Current Action to Lower Future Taxes: General Averaging and Anticipated Income Increases

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M.R. Veall and S.N. Laiken*

It is well known that taxpayers who experience sudden increases in personal income are offered some tax relief through the general averaging process set out in s. 118 of the Income Tax Act. Under this provision, taxes are calculated using a formula which depends on both current income and recent past income. This suggests that taxpayers who anticipate future increases in income could perhaps act in the current year to take advantage of the averaging formula and reduce their future tax liabilities. An exploration of this idea uncovers the following interesting results.

1. An individual who anticipates a large increase in net income in the next tax year will often be able to reduce his future tax liabilities by reducing his current net income (using such methods as RHOSP and RRSP contributions, among others). Therefore, the tax advantage to reducing current net income may be underestimated if the impact on future tax liabilities is not considered and, as a result, tax planning may not be optimal.

2. Perhaps surprisingly, the return to reducing current net income is often very large when current tax liabilities are zero and, hence, when little incentive to lower net income is perceived by most taxpayers. For example, in plausible cases of this kind a current $1,000 RHOSP contribution can save $500 or more of next year's taxes. This result should be

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of particular interest to students about to begin full-time employment, to parents about to return to the workforce after raising children and to anyone else anticipating a jump in net income from a current low level.

3. The common advice that students should claim tuition by calendar year rather than by academic year will in many common circumstances be incorrect when general averaging is taken into account.

4. An individual at any level of income who expects a very large increase in income in the coming year may be paying on current income an effective marginal rate (including the effect on future tax liabilities) approaching 100 per cent and over 200 per cent in the theoretical extreme. Even if some of this effect can be eliminated by using Income Averaging Annuity Contracts when the income increase is received in the next year, net income should be as low as possible in the current year because of the nature of the general averaging formula. To illustrate this, an example is presented in which a taxpayer who defers net income from one year to a following year with a higher net income not only defers taxes but also reduces the number of tax dollars paid in the two-year period.

Because of the complex nature of both the general averaging formula and the overall tax system, there are no simple tax planning rules which cover all circumstances. Instead, the approach here is to consider a number of illustrative examples and to offer guidelines suggested by a more general analysis. Using this information, the tax planner should be able to identify situations in which the effects studied here may be important and, then, devise a strategy based on the particular case.

Example: Student Beginning Full-Time Employment

Before a more general analysis, the results will be illustrated with a single example. As in all of our examples, we shall be studying the impact of 1979 net income on 1980 taxes.[1]

Suppose an Ontario student had net incomes of $2,200 in 1976, $2,500 in 1977, $2,800 in 1978, $4,000 in 1979 and $12,000 in 1980 after graduation. In 1980, personal exemptions and other deductions from net income total $3,300.00.[2] Note that the student would not have paid any tax in 1979 and therefore probably would not have taken any special action to reduce net income in that year. After averaging, the student would pay a total of $1,736.54 in federal and provincial income tax in 1980.

Now suppose in 1979, the same student had made a RHOSP contribution of $1,000 to lower net income in that year to $3,000. Taxes in 1979 would still be zero but federal and provincial income tax in 1980 would now be only $1,153.02, a tax saving of $583.52.[3] Table 1 gives the results for the same case with different 1980 net incomes. It can be seen that savings of over $500 are typical but these can be higher for very large increases in income.

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[1] The effect of 1980 action on 1981 taxes could not be investigated because the 1981 indexed tax tables are not yet available. However, the general guidelines that will be presented do not depend on particular tax years.

[2] This total consists of the personal exemption of $2,890, the standard deduction of $100, the education deduction of $200 and the interest, dividends or capital gains deduction of $110.

[3] As a comparison, the tax savings associated with an alternative $1000 RHOSP contribution in 1980 are $244.80 for the situation described above and $273.60 for a taxpayer not subject to averaging but with the same 1980 earnings and deductions.

Table 1

Effect of a 1979 RHOSP Contribution of $1,000 on 1980 Personal Income Taxes[4]

1980 Net Income	1980 Personal Income Taxes Without 1979 RHOSP Contribution	1980 Personal Income Taxes With 1979 RHOSP Contribution	Tax Saving
$ 8,000	$ 757.34	$ 231,42	$525.92
12,000	1,736.54	1,153.02	583.52
16,000	2,715.74	2,131.22	584.52
20,000	3,692.41	3,103.52	588.89
50,000	11,729.12	10,891.08	837.96

[4]Calculated for an individual with 1979 Net Income of $4,000. Net Income for 1976, 1977 and 1978 are $2,200, $2,500 and $3,000 respectively. Personal Exemptions and Other Deductions for 1980 are $3,300. All tax calculations include effect of general averaging, provincial income tax at Ontario rates and the federal tax reduction in s. 120(3.1) of the Income Tax Act.

