A paper prepared for the

Un document préparé pour le

Economic Council of Canada

Conseil économique du Canada

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DISCUSSION PAPER NO. 267

Designing a Nondistortionary Personal Tax System for Canada

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ISSN-0225-8013

July 1984

Résumé

Le présent document porte sur la conception d'un système gradué d'impôts personnels qui n'altérerait le mode de consommation de l'individu à aucun moment de sa vie. Les auteurs y démontrent qu'un tel système fiscal doit prévoir à la fois des épargnes déductibles et non déductibles. Ils soutiennent par ailleurs que les mécanismes déjà en place au Canada peuvent permettre la transformation de notre système actuel d'impôts personnels en un régime semblable à ceux que proposent le département du Trésor dans Blueprints aux États-Unis et le Comité Meade au Royaume-Uni.

Abstract

This paper discusses the design of a graduated personal tax system that does not distort the path of an individual's lifetime consumption. It is shown that such a tax system requires the existence of both tax-deductible and nontax-deductible saving. It is also argued that the mechnisms are already in place that would permit the transformation of Canada's existing personal tax system into one similar to those proposed by Blueprints and the Meade Committee.

I. Introduction

One of the most common reasons for preferring a consumption to an income base for taxation involves the presumption that the former does not affect the trade-off between an individual's consumption at different dates. Unlike an income tax, a consumption tax only has a wealth effect; that is, the impact on saving is only a consequence of the uniform shifting inward of the budget constraint (Atkinson and Stiglitz, 1980). While such a presumption is true in the context of proportional taxes (and perfect capital markets), it is generally false under a graduated tax system. As a result, the foregoing efficiency argument for preferring a consumption tax to an income tax is no longer valid. The question therefore arises as to whether a graduated tax system could be designed which does not distort the path of consumption and therefore saving. The intent of this paper is to suggest the form that such an ideal tax system might take, drawing on Canada's recent experience and proposals contained in the 1984 Federal Budget.

II. Model

Consider an individual who during his lifetime receives a given stream of income $Y(t)$ together with inheritances the value of which, discounted back to his birth, is denoted by $W(0)$, and makes no gifts while he is alive. He faces a fixed graduated tax schedule $T(Z(t))$ such that $0 < T_Z < 1$; $Z(t)$ is taxable income and T_Z denotes the marginal tax rate.

The individual is assumed to operate in a perfect capital market in which he can borrow and lend at a constant rate of interest i, and to plan consumption over his lifetime in order to maximize the discounted value of utility subject to his lifetime budget constraint. If we let ρ be the constant subjective discount rate, the individual's problem can be formally represented as:

$$\underset{C(t)}{\text{Maximize}} \quad \int_0^D U(C(t))e^{-\rho t}dt + \psi(W(D))e^{-\rho D} \tag{1}$$

$$\text{Subject to} \quad \dot{W}(t) = Y(t) + iW(t) - T(Z(t)) - C(t), \tag{2}$$

where the functions U and ψ are increasing, strictly concave and differentiable,[1] W(D) is bequests, and a dot denotes a derivative with respect to age t.

Following Pontryagin's Maximum Principle, we form the Hamiltonian

$$H = e^{-\rho t}\{U(C)+\alpha[Y+iW-T(Z)-C]\} \tag{3}$$

If we employ the Haig-Simons definition of income as the tax base, then $Z(t)\equiv I(t)=Y(t)+iW(t)$, whereas if taxation is based on consumption $Z(t)=C(t)$.

Under an income tax system, the necessary condition for an interior maximum is,

$$U_C = \alpha \tag{4}$$

with the movement of the adjoint variable α described by,

$$\frac{\dot{\alpha}}{\alpha} = \rho - i(1-T_I). \tag{5}$$

and the boundary condition $\alpha(D)=\psi_W$.

Differentiating (4) and substituting into (5) we obtain,

$$\delta(C)\frac{\dot{C}}{C} = i(1-T_I)-\rho, \tag{6}$$

where $\delta(C)$ is the elasticity of the marginal utility of consumption.

