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International Studies Program
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Individual Income Taxation: Income, Consumption, or Dual?

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1. Introduction

The individual income tax constitutes, along with the value-added tax (VAT), the bulwark of the revenue-raising system for industrialized countries. While the VAT serves as an efficient revenue-raiser, the income tax is the main tax instrument used to achieve broader objectives of the tax-transfer system, such as distributive equity, equality of opportunity, social insurance and social policy. Not surprisingly, given such diverse and value-driven objectives, the system can be both complex and controversial.

This can be seen in the many aspects of income tax design that policy-makers and tax specialists must assess and address. Some key ones include the following.

1. *Choice of the base*. At the most basic level, the individual tax base could include income broadly defined, it could be restricted to consumption, or it could include elements of both. The choice may be driven partly by matters of economic principle, such as

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efficiency, equity and tax base mobility, or it may be driven by administrative necessity, such as measurability, collection and compliance costs and possibilities for evasion.

2. *Social and other objectives*. The individual tax may be used to contribute to objectives such as equal opportunity for children and for those capable of pursuing higher education, job market participation and economic security.
3. *Behavioral incentives*. Elements of the individual tax may be intended to influence the behavior of taxpayers in ways thought to be desirable, perhaps because of perceived market failures. For example, there may be tax incentives for retirement saving, home ownership and/or post-secondary education. Or, there may be incentives for entrepreneurship and innovative activity. Other examples include incentives for contributions to charity or to political parties, or incentives for environmental conservation.
4. *Relation with the corporation income tax.* One role of the corporation tax is to act as a backstop or withholding device for the individual tax. Individuals owning shares of corporations can shelter their income by retaining and reinvesting it rather than receiving dividends. Since the former give rise to capital gains that are taxed on a realization basis, taxation of income earned through corporations can effectively be postponed with discretion while it accumulates. The corporation income tax undoes this postponement by taxing the income at source. To that extent, the corporation tax can be viewed as a withholding tax, and such withholding should be recognized by providing a credit against individual taxes when these taxes are eventually paid on corporate source income. Tax systems typically do so by mechanisms for integrating individual and corporation taxes, such as dividend tax credits. The choice of integration devices is a difficult one, especially in a world of international capital mobility.
5. *Rate structure*. Regardless of the individual tax base, the rate structure can in principle be chosen independently. A key issue is the extent of progressivity. At one extreme, the tax rate might be constant, with progressivity induced by the accompanying system of credits or exemption (the so-called flat tax or linear progressive tax). Alternatively, the marginal tax rate may vary with the tax base, typically, though not necessarily, in an increasing fashion. Moreover, the marginal tax rate may be negative at the bottom end, as in some OECD countries. Next, the tax structure might be schedular in the sense that a

different rate structure applies to different components of the base. A relatively recent schedular tax innovation is the dual income tax system introduced initially in some Nordic countries. This applies a different rate structure to capital income than to labor income and transfers. Finally, the tax schedule may differ according to the family status of individuals. Thus, there may be separate tax schedules for families than for individuals, or individuals' tax liabilities may be simply conditioned on their family circumstances.

6. *Relation with wealth and wealth transfer taxes*. Individual income tax policy might be influenced by whether or not wealth or wealth transfers are taxed. For example, the manner in which accrued capital gains are treated on death might depend on whether inheritances or bequests are taxed. As well, the case for preferential treatment of capital income depends on the taxation of wealth or wealth transfers. Thus, dual income tax systems that tax capital income at low proportional rates as in the Nordic countries might be more attractive if wealth transfers are taxed.
7. *Relationship between national and sub-national tax systems*. In federal nations, as well as in some unitary ones, individual taxes might be used at more than one level of government. In such cases, the harmonization of tax bases that are co-occupied serves as a means of reducing collection and compliance costs as well as coordinating the share of taxes going to each level of government and addressing the potential equity and efficiency effects associated with decentralizing revenue-raising.
8. *Transfers delivered through the tax system*. An important innovation in individual income taxation has been the use of refundable tax credits, that is, tax credits that are refundable to taxpayers with little or no tax liabilities against which to set them. This has added an element of progressivity to the tax system by bringing those with limited or no income into the personal tax-transfer system net, thereby complementing standalone transfer systems such as welfare, unemployment insurance and state pensions. Refundable tax credits are also a vehicle for addressing some of the objectives mentioned earlier, such as support for children and for low-income workers for whom participation in the labor market is marginal. Finally, refundable tax credits have been used as devices to undo adverse equity effects on low-income persons from broad-based VATs that apply to their consumption purchases and would otherwise be regressive.

In the course of our study of individual tax systems, we necessarily touch on all of the above issues. Before doing so, it is worth emphasizing that the personal tax is one of three main broad-based taxes whose bases overlap to a considerable extent, the others being the VAT and payroll taxes. The bases of the latter two taxes are roughly similar in present value terms. They differ only to the extent that an individual's net inheritances (the present value of inheritances less bequests) and other net transfers are positive.[2] Both are essentially taxes that distort the labor-leisure choice (including the participation decision), at least to the extent that payroll taxes are not used to finance actuarially fair transfer programs. Thus, if payroll taxes finance the equivalent of fully contributory pension funds, they are unlikely to impose a distortion on the labor-leisure choice. In practice, payroll taxes are usually not earmarked to individual accounts so this is not an issue. Since for most taxpayers the bulk of taxable income consists of labor income, there is considerable overlap among the three bases. The main difference is that individual taxes might include elements of capital income in the base (for which the overlap might be with wealth or property taxes). That being the case, the overall tax rate faced by individuals includes all three tax rates.

Nonetheless, there are some issues at stake in choosing the tax mix among these three taxes. For one thing, redistributive equity is influenced by the share of the individual tax in the tax mix since this tax offers the most scope for progressivity. While the VAT may achieve some progressivity through exemptions of some goods, payroll taxes are often somewhat regressive since they have an upper limit on tax payments. Second, given the tax mix, the tax system is effectively a schedular one to the extent that capital income is part of the individual income tax base. Capital income is thus implicitly taxed at a lower rate than labor income. Next, although payroll taxes and VATs distort the labor-leisure margin, they can also have different effects on saving behavior. Life-cycle saving principles would suggest that saving is lower under payroll taxes than under the VAT since tax liabilities tend to come earlier in the life cycle for the former. Moreover, to the extent that disposable income affects saving (for example, because of liquidity constraints), payroll taxes will involve less saving. Finally, a mix of taxes can mitigate tax evasion by reducing the tax rate on any one base and spreading the tax around. Thus, those who

[2] Thus, in the absence of inheritances or bequests and of transfers, the lifetime budget constraint of a household is simply that the present value of consumption expenditures equals the present value of earnings. With bequests and transfers, the present value of consumption equals the sum of the present value of earnings, transfers and net inheritances.

might find it easy to evade the VAT might not find it easy to evade the payroll tax, and vice versa. By lowering the tax rate on all bases, the incentive to evade from any one base might be lower.

In what follows, we begin with an outline of the issues involved in the choice of a tax base for direct individual taxation. Then, in Section 3, we consider the rate structure and extent of progressivity. Section 4 discusses a number of important special issues in the design of the individual income tax, and Section 5 considers what all this implies for the choice of an individual tax system. Our focus is almost entirely on ideas rather than on facts.

2. Choice of the Individual Tax Base

The choice of a base for direct taxes on individuals is the most fundamental one for tax design and one that has received considerable attention over that past several decades. Traditionally, the choice has been between two ideal contenders: comprehensive income and consumption. Comprehensive income, associated with Schanz (1896), Haig (1921), and Simons (1938), is the sum of consumption plus net accruals of wealth in a given tax period. Its appeal is as a measure of the ability to pay taxes by individuals. Consumption, originally advocated by Kaldor (1955) and subsequently by the US Treasury Blueprints (1977) and the Meade Report (1978),[3] is meant to be a better index of individual welfare than comprehensive income. In fact, neither base is perfect from the latter perspective, nor can either be easily implemented, especially comprehensive income.

An ideal consumption base would include aggregate consumption services over the taxpaying period. While it is not feasible to measure consumption services directly, reasonably good indirect methods are available that can capture the equivalent of a substantial element of consumption services. Thus, consumption expenditures can in principle be obtained by deducting savings from income in any tax period. If a taxpayer saves an amount S_t out of earnings in a given year, that amount is deductible. If the asset purchased is held and the capital income reinvested in any given year, the capital income constitutes both a source of income and

[3] In fact, much earlier, consumption had been proposed as the ideal tax base by Mill (1848).

of savings, so can be ignored for tax purposes. When the asset is sold and its principle and accumulated interest used for consumption, these are added to the tax base. This method of deducting savings from the tax base and adding both the principle and interest when asset wealth is drawn down is referred to as taxing assets on a registered basis.

