

TAXING STOCK OPTIONS: EFFICIENCY, FAIRNESS AND REVENUE IMPLICATIONS

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SUMMARY

The federal Liberals and the NDP are right about this much: There is a more sensible way to tax the stock options that are granted as compensation by corporations than the approach the federal government takes now. But both parties are wrong about how much revenue an appropriate change in current tax policy will add to the treasury. Far from the half-billion dollars or more that both parties claim they will raise in federal tax revenue by changing the taxation of stock options, the appropriate reform will virtually raise no revenue. It could actually result in marginally lower tax revenue.

As it stands, stock options are treated differently than salary and other forms of cash compensation when it comes to taxing an employee or director, in that they are subject to only half taxation, similar to capital gains. They are also treated differently than cash compensation for the corporation granting the options, in that they cannot be deducted from corporate income tax. The federal NDP and Liberals have both accepted the growing criticism, which only intensified in the aftermath of the 2008 financial crisis, that the lower tax rate is an unfair tax break for those employees who receive stock options. Both parties have proposed to change that, leaving an exemption for startup companies only, with the NDP proposing full personal taxation for all stock options except for start-up companies and the Liberals proposing it for options-based compensation exceeding \$100,000.

Treating stock options the same as cash compensation would indeed be more tax efficient, reducing the distortionary effect that can influence company compensation packages to give more weight to stock options and less to cash than they might otherwise. But the only way to ensure that efficiency is by treating both the personal tax side of the benefit, and the corporate tax side of the benefit, in the same way as other employee compensation. That is, applying full taxation to the recipient means also allowing the same deduction to an employer allowed for other forms of compensation. Changing only the personal side merely replaces one type of distortion with another, and discourage employers from granting options, by making it a more expensive form of compensation compared to any other.

The NDP predicts that its proposal to impose full personal taxation on stock options will raise annually \$500 million leading to a tax revenue collection of \$ 2 billion in the next four years. The Liberals also predict that their similar proposal will actually raise more: approximately \$560 million annually. But neither proposal acknowledges the necessary symmetrical adjustment for corporations – the tax deductibility of stock-option benefits. If we estimate the federal and provincial revenue effect from the full taxation of stock options using data from recent years reflecting the options granted by the largest 100 public corporations in Canada, projected forward to 2015, we find that the tax revenue gain is actually \$1.168 billion. But the tax revenue loss, by allowing corporate tax deductions for stock-option benefits, is \$1.318 billion. After one more adjustment for the gain from the personal tax on corporate tax saving on the dividend received by the investor, the net effect for federal and provincial governments is a slight net loss of \$12 million.

The NDP and the Liberals are onto a good idea in proposing a more efficient way to tax stock options. Regardless of who wins the election, it is the right approach. But it cannot be done fairly, or successfully, without also including a deduction for the employer. And once that is accounted for, as sensible as their proposals may be, neither party should expect any extra spending money to come from implementing this change.

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Favourable personal taxation of employee stock options¹ has been criticized in the wake of the 2008 financial crisis as an unfair tax break to those who receive these stock options. In the current federal election, both the New Democratic Party and Liberals are proposing changes to the taxation of stock options with an exemption for startup companies or for smaller amounts.² The NDP is proposing to impose full personal taxation on stock options and predicts this would raise \$500 million. The Liberals are proposing to apply full personal taxation to stock-option benefits in excess of \$100,000, which they predict will raise approximately \$560 million. Neither proposal discusses whether a deduction for stock-option employee expense would be deductible for the employer similar to other forms of employee compensation.

In Canada, the benefits from the exercise of stock options are treated as employment income but subject to half taxation, similar to capital gains. Employers are not provided a deduction under corporate tax, a rule that was tightened with the 2010 federal budget to eliminate the corporate deduction for so-called “tandem stock options.” Under the current public discourse, many, including the OECD,³ quote the Department of Finance “federal tax expenditure” 2014 estimate that the personal tax treatment for stock options costs \$750 million, which assumes no change to corporate tax policy.⁴ Provincial tax expenditures would be in addition to the Department of Finance estimate.

In this short report, we provide background information on the existing treatment of stock options and its implications for efficiency and fairness in the tax system. We then turn to a revenue estimate for both federal and provincial governments if stock options are fully taxed.

