

**REGIONAL DIMENSIONS OF
FEDERAL INCOME TAX CUTS**

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1. INTRODUCTION

During the recent federal election, all political parties presented proposals for reducing federal personal income tax (PIT) rates. These proposals received some scrutiny during the election campaign with respect to the revenue loss they would generate and the general pattern of benefits that they would bestow on individuals and families with different income levels. No evaluation was made of the changes in federal PIT revenue by province.

We argue that analyzing the provincial distribution of federal PIT rate reductions is also important for at least two reasons. First, a PIT with a progressive rate structure is a major vehicle for delivering federal fiscal redistribution among provinces (hereafter called horizontal redistribution). Therefore, changing the degree of progressivity of the federal PIT would affect the degree of horizontal redistribution if the other elements of the federal fiscal structure remain unchanged. Second, PIT rate reductions are partially advocated on efficiency grounds in the expectation that they will stimulate labour supply, personal saving and investment in human capital. If these rate reductions generate different supply side effects in each province, they may affect interprovincial disparities in potential economic growth.

Given the potentially significant implications of changes in the provincial distribution of federal PIT revenues resulting from various PIT cuts, we decided to derive some estimates of those changes for selected PIT reduction options. We did not simulate all the election proposals because those proposals would generate substantially different revenue losses. We believe that a more meaningful comparison is that among revenue-neutral PIT changes because, in that case, the comparison focuses exclusively on the effects of different PIT structures. In this paper we present estimates of the provincial distribution of federal PIT revenue changes under six different tax reduction schemes applied to the projected income distribution for the year 2000. The selected schemes incorporate many elements of the proposals advanced by the various political parties during the recent federal election campaign. Under each scheme, the revenue loss for the whole country is \$ \$16.7 billion in 2000. The results show that options that flatten the rate structure will tend to aggravate regional disparities.

The paper is organized as follows. Section II briefly discusses the tax reduction options evaluated in this paper and the methodology used to estimate the revenue changes. Section III presents our estimates of their redistributive effect. Section IV discusses their potential supply-side effects. Section V evaluates the potential effects on regional disparities and the final section contains some concluding remarks.

II. SELECTED TAX REDUCTION OPTIONS

The following six personal income tax reduction options are evaluated in this paper: (1) a single rate tax, (2) a dual rate tax with a higher personal credit, (3) equal percentage reductions in the existing three rates, (4) equal percentage point reductions in the existing three rates, (5) a four-rate structure with equal absolute differences between brackets and (6) a three rate structure with equal proportional reductions in tax rates but larger tax brackets. All options include the reduction in the inclusion rate for realized capital gains from 75% to 50%. The rates under the existing structure in 2000 are 17%, 25% and 29%.

Single Rate Tax. The basic option is a flat tax of 17% within a framework of unchanged exclusions, deductions and credits as they existed in 2000. The revenue loss from this option is estimated at \$16.7 billion in 2000 and serves as the amount to be matched by the remaining five revenue-neutral options.

Dual Rate Tax. In the second option, the amount for the personal credit is raised to \$10,000. The cost of this tax change will not permit a 17% flat tax within a revenue-neutral framework. For this option we selected a dual rate, namely a 17% rate for the first \$30,000 of taxable income and the rate that maintains revenue neutrality for the balance of taxable income, i.e., 20.9%.

For the remaining four options, we used the PIT structure under option 1 and changed only the statutory rates.

Equal Percentage Reduction in Existing Three Rates. In this option, each of the three rates prevailing in 2000 was reduced by the same percent in order to yield the federal PIT revenue under option 1. The result was tax rates of 13.6% on the first

\$30,000 of taxable income, 20.0% on the next \$30,000 of taxable income and 23.2% on the balance.

Equal Percentage Point Reduction in Existing Three Rates. For this option we reduced each of the three existing rates by the same percentage point. We started with the reduction in the average effective rate and then made the necessary adjustments to the common reduction until we obtained a revenue-neutral solution with respect to option 1. The result was a tax rate of 12.7% for the first \$30,000 of taxable income, 20.7% for the next \$30,000 and 24.7% for the balance.