Not all forms of consumption can be captured by treating savings on a registered basis. For one thing, some assets yield returns in imputed forms that are difficult to measure. Housing and other consumer durables are cases in point. For these assets, so-called tax-prepaid treatment accomplishes an equivalent effect in present value terms. Tax-prepayment would give no deduction for saving or acquisition of the asset, and would not include any consumption from the imputed return or sale of the asset in the future. In other words, the acquisition of tax-prepaid assets would have no tax consequences. In the case of consumer durables, this accounting for consumption yields a measure of consumption expenditures which in present value terms is equivalent to consumption services. The combination of registered and tax-prepaid treatment allows most forms of consumption to be included in the tax base. Moreover, the taxpayer could even be allowed some discretion over the division of savings between the two categories, subject to the fact that some assets naturally fit into one category rather than the other (e.g., consumer durables as tax-prepaid assets, private businesses and human capital accumulation as registered assets). In effect, the taxpayer can choose the time profile of tax liabilities over the life cycle.

At the same time, some forms of consumption are difficult to bring into the tax base, especially those that do not go through the market. Leisure and household production are examples. Another might be consumption financed out of inheritances, unless the latter are included as elements of income.

These same problems apply to comprehensive income since it also includes consumption as an element of the tax base. However, comprehensive income encounters the additional substantial difficulty of including capital income in the tax base. To see this, it is useful to redefine comprehensive income as follows, using the individual's per period budget constraint:

$$C_t + \Delta A_t = E_t + rA_t$$

where C_t is consumption purchased on the market, A_t is asset wealth, E_t is earnings and r is the interest rate. (Any net transfers received should also be included in E_t for completeness.) The lefthand side is comprehensive income which would be difficult to measure, so the income tax base is defined by the righthand side, which involves measuring capital income. There are many difficulties with including all sources of capital income in the tax base, and that alone makes comprehensive income an impossible ideal, even if it might be desired on economic grounds. Some forms of capital income are very difficult to measure accurately. In addition to the imputed returns on housing and durables already mentioned, examples include the imputed return on human capital investment and on individual businesses, both of which can be readily treated on a cash flow basis under a consumption base. There is also a problem with including asset returns that take an accrued form, such as capital gains. Inflation also compromises capital income taxation, some forms of which should ideally be indexed to avoid introducing elements of the principle into the tax base. Finally, relative to earnings, capital income is much more amenable to evasion, especially if it can be held abroad.

The implication of this discussion is that comprehensive income is an unattainable base for taxation, much more so than consumption or labor income. The tax design problem then becomes one of comparing a compromised form of income taxation with reasonably complete consumption taxation. With this in mind, what does normative tax analysis suggest about the case for the choice between consumption and income taxation, or equivalently, the case for taxing capital income?

From a theoretical perspective, taxing capital income is equivalent to taxing future consumption at a higher rate than current consumption. Whether this is justified depends on the relationship between present consumption, future consumption and leisure, which is untaxed. The optimal tax literature is agnostic on this question, though it has identified some arguments that would influence the case for capital income taxation, albeit at different rates than labor income taxation. The simplest arguments go back to the optimal commodity tax literature, particularly the famous Corlett and Hague Theorem. Corlett and Hague (1954), and later Harberger (1964) in an explicitly optimizing framework, showed that in a world with a representative taxpayer consuming two taxable goods and leisure, a higher tax rate should be imposed on the good that is most complementary with leisure. If the two goods are interpreted as present and future

consumption (as in King 1980), the case for capital income taxation would require that future consumption be more complementary with variable leisure than present consumption, which is not particularly plausible given that variable leisure in this case is present period leisure (future leisure being fixed).

Matters become more complicated when one extends the model to several periods, each of which has consumption and variable leisure (Erosa and Gervais 2001). In this setting, zero capital income taxation is optimal if the a) utility discount factor equals the interest rate, b) the wage rate is the same in both periods, and c) preferences are additively separable and identical over time. Moreover, in this case, labor income taxes are constant over time. Alvarez, Burbidge, Farrell and Palmer (1992) show in a related context with the wage rate constant over the two-period life cycle, optimal labor income taxes should decline with age if the interest rate exceeds the utility discount factor, and vice versa. On the other hand, if labor income taxes cannot be made age-specific, there should be a positive interest income tax if the interest rate exceeds the utility discount factor, and vice versa.

A more plausible setting is when the intertemporal model involves not a representative household, but heterogeneous households so taxation serves redistributive objectives. Here the benchmark case is the Atkinson-Stiglitz Theorem (Atkinson and Stiglitz 1976), which shows that in a static optimal nonlinear tax setting à la Mirrlees (1971) with multiple commodities, no differential commodity taxation is called for if preferences are weakly separable with leisure. Adapting this to an intertemporal setting is not straightforward, but some insights have been obtained by Golosov et al (2007), Diamond (2007) and Banks and Diamond (2008). If one takes a discrete-type version of the Mirrlees model and extends it to a multi-period life cycle setting with heterogeneous households, the Atkinson-Stiglitz Theorem remains intact if i) household per period utilities are additive in consumption and labor, ii) a household's ability or wage rate is the same in each period, iii) there is no uncertainty, iv) the government can impose nonlinear taxation within each period, and v) the government can fully commit to a tax policy announced at the beginning of life cycles. In this case, no capital income taxation is called for. However, relaxing those assumptions in particular ways generates a case for some capital income taxation.

Some cases are as follows. If high-wage households have lower utility discount rates (which Saez 2002a argues is plausible), capital income should be taxed in an optimum (Diamond 2007).

(This argument might, however, be viewed as penalizing persons according to their preferences, since persons with a lower utility discount rate are treated as having higher utility from a social welfare perspective.) If future abilities are uncertain and households cannot insure against such uncertainty, some capital income taxation is useful. In this case, capital income taxation is a form of social insurance. If abilities change over the life cycle, and rise more steeply for high-ability persons, however, capital income taxation is not required if the earnings tax can be made age-dependent. Despite arguments for age-dependent taxation (e.g., Banks and Diamond 2008), personal taxation is in practice blind to age. In these circumstances, taxation of capital income may be a fallback policy. While models such as these can be constructed that make the case for capital income taxation as an element of an optimal nonlinear tax system, it would be a stretch to use such results as a basis for actual policy recommendations. They are after all based on models in which governments are choosing nonlinear income taxes optimally and with full commitment, and in which particular specifications of household preferences apply.[4]

At the same time, there might be other arguments based on more practical considerations that might support some capital taxation. As mentioned above, some capital income might be from inheritances and inter vivos transfers that have not been included in the tax base. Imposing a tax on capital income will be an indirect way of taxing consumption financed by inheritances even if there is no a priori reason for taxing capital income. Of course, taxing inheritances directly circumvents this problem, but most inheritance tax systems apply only to large inheritances. As well, some persons, especially the self-employed, have some discretion to convert labor income into capital income. Taxing the latter offsets this advantage. There may be constraints on the progressivity of the individual tax that precludes the government's redistributive objectives from being achieved. These may be a consequence of taxpayer mobility or incentives to evade. To the extent that capital income accrues disproportionately in the hands of high-income persons, this might be an indirect way of achieving redistributive objectives that might otherwise be ideally addressed by progressive consumption taxation. Finally, there may be more positive-based arguments for taxing capital income. To the extent that governments cannot commit to future

[4] Acemoglu et al (2008) have recently constructed a political economy model of optimal taxation in which commitment is enforced by the voting mechanism. In particular, using a retrospective voting model based on Ferejohn (1986), voters vote on the basis of the past performance of politicians. Politicians are precluded from exploiting their inability to commit by being punished by being thrown out of office. However, such models require that both politicians and voters be infinitely lived (or behave as if they were).

taxes, even benevolent governments cannot avoid taxing capital income. That being the case, the manner in which capital income enters the individual tax base may be important. Along the same lines, political economy considerations may make it difficult for governments to avoid taxing capital income.

The upshot of this discussion is that a consumption tax has a number of attractive features relative to an income tax. It is much easier to implement from a tax administration point of view, and it has normative properties that are attractive. Nonetheless, there are some arguments for taxing capital income at least to some extent (and recognizing that not all forms of capital income can easily be taxed). If future wages are uncertain, taxing capital income can be optimal, at least in the absence of full insurance (Golosov et al 2007). And, of course, if the government is unable to commit to future tax rates, it will have an incentive to tax capital income at any point in time since there will always be some capital assets that have been accumulated and represent an inelastic source of tax revenues. Many of these arguments arise not because of the desirability of taxing future consumption differentially per se, but because of shortcomings in taxing consumption fully. We return to these issues below.

