>
<tr>
<td>Over 11999</td>
<td>-</td>
<td>102</td>
<td>59</td>
<td>58</td>
<td>38</td>
<td>66</td>
<td>60</td>
</tr>
<tr>
<td>All households:</td>
<td>67</td>
<td>78</td>
<td>72</td>
<td>65</td>
<td>57</td>
<td>64</td>
<td>67</td>
</tr>
</tbody>
</table>
under 25 age group, experienced negative real gains of absolutely greater magnitude than their positive nominal gains. Although the ratios in Table 8.3.2 appear to be fairly uniform, there is a slight tendency for the ratio of real to nominal gains to decline as the age of household head increases, and as regular income increases (the ratio is around 70 percent for income groups below the $7,000 level, and around 60 percent for income groups above the $7,000 level). These tendencies could have been expected following the observed negative correlation between indebtedness and age of household head from the 25-34 years group upwards (Table 7.5.2), the uniformly positive correlation between net wealth and regular income (Table 7.4.4), and the generally negative correlation between indebtedness and net wealth (Table 7.5.1).

The observed tendency to inverse correlation between the real to nominal gains ratio and regular income in Table 8.3.2 creates the expectation that real gains are even more regressively distributed relative to regular income, than nominal gains. Table 8.3.3 confirms that real gains are generally reggressively distributed relative to regular income, and as in Table 8.3.2, this regressivity is reversed momentarily at around the $9,000 regular income level.

A further observation that might be made regarding Table 8.3.3 is that the positive correlation between the ratio of gains to regular income and age of household head is less evident for real gains than it is for nominal gains. This will be attributable, at least in part, to the inverse correlation between indebtedness and age of household head (Table 7.5.2).
Average ratios (expressed as percentages) of household real capital gains to household regular income by regular income and age of head classes - estimated from ASCP data on asset ownership and data on rates of asset appreciation

Table 8.3.4 shows that the relative importance of own residence, other real property, and equities as sources of gain is slightly greater for real than for nominal gains (i.e., Table 8.3.4 compared with Table 8.2.3). This indicates that the reduced relative importance of bonds and debentures, life assurance, superannuation and business assets as sources of real, rather than nominal gains, is not offset by the net real gains contribution of indebtedness less other assets of fixed nominal value.
### TABLE 8.3.4

Source of estimated household real capital gains by property type and regular income class - ASCF sample of households

Real capital gains by source as a % of group total real capital gains

<table>
<thead>
<tr>
<th>Regular income ($)Class</th>
<th>Own residence</th>
<th>Other real property</th>
<th>Equities</th>
<th>Other assets &amp; indebtedness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1000</td>
<td>99.5</td>
<td>3.3</td>
<td>1.9</td>
<td>-4.7</td>
</tr>
<tr>
<td>1000-1999</td>
<td>82.9</td>
<td>13.1</td>
<td>1.5</td>
<td>2.5</td>
</tr>
<tr>
<td>2000-2999</td>
<td>82.5</td>
<td>5.5</td>
<td>3.9</td>
<td>8.1</td>
</tr>
<tr>
<td>3000-3999</td>
<td>80.5</td>
<td>4.5</td>
<td>2.9</td>
<td>12.1</td>
</tr>
<tr>
<td>4000-4999</td>
<td>82.6</td>
<td>3.0</td>
<td>2.9</td>
<td>11.5</td>
</tr>
<tr>
<td>5000-5999</td>
<td>80.3</td>
<td>5.7</td>
<td>3.7</td>
<td>10.3</td>
</tr>
<tr>
<td>6000-6999</td>
<td>74.9</td>
<td>6.2</td>
<td>6.4</td>
<td>12.5</td>
</tr>
<tr>
<td>7000-8999</td>
<td>86.4</td>
<td>6.0</td>
<td>6.7</td>
<td>0.9</td>
</tr>
<tr>
<td>9000-11999</td>
<td>64.3</td>
<td>14.6</td>
<td>14.8</td>
<td>6.3</td>
</tr>
<tr>
<td>Over 11999</td>
<td>52.2</td>
<td>14.3</td>
<td>28.9</td>
<td>4.6</td>
</tr>
<tr>
<td>All households:</td>
<td>81.1</td>
<td>6.0</td>
<td>5.2</td>
<td>7.7</td>
</tr>
</tbody>
</table>

The dominant importance of own residence as a source of capital gain is particularly interesting, because it is gains from this source that are most likely to be exempted if the tax base is extended to include capital gains. Because gains from this source are of least relative importance for the highest income groups, exemption of gains from own residence would increase the progressivity (or reduce the regressivity) of the differential incidence of a tax on capital gains.
REFERENCES


References (Contd)


1. Assumptions

Differential incidence estimates are used to compare the distribution of some indicator of individual welfare in two or more states (conditions) of the economy. The variation in the distribution of the indicator between these different states of the economy is attributed to a causal factor, \( x \) (e.g., removal of the tariff on imports), and described as the differential incidence of \( x \).

The present discussion is concerned with the differential incidence of alternative taxation treatments of capital gains. Five alternative treatments of capital gains have been identified:

(i) exclude capital gains from the tax base;
(ii) incorporate total nominal capital gains in the base of the personal income tax;
(iii) incorporate total real capital gains in the base of the personal income tax;
(iv) incorporate nominal capital gains, excluding gains on own residence, in the personal income tax base;
(v) incorporate real capital gains, excluding gains on own residence, in the personal income tax base.

The first alternative, that prevailing in Australia in 1966-67 (the year on which the data for the estimates is based) and effectively prevailing at the present time, is adopted as the situation with which the other four alternatives are compared.

The effects of redefinition of the tax base is separated
from the effects of variation in the level of tax revenue by assuming that rates of tax are altered concurrently with tax base redefinition, so that a constant aggregate level of tax revenue is maintained. So that no incidence effects are attributable to tax rate variation, when incidence is measured in terms of variation in tax burden, all rates of tax are assumed to be varied in the same proportion. At the rate scale actually prevailing in 1966-67 tax base redefinition implied the following increases in tax revenues:

<table>
<thead>
<tr>
<th>Description</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusion of total nominal gains</td>
<td>approx 61%</td>
</tr>
<tr>
<td>Inclusion of total real gains</td>
<td>39%</td>
</tr>
<tr>
<td>Inclusion of nominal gains except on own residence</td>
<td>13%</td>
</tr>
<tr>
<td>Inclusion of real gains except on own residence</td>
<td>8%</td>
</tr>
</tbody>
</table>

Consequently, the constant revenue assumption required revisions downward of the rate scale of approximately 38%, 28%, 12%, and 7% respectively.

Ultimately incidence depends on the nature of the behavioural response to the initiating disturbance as well as on the disturbance itself. With respect to an extension of the tax base to include capital gains, it can be expected that markets will respond by lowering the prices of assets with a higher than average proportion of their yields newly subject to tax, and raising the prices of assets for which this proportion is below average (i.e., capitalisation of taxes). This initial market adjustment should leave post-tax yields on non-human wealth generally lower than previously (i.e., capitalisation of the tax variation will be incomplete), and lead in the longer term, to the extent that saving responds positively to the after-
tax rate of return and negatively to the market value of the stock of non-human wealth, to a smaller real stock of non-human wealth and a lower wage rate than would otherwise have been the case. Thus the incidence of the tax variation will be distributed initially and in part via capital losses and gains to wealth-holders, with a residual element borne by wealth-holders generally on income account. In the longer term, the incidence borne on wealth-holders' income account will be in part gradually shared with the suppliers of labour services.