Four Rates. For this option we used four tax brackets and four statutory rates. The first bracket applies to taxable income up to \$30,000; the second bracket to taxable income between \$30,001 and \$60,000; the third bracket to taxable income between \$60,001 and \$90,000 and the fourth bracket to the balance. Each statutory rate differs from the preceding one by a constant percentage point. We started with rates of 17%, 21%, 25% and 29% and then reduced them by equal percentage points until we reached the revenue-neutral set of 14.5%, 18.5%, 22.5% and 26.5%.

Three Rates with Wider Tax Brackets. In this option we started with the existing three rates applied to the following tax brackets: \$0- \$50,000, \$50,001-\$100,000 and over \$100,000. We then reduced the existing rates proportionally in order to achieve a revenue-neutral solution. The resulting rates are 15.5%, 20.5% and 25.5%.

Our estimates were derived with the help of the Social Policy Simulation Database/Model (SPSD/M) developed by Statistics Canada. We used version 8.0 of SPSPD/M, which contains the microdata for 1996. Demographic estimates and projections are applied for all other years and the parameter files and tax/transfers algorithms are updated up to the 2000 federal and provincial budgets. Our estimates, therefore, will not yield the exact PIT revenue that the federal government collected in 2000. However, the projected tax base should affect the results of each option in a similar manner, thus providing an accurate picture of the differences among the various options. The elements of the six tax reduction options are summarized in Table II-1.

**Table II-1
Summary of the Elements of the tax Reduction Options**

	Options					
	1	2	3	4	5	6
Inclusion Rate for Capital Gains (%)	50	50	50	50	50	50
Amount for Personal Credit (\$)	7,000	10,000	7,000	7,000	7,000	7,000
Tax Bracket (\$000s)						
First	0-30	0-30	0-30	0-30	0-30	0-50
Second	30-60	30-60	30-60	30-60	30-60	50-100
Third	Over 60	Over 60	Over 60	Over 60	60-90	Over 100
Fourth	n.a*	n.a	n.a	n.a	Over 90	n.a
Tax Rates (%)						
First	17.0	17.0	13.6	12.7	14.5	15.5
Second	n.a.	20.9	20.0	20.7	18.5	20.5
Third	n.a	n.a	23.2	24.7	22.5	25.5
Fourth	n.a.	n.a	n.a.	n.a	26.5	n.a

* Note: n.a. means not applicable

III. REDISTRIBUTIONAL EFFECTS

Before discussing the estimates it may be useful to identify the provincial distribution of the major components of the federal PIT. For a given set of statutory tax rates, the amount of PIT revenue that the federal government receives from the residents of the different provinces depends on two major elements: (a) the provincial distribution of taxable income and the provincial distribution of the various exclusions, deductions and credits that are commonly known as tax expenditures. The tax reduction options

evaluated in this paper involve only two tax expenditures, namely, the personal credit and the partial inclusion rate for realized capital gains. The provincial distribution of these two items is shown in Table III-1 while the distribution of taxable income is shown in Table III-2.

Table III-1
Provincial Distribution of the Personal Credit and the Tax Break from the Partial Inclusion of Realized Capital Gains, 2000

Province	Population	Percentage Distribution (%) of					
		Personal Credit	Capital Gains Tax Break	Capital Gains Tax Break by Tax Bracket			
				1 st	2 nd	3 rd	Total
NFLD	1.8	1.6	0.3	7.8	33.4	58.8	100
P.E.I.	.4	0.5	0.4	6.9	12.0	81.2	100
N.S.	3.1	3.1	1.3	23.8	27.7	48.6	100
N.B.	2.5	2.5	0.8	13.7	34.3	52.0	100
Quebec	24.0	20.7	18.7	4.2	13.2	82.6	100
Ontario	38.1	40.7	35.8	6.0	18.8	75.2	100
Manitoba	3.7	3.7	2.4	10.1	22.6	67.4	100
Saskatchewan	3.3	3.2	3.7	11.2	30.5	58.3	100
Alberta	9.8	10.3	18.7	6.1	13.4	80.5	100
B.C.	13.3	13.8	13.8	8.2	19.8	72.0	100
	100						
All Provinces		100	100	6.7	17.7	75.6	100

* Note: sum may not add to 100% due to rounding.