3. The Rate Structure and the Extent of Progressivity

The structure of tax rates applying to individuals in the direct tax system comprises several elements. First, there is the rate structure per se, which is typically a piecewise linear system consisting of a number of brackets with marginal tax rates escalating from bracket to bracket. The rate structure may apply to individuals, or it may apply to families. Next, there are various tax credits, deductions and exemptions, whose purpose is to provide tax relief on the basis of personal circumstances. Some of these are refundable, and others not, with refundable credits sometimes being income-tested so as to increase the degree of progressivity. The most prominent sorts of tax credits are those based on family circumstances, especially the number of children, those targeted to the low-income employed, and those for the elderly. Third, the extent of progressivity of the individual tax is also affected by the sheltering of various forms of income, especially capital income. Sheltering is typically afforded to limited amounts of saving for retirement, to home ownership, and to investment in human capital. Income received as

inheritances, gifts and inter vivos transfers may also be treated favorably in some tax systems. The same is the case for some forms of capital income, such as capital gains or dividends. Finally, different rate structures may apply to different sources of income. In particular, capital income may be subject to a separate tax structure than labor income and transfers, as is the case in dual income tax systems.

This complicated mix of measures that underlie individual tax rate structures reflects the fact that arguments for progressivity vary considerably according to individual circumstances and sources of income. The standard theory of optimal redistribution through the income tax-transfer system, based on the original work of Mirrlees (1971), Atkinson (1973) and others, suggests a number of qualitative features of the optimal income tax, at least as the tax applies to earnings. First, it will typically be efficient to have some persons at the lower end of the skill distribution not working but receiving transfers. For those who are working, marginal tax rates would rise at a fairly steep rate at the lower end of the skill distribution and then approach a plateau near the top, not unlike tax structures actually observed. Even with very egalitarian social welfare functions, such as maximin, the degree of progressivity is apparently reasonably limited. This reinforces Mirrlees' original finding that the rate structure was not appreciably different from linear above the lower part of the income distribution.

However, these results are very model-specific, relying on settings in which the only source of inequality is endowed ability; persons are able to vary their labor supplies at will (along the so-called intensive margin); there is no saving or uncertainty; households have identical preferences; and governments are benevolent and can observe incomes perfectly. In the real world, there are a number of complicating factors that should influence the desired degree of progressivity. Some of them are as follows.

The standard model emphasizes the responsiveness of labor supply to after-tax wages as workers adjust their hours of work at the margin. This is a misleading caricature of the endogeneity of labor supply for a number of important reasons. First, for most workers, varying hours of work is not the relevant option since hours of work are largely fixed. The main options they have are discrete choices of participation in the labor force (the extensive margin) or occupational choice. Recent literature on the participation decision (Diamond 1980, Keen 1997, Boadway et al 1999, Saez 2002b) finds that when the participation decision is the relevant margin, negative marginal

tax rates are desired. Since this is applicable for lower-income workers, it provides some justification for the use of income-conditioned refundable tax credits for low-income employed taxpayers. Occupational choice, on the other hand, leads to similar prescriptions as the case with intensive labor supply margins (Saez 2002b).

At the upper end of the income distribution, variability of labor supply and occupational choice are more important options, especially for persons that are self-employed or entrepreneurs. One might expect that this would suggest lower tax rates at the top end if all sources of income are included in the tax base. However, it is not apparent how responsive labor supply at the top end is to after-tax earnings. Income effects may be important for these persons. Indeed, their income relative to others may be more important for them than their absolute income, as findings in happiness and behavioral economics suggests (Layard 2005, Besley and Layard 2008), in which case variability of earnings would call for more progressivity rather than less. As well, for many high-income persons, the distinction between labor and capital income may be opaque.

More important for practical purposes, an income tax that taxes both capital income and earnings at the same rate constrains the extent of progressivity that might be attained. Capital income might be much more elastic with respect to tax rates than labor income, especially as it accrues to higher-income taxpayers. To accommodate this, the income tax rate structure chosen would be less progressive than if it applied to labor income alone. Schedular approaches that tax capital income at a lower rate than labor income might serve to lift what would otherwise be an impediment to high marginal tax rates on earnings at the upper end.

In any case, on the basis of these considerations, it is not clear that measures as extreme as linear progressive taxation are called for, especially if capital income is separated from labor income for tax purposes. On the other hand, other sources of elasticity of the supply of income at the upper end can temper progressivity. For one, high income earners may be more internationally mobile, in which case standard fiscal competition models lead to lower average tax rates at the top. (This will also be relevant for progressive taxes used by sub-national jurisdictions in federations.) For another, it will be easier for higher-income persons to understate their incomes for tax purposes (i.e., evade taxes or masquerade earnings as capital income) than low income-earners, whose tax is typically withheld by employers. More generally, income tax evasion reduces the extent of optimal progressivity, possibly dramatically. For example, Chander and

Wilde (1998) argue that even if incomes are fixed, the possibility of evasion can lead to a regressive tax structure if penalties for evasion are reasonably restricted.

A further complicating factor is the fact that income inequality may be influenced by things other than exogenous abilities or productivities combined with endogenous work effort. Individual outcomes may be to some extent the result of pure luck, resulting from terms-of-trade effects, productivity shocks, and industrial innovation. Given that these shocks are beyond the control of individual taxpayers, progressive taxation will have limited efficiency costs, and will serve as an insurance mechanism at the same time.[5]

Desired progressivity can also be influenced by the fact that skills are to some extent endogenous. Individuals can augment their human capital by education and training. The outcomes from investment in human capital are to some extent risky, in which case taxing their returns, which accrue disproportionately to high-income persons, is a form of social insurance. Perhaps more important, the cost of education, including post-secondary education, are borne partly by the public sector (apart from forgone earnings, which are a substantial part of the cost). Recouping these costs by a progressive tax on earnings seems reasonable, and is an imperfect substitute for policy instruments like income-contingent loans that are often advocated for financing post-secondary education.

There are also some arguments for restricting the progressivity of the individual tax. High-skilled and low-skilled labor might be complementary in the production process. If so, progressive taxes that reduce the supply of high-skilled labor have as a general equilibrium effect the reduction of low-skilled wages (Stiglitz 1982). Progressivity might be limited on these grounds. As well, earnings might vary considerably over the life cycle, both because of a relation between age and earnings and because of temporary fluctuations. Given that, annual income gives a misleading impression of permanent income or consumption. To the extent that averaging of the tax base is feasible, either through the tax system itself or via self-averaging as can take place through a consumption tax system of the sort outlined above, this will not be a problem. However, few tax systems allow averaging on a lifetime basis.

[5] On the other hand, Low and Maldoom (2004) argue that progressive taxation, while reducing risk, also reduces the need for self-insurance. To the extent that this takes the form of precautionary labor supply, the case for progressivity is reduced. On the other hand, Sinn (1996) argues that the insurance affected by progressive taxation and the welfare state encourages risk-taking, which may be a good thing.

In addition, at least some income inequality can reflect different preferences for leisure. If otherwise equally productive persons make different choices about how to use that productivity, it could be argued that those that choose to exert more effort to earn more income should not be penalized relative to those who prefer to consume leisure. More generally, it is argued that persons should be compensated for characteristics over which they have no control (e.g., their endowed ability) but not characteristics over which they do have control (such as their choice of leisure). The former is the principle of compensation and the latter the principle of responsibility (Roemer 1998, Fleurbaey and Maniquet 2007). Though the implications of this point of view for taxation have not been fully exploited, they do suggest some constraint on progressivity to avoid penalizing those with relative preferences for work (Boadway et al 2000, Choné and Laroque 2009).

The principle of responsibility has other potentially far-reaching consequences when individuals make different decisions when confronted with similar opportunities. These include the tax implications of one's family status, over which one presumably has considerable control; the tax treatment of saving and risk taking, which reflect one's discount rate and risk aversion; and the tax treatment of bequests and inheritances, which are largely voluntary to the donor but beyond the control of the recipient. If one takes the principle of responsibility seriously, the tax system might a) be immune to family circumstances, so be based solely on individual incomes or consumption, b) neither penalize nor reward saving or risk-taking, in which case consumption might be favored, and c) ignore the giving of bequests or gifts, but include inheritances fully as income.[6]

One final consideration in the choice of progressivity of the income tax is the recognition that at least as much redistribution takes place on the expenditure side of the budget as on the tax side. Expenditure programs such as public education, health care and other social insurance programs like pensions and unemployment insurance are significantly redistributive. Indeed, that is one of the main reasons why they are delivered through the public sector. Once these are factored into overall redistribution, the need for progression of the income tax might be reduced.

[6] On the other hand, there may be efficiency arguments for subsidizing bequests, as Kaplow (2008) argues. Voluntary bequests presumably give benefit both to the donor (by revealed preference) and to the donee. Assuming that both of these benefits count from a social welfare perspective, the giving of bequests is analogous to an externality-generating activity, so a corrective tax is warranted. This is separate from the case for taxing inheritances on redistributive grounds. We discuss this further below.