We argue that the proposed move to full personal taxation of stock options by providing a treatment similar to other forms of employment compensation such as cash and salary-deferral arrangements also requires a symmetrical treatment for allowing corporations a deduction for the cost of compensation.^{5,6} We provide tax revenue implications of such symmetrical treatment and conclude that there would be little or no incremental tax revenues to reduce income inequality as presumed by the NDP and Liberals.

On efficiency grounds, we agree with the proposition that stock options should be treated similarly to other forms of compensation. This would reduce tax distortions with respect to

¹ Canada Revenue Agency uses the word “security option.”

² See New Democratic Party, *A Balanced Fiscal Plan with Tom Mulcair* (2015); and Liberal Party, *Growth for the Middle Class: The Liberal Fiscal Plan and Costing* (2015).

³ Organization of Economic Cooperation, *Economic Report: Canada* (Paris, 2014), 25.

⁴ See Department of Finance, *Tax Expenditures and Evaluation* (2014), <http://www.fin.gc.ca/taxexp-depfisc/2014/taxexp1401-eng.asp>.

⁵ Stock options are granted at a point of time and must be held for a vesting period. After the vesting period, the stock option may be exercised as it is exchanged for shares or sold in the market for cash. For employees of Canadian-controlled private corporations, the personal tax at time of exercise can be deferred until the shares are sold. For an elaboration of tax issues related to stock options, see Amin Mawani, “Tax Deductibility of Employee Stock Options,” *Canadian Tax Journal* 51, 3 (2003): 1230-1258; and Daniel Sandler, “The Benchmark Treatment of Employee Stock Options: A Basis for Comparison,” *Canadian Tax Journal* 51, 3 (2003): 1204-1228.

⁶ A company grants restricted-share units to an employee or company director with a set period by which they must be held before being exercised, either being exchanged for stock or sold to the market. Deferred-share units are granted at a point in time and are held by the employee or company director until he or she leaves the company. In the case of restricted- and deferred-share units, the value at exercise is fully taxed in the hands of the employee and a deduction is provided to the employer for the cost. See Jean-Francois Wen and James Yager, “Taxes on Employment and Self-Employment” in *Tax Policy in Canada*, ed. H. Kerr, K. McKenzie and J. Mintz (Canadian Tax Foundation, 2012), Chapter 5.

how companies choose to compensate their executives. However, a serious error has evolved with respect to estimated revenues arising from taxing stock options like other forms of compensation. Sound tax policy would ensure symmetry of tax treatment with regards to stock options and other forms of compensation. Therefore it is necessary to estimate the impact on tax revenues arising from taxing stock options at the personal income tax rate as well as the corresponding revenue impact of the corporate tax deduction. If no corporate tax deduction is provided, it is highly unlikely that stock options would be issued since other salary-deferral compensation is tax deductible for the employer.

To estimate revenue effects, we assume that the existing law of taxing stock options at exercise is maintained. From the Canada Revenue Agency data, we are able to derive the amount of personal tax collected from fully taxing benefits up to the year 2012 based on two times the value of the “stock-option deduction,” a term referring to reduction of personal income tax on stock-option benefits in the CRA personal income tax data. To estimate stock-option-compensation expenses for the following years, we compute the ratio of stock-option costs for Canada’s largest 100 public companies to the stock-option expense using CRA data. The 100-company data are also used to assess the corporate income tax savings that would be yielded if stock-option benefits were deductible for the employer. We find full taxation of employee stock options to be almost revenue neutral for the federal and provincial governments (actually, a small loss of \$12 million) once accounting for both personal-income and corporate-tax effects. The methodology used for calculating the revenue impact is explained in the appendix.

Two caveats are relevant for our revenue estimates. First, we do not include the revenue gain that would arise if stock options were taxed when they are granted to the employee rather than at the time of exercise. The employee can benefit from a deferral advantage, although the ex post revenue will depend on the volatility associated with the stock prices. As the existing NDP and Liberal proposals maintain taxing stock-option benefits at the time of exercise, we are solely interested in estimating revenue effects under this particular policy.⁷ Second, we do not assess corporate revenue impacts for stock options issued by Canadian-controlled private corporations (CCPCs), which would differ from the impacts on large firms. The small corporate tax rates on profits below \$500,000 are less than the general rate, thereby potentially reducing the value of corporate tax savings. Further, the employee, when exercising the stock option, can defer the tax until shares are sold, thereby reducing the time value of the personal tax gain. There are no data available to us to separate CCPC from other corporate stock options or the holding periods of options and stocks. As discussed later, we can only suggest, at best, a potential revenue effect that includes the impact on CCPCs.

