
**Implications of Family Sharing for the Design of an
Ideal Personal Tax System**

by Michael J. McIntyre

in Chapter 6 of
**THE PERSONAL INCOME TAX:
PHOENIX FROM THE ASHES**

Richard Bird and Sijbren Cnossen, editors
Amsterdam: North-Holland (1990)

A revision of paper presented at International Seminar of
Public Economists, Rotterdam, Jan. 5, 1989

[Note: This version of the paper was scanned from the original and set in a different typeface (New Baskerville OsF) and size (11 point) from the original. Page breaks that differ from the original are marked in the text [*ppp]. The pagination for the references follows the original only with respect to the first page.]

CHAPTER 6

IMPLICATIONS OF FAMILY SHARING FOR THE DESIGN OF AN IDEAL PERSONAL TAX SYSTEM

Michael J. McIntyre *

6.1. Introduction

An ideal personal tax system should adjust the tax burdens otherwise imposed on individuals for at least some of the economic consequences of family sharing. In virtually all societies, those consequences are a major determinant of the economic well-being of a substantial majority of individuals. Dependent spouses and dependent children, for example, may depend upon family sharing for their basic necessities. Many dependents become members of the middle classes, or even the upper class, as a result of the market-place activities of a member of their family.

Those on the giving end of family sharing also have their economic condition altered by the support obligations that they voluntarily assume or that are imposed on them by law, by social convention, or by a well-formed sense of personal responsibility. In Haig-Simons terms, family bread-winners typically consume and save less market-place goods and services than individuals who are otherwise similarly situated but who have not assumed family responsibilities. Those who share market-place rewards with members of their family may obtain some compensating benefits, such as love, affection, domestic services, and sexual favors. Whether such non-market benefits should be relevant in measuring an individual's taxable capacity is unsettled in theory. In practice, there is virtually no political support in any country for taxing such benefits, and no country does so.

For a personal tax system to take account of the economic consequences of family sharing, it must employ provisions that depend for their operation on the family or household status of the taxpayer. Such provisions are referred to in this paper as 'family-sensitive tax provisions'. Examples would include marital joint filing rules, deductions for alimony payments, dependency exemptions and credits, and special rates for heads of households.

Even a tax system that seeks to minimize the tax consequences of family sharing must adopt some family-sensitive tax provisions in order to prevent the members of a family from using their economic solidarity to avoid taxes. To tax individuals on the income sources generated by their own economic [*147] activities, for example, most separate filing systems employ family-sensitive provisions that reduce opportunities for intrafamily income-splitting.

* I am grateful to my colleague, Vincent Wellman, for comments on a draft of this paper.

The term ‘family sharing’ is used broadly in this paper to include sharing between members of a household, whether or not the members of that household are related by blood or marriage. Thus it would include sharing between unmarried persons living as a couple. Family sharing would also include sharing among former spouses through alimony payments or otherwise, and sharing between parents and children who have left the home. The more common examples of family sharing are sharing between spouses and sharing between parents and their minor children.

Tax analysts have traditionally abstracted from family taxation issues in their discussions of the features of an ideal tax system. For example, the debate over the merits of a comprehensive tax base has been conducted with only passing reference to those issues.¹ In this paper, I attempt to correct for that historical imbalance in two ways. I show how the value-judgments that would justify the choice of a particular tax base are also relevant to the design of family-sensitive tax provisions. I also show the relevance of family taxation issues in choosing between an income tax base, a consumption tax base, and an endowment tax base.

Tax provisions are means to ends. They are never good absolutely. Their merits depend entirely on their efficacy in advancing the political goals of the tax system in which they operate. To determine whether a particular tax provision would advance a set of political goals, tax theorists must establish, by assumption or otherwise, the other features of the tax system in which that provision would operate. They cannot defend a particular tax provision in the abstract because every tax provision depends on other tax provisions to have consequences. There is no such thing, for example, as an ideal set of rules for defining the tax base or for relating economic benefits included in that base to a particular taxable period except as features of an ideal tax system.

The design of an ideal tax system is an extremely complex undertaking. In an ideal system, each tax provision would serve an ordained function and would work in harmony with other provisions to achieve some common goals. As a practical matter, the construction of an ideal tax system depends upon the development of a system for classifying tax provisions by their function. [*147]

¹ At a conference in 1977 sponsored by the Brookings Institution, the consensus view of the participants (mostly economists) was that a Haig-Simons income tax base could be defined and defended without reference to the choice of rules for attributing income to particular taxpayers and, presumably, without reference to any other features of the tax system in which that base would operate. See Sunley (1977a, p. 271). If that view were correct, it would be possible to defend the distributional consequences of a broad-based income tax even if the entire burden of that tax would be imposed on the Rector Magnificus of the University of Rotterdam. The 1977 consensus has certainly weakened, as is evident, for example, from the recent attention given in the tax literature to the significance of the taxable period in choosing the appropriate tax base.

I present in the appendix to this paper a scheme that I have developed for classifying tax provisions according to their function. In brief, that scheme divides all tax provisions into three classes: the sorting rules, the imposition rules, and the tax expenditure rules. In an ideal personal tax system designed according to this classification scheme, taxpayers would employ the sorting rules to compute their taxable capacity, measured, for example, by their taxable income or their taxable consumption. They would then employ the imposition rules to determine the amount of tax due with respect to their taxable capacity. There would be no tax expenditure rules because the goals associated with tax expenditures would be achieved through spending mechanisms.

Section 6.2 discusses the family-sensitive provisions of an ideal personal and progressive income tax system. That ideal is my version of a Haig-Simons income tax. In developing that ideal, I used as my analytical framework the classification scheme set forth in the appendix. In section 6.3, I analyze the family-sensitive provisions of two consumption tax proposals, again employing my classification scheme. In section 6.4, I show that an endowment tax, which is designed to impose equal lifetime burdens on taxpayers having equal lifetime options, would systematically produce unfair results in a world in which family members typically share resources. Section 6.5 presents a brief conclusion.

6.2. An Ideal Haig-Simons Income Tax

The appropriate starting-point in specifying the sorting rules for a Haig-Simons income tax is Simons's famous formulation of the income concept. Simons offers a partial formula that taxpayers would employ to compute their taxable income. Under that formula, the taxable income of a particular taxpayer would be the sum of (1) the market value of rights exercised in consumption by the taxpayer during the taxable period and (2) the market value of property rights held by that taxpayer at the end of the taxable period minus the market value of property rights held at the start of that period (Simons, 1938, p. 50).

In terms of the classification scheme set forth in the appendix, the base of an ideal Haig-Simons income tax would be 'marketable consumption' and 'marketable savings'. Economic benefits that would not provide the taxpayer with either a marketable consumption benefit or a marketable savings benefit would not be used to measure a taxpayer's taxable capacity. Thus social rewards such as prestige, good marital prospects, long life, nice complexion, and above-average children would not be included in the tax base.

Following Simons's instructions, I would measure consumption and savings by reference to market prices (Simons, 1938, p. 50). For reasons discussed [*148] below, I would not include in the tax base

the psychic pleasure allegedly obtained by the donor from making gifts. Simons believed that the benefits obtained by the donor from gift-giving, plus certain other non-market rewards, should be included in the tax base, notwithstanding his formulation of the income concept in terms of market-place rewards.²

Simons attempts to say as little as possible about the two other main subcategories of sorting rules in my classification scheme — the taxable person rules and taxable period rules. It is implicit in his income formulation, however, that the burdens of the tax system he envisions would be imposed on human beings and that those burdens would relate in some systematic way to the consumption and savings that those individuals obtained from income. It is also implicit in Simons's system that income would be measured over some historical interval, such as a year. It would be inconsistent with Haig-Simons principles to measure taxable capacity in terms of some projection of future income. Thus an endowment tax, which telescopes the taxable period into an instant through discounting, is contrary to Simons's formulation of the income concept.

In my classification scheme, the taxable person rules are subdivided into two divisions. The first of those divisions is the tax unit rules. Those rules specify the tax unit, which I define to be the class of persons formally subject to taxation. Those rules also make members of that class formally subject to taxation on items of the tax base that are assigned to them by the income attribution rules. The income attribution rules comprise the second division of the taxable person rules. They assign each item of income included in the tax base to one and only one of the persons included in the class defined by the tax unit rules.

The tax unit in my ideal Haig-Simons system would be the individual. That is, the class of persons formally subject to taxation would be a class comprised entirely of individual human beings. Items of income would be attributed to particular individuals according to the benefit principle.³ Under that [*149] principle, an item of income included in the tax base is properly taxable to the person who enjoys the benefits financed by that income item.

² Simons, 1938, pp. 125-47. The taxation of donees on gifts is entirely consistent with Simons's income concept because the benefits they obtain typically are marketable goods or services. Thus Simons argues with confidence for the taxation of donees (pp. 134-5). He appears to be troubled by the second tax on donors (p. 135). He notes with favor, but without enthusiasm, the traditional utilitarian argument for taxing gifts (that the donor must have obtained a benefit or he would not have made the gift). He relies chiefly on the administrative problem of line-drawing between gifts that would be properly excluded from the tax base as true gifts and those that were disguised exchanges (p. 136). Like most other important tax reformers, he has sense enough to avoid the taxation of most intrafamily gifts on administrative grounds (p. 136). He shows concern about the gifts among the rich. He almost certainly did not contemplate a double tax on family bread-winners of modest means. At the time that Simons was writing, the income tax in the United States applied primarily to the well-to-do.

³ For a full discussion of the benefit principle, see McIntyre and Oldman (1977b). See also the appendix.

In my ideal tax system, an item of income spent to finance consumption would be taxable to the consumer. An income item spent to acquire a savings benefit would be taxable to the saver. For reasons explained below, I would implement the benefit principle by taxing each marital partner on one-half of their aggregate marital income, assuming that the tax system was being designed for a society in which marital partners generally share resources. That is, for most modern societies, I propose marital joint filing with full income-splitting.

The taxable period in my ideal system would be the year. I favor a short period on principle and the year for administrative convenience. An item of income used to finance savings would be taxable to an individual in the taxable year in which it is saved. Similarly, income used to finance consumption would be taxable in the year it was consumed. An item of income used to finance savings during a taxable period would not be taxable as consumption in a future taxable period.

The only imposition rule in my ideal tax system would be a graduated rate schedule. All individuals would pay tax according to that schedule with respect to the annual income attributable to them under the benefit principle. The rate schedule would have a wide zero bracket to keep the poor off the tax rolls. Graduation within middle-income levels would be moderate, on the ground that redistribution within the middle classes is not an important societal goal. High-income taxpayers would be subject to significantly higher rates than other taxpayers in order to reduce gross inequalities in the distribution of taxable income. I would not employ any tax expenditure provisions.

In the subsections below, I explain my reasons for selecting the features of my ideal system described above, but only to the extent that those features implicate family taxation issues. I do not discuss here my preference for the year rather than the lifetime as the taxable period. I would note, however, that a Haig-Simons income tax, to retain its character as an income tax, must use a relatively short taxable period to measure taxable capacity.⁴

6.2.1. The Individual as the Proper Tax Unit

The choice of the individual as the tax unit should be non-controversial for a simple reason: individuals are the proper focus of fairness in any social [*150] institution, including a personal tax

⁴ For discussion of the advantages of a short taxable period for achieving some redistribution of market-place rewards, see McIntyre (1988b, pp. 242-4).

system.⁵ It is invalid, for example, to conclude that married couples should be the focus of fairness in a personal tax system because they sometimes constitute spending units. It is also invalid to conclude that married couples and single persons should be treated equally simply because they are 'equal' with respect to the amount of their income, just as it is invalid to conclude that a racehorse and a racecar driver should be treated equally because they have won equal purses.

Collective entities like a married couple or a family derive whatever claims they may have to fair treatment from the claims of the individuals who comprise those entities. Such derivative claims cannot be asserted to justify a tax rule that would override the fairness claims of individuals comprising a married couple or a family. Family or household status might be used in estimating an individual's economic situation. The wife of a rich accountant, for example, should not be considered to be poor by the tax code. Once the economic situation of an individual is determined, however, that individual has the right to be treated the same as other equally-situated individuals.

Enthusiasm for a tax unit other than the individual comes from two quarters. Some theorists, myself included, believe that the taxable capacity of a married person typically is a function of the aggregate income of that person's marital partnership. This judgment has led some analysts to conclude that the married couple is a proper tax unit. There is no need to adopt an improper tax unit, however, to make a married person's taxable income a function of the aggregate income of that person's marital partnership. As explained below, that outcome is best achieved through a proper choice of income attribution rules.

Support for a marital or family unit also comes from theorists who are led by their concept of income to treat gifts as income both to the donor and the donee tax but who are unwilling to endorse tax reform proposals that would achieve such a result. To extricate themselves from this cleft stick, they declare the family to be the proper tax unit, and they then argue against the double tax on most family gifts on the ground that those gifts constitute intra-unit gifts, comparable to a gift by an individual to himself.⁶ As explained below, the proper resolution to the double tax dilemma is to formulate an income concept that does not require the double tax.

6.2.2. Taxation of Gifts

Virtually all tax analysts agree that a Haig-Simons income tax would impose tax on the donee with respect to income received by gift. This [*151] treatment is appropriate, in my view, because the

⁵ For discussion, see McIntyre (1985b, pp. 157-60).

⁶ The Carter Commission (Canada) followed this approach to gifts. See McIntyre (1988b, p. 201). The same appears to be true of the authors of the reform proposals discussed in Section 6.3.

donee enjoys the consumption or the savings financed by the gift. The contentious issue is the proper tax treatment of the donor.⁷ Proponents of the so-called double tax on gifts contend that the donor and the donee should both be taxed. In support of that position, they contend that the amounts given in gift by the donor reflect ability to pay because the donor, by definition, chooses to make the gift. They also assert that the donor typically obtains an economic benefit from making the gift that is equal to or greater than the amount of the gift.

The argument for the double tax based on control of the income out of which the gift was made is logically distinct from the argument based on the economic benefits that the donor allegedly obtains from making the gift. Indeed, if both arguments are valid, it would follow that there should be a triple tax on gifts. Fortunately for family members, neither argument has much merit.

The control argument, restated in the terms suggested by my classification scheme, is an argument for what I have termed the control principle of income attribution. This principle is the only serious competitor to the benefit principle. Under the control principle, income is properly taxable to the person or persons who control its disposition. Income attribution rules designed in accord with this principle would not fulfill the function assigned to income attribution rules in my classification scheme because they would not attribute an item of income included in the tax base to one and only one taxpayer. Each individual who controlled an item of income, from its creation to its ultimate disposition, would be taxable with respect to that income item.

The argument that the donor receives an economic benefit from making a gift would be a tax base issue in my classification scheme. The question to be decided is whether that type of benefit is properly taxable. It would not be taxable in my ideal system because it does not constitute either marketable consumption or marketable savings.

Analysts might be able to establish that a tax base more comprehensive than the one I advocate would advance the worthy social goals of a personal tax system. It is not enough to make the case for a super-broad base, however, to point out the analogies between market rewards and rewards obtained outside the market. Every tax base, to be coherent, must draw lines. It must provide a rational ground for grouping individual taxpayers as equals despite the fact that all individuals are unique. A tax base that included every conceivable economic benefit would not only be incoherent, it would not be useful for sorting purposes.

I do not attempt in this paper to give a full defense of my ideal tax system [*152] or to refute the case for an alternative system. Because

⁷ Most tax systems actually tax the donor and exempt the donee. This treatment simplifies administration and may be viewed as an appropriate second-best method for taxing the donee and exempting the donor.

of the importance of the tax treatment of gifts for family members, however, I will note briefly some arguments that would support the single taxation of gifts that would result under my model and that would undermine the main alternatives to that model.

First, the double taxation of gifts is unfair to the donor, assuming that donors make gifts in order to share vicariously in the pleasure obtained by the donee from the gift. If H gives a gift to W in order to get vicarious pleasure from W's enjoyment of the gift, then a tax on W, which everyone should agree is proper, would reduce H's pleasure by the amount of that tax. A tax on H as well as on W would result in H bearing a greater burden on income transferred by gift than a similarly-situated taxpayer would bear on income spent on his own behalf.⁸

Second, the double tax on gifts is inconsistent with the redistributive policy of an income tax (McIntyre, 1988a, pp. 206-8). Can anyone seriously claim that an income tax should seek to redistribute the joy of gift-giving? Are there any societies where identifiable members of one societal group have an excess of this joy and members of another group are deprived? These are rhetorical questions, and the answers are no and no. The proper function of a redistributive income tax is to reshuffle the social rewards provided by a market system that favors persons with scarce skills and property without reference to fairness.⁹ A reshuffle of the joy of gift-giving is not required under this rationale for progressive taxes.

