

THE TREATMENT OF DEDUCTIONS UNDER A SALES TAX

SIMON GRANT and STEPHEN P. KING

University of Melbourne

I. INTRODUCTION

The introduction of a sales tax raises a number of concerns regarding the treatment of deductions for income tax purposes. The New Zealand Goods and Services Tax (GST) involves differential treatment of deductible expenditures depending upon whether or not the taxpayer is a registered person. Registered tax payers can offset the sales tax paid on any deductible items against their own sales tax liability. In contrast, unregistered persons can only deduct the sales tax inclusive cost of an allowable expense from their taxable income.¹ Effectively, this enables an unregistered person to offset only a fraction (equal to his or her marginal income tax rate) of the sales tax paid on the deductible item against their income tax liability. The GST proposed by the Australian Liberal and National Parties in their policy document *Fightback!* (1991a) also involved such a differential treatment

Generally, GST is not a tax borne as a business expense by registered persons, because of the GST credit allowed on inputs. Accordingly, for income tax purposes, assessable income and allowable deductions will be calculated excluding GST.

However, where a business does not register ... then the GST will ... normally be treated as a revenue expense....

For income tax purposes, GST will be deductible if the outgoing to which it relates is deductible (*Fightback!*, 1991b, p.11)

The movement from an income tax regime with no GST to a system with both an income and a sales tax, with such differential treatment, thus introduces horizontal inequities. Registered persons face a lower effective tax liability than unregistered individuals with the same income earning potential. Further, if the ability to register is correlated with income, then the tax switch also leads to vertical inequities.

In Section II we formally demonstrate that these inequities will arise from such a tax switch and present a simple and administratively feasible solution - *deduction imputation*. Instead of allowing the unregistered taxpayer to subtract the sales tax paid on deductible items from their income, we propose that he or she should receive a tax credit for that sales tax which can be offset against his or her income tax liability.² Effectively, such a credit for sales tax paid on deductible items is allowed for under the Canadian GST.³

¹ See for instance, *Siaples' Guide to New Zealand Tax Practice 1992-93* (1993), 53rd edition, The Law Book Company Ltd, Sydney, p.379 .

² If the size of the credit exceeds the individual's tax liability, the excess should be redeemed to the taxpayer.

³ For details of the income tax treatment of deductible expenses in Canada, see 1993 *Canadian Master Tax Guide*, pp.68-69.

To the extent that one might associate high levels of deductions with tax avoidance, it may appear desirable to implement a partial income-sales tax switch *without* deduction imputation. In Section III, we demonstrate that with plausible assumptions for the behaviour of individuals and assuming that any sales tax is fully shifted forward, the introduction of a GST may provide a disincentive for unregistered persons to purchase "excessive" amounts of deductible items. However, such an effect is undermined if individuals can register. Hence we conclude that the arguments in favour of deduction imputation are compelling.

II. DEDUCTIONS AND THE EQUITY OF A CHANGE IN TAX MIX

To analyse the equity effects of a partial switch from an income tax to a sales tax, consider a consumer who must choose a level of spending on consumption goods C and deductible goods D .⁴ Deductible items are defined by the tax code as those goods and services whose cost may be subtracted from gross income prior to calculating income tax.⁵ Gross income, Y , may directly depend upon the amount of deductible goods purchased.⁶ The consumer's choice of C and D must satisfy their budget constraint. Hence, total expenditure cannot exceed $Y(D)$.

We define a change in the tax regime as *Horizontally Equitable* if two individuals who were equally well-off under the original tax system in terms of the choices available to them, are equally well-off under the new scheme. Note that this does not require that the original taxation laws satisfied the norms for horizontal equity, but merely that the change in tax regime does not alter individual relativities.

A change in tax policy is detrimental to an individual if their choice set is reduced in the sense that, for any given level of D , the consumer can only achieve a strictly lower level of C . This definition implicitly assumes that the individual was not originally satiated in all goods.

First consider the choice set available to a consumer prior to the introduction of a sales tax. This is considered in case 0 below.

Case 0: Marginal income tax rate t_0 and no sales tax

Let the prices of the consumption and deductible goods be denoted by p_C and p_D , respectively. Any expenditure on the deductible good directly reduces income tax liability, although it may indirectly increase that liability to the extent that gross income responds to the level of deductions. Hence, the choice set for the consumer is defined by:

$$p_C C \leq Y(D) - t_0(Y(D) - p_D D) - p_D D, \quad (1)$$

or
$$p_C C \leq (1 - t_0) \{Y - p_D D\}$$

⁴ For convenience, we consider C and D as scalars. However, all results presented below hold if C and D are treated as vectors. Similarly, while the labour/leisure choice is not explicitly modelled, all results hold if labour is treated as an input into income production and choices are made over a set of feasible C , D and leisure.

⁵ Generally, deductible goods and services correspond to legitimate items used in the process of earning income, such as working clothes, tools, travel expenses, etc. Note, however, our analysis does not preclude the inclusion of other items that have frequently attracted favourable tax treatment because of the social welfare goals of the government such as health care and education expenses.