In any case, the amount of tax saving is very sensitive to the level of 1979 net income. For the above case with 1980 net income of $12,000, if 1979 net income is initially $4,500 the tax saving is $267.72; if 1979 net income is initially $5,000 the tax saving is only $37.67.

Our conclusion at this stage is that in plausible circumstances, a $1,000 RHOSP contribution in the current year can result in a tax saving of $500 or more in the following year. Even after the time-value of money is considered, this is a worthwhile saving. However, the savings do decrease sharply with higher levels of current income relative to the next year's income. To deal with this and other issues, a more general analysis is presented in the next section.

A More General Analysis

To begin, we consider the general averaging calculation which will be applied to next year's income tax if net income increases sharply. It can be reduced to the following four steps.

STEP 1: Calculate "threshold income" which is the greater of 110% of the current year's net income and 120% of the average of the current and preceding three years' net income.[5] Averaging applies to the excess of next year's net income over threshold income.

STEP 2: Calculate a weighted average of threshold income and next year's net income which we shall call "smoothed income":

Smoothed income = .8X(Threshold income) + .2X(Next year's net income)

It should be noted that smoothed income will always exceed threshold income.

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[5] If for any year, net income is less than the indexed basic personal exemption plus $100, the basic personal exemption plus $100 is used instead of net income for that year.

STEP 3: Calculate the federal tax before tax credits and reductions (a) on threshold income less next year's personal and other deductions (henceforward called "deductions") taken in computing taxable income and (b) on smoothed income, less the same deductions used in computing taxable income. Use next year's tax schedule.

STEP 4: Assuming threshold income exceeds deductions,[6]

$$\text{Next Year's Total Federal Tax} = \text{Tax on Threshold Income} + 5X\,(\text{Tax on Smoothed Income Less Tax on Threshold Income})$$

$$= 5X(\text{Tax on Smoothed Income}) \text{ Less } 4X(\text{Tax on Threshold Income}) \quad (1)$$

The idea of the formula is to partially tax the suddenly increased income of next year at a marginal rate closer to that which would be applied to smoothed income. After federal tax is calculated in this manner, federal tax reductions and credits and provincial tax are computed in the usual manner.

Now let us examine how the taxpayer can affect tax liabilities by taking action in the current year, before the sudden income increase. The results here apply to the case in which threshold income is 110% of the current year's net income and is greater than next year's deductions. Suppose that the current year's net income is reduced by \$1, by way of a RHOSP contribution, for example. Then threshold income is reduced by \$1.10 and smoothed income is reduced by \$.88. Using the formula above:

$$\text{Next Year's Federal Tax Saving} = 5X(\text{Marginal federal Tax on \$.88 of Smoothed Income}) \text{ Less } 4X(\text{Marginal Federal Tax on \$1.10 of Threshold Income}) \quad (2)$$

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[6] If threshold income is less than next year's deductions, the averaging formula gives next year's total federal taxes equal to five multiplied by the taxes on one-fifth of next year's net income less one-fifth of next year's deductions.

It can be shown that this federal tax saving is equal to:

4.4X(Marginal Federal Tax on $1 of Smoothed Income Less Marginal Federal Tax on $1 of Threshold Income)

Including Ontario provincial tax of 44% involves multiplying the marginal federal saving by 1.44 to obtain:

Next Year's Total Tax Saving[7] = 6.336X(Marginal Federal Tax on $1 of Smoothed Income Less Marginal Federal Tax on $1 of Threshold Income)

Remember that all of these calculations use next year's deductions and tax schedules.

Any potential saving depends on the difference in the marginal rates on smoothed income and on threshold income. Therefore, if both are in the same tax bracket with the same marginal rate, the tax saving achieved by lowering threshold income by one dollar will be zero. However, it should be noted that even in this case if the threshold income is lowered enough, it enters a new tax bracket and after that point, further decreases in threshold income will lower tax liabilities (see the next example).