A special problem arises for persons at the bottom end of the income distribution, both because they might be more deserving and because they earn little or no income so are not liable to pay income taxes. These persons will likely be transfer recipients, and in principle the transfers may either be delivered through the income tax system as refundable tax credits or separately through standalone transfer programs. The increasing use of refundable tax credits has been an important innovation in individual income tax systems. They have been used to target transfers to low-income families with children as a way of improving opportunities for such children. As mentioned, they have also been used to support low-income workers partly to encourage participation in the workforce. They have the advantage of being easily administered, taking advantage of the income tax administrative machinery and the ability to target according to individual or family income. They provide an enhanced degree of progressivity to the tax system by being geared to income, unlike other tax credits that are equal per capita and not refundable. To the extent that all tax credits and exemptions were made refundable, this would turn the income tax system into a full-fledged negative income tax system.

At the same time, refundable tax credits co-exist with other separately administered transfer programs, such as welfare transfers, disability transfers, unemployment insurance and transfers to the elderly. In some case, the distinction between transfers delivered through the income tax system and those delivered separately simply reflects institutional arrangements that existed before refundable tax credits became widely used. However, there are some differences between the two methods of delivery that are important. Transfers delivered through the tax system are based on the self-reporting mechanism used in tax systems whereby taxpayers report their incomes and personal circumstances, and any monitoring is done ex post by selective audits and possible penalties. The use of the income tax collection system to deliver transfers can be quite efficient, and may reduce the stigmatization that often accompanies transfers. At the same time, such a system may have some disadvantages as a way of delivering transfers. There may be both type I errors (inadequate coverage due to deserving persons not getting the proper transfer) and type II errors (leakages due to undeserving persons receiving transfers). The former arise partly because of failure to apply and to file income tax system forms, forms that may not have been required for low-income persons who are in a taxpaying position for whom taxes are deducted at source, and partly because of errors of administration. Type II errors occur because of errors in application, changes in circumstance, or outright dishonesty. The system of ex post monitoring

and sanction is of limited use here, unlike for the taxpaying population. It is difficult to recoup transfers that have been erroneously made to low-income persons simply because they are likely to have spent them in the meantime.

Related to this is that the responsiveness of refundable tax credits to changing circumstances, both positive and negative, is limited. Tax credits are typically based on the previous year's taxable income, so cannot easily cope with the levels of income volatility that many low-income persons face and that are otherwise very costly to them from a self-insurance point of view (Chetty and Looney 2006). Standalone transfer systems that monitor recipients ex ante for eligibility and assess their needs are more responsive, albeit not perfectly so given the possibility of errors, agency problems with program administrators and the likelihood of stigmatization.

Standalone transfer systems also have the advantage that they are able to take account of eligibility criteria other than income-based ones, and also to deliver benefits that include more than money transfers. Thus, transfer eligibility may differ for those who are able to work and those who are unemployable (e.g., the disabled). There may be conditions attached to the receipt of transfers, such as the requirement to participate in job search, training or workfare programs. Program benefits may include in-kind transfers in addition to income, including health care and pharmaceuticals, counseling and rehabilitation, housing, food, transportation, daycare and so on. Assessing the needs for these ancillary items presumably requires discretionary ex ante monitoring rather than self-reporting.

In practice, there will be a balance between transfers delivered through the individual tax system and those delivered separately. What seems clear is that, at least in some countries, the tax-transfer system has not been particularly successful at alleviating poverty at the lower end of the income distribution, as recently documented by OECD (2008). Enhancing refundable tax credits delivered through the tax system to complement standalone transfer programs could go some way to addressing that issue.

In summary, the issue of progressivity of the individual tax system is multi-dimensional and value-laden. It involves not only the choice of the rate structure that has been the focus of much of the public economics literature, but also the composition of the tax base, and the various issues associated with targeting benefits to those most in need.

4. Special Issues in Individual Tax Design

Individual taxation fulfils important functions both as a revenue-raising device and as an instrument for achieving social and economic goals. As such, it is one component of a larger arsenal of fiscal policies. There are many special design issues that arise in addressing multiple objectives and in coordinating the individual tax with other fiscal instruments that are complementary in objective. In this section, a number of these special issues are considered.

4.1 Relation with the Corporation Income Tax

As mentioned, one role that the corporation tax fulfils is as a withholding device against capital income generated at source in domestic corporations. To the extent that individuals own corporate shares, income accruing on them can be sheltered from income tax by retaining profits within the corporation and allowing capital gains to accrue from retained earnings investment without realization. As well as facilitating tax sheltering, this would provide an advantage to mature firms with accumulated cash flows for whom internal financing would be a less expensive form of finance than for firms who are forced to raise external funds. To avoid this problem, the corporation tax can be designed as a withholding device to ensure that corporate-source income pays some tax as the income accrues rather than when it is repatriated to the shareholders through dividends. To the extent that the corporation tax is taken to serve a withholding function, credit should be given to domestic shareholders when funds are taken out of the corporation, and this is usually done by some tax crediting device, such as a dividend tax credit against individual income taxes.

To the extent that corporations operating domestically are foreign-owned, the corporation tax also withholds income from foreign shareholders. This can be done without discouraging foreign investment if such firms are able to credit taxes paid abroad against tax liabilities in their home country. In such cases, the corporation tax essentially shifts tax revenues from foreign treasuries to the domestic one. The ability to do this varies from country to country, so the corporation tax may end up repelling foreign investment from countries that do not offer full foreign tax credits. In that case, the argument for using the corporation tax as a withholding device against domestic shareholders is compromised.

There are a number of problems that arise with the use of the corporation tax as a withholding device. If the capital income of domestic shareholders is taxed at progressive rates, the corporation tax cannot withhold the appropriate amount from each shareholder. A case might be made for setting the corporation tax rate at the highest individual tax rate to ensure that enough tax is withheld: those with lower tax rates will eventually obtain a credit. However, such a tax rate might be too high given the effect the corporation tax has on firms whose shareholders cannot claim a credit. A particular problem might arise with shares held in tax-sheltered form, such as pension funds. In principle, dividend tax credits should also be available to these shareholders so that sheltering is in fact effective.

A similar problem arises from the fact that different corporations might face different tax rates. For example, some might be in a non-taxpaying position because of cumulated losses. It is practically impossible to base dividend tax credits in the individual tax system on tax rates actually paid by corporations. An alternative approach might be to apply the integration at the corporation level by offering corporate tax credits on dividend payments. However, it would be difficult to do this in a way that differentiates between dividends paid to domestic and foreign shareholders.

The case for integration is also undermined by open economy considerations. If the country were a small open one in international capital markets, domestic savings would be segmented from domestic investment in capital markets. In these circumstances, rates of return facing both savers and investors would be fixed by world capital markets (apart from a country risk premium), and any integration measure implemented at the individual tax level, such as by a dividend tax credit, would effectively subsidize saving without offsetting taxes paid by corporations (Boadway and Bruce 1992). The corporation tax would distort investment decisions, and the dividend tax credit would distort savings decisions, compromising the usefulness of integration in the first place. This argument is contingent on the fact that international capital markets do segment domestic savings and investment, which is something that has been called into question since the original work of Feldstein and Horioka (1980).

All of these problems would be avoided under a consumption tax system. Since capital income is not taxed at the personal level, there would be no need for integration on that account. Moreover, the corporation tax could be devoted solely to capturing a share of rents generated by

the corporate sector. It is well-known how a tax might be designed with this purpose in mind. See, for example, Auerbach et al (2008).

A dual tax system that applies a constant tax rate to all capital income at the personal level can also avoid some of these problems. If the corporation tax rate is set equal to the individual tax rate on capital income, the correct amount of tax would be withheld from all individual taxpayers, at least for taxpaying corporations. Of course, problems with integrating sheltered savings would still apply, as would the more general issue of whether integration is effective in an open economy.

4.2 Sub-National Individual Taxation

In federal nations and in some unitary nations as well, sub-national governments share individual tax bases with the national government. This can be done with varying degrees of independence ranging from completely separate sub-national tax systems to highly harmonized arrangements whereby sub-national governments impose surtaxes on national taxes. An intermediate arrangement might allow sub-national governments to apply their own rate structures to a common tax base used by the national government. There are some advantages to allowing sub-national governments to have access to individual taxation. It is a broad-based tax that can be used to generate tax revenue at relatively low administrative cost. The ability of sub-national governments to choose their own tax rates is said to enhance the accountability of sub-national governments by giving them responsibility for raising a substantial part of their own revenues.

These accountability advantages can be achieved in ways that do not compromise national economic objectives. Collection and compliance costs can be minimized by having a common tax base, which allows a single tax collecting authority for both national and sub-national taxes. Sub-national governments could choose a single surtax rate or even a rate structure and that would be compatible with a common base and collection machinery.