Third, taxation of the donor on the psychological joy of gift-giving is inconsistent with the tax treatment of analogous non-market benefits, such as the joy of leisure and the joy of being stingy. Taxation of one such esoteric benefit and not others is an unfair discrimination against givers.

Fourth, the double tax is inefficient. A gift presumably produces pleasure in the donor at no social cost. That is, whatever pleasure the donor obtains does not result in any reduction in the supply of scarce societal resources. Like the [*153] fabled pot that is never empty, a

⁸ As Brennan has demonstrated, the double tax generally would violate horizontal equity if horizontal equity is defined in terms of equal sacrifice. See Brennan (1983, pp. 113-16). Musgrave (1983, p. 25) properly accepts Brennan's argument with respect to gifts that are consumed by the donee. That is the case of importance for the taxation of intrafamily gifts under an income tax. Musgrave raises some legitimate but minor objections to Brennan with respect to bequests that are not consumed by the heir.

⁹ See Okun (1977). The case on redistributive grounds for avoiding the double tax can be illustrated by the following example. Consider a tax system having three potential taxpayers — A, B and C. The society has a preference for equality in the distribution of market-place rewards, and it is prepared to promote equality through a progressive personal tax system. A has income of \$1,000, B has income of \$600, and C has income of \$200. A gives \$400 to C with the result that A, B and C have equal incomes. To promote equality, the tax system should apply its tax rates after the voluntary reshuffle of income. It should do so even if it turns out that C is A's spouse.

fruit-cake passed around the extended family produces joy wherever it is sent without in any way diminishing its own utility. Thus tax measures that discourage giving are inefficient.¹⁰ In addition, voluntary transfers promote equality without the usual efficiency costs associated with redistributive policies.

Fifth, the double tax would be nearly impossible to administer, assuming that it would be imposed on all persons exercising some measure of control over an item of income. Within a family, the distribution of control may be exceedingly complex, due to the complexity of the family as a social institution. Control will be shared in complex ways, and it may be exercised through indirect mechanisms that the tax authorities could not detect.

Sixth, the market value of a gift may be significantly less than the value obtained by the donor from making the gift in many common situations. It is simplistic to assume that a gift must give the donor a benefit equal to the amount of the gift or the gift would not have been made. Some gifts do not get the expected reaction. A gift to an ungrateful child, for example, might give no pleasure at all. Some gifts, made under duress, may give pain rather than pleasure. An example might be an alimony payment to an unloved former spouse. Some gifts, such as transfers to a spouse under a community property regime or transfers for support of a dependent child, may be made to comply with legal requirements. Of course many family gifts made out of affection will give benefits equal to or greater than the amount of the gift. As explained above, however, those gifts are effectively taxed to the donor through the tax imposed on the donee and do not have to be taxed again to achieve fairness between donors and other taxpayers.

Finally, a double tax on gifts is unfair under popular notions of fairness. Such a tax has almost no chance of attracting wide popular support, as is suggested by the fact that no country has been willing to impose the double tax on the typical gifts within low- and middle-class families. The double tax is favored only by a small group of tax professionals and a few other individuals who have an ideological commitment to it.

Imposing the double tax on middle-income and low-income married couples and families with dependent children is so obviously objectionable that even the leading proponents of the double tax have fashioned their practical reform proposals to avoid such results. It might be possible to get political support for some double tax by restricting its application to a small group of wealthy persons. So restricted, however, the double tax would operate as a substitute for a wealth transfer tax, not as a feature of an ideal income tax. In John Rawls's terminology, the double tax fails the test of reflective equilibrium [*154] because individuals with well-formed intuitions would find that many of the consequences of the double tax would be intuitively unappealing.

¹⁰ For a more formal and more convincing proof of the efficiency of a single tax on gifts, see Brennan (1983, p. 113) and Brennan and Brooks (1983, pp. 126-31).

6.2.3. *Income-Splitting Between Marital Partners*

Under the benefit principle, income earned by one spouse and spent for the benefit of the other spouse should be taxable to the spouse who actually enjoys the benefits of the income. On the assumption that marital partners enjoy equal levels of consumption and savings, it necessarily follows that each partner should be taxable on one-half of the aggregate income of their marital partnership.

The distributional consequences of income-splitting can be achieved by making the marital couple a tax unit and then taxing married couples on a rate schedule having tax brackets twice as wide as the tax brackets of the rate schedule applicable to single persons. The wrong, under my ideal, of making the married couple a tax unit offsets the wrong, under my ideal, of giving some taxpayers a more favorable rate schedule than others. The result is that the two wrongs make a right. Thus a marital unit system can be justified by reference to the income-splitting system that it emulates.

A marital system that incorporates a splitting formula of less than 50/50 will produce an unfair result for marital partners who actually split their income more evenly than the formula assumes. The extra tax is sometimes referred to as a tax on marriage. The so-called marriage tax or marriage penalty is the difference between the aggregate taxes actually paid by a married couple and the amount they would have paid under the normatively correct system.¹¹ A few commentators have sought to defend the marriage penalty on the ground that married persons enjoy economies-of-scale benefits derived from the shared use of certain consumer durables, such as a personal residence. The case for taxing married persons on the consumer surplus that they allegedly obtain from the efficient use of durable goods, like the case for taxing the joy of giving, is unconvincing.¹² Indeed, most commentators appear to be convinced that the tax on marriage is unfair.¹³

¹¹ At least one tax analyst believes that marriage taxes and marriage penalties can be defined without reference to any normative model (Rosen, 1987, p. 567; Rosen, 1988, p. 259). For a challenge to that position, see McIntyre (1988d, p. 257).

¹² For a full discussion, see McIntyre (1988a, pp. 197-9). Concrete proposals for taxing economies-of-scale benefits are never serious in that they are not grounded on reasonable estimates of the amount of such benefits obtained by taxpayers at various income levels. The argument for taxing such benefits is typically trotted out as a cover for a rate structure that has been designed to serve short-term political needs. The usual pattern is to embed the assumptions about the level of economies-of-scale benefits in the rate structure. The point is illustrated by the Carter Commission proposal and by the US Treasury *Blueprints* proposal discussed below.

¹³ For an attack on the taxation of married persons on economies-of-scale benefits based on fairness, see McIntyre (1988a, pp. 197-9). For an argument that the taxation of economies-of-scale benefits is inefficient, see Brennan and Brooks (1983, pp. 121-6).

A 50/50 splitting formula would never produce a marriage penalty.¹⁴ It would give married persons an unfair benefit, or marriage bonus, whenever their actual sharing is less even than the splitting formula assumes.¹⁵

The assumption that marital partners enjoy approximately equal levels of consumption and savings should be testable empirically. Unfortunately, there are as yet no reliable empirical studies of marital sharing practices that provide answers to the relevant tax questions. Designing a study that would determine the extent of marital sharing is no easy task (McIntyre, 1985a, pp. 286-90). It is not enough, for example, to ask married persons whether they share with their spouse because their answers may be unreliable.

For the past two years, I have asked the students in my basic taxation class to administer a questionnaire to married couples they know. I wrote the questionnaire in 1987 and rewrote parts of it in 1988. Approximately eighty couples have answered the questionnaire, with each husband and wife providing independent responses. As might be expected, an overwhelming majority of husbands and wives claimed that they received approximately equal consumption benefits from their aggregate marital income.

The handful of husbands and wives claiming otherwise were contradicted in almost every case by their spouse. The overwhelming majority of spouses also reported that they expected to share equally in the future consumption financed by their marital savings, that they would not make major spending decisions against the wishes of their mate, that they would not increase their present share of marital benefits if they were to obtain more control over family finances, and that the person who earns an item of income in their marriage does not get any special say over how it is spent. A substantial minority of spouses reported that they would not share small windfalls obtained, for example, from winning a small wager or working a few hours of overtime.

I will not dignify the classroom exercise described above by calling it a study, and I refrain from reporting actual figures because they are unreliable. I had limited control over how the questionnaire was administered by the students, the sample was not random, and some of the questions were not artfully drafted. The exercise was useful, nevertheless, in highlighting the following seven problems that researchers must overcome to obtain reliable information on family sharing.

¹⁴ Of course features of a tax system unrelated to the choice of income attribution rules might cause a marriage penalty. Improperly designed low-income relief, for example, often creates marriage penalties.

¹⁵ Some commentators assert that a joint filing tax system produces a marriage bonus whenever married persons pay lower taxes under a joint filing rule than they would under a separate filing rule. See Rosen (1987). So defined, marriage bonuses have no policy significance, assuming the merits of the case for joint filing. For clarity, the term 'marriage bonus' should be reserved to refer to benefits obtained by taxpayers as a result of marriage that are unwarranted under the normative standards of the tax system.

First, some married persons, perhaps all, do not keep records of their consumption practices that are adequate to let them know the extent of their sharing. Second, some married persons are likely to give excessive weight, in responding to questions about sharing practices, to the distribution at the margin of certain luxury goods. Third, some married persons may be embarrassed to disclose a substantial absence of sharing because of the social approval given to marital sharing. Fourth, sharing practices may not be uniform from year to year.

The fifth problem to overcome is that married persons tend to spend marital income on some benefits, like medical benefits, on the basis of need and are unsure whether such a distribution pattern constitutes sharing. Sixth, some benefits, such as home redecorating, are more important to one spouse than to the other, although the benefits may be shared. Seventh, some spouses may incorrectly report a lack of control over spending decisions because they do not control economically insignificant aspects of those decisions. For example, they may share control over the decision to buy a car, but they would report otherwise because they do not control the choice of color or brand.

Fortunately, even very general information about sharing practices of married couples may be adequate to make the case for full income-splitting. The information garnered from everyday experience probably is adequate. As long as marital sharing is significant, then income attribution by a splitting formula is going to provide much fairer results than the main alternative, which is to attribute wage income to the wage-earner and property income to the property-owner. Indeed, any attribution rule that makes the source of the income rather than its use the basis for attribution is going to produce results that are seriously wrong under the benefit principle.

The amount of detail about marital sharing that is needed to justify a particular splitting formula depends in substantial part on the degree of graduation in the rate schedule. Assuming that graduation is largely restricted to taxpayers in the middle- and upper-middle income levels, as is the case in the United States, then information about sharing between low-income spouses is not needed, and only sketchy information about sharing between high-income spouses is needed. For determining the proper burdens on taxpayers within the middle- and upper-income levels, it is enough to know that substantial marital sharing takes place unless the rates are steeply graduated over a relatively narrow income range. With modest graduation on the post-1986 US model, the tax burdens on the overwhelming majority of married couples would not change very much by using a 50/50 splitting formula rather than a 40/60 formula.

6.2.4. Income Attribution and Dependent Children

Income spent by parents for the benefit of their children should be deductible to the parents and taxable to the children under the benefit [*157] principle. Under the control principle, that income

should be taxable twice — first to the parents and then again to the children. No tax systems, to my knowledge, have been designed in accord with that policy prescription of the control principle.

In a tax system designed according to the benefit principle, the relief mechanisms provided for children would depend upon estimates of the extent of family sharing (McIntyre and Oldman, 1977a, pp. 1602-7; McIntyre, 1985a, pp. 332-3). If sharing is complete, then per capita splitting among children and their parents is proper. If children receive a fixed amount of family income, such as \$2,000, then a flat dependency deduction is proper. A percentage deduction, such as 10 percent of family income, is proper if the benefits received by children increase proportionally with family income. A dependency credit is the proper relief mechanism only if the benefits received by children decline with increases in family income.

The extent of family sharing remains an open empirical question. The assumption of per capita sharing is almost certainly wrong at high income levels. The assumption that would justify a credit — that sharing declines as family income increases — is surely wrong at all income levels.¹⁶

A dependency credit may be superior to a deduction if the purpose of granting a dependency allowance is to advance a tax expenditure goal. For example, a phased-out credit is generally the proper mechanism for dispensing welfare benefits to parents because it confines the welfare benefits to those in need. Of course the case for a credit on tax expenditure grounds does not in any way discredit the case for a dependency allowance on tax policy grounds. In my ideal tax system, welfare benefits would be dispensed through transfer payments rather than through a tax mechanism.

The benefit principle would justify substantial tax relief to one-parent families of modest means. The proper treatment for such families would be the aggregation of their family income and its attribution by formula to the persons who are deemed to benefit from it. Such treatment would allow each member of a one-parent family to obtain the relief built into the rate schedule for low-income taxpayers. Under the control principle, the head of a one-parent household would be taxable, with one exception, under the same terms extended to a single person. The exception is for amounts spent for the benefit of a child. Those amounts would be subject to the double tax on gifts.¹⁷

¹⁶ For the case against using credits as the mechanism for granting family allowances, see Brannon and Morss (1973); Bradford (1984, pp. 96-7); McIntyre (1985a, pp. 328-31).

¹⁷ The family tax provisions of New York State were reformed in 1987 according to a reform plan designed to achieve the results appropriate under the benefit principle. The resulting reform greatly reduced the tax burden on one-parent households. See McIntyre (1985a) (setting forth and defending the plan) and McIntyre (1988b) (describing the political process that culminated in the reform and setting forth a modest agenda for further reform).

6.3. Two Ideal Consumption Taxes

Although there are an indefinite number of possible ideal consumption tax systems, I have limited the discussion in this paper to only two. The first, discussed in section 6.3.1 below, is a progressive Haig-Simons consumption tax, as set forth by Bradford and the Staff of the US Treasury Department (1984) in *Blueprints for Basic Tax Reform* and as refined by Bradford (1986) in *Untangling the Income Tax*. The second, discussed in section 6.3.2, is a progressive lifetime consumption tax, as set forth by Aaron and Galper (1984) in *Economic Choices 1984* and elaborated on in *Assessing Tax Reform* (1985). I have described these ideals in terms of the classification scheme employed in section 6.2 and set forth in the appendix. In section 6.3.3, I examine the claim that an ideal consumption tax would tend to be fairer than an income tax because a consumption tax, under certain conditions, would impose equal lifetime tax burdens on taxpayers having equal lifetime options.

6.3.1. An Ideal Haig-Simons Consumption Tax

A Haig-Simons consumption tax, by my definition, is a personal tax system in which the base is defined to be Haig-Simons income, as specified in section 6.2, minus savings. This is the personal tax system described, and implicitly recommended, in *Blueprints* (1984, pp. 101-28) and in Bradford (1986, pp. 75-99). I contrast that tax with a consumption tax that would include wages and gifts in the base but would exclude investment income and income from property transactions. As noted in *Blueprints*, those two tax bases would be equivalent under certain conditions. The tax bases are not equivalent in practice because the conditions for their equivalency are never met in the real world.

The base of a Haig-Simons consumption tax would include gifts received and would exclude gifts given. Thus there would be no double taxation of gifts. The arguments for and against this treatment of gifts are the same for a consumption tax and an income tax. I review those arguments in section 6.2.2 and conclude that one level of tax on gifts is the proper result.

The ideal taxable period for a Haig-Simons consumption tax, according to *Blueprints* (1984, pp. 114-15), is the lifetime. Because taxpayers do not all live the same number of years, some taxpayers would have longer taxable periods than others. For reasons of administration, the collection period would be the year. Provisions would be adopted that would facilitate averaging of taxable consumption, with the result that well-informed taxpayers with perfect foresight would pay tax at a uniform rate for all of the taxable years of their life (p. 114). Progressive rates would apply to lifetime consumption. Thus a goal of the tax would be to reduce inequalities among taxpayers in lifetime consumption (Bradford, 1986, p. 148).

The discussion of family taxation issues in *Blueprints* is well below the high standard of analysis generally maintained in that book. According to *Blueprints* (1984, p. 104), a proper tax unit under an income tax or a consumption tax would be the family. The individual would also be a tax unit, but the members of the class defined by that unit would include only those individuals living apart from their family. The choice of the family as a tax unit is defended primarily on the ground that the tax burden on a family member should be a function of the aggregate income of the family to which that person belongs (p. 94). As the authors of *Blueprints* clearly recognized, the adoption of a family or marital unit is not necessary to achieve that outcome. It can be achieved equally well through an income-splitting mechanism.

It is unclear whether *Blueprints* proposed to make the family a tax unit because it favored income-splitting or because it believed that the family is the proper focus of fairness. The rate schedule actually proposed is not an income-splitting schedule, except at very low income levels (p. 150). It would produce large marriage penalties. There is some suggestion, nevertheless, that the rates applicable to families should be close to the rates necessary to emulate an income-splitting regime (p. 95). The departure from the splitting result may have been due to political constraints. There is a strong suggestion in *Blueprints* that the actual rates were designed so as to achieve a distribution of income under the proposed reform that deviated as little as possible from the distribution under current law (pp. 8, 143).