The data available in the Survey of Consumer Finances would permit the development and application of capitalisation and long-run incidence models. However, this would be a major task, and is not attempted here. The incidence estimates that follow assume zero capitalisation and zero long-run factor supply adjustments to the base redefinition.

Incidence analysis requires that the population be sub-categorised into at least two groups (e.g., male and female) for inter-group comparison of the welfare effects of change. The grouping adopted for this discussion is the one implied by the concept of vertical equity, that is, grouping according to an indicator of material welfare. The first part of this dissertation argued for a broad concept of income as being the most appropriate indicator. Such an indicator would include accrued real capital gains and, consistent with this view, the differential incidence estimates presented below relate to the distributional implications of taxing capital gains among groups identified according to regular income (as defined in
In addition to arguing for the adoption of a broad concept of income, Chapter III argues for equity to be viewed as a question of relative treatment over a lifetime. Acceptance of this view involves denial that comparison of the relative treatment, in a particular year, of persons of widely different ages makes any immediate inference regarding the equitability of the system. To overcome this, the differential incidence analysis is based on groupings of households according to age of head, as well as according to real income.

It has been necessary in the course of making these estimates, to make some generalisations about the distribution within households of the ownership of actual 1966-67 income tax liabilities and capital gains, and the generalisations made are probably not the most appropriate ones. Household taxable income has been estimated by referring the household tax liability for 1966-67 back to the tax rate schedule operating in that year, and subject to the assumption that all household taxable income accrued to one member of the household. This procedure also estimated a position for the household on the marginal tax rate scale, and tax on capital gains was estimated by reference to the marginal rate scale, subject to the assumption that the capital gains and other taxable income both accrued to

---

1 To illustrate the importance of the indicator of welfare to this type of analysis, differential incidence among groups identified according to regular income alone has also been estimated (see Appendix to this Chapter, Table 9.A.1). The results of these estimates are very different from those presented in Tables 9.2.1 to 9.2.5, but their vertical equity inferences are obliterated by those of the estimates in Tables 9.2.1 to 9.2.5 because the latter are based on comparisons between groups identified according to a superior indicator of material welfare.
the same person. The directions of error generated by these assumptions are that, to the extent that actual taxable income and capital gain ownership is shared within households, household taxable income will be under-estimated, and the tax on capital gains will be over-estimated. The magnitude of the over-estimate of tax on capital gains will be positively correlated with the breadth (i.e., number of persons participating) and equality of sharing within the household of actual taxable income, and actual taxable income and capital gains combined.

2. The differential incidence estimates

Tables 9.2.1 to 9.2.4, and Table 9.2.5 present differential incidence estimates for four different inclusion rules for capital gains, each compared with the situation in which capital gains are outside the income tax base. The differential tax incidence is expressed as a percentage of existing disposable real income, (i.e., regular income plus real capital gains, less income tax actually paid) for each real income and age of household head group of the ASCF sample population.

The total rows of Tables 9.2.1 to 9.2.5 present estimates of the overall differential incidence of the different inclusion rules for capital gains as between groups of households identified by age of head. There is a clear inference that inclusion of capital gains identified in nominal terms would have the effect of shifting the timing of household

---

2 Household tax liability was then re-calculated in accordance with the adopted tax base redefinition and the associated proportionate variation in the rate scale required by the equal revenue assumption (explained above).
lifetime tax liabilities from earlier to later years, irrespective of whether gains on own residence were made taxable (total rows of Tables 9.2.1 and 9.2.3). If capital gains are identified in real terms the tax payable by households with heads aged less than 25 years is reduced when capital gains are made taxable, while the tax payable by households with heads aged 65 years or more is increased. Apart from this, the apparent effects of taxing real capital gains on the timing of lifetime tax liabilities are less readily understandable (total rows of Tables 9.2.2 and 9.2.4).

In considering the total columns in Tables 9.2.1 to 9.2.4 one could gain the impression that the incidence of tax burden from extending the base to include capital gains, including gains on own residence, is on the lowest and highest income groups, whether capital gains are identified in nominal (Table 9.2.1) or real (Table 9.2.2) terms. If gains on own residence are excluded the incidence of burden from extending the tax base is confined to the highest income groups, but the incidence of tax relief is progressive3 at the lower end of the income scale (Tables 9.2.3 and 9.2.4). Overall the impression is that the differential incidence of burden of extending the tax base to include capital gains is regressive at the lower end of the income scale, and progressive at the upper end.

However, the impressions of overall differential incidence gained in this way (i.e., by considering the total columns in Tables 9.2.1 to 9.2.4) may be misleading with respect to the relative distribution of income, tax relief progressively distributed is the equivalent of tax burden regressively distributed.

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3 In terms of effect on the relative distribution of income, tax relief progressively distributed is the equivalent of tax burden regressively distributed.
TABLE 9.2.1

ASCF Sample of Households: Change in income tax payable as a % of disposable real income 1966-67a. by real income and age of head class if total nominal capital gains were incorporated in the income tax base and rates of tax varied by a constant proportion so as to maintain a constant tax revenue

<table>
<thead>
<tr>
<th>Real income b. Class - S</th>
<th>Under 25</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>Over 64</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1,000</td>
<td>-4.0</td>
<td>-10.9</td>
<td>-0.4</td>
<td>0.7</td>
<td>1.9</td>
<td>3.4</td>
<td>2.4</td>
</tr>
<tr>
<td>1,000 - 1,999</td>
<td>-2.2</td>
<td>-0.3</td>
<td>0.0</td>
<td>1.1</td>
<td>0.3</td>
<td>4.4</td>
<td>1.9</td>
</tr>
<tr>
<td>2,000 - 2,999</td>
<td>-3.5</td>
<td>-1.7</td>
<td>-1.4</td>
<td>-0.9</td>
<td>0.1</td>
<td>1.8</td>
<td>-0.7</td>
</tr>
<tr>
<td>3,000 - 3,999</td>
<td>-3.4</td>
<td>-1.2</td>
<td>-1.0</td>
<td>0.0</td>
<td>-0.8</td>
<td>2.3</td>
<td>-0.7</td>
</tr>
<tr>
<td>4,000 - 4,999</td>
<td>-4.2</td>
<td>-0.6</td>
<td>0.5</td>
<td>-0.4</td>
<td>0.4</td>
<td>3.2</td>
<td>0.1</td>
</tr>
<tr>
<td>5,000 - 5,999</td>
<td>-4.6</td>
<td>-1.0</td>
<td>0.2</td>
<td>0.3</td>
<td>-0.8</td>
<td>1.0</td>
<td>-0.3</td>
</tr>
<tr>
<td>6,000 - 6,999</td>
<td>-1.3</td>
<td>-0.3</td>
<td>-0.1</td>
<td>1.7</td>
<td>0.6</td>
<td>-0.2</td>
<td></td>
</tr>
<tr>
<td>7,000 - 8,999</td>
<td>-5.7</td>
<td>-1.5</td>
<td>-0.3</td>
<td>0.0</td>
<td>0.7</td>
<td>4.1</td>
<td>0.0</td>
</tr>
<tr>
<td>9,000 -11,999</td>
<td>-1.6</td>
<td>-0.3</td>
<td>0.5</td>
<td>0.2</td>
<td>0.0</td>
<td>2.7</td>
<td>0.4</td>
</tr>
<tr>
<td>Over 11,999</td>
<td></td>
<td>0.9</td>
<td>-0.5</td>
<td>2.6</td>
<td>2.4</td>
<td>4.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Total:</td>
<td>-3.6</td>
<td>-1.1</td>
<td>-0.2</td>
<td>0.2</td>
<td>0.4</td>
<td>2.8</td>
<td>0.0</td>
</tr>
</tbody>
</table>

a. Disposable real income 1966-67 is defined as regular income plus real capital gains, less income tax actually paid.

b. Real income is defined as regular income plus real capital gains.
TABLE 9.2.2
ASCF Sample of Households: Change in income tax payable as a % of disposable real income 1966-67a by real income and age of head class if total real capital gains were incorporated in the income tax base, and rates of tax varied by a constant proportion so as to maintain a constant tax revenue.