There are two main problems with decentralizing revenue-raising authority to sub-national governments. One is that different regions would likely have different revenue-raising ability and so could provide different levels of public goods and services at similar tax rates, or the same levels at different tax rates. This would have the effect of either inducing taxpayers to migrate to regions with higher fiscal capacities, which would be inefficient, or leaving otherwise identical

taxpayers in different regions with different fiscal treatments. This might be viewed as a violation of horizontal equity or national solidarity. This problem is typically remedied in federations and unitary nations alike by a system of equalization transfers from the national to the sub-national governments based on differences in their fiscal capacities (Boadway 2004a).

A second potential problem is that the sub-national governments use their fiscal discretion to behave strategically to enhance their own fiscal capacity at the expense of other jurisdictions. This is more likely the more discretion they have. If they can choose their own rate structures, they might be tempted to make them less progressive in order to attract high-income persons and those with personal businesses.[7] This effect can be mitigated to the extent that the national government retains enough individual tax room to be able to achieve whatever amount of progressivity it wants. Also, individual tax systems that leave less discretion for sub-national governments to influence capital income tax rates will reduce the incentive to compete for mobile capital. This would be the case if the individual tax base were consumption. It would also be the case under a dual income tax, especially if only the labor income portion were used by sub-national governments and not the capital income component.

One final problem that arises with allowing sub-national governments to have access to individual taxation is the allocation of the tax base among the sub-national jurisdictions when taxpayers can change their jurisdiction of residence between tax years. In the case of annual income, this is not a major problem. Some arbitrary date in the tax year can be chosen to establish residency for tax purposes. More complicated is the treatment of sheltered savings that have been accumulated in one jurisdiction when a taxpayer moves to another. In the case of international migration, taxpayers who emigrate are often forced to withdraw their assets from sheltered forms and make them taxable. This seems less feasible for migration across regions within a country since the taxpayer would presumably want to keep sheltered savings intact. Any attempt to allocate tax liabilities among sub-national jurisdictions accurately will be more complicated than it is worth. It is better to rely on the equalization system to compensate for any fiscal capacity differences that arise from interregional migration.

[7] As the fiscal federalism literature has stressed, there may also be strategic interaction between the sub-national governments and the national government. Increases in sub-national taxes that reduce the relevant tax base will also reduce national taxes, so-called vertical fiscal externalities (Boadway and Keen 1996, Dahlby 1996). Sub-national governments would have some incentive for excessive taxation. It is not clear that in practice this constitutes a serious case against revenue decentralization.

4.3 Tax Treatment of Pensions

The pension system in most countries consists of various elements, most of which interact with the individual tax system. Following the taxonomy of the World Bank (1994), pension systems consist of three pillars: basic transfers for the needy elderly, contributory public pensions, and private pensions. Basic transfers fulfill redistributive objectives, and are often targeted on the basis of individual or family incomes for tax purposes. Contributory public pensions and private pensions are to some extent sheltered from taxation. Moreover, contributory public pensions are typically mandatory, while private pensions are most often not. Several issues arise in how the tax system treats pensions, or more generally saving for retirement, which can include other assets such as housing and annuities.

Mandatory participation in contributory public pensions for those employed is a common feature in many countries. The need to mandate saving for retirement is typically based on behavioral arguments, particularly the observation that many persons systematically set aside insufficient funds for their own retirement. This may be due to excessive discounting of the future, an inability to refrain from current consumption, or an anticipation of obtaining public support in the event of inadequate retirement income. At the same time, mandatory public pensions are typically inadequate by themselves. The levels of retirement income they offer are limited, and the coverage is restricted to those who have been employees. Basic public pensions provide one form of backstop, at least for low-income persons. Tax incentives for private, voluntary saving for retirement provides a backstop for middle- and upper-income taxpayers.

Tax incentives for retirement savings mimic the treatment of savings under a consumption tax. Savings in private pension plans are typically treated as registered assets for tax purposes, although in some countries tax-prepaid retirement savings schemes are permitted. Savings in housing, which constitutes a significant proportion of assets held by retirees, are treated on a tax-prepaid basis. Indeed, tax incentives for housing may be even more generous than that since some countries offer mortgage interest deductibility while at the same time not taxing the imputed return on owner-occupied housing. (On the other hand, housing may be subject to property taxation, which undoes some of the preferential tax treatment.)

These tax incentives for retirement saving may vary according to the nature of the individual tax base. If a consumption tax were implemented, the issue of preferential tax treatment would not arise since all assets would be tax sheltered either as registered or tax-prepaid assets. Countries that deploy income taxes typically allow tax sheltering of retirement savings up to some specified limit, whether in registered or tax-prepaid forms. Indeed, the combined treatment of pension savings and housing makes the individual income tax much closer to a consumption tax than a comprehensive income tax in most countries. Similar issues arise in dual tax systems. Given that capital income is taxed at a lower rate to begin with, there may be less reason for offering tax incentives for retirement saving especially since doing so imposes inter-asset distortions in capital markets.

An emerging policy issue is the adequacy of private pensions. In some countries, a substantial proportion of these are provided by employers on behalf of their employees. In recent years, the share of the workforce that has private pensions has declined significantly, partly because of changes in the nature of the workforce (e.g., part-time workers, self- employed and contract workers, high rates of turnover) and partly because of the cost and risk to firms of financing pension funds. Combined with the fact that workers have limited propensity to save for their own retirement even in tax-sheltered forms, there is a danger that large numbers of retired workers will have inadequate financial support. Given that, there has been some interest in providing further inducement to save for retirement short of forced saving. One proposal that has begun to be implemented in some countries is the introduction of occupational pensions, perhaps through the public sector, that workers automatically enroll in unless they choose to opt out. For a fully rational and far-sighted worker, the choice between opting-in and opting-out would make no difference. However, evidence suggests that a much smaller proportion of workers choose to opt out when they are otherwise involuntarily enrolled than choose voluntarily to opt in, reinforcing the behavioral view of saving for retirement.

The issue of providing inducement to save for retirement over and above tax incentives is relevant whatever the choice of individual tax system. That is, it would apply equally well in a consumption tax system where all saving for retirement are tax-sheltered as under an income tax system, dual or otherwise, where retirement savings may be preferentially sheltered.

4.4 Human Capital Investment

The tax treatment of human capital investment raises a number of special issues that, like retirement savings, leads to various forms of preferential treatment. Broadly speaking, there are two types of costs of human capital investment: forgone earnings and resource costs, such as tuition, books and supplies. These costs might be partly financed by student loans, and the outcomes of human capital investment are typically risky. In the case of forgone earnings, the tax treatment mirrors registered asset treatment in that it is based on cash flows. Forgone earnings are effectively like deductions from current income, while future earnings are taxed when they accrue. Thus, investment in the form of forgone earnings is fully tax-sheltered. Of course, the tax rate applicable to forgone earnings may well be much less than that applicable on future earnings, so an ideal system would allow some averaging. To the extent that tuition and the cost of books and supplies are tax-deductible, that too would accord with cash-flow tax treatment, analogous to registered assets. It is common to give some relief to such costs, although it may not be full, and it may be based on tax credits rather than deductions. In addition, income tax systems may give tax incentives for saving for post-secondary education, especially by parents. In any case, it is clear that a significant proportion of investment in human capital is tax-sheltered, further emphasizing the point that even so-called income tax systems are in fact closer to consumption-based individual taxes.

The case for tax incentives for human capital investment is not at all clear. No doubt there is an externality associated with human capital investment, but that is at least partly captured in the generous subsidies that governments offer to educational institutions. There may be behavioral reasons for encouraging investment in education on the grounds that students may discount the future benefits excessively. Three additional factors have a bearing on how the individual tax system treats human capital investment. One is that for many students human capital investment requires financing, and capital market constraints might make credit hard to come by or costly since future earnings cannot be fully used as collateral. A second is that, as mentioned, human capital investment is inherently risky, both in terms of the chances of success (e.g., grades) and the earnings if successful. Third, human capital investment addresses the objective of equality of opportunity, which is an objective that is sometimes found in national constitutions.

These three factors can be addressed by a combination of policy instruments, some of which rely on the income tax system. Governments often enact student loan programs to deal with credit constraints, and may relate eligibility to family income. These programs can simultaneously address credit constraints and uncertainty by making their repayment income-contingent. Income-contingent student loan programs can suitably be delivered through, or at least coordinated with, the individual tax system. Note that these programs ideally fulfill efficiency functions—undoing credit constraints and insuring risk—rather than redistributive ones, so in principle could be operated on a self-financing basis using actuarial principles.