Blueprints defends the Haig-Simons consumption tax on administrative and efficiency grounds. It favors that tax over its chief rivals, however, primarily on fairness grounds. Although other reasons are given in support of the fairness of that tax, its principle appeal to the authors of *Blueprints* is its alleged similarity to a lifetime endowment tax. Bradford has not changed his view in his later work (Bradford, 1986, pp. 148-56). Lifetime endowment is defined in *Blueprints* (p. 36) to be 'an individual's wealth, in marketable and nonmarketable forms, at the beginning of his working years'. So defined, endowment would be the discounted value of the income that a taxpayer could expect to earn during his lifetime as a result of human capital, inherited wealth, and whatever else might constitute his endowment. *Blueprints* asserts that for individuals who consume all of their initial endowment, 'a consumption tax is exactly equivalent to an initial endowment tax' (p. 37).

By making the family the tax unit, *Blueprints* avoids discussion of the proper rules for attributing income earned by one family member and enjoyed by another. Its recommended treatment of gifts outside the family would put *Blueprints* in the benefit principle camp. In *Blueprints* and in Bradford (1986), however, the taxation of gifts is analyzed exclusively as a tax base issue. There is no explicit endorsement of either the control principle or the benefit principle. Gifts are not taxed to the donor in *Blueprints* because they do not provide the donor with goods and services that are of direct benefit to him [*160] (p. 29). This statement is at odds with the endorsement

that *Blueprints* and Bradford (1986) give to an endowment tax. An endowment tax is a tax on potential income. It is imposed whether or not an individual chooses to exercise his power to obtain goods and services. Proponents of an endowment tax should favor a lifetime consumption tax, such as the one discussed in section 6.3.2 below, over a Haig-Simons consumption tax.

6.3.2. *An Ideal Lifetime Consumption Tax*

A lifetime consumption tax differs from a Haig-Simons consumption tax in one respect. It taxes gifts to the donor as well as to the donee. As described by Aaron and Galper (1984, p. 94), taxpayers would be taxable on all cash receipts, including the proceeds from loans, and the amount of the taxpayer's net savings, including payments on a loan, would be deductible. Presumably 'cash receipts' would be defined broadly to include in-kind income and other non-cash benefits. A gift of saved income would be taxable to the donor in the years saved, subject to an averaging scheme for large gifts (p. 94). Bequests would be taxable as gifts to the heirs, again subject to an averaging scheme (p. 96). Of course a donee who saved some portion of his bequest would get a deduction for the amount saved (Aaron and Galper, 1985, pp. 95-6).

The preferred taxable period in the lifetime consumption tax is obviously the lifetime. Aaron and Galper would use the year as the measurement period. Provisions would be adopted that would allow well-informed taxpayers to average their annual consumption under rules similar to those recommended in *Blueprints*. The effect of averaging, apparently intended, would be to reduce progressivity (Aaron and Galper, 1984, p. 102, note 13; Aaron and Galper, 1985, pp. 88-9).

In the Aaron and Galper scheme, there would be two taxable units: unmarried individuals and married couples. The rate schedule for married couples would emulate full income-splitting at low and moderate income levels and partial splitting at upper-middle income levels. It seems fair to infer that the individual would be the focus of fairness in the Aaron and Galper version of the lifetime consumption tax. These authors would provide no income-splitting for married couples with respect to taxable income above about \$50,000 (Aaron and Galper, 1985, p. 70).

In the original Aaron-Galper proposal, married couples with two earners would be allowed a deduction of 10 percent of the earnings of the lower-earner spouse, subject to a cap (Aaron and Galper, 1984, p. 96). This deduction would reduce the unfair tax burdens imposed by the marital rate schedule on two-earner marital partners who actually split their incomes more evenly than the marital rate schedule anticipates. It would not reduce the unfair burden on one-income couples that have fully split incomes. Thus the deduction would

introduce what I have referred to as an income source penalty on one-earner couples (McIntyre, 1988c, pp. 801-2). The deduction would give an unwarranted tax bonus to two-earner couples relative to single persons at low and moderate income levels. The revised Aaron-Galper proposal would scale back and might even eliminate the two-earner deduction (Aaron and Galper, 1985, pp. 70-1).

The deduction for two-earner couples is said to be justified on the following grounds: (1) as an indirect tax on the consumption by one-job couples of self-performed services in the home; and (2) as an allowance for the child care expenses and maid services that two-job couples 'may incur' (Aaron and Galper, 1984, pp. 95-6). Neither ground has merit.¹⁸ Aaron and Galper would not give the allowance to single persons, although some single persons working outside the home may incur child care costs and they presumably do not consume self-performed services to the same degree as one-job couples.

Aaron and Galper (1984, p. 102, note 13) assert that the donor should be taxable on the value of gifts at the time of the gift in order to ensure that appreciation in the value of assets at the time of a gift is included in the tax base. A concern for taxing appreciation, however, cannot explain their treatment of donors with respect to gifts of unappreciated property or gifts of appreciated property that is converted into consumption by the donee.¹⁹ The clear implication is that Aaron and Galper favor the double tax on gifts in the general case. Indeed, they must favor the double tax, given the standard for fairness that they endorse. That standard is that people with the same lifetime capacity to consume, discounted to present value, should pay equal lifetime taxes, discounted to present value (Aaron and Galper, 1984, pp. 101-2). This is, of course, the standard of fairness of the endowment tax, as Aaron and Galper acknowledge.²⁰

The important gifts, for family taxation purposes, are the annual gifts that finance the living expenses of children and spouses earning less than their mate. Champions of an endowment tax would recommend a double tax on these gifts. Like other sensible tax reformers before them, Aaron and Galper are unwilling to accept the political consequences of their theory. They simply assert, without supporting argument, that individuals would be given a large lifetime exemption for gifts made (Aaron and Galper, 1984, p. 95).

¹⁸ For a demonstration that a percentage deduction to two-job couples is a poor proxy for taxing self-performed services, see McIntyre and Oldman (1977a, pp. 1618-24, especially pp. 1621-3).

¹⁹ A tax on donors limited to the appreciation in the value of gifted property would reintroduce many of the problems of income tax administration that their lifetime consumption tax was supposed to eliminate.

²⁰ Aaron and Galper, 1984, p. 102, note 13. It is interesting that these authors do not mention the endowment tax in their revised proposal.

6.3.3. *Fairness of a Consumption Tax*

For many tax analysts, including the authors of the ideal consumption taxes discussed in this paper, an ideal personal tax system would impose equal lifetime tax burdens on taxpayers having equal lifetime options. A personal consumption tax is said to be superior to a personal income tax because it tends to come closer to the equal-lifetime-burdens ideal.

Although the consumption taxes proposed in sections 6.3.1 and 6.3.2 probably would come closer to achieving equal lifetime burdens than an income tax, neither of those consumption taxes would come very close to achieving that result. The appropriate ideal for those who would make the equal-lifetime-burdens standard the corner-stone of their tax system is the endowment tax. The endowment tax is examined in section 6.4 and shown to be hopelessly unfair. It follows that the equal-lifetime-burdens standard must also be unfair.

In section 6.3.3.1 below, I present the basic case for the equal-lifetime-burdens standard. I explain that it rests on the appropriateness of the analogy between time preferences and preferences for particular consumption goods within a particular time period. I refer to the latter preferences as consumer preferences, although I understand that some analysts would consider a time preference to be simply one type of consumer preference.

In section 6.3.3.2, I argue that there are important differences, significant for tax policy, between some time preferences and the typical consumer preferences for one consumption good over another. In that subsection, I employ the simple model of a world populated by only two individuals who are alike in all relevant respects except for their preferences for present and future consumption. That two-person model is the one that the proponents of the equal-lifetime-burdens standard typically employ, despite its lack of congruence with the real world. In section 6.3.3.3, I employ a more complete model in which taxpayers may differ not only with respect to their time preferences but also with respect to their incomes and their family circumstances. I show that the equal-lifetime-burdens standard has little intuitive appeal in such a world.

6.3.3.1 *The Basic Case for the Equal-Lifetime-Burdens Standard*

To illustrate the case for the equal-lifetime-burdens standard, its proponents provide examples such as the following.²¹ Consider two individuals, A and B, who are identical in all relevant respects except that A prefers to spend money on food today and B prefers to save his money in an interest-bearing account and buy a larger amount of food in a later period out of the [*163] augmented funds. For

²¹ The example in the text is taken almost without change from Bradford (1986, pp. 155, 163). For a similar example, see Aaron and Galper (1985, pp. 25-7).

concreteness, A prefers an apple in year 1, and B prefers to invest his money at compound interest and consume 10 apples some years later. According to the advocates of the equal-lifetime-burdens standard, A and B should bear equal tax burdens. A consumption tax, under some conditions, would impose equal tax burdens on A and B, whereas an income tax would not. In an income tax, B would pay tax on his interest income, thereby reducing the amount of the future consumption from, say, 10 apples to only 6 apples.

In the example above, A and B are equally situated prior to making their decision to save or spend and are different thereafter. The question for tax design is whether they should be treated as equals or as unequals. Advocates of an income tax obviously would consider them to be unequals because of the difference in their incomes. The proponents of the equal-lifetime-burdens standard would treat them as equals on the ground that taxpayers should not be treated differently on account of differences in outcomes resulting from their preferences. To illustrate that position, they would extend the example above as follows.

Consider two other individuals, C and D, who are identical in all relevant respects except that C prefers to spend more on clothing and less on food, whereas D favors expensive food but does not care very much about expensive clothing. Most tax analysts would consider it appropriate to tax C and D the same, absent some strong reason to the contrary. That result generally would be achieved under a consumption tax and under an income tax. The proponents of the equal-lifetime-burdens standard contend that preferences for present over future consumption and vice versa are strongly analogous to preferences that individuals have for one form of consumption over another. They claim that the intuitive appeal of equal treatment of C (the clothes-horse) and D (the gourmet) supports the case for equal treatment of A (the consumer) and B (the saver). The strength of the analogy between preferences for particular consumption goods and time preferences is addressed in section 6.3.3.2 below.

One of the conditions that would have to be met for a consumption tax to achieve equal treatment of A and B in the example above would be that the tax rate applicable to A in year 1 would equal the tax rate applicable to B in the later year. To guarantee that the rates would be the same, an ideal consumption tax would have to employ a flat rate of tax, and that flat rate would need to be fixed for an indefinitely long period of time. Most tax analysts, including the authors of the consumption tax ideals discussed in sections 6.3.1 and 6.3.2 above, would reject that feature of an ideal tax system. Thus they acknowledge that the equal-lifetime-burdens standard is subordinate to other principles of taxation.

In invoking the analogy between time preferences and consumer preferences, analysts must be rather careful because that analogy, properly [*164] understood, can undercut their position. A tax system

would not necessarily be unfair simply because it increased the after-tax cost of food relative to the after-tax cost of clothing. Indeed, some tax jurisdictions have intentionally introduced such a bias in their sales taxes with the hope that the bias would reduce the normal regressivity of consumption taxes. Even if the bias against a particular consumption choice was not desirable, it might not justify a modification of tax rules that otherwise produced appropriate results. For example, a feature of a tax system that caused some individuals to switch from eating pears to eating apples might be undesirable, but no one should get vexed if that feature could not be easily removed from a tax system. It is simply inconceivable that any government would make neutrality between pears and apples or food and clothing a primary design constraint of a personal tax system.

6.3.3.2. *The Nature of Time Preferences*

A rational individual would prefer a dollar today to a dollar tomorrow in any society in which the real interest rate is positive. In the absence of some time preference, a rational individual generally would prefer money today over future money unless the amount of the future money was equal to or greater than the money today plus the investment return that the individual would expect to earn from that money. The preference for money today over a claim to future money having a lower market value is not a time preference. It is a preference for money plus interest over just money. Any rational individual would prefer more rather than less of almost any desirable good, especially when that good can be exchanged for other goods.

A time preference would be a preference either for (1) some good today over a claim to some good of equal value in the future or (2) a claim to some good in the future over a good of equal value today. That is, a time preference is a taste for postponing or accelerating the possession or enjoyment of some good. In the context of the debate over the merits of a consumption tax, the relevant time preference is the preference for postponing or accelerating consumption. The proponents of the consumption tax assert that the income tax discriminates unfairly against individuals having a time preference for postponing their consumption.

Some individuals have special time preferences for present or future consumption that are unrelated to the investment yield that they would earn from obtaining money now rather than later. A young woman expecting to earn higher wages in the future might use borrowed money to finance a higher level of present consumption than her present wages would support. A middle-aged man might save during his peak earning years to finance consumption during his retirement years. A baby presumably would want its guardian to conserve a large bequest rather than spend it on consumption benefits that the baby could not really appreciate. I refer to time preferences of this type as [*165] consumer-surplus time preferences. They are

closely analogous to the consumer preferences for food over clothes and clothes over food discussed in section 6.3.3.1 above. They quite plausibly would exist whether the prevailing real interest rate is positive, negative or zero.

The effects of an income tax and a consumption tax on the consumer-surplus time preferences described above are indeterminate in theory and unimportant in practice. The proponents of the equal-lifetime-burdens standard are concerned only incidentally with those preferences.²² They are concerned primarily with time preferences that some individuals have for saving their money in order to enjoy a much larger amount of consumption in the future. I refer to such time preferences as investment-yield time preferences. These time preferences are not analogous to consumer preferences for food over clothes or pears over apples. Individuals have consumer preferences because they can obtain greater value from one good than from another good having the same market value. They have investment-yield time preferences because they can greatly increase their lifetime consumption, measured by market prices, by postponing consumption.

In a society having a positive interest rate, consumption postponed is consumption increased. That is, individuals could maximize their lifetime consumption by saving as much of their income as they could afford. In fact, of course, most individuals save only a small fraction of their income, and some do not save at all. The bulk of these non-savers are individuals who apparently have no significant consumer-surplus time preferences. An interesting question for economists and sociologists to explore, and for me to speculate on here, is why individuals frequently give up large amounts of future consumption in favor of present consumption. An understanding of why individuals save would be useful in evaluating the merits of the equal-lifetime-options standard.

One model, which I term the behaviorist model, would explain observed savings patterns by incorporating an assumption that some individuals are endowed, by nature or nurture, or by their social circumstances, to be savers. Other, more numerous, individuals are endowed to be spenders. That is, savings decisions are not fully voluntary acts. They are made instead in response to compelling social or genetic forces. In some sense, the so-called preference for savings is part of an individual's endowment. Assuming the validity of this model, a consumption tax would not meet the equal-lifetime-burdens standard. More precisely, the higher taxes on savers imposed by an income tax would be justified under that standard because habitual savers, by hypothesis, are more favorably endowed than otherwise similarly-situated taxpayers who spend all or most of their income.

²² They are also only incidentally concerned with time preferences that arise from an individual's aversion to risk.

The model apparently favored by the proponents of the equal-lifetime-burdens standard would explain savings patterns by incorporating an assumption that rational individuals generally would favor present consumption over future consumption unless the present worth of the future consumption exceeded the value of the present consumption. I refer to this model as the discounted consumption model because rational individuals, acting in accordance with this model, would discount future consumption by some discount rate in choosing between present and future consumption. That discount rate would be approximated by the market rate of interest.²³ This model assumes that rational individuals would choose between present and future consumption in much the same way that they would choose between money today and future money. Under this model, a hypothesis that most individuals have even a small time preference for present consumption over future consumption would explain the failure of most individuals to save.

Simple observation alone cannot reveal which of the two models described above gives the best description of how individuals actually make their savings decisions in the real world. A relative insensitivity of individuals to the interest rate in making their savings decisions would give some support to the behaviorist model. An observation that savers tend to have an income substantially above the average or that parents increase their savings rate as their support obligations decrease also would support that model. A finding that individuals substantially change their savings patterns over their lifetime without any substantial change in their social circumstances would support the discounted consumption model. In all likelihood, the reasons that individuals save and borrow are too complex to be captured fully by either of these models.

On theoretical grounds, the hypothesis underlying the discounted consumption model is subject to serious attack. For that hypothesis to hold, individuals must have what is generally referred to as a 'pure time preference'. A pure time preference for consumption is a preference of an individual for consumption at one period of his life over an equal amount of consumption at another period. For example, an individual having a pure time preference might will more good to himself at age 25 than at age 35. In contrast, an individual having no pure time preference would value all parts of his life equally.