<table>
<thead>
<tr>
<th>Real Income Class - $</th>
<th>Under 25</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>Over 64</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1,000</td>
<td>-3.1</td>
<td>-8.3</td>
<td>-0.1</td>
<td>-0.3</td>
<td>0.6</td>
<td>1.4</td>
<td>1.1</td>
</tr>
<tr>
<td>1,000 - 1,999</td>
<td>-1.6</td>
<td>0.1</td>
<td>0.0</td>
<td>1.0</td>
<td>0.0</td>
<td>2.8</td>
<td>1.2</td>
</tr>
<tr>
<td>2,000 - 2,999</td>
<td>-2.6</td>
<td>-1.2</td>
<td>-1.1</td>
<td>-1.1</td>
<td>-0.2</td>
<td>1.1</td>
<td>-0.7</td>
</tr>
<tr>
<td>3,000 - 3,999</td>
<td>-2.6</td>
<td>-0.7</td>
<td>-0.7</td>
<td>-0.1</td>
<td>-0.7</td>
<td>1.5</td>
<td>-0.5</td>
</tr>
<tr>
<td>4,000 - 4,999</td>
<td>-3.3</td>
<td>0.0</td>
<td>0.6</td>
<td>-0.2</td>
<td>0.0</td>
<td>1.8</td>
<td>0.2</td>
</tr>
<tr>
<td>5,000 - 5,999</td>
<td>-2.9</td>
<td>-0.2</td>
<td>0.4</td>
<td>0.2</td>
<td>-1.1</td>
<td>0.2</td>
<td>-0.1</td>
</tr>
<tr>
<td>6,000 - 6,999</td>
<td>-0.6</td>
<td>0.1</td>
<td>-0.1</td>
<td>0.3</td>
<td>-0.1</td>
<td>-0.1</td>
<td></td>
</tr>
<tr>
<td>7,000 - 8,999</td>
<td>-4.3</td>
<td>-0.5</td>
<td>0.2</td>
<td>-0.1</td>
<td>0.0</td>
<td>2.5</td>
<td>0.0</td>
</tr>
<tr>
<td>9,000 - 11,999</td>
<td>-0.5</td>
<td>-0.2</td>
<td>0.7</td>
<td>0.0</td>
<td>-0.6</td>
<td>0.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Over 11,999</td>
<td>2.5</td>
<td>-0.5</td>
<td>1.5</td>
<td>0.5</td>
<td>2.7</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>-2.6</td>
<td>-0.4</td>
<td>0.1</td>
<td>0.1</td>
<td>-0.3</td>
<td>1.5</td>
<td>0.0</td>
</tr>
</tbody>
</table>

a. Disposable real income 1966-67 is defined as regular income plus real capital gains, less income tax actually paid.

b. Real income is defined as regular income plus real capital gains.
### TABLE 9.2.3

ASCF Sample of Households: Change in income tax payable as a % of disposable real income 1966-67 by real income and age of head class if nominal capital gains, excluding gains on own residence, were incorporated in the income tax base and rates of tax varied by a constant proportion so as to maintain a constant tax revenue

<table>
<thead>
<tr>
<th>Real Income Class - $</th>
<th>Under 25</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>Over 64</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1,000</td>
<td>-1.1</td>
<td>-3.4</td>
<td>-0.6</td>
<td>-0.7</td>
<td>0.3</td>
<td>-0.1</td>
<td>-0.2</td>
</tr>
<tr>
<td>1,000 - 1,999</td>
<td>-0.7</td>
<td>-0.4</td>
<td>-0.2</td>
<td>-0.5</td>
<td>-0.1</td>
<td>0.1</td>
<td>-0.1</td>
</tr>
<tr>
<td>2,000 - 2,999</td>
<td>-1.1</td>
<td>-0.6</td>
<td>-0.7</td>
<td>-0.8</td>
<td>-0.6</td>
<td>-0.4</td>
<td>-0.7</td>
</tr>
<tr>
<td>3,000 - 3,999</td>
<td>-0.9</td>
<td>-0.7</td>
<td>-0.6</td>
<td>-0.5</td>
<td>-0.8</td>
<td>-0.3</td>
<td>-0.6</td>
</tr>
<tr>
<td>4,000 - 4,999</td>
<td>-1.5</td>
<td>-0.8</td>
<td>-0.4</td>
<td>-0.6</td>
<td>-0.3</td>
<td>1.8</td>
<td>-0.5</td>
</tr>
<tr>
<td>5,000 - 5,999</td>
<td>-1.4</td>
<td>-0.8</td>
<td>-0.1</td>
<td>-0.3</td>
<td>-0.7</td>
<td>0.3</td>
<td>-0.4</td>
</tr>
<tr>
<td>6,000 - 6,999</td>
<td></td>
<td>-0.6</td>
<td>-0.3</td>
<td>-0.6</td>
<td>-0.2</td>
<td>2.3</td>
<td>-0.1</td>
</tr>
<tr>
<td>7,000 - 8,999</td>
<td>-1.8</td>
<td>-0.3</td>
<td>-0.3</td>
<td>0.0</td>
<td>1.0</td>
<td>2.5</td>
<td>0.1</td>
</tr>
<tr>
<td>9,000 -11,999</td>
<td>0.1</td>
<td>-0.8</td>
<td>1.3</td>
<td>1.0</td>
<td>-0.1</td>
<td>2.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Over 11,999</td>
<td></td>
<td>2.4</td>
<td>0.7</td>
<td>2.8</td>
<td>4.5</td>
<td>5.4</td>
<td>2.9</td>
</tr>
<tr>
<td>Total</td>
<td>-1.0</td>
<td>-0.6</td>
<td>-0.2</td>
<td>0.1</td>
<td>0.4</td>
<td>1.4</td>
<td>0.0</td>
</tr>
</tbody>
</table>

- a. Disposable real income 1966-67 is defined as regular income plus real capital gains less income tax actually paid.
- b. Real income is defined as regular income plus real capital gains.
TABLE 9.2.4

ASCF Sample of Households: Change in income tax payable as a % of disposable real income 1966-67* by real income and age of head class if real capital gains, excluding gains on own residence were incorporated in the income tax base and rates of tax varied by a constant proportion so as to maintain a constant tax revenue