CANADA’S TAX TREATMENT OF STOCK OPTIONS

Companies provide stock options to tie employee compensation to a company’s performance. Options to purchase shares at a later date are granted to employees as part of their overall compensation. A vesting period is required in which the option to purchase shares cannot be

⁷ To estimate the deferral advantage, one would need to know both the holding period and the increase in share values to estimate the deferral value. Such information is not available to us.

exercised. After the vesting date, the employee may exercise the options typically subject to a maximum term as established by the employee. The options will be exchanged for shares that may then be sold in the market and the cash paid to the employee.⁸ If the employee holds the shares after the date of exercise, the employee will benefit from the appreciation in share values.

Under Canadian law, the benefit from holding options exchanged for shares becomes a taxable event at exercise, although the tax can be deferred until shares are sold if they are held in CCPCs. The benefit is treated as employment income, but Canada reduces the tax rate to the rate on capital gains (more formally, the employee claims a stock-option deduction equal to one-half of stock-option benefits at the present time). Except for CCPCs, most employees presumably sell their shares at the time of exercise, given the significant tax liability once the options are exercised.⁹

The underlying rationale for treating stock options like capital gains for tax purposes is that options are a distribution of shares, unlike cash compensation. The effect of an issuance of shares by the company to holders of stock options is to dilute shareholder value (some companies repurchase stocks to offset the dilution effect when stock options are exchanged for shares). Since share distributions are not deductible from the corporate tax base, no employer deduction has been provided for stock options. Nonetheless the employee pays tax on the stock-option benefits similar to capital gains taxes.

This historical tax treatment of stock options should be contrasted with other forms of executive compensation. Salary, bonuses and the exercise of restricted- and deferred-share units are fully taxed under the personal tax. In all cases, the employer is provided a corporate tax deduction for the cost of employee compensation.¹⁰

While, for the employee, half personal taxation of stock-option compensation is preferable to full personal taxation, a company is better off with other forms of compensation since it gets to deduct these expenses for tax purposes. Overall, the current stock-option tax treatment is particularly favourable to both the employee and employer when companies pay little or no corporate income tax, as in the case of startup companies.

To show the current distortions in the tax treatment of executive compensation, we compare the after-tax income from profits paid out as various forms of compensation to employees (deferred salary and stock options) depending on the 2015 corporate income tax rate for large/medium-sized companies, and the case of non-taxpaying companies in Ontario (Table 1). For example, a company can deduct \$100 of compensation from its corporate tax base removing any corporate tax paid prior to the payment of salary.¹¹ The compensation is then taxed at the personal rate of almost 50 per cent. In the case of the stock option, no corporate deduction is provided so the stock-option benefit is paid from profits net of corporate taxes (equal to the rate of 26.5 per cent in Ontario). The benefit is then subject to half the personal tax rate. Given the Ontario corporate and personal tax rate, employers and employees in the province would favor stock

⁸ For accounting treatment of stock options, refer to the CICA Handbook, section 3870, “Stock Based Compensation and Other Stock Based Payment.”

⁹ See Amin Mawani, “Tax Deductibility of Employee Stock Options” (2003).

¹⁰ Employees are able to defer taxes on capital gains with stock-granted employee compensation, which is a benefit compared to salary payments.

¹¹ To make the point simply, we ignore timing differences between general compensation and stock-option benefits.

option compensation in the case of taxpaying company (ignoring deferral that could make the stock-option treatment more preferable). At a corporate tax rate close to zero (such as a company not paying taxes for a lengthy period, as in the case of startup companies), the stock-option compensation is clearly preferable, which can be important to startup companies. For other provinces, the tax rates differ.