The provincial distribution of the personal credit is very close to the provincial distribution of the population. The major exceptions are Ontario and Quebec. The former

has a credit share higher than the population share and the latter has a lower credit share. This roughly equal per capita distribution implies that the personal credit provides higher benefits to the less affluent provinces relative to their income. It also indicates that raising the personal credit will produce some redistribution through the PIT system in favour of the “have-not” provinces. (The Atlantic provinces, Quebec, Manitoba, and Saskatchewan)

A very different situation exists in the case of the tax benefits from the partial inclusion of realized capital gains. The “have-not” provinces as a group receive 27.6% of the benefits although they contain nearly 40% of the population. The largest gap is between the Atlantic provinces and Alberta. The Atlantic provinces receive less than 3% of the benefits although they contain nearly 8% of the population. By contrast, Alberta has less than 10% of the population but receives nearly 19% of the benefits. Table III-1 also shows that, for all provinces combined, the partial inclusion of capital gains is a tax expenditure that largely benefits high-income taxpayers. Those taxpayers in the top tax bracket received three-quarters of the total benefits although they accounted for about ten percent of total taxpayers and less than 30% of taxable income. The above information suggests that a reduction in the inclusion rate for realized capital gains would provide the greatest benefits to taxpayers with above-average income and generate redistribution in favour of “have” provinces.

The provincial distribution of taxable income, shown in Table III-2, reflects the pattern of income disparities in Canada. For “have-not” provinces, the share of taxable income is lower than their share of the population. The opposite is true for “have” provinces. For example, the Atlantic provinces contain nearly 8% of the population, but their residents receive only 6% of taxable income. By contrast, Ontario residents receive 42% of taxable income although Ontario contains 38% of the population. “Have” and “have-not” provinces also differ considerably with respect to the distribution of taxable income among taxpayers with different income levels. The former have a relatively larger concentration of taxpayers in the top income bracket while the latter have a relatively larger concentration in the first tax bracket. For example, in the Atlantic provinces about 45% of taxable income is received by taxpayers in the first tax bracket, about two-thirds more than in Alberta. In the Atlantic provinces, approximately 16% of

taxable income is received by those in the top tax bracket compared to 34% in Alberta. These data suggest that major changes in federal PIT rates may have large impacts on the redistribution of income among province delivered by the federal tax system. In particular, rate adjustments, which involve relatively larger reductions for the top statutory rate, as it would happen in the case of a move to a single rate tax, would involve a redistribution of income in favour of the richest provinces.

**Table III-2
Provincial Distribution of Taxable Income, 2000**

Province	Percentage Distribution (%) of				
	Taxable Income	Taxable Income by Tax Bracket			
		1 st	2 nd	3 rd	Total
NFLD	1.2	48.6	38.9	12.5	100
P.E.I.	0.3	51.0	36.5	12.5	100
N.S.	2.5	44.1	40.0	15.9	100
N.B.	2.0	43.1	37.9	19.0	100
Quebec	22.0	35.8	40.2	24.0	100
Ontario	42.3	26.6	41.4	32.9	100
Manitoba	3.3	36.3	43.2	20.5	100
Saskatchewan	3.0	34.7	37.0	28.3	100
Alberta	10.6	27.5	38.7	33.8	100
B.C.	12.9	33.4	40.9	25.6	100
All Provinces	100	31.3	40.6	28.2	100

* Note: sum may not add to 100% due to rounding.

The six tax reduction options evaluated in this paper involve the three elements of the PIT system discussed above. Each of these elements has a potentially different effect on redistribution among provinces. Increases in the personal credit would redistribute

income in favour of less affluent provinces while reducing the inclusion rate for realized capital gains would have the opposite effect. Changes in the statutory rate structure may redistribute income in favour or against less affluent provinces depending on the relative changes in each rate. How various combinations of these different effects generated relative income redistribution among provinces is discussed in the balance of this section. In order to determine whether a given option had a bias in favour or against certain provinces, we need to select the bias-free criterion. In this paper the chosen criterion is the size of the tax reduction relative to provincial income. Starting with the existing provincial shares of federal PIT, absence of bias is indicated by a tax reduction option that leaves those shares unchanged. This is equivalent to an equal proportional reduction in the federal PIT payable in each province. Our results are summarized in Table III-3.