<table>
<thead>
<tr>
<th>Real Incomeb Class - $</th>
<th>Under 25</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>Over 64</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under - 1,000</td>
<td>-0.8</td>
<td>0.4</td>
<td>-0.1</td>
<td>-0.5</td>
<td>0.1</td>
<td>-0.1</td>
<td>-0.1</td>
</tr>
<tr>
<td>1,000 - 1,999</td>
<td>-0.4</td>
<td>-0.1</td>
<td>0.0</td>
<td>-0.2</td>
<td>-0.1</td>
<td>-0.2</td>
<td>-0.2</td>
</tr>
<tr>
<td>2,000 - 2,999</td>
<td>-0.7</td>
<td>-0.3</td>
<td>-0.4</td>
<td>-0.8</td>
<td>-0.6</td>
<td>-0.4</td>
<td>-0.5</td>
</tr>
<tr>
<td>3,000 - 3,999</td>
<td>-0.5</td>
<td>-0.1</td>
<td>-0.1</td>
<td>-0.3</td>
<td>-0.6</td>
<td>-0.3</td>
<td>-0.3</td>
</tr>
<tr>
<td>4,000 - 4,999</td>
<td>-0.9</td>
<td>0.0</td>
<td>0.0</td>
<td>-0.3</td>
<td>-0.5</td>
<td>0.3</td>
<td>-0.1</td>
</tr>
<tr>
<td>5,000 - 5,999</td>
<td>-0.3</td>
<td>0.1</td>
<td>0.2</td>
<td>-0.2</td>
<td>-1.0</td>
<td>-0.7</td>
<td>-0.2</td>
</tr>
<tr>
<td>6,000 - 6,999</td>
<td>0.1</td>
<td>0.1</td>
<td>-0.5</td>
<td>-0.4</td>
<td>1.3</td>
<td>1.3</td>
<td>-0.1</td>
</tr>
<tr>
<td>7,000 - 8,999</td>
<td>-1.1</td>
<td>0.3</td>
<td>0.0</td>
<td>-0.2</td>
<td>0.1</td>
<td>0.9</td>
<td>0.0</td>
</tr>
<tr>
<td>9,000 -11,999</td>
<td>0.8</td>
<td>-0.5</td>
<td>1.3</td>
<td>0.4</td>
<td>-0.8</td>
<td>-0.6</td>
<td>0.2</td>
</tr>
<tr>
<td>Over 11,999</td>
<td>3.7</td>
<td>0.2</td>
<td>1.6</td>
<td>1.5</td>
<td>3.0</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>-0.5</td>
<td>0.1</td>
<td>0.1</td>
<td>-0.1</td>
<td>-0.3</td>
<td>0.4</td>
<td>0.0</td>
</tr>
</tbody>
</table>

---

*Disposable real income 1966-67 is defined as regular income plus real capital gains less income tax actually paid.

b. Real income is defined as regular income plus real capital gains.
to the incidence on lifetime income groups, because these columns combine the effects of income difference with that of age difference. For example, one effect of including capital gains in the base appears to be some deferral in time of lifetime tax liability. It is also true that older households are concentrated in the lower income groups (51 percent of households with heads aged 65 and over are in the under $1,000 real income class, while only 12 percent of all households are in this category). These effects, deferral of lifetime tax liability and concentration of older households in the lower income classes, could alone generate an apparent incidence of burden on the low income groups, even though the incidence of burden is not on the low income groups when each age group of the population is considered separately.

To avoid the error of interpreting incidence according to age as incidence according to lifetime income, it is necessary to consider each of the columns in Tables 9.2.1 to 9.2.4 separately. If this is done, looking down the columns and counting the number of instances in which the change in the incidence of burden is progressive and regressive relative to income between adjacent income classes, no clear impression of a pattern of progressivity or regressivity of differential incidence over different ranges of income emerges.⁵

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⁴ Including instances in which the change in incidence of tax relief is regressive and progressive respectively.

⁵ Progressive differential incidence of burden observations out-number regressive incidence observations in all Tables except Table 9.2.1 (where the number of progressive and regressive incidence observations between adjacent income groups are equal), but the regressive incidence observations are not distributed according to an identifiable pattern.
Observation on this basis is not satisfactory, as it fails to take into account the relative magnitude of regressive and progressive movements, and the overall picture is clouded by some apparently random variations in incidence. This apparent random variation may be due to the smallness of the sample in certain of the income x age cells. Excluding the total column and total row, Tables 9.2.1 to 9.2.4 each have 60 cells of which 58 cells contain observations (i.e., contain a sample population). The average sample population of these 58 cells is 47 households. However, 25 of these cells contain less than 20 households, and 13 cells contain less than 10 households. Table 9.2.5 is a condensation of the data from Tables 9.2.1 to 9.2.4, designed to reduce the unrepresentative sample problem.

The four income classes of Table 9.2.5 contain 29.5 percent, 37.1 percent, 28.4 percent and 5 percent of the total sample population respectively. With the exception of the highest income group the divisions between income classes have been selected so as to secure a relatively equal distribution of the sample population between income groups.

Table 9.2.5 confirms the expectation generated by Tables 9.2.1 to 9.2.4, that the incidence of burden of extending the base for the personal income tax is progressive at the upper end of the income scale, irrespective of whether gains are identified in nominal or real terms, or whether gains on own

---

6 Much interest in discussions on taxation is focussed on the relative treatment of the small group at the top of the income scale.

7 The descriptive designations low, lower middle, etc. income groups have been adopted for convenience, and the divisions between these groups have not been determined with reference to any convention regarding the use of these titles.
residence are included or excluded. The expectation of regressive incidence of burden at the lower end of the income scale is repudiated by Table 9.2.5, except in relation to the instance in which all nominal gains are included. In this latter instance the regressivity, or otherwise, of the differential incidence of burden at the lower end of the income scale is not clear. This is in contrast to the situation depicted in Table 9.A.1 (Appendix to this Chapter), where differential incidence of burden on regular income groups is indicated to be regressive between low, lower middle, and upper middle income classes for full inclusion of either nominal or real capital gains.

If differences in differential incidence between adjacent income groups of 0.5 percent of disposable real income and less are taken to indicate no significant departure from proportionality in differential incidence, consideration of the information in Table 9.2.5 is further simplified. Proportionality dominates with respect to the incidence of including all nominal gains as between low, lower middle, and upper middle income groups, (instances of apparent significant regressivity between adjacent groups tend to be cancelled by instances of significant progressivity), while progressivity dominates as between high and other income groups. The pattern of differential tax incidence relating to the full inclusion of real capital gains emerges as similar to that relating to full inclusion of nominal gains, except that the tendency towards proportionality is a little stronger. If capital gains, except gains on own residence, are incorporated in the tax base, proportionality of differential tax incidence again dominates
TABLE 9.2.5

ASCF Sample of Households: Population weighted averages of sub-group variations in income tax payable as a % of 1966-67 disposable real income\(^a\) under alternative inclusion rules for capital gains