Equality of opportunity, however, is a redistributive objective. It can mean very different things to different persons. At one extreme, it could mean using the education system as a device for equalizing the ability of all persons to earn income (regardless of their endowed skill levels). This is probably much too ambitious a notion of equality of opportunity and would be very expensive. A more common, and limited, notion of equality of opportunity suggests that persons of equivalent ability ought to have equal opportunity to fulfill their potential. According to this notion, the role of government would be to ensure that persons should not be deterred from acquiring human capital because of inadequate resources, especially those provided by their families. Policies to address equality of opportunity in this sense involve targeted assistance (grants) on the basis of need (and qualification). Such student grant schemes can be operated on a standalone basis, but presumably with the size of grants conditioned on family income as reported to the tax system.

4.5 Wealth Transfers

Taxpayers may make or receive transfers of wealth in a variety of ways. These include voluntary transfers to charities or non-profit organization, bequests to family members and others, and non-cash transfers, including transfers in kind and voluntary work. In the case of bequests, there may be a separate tax applied, but otherwise transfers have some implications for individual taxation. There are both efficiency and equity implications of wealth transfers. Consider these in turn.

The efficiency consequences of wealth transfers depend partly on the motive for the transfer and partly on the form. In the case of the former, an important distinction is between whether the

transfer is made voluntarily or not.[8] For voluntary transfers, one might argue, following Kaplow (2008), that there is an externality involved. Both the donor and the recipient obtain welfare from the transfer (the donor by revealed preference), yet the donor takes into account only his own benefit. To the extent that the welfare of both the donor and the recipient should count from a social welfare perspective, a corrective subsidy on transfers could by justified. If this were done through the tax system, donors would receive a subsidy for voluntary transfers whether to charity or to their heirs. The income tax system typically does provide some such subsidy on charitable donations, though typically not on donations to heirs. On the other hand, to the extent that recipients of voluntary transfers do not have them included in their tax base (or otherwise fully taxed under a separate inheritance tax), some preferential treatment is indirectly given.

Transfers may be involuntary for a couple of reasons. They may be unintended bequests of wealth that has been held until death for precautionary or other reasons. In this case, no externality is generated since there is no benefit to the donor so there is no case for subsidization. Another form of transfer is one that is made in return for some service rendered. So-called strategic bequests are those made in return for care provided to the donor by their heir. This is like any other transaction, albeit not at arm's length on a market, so does not deserve special treatment. On the contrary, recipients of the transfer who provide the personal service to the donor ought in principle to treat it as taxable income. Like any non-market transaction, that is difficult to enforce. In practice, it will be difficult to distinguish voluntary from involuntary transfers, and that will compromise the desire to subsidize transfers, except perhaps those to charitable organizations.

The equitable treatment of wealth transfers can be contentious. If transfers are voluntary, they give rise to benefits for both the donor and the recipient. If both of these benefits count from a social welfare perspective, that should be reflected in the tax liabilities they both face. The transfer would be like any other act of consumption by the donor out of their income, so no credit would be given except to correct for the externality from the donation. (One could further argue that indirect taxes on consumption, such as the VAT, should also apply to voluntary

[8] Transfers might even be forced as in the case of theft of property. Given that this is illegal, the tax consequences are perhaps less pressing than the role of detection and punishment. Nonetheless, to the extent that victims of crime suffer a property loss, one might argue that this should be deductible like any other loss in income. The perpetrators of the crime will presumably suffer the consequences if caught.

transfers, although the non-market nature of these transfers makes that unenforceable.) For the recipient, the transfer is like any other receipt of income and should be included in the tax base (unless part of it is saved in sheltered form). This would also be the case for requited transfers, such as strategic bequests. The inclusion of transfer receipts in the individual tax base can also be justified on grounds of equality of opportunity. On the other hand, some might argue that the same transfer should not count twice from a social welfare perspective, once in the hands of donors and once for recipients (Cremer and Pestieau 2006). If one took that view, no additional tax should be levied on wealth transfers.

These issues of the tax treatment of wealth transfers are distinct from the treatment of capital gains that have accrued on transferred wealth. In some countries, transfers of wealth trigger the deemed realization of capital gains for tax purposes. This is most often the case for countries that do not otherwise tax wealth transfers. In fact, some countries that do tax wealth transfers at the same time rebase the value of transferred wealth each time it is transferred without realization. In principle, the issue of the tax treatment of accrued capital gains on transferred wealth and the taxation of wealth transfers themselves are quite distinct issues. It would be perfectly rational to both tax accrued capital gains on wealth transfers and tax the transfers themselves.

4.6 Tax Treatment of Children

The tax treatment of children gives rise to some comparable issues since children are heavily dependent on transfers of all kinds from their parents. If one follows a social welfare approach to individual tax design, a number of issues arise. Despite the fact that children are dependent on parents, one would want them to count from a social welfare perspective. That being so, they would be typically be owed a transfer given their absence of earnings, though that transfer might well accrue to their parents. How big would the optimal redistributive transfer be? Following Kaplow (2008), children might need less consumption to generate a given level of utility than an adult, so the transfer could be scaled down accordingly (although to account for differences in the ability to generate utility by children would be inconsistent if one did not also do so for, say, the disabled or the elderly). This kind of argument would justify refundable child tax credits payable to parents, as is the case in some tax systems.

At the same time, since children depend on voluntary transfers from their parents, similar issues about double counting arise as with other wealth transfers. On the one hand, intra-family transfers provide benefits both for the donor parent and the recipient child (and other family member, for that matter), so there is an a priori case for subsidy of such transfers to capture that externality (although parent-child transfers might be fairly inelastic in any case, so there is little gain from a corrective subsidy). On the other hand, if the benefits of the donor parents count for social welfare purposes, this would represent a gain in utility that would ordinarily attract taxation. Presuming that the efficiency case for encouraging transfers counters the equity case for additional tax on the donors on social welfare grounds, one is still left with a case for refundable tax credits for children.

The case for making those refundable tax credits progressive (i.e., declining with family income) might be based on equality of opportunity grounds. Children obtain apparent advantages from being raised by more affluent and highly educated parents. Such parents can make greater transfers to children, and can also make highly valuable transfers of human capital (e.g., knowledge and skills as well as educational financing). While it would be difficult to compensate for these differences in childhood advantage completely, refundable tax credits that are geared to family income would be one component of an equal opportunity policy, along with educational policies from an early age and financial assistance for higher education.

5. Income, Consumption, or Dual Individual Tax?

What does this all imply for the choice of an individual tax system? We consider the three main options sequentially in what follows.

5.1 Income Taxation

Income taxation has been the dominant form of direct taxation in OECD countries. Its intellectual foundation is the notion of comprehensive income being the best measure of ability

to pay, following the influential arguments of Schanz (1896), Haig (1921) and Simons (1938).[9] More recent literature on tax theory and policy has called into question many of the premises that underlie the case for comprehensive income taxation as the ideal, and therefore the case for income even less comprehensively defined as the best actual choice of tax base. The arguments are based on the three main criteria adduced to evaluate a tax system: administrative ease, efficiency and equity.

The administrative problems of implementing a comprehensive income tax are nigh insuperable. There are two main sources of problem: non-market goods and asset income. Comprehensive income, following Hicks (1946), consists of consumption and increments of wealth (saving) on a per period basis. Consumption should in principle include all sources of consumption including not only those purchased on the market but also those obtained off-market, including household production, shadow economy production and leisure activities. The inability to include these off-market items in the tax base is a problem for virtually all direct tax bases, and this essentially turns the quest for an individual income tax base into a second-best policy issue to which we return.

The problem of taxing asset income is what distinguishes all main contenders for individual taxation as we have mentioned. There are some types of capital income that are difficult to measure and are often left out of actual tax bases. They include assets like housing and consumer durables whose return takes an imputed form, human capital that has been accumulated, and the return on personal businesses. Asset income that occurs in an accrued form, such as capital gains, is also difficult to include in the tax base. As mentioned, one of the main rationales for corporation taxation is to serve as a withholding device against capital gains that have accrued within the corporate sector. In addition, for policy purposes, many countries offer tax sheltering for some types of saving, especially saving for retirement. Apart from the problem of measuring asset income, there is the further problem of separating out real from inflationary income since the latter represents a repayment of principal rather than asset income. Finally, given the mobility of capital, some assets earn their income abroad where they may or may not also face taxation.

[9] Interestingly, Wildasin (1990) has questioned whether Haig actually was a comprehensive income tax proponent. He argues convincingly that to Haig, income taxation was actually inferior to consumption taxation. Nonetheless, comprehensive income taxation is typically referred to as Schanz-Haig-Simons income taxation.

These problems are insuperable enough that income tax systems treat different sources of asset income very differently. A substantial proportion of asset income — perhaps most — is fully sheltered from tax. Other parts are offered preferential treatment (e.g., capital gains). The result is a complex tax system, and one that invites tax planning opportunities and perhaps even tax evasion. These administrative problems in themselves tend to favor alternative tax systems that either avoid or simplify the taxation of capital income, such as those discussed below.