An individual having no pure time preferences would still prefer money now to money in the future because money now is worth more to him at any time of his life, due to the interest it would earn, than money in the future. In [*167] addition, such an individual might

²³ Whether market interest is a reasonable proxy for the internal discount rate of taxpayers is difficult, perhaps impossible, to determine empirically. I would note, however, that interest rates appear to fluctuate over short periods and perhaps over long periods in ways that are inconsistent with the hypothesis that interest is a reasonable measure of the average time preference of individuals for present consumption over future consumption.

have consumer-surplus time preferences, investment-yield time preferences or other, unnamed time preferences. For example, an individual might want to average his consumption over his lifetime because of a declining marginal utility of consumption even if he has no pure time preference. He would consider a consumption expenditure giving a dollar value of \$100 at age 25, however, to be equivalent to consumption expenditure giving a dollar value of \$100 at age 35. And he would expect to obtain the same pleasure from eating an apple at age 40 as he would from eating an equivalent apple at age 45, absent some special circumstances, such as bad teeth or uneasy bowels, at the later age.

According to Henry Sidgwick and John Rawls, a pure time preference is irrational.²⁴ The assumption that rational individuals should value all parts of their life equally is obviously aggressive and is indulged by utilitarians such as Sidgwick and contractarians such as Rawls to justify their objections to discrimination against future generations. It is much more reasonable, nevertheless, than the assumption that individuals would value the first day of their life more highly than any other day and that all days after the day of their birth are less important to them than the immediately preceding day. The claim that pure time preferences are irrational is ultimately a claim that the consequences of indulging pure time preferences would be objectionable to a well-formed intuition.

6.3.3.3 *Equal Options and Family Circumstances*

The income tax does not impose equal tax burdens on taxpayers having equal lifetime options because taxpayers having equal lifetime options typically do not have equal incomes during their taxable periods. The question to be examined in this section is whether equal lifetime options or equal income over relatively short periods is the better standard for measuring equality of position in a personal tax system. The example below illustrates the differences between the income standard and the lifetime-burdens standard for two unattached individuals having equal options and different saving patterns.

Consider a society comprised of two classes of individuals: the early savers and the late savers. E is a typical early saver and L is a typical late saver. When E and L are 20 years of age, they begin working at a job that pays an annual salary of \$30,000. They have no savings when they start working. They each work for 50 years and retire at age 70. For the first 6 working years, E [*168] saves \$3,000 per year out of his salary.

²⁴ See Rawls (1971, pp. 293-4), quoting Sidgwick with approval for the proposition that a pure time preference is irrational. Rawls and Sidgwick were seeking to condemn the despoilment of planet Earth for current consumption at the expense of future generations. If pure time preferences are rational, then the costs to future generations of actions taken today can properly be discounted. Costs that come due after a very long time would be ignored for all practical purposes. For example, a cost of \$1 billion to be incurred in 500 years, discounted at a 5 percent annual rate, would have a present value of only 3 cents.

He deposits the savings each year in an account paying 6 percent annual interest, compounded annually. He leaves the principal and accrued interest in the account until his retirement. At that time, he purchases a lifetime annuity paying 6 percent interest. His life expectancy at age 70 is 15 years.

L, the late saver, saves nothing until his last 6 working years. At age 65, he begins putting away \$3,000 a year in an account similar in all respects to E's account. At retirement, he purchases an annuity with the same terms as the annuity purchased by E. Under these facts, E and L have identical lifetime wage income, and they have each saved a total of \$18,000 out of their wages. E has considerably more investment income than L because the wages he saved started earning interest 44 years before L's.

Abstracting from possible tax consequences to E and L, E would have a nest-egg at retirement of \$288,038, and his life annuity would pay \$29,657 annually. L would have a retirement fund of \$22,182 and would receive annual annuity payments of \$2,284.

Under an income tax, E and L would have smaller retirement funds because their interest income would be taxable as it accrues. Assuming a 30 percent flat income tax rate, E would have a retirement fund of \$127,368, and L would have a retirement fund of \$20,839. E could purchase an annuity paying \$13,114 per year before taxes and \$9,731 per year after taxes. L could purchase an annuity that annually paid \$2,146 before taxes and \$2,056 after taxes. During their working years, E and L would each pay \$9,000 of taxes per year on their wage income. E's total tax bill during the working years would be higher than L's because he would have more interest income. L would not have any interest income except in the 6 years prior to his retirement.

The effects of a Haig-Simons consumption tax and a lifetime consumption tax would be the same in this example because E and L arranged to avoid leaving any bequests by purchasing life annuities. A consumption tax would not reduce the size of the two retirement funds. E and L would have to pay taxes, however, on the full amount of their annual annuity payments, assuming that they spent the payments on consumption. To raise the same revenue as an income tax, the tax rate in a consumption tax must be significantly higher than the rate in a Haig-Simons income tax. Assuming a 40 percent rate, E's annual after-tax retirement income would be \$17,794, and L's would be \$1,370.²⁵ During their working years, E and L would pay the same aggregate taxes on their wage income. L would pay \$12,000 (40% of \$30,000) per year in the early years while E would be paying \$10,800 (40% of \$27,000). The opposite pattern would hold in the late years. E and L would each pay \$12,000 per year in the middle years.

²⁵ The implicit assumption in my choice of rates is that wage income would represent about 75 percent of Haig-Simons income.

The consumption tax results summarized above are said to be appealing because the sum of the taxes paid by E and the sum of the taxes paid by L have the same present value. E paid more total taxes than L because his lifetime consumption exceeded L's. The present value of the extra \$1,200 in taxes paid by L in years 20 through 25 was enough, however, to equal the present value of the extra \$1,200 in taxes paid by E in years 45 through 50 and the extra \$10,949 in taxes (40% of (\$29,657 minus \$2,284)) paid by E in years 51 through 70. Proponents of an income tax would not be impressed with this relationship. They would want E to bear a higher tax burden than L because E earned more income than L. The present value relationship would not be relevant in determining their relative taxable capacity under the income tax ideal.

The example above indulged the initial assumption that E and L have similar options, in that L could have elected to save in the early years if he had wanted to. L is assumed to have chosen to be a pauper in his twilight years in order to enjoy a slightly higher standard of living in his early years. Whether there are real taxpayers like E and L is uncertain. What seems reasonably clear is that some differences in savings reflect differences in circumstances rather than differences in preferences over the timing of their consumption.

Consider again E and L in the example above, except that L is now a husband and father. His wife works in the home taking care of their two children. During the period that E is saving for his retirement, L is supporting his children and sharing the remaining portion of his income with his wife. Under these conditions, most people would not describe L as simply indulging a preference for current consumption. Some might describe him as investing in the future by raising and educating his children. In any event, his consumption, measured by the market value of the goods and services he consumes, is less than one-half of E's. Thus he should pay less taxes than E, not more, under a fairly designed consumption tax. The supporters of the equal-lifetime-burdens standard can make the argument that L should pay more because he once had the option not to marry or have children and he still has the option of abandoning his family. They cannot claim, however, that such an argument has intuitive appeal.

Both of the consumption tax proposals set forth in sections 6.3.1 and 6.3.2 above, would provide some tax benefit to L in the revised example to take account of his family responsibilities. Those proposals envisioned some implicit income-splitting through the rate schedule and some allowances for dependent children. My ideal income tax, which would attribute income to individual taxpayers according to the benefit principle, would also provide for income-splitting and family allowances. The fact that the authors of the consumption tax proposals recommend results consistent with the benefit principle, however, does not mean that they have endorsed that principle.

The benefit principle, as I have defined it in the appendix, is inconsistent[*170] with the equal-lifetime-burdens standard. A tax

system that measures equality of position by reference to the options of the taxpayer should use the control principle for attributing consumption or savings to particular taxpayers. Indeed, a true believer in the equal-lifetime-burdens position would tax L on the full amount of his wages, without any family allowances. He would then tax L's wife and children on their share of the family consumption.

In my view, the control principle, which would justify multiple levels of taxation on the same income item, has no intuitive appeal. If I am correct, then the equal-lifetime-burdens standard, which requires the adoption of the control principle, also has no intuitive appeal. Other analysts may take a different view. To support their view, they must specify the function of attribution rules in their ideal system and show that their proposed attribution rules would serve that function adequately. No one has done so, and I would doubt that anyone can.

6.4. The Endowment Tax Ideal

The consumption tax is merely a second-best option for tax analysts who would impose equal lifetime tax burdens on taxpayers having equal opportunities for lifetime consumption. Their preferred ideal tax, and the preferred ideal of many other economists, is the so-called endowment tax. The endowment tax, as an ideal tax system, has never been fully formulated. In particular, the implications of family sharing for an endowment tax are not addressed in the tax literature. In this part, I address those issues. I argue that in a world in which family members share resources, the arguments for an endowment tax have little or no force.

An endowment tax is a tax on an individual's inherited wealth and human capital. Human capital is a metaphor for the discounted value of the income that individuals can be expected to obtain from working in a job that maximizes the use of their abilities. The usual assumption is that an endowment tax would be payable at assessment. A practical endowment tax, if such can be imagined, presumably would be collected periodically over the taxpayer's lifetime, with interest assessed on the uncollected portion of the tax due.

According to Simons (1938, pp. 42-3), an ideal measure of taxable capacity (1) should be objective rather than subjective; (2) should be quantitative and measurable; and (3) should have a minimum number of implicit arbitrary distinctions. An endowment tax would get the lowest possible marks on all three criteria. In addition, it would be

unfair, inefficient²⁶ and fundamentally [*171] incoherent.²⁷ As best I can determine, it would have only two positive features. It would be impossible to administer, and it would discourage obnoxious parents from boasting about their precocious children. In this paper, I am concerned only with the fairness of the endowment tax.

The case for an endowment tax rests on three contentious assumptions. The first assumption is that individuals generally can freely choose between spending and saving and they do so depending upon their preferences for present and future consumption. That assumption is examined in section 6.3.3 above. I concluded there that the choice between present and future consumption is constrained substantially by the family circumstances of the taxpayer. For example, the bread-winner of a family of five is less able to save for future consumption than an unattached individual having an equal amount of income.

The second assumption is that an individual's tax-relevant options over his or her lifetime are a function of inherited wealth and human capital, measured at birth or at some other convenient point of time. I challenge that assumption in section 6.4.2 by showing that lifetime options depend significantly on an individual's family circumstances at various times of that individual's life. The third assumption is that a tax on the money value of an individual's lifetime options would be fair. I also challenge that assumption in section 6.4.2 by applying to the endowment tax the criteria of justice developed by John Rawls. In section 6.4.1 below, I describe the features of an endowment tax in terms of the classification scheme set forth in the appendix.

6.4.1. Design Features of an Endowment Tax

An ideal endowment tax would sort taxpayers according to their lifetime endowments, as measured by the present value of the economic benefits that they should anticipate receiving over their lifetime. The authors of the reform proposals discussed in section 6.3 favor a progressive endowment tax, and I assume in this paper that such a tax would be progressive. Under that assumption, the only imposition rules would be one or more graduated rate schedules. There would be no tax expenditure rules.

²⁶ The endowment tax, despite its superficial resemblance to a lump-sum levy, would be inefficient for at least two reasons. First, it would give highly-endowed individuals (or their parents) a strong incentive to emigrate. A lump-sum levy could also have that effect, but to a much less significant degree. A consumption tax also encourages emigration, generally at retirement, but only for individuals who have saved heavily during their working years. Second, the endowment tax would encourage highly-endowed individuals to forgo a career that would maximize their utility in favor of a career that would provide them with money (or other exchange commodities) with which to pay their endowment tax.

²⁷ The endowment tax is necessarily incoherent because it is constructed on the counterfactual assumption that lifetime income is a function of certain 'endowments' that an individual possesses at birth, or at some other ascertainable point in his lifetime. For discussion, see section 6.4.1 below.

The details of the sorting rules of an ideal endowment tax are not addressed in the tax literature. Proponents of the endowment tax ideal have felt free to ignore those details because of the impracticality of actually administering an endowment tax.

The starting-point in defining the tax base would be the somewhat vague concept of lifetime endowment, defined in terms of the present value of expected lifetime income. The contours of that concept are unspecified. The concept clearly would include the discounted value of the money income that a taxpayer would be able to obtain from a career in the market economy. Because of the heavy weight given to neutrality among lifetime options, I assume that the tax base would also include most, perhaps all, forms of psychic benefits that individuals could rationally expect to obtain from their lifetime choices. Thus the psychic benefits apparently obtained by a monk from a life of prayer, by a politician from the exercise of leadership, by an economist from taking a sabbatical leave, and by a war hero from falling on a grenade would all be included in the tax base.

True windfalls, such as lottery winnings, would be excluded from the tax base of an endowment tax because they cannot be anticipated. Gifts that could be anticipated would be included in the base, discounted for any risks of forfeiture. Completely unexpected gifts would not be taxable.

It is uncertain what the proper treatment should be in an endowment tax of potential benefits that might be irrational, immoral, illegal or unseemly for an individual to obtain. Should the tax base include the potential benefits that an individual with a dependent personality would obtain from drug addiction? Should it include the amounts that an individual could obtain from a life of prostitution, a life of violent crime, or a life as a junk bond dealer? All of these benefits, if actually obtained, would be taxable in a consumption tax or an income tax. Surely they should be taxable also in an endowment tax in at least those cases where the individual actually obtained them. The endowment tax, however, is a tax on expectations, not on outcomes. It should apply, by its own terms, with equal ferocity to the honorable individual who resists temptations for easy money.

The question that endowment tax advocates must answer is whether they are willing to tolerate certain non-neutralities in the system in order to advance significant social goals. Surely the answer to this question is yes, but an affirmative answer requires that the designers of the endowment tax base compromise the internal consistency of their ideal. They must also draw a very large number of rather messy lines. Many advocates of an endowment tax will be unhappy about the need to draw those lines. Indeed, I venture to say that some tax specialists have been attracted to the endowment tax concept largely because they thought that it would allow them to avoid the line-drawing problems that I associate with mature tax base design.

Although the proponents of the endowment tax have not discussed their [*173] preferences for taxable person rules, those rules can be

inferred from the value-judgments that underlie the choice of endowment as the tax base. The tax unit of an endowment tax should be the individual because individuals are the ones who have the options that are included in the tax base. The attribution rules of an endowment tax should associate items of endowment with the individuals so endowed.

The taxable period of an endowment tax would be the lifetime. More precisely, each individual would have a unique taxable period for measuring taxable capacity in an endowment tax, except in the case of individuals having the same birthday and deathday. Thus there would be a very large number of taxable periods, and those periods generally would not have a common beginning or end and would not be uniform in length. The key issue, unresolved in the tax literature, is the time within that period for assessment. The usual rule in an income tax or consumption tax is to make an assessment of tax liability at the end of the taxable period. Because an endowment tax is a tax on expectations, however, it would seem that the proper time for assessment would be at the start of the taxable period.

Assessment of an endowment tax at birth would seem rather silly, considering the uncertainty of an individual's life prospects at that time. Will the child be as smart or stupid as its parents? Will it learn to work hard and achieve? Will it be spoiled rotten? Will it offend its grandfather and be disinherited? And so forth. A delay of assessment would reduce uncertainties. Indeed, a delay until death would end all uncertainties. Such a delay, however, would radically change the nature of the tax. Assuming that the character of the tax as a tax on potential income is to be maintained, any delay in assessment beyond the age of reason would seem to be unwarranted.

6.4.2. Fairness of an Endowment Tax

The fairness of an endowment tax can be tested using the analytical framework developed by John Rawls. The question to be asked under that framework is whether a group of rational individuals selecting the ideal personal tax system for their society from behind a veil of ignorance would accept, reject or be indifferent to an endowment tax. Rawls contends that individuals seeking to advance their well-being behind the veil of ignorance would organize their society around two principles — the Liberty principle and the Difference principle. The endowment tax must satisfy both of these principles to be judged fair under Rawls's criteria.

The Liberty principle provides that every individual should be guaranteed 'an equal right to the most extensive basic liberty compatible with a similar liberty for others' (Rawls, 1971, p. 60). The Difference principle provides that 'social and economic inequalities are to be arranged so that they are both (a) reasonably expected to be to everyone's advantage, and (b) attached to [*174] positions and

offices open to all' (*idem*). This latter principle would allow some inequality in the distribution of economic and social goods. That inequality, however, must redound to the benefit of the members of the least advantaged group in the society for it to be fair.

The endowment tax conflicts with the Liberty principle because it would require highly endowed individuals to adopt a life plan that would provide them with the funds to pay their endowment tax, notwithstanding their preference for a different life plan. Emily Dickinson must become a copy-editor for a New York publishing house. An individual endowed with a special talent for twisting arguments to her favor must become a lawyer, although she would prefer to give up her seat at the bar for a seat in a symphony orchestra.