<table>
<thead>
<tr>
<th>Real Income Class - $</th>
<th>Under 25</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>Over 64</th>
</tr>
</thead>
<tbody>
<tr>
<td>All nominal gains included:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Under 3,000</td>
<td>-3.3</td>
<td>-2.3</td>
<td>-1.0</td>
<td>-0.1</td>
<td>0.8</td>
<td>3.3</td>
</tr>
<tr>
<td>Lower middle 3,000 - 4,999</td>
<td>-3.6</td>
<td>-0.9</td>
<td>-0.2</td>
<td>-0.2</td>
<td>-0.3</td>
<td>2.6</td>
</tr>
<tr>
<td>Upper middle 5,000 - 8,999</td>
<td>-4.9</td>
<td>-1.1</td>
<td>-0.1</td>
<td>0.1</td>
<td>0.3</td>
<td>1.7</td>
</tr>
<tr>
<td>High Over 8,999</td>
<td>-1.6</td>
<td>0.2</td>
<td>0.1</td>
<td>0.9</td>
<td>1.0</td>
<td>3.3</td>
</tr>
<tr>
<td>All real gains included:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Under 3,000</td>
<td>-2.5</td>
<td>-1.7</td>
<td>-0.8</td>
<td>-0.5</td>
<td>0.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Lower middle 3,000 - 4,999</td>
<td>-2.8</td>
<td>-0.4</td>
<td>0.0</td>
<td>-0.1</td>
<td>-0.4</td>
<td>1.6</td>
</tr>
<tr>
<td>Upper middle 5,000 - 8,999</td>
<td>-3.3</td>
<td>-0.4</td>
<td>0.2</td>
<td>0.0</td>
<td>-0.4</td>
<td>0.7</td>
</tr>
<tr>
<td>High Over 8,999</td>
<td>-0.5</td>
<td>0.8</td>
<td>0.3</td>
<td>0.5</td>
<td>-0.1</td>
<td>1.2</td>
</tr>
<tr>
<td>Nominal gains except on own residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Under 3,000</td>
<td>-1.0</td>
<td>-0.8</td>
<td>-0.6</td>
<td>-0.7</td>
<td>-0.2</td>
<td>-0.1</td>
</tr>
<tr>
<td>Lower middle 3,000 - 4,999</td>
<td>-1.1</td>
<td>-0.7</td>
<td>-0.5</td>
<td>-0.5</td>
<td>-0.6</td>
<td>0.5</td>
</tr>
<tr>
<td>Upper middle 5,000 - 8,999</td>
<td>-1.5</td>
<td>-0.6</td>
<td>-0.2</td>
<td>-0.3</td>
<td>0.0</td>
<td>1.4</td>
</tr>
<tr>
<td>High Over 8,999</td>
<td>0.1</td>
<td>0.4</td>
<td>1.1</td>
<td>1.6</td>
<td>1.8</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Real gains except on own residence included: see next page

---

\(^a\) Real disposable income is defined as regular income plus real capital gains less income tax actually paid.

\(^b\) Real income is defined as regular income plus real capital gains.
TABLE 9.2.5 (contd)

ASCF Sample of Households: Population weighted averages of sub-group variations in income tax payable as a % of 1966-67 disposable real income under alternative inclusion rules for capital gains

<table>
<thead>
<tr>
<th>Real Income Class - $</th>
<th>Under 25</th>
<th>25.34</th>
<th>35.44</th>
<th>45.54</th>
<th>55-64</th>
<th>Over 64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real gains except on own residence included:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Under 3,000</td>
<td>-0.7</td>
<td>-0.2</td>
<td>-0.3</td>
<td>-0.6</td>
<td>-0.3</td>
</tr>
<tr>
<td>Lower middle</td>
<td>3,000 - 4,999</td>
<td>-0.6</td>
<td>-0.1</td>
<td>0.0</td>
<td>-0.3</td>
<td>-0.6</td>
</tr>
<tr>
<td>Upper middle</td>
<td>5,000 - 8,999</td>
<td>-0.5</td>
<td>0.1</td>
<td>0.1</td>
<td>-0.3</td>
<td>-0.5</td>
</tr>
<tr>
<td>High</td>
<td>Over 8,999</td>
<td>0.8</td>
<td>1.1</td>
<td>0.9</td>
<td>0.8</td>
<td>0.2</td>
</tr>
</tbody>
</table>

a. Real disposable income is defined as regular income plus real capital gains less income tax actually paid.

b. Real income is defined as regular income plus real capital gains.
as between low, lower middle, and upper middle income groups, while there is significant progressivity in the incidence of burden as between high and other income groups.

3. Conclusions

Subject to qualifications regarding the data (in particular that relating to the attribution of capital gains to households - see Chapter 8 above), and the assumptions made regarding the sharing of taxable income and capital gains within households (first section of the current Chapter), certain generalisations about the differential tax incidence of alternative inclusion rules for taxing capital gains under the income tax, compared with the situation when capital gains are excluded from the tax base, have emerged. One effect of incorporating capital gains in the tax base is to defer the timing of lifetime tax liabilities. This effect is independent of whether gains on own residence are included in the base with other gains, but emerges more distinctly when nominal rather than real gains are made taxable.

After removing the effect of age (and bringing the analyses closer to a lifetime tax incidence study), the differential incidence of full inclusion of either real or nominal capital gains in the tax base would be approximately proportional as between low, lower middle, and upper middle income groups, and progressive between high and other income groups. That is, the burden of full inclusion of either real or nominal capital gains within the income tax would fall on the high income groups.
If capital gains, excluding gains on own residence, are incorporated in the income tax base, the incidence is again broadly proportional as between the low, lower middle, and upper middle income groups, but progressive as between these income groups and the high income group. Again, this broad observation is independent of whether gains are identified on a real or nominal basis.

In relation to these conclusions, it must be remembered that they are based on the estimated gains experience of different income and age groups during a particular year. As economic conditions change from year to year, so too may the relative gains experience of wealth-holders maintaining different compositions of net assets.
APPENDIX - TABLE 9.A.1

ASCF Sample of Households: Population weighted averages of sub-group variations in income tax payable as a % of 1966-67 regular income, less income tax actually paid under alternative inclusion rules for capital gains.

<table>
<thead>
<tr>
<th>Regular Income Class - $</th>
<th>Under 25</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>Over 64</th>
</tr>
</thead>
<tbody>
<tr>
<td>All nominal gains included:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Under 3,000</td>
<td>-3.2</td>
<td>0.8</td>
<td>1.0</td>
<td>2.9</td>
<td>5.1</td>
</tr>
<tr>
<td>Lower middle 3,000 - 4,999</td>
<td>-3.9</td>
<td>-0.9</td>
<td>0.3</td>
<td>0.7</td>
<td>0.3</td>
<td>3.0</td>
</tr>
<tr>
<td>Upper middle 5,000 - 8,999</td>
<td>-4.7</td>
<td>-2.2</td>
<td>-0.8</td>
<td>-0.7</td>
<td>-0.4</td>
<td>0.1</td>
</tr>
<tr>
<td>High</td>
<td></td>
<td>-3.3</td>
<td>-0.8</td>
<td>-0.6</td>
<td>0.9</td>
<td>1.8</td>
</tr>
<tr>
<td>All real gains included:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Under 3,000</td>
<td>-2.4</td>
<td>1.4</td>
<td>1.1</td>
<td>2.0</td>
<td>3.7</td>
</tr>
<tr>
<td>Lower middle 3,000 - 4,999</td>
<td>-2.8</td>
<td>0.0</td>
<td>0.5</td>
<td>0.6</td>
<td>0.0</td>
<td>1.5</td>
</tr>
<tr>
<td>Upper middle 5,000 - 8,999</td>
<td>-3.4</td>
<td>-1.3</td>
<td>-0.2</td>
<td>-0.7</td>
<td>-1.3</td>
<td>-0.7</td>
</tr>
<tr>
<td>High</td>
<td>Over 8,999</td>
<td>-2.2</td>
<td>0.4</td>
<td>-0.8</td>
<td>0.2</td>
<td>1.7</td>
</tr>
<tr>
<td>Nominal gains except on own residence included:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Under 3,000</td>
<td>-1.0</td>
<td>-0.7</td>
<td>-0.2</td>
<td>-0.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Lower middle 3,000 - 4,999</td>
<td>-1.1</td>
<td>-0.8</td>
<td>-0.4</td>
<td>-0.3</td>
<td>0.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Upper middle 5,000 - 8,999</td>
<td>-1.6</td>
<td>-0.7</td>
<td>-0.2</td>
<td>-0.3</td>
<td>0.2</td>
<td>0.7</td>
</tr>
<tr>
<td>High</td>
<td>Over 8,999</td>
<td>1.7</td>
<td>0.4</td>
<td>1.5</td>
<td>1.6</td>
<td>3.2</td>
</tr>
<tr>
<td>Real gains except on own residence included:</td>
<td>see next page</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Real gains except on own residence included: see next page.
APPENDIX - TABLE 9.A.1 (contd)

ASCF Sample of Households: Population weighted averages of sub-group variations in income tax payable as a % of 1966-67 regular income, less income tax actually paid under alternative inclusion rules for capital gains.