Efficiency arguments also militate against income taxation, which requires that capital income be taxed at the same rate as labor income. The simplest way to think about this is by imagining a simple setting in which the taxpayer obtains welfare from present consumption, future consumption and leisure. All three of our alternative choices of individual taxation — income, consumption and schedular — apply to present and future consumption, but not leisure. Consumption taxation taxes present and future consumption at the same rate, while income and schedular (dual) taxation tax future consumption at a higher rate than present consumption. In the case of income taxation, the relative rate of taxation of present and future consumption is determined by the fact that capital and labor income are taxed at the same rate. The differential tax on future consumption tends to be less with dual taxation since capital income is generally taxed at a lower rate than labor income. While, in general, efficiency is not guaranteed by taxing present and future consumption at the same rate, it is also the case that the optimal differential can be positive or negative, and it is most unlikely to be as highly positive as comprehensive income taxation would require.

One can construct reasonable technical arguments for avoiding taxation on capital income, though most involve empirical properties of individual utility functions that are typically not satisfied or verified. In theory, it depends on the substitute/complement relationships among present consumption, future consumption and leisure. If future consumption is relatively more complementary with untaxed leisure than present consumption is, one would want to tax future consumption at a higher rate (i.e., tax capital income), and vice versa.[10] The empirical evidence on this is not compelling. Even if future income were more complementary with leisure, it is probably more difficult to make a compelling argument on efficiency grounds that the relative

[10] This argument is for the simple case where individual consumption can be aggregated into present consumption, future consumption and leisure. In more complicated cases where consumption and variable leisure occur in each period, the case for taxing capital income becomes even more unclear (Erosa and Gervais 2001).

tax rate on present and future consumption should be determined by taxing capital income at the same rate as labor income.

One mildly compelling technical argument for not taxing capital income is as follows. If one does not know whether the optimal tax on capital income is positive or negative and either is roughly equally possible, it is most efficient to opt for zero taxation. The reason is that the deadweight loss of taxation is convex in the tax rate, so the expected deadweight loss will be minimized if the rate is set to zero. In addition, the fact that some forms of capital income are sheltered from tax makes the efficiency argument for income taxation even more suspect. On second-best grounds, one might expect that if some forms of capital income are not taxed, that would suggest taxing others at a lower rate to avoid exacerbating inter-asset distortions.

Equity arguments parallel the efficiency ones. Ideally, the tax base should reflect an index of the welfare level of the individual, at least assuming one takes a welfarist point of view of the normative objective of government. Given the inability to tax non-market activities, including leisure, the issue is which tax base best reflects welfare in the second-best sense. As in the efficiency analysis, the argument turns on the complementarity relationship between consumption and leisure. Applying the theory of optimal income taxation to an inter-temporal setting, the Atkinson-Stiglitz Theorem suggests that if present and future consumption are weakly separable from leisure in the intertemporal utility function, capital income should not be taxed (Diamond 2007).

Taken together, these arguments based on administrative ease, efficiency and equity conspire against comprehensive income as an ideal form of taxation. The one remaining argument that might be adduced in favor of income taxation is that it may be difficult in practice to distinguish between capital and labor income in some cases. This is particularly so for income earned in unincorporated personal businesses where sole owners act as managers as well as suppliers of the capital of the business. This has proven to be a challenge for dual tax systems that would tax capital and labor income at different rates (Christiansen 2004), and would also be so for consumption-based tax systems. However, this is a relatively small income source and may not be of sufficient importance to serve as a determining factor for the choice of tax base.

As a final point, it should be recalled that the full taxation of an individual includes not only the individual tax system but also indirect consumption taxes (VAT) and payroll taxes for which the individual is liable. Taken together with an income tax system, these result in an overall tax system that entails a lower rate of tax on capital income than on labor income. To that extent, efficiency and equity arguments against income taxation are blunted, though administrative costs remain an issue.

5.2 Consumption Taxation

The arguments for consumption taxation follow directly from the above discussion. A consumption tax base can be constructed by sheltering capital income using a combination of two equivalent methods. Starting from a tax base defined as nominal income, savings can be sheltered in registered form, in which case savings are deducted immediately and accumulate tax-free as long as they are held. When they are drawn down for consumption, the full amount taken (both principal and asset income) is added back into the tax base. Alternatively, savings can be tax-prepaid in which case no deduction is given for savings and no tax is paid on future asset income. Registered asset treatment is more suitable for some types of assets (personal business, human capital investment), while tax-prepaid treatment is more suitable for others (housing and consumer durables). If the taxpayer is allowed to choose between registration and tax-prepayment for other assets, this can be done to facilitate averaging over the life-cycle so as to avoid horizontal equity problems arising from progressive taxation.

From an administrative point of view, consumption taxation avoids many of the problems of income taxation. There is no need to measure capital income, and no need to worry about inflation indexing of capital income (though indexing is still required for the rate structure). The tax base can be defined in cash flow rather than accrual terms, which greatly facilitates the taxation of personal businesses and human capital accumulation. Consumption tax treatment does not preclude mandatory saving schemes for retirement. Indeed, most such schemes use consumption tax principles already. The main administrative cost is the need to maintain a record of assets held in registered form so that tax will ultimately be paid when they are run down. Special problems arise in the case where taxpayers leave the country, which typically triggers de-registration. Death may do so as well.

The assessment of the efficiency and equity advantages of consumption taxation is more ambiguous. As with income taxes, leisure and other non-market activities are not taxed, and both efficiency and equity considerations depend on the relationship between these untaxed goods on the one hand and present versus future consumption on the other. If non-market goods were weakly separable in the inter-temporal utility function from consumption purchases, a case can be made on theoretical grounds for consumption taxation, as we have seen. This is probably the strongest economic argument for consumption taxation.

There are, however, other considerations. The self-averaging property of the consumption tax avoids the horizontal inequities that arise under an income tax system for persons whose income fluctuates over the life cycle. At the same time, there may be arguments for taxing capital income that go beyond the standard substitute-complement relationships. For one, to the extent that inheritances and other windfall transfer are not taxed, capital income taxation can be an indirect way of getting at consumption financed from these sources. For another, if household incomes are uncertain and full insurance is not available, taxing capital income can serve as a substitute form of insurance (Golosov et al 2007). Finally, capital income taxation is useful in an optimal tax setting if more productive persons save more than less productive ones because they have lower discount rates (Diamond 2007, Banks and Diamond 2008).

Two further points are worth mentioning before turning to the final tax alternative. The first is to recall that the rate structure can be chosen independently from the base. The income tax is, however, constrained to apply the same rate structure to capital and labor income. This might in turn constrain the rate structure to be less progressive than would otherwise be desirable given the fact that capital income might be more elastic than labor income, especially given the greater mobility of the former and the greater possibilities of avoidance and evasion. As well, the case for taxing earnings more progressively than capital income is enhanced by the fact that earnings apparently account for much more inequality than does capital income, and earnings inequality to at least some extent reflects human capital investments that have been largely financed by the public sector.

Second, the inability of governments to commit might make it difficult not to include capital income in the tax base. And, this applies no matter whether governments are benevolent or self-serving. That being so, consumption taxation might be viewed as infeasible in which case the

choice of tax base then must take account of the least costly way of including capital income in the base. From that point of view, the dual income tax to which we now turn offers an attractive alternative.

5.3 Dual Income Taxation

Dual income taxation taxes capital and labor income according to different rate schedules, and as such it can take many different forms. We restrict attention mainly to the broad form that has been adopted in the Nordic countries, and which has come to be associated with the term dual income taxation. In this system, labor income and transfers are taxed according to a progressive rate schedule. Capital income is taxed at a flat rate, typically the rate associated at the lowest labor income tax bracket. Some forms of capital income may continue to be sheltered, such as housing and durables, human capital investment and/or saving for retirement. As well, two backstop taxes may be in place. A corporate tax can be levied at the same rate as the tax on individual capital income, and it can be integrated with the latter. And, a tax on wealth transfers (or wealth itself) can add further progressivity to the tax system if applied on wealth transfers above some minimum size.

A dual income tax is a useful compromise between an income tax that taxes capital income at the same rate as labor income, and a consumption tax that taxes all capital income at a zero rate. By applying separate rate structures, the relative rates of capital and labor income taxation can be chosen at will.

The dual income tax offers a number of advantages (Boadway 2004b). The schedular approach allows for very different rates of progressivity applied to labor and capital income. In particular, the rate structure applied to labor income can be more progressive than under an income tax, and that applied to capital income less progressive. As mentioned, this seems to be generally desirable given the inequality of the distribution of labor income relative to capital income, and the higher elasticity of capital income with respect to the tax rate. From an equity point of view, this might be the strongest feature of the dual income tax: the elimination of the constraint on progressivity imposed by including capital income in the base.