Table III-3
Provincial Shares of Federal PIT Revenue (%): Current versus Selected Options

Province	Option						
	Current	1	2	3	4	5	6
NFLD	0.96	1.04	0.96	0.97	0.95	0.98	0.99
P.E.I.	0.28	0.30	0.27	0.28	0.27	0.28	0.28
N.S.	2.13	2.26	2.14	2.13	2.10	2.16	2.17
N.B.	1.79	1.86	1.77	1.79	1.77	1.81	1.82
Quebec	18.21	18.51	18.19	18.24	18.31	18.31	18.36
Ontario	45.96	45.39	46.09	45.99	46.14	45.84	45.78
Manitoba	3.14	3.24	3.15	3.14	3.11	3.16	3.15
Saskatchewan	3.10	3.03	3.05	3.09	3.10	3.09	3.12
Alberta	11.49	11.33	11.48	11.47	11.51	11.44	11.39
B.C.	12.95	13.04	12.89	12.91	12.87	12.94	12.95
All Provinces	100	100	100	100	100	100	100

A clear pattern emerges from Table III-3. The move to a single-rate tax (option 1) without adjustments to non-refundable tax credits will provides relatively greater benefits

to Ontario, Alberta and Saskatchewan whose shares of the reduced federal PIT fall. This redistribution of after-tax income is almost eliminated when the personal amount is raised to \$10,000 and a dual rate structure is introduced (option 2). The equal proportional reduction in all rates (option 3) is almost neutral, the only difference from neutrality arising from the differential effects of the lower inclusion rate for capital gains. The equal percentage rate reduction (option 4) generates a relatively higher percent reduction for the first two tax brackets. Therefore, it provides relatively greater benefits to the less affluent provinces by reducing their shares of the lower PIT revenue. The four-rate structure (option 5) and the three-rate structure with wider tax brackets (option 6) are both options favouring the richer provinces, but not as much as the single rate option.

Table III-4
Differences Between Federal PIT Revenue by Province under Each Option and Under Constant Revenue Shares

Province	Difference in \$ Millions					
	Option					
	1	2	3	4	5	6
NFLD	45	-1	2	-4	12	14
P.E.I.	14	-2	-	-4	3	4
N.S.	81	6	2	-18	20	27
N.B.	43	-10	-	-10	13	20
Quebec	186	-16	17	-27	63	91
Ontario	-350	82	18	113	-74	-110
Manitoba	61	8	-1	-20	11	4
Saskatchewan	-40	-26	-5	2	-7	16
Alberta	-100	-8	-10	15	-33	-60
B.C.	60	-33	-25	-47	-8	-3
Gainers	-490	-98	-41	-130	-122	-173
“Have” Provinces	-390	43	-17	81	-115	-173
Atlantic	183	-7	4	-36	48	65

Table III-4 shows the difference, in millions of dollars, between the federal PIT revenue in each province under a given option and under the assumption that the provincial PIT shares remain constant. It provides a more direct measure of the provincial biases that may be incorporated in the various tax reduction options. A number of observations can be derived from inspection of this table. First, the largest relative shift of revenue to the “gainers”, which is not always synonymous with “have” provinces, is generated by the single rate tax with nearly half a billion. Second, option 1 (single rate), option 5 (four rate) and option 6 (three rate with wider bracket) offer relatively larger benefits to Alberta and Ontario. Third, option 2 (dual rate with higher personal amounts) and option 3 (equi-proportional reduction in the existing rate structure) involve very small shifts of revenue among provinces. Fourth, option 4 (equal percentage point reduction in existing rates) is the only option that offers relatively greater benefits to the less affluent provinces. Fifth, in terms of the response to federal PIT cuts, the province of B.C. behaves in a manner similar to “have-not” provinces while Saskatchewan behaves in a manner closer to “have” provinces. It seems that, with respect to the distribution of taxable income, Saskatchewan and B.C. may have traded places in the categorization of Canadian provinces.