TABLE 1 TAX TREATMENT OF EXECUTIVE COMPENSATION IN ONTARIO: SALARY VS STOCK OPTIONS

	Deferred Salary Compensation	Stock Option (Corporate Tax Rate at 26.5%)	Stock Option (Corporate Tax Rate at 0%)
Profit	\$100	\$100	\$100
Corporate Tax	\$0	-\$26.5	\$0
Employee Compensation	\$100	\$73.5	\$100
Personal Tax*	-\$50	-\$18.38	\$25
After-Tax Employee Compensation	\$50	\$55.12	\$75
Total Tax Paid	\$50	\$44.88	\$25

Note: * Estimates do not account for the effect of the lack of corporate tax deductions, which reduces dividend and capital gains earned by shareholders in the case of stock-option expense. Estimate ignores Deferral.

If stock-option compensation were fully taxable at the personal level and a corporate deduction is also provided for the employer, similar to other deferred salary arrangements, then these forms of employee compensation would be more similarly treated.

In principle, salary-deferral arrangements such as stock options, restricted-share units and deferred-share units should be taxed at the time they are granted, similar to cash payments, with adjustments for valuation to reflect risk and limitations in holding options or other forms of salary-deferral arrangements. However, the use of grant value, which is possible for large corporations (less so for untraded private company shares) raises issues with respect to valuation,¹² since shares granted under these schemes are restricted compared to cash or shares without terms. Further, a taxable event at the time of the grant would put the employee in a position of covering the tax expense without a corresponding increase in income.¹³ Canada thus taxes non-option salary-deferral compensation and provides a corporate deduction at the time of exercise (salary and other cash payments are also taxed only when paid).

The United States taxes at the normal personal tax rate the stock-option benefits upon exercise for Non-Qualified stock options (a corporate deduction is also given).¹⁴ Companies can elect to provide an incentive-based option subject to limitation, whereby the employee pays no tax on stock-option gains and the company is not eligible to claim a deduction for the expense (the employee, however, may pay the alternative minimum tax on the incentive-based stock-option benefits). The latter type of stock option has been popular for startup companies that have

¹² Determining the cost of option-based compensation is a difficult task for both employer and employee. There is always a difference between the value perceived by the option holder and the economic cost of the option to the firm. See: Stuart L. Gillian, "Option-Based Compensation: Panacea or Pandora's Box?" *Journal of Applied Corporate Finance* 14, 2 (2001): 128. Some countries, such as Belgium, tax options at vesting time, which would likely lead to employees exercising and selling shares at that moment. However, the tax imposed at vesting could affect the incentive structure, since more risk is imposed on employees who exercise their options and sell shares to meet tax liability at disadvantageous times.

¹³ Companies could lend funds to the employee to cover tax costs, but that could raise other governance restrictions that prohibit loans to employees.

¹⁴ For analysis of tax treatment of employee stock options in the U.S., see James M Bickley, "Employee Stock Options: Tax Treatment and Tax Issues" (Washington, D.C.: Congressional Research Service, June 15, 2012).

little corporate taxable income and cannot use the deduction. However, the non-qualified stock options are by far the dominant type of option used in the United States.

We conclude that stock-option benefits should be taxed at the full personal tax rate at the time of exercise to improve both efficiency and fairness under the tax system. However, to ensure efficiency and fairness, a comparable treatment would include the deductibility of stock-option compensation costs from corporate taxable income.

ESTIMATING REVENUE EFFECTS OF SYMMETRICAL TAX TREATMENT

If Canada were to move towards the full personal taxation of employee stock-option compensation and provide a corporate tax deduction for the expense, how much revenue would be raised? Three estimates are required:

1. Additional personal income tax paid by the employees on the stock-option benefits.
2. Loss in corporate tax revenue arising from the deductibility of stock-option-compensation costs to the employer at the time of exercise.
3. Additional personal taxes paid by the shareholders of companies due to additional profits arising from the deductibility of stock-option expense from corporate taxable income; this requires an assumption about the dividend-payout ratio and federal and provincial taxes on equity return.