Table 2 gives the potential tax savings as a function of the marginal tax rates. Since in most cases smoothed income will be within one or two brackets of threshold income, attention should be concentrated on the diagonal and the entries close to it. Since the relevant brackets will change as threshold and smoothed income are changed, the savings associated with a particular reduction in threshold income will not be easily calculated. This is best illustrated by an example.

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[7] Where the total federal tax is between $2,222.22 and $5,555.56 (i.e., subject to the 9 per cent federal tax reduction rather than the $200 minimum or the $500 maximum) the coefficient should be reduced to 5.94 from the 6.336 shown.

Table 2

Effects of General Averaging:

Next Years Tax Saving[8] for a $1 Reduction in Current Year's Net Income[9]

Marginal Tax Rate on $1 of Threshold Income[10] Less Deductions[11]	Marginal Tax Rate on $1 of Smoothed Income[10] Less Deductions[11] (Percent)												
	6	16	17	18	19	21	23	25	28	32	36	39	43
6%	0	.63	.70	.76	.82	.95	1.08	1.20	1.39	1.65	1.90	2.09	2.35
16		0	.06	.13	.19	.32	.44	.57	.76	1.01	1.27	1.45	1.71
17			0	.06	.13	.25	.38	.51	.70	.95	1.20	1.39	1.65
18				0	.06	.19	.32	.44	.63	.89	1.14	1.33	1.58
19					0	.13	.25	.38	.57	.82	1.08	1.27	1.52
21						0	.13	.25	.44	.70	.91	1.14	1.39
23							0	.13	.32	.57	.82	1.01	1.27
25								0	.19	.44	.70	.88	1.14
28									0	.25	.51	.70	.95
32										0	.25	.44	.70
36											0	.19	.44
39												0	.25
43													0

[8] For simplicity the savings here are calculated without considering the federal tax reduction, which in some cases could affect the entries slightly.

[9] For the case in which threshold income is 110% of the current year's net income.

[10] Smoothed Income = .8 X Threshold Income + 2 X Income in Averaging Year.

[11] Deductions are personal exemptions and other deductions from net income used in the computation of next year's taxable income.

Example: Varying Marginal Tax Savings as RHOSP Contributions Are Increased

As an example, we consider the student discussed previously in Table 1 with 1979 and 1980 net incomes of $4,000 and $8,000 respectively and 1980 deductions of $3,300. Initially threshold income is $4,400 (taxed in the 16 per cent bracket after deductions) and smoothed income is $5,120 (taxed in the 17 per cent bracket after deductions). If a $14 RHOSP contribution is made in 1979, smoothed income falls to approximately $5,106 which after deductions of $3,300 is taxed on the edge of the 16 per cent bracket. Therefore, from Table 2, the return on a $14 RHOSP contribution at these brackets should be about 6 cents on the dollar or roughly 84 cents.

The tax saving for all RHOSP contributions from $14 to $183 is only about $10.14 since in this range threshold income less deductions is in the same bracket as smoothed income less deductions.[12] However, for contributions from $183 to $1,000, the marginal return is 63 cents on the dollar as threshold income less deductions and smoothed income less deductions are in the 6 and 16 per cent brackets respectively. Therefore, the total saving for a $1,000 contribution is ($0.63)($1,000-183) = $514.71 on the last $817 of contribution plus the $0.84 from the first $14 of contribution and the $10.14 on the next $169 of contribution or approximately the $526 saving shown in Table 1.

A General Guideline

While, in general, potential savings and strategies will have to be calculated for each individual, examination of Table 2 does yield some

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[12] The saving is not zero because of the rounding errors which cause slight discontinuities in the tax schedule at the edges of brackets. These inaccuracies are magnified by the averaging formula. The effect also accounts for the slight inaccuracies in the rest of the calculation.

useful rules of thumb. The most important point is that the big potential savings occur where threshold income is in or near the 6 per cent federal tax bracket. For every dollar that threshold income is reduced in that bracket, tax savings of 63 to 70 cents are likely. Therefore, if the taxpayer's threshold income can be reduced so that even part of the reduced amount is taxed in the 6 per cent federal tax bracket, the tax savings are likely to be impressive, as in our initial example. This is especially important as there may be no tax liabilities in the year the reduction in net income is required and, hence, if the above point is not considered there may be little action taken to reduce net income.

The table also explains why, in our first example, potential tax savings were lower at higher initial net incomes. For high threshold incomes tax savings are generally not as impressive unless income increases are unusually large. Nevertheless, the following two examples illustrate that even in such cases, the effects described on this article may be important.