An alternative way of measuring the redistributive effect of these six PIT reduction options is to rank all provinces in ascending order of per capita income for the purpose of determining how the selected tax reduction options affect the distribution of income among provinces. This ranking is equivalent to selecting the representative agent in each province who represents the average taxpayer in terms of total income. It allows the evaluation of redistribution among provinces by using the techniques of vertical equity analysis. For this purpose we used a well-known global index of tax progressivity, Suits’ index (S_g). This index is calculated in a manner similar to the Gini coefficient. Its derivation is best explained through the use of the familiar Lorenz curves such as those shown in Figure III-1. For the measurement of tax progressivity, Suits starts with a Lorenz curve that plots the accumulated percent of income on the horizontal axis and the

accumulated percent of the tax burden on the vertical axis. The progressivity index S_g is calculated as

$$(1) \quad S_g = (K - L)/K = 1 - 2L ,$$

where K is the area of the triangle to the right of the diagonal from left to right and equals 0.5 because it measures half of the unit square, and L is the area to the right of the Lorenz curve.

If the tax burden is proportional to income, the Lorenz curve follows the diagonal, $L = K$ and $S_g = 0$. If the tax is progressive, the Lorenz curve lies to the right of the diagonal, $L < K$ and $S_g > 0$. If the tax is regressive, the Lorenz curve lies to the left of the diagonal, $L > K$ and $S_g < 0$. In the case of the highest degree of progressivity, where the entire tax burden is borne by the top income class, $L = 0$ and $S_g = 1$. In the case of the highest regressivity, where the tax burden is borne entirely by the lowest income class, $L = 2K$ and $S_g = -1$.

The Lorenz curve for the current federal PIT is shown in Figure III-1, which was developed by placing all provinces in ascending order of per capita income. Two general observations can be made from this graph. First, the Lorenz curve under the current PIT structure lies to the right of the diagonal (the line of proportionality), therefore, it generates some redistribution from the richer to the less affluent provinces. Second, the above Lorenz curve is very close to the diagonal indicating that the degree of redistribution among provinces delivered by the federal PIT is quite small.

Figure III-1
Lorenz Curve for the Current Federal
Personal Income Tax

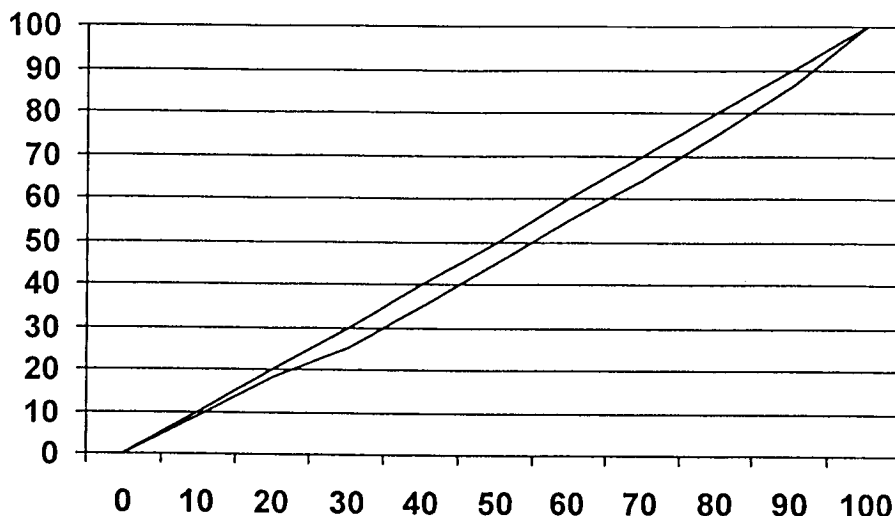


Table III-5
Changes in Progressivity from Alternative PIT Reduction Options

Option	Sg	Change in Sg from Current PIT	
		Level	Percent
Current PIT	0.053		
Option 1	0.046	-0.007	-13.2%
Option 2	0.066	0.013	24.5%
Option 3	0.054	0.001	1.9%
Option 4	0.065	0.012	22.6%
Option 5	0.052	-0.001	-1.9%
Option 6	0.050	-0.003	-5.7%

