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To: Office of the Minister of Finance

From: Tax Strategy, Treasury

Note: Tax Rebates, Tax-free Zones and Tax Allowances

At the meeting with the Minister on 6 November there was some discussion regarding whether/when tax-free zones and rebates are equivalent. This note offers some clarification.

Personal income tax schedules typically have a series of rates and thresholds with marginal rates rising across these thresholds. An effective zero starting rate of personal income tax can be achieved in a number of ways. The three most common are:

- (a) A **tax free zone** in which an initial amount of “taxable income” is taxed at 0% (current Australian system).
- (b) A **tax rebate** given as a fixed tax credit against total tax paid on “taxable income”.
- (c) A **tax allowance** which is deducted first from total income to arrive at “taxable income”. This taxable income is then taxed using a tax schedule of positive rates and thresholds (current UK system).

Are these three equivalent? To answer this we need to start from the counterfactual of a tax where there is no rebate/free-zone/allowance. We can then ask: are they equivalent in terms of either:

- (i) The amount of tax credit involved (Do they deliver the same additional ‘spending power’ to a given taxpayer?); or
- (ii) The amount of pre-tax income that a taxpayer would have to earn to end up with the same ‘spending power’.

The three systems can be illustrated by the following simple example involving just two tax rates (20% & 40%) and a single threshold (at \$40k) prior to the introduction of a rebate/free zone/allowance.

(a) – tax rebate		(b) – tax-free zone		(c) – tax allowance	
Taxable income	Tax rates	Taxable income	Tax rates	Taxable income (= total income minus \$5k)	Tax rates
[Rebate = \$1k]		\$0 - \$5k	0	[Allowance = \$5k]	
\$0k - \$40k	20	\$5k - \$40k	20	\$0 - \$35k	20
> \$40k	40	> \$40k	40	> \$35k	40

In this example, with a \$5k allowance/free-zone, or a \$1k rebate, all three systems are equivalent in terms of the total income levels at which the various, common, tax rates apply. In case (c) this is achieved only if the \$40k threshold (with respect to “taxable income”) be reduced by \$5k.

Comparing cases (a) and (b)

The difference between (a) and (b) is that (a) is defined on **taxable income** whereas (b) is defined on **tax paid**. Compared to a counterfactual tax where taxable income is taxed at 20% from the first \$, (a) and (b) are equivalent in the amount of reduced tax that they deliver: \$1000. This can be seen in Figure 1 where the shaded area, R, is the rebate and is equal to \$1000. A \$5000 free zone, at a 20% tax rate is equivalent in tax credit terms.

Cases (a) and (b) are also equivalent in terms of the amount of pre-tax income that identical taxpayers would have to earn to achieve the same post-tax income or 'spending power'. However note that this differs across taxpayers according to their income levels and tax thresholds. For example, in either cases (a) or (b), the \$1000 tax rebate (or \$5000 free zone) is worth an additional \$1250 of pre-tax income to taxpayers with incomes between a_1 and a_2 in Figure 1. [i.e. $\$1000/(1 - 0.2)$]. However it is worth \$1667 of additional income to taxpayers with incomes above a_2 in Figure 1. [i.e. $\$1000/(1 - 0.4)$]. So, both (a) and (b) are 'distributionally equivalent', and *both* deliver more in terms of additional pre-tax income to those on higher marginal tax rates. Put another way, those on higher marginal tax rates can reduce their pre-tax incomes by more (than those on lower marginal rates) and be no worse off than before the rebate/free zone was introduced.

Note also that the equivalence of the tax free zone and the rebate in tax credit terms depend on the lower tax rate. Thus, a \$1000 rebate becomes equivalent to a \$4000 tax free zone when a 25% tax rate applies. (Earning \$4000 of income now saves \$1000 of tax whereas previously this was achieved only when \$5000 of income was earned).

Case (c)

Both (a) and (c) are defined on "taxable income" but the difference between them is that in (c) the 'allowance' is deducted before arriving at a definition of taxable income. Since tax thresholds are defined on the taxable income scale (*after deducting the tax allowance*), then thresholds 'move up' with respect to total income every time the tax allowance increases (unless a policy decision is taken to reduce them).

So, introduction of a \$5000 income tax allowance (as in the UK system), in the example considered above would only be equivalent to case (a) above if the threshold at which the 40% tax rate applies was reduced to \$35k from \$40k. If the allowance was increased, say to \$6000, case (c) would only remain equivalent to case (a) if the 40% threshold was further reduced to \$34k.

If thresholds are not adjusted in this way, then (a) and (c) are **not** equivalent *in tax credit terms*. This is because, with (c), in addition to the \$1000 tax credit from the introduction of the \$5000 allowance, taxpayers would gain from reduced tax on their incomes between \$40k and \$45k. (In terms of Figure 1, if the first \$40k of "taxable income" is subject to tax at 20%, and a \$5k allowance is introduced, now total income up to \$45k is taxed at 20% - there is a 20 cent tax reduction on incomes between \$40k and \$45k; i.e. an additional tax credit of up to \$1000, depending on income levels).

As with cases (a) and (b), the value of any tax credits, in terms of income that needs to be earned to yield the same change in 'spending power', depends on the taxpayer's top marginal tax rate. Thus, under all three schemes, the income value at the margin of any tax credit received is simply $R/(1 - t_m)$ where t_m is top marginal rate that the taxpayer faces. So, in case (c) if a \$5000 allowance is given but the upper threshold is reduced from \$40k to \$35k, this is equivalent to giving all taxpayers a \$1000 tax rebate

(a 40% tax rate payer gets $0.4 \times \$5k$ (allowance) minus $0.2 \times \$5k$ (threshold change)). For a 20% marginal tax rate payer this is worth \$1250 of extra income before tax, and it is worth \$1667 for a 40% taxpayer. If tax thresholds are not adjusted, the \$5000 allowance is worth \$2000 (not \$1000) to a 40% taxpayer because of the reduced tax on their income between \$35k and \$40k. The \$2000 tax rebate is then worth \$3334 of pre-tax income to them.

In summary:

- (a), (b) and (c) are equivalent in tax credit terms if, in case (c) tax thresholds applied to “taxable income” are adjusted downwards to compensate.
- The three cases are also equivalent in delivering *greater gains to higher marginal rate payers*, in terms of the amount of pre-tax income relieved of tax. That is, those on higher marginal tax rates can reduce their pre-tax incomes by more (than those on lower marginal rates) for both to be no worse off than before the rebate/free zone was introduced.
- For case (c) the equivalence does not hold, if thresholds are not adjusted when an ‘allowance’ is introduced. Higher marginal rate payers again gain more than lower marginal rate payers but the difference is magnified compared to cases (a) or (b).

Figure 1