Even if conflicts with the Liberty principle could somehow be avoided, the endowment tax still would be an unpopular choice from behind the veil. Rawls analogizes the operation of the Liberty principle and the Difference principle to the maximin rule of game theory. Under the maximin rule, alternative choices are ranked according to their worst possible outcomes. One choice is better than another if its worst outcome is better than the worst outcome under the other choice. The best choice would be the one with the highest-ranking worst outcome.

Individuals would not choose social arrangements according to the maximin rule in most circumstances. They normally would choose the alternative that offered the greatest prospects for gain, after weighing the probabilities of various possible outcomes. Rawls contends that they would choose according to the maximin rule if the following three conditions be met. First, the individuals do not have reliable information about the likelihood of possible outcomes. In such circumstances, probabilistic calculations would be impossible, or at least difficult, and the results of those calculations might be wrong. Second, the potential gains that an individual could achieve above the guaranteed minimum are relatively unimportant compared with the gains obtained from obtaining the minimum. Third, an individual would face the risk of a totally unacceptable outcome if he did not make the maximin choice. Rawls (1971, pp. 152-9) contends that all three of these conditions are met under the special circumstances of the original position. Indeed, Rawls established the conditions of the original position so that these conditions would be met (p. 141).

As applied to the choice among alternative tax regimes, the maximin rule would require that alternative regimes be ranked according to their downside risks for the least advantaged group in society, and the just tax system would be the one that would minimize those downside risks. Individuals choosing according to the maximin rule would prefer an income tax or even a consumption tax to an endowment tax because of the catastrophic consequences to the unlucky under an endowment tax. Under an endowment tax, an individual would run the significant risk that he would be subject to a high endowment [*175] tax based on expectations that were never

fulfilled. An individual choosing a tax system according to the maximin rule would prefer a tax system, such as an income tax or a consumption tax, that would base tax liabilities on outcomes rather than on expectancies.

Individuals behind the veil of ignorance would favor an income tax over an endowment tax even if the veil were thin enough to allow them to make probabilistic calculations of outcomes under alternative tax regimes.²⁸ On the assumption that there are no significant efficiency gains or losses from adopting an endowment tax, its adoption in place of an income tax would affect the distribution of benefits but not the total amount of benefits. The endowment tax would do less to equalize outcomes than an income tax, because, like a consumption tax, it would allow persons who save to retain the entire proceeds of their savings.²⁹ Thus it would be less desirable than an income tax, assuming that income has a declining marginal utility. Its merits relative to a consumption tax are as yet uncertain.

The discussion above implicitly assumed a world populated entirely by unattached individuals. The endowment tax would be even less attractive in the real world, where family sharing is an important determinant of an individual's economic well-being. Consider, for example, the potential gains that an individual would obtain from a favorable marriage. Unacceptable results would follow whether an individual's prospects for a favorable marriage are included in or excluded from his or her endowment. If marriage prospects are excluded from endowment, as seems most reasonable, then individuals who marry poorly would be taxed unfairly relative to equally endowed individuals who marry well.³⁰ Including nubility in endowment would produce even worse results. Individuals taxable on such an endowment would have their liberty rights violated because they would be forced to marry for money in order to pay their endowment tax.

The proper treatment of inherited wealth is problematic in an endowment tax once the world is understood to be populated by individuals living in families. In most instances, individuals do not inherit significant amounts of [*176] wealth at birth. They obtain their

²⁸ Critics of Rawls have objected to the maximin rule. See Okun (1977, pp. 17-18). Okun contends that Rawls is compelled by his embrace of the maximin rule to reject most inequalities of outcome. Okun has seriously misinterpreted Rawls. He is correct that justice as fairness must accommodate itself to some inequalities of outcome to have intuitive appeal. He is simply wrong in stating that Rawls holds otherwise. The real issue of debate is over the proper application of the maximin rule. As noted in the text, Rawls would invoke it only under special circumstances. Okun makes a good case for abandoning the maximin rule and making probabilistic calculations in choosing among alternative tax systems.

²⁹ I am making the assumption in the text that a propensity to save is not part of an individual's endowment. If that assumption is improper, then an endowment tax might tend toward equality of outcomes, depending upon the value assigned to a propensity to save.

³⁰ There can be some loss of utility from marrying well. According to G.B. Shaw, he who marries for money earns it.

inheritance sometime later in their life, typically at the discretion of their parents or other family members. Because family ties are often unstable and each individual's time of death is uncertain, what children ultimately obtain as an inheritance depends upon the outcome of many contingencies, including their relationship with members of their family when a transfer of wealth might be expected. An individual's inherited endowment, therefore, would be the discounted value of his prospects of receiving gifts during his lifetime.

The discounted value of an individual's expectancy from gifts would not correspond, in many important cases, with the benefits that an individual actually obtained during his lifetime. To the extent that the lack of congruence is due to choices made by the taxpayer, the proponents of a lifetime-options standard of fairness can contend that the result is fair. The result is clearly unfair, however, when the lack of congruence is the result of parental choices unrelated to the choices of the child. The child whose parents get divorced and who is brought up in relative poverty by his mother is unfairly overtaxed by an endowment tax. And the child of a divorced mother with little income is unfairly undertaxed if the mother remarries and the family income greatly exceeds earlier expectations.

The problems of uncertain endowments might be reduced by postponing assessment until individuals reach maturity. *Blueprints* (1984, p. 25) suggested waiting until an individual began working or was 18 years old to make the assessment. A simple postponement of the assessment period from birth to majority would allow some contingencies relating to the inheritances of children to be resolved, although most endowment tax advocates would object to such a postponement for technical reasons. A postponement would not resolve contingencies about the economic well-being of spouses, however, for those contingencies continue, to varying degrees, throughout a marital relationship.

6.5. Conclusion

In theory, a consumption tax could be designed to adjust tax burdens for the economic consequences of family sharing. Family adjustments are inconsistent, nevertheless, with a personal tax system designed to impose equal tax burdens on persons having equal lifetime options. Thus they are inconsistent with the standard used to justify the endowment tax described in section 6.4 and the two consumption tax proposals described in section 6.3.

The two consumption tax proposals discussed in section 6.3 would provide for family allowances and some marital income-splitting. I assume that they do so because the authors of those proposals are sensitive to popular conceptions of fairness. The departure of these proposals from the equal-lifetime-burdens [*177] standard to adjust

tax burdens for the economic consequences of family sharing has very important distributional implications. Indeed, for the majority of taxpayers, the omission of adjustments for family circumstances probably would have greater distributional consequences than the choice of consumption rather than income as the tax base.

Appendix. Classification of Tax Provisions by function

In this appendix, I set forth the classification scheme used throughout this paper as my analytical framework for evaluating alternative tax reform proposals. Some parts of the scheme that are not relevant to the topic of this paper are discussed very briefly.³¹

6.A.1 Overview of the Classification Scheme

The classification system presented here divides the provisions of an ideal income tax system into three categories: sorting rules, imposition rules, and tax expenditure rules. The sorting rules are divided into three subcategories, each with a clearly defined function. Two of those subcategories are subdivided further. In a coherent personal tax system, every tax provision could be classified into one, and only one, of the divisions established by the classification scheme.

The function of sorting rules in the classification scheme is to rank taxpayers according to their economic well-being. The design of sorting rules is discussed in section 6.A.2 below. The imposition rules serve to impose tax burdens on taxpayers with respect to their ranking by the sorting rules. The imposition rules are discussed in section 6.A.3. The residual category of rules in the classification scheme is the tax expenditure rules. A tax expenditure is a provision of a tax system that has been designed to serve some function other than a sorting function or an imposition function. Tax expenditure rules are not essential features of an ideal personal income tax. Most operating tax systems, nevertheless, contain at least some tax expenditures. Such rules are discussed in section 6.A.4.

In an ideal personal tax system designed according to this classification scheme, taxpayers would employ the sorting rules to compute their taxable capacity, measured, for example, by their taxable income or their taxable consumption. They would then employ the imposition rules to determine the amount of tax due with respect to their taxable capacity. There would be no tax expenditure rules because the goals associated with tax expenditures would be achieved through spending mechanisms.

³¹ For additional discussion of my scheme, see McIntyre (1988a and 1988b).

The sorting rules and imposition rules of a tax system give content to the principle of procedural justice. That principle holds that a just society would not make arbitrary distinctions between persons in the assignment of basic rights and obligations (Rawls, 1971, p. 5; Mill, 1921, p. 804). In the tax literature, the requirement of procedural justice has been formulated as the requirements of horizontal and vertical equity. Horizontal equity requires equal treatment of persons in equal circumstances, and vertical equity requires an appropriately unequal treatment of persons in unequal circumstances (Musgrave and Musgrave, 1976, p. 216). The sorting rules establish the criteria for determining whether persons are in equal circumstances. The imposition rules provide for the equal treatment of persons who are determined to be in equal circumstances by the sorting rules. They also provide for the unequal treatment of persons determined to be in unequal circumstances by the sorting rules.

An actual income tax system almost certainly will have provisions that are incompatible with the classification scheme set forth below. For example, the use of the married couple as a tax unit is incompatible with that scheme.³² In evaluating the merits of particular provisions of such a tax system, those provisions would be compared with a functionally equivalent hypothetical tax system designed according to the classification scheme. For example, a system with a marital unit rule would be compared with a system that used an individual unit rule and allowed for marital income-splitting. To construct that functionally equivalent system, the provisions of the actual system would be characterized according to their function. They would then be evaluated by reference to their effectiveness in fulfilling their function.

6.A.2. Sorting Rules

Sorting rules of a personal tax system can be subdivided into three subcategories: tax base rules, taxable person rules, and taxable period rules. Those subcategories are discussed in the subsections below.

6.A.2.1 Tax Base Rules

In this paper, the term ‘tax base’ refers to the class of economic benefits with respect to which a taxpayer is made taxable. The tax base rules specify the economic benefits to be included in the tax base. The base of an income tax may be said to be taxable income, as long as ‘taxable income’ is [*179] understood to be a class of economic

³² Tax analysts sometimes use the term ‘tax unit’ to describe what I would call a joint filing system. In my lexicon, a joint filing system is one in which certain individuals, such as marital partners, are required to aggregate their incomes as a step in the computation of their tax liability. As explained below, I reserve the term ‘tax unit’ to describe a class, the members of which are formally subject to taxation.

benefits rather than a number, or set of numbers. In the same sense, the base of a consumption tax is taxable consumption.³³

In the classification system presented here, the tax base rules would be the exclusive mechanism for specifying the economic benefits properly subject to taxation. Special tax rates or special tax credits would not be used for that purpose. For example, some tax systems design the rate schedule applicable to married couples so as to impose a tax penalty on married persons. The stated purpose of the penalty is to tax the economies-of-scale benefits that married persons allegedly obtain from communal living. In an ideal tax system constructed according to this classification scheme, that penalty, if appropriate, would be imposed by imputing income to taxpayers, married or otherwise, based upon the best available estimates of their economies-of-scale benefits.

6.A.2.2. Taxable Person Rules

There are two types of taxable person rules. First, there are the rules that define the class of persons subject to tax. These rules are called the tax unit rules. Second, there are the rules for relating economic benefits subject to taxation to the persons subject to tax with respect to those benefits. These rules are called the attribution rules.

Tax unit rules

A tax unit is a class whose members are formally subject to taxation. The tax unit rules define that class. They also specify that each member of that class is formally subject to taxation.

In a personal tax system designed to achieve fairness, the function of the tax unit rules is to link the burdens formally imposed by the tax system with the individuals or entities that the tax system is supposed to treat fairly. Thus if the purpose of the tax is to impose fair tax burdens on certain entities, such as corporations or families, then the proper tax unit would be a class comprised of such entities. The proper tax unit would be a class comprised of individuals if the purpose of the tax is to impose fair tax burdens on individual human beings.

³³ Some commentators have defined the tax base to be the number that a taxpayer would apply the tax rates to in computing his taxes due. See Musgrave and Musgrave (1976, p. 232). A tax system would have as many tax bases, so defined, as it has taxpayers. This alternative definition may be a useful shorthand in some circumstances, but it may also induce serious analytical errors. Taxpayers apply the tax rates to a number, and that number is computed by applying not only the tax base rules, but also the taxable person rules and the taxable period rules. Commentators who think of the tax base as that to which the rates are applied may be induced into giving undue importance to tax base issues at the expense of taxable person issues and taxable period issues.

Imposing fair tax burdens on human beings is precisely the objective of a fair personal tax system. Every coherent theory of justice makes the individual the focus of fairness. A theory of justice might take cognizance of the effect of social arrangements, such as the family, on individual welfare. It would not subordinate an individual, however, to the family, class or other collective entity to which he belongs.

To impose fair tax burdens on human beings, a tax system does not necessarily have to make the individual — i.e. a class comprised only of individuals — the only tax unit. The techniques used for imposing fair tax burdens are not fundamental. It would be unobjectionable, for example, for a tax system to tax corporations, trusts or families, as long as the resulting tax burdens imposed on individuals were justified. That is, legal entities or other collective entities might be proper conduits for imposing tax burdens on individuals.

An ideal tax system constructed according to the classification system set forth here would not use families, corporations or other entities as tax units. To evaluate a personal tax system that made a class of such entities a tax unit, analysts employing this classification system would recast the tax system as a functionally equivalent system in which the individual is the only tax unit.³⁴ The formal taxpayers in the actual tax system would be treated as mere conduits.

Attribution rules

The attribution rules of an ideal personal tax system link economic benefits included in the tax base with the taxpayers whose well-being is augmented by those economic benefits. Their function is to make an individual taxable on an amount included in the tax base whenever that individual obtains the economic benefit that justified the inclusion of that item in the tax base. In many circumstances, an individual would obtain all, or virtually all, of the economic benefits from an amount included in the tax base. In such cases, the choice of attribution rules presents no serious policy issues. Serious issues arise, however, when more than one individual obtains an economic benefit from an amount included in the tax base.

Two principles have been advanced for attributing economic benefits to taxpayers. One of those principles, called the benefit principle, would attribute economic benefits to the person who actually enjoys the benefit of those economic benefits (McIntyre and Oldman, 1977b; McIntyre, 1985a; McIntyre, 1985b; McIntyre, 1988c). In a Haig-Simons income tax system, the benefit principle would tax consumption to the consumer and savings to the saver. In a [*181]

³⁴ For an example of how the marital unit system of the United States can be recast, for purposes of analysis, as a functionally equivalent system in which individuals are the only taxpayers, see McIntyre (1985a).

consumption tax, it would tax consumption to the consumer. In a wealth tax, it would tax an item of wealth to the person who obtained the economic benefit that justifies the taxation of wealth.

The other attribution principle, called the control principle, would attribute economic benefits included in the tax base to the person who exercises some measure of control over those benefits. In a Haig-Simons income tax, the control principle would make an item of consumption or savings taxable to each person who controls that item of consumption or savings from its creation to its ultimate disposition. Income transferred by gift, for example, would be taxable both to the donor and to the donee. A consumption tax designed according to the control principle would tax an item of income expended on consumption to each person who controls that income item from its creation to its ultimate disposition.

6.A.2.3. Taxable Period Rules

The taxable period rules, like the taxable person rules, are divided into two subcategories. The first subcategory contains the rules that specify the period over which economic benefits included in the tax base are to be measured. Also contained in that subcategory are the rules that make economic benefits included within a particular taxable period subject to taxation in that period. The period over which economic benefits are measured is traditionally called the taxable period. There are an unlimited number of possible taxable periods. The periods receiving support in the tax literature are a year (or some other, suitably short, period) and a lifetime.

In an ideal tax system, the period for assessing economic benefits subject to tax and the period for collecting taxes with respect to those benefits would be the same. Otherwise persons might be required to pay taxes earlier, and thus bear a heavier relative burden, than other persons having the same taxable capacity who are allowed to pay later. Current payment schemes and deferral charges for delayed payments can reduce but not eliminate the unfairness that would result from having assessment periods and measurement periods of different lengths.

The second category of taxable period rules is comprised of the rules that attribute items of income to a particular taxable period. The function of these rules is to attribute economic benefits included in the tax base with the taxable period in which those benefits were obtained. In a Haig-Simons income tax, income should be attributed to the taxable period in which it is consumed or saved. In a consumption tax, benefits included in the tax base should be attributed to the taxable period in which they are consumed. Accounting conventions may be helpful in relating taxable amounts to particular taxable periods. When they are not helpful, they obviously should not be followed.

By convention, the taxable period is the year in virtually all income tax systems. What the taxable period would be in a consumption tax is

not [*182] entirely clear. The lifetime would obviously be the assessment period of choice in an ideal lifetime consumption tax. Most proponents of a Haig-Simons consumption tax also favor the lifetime as the assessment period. These analysts apparently favor the year, however, as the collection period. Most tax jurisdictions would need to use a suitably short collection period to avoid substantial borrowing to pay [their] bills.