The ability to set a separate tax rate on capital income addresses the typical optimal tax case for a relatively low rate on capital income. The constant tax rate applied to capital income also has

some administrative advantages. It facilitates collection and compliance by allowing financial institutions to withhold the tax on behalf of individuals since all pay the same rate. It makes integration relatively easy since the corporate tax rate can be set equal to the personal capital income tax rate. Any perceived equity disadvantages of a low tax rate can be partly offset by a complementary tax on large inheritances.

The administrative problems that remain are twofold. First, as with any capital income tax regime, there is always the possibility to avoid or evade taxation by holding wealth abroad. Even in this case, the dual income tax might be useful in that, if it is used by several countries, withholding can apply to international capital flows. The second problem is that with a relatively low tax rate on capital income, there is a strong incentive for those with personal businesses to take as much of their income as capital income rather than labor income. As mentioned, this has proven to be a problem in the Nordic countries, and it can really only be remedied by applying arbitrary rules to determine the division of personal business income into labor and capital components (Christiansen 2004).

How progressive the tax structure applied to earnings should be is a matter of judgment, and the optimal income tax literature is of limited help. The degree of progressivity depends on such things as the distribution of skills, uncertainty with respect to outcomes, the ability to vary income by effort and occupational choice, and the degree of aversion to inequality by policymakers. The traditional optimal income tax literature found marginal tax rates to rise rapidly at low skill levels, moderately so in the middle of the skill distribution, and fall at the upper end unless the skill distribution was not truncated at the top (Mirrlees 1971, Tuomala 1990). In the latter case, optimal income tax rates might rise at the upper end and follow a U-shaped pattern (Diamond 1998). In the extreme case where the government has an infinite aversion to inequality (i.e., a maximin social welfare function), the pattern of marginal tax rates can be declining throughout the skill distribution, leading to a strictly concave pattern of average tax rates (Boadway and Jacquet 2008). The pattern at the bottom end changes if the margin of labor supply is the so-called extensive one in which persons can choose not to participate in the labor market. In this case, the marginal tax rate can be negative at the bottom, gradually decreasing to become positive at moderate income levels (Saez 2002b). The agnosticism of these results leaves the policy-maker ill-informed by the literature, and it is not surprising that

some have advocated a linear progressive, or flat, tax with constant marginal tax rates (Hall and Rabushka 1995). Such a tax is progressive owing to its exemption level (especially if there is refundability of negative tax liabilities), but it is rather less progressive than a schedule with rising marginal rates. The latter case with rising marginal rates accords better with the optimal income tax literature in terms of the progressivity achieved at both the top and bottom end. Moreover, with capital income segregated from labor income in the tax schedule, there is no apparent advantage to a constant marginal tax rate.

Overall, the flexibility and administrative simplicity of dual income taxation makes it arguably the strongest candidate for personal taxation. It was one of the two options recommended by the President's Advisory Panel on Federal Tax Reform (2005), the so-called Growth and Investment Tax Plan option.

5.4 Other Issues

Whichever of these individual tax bases might be preferred, a number of other issues must be addressed, including those outlined earlier. In the case of income tax bases that include capital income, some forms of capital income may still be sheltered either out of necessity or out of choice. In principle, the imputed rent on housing could be included in the base, although including it can be done only imperfectly. Moreover, one might want to shelter it as a way of encouraging persons to save in housing, given the behavioral tendency to under-save. Similarly, a case can be made for using tax sheltering as a means of encouraging saving for retirement. In this case, the sheltering can take the form of both registered and tax-prepaid treatment to ensure that the advantages of self-averaging are available.

Arguments can also be made for sheltering human capital accumulation on the grounds of both feasibility and desirability. The cash-flow treatment of human capital investment is the most reasonable way to accomplish this. That part of human capital investment consisting of forgone earnings is already implicitly treated on a cash-flow basis, and the incremental financial costs (e.g., tuition, books) could be so treated as well by being fully expensed. Note that this requires that the expensing be refundable to the extent that incomes are insufficient to cover them. As well, the individual tax system — whether based on income or consumption — could be used in a pro-active way to address issues of risk, liquidity constraint, and equality of opportunity. As

mentioned, an income-contingent loan scheme integrated with the tax system and run on an actuarial basis would deal with risk and liquidity constraint, while an income-targeted student grant scheme can be used for equality of opportunity objectives.

The treatment of voluntary transfers must also be decided, whether for charitable purposes or as transfers to heirs and other family members. As we have seen, there is a prime facie efficiency case for subsidizing such transfers on the grounds that they create benefits both for the donor and for the recipient, while on equity grounds the recipients of transfers should be taxed on what is a windfall increase in income. In the case of transfers to charitable causes, the efficiency arguments might dominate the equity ones for a couple of reasons. For one, those who receive benefits from such transfers are likely to be low-income persons whose tax liabilities would be minimal in any case. For another, voluntary contributions to charity might be thought of as a substitute for government transfers. Given that the latter must be financed by distorting taxes and that the government might face difficult agency problems in allocating such transfers, social goals might be enhanced by subsidizing individual transfers to charity.

Transfers to one's heirs raise similar issues except that in this case, recipients are more likely to be taxpayers. To the extent that such transfers are involuntary or are payments for services, they should be treated as income in the hands of the recipients with no offsetting credit for donors. In the case of voluntary transfers, efficiency might call for some incentive to donors that might to some extent offset the benefit of the transfer to recipients. In practice, this consideration might rationalize the fact that inheritances are treated somewhat more leniently than other sources of income, especially those made inter vivos.

Finally, there is the broader issue of the tax treatment of the family in the direct tax system. This involves settling a number of conceptually difficult issues. If one takes an individual welfare approach to the design of the income tax, tax liabilities of each family should be related to their individual utilities, which in turn are related to the income or consumption spending of the family. Translating this into practice involves the following considerations.

1. How is the income shared among family members? One can assume that the family allocates its resources 'rationally' so as to maximize the aggregate welfare of family

members. If so, adopting the family as a tax unit might be justified. Of course, this presumes that the definition of what constitutes a family is agreed.

2. What are the implications of household production and shared consumption? To the extent that one or more persons in a family engages in household chores that provide consumption services to all members, that should in principle be reflected in the tax liability. This consideration might justify differential taxation of families with a non-working adult relative to those in which all adults work and earn the same family income. Similarly, since consumer durables are shared among family members, there are economies of scale in consumption. This would suggest that two-adult families with a given family income pay more taxes than two single persons with the same aggregate income. (At the same time, one single person with a given income would pay more tax than two married persons with the same total income.)
3. How should children affect tax liabilities? Various issues are involved here. First, children might require less consumption to achieve a given level of utility compared with adults. If so, policy prescriptions are ambiguous on social welfare grounds (Kaplow 2008). If the society's social welfare function were strictly utilitarian — so all that counts is the sum of utilities — children should be favored by the tax system since they generate more utility per euro than adults. On the other hand, if the social welfare function exhibits inequality aversion — so puts some weight on equalizing levels of utility — children should bear correspondingly heavier tax burdens. Second, children rely on transfers (cash, in-kind and parental attention) from their parents, so general issues of how to treat voluntary transfers comes into play. As we have discussed, there are two main considerations. On efficiency grounds, there is an externality associated with voluntary transfers that may call for a Pigouvian subsidy. Given that transfers to one's child are likely to be inelastic, this is perhaps not a major consideration. On equity grounds, transfers give rise to multiple sources of utility: to the donor, to the child and perhaps to third parties (other family members). These added sources of utility might be expected to attract higher tax liabilities. If so, families with children would be taxed more heavily than those with identical income but no children. Finally, equality of opportunity considerations might warrant giving special attention to children in less privileged families. An important way in which parents assist their children is by

investing in their books, etc. Children lucky enough to be born into higher income and higher educated families start life with an advantage. This is recognized by the provision of compulsory public education for all children. But in addition, many countries offer income-contingent transfers to families with children (e.g., refundable tax credits). Some go even further. For example, in the UK, all children are given at birth a capital grant that accumulates with interest in their name and is available to them once they reach the age of majority. This is intended as a (modest) means of enhancing opportunities.

What all this implies for the design of actual tax systems is not clear. Many tax systems take account of at least some of these considerations. Transfers for children are common, and sometimes further rationalized on the basis of improving a nation's demographic circumstances. Families with a non-working adult are often treated more harshly than those with the same family income and two working adults. And, economies of living together may be taken into account by two-adult families with a given income paying more than two singles with the same total income. Of course, all this assumes that one's choice of family circumstances deserve compensation. As mentioned, it might be argued that, to the extent that choice of family size is a free choice, it should be neither rewarded nor punished.

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