Example: Deferral of Income When an Increase in Income is Anticipated

Suppose an individual earned net income of $10,000 a year from 1976 to 1979, received an extra $10,000 a year in 1979 and had net income jump to $50,000 in 1980. Deductions in 1979 and 1980 are $10,000 (including the basic personal exemption, married exemption, deduction for Canadian investment income and charitable contributions). Suppose that $8,000 of that "extra" $10,000 in 1979 could be deferred to 1980 in some manner such as by realizing a capital gain in the next year. Compared to the same case without the one-year deferral, the tax saving is $1,979.86 in 1979 and

$219.05 in 1980 because of the effects of general averaging. Despite the fact that income has been deferred to a period of sharply rising incomes, taxes have not only been deferred but actually reduced in both years. The use of an Income Average Annuity Contract for longer term deferrals can provide even larger tax savings.

The main point of this analysis is that, because of the nature of the general averaging formula, the shifting of income forward to a higher income year can in some cases reduce as well as defer taxes. With situations such as those described here, the tax planner should be sure to investigate the effect of general averaging on the calculations.[13]

Example: Timing A Return to Employment

General averaging can also be an important consideration when timing a return to employment after a long absence. To take an extreme example, suppose an Ontario corporate executive has been in semi-retirement for four years, perhaps, for health reasons. Net income was $100,000 in 1975, averaged $35,000 a year for 1976 to 1978 and was a little higher at $40,000 in 1979. Now suppose this individual decided to accept a high-paying corporate post starting January, 1980 so that net income increased to $240,000. Deductions were $10,000 in 1979 but swelled to $44,000 in 1980 with increased charitable contributions. This individual would pay total federal and provincial income tax of $9,933.03 in 1979 and, after averaging, $71,349.66 in 1980.

Now suppose the same individual decided to go back to work one month earlier in December 1979 to earn an extra $20,000. Everything will be as

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[13] While future tax liabilities will not always be reduced, consideration of general averaging will always be favourable to shifting income forward if income is anticipated to increase.

above except that 1979 net income will now be $60,000. The individual will now pay $19,737.59 total tax in 1979 and $89,247.60 in 1980. Total tax payments[14] for the two years have increased by $27,702.50 from the first case and our individual has paid a marginal rate of about 140 per cent on the extra income. On the first dollar of additional 1979 income the marginal rate (including the effect on both 1979 and 1980 taxes) was over 200 per cent.[15]

While this example is obviously an extreme, it emphasizes, once again, that taxpayers with sudden jumps in income should be careful. Optimal strategies will of course vary with different circumstances.

Example: Claiming Tuition Fees by Academic Year

As a final example of the importance of the effects studied in this article, we note that the traditional advice of claiming tuition fees by calendar year may not always be correct. Tuition fees may be claimed by calendar year or academic year commencing in the taxation year and the former is usually recommended for full-time students so that part of the deduction will be available the year that the student graduates and accepts permanent employment. Consider a student just like the one in the first example except that this individual has an additional $1,000 a year in tuition fees in the academic year 1979-1980. If the student claims tuition fees by academic year, net income will be $3,000 in 1979 and $12,000 in 1980 and total taxes will be $1,153.02. However, if the student follows the usual advice and claims tuition by calendar year (such that net income

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[14] We ignore the time-value of money effect of payments in different years.

[15] In theory, examples could be constructed showing the marginal rate on the first dollar to be up to 300 per cent.

is $3,500 in 1979 and $11,500 in 1980 after deducting one-half of the tuition in each year), 1980 total taxes rise by $225.08 to $1,378.10. Thus, the usual advice is not always correct. It is shown in the appendix that the academic year method is usually preferred if threshold income with tuition deducted by academic year would be taxed in the 6 per cent bracket, using deductions for the year of averaging and assuming that the threshold income is 110% of the previous year's net income.

Conclusions

Taxpayers who anticipate income increases in the next year can often reduce their future personal income tax liabilities by taking action in the current year. While most action must be adapted to varying circumstances, the following are some basic rules.

1. Any taxpayer who expects a sudden increase in income (especially of the kind not eligible for Income Averaging Annuity Contracts) should be very careful the year before the increase is expected to keep net income as low as possible. This will help when the general averaging calculation is applied to the next year's income. This would suggest the use of a tax shelter such as an RHOSP or an RRSP, the triggering of accrued capital losses, the purchase of an IAAC with eligible income or the deduction of maximum tuition fees on the academic year basis.