The estimated values of S_g for the current system and the six tax reduction options are shown in Table III-5. Table III-5 shows that the federal PIT remains progressive under all six tax reduction options. However, each option produces a change in the degree of progressivity and not always in the same direction. The single rate tax (option 1) would reduce the existing degree of progressivity by a substantial percentage. Smaller reductions would be generated by the four-rate structure (option 5) and the three-rate structure with wider brackets (option 6). The equi-proportional rate reduction (option 3) is roughly neutral while the two-rate structure with higher personal amount and the equal percentage point reduction will increase the degree of horizontal redistribution.

IV. SUPPLY-SIDE EFFECTS

The three vehicles for delivering the PIT reductions evaluated in this paper have the potential for generating behavioural responses that may affect economic efficiency. Generally speaking, personal income tax reductions may increase incentives to save, to work and to acquire human capital. To the extent that lower personal income taxes reduce the tax burden on personal savings, taxpayers who reallocate current and future

consumption for the purpose of maximizing lifetime utility will reduce current consumption and increase saving, as long as the substitution effect exceeds the income effect. Also, lower income taxes increase the after-tax value of wages and salaries. By making leisure relatively more expensive, lower income taxes provide an incentive to increased labour supply. Lower taxes on labour income will also provide an incentive to acquire human capital by raising its net after-tax return. Finally, lower personal income taxes may affect the outflow of highly-skilled workers to the U.S. by reducing differentials in after-tax earnings.

However, it should be stressed that, in the case of a small open economy, which is a close representation of the Canadian economy, only the potential stimulus to the labour supply and human capital acquisition affects employment, output and income. In a small open economy, perfect capital mobility ensures the independence of domestic investment from domestic savings. Therefore, in this case, tax-induced increases in personal savings will generate efficiency gains only through the increase in utility arising from the intertemporal reallocation of personal consumption. Interprovincial differences in tax-induced changes in personal savings will affect the distribution of lifetime consumption among provinces, but will not alter the degree of regional disparities in employment and output. However, to the extent that the regional change in personal savings affects relative provincial net indebtedness, it may affect the regional disparity of income through a change in investment income. In addition, differences in the labour supply and human capital acquisition effects may alter the degree of regional disparities. Each of the six PIT reduction options, therefore, has the potential to affect regional economic disparities through both its redistribution and efficiency effects.

The channels through which supply-side effects are generated differ for each of the three elements of the PIT reduction incorporated in the six options evaluated in this paper. Increases in the personal credit are equivalent to a lump-sum tax reduction for all taxpayers except those with taxable income between \$7,231 and \$10,000. The effect on this group is likely to be small. First, this income group does not have sufficient income to save or to invest in human capital. Therefore, a higher personal credit can only affect the labour supply of the target group. Since this group tends to experience high employment volatility, above-average unemployment rates and below-average wage

rates, it is unlikely that the potential for increased labour supply will be transformed into anything more than negligible efficiency gains.

Reducing the inclusion rate for realized capital gains would make this component of investment income more attractive than interest or dividends, but will not have a significant stimulating effect on personal saving. Its efficiency gains, therefore, are expected from the tax-induced shift from less risky to riskier investments. This shift may be important in the new economy to the extent that it increases the supply of venture capital to small high-tech Canadian companies that may find obstacles to borrowing the necessary funds in world markets. Table III-1 showed that the benefits of reducing the tax burden on capital gains accrue largely to high-income taxpayers and to the richer provinces, particularly Alberta and B.C. This measure by itself will tend to increase regional economic disparities through both its redistribution and potential efficiency effect.

The magnitude of the efficiency effects of lower statutory rates and their distribution among provinces depends on the relative reduction in each of the existing rates and the distribution of taxable income in each tax bracket. Although a complete evaluation of the above effects requires the use of a computable general equilibrium model, a few observations can be made based on the information presented in this paper.