6.A.3. Imposition Rules

The tax rate schedule is the paradigm imposition rule in this classification scheme. Under some conditions, tax credits and deductions would serve an imposition function. For example, an ideal personal tax system would provide for a credit for taxes previously collected through a withholding scheme. Such a credit would be classified as an imposition rule. A credit for foreign taxes might also be classified as an imposition rule. In contrast, refundable credits for child support and credits given to encourage investment would be classified as tax expenditure rules rather than imposition rules in this classification scheme.

Standard deductions, personal exemptions, and similar deductions available to all taxpayers without reference to their expenditures generally would be classified as imposition rules. So also would credits granted to keep the poor off the tax rolls. Such deductions and credits are functionally equivalent to a zero tax bracket in the rate schedule. They would be classified as part of the rate schedule because their purpose is to affect the level of tax imposed on individuals and not to affect their ranking relative to other individuals.

The assumption of this paper is that a society would use its personal tax system to reduce inequalities in the distribution of certain economic benefits obtained by members of society. According to the classification scheme presented here, that redistribution would be achieved through the sorting rules and the imposition rules. An individual's taxable capacity would be defined under the sorting rules in terms of the economic benefits that are to be redistributed. Taxes would then be imposed on individuals with respect to their taxable capacity, as defined by the sorting rules, according to a graduated rate schedule.

6.A.4. Tax Expenditure Rules

A tax expenditure is traditionally defined as a departure from the normal tax structure, designed to favor a particular industry, activity, or class of persons (Surrey and McDaniel, 1979, p. 228). In the classification scheme set forth here, a tax expenditure would be any tax provision that served a function other than a sorting function or an imposition function. In terms of the traditional definition of a tax expenditure, the sorting rules and the imposition rules are the normal rules of a personal tax system.

In an actual personal tax system, serious problems can arise in determining whether a tax provision is intended to service a normal or special function. For example, a credit for child care can be understood to be a subsidy for working parents, in which case it should be considered a tax expenditure. It may also be understood as a mechanism for excluding from the income of working parents the non-consumption component of their child-care expenditures. In that case, it might be considered to be a part of the normal tax structure.³⁵

In an ideal personal tax system constructed according to the classification system presented here, tax expenditure rules would not be employed. In a tax system that did contain tax expenditures, the tax expenditure rules would be separated from sorting rules and imposition rules by employing the familiar tax expenditure analysis. The tax system would be considered to be composed of two parts, a hypothetical spending part and a hypothetical revenue-raising part. The hypothetical spending part would dispense the benefits provided to individuals through the tax expenditure provisions. The revenue-raising part would be comprised of the sorting rules and the imposition rules, adjusted as necessary to raise the revenue needed to fund the hypothetical spending programs. The hypothetical revenue-raising system would be analyzed according to appropriate tax policy criteria, and the hypothetical spending program, or programs, would be evaluated according to the appropriate spending criteria.

³⁵ The difficulties that can arise in identifying tax expenditures are discussed and largely solved in McIntyre (1980).

REFERENCES

- Aaron, Henry J. and Galper, Harvey (1984). 'Reforming the Tax System', in A. Rivlin (ed.). *Economic Choices 1984*. Washington, DC: Brookings Institution.
- Aaron, Henry J. and Galper, Harvey (1985). *Assessing Tax Reform*. Washington, DC: Brookings Institution.
- Aaron, Henry J. and Pechman, Joseph A. (eds.) (1988). *Uneasy Compromise: Problems of a Hybrid Income-Consumption Tax*. Washington, DC: Brookings Institution.
- Abel Smith, B. and Townsend, P. (1965). *The Poor and the Poorest*. London: Bell.
- Akerlof, G.A. (1978). 'The Economics of Tagging', *American Economic Review*. 68: 8-19.
- Alesina, Alberto (1988). 'Credibility and Policy Convergence in a Two-Party System with Rational Voters'. *American Economic Review*. 78: 796-805.
- Allison, Michael T., Fullerton, Don and Makin, John (1985). 'Tax Reform: A Study of some Major Proposals', American Enterprise Institute Fiscal Policy Studies Program Working Paper 2.
- Andrews, William D. (1974). 'A Consumption-Type or Cash Flow Personal Income Tax'. *Harvard Law Review*. 87: 1113-88.
- Arnold, Brian J. (1986). *The Taxation of Controlled Foreign Corporations: An International Comparison*. Toronto: Canadian Tax Foundation.
- Atkinson, Anthony B. (1973). 'How Progressive Should Income-Tax Be?' in M. Parkin and A.R. Nobay (eds.). *Essays in Modern Economics*. London: Longmans. Reprinted in E.S. Phelps (ed.). *Economic Justice, Selected Readings*. Harmondsworth: Penguin Education.
- Atkinson, Anthony B. and Bourguignon, François (1988). 'The Design of Taxation and Family Benefits', *Journal of Public Economics*, forthcoming.
- Atkinson, Anthony B., Bourguignon, François and Chiappori, Pierre-André (1988a). 'The French Tax-Benefit System and a Comparison with the British System', in A.B. Atkinson and H. Sutherland (eds.). *Tax-Benefit Models*. London: STICERD.
- Atkinson, Anthony B., Bourguignon, François and Chiappori, Pierre-André (1988b). 'What Do We Learn about Tax Reforms from International Comparisons? France and Britain', *European Economic Review*, 32: 343-52.
- Atkinson, Anthony B. and Sandmo, Agnar (1980). 'Welfare Implications of the Taxation of Savings'. *Economic Journal*. 90: 529-49.

- Atkinson, Anthony B. and Stiglitz, Joseph E. (1976). 'The Design of Tax Structure: Direct Versus Indirect Taxation'. *Journal of Public Economics*, 6: 55-75.
- Auerbach, Alan J. (1979). 'A Brief Note on a Non-Existent Theorem about the Optimality of Uniform Taxation'. *Economic Letters*, 3: 49-52.
- Auerbach, Alan J. (1988). 'Should Interest Deductions Be Limited?', in H.J. Aaron, H. Galper and J.A. Pechman (eds.), *Uneasy Compromise: Problems of a Hybrid Income-Consumption Tax*. Washington, DC: Brookings Institution.
- Auerbach, Alan J. and Kotlikoff, Laurence J. (1987). *Dynamic Fiscal Policy*. Cambridge: Cambridge University Press.
- Auerbach, Alan J., Kotlikoff, Laurence J. and Skinner, Jon (1983). 'The Efficiency Gains from Dynamic Tax Reform', *International Economic Review*, 24: 81-100.
- Aumann, R.J. and Kurz, M. (1977). 'Power and Taxes', *Econometrica*, 45: 1137-61.
- Ballard, Charles A., Fullerton, Don, Shoven, John B. and Whalley, John (1985). *A General Equilibrium Model for Tax Policy Evaluation*. Chicago: University of Chicago Press.
- Barooah, Vani K. and van der Ploeg, Frederick (1983). *Political Aspects of the Economy*. Cambridge: Cambridge University Press.
- Bartlett, Randall (1973). *Economic Foundations of Political Power*. New York: The Free Press (MacMillan).
- Becker, G. (1983). 'A Theory of Competition among Pressure Groups for Political Influence', *Quarterly Journal of Economics*, 98: 371-400.
- Bergstrom, T.C. and Goodman, R.P. (1973). 'Private Demands for Public Goods', *American Economic Review*, 63: 280-96.
- Beveridge Report (1942). *Social Insurance and Allied Services*. Cmd 6404. London: HMSO.
- Bhagwati, Jagdish and Dellafar, William (1973). 'The Brain Drain and Income Taxation', *World Development*, 1: 94-101.
- Bird, Richard M. (1970). 'The Tax Kaleidoscope: Perspectives on Tax Reform in Canada', *Canadian Tax Journal*, 18: 444-78.
- Bird, Richard M. (1986). 'The Interjurisdictional Allocation of Income', *Australian Tax Forum*, 3: 333-54.
- Bird, Richard M. (1987a). 'Imputation and the Foreign Tax Credit: Some Critical Notes from an International Perspective', *Australian Tax Forum*, 4: 1-34.
- Bird, Richard M. (1987b). 'Corporate-Personal Tax Integration', in S. Cnossen (ed.). *Tax Coordination in the European Community*. Deventer: Kluwer.

- Bird, Richard M. (1988). 'Shaping a New International Tax Order'. *Bulletin for International Fiscal Documentation*, 42: 292-9.
- Bird, Richard M. and Brean, Donald J.S. (1985). 'Canada/US Tax Relations: Issues and Perspectives', in D. Fretz. R. Stern and J. Whalley (eds.), *Canada/United States Trade and Investment Issues*. Toronto: Ontario Economic Council.
- Bird, Richard M. and Slack. Enid (1983). 'The Taxation of Northern Allowances'. *Canadian Tax Journal*, 31: 461-73.
- Blackley, Paul R. and DeBoer, Larry (1987). 'Tax Base Choice by Local Governments'. *Land Economics*, 63: 227-36.
- Blackorby, C., Donaldson, D. and Moloney, D. (1984). 'Consumer's Surplus and Welfare Change in a Simple Dynamic Model', *Review of Economic Studies*, 51: S171-6.
- Blau, D.M. (1987). 'A Time-Series Analysis of Self-Employment in the United States'. *Journal of Political Economy*, 95: 445-67.
- Blomquist, N. Sören (1988). 'Non Linear Taxes and Labor Supply', *European Economic Review*, 32: 1213-26.
- Blundell Richard and Walker. Ian (1988). 'Labour Supply Incentives and the Taxation of Family Income', *Economic Policy*, 6: 133-61.
- Boadway. Robin and Bruce, Neil (1988). 'Aspects of Corporate and Personal Tax Integration in an Open Economy'. Xeroxed.
- Borcherding, Thomas F. and Deacon. Robert T. (1972). 'The Demand for the Services of Non-Federal Governments'. *American Economic Review*, 62: 891-901.
- Bossons, John (1988). 'International Tax Competition: The Foreign Government Response in Canada and Other Countries', *National Tax Journal*, 41: 347-55.
- Bourguignon, François, Chiappori Pierre-André and Sastre-Descals. Jose (1988). 'Sysiff: A Simulation Program of the French Tax-Benefit System', in A.B. Atkinson and H. Sutherland (eds.). *Tax-Benefit Models*. London: STICERD.
- Bourguignon, François and Magnac, Thierry (1988). 'Taxation and Labor-Supply in France'. Mimeo. Paper presented at the International Conference on Taxation and Labor-Supply. University of Wisconsin. October 1988. *Journal of Human Resources*, forthcoming.
- Bradford, David F. (1980). 'The Case for a Personal Consumption Tax', in J.A. Pechman (ed.). *What Should Be Taxed: Income or Expenditure?*. Washington, DC: Brookings Institution.
- Bradford, David F. (1981). 'The Incidence and Allocation Effects of a Tax on Corporate Distributions'. *Journal of Public Economics*, 15: 1-22.
- Bradford, David F. (1986). *Untangling the Income Tax*. Cambridge, MA: Harvard University Press.

- Bradford, David F. and US Treasury Tax Policy Staff (1984). *Blueprints for Basic Tax Reform*. Second edition. Arlington, VA: Tax Analysts.
- Brannon, Gerard M. and Morss, Elliott R. (1973). 'The Tax Allowance for Dependents: Deductions Versus Credits', *National Tax Journal*, 26: 599-609.
- Break, G.F. and Pechman, J.A. (1975). *Federal Tax Reform: The Impossible Dream?*. Washington, DC: Brookings Institution.
- Brean, Donald J.S. (1984). 'International Portfolio Capital: The Wedge of the Withholding Tax'. *National Tax Journal*. 37: 239-47.
- Brean, Donald J.S. Bird, Richard M. and Krauss, Melvyn (1988). 'Taxation of International Portfolio Investment'. Xeroxed.
- Brennan, Geoffrey (1983). 'Estate Gift Duty and the Family: Prolegomena to a Theory of the Family Unit', in R. Penner (ed.). *Taxing the Family*. Washington, DC: American Enterprise Institute.
- Brennan, Geoffrey and Brooks, Michael (1983). 'Towards a Theory of Family Taxation: The Equity Dimension', in J.G. Head (ed.). *Taxation Issues of the 1980s*. Sydney: Australian Tax Research Foundation.
- Brennan, Geoffrey, Bohanon, Cecil and Carter, Richard (1984). 'Public Finance and Public Prices: Towards a Reconstruction of Tax Theory', *Public Finance*. 39: 157-79.
- Brennan, Geoffrey and Buchanan, James (1980). *The Power to Tax: Analytical Foundations of a Fiscal Constitution*. Cambridge: Cambridge University Press.
- Brinner, Roger (1973). 'Inflation, Deferral and the Neutral Taxation of Capital Gains', *National Tax Journal*, 26: 565-73.
- Brinner, Roger (1976). 'Inflation and the Definition of Taxable Personal Income', in H.J. Aaron (ed.). *Inflation and the Income Tax*. Washington, DC: Brookings Institution.
- Bucovetsky, Sam (1984). 'The Relationship between Geographic Mobility of Individuals and the Structure of the Provincial Personal Income Tax', in D.W. Conklin (ed.), *A Separate Personal Income Tax for Ontario: Background Studies*. Toronto: Ontario Economic Council.
- Burtless, Gary and Hausman, Jerry (1978). 'The Effect of Taxes on Labor Supply', *Journal of Political Economy*. 86: 1103-30.
- Carter Commission (1966). *Report of the Royal Commission on Taxation*. Ottawa.
- Casanegra de Jantscher, Milka (1985). 'Chile', in *Adjustments for Tax Purposes in Highly-Inflationary Economies*. Proceedings of a seminar during the 38th Annual Congress of the International Fiscal Association. Deventer: Kluwer.

- Caves, Richard E. (1981). *Multinational Enterprise and Economic Analysis*. Cambridge: Cambridge University Press.
- Chiappori, Pierre-André (1988). 'Distributional Effects of Tax Harmonization: A Preliminary Investigation for France', DELTA Document de travail 88-10.
- Chiswick, Barry R. (1988). 'Illegal Immigration and Immigration Control', *Journal of Economic Perspectives*, 2: 101-15.
- Clotfelter, Charles T. (1979). 'Equity, Efficiency, and the Tax Treatment of In-Kind Compensation', *National Tax Journal*, 32: 51-60.
- Cnossen, Sijbren (1984). 'Corporation Taxes in OECD Member Countries', *Bulletin for International Fiscal Documentation*, 38: 483-96.
- Coughlin, Peter J. (1986). 'Elections and Income Redistribution', *Public Choice*, 50: 27-91.
- Cukierman, Alex and Meltzer, Allan H. (1985). 'A Positive Theory of Progressive Income Taxation'. Unpublished paper, Carnegie Mellon University. February.
- Davies, David A. (1988). 'The Attempt to Reform Taxation in the United States', *Government and Policy*, 6: 71-92.
- Davies, James B. and St-Hilaire, France (1987). *Reforming Capital Income Taxation in Canada: Efficiency and Distributional Effects of Alternative Options*. Ottawa: Canadian Government Publishing Centre.
- Diamond, P.A. (1968). 'Negative Taxes and the Poverty Problem: A Review Article', *National Tax Journal*, 31: 288-303.
- Dilnot, Andrew W., Kay, John A. and Morris, C. Nick (1984). *The Reform of Social Security*. Oxford: Oxford University Press.
- Downs, Anthony (1957). *An Economic Theory of Democracy*. New York: Harper and Row.
- Driffill, E. John and Rosen, Harvey S. (1983). 'Taxation and Excess Burden: A Life Cycle Perspective', *International Economic Review*, 24: 671-83. The Economist (1988). 'Asian Migrant Workers'. 10 September: 21-4.
- Edgeworth, Francis Y. (1897). 'The Pure Theory of Taxation', *Economic Journal*, 7: 46-70, 226-38. Excerpt in R.A. Musgrave and A.T. Peacock (eds.), (1958), *Classics in the Theory of Public Finance*, London: Macmillan.
- European Taxation (1986). 'Taxation of Owner-Occupied Dwelling Houses', 26: 365-407.
- Evans, Owen J. (1983). 'Tax Policy, the Interest Elasticity of Saving, and Capital Accumulation: Numerical Analysis of Theoretical Models', *American Economic Review*. 73: 398-410.
- Feldstein, Martin S. (1973). 'On the Optimal Progressivity of the Income Tax', *Journal of Public Economics*, 2: 357-76.