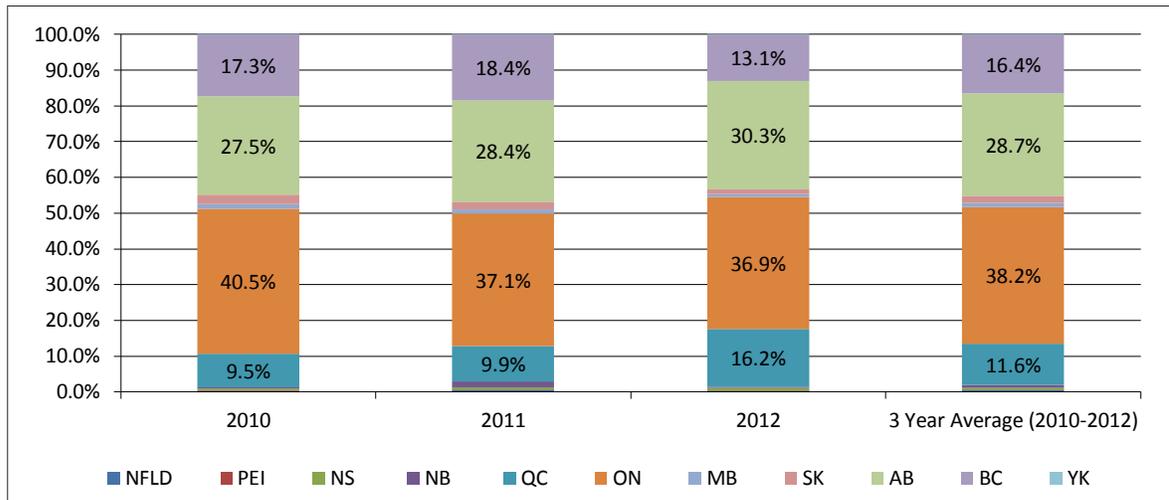
Each of these below is discussed in sequence.

To estimate the additional personal income tax paid by employees on stock-option benefits, we take into account both federal and provincial income taxes¹⁵ and estimate the average 2015 personal income tax rate weighted by stock-option deductions in the Canada Revenue Agency T1 data (this is equal to 47.2 per cent).¹⁶ The effective personal tax rate on stock-option benefits is therefore 23.6 per cent (a move to full taxation of benefits therefore increases the personal tax rate by 23.6 percentage points). As shown in Figure 1, almost 85 per cent of stock-option compensation is taxed in British Columbia, Alberta and Ontario. Thus the 2015 increase in Alberta's personal income tax rate is highly relevant.

¹⁵ Except for Quebec, all provinces have a personal-income-tax-collection agreement with the federal government. All provinces except Alberta and Quebec have signed corporate-income-tax-collection agreements with the federal government. In these cases, the provinces with these agreements would parallel any change to the tax base. It would be likely that Alberta and Quebec would follow similar rules if the federal government adopted the change.

¹⁶ We also include the new Alberta personal-income-tax-rate increases slated for 2016.

FIGURE 1 PROVINCIAL SHARE OF EMPLOYEE STOCK-OPTION DEDUCTIONS, 2010-12



Note: Excludes returns from outside of Canada.

Source: Final Statistics (T1 Data), Canada Revenue Agency.

The second revenue impact is the loss in corporate tax revenue arising from the deductibility of stock-option-compensation costs at the time of exercise. To help estimate this impact, we examine the largest 100 corporations in Canada (based on market capitalization) to determine the extent to which companies are paying taxes or not in a given year that the compensation is granted. It turns out that almost all of the companies are taxable in each year, or only temporarily show losses for just one or two years (in those years, a discounted corporate tax rate could be used, but it has little impact so is therefore ignored). The manufacturing and resource statutory corporate income tax rate is slightly lower in Ontario (10 per cent compared to 11.5 per cent). We use the average federal-provincial corporate income tax rate of 26.7 per cent for 2015,¹⁷ which includes Alberta’s hike to 12 per cent from 10 per cent, to estimate the revenue impact.

Table 2 provides a distribution of employee stock-option costs reported in disclosure documents by industry. These amounts reflect the expense at fair value and before tax effects (fair value is based on a pricing model to determine the stock-option expense for accounting purposes). In the last five years, the average stock options outstanding across various industries varied in Canada, from seven per cent in manufacturing to 44 per cent in the resource sector. The finance and service sector share was 40 per cent. The accounting expense (also based on fair values) has a different distribution (much lower for the resource sector and much higher in services, finance and real estate), reflecting differences in stock and flows of stock-option grants.