2. Taxpayers who most clearly benefit from this kind of planning are students about to graduate and others returning to work after an absence of several years as in the case of a parent who was raising children. However, examples have been provided here to illustrate that almost every taxpayer anticipating a large income jump should plan with the general averaging formula in mind.

3. The mere fact that one is not paying tax the year before an income jump does not mean one has planned optimally. In fact, the greatest reduction of next year's tax liabilities occurs when current net income is reduced and current tax is zero.[16] As a rule of thumb, any reduction in current net income which takes next year's threshold income less next year's personal exemptions and other deductions from net income into the 6 per cent bracket will almost certainly be very profitable. As shown in the article, the tax savings can be very large (certainly large enough to justify borrowing for an RRSP contribution for example). For similar reasons, as the deduction of tuition fees on an academic year basis will generally be preferred in such situations.

4. In the calculations demonstrated in this article, it has generally been assumed that threshold income only depended on the previous year's net income. For example, threshold income in 1980 was 110% of 1979 net income. However, in some cases threshold income will be 120% of the 1976-79 average net income and in that case action in 1979 will be much less effective.[17] The tax planner should also be aware that any reduction in 1979 net income could cause the four-year average threshold formula to be used, thereby making such a reduction less attractive than would otherwise be estimated. This would suggest implementing the suggested planning throughout the four-year averaging period, if possible.

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[16] This also suggests that those not paying tax should not be careless about such deductions as moving expenses just because their current tax is zero.

[17] The return to any dollar reduction in 1979 net income will be about 36 per cent of that referred to in the article.

5. Similarly there is never an incentive in terms of general averaging to reduce threshold income below projected deductions in the year of the income increase because at that point the averaging formula changes to one with no role for threshold income. (See footnote 6.)

6. An example in the article illustrates why those returning to work after a long hiatus should be careful of when they return. There is often little incentive to begin in November or December, with our extreme example giving a case of negative return to starting at that time of year.

In summary, there are no simple rules for the kind of complex situations described in this article. Our hope is that we have provided enough illustrative information so that tax planners will be able to better deal with specific situations when an increase in income is anticipated.

Appendix: The Tuition Fee Problem

Suppose that a student faces an income jump next year (the tax year of graduation) and the student has to choose whether to deduct $1 of annual tuition by academic year or calendar year. No tax is paid in the current year and threshold income will be 110% of current year's income.

If the calendar year option is selected, current net income will be reduced by 50 cents as will the graduation year's net income so that threshold income will fall by 55 cents and smoothed income will fall by 54 cents. Using formula (2) in the article, federal tax will therefore fall by:

Next Year's Tax Saving (A) = 5X(Marginal Tax on 54 cents of Smoothed Income) Less 4X(Marginal Tax on 55 cents of Threshold Income) (A1)

If the academic year option is selected, current net income will be reduced by $1.00 but the graduation year's net income will be unchanged. Threshold income will fall by $1.10 and smoothed income will fall by 88 cents. Federal tax will therefore fall by:

Next Year's Tax Saving (B) = 5X(Marginal Tax on 88 cents of Smoothed Income) Less 4X(Marginal Tax on $1.10 of Threshold Income) (A2)

The tax saving associated with the academic year option will be greater if tax saving (B) exceeds tax saving (A) or, with some calculation, if:

1.7X(Marginal Rate on Smoothed Income) is greater than 2.2X(Marginal Rate on Threshold Income) (A3)

that is, if the ratio of the two marginal rates is greater than $\frac{2.2}{1.7}$ or 1.29. Since tuition fees are generally not that large this is only likely if the marginal rate on threshold income is 6 per cent, at least after some fraction of the tuition deduction is applied. Therefore, as a rule of thumb, if when the academic year method is chosen threshold income less deductions is in the 6 per cent bracket, then the academic year method is preferred.

To take a concrete example, consider our student with $4,400 in 1979 threshold income, $3,300 in 1980 deductions and $12,000 in 1980 income. As shown in the article, if that student has an additional $1,000 tuition of for 1979-80, the academic year method should be used. However, suppose that additional tuition fees are only $200. If the academic year method is chosen, threshold income becomes $4,180 which with $3,300 in deductions is just inside the 6 per cent bracket. In this case both methods of claiming tuition yield taxes of just over $1,705 in 1980. For tuition fees significantly smaller than $200, in this example, threshold income (with the academic year method) will be in the 16 per cent bracket and the calendar year method will be preferred.

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