- Feldstein, Martin S. (1976). 'On the Theory of Tax Reform', *Journal of Public Economics*, 6: 77-104.
- Feldstein, Martin S. (1978). 'The Welfare Cost of Capital Income Taxation', *Journal of Political Economy*, 86: S29-52.
- Feldstein, Martin S. and Horioka, Charles (1980). 'Domestic Savings and International Capital Flows', *Economic Journal*, 90: 314-29.
- Fieghen, G.C., Langley, P.S. and Smith, A.D. (1977). *Poverty and Progress in Britain*. Oxford: Oxford University Press.
- Fisher, Irving (1930). *The Theory of Interest*. London: Macmillan.
- Fisher, Ronald C. (1982). 'Income and Grant Effects on Local Expenditure: The Flypaper Effect and Other Difficulties', *Journal of Urban Economics*, 12: 324-45.
- Frenkel, Jacob A. and Razin, Assaf (1988). 'International Effects of Tax Reforms', IMF Working Paper WP/88/62.
- Frey, Bruno S. and Pommerehne, Werner W. (1984). 'The Hidden Economy: State and Prospects for Measurement', *Review of Income and Wealth*, 30/1: 1-21.
- Friedman, Milton (1953). 'Choice, Chance, and the Personal Distribution of Income', *Journal of Political Economy*, 61: 277-90.
- Fullerton, Don, Shoven, John B. and Whalley, John (1983). 'Replacing the US Income Tax with a Progressive Consumption Tax: A Sequenced General Equilibrium Approach', *Journal of Public Economics*, 20: 3-23.
- Galper, Harvey and Steuerle, C. Eugene (1983). 'Tax Incentives for Saving', *The Brookings Review*, 2: 16-23.
- Gardner, R. (1981). 'Wealth and Power in a Collegial Polity', *Journal of Economic Theory*, 25, 353-66.
- Gillespie, W. Irwin G. (1980). *The Redistribution of Income in Canada*. The Carleton Library 124. Toronto: Gage Publishing Co.
- Gillespie, W. Irwin G. (1988). *Financing Federal Spending in Canada: The Birth, Death and Growth of Taxes, 1867-1967*. Unpublished manuscript, Carleton University.
- Goode, Richard (1964). *The Individual Income Tax*. Washington, DC: Brookings Institution.
- Goode, Richard (1980a). 'Long-Term Averaging of Income for Tax Purposes', in H.J. Aaron and M.J. Boskin (eds.). *The Economics of Taxation*. Washington, DC: Brookings Institution.
- Goode, Richard (1980b). 'The Superiority of the Income Tax', in J.A. Pechman (ed.), *What Should Be Taxed: Income or Expenditure?*. Washington, DC: Brookings Institution.
- Gordon, Richard A. (1981a). *Tax Havens and their Use by United States Taxpayers — An Overview*. Washington, DC: US Department of the Treasury.

- Gordon, Richard A. (1981b). *Estimates of Levels of Tax Haven Use*. Washington, DC: US Department of the Treasury.
- Gordon, Roger H. (1988). 'Notes on Cash-Flow Taxation'. Paper prepared for World Bank Workshop on Implementation of Cash Flow Company Taxation, Washington, DC, 20 June 1988.
- Gottschalk, Peter (1976). 'Deductions Versus Credits Revisited', *National Tax Journal*, 29: 221-6.
- Goulder, Lawrence H., Shoven, John B. and Whalley, John (1983). 'Domestic Tax Policy and the Foreign Sector: The Importance of Alternative Foreign Sector Formulations', in M.S. Feldstein (ed.), *Behavioral Simulation Methods in Tax Policy Analysis*. Chicago: University of Chicago Press.
- Graetz, Michael J. (1980). 'Expenditure Tax Design', in J.A. Pechman (ed.), *What Should Be Taxed: Income or Expenditure?*. Washington, DC: Brookings Institution.
- Green, G.C. (1967). *Negative Taxes and the Poverty Problem*. Washington, DC: Brookings Institution.
- Hall, Robert E. and Rabushka, Alvin (1983). *Low Tax, Simple Tax, Flat Tax*. New York: McGraw-Hill.
- Hall, Robert E. and Rabushka, Alvin (1985). *The Flat Tax*. Stanford: Hoover Institution Press.
- Halperin, Daniel and Steuerle, C. Eugene (1988). 'Indexing the Tax System for Inflation', in H.J. Aaron, H. Galper and J.A. Pechman (eds.), *Uneasy Compromise: Problems of a Hybrid Income-Consumption Tax*. Washington, DC: Brookings Institution.
- Harberger, Arnold C. (1980). 'Vignettes on the World Capital Market', *American Economic Review*, 70: 331-7.
- Hartle, Douglas G. et al. (1983). *A Separate Personal Income Tax for Ontario: An Economic Analysis*. Toronto: Ontario Economic Council.
- Hartman, David G. (1983). 'Comment on "Domestic Tax Policy and the Foreign Sector: The Importance of Alternative Foreign Sector Formulations"', in M.S. Feldstein (ed.), *Behavioral Simulation Methods in Tax Policy Analysis*. Chicago: National Bureau of Economic Research.
- Hausman, Jerry (1980). 'The Effect of Wages, Taxes and Fixed Costs on Women's Labour Force Participation', *Journal of Public Economics*, 14: 161-94.
- Hausman, Jerry (1981). 'Labor-Supply', in H.J. Arrow and J.A. Pechman (eds.), *How Taxes Affect Economic Behavior*. Washington, DC: Brookings Institution.
- Hausman, Jerry and Poterba, Jim (1987). 'Household Behavior and the Tax Reform Act of 1986', *Journal of Economic Perspectives*, 1: 101-19.

- Hettich, Walter (1983). 'Reforms of the Tax Base and Horizontal Equity', *National Tax Journal*, 41: 7-27.
- Hettich, Walter and Winer, Stanley L. (1984). 'A Positive Model of Tax Structure', *Journal of Public Economics*, 24: 67-87.
- Hettich, Walter and Winer, Stanley L. (1988). 'Economic and Political Foundations of Tax Structure', *American Economic Review*, 78: 701-12.
- Hochman, Harold M. and Rogers, James D. (1969). 'Pareto-Optimal Redistribution', *American Economic Review*, 59, 542-77.
- Hofreither, Markus and Schneider, Friedrich (1989). 'Gibt es ein politisches Interesse die Schattenwirtschaft zu bekämpfen? Ein Versuch politisch-ökonomischer Erklärung', in Boettcher, Herder-Domeich and Schenk (eds.), *Jahrbuch der Politischen Ökonomie*. Band 9. Tübingen: Mohr-Verlag, forthcoming.
- Hotelling, Harold (1929). 'Stability in Competition', *Economic Journal*, 39: 41-57.
- Hunter, William J. and Nelson, Michael A. (1988). 'Interest Group Demand for Taxation'. Unpublished, Bradley Institute, Marquette University.
- Inman, Robert (1987). 'Markets, Governments and the "New" Political Economy', in A.J. Auerbach and M.S. Feldstein (eds.), *Handbook of Public Economics*. Volume 2. Amsterdam: North-Holland.
- Kaldor, Nicholas (1955). *An Expenditure Tax*. London: Allen and Unwin.
- de Kam, Flip (1987). 'Netherlands', in J.A. Pechman (ed.), *Comparative Tax Systems: Europe, Canada, and Japan*. Arlington, VA: Tax Analysts.
- Kaplow, Louis (1985). 'Horizontal Equity: Measures in Search of a Principle', National Bureau of Economic Research Working Paper 1679.
- Kapteyn, Arie, van Soest, Arthur and Waittietz, Isolde (1988). 'Labor-Supply, Income Taxes and Hours Restrictions in the Netherlands'. Mimeo. Paper presented at the Conference on Taxation and Labor-Supply, University of Wisconsin, October 1988.
- Karzon, Allaire Urban (1983). 'International Tax Evasion: Spawned in the United States and Nurtured by Secrecy Havens', *Vanderbilt Journal of Transnational Law*, 16: 757-832.
- Kau, James B. and Rubin, Paul H. (1981). 'The Size of Government', *Public Choice*, 37: 261-74.
- Killingsworth, Mark (1983). *Labor Supply*. Cambridge: Cambridge University Press.
- Kinder, D.R. and Kiewiet, D.R. (1979). 'Economic Discontent and Political Behavior: The Role of Personal Grievances and Collective Economic Judgements in Congressional Voting', *American Journal of Political Science*, 23: 495-527.

- King, Mervyn A. (1977). *Public Policy and the Corporation*. London: Chapman and Hall.
- King, Mervyn A. (1980). 'Savings and Taxation', in G.A. Hughes and G.M. Heal (eds.), *Public Policy and Taxation*. London: Allen and Unwin.
- Kingson, Charles I. (1981). 'The Coherence of International Taxation', *Columbia Law Review*, 81: 1151-289.
- Kohler, P.A. and Zacher, H.F. (eds.) (1982). *The Evolution of Social Insurance*. London: Francis Pinter.
- Koppelman, Stan (1988). 'Progressivity Effects of the Tax Reform Act of 1986', *National Tax Journal*, 41: 285-90.
- Kramer, G.H. (1983). 'The Ecological Fallacy Revisited: Aggregate-Versus Individual-Level Findings on Economics and Elections, and Sociotropic Voting', *American Political Science Review*, 77: 92-111.
- Leitner, H. (1986). 'The State and the Foreign Worker Problem: A Case Study of the Federal Republic of Germany, Switzerland and Austria', *Environment and Planning C, Government and Policy*, 4: 199-219.
- Levi, Maurice D. (1977). 'Taxation and "Abnormal" International Capital Flows', *Journal of Political Economy*, 85: 635-46.
- Levitan, S.A. (1980). *Programs in Aid of the Poor for the 1980s*. Baltimore: Johns Hopkins.
- Lindbeck, Assar and Weibull, Jorgen W. (1987). 'Balanced Budget Redistribution as the Outcome of Political Competition', *Public Choice*, 52, 273-97.
- Lodin, Sven-Olof (1978). *Progressive Expenditure Tax: An Alternative?*. Report of the 1972 Government Commission on Taxation. Stockholm: Liberforlag.
- Long, N.V. and Sinn, H-W. (1984). 'Optimal Taxation and Economic Depreciation: A General Equilibrium Model with Capital and an Exhaustible Resource', in M.C. Kemp and N.V. Long (eds.), *Essays in the Economics of Exhaustible Resources*. Amsterdam and New York: North-Holland.
- McIntyre, Michael J. (1980). 'A Solution to the Problem of Defining a Tax Expenditure', *UC Davis Law Review*, 14: 79-103.
- McIntyre, Michael J. (1985a). 'Tax Consequences of Family Sharing Practices under New York Law: A Critique and a Proposal for Reform', *Albany Law Review*, 49: 275-351.
- McIntyre, Michael J. (1985b). 'Fairness to Family Members under Current Tax Reform Proposals', *American Journal of Tax Policy*, 4: 155-92. Reprinted in revised form in *Tax Notes*, 19 May 1986: 713-24.

- McIntyre, Michael J. (1988a). 'What Should Be Redistributed in a Redistributive Income Tax? Retrospective Comments on the Carter Commission Report', in W.N. Brooks (ed.), *The Quest for Tax Reform: The Royal Commission on Taxation Twenty Years Later*. Toronto: Carswell.
- McIntyre, Michael J. (1988b). 'Implications of US Tax Reform for Distributive Justice', *Australian Tax Forum*, 5: 219-56.
- McIntyre, Michael J. (1988c). 'Tax Justice for Family Members after New York State Tax Reform', *Albany Law Review*, 51: 789-816.
- McIntyre, Michael J. (1988d). 'Rosen's Marriage Tax Computations: What Do They Mean?', *National Tax Journal*: 41: 257-8.
- McIntyre, Michael J. and Oldman, O. (1977a). 'Taxation of the Family in a Comprehensive and Simplified Income Tax', *Harvard Law Review*, 90: 1573-630.
- McIntyre, Michael J. and Oldman, O. (1977b). 'Treatment of the Family', in J.A. Pechman (ed.). *Comprehensive Income Taxation*. Washington, DC: Brookings Institution.
- McLure, Charles E., Jr. (1979). *Must Corporate Income Be Taxed Twice?*. Washington, DC: Brookings Institution.
- McLure, Charles E., Jr. (1987). 'US Tax Reform', *Australian Tax Forum*, 4: 293-312.
- McLure, Charles E., Jr. (1988a). 'The Tax Reform Act of 1986: Tax Reform's Finest Hour or Death Throes of the Income Tax', *National Tax Journal*, 41: 303-15.
- McLure, Charles E., Jr. (1988b). 'Practical Problems of Implementing a Consumption-Based Tax on Companies'. Paper presented at World Bank Seminar on Implementation of Cash-Flow Company Taxation.
- McLure, Charles E., Jr. (1989). 'Lessons for LDCs of US Income Tax Reform', in M. Gillis (ed.), *Tax Reform in Developing Countries*. Durham, NC: Duke University Press.
- McLure, Charles E., Jr. (forthcoming, a). 'US Tax Laws and Capital Flight from Latin America', Hoover Institution Working Paper E-88-21. Also in *InterAmerican Law Review*.
- McLure, Charles E., Jr. (forthcoming, b). 'Expensing', in R. Bahl (ed.), *The Jamaican Tax Reform*. Boston: Oelgeschlager, Gunn and Hahn.
- McLure, Charles E., Jr. (forthcoming, c). 'Tax Reform in an Inflationary Environment: The Case of Colombia', in M. Boskin (ed.), *Tax Reform and the World Economy*. San Francisco: Institute for Contemporary Studies Press for International Center for Economic Growth.
- McLure, Charles E., Jr., Mutti, John, Thuronyi, Victor and Zodrow, George R. (1988). *The Taxation of Income from Business and Capital in Colombia*. Durham, NC: Duke University Press, 1989.

- Meade Committee (1978). *The Structure and Reform of Direct Taxation*. London: Allen and Unwin.
- Meltzer, Allan H. and Richard, S.F. (1981). 'A Rational Theory of the Size of Government', *Journal of Political Economy*, 89: 914-27.
- Messere, Ken and Nerregard, John (1989). 'Consumption Taxes in OECD Countries over the Last Two Decades', *Bulletin for International Fiscal Documentation*, 43: 255-68.
- Messere, Ken and Owens, Jeffrey P. (1979). 'The Treatment of Dependent Children under Income Tax and Social Welfare Systems', in *Social Security and Taxation*. Geneva: ISSA.
- Mill, John (1921). *Principles of Political Economy*. London: Longmans, Green & Co.
- Mirrlees, J.A. (1971). 'An Exploration in the Theory of Optimum Income Taxation', *Review of Economic Studies*, 38: 175-208.
- Morton, Rebecca (1988). 'Tax Structure in Group Majority Voting Equilibrium'. Unpublished paper, Nicholls State University.
- Musgrave, Peggy B. (1987). 'Coordination of Taxes on Capital Income in Developing Countries'. Xeroxed. Washington, DC: World Bank.
- Musgrave, Richard A. (1976). 'ET, OT and SBT', *Journal of Public Economics*, 6: 3-16.
- Musgrave, Richard A. (1983). 'The Nature of Horizontal Equity and the Principle of Broad-Based Taxation: A Friendly Critique', in J.G. Head (ed.), *Taxation Issues of the 1980s*. Sydney: Australian Tax Research Foundation.
- Musgrave, Richard A. (1987). 'Short of Euphoria', *Journal of Economic Perspectives*, 1: 59-71.
- Musgrave, Richard A. and Musgrave, Peggy B. (1976). *Public Finance in Theory and Practice*. Second edition. New York: McGraw-Hill.
- Musgrave, Richard A. and Musgrave, Peggy B. (1984). *Public Finance in Theory and Practice*. Third edition. New York: McGraw-Hill.
- Nash, J. (1953). 'Two Person Cooperative Games', *Econometrica*, 21: 128-40.
- Neck, Reinhard, Schneider, Friedrich and Hofreither, Markus F. (1989). 'The Consequences of Progressive Income Taxation for the Shadow Economy: Some Theoretical Considerations', in D. Bös and B. Felderer (eds.), *The Political Economy of Progressive Taxation*. Heidelberg: Springer, forthcoming.
- OECD (1977a). *Model Double Taxation Convention on Income and Capital*. Paris.
- OECD (1977b). *The Treatment of Family Units in OECD Member Countries under Tax and Transfer Systems*. Paris.
- OECD (1978). *The Tax/Benefit Position of Selected Income Groups in OECD Member Countries 1972-76*. Paris.