⁶ More generally, all goods may affect the ability of the consumer to generate income.

For case 0, all individuals who face the same income function, $Y(D)$, face identical choice sets. However, if a sales tax is introduced without deduction imputation, consumers will encounter different rules for the treatment of deductions depending upon their status as either a registered or unregistered person. Because of this, introducing a sales tax without imputation will not be horizontally equitable.

Consider a change in tax regime, with the introduction of a sales tax at rate s_1 and a concomitant income tax at rate t_1 . Denote the new tax exclusive prices facing the consumer for consumption and deductible goods as \hat{p}_C and \hat{p}_D respectively.

Case 1(a): Marginal income tax rate t_1 and sales tax s_1 .

The consumer faces prices $(1 + s_1)\hat{p}_C$ and $(1 + s_1)\hat{p}_D$. If they are not a registered person then consuming an extra unit of the deductible good now costs $(1 + s_1)\hat{p}_D$ but (directly) reduces income tax by $t_1(1 + s_1)\hat{p}_D$. Hence the person's choice set can be expressed as:

$$(1 + s_1)\hat{p}_C C \leq Y(D) - t_1[Y(D) - (1 + s_1)\hat{p}_D D] - (1 + s_1)\hat{p}_D D.$$

or

$$(1 + s_1)\hat{p}_C C \leq (1 - t_1)[Y - (1 + s_1)\hat{p}_D D] \quad (2)$$

Case 1(b): Marginal income tax rate t_1 and sales tax s_1 ; where consumer's income is derived from a registered person

In this case the consumer both charges (and is liable to pay) sales tax on their income earning activity.⁷ Any sales tax paid on the deductible good may be used to offset this sales tax liability. Taxable income is now the sales tax *exclusive* income less the sales tax *exclusive* expenditures on the deductible good. The choice set is given by:

$$(1 + s_1)\hat{p}_C C \leq (1 + s_1)Y(D) - s_1 Y(D) - (1 + s_1)\hat{p}_D D - t_1(Y(D) - \hat{p}_D D) + s_1 \hat{p}_D D,$$

or

$$(1 + s_1)\hat{p}_C C \leq (1 - t_1)[Y - \hat{p}_D D] \quad (3)$$

By direct comparison of equations (2) and (3), it is clear that consumers who are equal under the original tax scheme are no longer treated equally after the change in tax mix. Rather, the consumer who, for whatever reason, is unable to register is relatively worse off after the change in tax policy. This immediately leads to the following result.

A change in tax mix from an income tax without a sales tax, to a combination of both an income and sales tax, but without deduction imputation, is NOT horizontally equitable.

This result implies two important consequences for an economy considering a change in tax mix without deduction imputation. First, so long as registration is not too expensive, we would expect some individuals who otherwise would have remained as normal wage and salary earners, to register. This may help explain the New Zealand experience. Following the introduction of a sales tax, the Inland Revenue Department had anticipated 180,000 registrations in the first year of operation but within six months registrations had in fact already reached 280,000. (Bollard, 1992, p.482)

⁷ The entity paying the consumer's income is quite happy to cover the sales tax now charged on that income as it can credit that sales tax against its own sales tax liability.

Second, to the degree that high income earners either have the available funds to register if that process is expensive, or have income sources which qualify them to register as a business, we may be concerned about the vertical equity of a change in tax mix without deduction imputation. Thus, a change to a sales tax may be more regressive than otherwise thought.

While we have shown above that the introduction of a sales tax without deduction imputation is not horizontally equitable, it remains to show the converse - that deduction imputation does ensure horizontal equity for a change in the tax mix. In case 1(c) below, we consider the choice set for a consumer after the introduction of a sales tax but with a rebate for taxes paid on deductible goods. A direct comparison of equations (4) and (3) shows that the individual's budget no longer depends upon whether he or she is registered or not. Hence, with deduction imputation, the tax mix switch is horizontally equitable.

Case 1(c): Marginal income tax rate t_1 and sales tax s_1 , with rebate for sales tax paid on deductible goods (i.e. deduction imputation)

In this case the consumer can only deduct the expenditure on the deductible good *exclusive* of the sales tax but they receive a rebate for any sales tax paid on those deductions. This is equivalent to the imputation of corporate income tax paid on company earnings that is distributed as dividends to shareholders in order to avoid the double taxation of this income.

The choice set for the consumer can be expressed as:

$$(1 + s_1)\hat{p}_C C \leq Y - (1 + s_1)\hat{p}_D D - t_1(Y - \hat{p}_D D) + s_1\hat{p}_D D,$$

$$\text{or} \quad (1 + s_1)\hat{p}_C C \leq (1 - t_1)[Y - \hat{p}_D D] \quad (4)$$

Identical to case 1b above.

It should be noted that deduction imputation does not add significantly to the complexity of the tax code. The tax payer can easily calculate the tax exclusive price of any deductible expenditures along with the accompanying sales tax rebate. However, imputation would ensure that the tax change is horizontally equitable, as well as avoiding spurious business registrations, and allaying any fears of introducing vertical inequities if a differential ability to register is correlated with income.