<table>
<thead>
<tr>
<th>Regular Income Class - $</th>
<th>Under 25</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>Over 64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Under 3,000</td>
<td>-0.6</td>
<td>0.1</td>
<td>0.2</td>
<td>-0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>Lower middle</td>
<td>3,000 - 4,999</td>
<td>-0.5</td>
<td>0.1</td>
<td>0.1</td>
<td>-0.1</td>
<td>-0.4</td>
</tr>
<tr>
<td>Upper middle</td>
<td>5,000 - 8,999</td>
<td>-1.0</td>
<td>0.0</td>
<td>0.1</td>
<td>-0.4</td>
<td>-0.9</td>
</tr>
<tr>
<td>High</td>
<td>Over 8,999</td>
<td>1.5</td>
<td>1.3</td>
<td>0.8</td>
<td>0.2</td>
<td>0.9</td>
</tr>
</tbody>
</table>
REFERENCES


CHAPTER X

VARIATION IN THE INCOME TAX TREATMENT OF CAPITAL GAINS AND HORIZONTAL EQUITY

1. Introduction

As between income (appropriately defined) groups, the differential incidence of alternative taxation treatments of capital gains could be zero, that is, inclusion of capital gains could be neutral with respect to the overall progressivity of the income tax. Even if this was the case,¹ the equity implications of taxing capital gains will continue to be of interest to the extent that the treatment of capital gains may alter the incidence of taxation within income groups. This is a question of the relative tax treatment of persons, or households, in approximately equal relevant circumstances - a question of horizontal equity.

2. The Principle of equal treatment of equals

The equal treatment principle was introduced in Chapter I above, as being the most widely accepted principle of equity in taxation, and used to examine the implications of taxation according to ability-to-pay and the existence of capital gains in Chapters III, IV and VI.

An operational difficulty of the equal treatment rule is that reference to it does not provide an immediate best available ("second best") solution when an optimal solution is,

¹ The differential incidence estimates of Chapter IX above suggest that this would be the case as between low, lower and upper middle income groups.
for administrative or political reasons, unattainable. The problem of choosing between tax regimes, neither of which is ideal according to the equal treatment rule, has been taken up by Johnson and Mayer [4], who recommended comparison in terms of the number or money value of inequities. As Brennan [2] has pointed out, the number of inequities criterion is substantially irrelevant because a system characterised by a large number of small inequities will generally be regarded as being more consistent with the equal treatment rule than a system characterised by a small number of large inequities.

Although it is certainly superior to the number of inequities criterion, it is arguable that the money value of inequities test is also deficient as a criterion of relative degree of inequity because it fails to weight large inequities sufficiently heavily. However, the appropriate weighting system for inequities of differing money magnitudes remains an interesting question. Although it might be agreed that money value alone weights large inequities too lightly, it could be closer to the correct weighting, in a particular context, than an alternative such as the standard deviation of the money values of the inequities.

Although use of the money values of inequities is defensible because the superiority of an alternative weighting system is undemonstrated when dealing with persons (or households) who are in equal tax-relevant circumstances, a further scaling device is required when the range of interest involves comparison of the treatment of those in unequal tax-relevant circumstances. That is, the inequity involved when a person who should pay $1,000 is overtaxed by $10 is greater than when a person who should pay $100 is overtaxed by the
same amount. Possible standardisation devices include dividing the money value of inequities by the respective intended marginal, or average, tax rates of the persons involved, or by the respective value of some index of material welfare. (Referenced to a progressive personal income tax these alternatives are sequenced in ascending order of the relative importance they assign to inequities imposed on lower income groups).

3. An assessment of the relative horizontal inequity of alternative tax treatments of capital gains

Horizontal equity comparisons between taxation alternatives are really as aspect of differential tax incidence analysis. To confine the analysis it is assumed that the expenditure decisions of government are independent of financing decisions, so that taxation arrangements are compared to alternative means of raising a given amount of revenue. The horizontal equity assessment of a taxation alternative requires a comparison of the incidence on tax-relevant equals with that of an "ideal" arrangement subject to the assumption of a constant revenue yield.

The argument of Chapters I to VI supports the inclusion of accrued real capital gains in the base of an ideal personal income tax. The prevailing income tax effectively excludes capital gains from the tax base. In addition, the prevailing system includes no arrangements for recognising the distinction between nominal and real income, and there is evident political hesitance regarding the taxation of income generated by owner-occupied dwellings. Thus a movement to extend the base of the existing income tax to include capital gains is not unlikely to
be in the direction of identifying gains in nominal terms and excluding gains on own residence. These considerations suggest four alternative personal income tax arrangements for comparison with the "ideal" of a base that incorporates real capital gains. These are:

(i) the existing system, which excludes capital gains from the base entirely,

and amendment of the existing system to:

(ii) include all nominal gains;
(iii) include real capital gains, except gains on own residence;
(iv) include nominal capital gains, except gains on own residence.

The question is whether the inclusion of capital gains identified in nominal terms, and/or excluding gains on own residence, would constitute an improvement on the existing system, which excludes capital gains from the tax base entirely. The present discussion is directed at the horizontal equity aspect of this question.

As indicated above, the assessment of the relative equitability of the alternatives requires comparisons of the amount of tax that each household (the data base for the estimates treats the household as the prime unit), would pay under each alternative, with the amount of tax that the household should pay under the "ideal" arrangement. A particular difficulty involved in making this comparison is that of assigning a tax value when the "ideal" or an alternative...
tax base has a negative value for particular households. The existing arrangement with respect to net losses incurred in particular years is that they are permitted to be carried forward, and deducted from income to determine tax liability in subsequent years. Thus, the tax value of a loss depends upon the tax unit's effective marginal rate of tax in the year in which the loss is deducted from other income. To avoid this difficulty the comparisons in Tables 10.3.1 to 10.3.5 are in terms of the magnitude of each household's tax base, instead of the liability under the alternative tax regimes. Along with this, the calculations are based on an equal aggregate tax base assumption in place of the equal revenue yield assumption.

Certain qualifications attach to the use of proportionate departures from the "ideal" tax base as an indicator of proportionate errors or inequities in the distribution of the liabilities when the rate schedule is progressive. Firstly, the equal aggregate base assumption is not equivalent to the equal revenue assumption: the less equally a tax base is distributed, the lower the (progressive) rates of tax necessary to secure a given tax yield. Suppose "A" is the ideal base, and "B" an alternative base of equal aggregate magnitude, but less equally distributed. Rates of tax will be lower under "B", so that some tax units whose tax base is larger under "B" than under "A" will nevertheless be required to pay less tax under "B". Abstracting from the effect that marginal rates of tax greater than average rates

---

3 Within the ASCF sample there are 81 such instances in relation to the "ideal" base. See the top row of Tables 10.3.1 to 10.3.4.
has on the ratio of inequity to correct tax payable (discussed below), positive departures from the ideal, and more equally distributed in this case, tax base will over-estimate proportionate inequities in the form of over-assessment of tax, and negative departures will under-estimate inequities in the form of under-assessment of tax. Because the aggregate money value of positive and negative departures from the ideal tax base will be equal, there will be a tendency for over-and-under-estimation of proportionate inequities arising from this source to cancel.