¹⁷ This is based on the distribution of corporate income as opposed to the distribution of stock-option deductions. Companies can deduct costs in one province with a current or retired employee residing in another province. As a result, British Columbia in particular has a larger share of stock-option compensation compared to corporate taxable income, while Quebec is the converse.

**TABLE 2 EMPLOYEE STOCK (SECURITY) OPTION FOR 100 LARGE CANADIAN CORPORATIONS
2010-14 (FIVE-YEAR AVERAGE, FIGURES ROUNDED)**

	Resource	Manufacturing	Service	Finance and Real Estate
Sectoral Share, Stock Options Outstanding ¹	44%	7%	18%	32%
Sectoral Share, Stock-Option-Compensation Expense ²	12%	10%	29%	49%

Note: See the appendix, "methodology," for a detailed explanation.

Source: Authors' estimates.

1. "Stock options outstanding" represents stock options outstanding at the beginning of the year that are exchangeable for common stock of the company. This includes: options outstanding at the beginning of the year, which are equal to options outstanding at the prior year end, adjusted for stock splits; employee plans; and non-employee plans, such as directors' plans.
2. "Stock-option-compensation expense" represents stock-based compensation expenses towards stock options before tax.

Table 3 shows the stock-option expense across Canada and for the 100 largest public companies. The stock-option deduction claimed by individuals across Canada under personal income tax is doubled for the years 2010 to 2012, taken from T1 data from the Canada Revenue Agency. Over the years, employee stock options offered to employees by the 100 largest companies has fluctuated. In the last five years, for the 100 largest companies, stock-option expense has decreased by \$391 million, from a high of \$1,164 million in 2010 to \$773 million in 2014.

TABLE 3 STOCK OPTION DEDUCTION (ADJUSTED FOR INFLATION, CAD \$MILLIONS)

	2010	2011	2012	2013	2014	2015
Employee Stock-Option Expense of 100 Largest Canadian Corporations	1,164	270	584	996	773	712*
Stock-Option Compensation: For All Canada	4,862	5,218	4,206	6,950*	5,512*	4,942*

Notes:

*Denotes an estimate. See the appendix, "methodology," for a detailed explanation.

Source: (1) Authors' calculations (2) Canada Revenue Agency, Individual Statistics.

As a final part of our estimate (Table 4), the Canada Revenue Agency data stop at 2012. To estimate the stock-option compensation in later years, we used the 100-company data to "blow up" the stock-option compensation to reflect the universe for 2013 and 2014 (see the appendix for our methodology). Our estimate of the 2015 stock-option compensation is based on the average growth in the stock-option expense, which is approximately negative eight per cent. The value of \$4.942 billion is used to estimate both personal and corporate income-tax-revenue impacts.¹⁸

The third revenue impact is with respect to additional personal taxes paid by shareholders of companies who pay more personal taxes on additional profits arising from the deductibility of stock-option expense from corporate taxable income. The additional profits are paid to Canadian investors in Canada that are subject to tax on dividends and or capital gains. Foreign investors are subject to withholding taxes on dividends (pension funds are exempt as investors).¹⁹ We estimate the effective federal-provincial weighted-average dividend and accrual-equivalent

¹⁸ The stock-option personal tax gain is more than the federal estimate of \$750 million for 2014, since we include provincial personal-income-tax impacts.

¹⁹ It might be argued that existing pension funds will receive a one-time increase in pension returns that are reinvested until paid as benefits to owners and therefore subject to tax. However, in the longer run, this one-time effect would not be significant.

capital-gains-tax rate on equity returns to be 10.5 per cent, using a dividend payout ratio of 52 per cent.²⁰

Overall, the revenue loss from full taxation of employee stock options is -\$12 million under these assumptions. Moving to full taxation of stock-option compensation is appropriate with respect to efficiency and equity, but there is little money to be gained.

TABLE 4 ESTIMATED REVENUE EFFECT FROM FULL TAXATION OF STOCK OPTIONS FOR 2015

	CAD\$ Million (figures rounded)
Tax Revenue Gain (due to taxing recipients at full rate)	1,168
Corporate Tax Revenue (Loss) - due to tax-symmetric tax-deduction treatment	(1,318)
Gain from Personal Tax on Corporate-Tax Saving (dividends received using average payout ratio and effective tax rate on equity)	138
Net Gain (Loss)	-12

Source: Authors' estimates.