III. SALES TAX AND TAX AVOIDANCE

Given the above analysis, why might the government, nevertheless, choose to introduce a sales tax *without* deduction imputation? We shall argue that for a consumer who faces a sales tax, but is neither able to register nor eligible for a rebate on the sales tax paid on deductible items, the relative price of the deductible good will tend to rise. Hence to the degree that the government believes that expenditure on deductible items may involve schemes to avoid income taxation rather than genuine expenses incurred in generating the individual's income, such a change in relative prices may be viewed as socially desirable.

Consider an individual who under a tax regime with no sales tax, chooses consumption level C^0 , and a quantity of the deductible good, D^0 . We shall assume that under any new tax regime, for which the combination (C^0, D^0) is affordable, the consumer will not choose any bundle (C, D) that was previously available but not chosen.⁸ In addition, we shall assume that both goods are normal for the consumer, and that increased purchases of the deductible good cannot reduce gross income (*i.e.* $Y' \geq 0$).

First, let us examine the introduction of a sales tax coupled with a compensatory reduction in the marginal income tax rate just sufficient to allow the consumer to purchase (C^0, D^0) at unchanged pre-sales tax prices and without deduction imputation. If, in fact, the sales tax on both the consumption and deductible goods is fully shifted forward, then the relative price of the deductible good increases. To see this, consider the original relative price of the deductible good in terms of the consumption good. Increasing the amount of the deductible good by one unit reduces taxable income by $p_D \cdot Y'(D^0)$ which leads to a reduction in the expenditure on the consumption good of $(1-t_0)\{p_D \cdot Y'(D^0)\}$. Hence the relative price of the deductible good is given by:

$$(1-t_0)\left\{p_D - Y'(D^0)\right\} / p_C$$

After the change in tax mix, increasing the amount of the deductible good by one unit reduces taxable income by $(1+s_1)p_D \cdot Y'(D^0)$. Expenditure on the consumption good is thus reduced by $(1-t_1)\{(1+s_1)p_D \cdot Y'(D^0)\}$. Noting that the individual now pays sales tax on the consumption good, the relative price of the deductible good is given by:

$$(1-t_1)\left\{p_D - \frac{Y'(D^0)}{(1+s_1)}\right\} / p_C$$

Since $t_1 < t_0$ and, by our assumptions, $p_D \geq Y'(D^0) \geq 0$, it follows that the relative price of the deductible good has risen. Hence such a 'compensated' partial switch to a sales tax without deduction imputation will not increase and may well decrease the quantity demanded of the deductible good by the individual.

It immediately follows from our assumptions, including the normality of both goods, that if the individual is 'under compensated' (that is, (C^0, D^0) is no longer affordable), then the quantity demanded of the deductible good will strictly fall. Conversely, if they are 'over compensated' the change in quantity demanded is ambiguous.

If the government believes that, given a level of gross income, a higher expenditure on deductions is more likely to reflect tax avoidance, then the partial tax switch can be designed to compensate only for a 'reasonable' level of deductions, so as to reduce this perceived avoidance. Three significant caveats to this argument should, however, be highlighted. First, if tax avoiders can register, the 'compensated' tax switch will increase their opportunity set by *reducing* their effective tax liability. Secondly, to the extent that individuals require varying levels of deductions to attain the same level of gross income, a 'compensated' tax switch may punish an honest tax payer with a legitimate but significant deduction requirement. Finally, our analysis in this section has ignored the effects of changing demands on the pre-tax prices and quantities supplied of both goods. Such 'general equilibrium' feedbacks might offset the postulated change in relative prices and might even induce *higher* levels of deduction expenditures.

⁸ This behavioural assumption is termed the *Weak Axiom of Revealed Preference*. See for example Varian (1992, p.131).

IV. CONCLUSION

In this paper we have compared the treatment of deductions in a system involving only an income tax with that involving both income and sales taxes. Such a change in the tax regime will introduce horizontal inequities between those individuals who can and cannot register as a business. These arise from the former's ability to credit any sales tax paid on their deductions against their own sales tax liabilities. The latter group, such as wage and salary earners, have no such provision to receive credits for the sales tax they pay on their deductions. Further, to the degree that the ease of registering is correlated with income, this differential tax treatment may introduce vertical inequities as well.

A simple solution to remove these inequities, is to allow deduction imputation which provides a rebate of any sales tax paid on the deductible expenses of those tax payers who do not register.

A counter-argument to allowing deduction imputation is that a high level of deductions may be indicative of tax avoidance, and so introducing a tax bias against deductions might be socially desirable. We note, however, that there are at least three significant problems with this line of reasoning and suggest that it may be undesirable to tackle avoidance with such a blunt and indiscriminate instrument as a general sales tax.

Overall there appears to be significant horizontal and vertical equity arguments for allowing deduction imputation. As dividend imputation is already provided for in the *Australian Tax Code*, extending it to incorporate deduction imputation should be administratively quite straightforward. Moreover, as we noted in Section II above, with a sales tax levied at a single rate it should be relatively easy for the tax payer to calculate the tax exclusive price of any deductible expenditures along with the accompanying sales tax rebate.

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