Secondly, marginal rates of tax being higher than average rates will cause proportionate departures from the "ideal" tax base to under-estimate proportionate departures from the "ideal" tax payable. Thirdly, because marginal rates of tax increase with the magnitude of the tax base, departures from the "ideal" tax base will tend to under-estimate positive departures from the "ideal" tax payable relative to negative departures. Fourthly, because the ratio of marginal to average tax rates declines as the tax base increases, proportionate departures from the "ideal" base will tend to under-estimate the proportionate magnitude of inequities in tax assessed at lower levels of "income", relative to those at higher levels.

The important qualifications attaching to the use of proportionate departures from the "ideal" tax base as estimators of proportionate inequities in tax assessed appear to be that there is a general bias in the direction of under-estimation, and that this bias is stronger at the lower end of the income scale.
Tables 10.3.1 to 10.3.4 are frequency distributions of households by "ideal" tax base (regular income plus real capital gains), and proportionate departure from the "ideal" base when an alternative is adopted. Inspection of these Tables reveals that the observations are more closely clustered about the central columns when the tax base is defined as regular income plus total nominal capital gains (Table 10.3.2), than for the other three definitions. Regular income plus total nominal capital gains, adjusted for aggregate magnitude as an estimator of regular income plus total real capital gains contains 75 percent of the observations within the ±5 percent error interval, and 86 percent of observations within the ±10 percent error interval. This compares with 30-33 percent of observations within the ±5 percent error interval, and about 50 percent within the ±10 percent interval for the other three estimators of the "ideal" tax base.

Table 10.3.5 has been constructed from Tables 10.3.1 to 10.3.4 by assuming that the average departure from regular income, plus real capital gains within any class interval in Tables 10.3.1 to 10.3.4 is equal to the mid-point of the class interval. The average value of the departure in the extreme classes with absolute departures in excess of 100 percent has been assumed to be 200 percent.

It emerges that regular income plus nominal gains is a superior estimator of regular income plus real capital gains to the three alternatives for all "income" (regular income plus real gains) groups, except the negative "income" group. It also appears that regular income alone is generally an inferior
<table>
<thead>
<tr>
<th>Class $-%$</th>
<th>$-100$</th>
<th>$-50$</th>
<th>$-25$</th>
<th>$-15$</th>
<th>$-10$</th>
<th>$-5$</th>
<th>$0$</th>
<th>$1$</th>
<th>$6$</th>
<th>$11$</th>
<th>$16$</th>
<th>$26$</th>
<th>$51$</th>
<th>Over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $1$</td>
<td>139</td>
<td>49</td>
<td>17</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>34</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>257</td>
<td></td>
</tr>
<tr>
<td>1 - 999</td>
<td>24</td>
<td>18</td>
<td>13</td>
<td>4</td>
<td>4</td>
<td>3</td>
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<td>1</td>
<td>4</td>
<td>3</td>
<td>16</td>
<td>31</td>
<td>3</td>
<td>127</td>
</tr>
<tr>
<td>1000 - 1999</td>
<td>5</td>
<td>10</td>
<td>17</td>
<td>17</td>
<td>27</td>
<td>18</td>
<td>5</td>
<td>34</td>
<td>28</td>
<td>71</td>
<td>104</td>
<td>4</td>
<td>2</td>
<td>347</td>
</tr>
<tr>
<td>2000 - 2999</td>
<td>5</td>
<td>7</td>
<td>38</td>
<td>23</td>
<td>53</td>
<td>64</td>
<td>17</td>
<td>75</td>
<td>48</td>
<td>105</td>
<td>94</td>
<td>3</td>
<td></td>
<td>496</td>
</tr>
<tr>
<td>3000 - 3999</td>
<td>2</td>
<td>17</td>
<td>36</td>
<td>35</td>
<td>56</td>
<td>89</td>
<td>14</td>
<td>81</td>
<td>53</td>
<td>56</td>
<td>54</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4000 - 4999</td>
<td>10</td>
<td>17</td>
<td>23</td>
<td>22</td>
<td>60</td>
<td>14</td>
<td>73</td>
<td>34</td>
<td>41</td>
<td>36</td>
<td>2</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5000 - 5999</td>
<td>9</td>
<td>8</td>
<td>12</td>
<td>17</td>
<td>37</td>
<td>7</td>
<td>48</td>
<td>33</td>
<td>21</td>
<td>17</td>
<td>5</td>
<td>1</td>
<td></td>
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<tr>
<td>6000 - 6999</td>
<td>3</td>
<td>5</td>
<td>13</td>
<td>11</td>
<td>16</td>
<td>35</td>
<td>11</td>
<td>49</td>
<td>40</td>
<td>28</td>
<td>24</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>7000 - 8999</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td>11</td>
<td>1</td>
<td>29</td>
<td>18</td>
<td>13</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>9000 - 11999</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>9</td>
<td>11</td>
<td>7</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over 11999</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>168</td>
<td>81</td>
<td>90</td>
<td>141</td>
<td>133</td>
<td>204</td>
<td>325</td>
<td>106</td>
<td>405</td>
<td>269</td>
<td>358</td>
<td>397</td>
<td>21</td>
<td>3</td>
</tr>
</tbody>
</table>

a. See explanation of standardisation procedure at foot of Table 10.3.5.
### TABLE 10.3.2

ASC Sample of Households - Joint frequency distribution of numbers of households by regular income plus real capital gains (A) and ratio of "Standardised" regular income plus nominal capital gains\(^a\) minus regular income plus real capital gains to regular income plus real capital gains (B)

<table>
<thead>
<tr>
<th>A Class</th>
<th>Number of Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1</td>
<td></td>
</tr>
<tr>
<td>1 - 999</td>
<td>3</td>
</tr>
<tr>
<td>1000 - 1999</td>
<td>9</td>
</tr>
<tr>
<td>2000 - 2999</td>
<td>30</td>
</tr>
<tr>
<td>3000 - 3999</td>
<td>41</td>
</tr>
<tr>
<td>4000 - 4999</td>
<td>17</td>
</tr>
<tr>
<td>5000 - 5999</td>
<td>10</td>
</tr>
<tr>
<td>6000 - 6999</td>
<td>4</td>
</tr>
<tr>
<td>7000 - 8999</td>
<td>3</td>
</tr>
<tr>
<td>9000 - 9999</td>
<td>42</td>
</tr>
<tr>
<td>Over 10000</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>115</td>
</tr>
</tbody>
</table>

\(^a\) See explanation of standardisation procedure at foot of Table 10.3.5.
### TABLE 10.3.3