By contrast, under a consumption tax system, the necessary conditions corresponding to (4) and (5) are,

$$U_C = \alpha(1+T_C) \tag{7}$$

$$\frac{\dot{\alpha}}{\alpha} = \rho - i. \tag{8}$$

Differentiating (7) and using (8) we get,

$$\delta(C)\frac{\dot{C}}{C} = i-\rho - \frac{\dot{T}_C}{1+T_C} . \qquad (9)$$

Equations (6) and (9) show that the lifetime path of consumption is distorted by a graduated consumption tax as well as by a graduated income tax.

We can, however, design a tax system which does not distort the path of consumption if we combine the features of the two foregoing tax systems. Suppose we allow the individual to use two types of saving vehicles, one of which R is tax-deductible and another S which is not, and permit interest on both forms of saving to be non-taxable. Bequests accumulated through tax-deductible saving are included in the individual's taxable income at the time of death.

The individual now has to choose both C(t) and R(t) in order to maximize his utility. The appropriately modified Hamiltonian is,

$$H = e^{-\rho t}\{U(C)+\alpha[Y+iW-R-T(Z)-C] + \beta[iV+R]\}, \qquad (10)$$

where V and W denote assets accumulated through tax-deductible and nontax-deductible saving respectively, and $Z \equiv Y-R$.

The necessary conditions for a maximum become,

$$U_C = \alpha \tag{11}$$

$$\alpha(1-T_Z) = \beta \tag{12}$$

with the movement of the shadow prices α and β associated with W and V, respectively, described by,

$$\frac{\dot{\alpha}}{\alpha} = \rho - i \tag{13}$$

$$\frac{\dot{\beta}}{\beta} = \rho - i \tag{14}$$

Differentiating (11) and (12), and using (13) and (14) we get

$$\delta(C)\frac{\dot{C}}{C} = i - \rho \tag{15}$$

$$\delta(C)\frac{\dot{C}}{C} = i - \rho - \frac{\dot{T}_Z}{1-T_Z} \tag{16}$$

which together imply that for an interior maximum to be attained,

$$\dot{T}_Z = 0. \tag{17}$$

The interpretation of this result is quite simple. It implies that tax-deductible saving would be used as a lifetime income-averaging device to ensure that an individual's taxable income and, therefore, his marginal tax rate, is the same at each point in time.[2] Under such circumstances, the trade-off between consumption in different periods is unaffected by the tax system.

III. Towards an Ideal Personal Tax System

Given that anything other than a graduated personal tax appears to be politically unacceptable on vertical equity grounds, a nondistortionary consumption-based tax requires the co-existence of both tax-deductible and nontax-deductible saving. The model in the previous section has a number of important implications regarding the specific features of such a tax system, and how they relate to Canada's existing personal tax system and recent proposals for its reform.

The personal tax system we are proposing is, in fact, not so far removed from the income and consumption-based hybrid already in place. However, income from physical assets would no longer be taxed and all restrictions on contributions to and withdrawals from registered retirement savings plans (RRSPs) would be removed, with the result that individuals would be free to distribute their savings between tax-deductible and nontax-deductible wealth.[3]

In the context of a consumption-based tax system, the latter corresponds to what Blueprints for Basic Tax Reform refers to as tax-prepaid wealth because saving in this form is not subtracted from the tax base and none of the subsequent spending therefore included. But whereas Blueprints argues that certain assets, such as, owner-occupied housing and consumer durables should be designated as subject to tax prepayment on administrative grounds, our model shows that such an option is a prerequisite for a nondistortionary graduated personal tax system, and that individuals should, as far as possible, be allowed to decide for themselves the degree to which their assets are prepaid or not.

Needless to say, the tax treatment of both types of saving must be consistent. With regard to tax-deductible or registered assets, all withdrawals would be included in that year's tax base. This would preclude vehicles like registered home-ownership savings plans (RHOSPs), whereby contributions are tax-deductible and withdrawn funds nontaxable provided they are used to purchase an owner-occupied home, as well as deductions which leave untaxed part of the income received from RRSPs and other registered pension schemes.