The supply side effects of the PIT reduction by province depend both on the components of the option and whether the major stimulus is generated via labour supply changes or human capital acquisition, mobility and utilization. In the first case, the relative supply-side effects among provinces depend on three factors: (a) the reduction in the marginal tax rate for various groups of workers, (b) their labour supply response and (c) their earnings. Since studies show that the labour supply elasticity tends to fall as employment income increases, there will be a relatively stronger response in the less affluent provinces from rate reductions which are roughly proportional. The induced increase in income, however, may still be smaller if the distribution of earnings among provinces is highly concentrated. In this scenario, neutrality with respect to regional disparities may be achieved by a reduction in marginal tax rates which leaves the provincial shares of the lower federal PIT revenue unchanged.

V. SUMMARY EVALUATION OF DISTRIBUTIONAL AND EFFICIENCY EFFECTS

Table V-1 provides a summary of the qualitative implications of the six tax reduction options for the pattern of regional economic disparities. For each option it identifies the direction of change in regional economic disparities due separately to the redistributive and the efficiency effects.

**Table V-1
PIT Reduction Options and Regional Disparities**

Option	Effect on Regional Disparities		
	From Redistribution	From Efficiency	Combined Effect
Option 1	Increase	Increase	Increase
Option 2	Negligible	Increase	Increase
Option 3	Negligible	Negligible	Negligible
Option 4	Decrease	Increase	Negligible
Option 5	Increase	Increase	Increase
Option 6	Increase	Increase	Increase

As shown in Table V-1, the effects of option 1 are unambiguous. The single rate tax would produce a relatively larger tax reduction in the richer provinces and also provide relatively higher supply-side effects through the tax break on capital gains and the larger reduction in the top marginal rate. Option 2 largely eliminates the redistributive impact, but will maintain, though to a smaller degree, supply side effects that favour the richer provinces. The increased preferential treatment of capital gains and the still substantial reduction in the top marginal tax rate will generate a relatively stronger economic stimulus in the richer provinces while the higher personal amount will act as a lump-sum tax reduction for the vast majority of taxpayers. Option 3 is likely to have negligible effects on regional disparities because all rates are cut proportionally and the major cause of regional differences arises from the lower inclusion rate for capital

gains. Option 4 involves the combination of a small redistributive effect in favour of the less affluent provinces and a small supply-side effect in favour of the richer provinces resulting in a negligible effect on regional disparities. Option 5 and, to a larger extent, option 6 produce wider regional disparities arising from both redistribution and efficiency sources.

VI. CONCLUSION

The recent federal election brought two major policy issues to the fore of the national debate on public policy: (a) tax reform to stimulate economic growth and (b) the federal role in regional development. We argue in this paper that the two issues may be interdependent. Tax cuts that provide relatively greater benefits to richer provinces will aggravate regional disparities. In this case counterbalancing regional development policies are needed simply to prevent the policy-induced widening of regional disparities.

Our analysis was confined to changes in the federal personal income tax (PIT). We show that the provincial distribution of federal income tax reductions can vary considerably depending on the chosen option. In particular, we show that regional disparities would be aggravated by a move to a single rate tax or to a three rate PIT with wider tax brackets and, in general, by tax reduction options that flatten the rate structure.

The effect of each PIT reduction option depends also on the strength of the supply-side effects. If these effects are small, changes in regional disparities will arise primarily from the redistribution of after-tax income. In this case, we can prevent potential increases in regional disparities by introducing tax cuts that do not affect horizontal redistribution such as an equi-proportional reduction in all PIT rates. If the supply-side effects are strong and are generated through human capital and risk-taking, there is a potential conflict between the pursuit of national growth and the prevention of widening regional disparities. In this case, optimizing the supply-side effects at the national level requires tax cuts that favour highly-skilled, high-income workers such as lowering the tax burden on capital gains and reducing the top marginal rate. This policy, in addition to reducing the impact of the federal PIT on vertical equity across the country, would provide a relatively stronger economic stimulus to the richer provinces and would aggravate regional disparities. Preventing federally-induced increases in

regional disparities requires counterbalancing regional development policies. The appropriate policies in this case are not higher transfers to persons living in the less affluent regions. Instead they involve selective programs that stimulate investment in human capital and the infrastructure that provides the foundation to the growth potential of the knowledge-based economy.

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