ASCF Sample of Households - Joint frequency distribution of number of households by regular income plus real capital gains (A) and ratio of "Standardised" regular income plus real capital gains excluding gains on own residence\(^a\) minus regular income plus real capital gains to regular income plus real capital gains (B)

| A Class \(
|\frac{\text{-} $}{\text{-} 100}
|\frac{\text{B Class}}{\text{-} 50}
|\frac{\text{to}}{\text{-} 25}
|\frac{\text{to}}{\text{-} 15}
|\frac{\text{to}}{\text{-} 10}
|\frac{\text{to}}{\text{-} 5}
|\frac{\text{to}}{1)
|\frac{6}{10}
|\frac{11}{15}
|\frac{16}{25}
|\frac{26}{50}
|\frac{51}{100}
| Over
| Total
| \text{Number of Households} |
| \text{Under} | \text{-100} | \text{-50} | \text{-25} | \text{-15} | \text{-10} | \text{-5} | 1 | 6 | 11 | 16 | 26 | 51 | \text{Total} |
| Under 1 |      |     |     |     |     |     |     |     |     |     |     |     | 81 |
| 1 - 999 | 123  | 62  | 11  | 4   | 2   | 2   | 1   | 1   | 49  |
| 1000 - 1999 | 25  | 16  | 10  | 8   | 3   | 6   | 3   | 1   | 3   | 5   | 47  |
| 2000 - 2999 | 4   | 5   | 14  | 17  | 21  | 24  | 30\(\frac{1}{2}\) | 5   | 27  | 28  | 169 | 1   | 1   | 1   | 347 |
| 3000 - 3999 | 2   | 7   | 28  | 26  | 50  | 79  | 16  | 78  | 40  | 195 | 4   | 1   | 526 |
| 4000 - 4999 | 1   | 14  | 30  | 34  | 53  | 86  | 23  | 79  | 67  | 103 | 2   | 4   | 496 |
| 5000 - 5999 | 1   | 5   | 13  | 19  | 30  | 58  | 24  | 70  | 36  | 73  | 1   | 2   | 332 |
| 6000 - 6999 | 6   | 7   | 7   | 24  | 37  | 8   | 60  | 17  | 46  | 3   |     |     | 215 |
| 7000 - 8999 | 4   | 9   | 7   | 18  | 34  | 13  | 69  | 37  | 42  | 2   |     |     | 235 |
| 9000 - 11999 | 3   | 4   | 16  | 16  | 6   | 29  | 21  | 9   |     |     |     |     | 88 |
| Over 11999 |     |     |     |     |     |     |     |     |     |     |     |     |     | 50 |
| Total: | 152 | 87  | 72  | 116 | 168 | 212 | 348 | 131 | 430 | 271 | 741 | 10  | 11  | 2   | 3   | 2754 |

\(a\). See explanation of standardisation procedure at foot of Table 10.3.5.
### TABLE 10.3.4

ASCF Sample of Households - Joint frequency distribution of number of households by regular income plus real capital gains (A) and ratio of "Standardised" regular income plus nominal capital gains excluding gains on own residence minus regular income plus real capital gains to regular income plus real capital gains (B)

<table>
<thead>
<tr>
<th>A Class</th>
<th>Number of Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1</td>
<td>47</td>
</tr>
<tr>
<td>1 - 999</td>
<td>34</td>
</tr>
<tr>
<td>1000 - 1999</td>
<td>127</td>
</tr>
<tr>
<td>2000 - 2999</td>
<td>347</td>
</tr>
<tr>
<td>3000 - 3999</td>
<td>526</td>
</tr>
<tr>
<td>4000 - 4999</td>
<td>496</td>
</tr>
<tr>
<td>5000 - 5999</td>
<td>332</td>
</tr>
<tr>
<td>6000 - 6999</td>
<td>215</td>
</tr>
<tr>
<td>7000 - 8999</td>
<td>235</td>
</tr>
<tr>
<td>9000 - 11999</td>
<td>88</td>
</tr>
<tr>
<td>Over 11999</td>
<td>50</td>
</tr>
</tbody>
</table>

| Total: | 2754 | 203. |

a. See explanation of standardisation procedure at foot of Table 10.3.5.
estimator to each of the other three. The performance of all four estimators is better for the middle and upper income groups than it is for the low income groups. This may be attributable to the use of a short time period (one year) for measuring "regular" income and capital gains, a consequence being that transitory elements in "regular" income or capital gains generate differences between the various concepts of income that are proportionately greater for households with low regular income plus real gains in that particular year.

Although on these calculations regular income plus nominal capital gains emerges as a superior estimator of regular income plus real capital gains than does regular income alone, a further note of caution is in order. The difference between nominal and real capital gains will be positively correlated with the rate of inflation. In 1966-67 the rate of inflation is estimated (movement in the Consumer Price Index) at 3 percent per annum. In more recent years, when the rate of inflation has been higher, regular income may be a more reliable indicator of regular income plus real capital gains, than is regular income plus nominal capital gains.

Household indebtedness is equal to only a minor proportion of the value of household assets, and is not positively correlated with net wealth. See Appendix to this Chapter, Table 10.A.1, and Chapter VII, Table 7.5.1.

The movement in the Consumer Price Index from June quarter 1974 to June quarter 1975 was 16.9 percent.
TABLE 10.3.5

ASCF Sample of Households: average % departures (all Departures accorded a positive value) from regular income plus real capital gains of alternative tax bases (adjusted), by regular income plus real capital gains classes

<table>
<thead>
<tr>
<th>Regular Income + Real Capital Gains $ Classes</th>
<th>Regular Income + Nominal Capital Gains x 1.1501 a</th>
<th>Regular Income + Real Capital Gains excl.Gains on own Residence x 0.9406 a</th>
<th>Regular Income + Nominal Capital Gains excl. Gains on own Residence x 1.1184 a</th>
<th>Regular Income + Nominal Capital Gains x 1.1005 a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1</td>
<td>116</td>
<td>116</td>
<td>11</td>
<td>116</td>
</tr>
<tr>
<td>1 - 999</td>
<td>133</td>
<td>67</td>
<td>44</td>
<td>121</td>
</tr>
<tr>
<td>1,000 - 1,999</td>
<td>62</td>
<td>12</td>
<td>26</td>
<td>57</td>
</tr>
<tr>
<td>2,000 - 2,999</td>
<td>18</td>
<td>5</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>3,000 - 3,999</td>
<td>11</td>
<td>4</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>4,000 - 4,999</td>
<td>11</td>
<td>4</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>5,000 - 5,999</td>
<td>10</td>
<td>3</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>6,000 - 6,999</td>
<td>10</td>
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<td>8</td>
<td>10</td>
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<td>7,000 - 8,999</td>
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<td>9</td>
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<td>9,000 - 11,999</td>
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<td>4</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Over 11,999</td>
<td>10</td>
<td>5</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Total:</td>
<td>28</td>
<td>14</td>
<td>22</td>
<td>26</td>
</tr>
</tbody>
</table>

a. The multiplicative factor has been determined so as to equate the aggregate magnitude of the alternative tax bases with that of regular income plus Real Capital Gains.
**APPENDIX - TABLE 10.A.1**

ASCF Household Data: Indebtedness as a proportion of value of assets by age of head

<table>
<thead>
<tr>
<th>Age of Head (yrs)</th>
<th>Class</th>
<th>Average ratio of Indebtedness to Value of Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td></td>
<td>0.369</td>
</tr>
<tr>
<td>25-34</td>
<td></td>
<td>0.358</td>
</tr>
<tr>
<td>35-44</td>
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<td>0.220</td>
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<tr>
<td>45-54</td>
<td></td>
<td>0.130</td>
</tr>
<tr>
<td>55-64</td>
<td></td>
<td>0.066</td>
</tr>
<tr>
<td>Over 64</td>
<td></td>
<td>0.024</td>
</tr>
<tr>
<td>All Households</td>
<td></td>
<td>0.160</td>
</tr>
</tbody>
</table>
REFERENCES