- OECD (1980). *The Tax/Benefit Position of Selected Income Groups in OECD Member Countries 1976-78*. Paris.
- OECD (1981a). *Long-Term Trends in Tax Revenues of OECD Member Countries, 1955-1980*. Paris.
- OECD (1981b). *Income Tax Schedules: Distribution of Taxpayers and Revenues*. Paris.
- OECD (1985). *Trends in International Taxation*. Paris.
- OECD (1986). *Personal Income Tax Systems under Changing Economic Conditions*. Report by the Committee on Fiscal Affairs. Paris.
- OECD (1987a). *Taxation in Developed Countries*. Paris.
- OECD (1987b). *Issues in International Taxation*. 2. Paris.
- OECD (1988a). *The Taxation of Fringe Benefits*. Paris.
- OECD (1988b). *Taxation of Net Wealth, Capital Transfers and Capital Gains of Individuals*. Paris.
- OECD (1988c). *The Tax/Benefit Position of Production Workers*. Paris.
- OECD (1989). *Tax Revenue Statistics of OECD Member Countries 1965-1987*. Paris.
- Okun, Arthur M. (1976). 'Discussion', in H.J. Aaron (ed.). *Inflation and the Income Tax*. Washington, DC: Brookings Institution.
- Okun, Arthur M. (1977). 'Further Thoughts on Equality and Efficiency', in *Income Redistribution*. Washington, DC: American Enterprise Institute.
- Ordeshook, Peter (1986). *Game Theory and Political Theory*. Cambridge: Cambridge University Press.
- Osborne, M.J. (1981). 'On Explaining the Tax System: Why Do Some Goods Bear Higher Taxes than Others?', Columbia University Discussion Paper 100.
- Parker, H. (1982). *The Moral Hazard of Social Security Benefits*. London: IEA.
- Pechman, Joseph A. (1980). *What Should Be Taxed: Income or Expenditure?*. Washington, DC: Brookings Institution.
- Pechman, Joseph A. (1985). *Who Paid the Taxes, 1966-85*. Washington, DC: Brookings Institution.
- Pechman, Joseph A. (ed.) (1987a). *Comparative Tax Systems: Europe, Canada and Japan*. Arlington, VA: Tax Analysts.
- Pechman, Joseph A. (1987b). 'Tax Reform: Theory and Practice', *Journal of Economic Perspectives*, 1,1.
- Pechman, Joseph A. (1987c). 'Recent Tax Developments in Europe. Canada and Japan', *Tax Notes*, 34: 143-56.
- Pechman, Joseph A. (ed.) (1988). *World Tax Reform: A Progress Report*. Washington, DC: Brookings Institution.

- Pechman, Joseph A. (1989). 'Tax Reform in an International Perspective', *Tax Notes International*, September: 329-36.
- Peltzman, Sam (1980). 'The Growth of Government', *Journal of Law and Economics*, 23: 209-87.
- Pigou, A.C. (1947). *A Study in Public Finance*. London: Macmillan.
- Pogue, Thomas F. (1974). 'Deductions Versus Credits: A Comment', *National Tax Journal*, 27: 659-62.
- Polanyi, G. and Polanyi, P. (1973). 'Tax Credits: A Reverse Income Tax', *National Westminster Bank Quarterly Review*, February: 20-34.
- Pommerehne, Werner W. (1978). 'Institutional Approaches to Public Expenditure', *Journal of Public Economics*. 9: 255-80.
- Pommerehne, Werner W. (1980). 'Public Choice Approaches to Explain Fiscal Redistribution', in K.W. Roskamp (ed.). *Public Choice and Public Finance*. Paris: Cujas.
- Pommerehne, Werner W. and Schneider, Friedrich (1978). 'Fiscal Illusion, Political Institutions and Local Public Spending', *Kyklos*, 31: 381-408.
- Pommerehne, Werner W. and Schneider, Friedrich (1983). 'Does Government in a Representative Democracy Follow a Majority of Voters' Preferences? — An Empirical Examination', in H. Hanusch (ed.), *Anatomy of Government Deficiencies*. Heidelberg: Springer.
- Pomp, Richard D. and Oldman, Oliver (1979). 'Tax Measures in Response to the Brain Drain', *Harvard International Law Journal*, 20: 1-60.
- Prest, A.R. (1970). 'The Negative Income Tax', *British Tax Review*, 352-65.
- Rawls, John (1971). *A Theory of Justice*. Cambridge, MA: Harvard University Press.
- Renaud, Paul S.A. (1989). *Studies in Applied Political Economic Modelling*. Berlin: Springer-Verlag, forthcoming.
- Renaud, Paul S.A. and van Winden, Frans A.A.M. (1987). 'Tax Rate and Government Expenditure', *Kyklos*, 40: 349-67.
- Renaud, Paul S.A. and van Winden, Frans A.A.M. (1988). 'Fiscal Behaviour and the Growth of Government in the Netherlands', in J.A. Lybeck and M. Henrekson (eds.), *Explaining the Growth of Government*. Amsterdam: North-Holland.
- Reynolds, Clark W. and McCleery, Robert K. (1988). 'The Political Economy of Immigration Law: Impact of Simpson-Rodino on the United States and Mexico', *Journal of Economic Perspectives*, 2: 117-31.
- Rhys Williams, J. (1943). *Something to Look Forward To*. London: McDonald.

- Ritzen, Jozef M. and van Dalen, Hendrik P. (1988). 'The Brains of a Nation: Training versus Draining. A Policy Evaluation'. Xeroxed.
- Roberts, K.W.S. (1977). 'Voting Over Income Tax Schedules', *Journal of Public Economics*, 8: 329-40.
- Romer, Thomas (1975). 'Individual Welfare, Majority Voting and the Properties of a Linear Income Tax', *Journal of Public Economics*, 4: 163-85.
- Romer, Thomas and Rosenthal, Howard (1979). 'The Elusive Median Voter', *Journal of Public Economics*, 12: 143-70.
- Rosen, Harvey S. (1987). 'The Marriage Tax is Down but Not Out', *National Tax Journal*, 40, 567-75.
- Rosen, Harvey S. (1988). 'Thinking about the Tax Consequences of Marriage', *National Tax Journal*, 41, 259-60.
- Sandford, Cedric (1988). 'Tax Reform in the United Kingdom and Ireland', *Government and Policy*, 6: 53-70.
- Sandmo, Agnar (1974). 'A Note on the Structure of Optimal Taxation', *American Economic Review*, 64: 701-6.
- Sandmo, Agnar (1985). 'The Effects of Taxation on Savings and Risk Taking', in A.J. Auerbach and M.S. Feldstein (eds.), *Handbook of Public Economics*. Amsterdam: North-Holland.
- Sato, Mitsuo and Bird, Richard M. (1975). 'International Aspects of the Taxation of Corporations and Shareholders', *International Monetary Fund Staff Papers*, 22: 384-455.
- Schneider, Friedrich and Frey, Bruno S. (1988). 'Politico-Economic Models of Macroeconomic Policy: A Review of the Empirical Evidence', in T. Willett (ed.), *Political Business Cycles*. Durham, NC: Duke University Press.
- Schneider, Friedrich and Hofreither, Markus F. (1987). 'Measuring the Size of the Shadow Economy. Can the Obstacles Be Overcome?', *Economic Affairs*, 712: 18-24.
- Schneider, Friedrich, Neck, Reinhard and Hofreither, Markus F. (1989). 'The Consequences of a Changing Shadow Economy for the "Official" Economy: Some Empirical Results for Austria', in D. Bös and B. Felderer (eds.) *The Political Economy of Progressive Taxation*. Heidelberg: Springer, forthcoming.
- Schram, A.J.H.C. and van Winden, F.A.A.M. (1988). 'Why People Vote: Free Riding and the Production and Consumption of Social Pressure', University of Amsterdam Research Memorandum 8806.
- Schumpeter, J.A. (1947). *Capitalism, Socialism, and Democracy*. Revised second edition. London: Allen and Unwin.
- Seade, J.K. (1977). 'On the Shape of Optimal Tax Schedules', *Journal of Public Economics*, 7: 203-36.

- Seidman, Laurence S. (1983). 'Taxes in a Life Cycle Growth Model with Bequests and Inheritances', *American Economic Review*, 73: 437-41.
- Seidman, Laurence S. (1984). 'Conversion to a Consumption Tax: The Transition in a Life-Cycle Growth Model', *Journal of Political Economics*, 92: 247-67.
- Shakow, David J. (1987). 'Confronting the Problem of Tax Arbitrage', *Tax Law Review*, 43: 1-50.
- Shapiro, C. and Stiglitz, J.E. (1984). 'Equilibrium Unemployment as a Worker Discipline Device', *American Economic Review*, 74: 433-44.
- Shepsle, Kenneth A. (1979). 'Institutional Arrangements and Equilibrium in Multidimensional Voting Models', *American Journal of Political Science*, 23: 27-59.
- Shoven, John B. (1986). 'The Tax Consequences of Share Repurchases and Other Non-Dividend Cash Payments to Equity Owners', Working Paper.
- Shubik, Martin (1982). *Game Theory in the Social Sciences*. Boston, MA: MIT Press.
- Shubik, Martin (1984). *A Game-Theoretic Approach to Political Economy*. Boston, MA: MIT Press.
- Simons, Henry (1938). *Personal Income Taxation: The Definition of Income as a Problem of Fiscal Policy*. Chicago: University of Chicago Press.
- Sinn, Hans-Werner (1981). 'Die Grenzen des Versicherungsstaates. Theoretische Bemerkungen zum Thema Einkommensumverteilung, Versicherung und Wohlfahrt' in H. Gbpl and R. Henn (eds.), *Geld, Banken und Versicherungen*. Königstein: Athenäum. Reprinted in G. Rolf, P.B. Spahn and G. Wagner (eds.) (1988), *Sozialvertrag und Sicherung — Zur ökonomischen Theorie staatlicher Versicherungs- und Umverteilungssysteme*. Frankfurt and New York: Campus.
- Sinn, Hans-Werner (1987). *Capital Income Taxation and Resource Allocation*. Amsterdam: North-Holland.
- Sjoquist, D. (1981). 'A Median Voter Analysis of Variations in the Use of Property Taxes among Local Governments', *Public Choice*, 36: 273-85.
- Slemrod, Joel (1988). 'Effect of Taxation with International Capital Mobility', in H.J. Aaron, H. Galper and J.A. Pechman (eds.), *Uneasy Compromise: Problems of a Hybrid Income-Consumption Tax*. Washington, DC: Brookings Institution.
- Smith, Adam (1776). *The Wealth of Nations*. Chicago: University of Chicago Press, 1976.
- Starrett, David A. (1982). 'Long Run Savings Elasticities in the Life Cycle Model', Stanford University Research Paper 24.

- Starrett, David A. (1988). 'Effects of Taxes on Saving', in H.J. Aaron, H. Galper and J.A. Pechman (eds.), *Uneasy Compromise: Problems of a Hybrid Income-Consumption Tax*. Washington, DC: Brookings Institution.
- Stein, Herbert (ed.) (1988). *Tax Policy in the Twenty-First Century*. New York: John Wiley.
- Steuerle, C. Eugene (1980). 'Equity and the Taxation of Wealth Transfers', *Tax Notes*. 15: 459-64.
- Steuerle, C. Eugene (1985). *Taxes, Loans, and Inflation: How the Nation's Wealth Becomes Misallocated*. Washington, DC: Brookings Institution.
- Stigler, George J. (1970). 'Director's Law of Public Income Redistribution', *Journal of Law and Economics*. 13: 1-10.
- Summers, Lawrence H. (1981). 'Capital Taxation and Accumulation in a Life Cycle Growth Model'. *American Economic Review*. 71: 533-44.
- Stigler, George J. (1984). 'The After-Tax Rate of Return Affects Private Savings', *American Economic Review*, 74: 249-53.
- Stigler, George J. (1988). 'Comments on "Effects of Taxes on Savings"', in H.J. Aaron, H. Galper and J.A. Pechman (eds.). *Uneasy Compromise: Problems of a Hybrid Income-Consumption Tax*. Washington, DC: Brookings Institution.
- Sunley, Emil (1977a). 'Summary of the Conference Discussion', in J.A. Pechman (ed.). *Comprehensive Income Taxation*. Washington, DC: Brookings Institution.
- Sunley, Emil (1977b). 'The Choice between Deduction and Credits', *National Tax Journal*, 30: 243-7.
- Surrey, Stanley and McDaniel, Paul (1979). 'The Tax Expenditure Concept: Current Developments and Emerging Issues', *Boston College Law Review*, 20: 225-369.
- Tanzi, Vito (1988). 'Tax Reform in Industrial Countries and the Impact of the US Tax Reform Act of 1986'. *Bulletin for International Fiscal Documentation*, 42: 51-64.
- Tobin, J., Pechman, J.A. and Mieszkowski, P. (1967). *Is a Negative Income Tax Practical?* Washington, DC: Brookings Institution.
- Tullock, Gordon (1971). 'The Charity of the Uncharitable', *Western Economic Journal*, 9: 379-92.
- United Nations (1980). *United Nations Model Double Taxation Convention between Developed and Developing Countries*. New York.
- US Advisory Commission on Intergovernmental Relations (1983). *Changing Public Attitudes on Governments and Taxes: A Commission Survey*. Washington, DC.

- US Department of the Treasury (1977). *Blueprints for Basic Tax Reform*. Washington, DC: US Government Printing Office. Revised second edition reprinted (1984) by David F. Bradford and US Treasury Tax Policy Staff. Arlington, VA: Tax Analysts.
- US Department of the Treasury (1984). *Tax Reform for Fairness, Simplicity, and Economic Growth*. Washington, DC: US Government Printing Office.
- US Department of the Treasury (1988). *Report to the Congress on Certain Employee Benefits Not Subject to Federal Income Tax*.
- van Velthoven, B.C.J. (1989). *The Endogenization of Government Behaviour in Macroeconomic Models*. Berlin: Springer-Verlag.
- van Velthoven, B.C.J. and van Winden, F.A.A.M. (1988). 'A Positive Model of Tax Reform'. Research Memorandum, University of Amsterdam.
- van Winden, Frans A.A.M. (1983). *On the Interaction between State and Private Sector*. Amsterdam: North-Holland.
- Vickrey, William (1939). 'Averaging for Income-Tax Purposes', *Journal of Political Economy*, 45: 379-97.
- Wagner, Richard E. (1976). 'Revenue Structure, Fiscal Illusion and Budgetary Choice', *Public Choice*, 31: 45-61.
- Weatherford, M.S. (1983). 'Economic Voting and the "Symbolic Politics" Argument: A Reinterpretation and Synthesis'. *American Political Science Review*, 11: 158-74.
- Webber, Carolyn and Wildavsky, Aaron (1986). *A History of Taxation and Expenditure in the Western World*. New York: Simon and Schuster.
- Welch, Fims (1979). 'Effects of Cohort Size on Earnings: The Baby Boom Babies' Financial Bust', *Journal of Political Economy*, 87, 565-97.
- West, Edwin G. and Winer, Stanley L. (1980). 'Optimal Fiscal Illusion and the Size of Government', *Public Choice*, 35, 607-22.
- Whalley, John (1984). 'Regression or Progression: The Taxing Question of Incidence Analysis', *Canadian Journal of Economics*, 17, 654-82.
- White, Melvin I. (1977). 'Comment on Homeowner Preferences', in J.A. Pechman (ed.), *Comprehensive Income Taxation*. Washington, DC: Brookings Institution.
- White, Melvin I. and White, Anne (1977). 'Tax Deducibility of Interest on Consumer Debt', *Public Finance Quarterly*, 5: 3-7.
- Williamson, John and Lessard, Donald R. (1987). *Capital Flight: The Problem and Policy Responses*. Washington, DC: Institute for International Economics.
- Winer, Stanley L. (1983). 'Some Evidence on the Effect of the Separation of Spending and Taxing Decisions', *Journal of Political Economy*, 91: 126-40.

- Winer, Stanley L. and Hettich, Walter (1988a). 'Debt and Tariffs: An Empirical Investigation of the Evolution of Revenue Systems', Carleton Economics Papers 87-04. Revised February.
- Winer, Stanley L. and Hettich, Walter (1988b). 'Political Checks and Balances and the Structure of Taxation in the United States and Canada'. Paper prepared for the Third Villa Colombella Seminar, Dourdan, France, September.
- Winer, Stanley L. and Hettich, Walter (1989). 'Tax-Expenditures and the Democratic Process'. John Deutsch Institute Conference on Tax Expenditures and Government Policy, Queen's University, forthcoming.
- World Bank (1984). *World Development Report 1984*. New York: Oxford University Press.
- Zodrow, George R. (1985). 'Optimal Tax Reform in the Presence of Adjustment Costs', *Journal of Public Economics*, 27: 211-30.
- Zodrow, George R and McLure, Charles E., Jr. (1988). 'Implementing Direct Consumption Taxes in Developing Countries', World Bank Policy, Planning and Research Working Paper WPS131.