Similarly, with regard to bequests, although our model requires that the balance of a deceased person's tax-deductible (V) account be included in his or her taxable income in the year of death and taxed accordingly, transfers of amounts tax-free from the deceased's V-account to those of his beneficiaries, in the same manner currently applied to RRSPs in the case of surviving spouses, would also be consistent with the tax system we are proposing. Bequests in the tax-prepaid (W) form would, of course, not be taxable at all, a situation which now prevails in all provinces except Quebec, the only province where succession duties and gift taxes exist.

Another important feature of our proposed tax system is that it would permit loans in the form of V-accounts. Thus, for example, students and the unemployed would be able to procure registered loans, the proceeds from which would be included in taxable income as they are spent, and the subsequent repayments deductible from taxable income (Daly, 1981). In this way loans registered under V-accounts would complement existing student loan schemes and the Unemployment Insurance Compensation program.

Interestingly enough, the 1984 Federal Budget contained two important provisions which, if implemented, would constitute a major step in the direction of the tax system we are advocating here. First, the annual limit on tax-deductible RRSP contributions would be raised from the current level of $5,500, to $10,000 in 1985, $12,000 in 1986, $14,000 in 1987, and $15,500 in 1988, and then starting in 1989 contribution limits would be indexed to the average industrial wage. Second, unused contributions could be carried forward so as to add to the deduction entitlements in subsequent years. Remark that this shift towards a consumption-based personal tax system was proposed under the guise of pension reform.[4] As a result, there has been much less political opposition to the proposals than would perhaps have been the case if they were presented as part of a package of explicit reforms designed to move Canada further towards a consumption-based personal tax system.

In conjunction with the foregoing proposals, the government might usefully consider gradually increasing the existing $1,000 deduction for interest, dividends and capital gains.[5] However, political considerations undoubtedly preclude the exemption of all such capital income from personal taxation. In this regard the Meade Committee recommended a combination of consumption and wealth taxes as an alternative to a comprehensive income tax, justifying the wealth tax component by reference to the benefits from wealth accumulation that derive from factors other than taxable consumption. Rather than introduce a separate wealth tax, we suggest that capital income in excess of some prescribed amount be taxed in precisely the same way as it is under the current tax system.[6]

It would appear then that the mechanisms are already in place that would permit the transformation of Canada's existing personal tax system into one similar to those proposed by Blueprints and the Meade Committee. In our view such a system is not nearly as radical a departure from the present one as is often supposed. It is merely a question of the government deciding how far it is prepared to go in increasing the limits on RRSP contributions and the deduction for capital income, and allowing new types of loans along the lines described earlier.

Footnotes

* The authors are grateful to David Bradford for his helpful comments.

1 It is also assumed that U_x, ψ_x tend to ∞ as x tends to 0, and tend to 0 as x tends to ∞.

2 A similar tax system was discussed in Daly (1981) and Hood (1981).

3 The Income Tax Act not only places limits on annual RRSP contributions, it also restricts the way in which RRSP funds may be used to acquire a retirement income. Specifically, individuals who do not participate in an occupational pension scheme can contribute as much as 20 per cent of their annual earned income, up to $5,500, to an RRSP, and those who do participate to an occupational scheme, but contribute less than 20 per cent of their annual earned income, up to $3,500, may contribute the difference to an RRSP. Moreover, before the end of the year in which the plan holder turns seventy-one, the proceeds of an RRSP must be converted into an annuity, transferred to a registered retirement income fund, or the entire amount cashed in and included in taxable income.

4 See Department of Finance (1984).

5 Note that without a substantial increase in this deduction, there is the danger that raising the limits on tax-deductible RRSP contributions would result in a serious misallocation of savings because, hitherto, the bulk of RRSP funds appear to have been placed in relatively low-risk investments. This is no doubt at least partly due to the fact that RRSPs do not benefit from the preferential tax treatment currently accorded to capital gains and dividend income.

6 As shown by Daly (1981), if the return earned on tax-prepaid wealth (W) is subject to tax, the optimality condition corresponding to equation (17) becomes $\dot{T}_Z = iT_Z(1-T_Z)$.

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