As mentioned above, stock options for CCPCs have somewhat different revenue implications. The corporate tax rate is lower, implying a smaller corporate-tax-revenue loss, and personal taxes on stock-option benefits at the time of exercise can be deferred when shares are sold, implying a smaller personal tax gain. Given the lack of public data that include any breakdown between CCPC and general stock options, we are not able to provide an estimate. However, using the 2009 share of CCPC corporate income relative to total corporate income — which was 25 per cent — as a proxy for the distribution of stock options between large and small firms, we re-estimate the revenue impact by lowering the corporate income tax rate from 26.7 to 24.2 per cent.²¹ The revenue gain from fully taxing stock options, assuming this lower corporate income tax rate, would be \$98 million. However, given that CCPC personal taxes can be deferred until the employee disposes of the shares, the personal-tax-revenue gain would be muted, so this is very much an upper-bound estimate.

CONCLUSIONS

We argue that full personal taxation of stock options is appropriate to improve neutrality with respect to different forms of employee compensation. This not only requires that stock-option benefits be taxed at ordinary personal-income-tax rates but that the corporation be entitled to a corporate tax deduction for such expense. This would reduce tax distortions with respect to how companies choose to compensate their executives, but would generate little or no additional tax revenues for federal and provincial governments.

²⁰ This value is taken from the financial reports of top 100 companies, averaged over five years.

²¹ We estimate the combined federal-provincial small-business tax rate on eligible profits to be 16.7 per cent.

APPENDIX: METHODOLOGY

When the employee exercises the stock option, the difference between the fair market value (FMV) of the share when the option is exercised and the stock price when the option was granted is the compensation benefit, and reported as employment income for personal-income-tax purposes. Under the Income Tax Act, an employee claims a 50 per cent deduction of stock-option benefits, satisfying certain conditions. Under the Income Tax Act (Section 7(1) (a) to (e)), the company is not allowed to take any deduction with respect to any actual or accounting expense that arises as a consequence of the grant of a share option to an employee or from the employee exercising a share option.

To estimate the stock-option deductions by individual filers across Canada, we analyze data at two levels. First, we derive the value of the stock-option benefits from Canada Revenue Agency T1 data. Second, we analyze the stock-options expense for the 100 largest Canadian public companies listed on the S&P/TSX composite index for the years 2010–14, based on market capitalization. We then extrapolate the data from the sample to the aggregate industry level.

The following steps were used to estimate data:

1. Using T1 data from the Canada Revenue Agency, we obtain the value of the stock-option deduction by income class and compute the personal income tax that is reduced by the deduction for years 2010–12. As this reflects the 50 per cent reduction in stock-option benefits, we double this amount to arrive at total stock-option benefits.
2. We tracked the stock-options usage among the largest 100 companies. These companies are Canadian headquartered and represent more than 50 per cent of the market capitalization of stock listed on the TSX as of April 21, 2015.
3. Data for the stock options were gathered from the annual statements for each company and were collected from S&P Capital IQ. Some companies report numbers in U.S. dollars; these were converted to Canadian dollars, as reported in S&P Capital IQ.
4. The aggregate industry-level data were extrapolated from the sample. The sample of large 100 companies represented approximately 30 per cent of the average profits reported in the aggregate industry level in “Financial Taxation Statistics for Enterprises” data compiled by Statistics Canada for the year 2010–12. We used this data to “blow up” stock-option benefits (by a ratio of 1:3 from the sample to the universe) to reflect the stock-option data for 2013 and 2014. The value for 2015 is based on the average growth rate in stock-option benefits over the period, which is negative eight per cent.
5. We have made certain assumptions while calculating the tax-revenue effects of employee stock options.
 - a) We only take into consideration the public companies in our sample to determine corporate income tax rates and do not adjust for Canadian-controlled private corporations (CCPCs). As stock-option deduction data for CCPCs are not available in the public domain, we provide a rough estimate based on the distribution of corporate taxable income between low-taxed and highly taxed corporate income in 2009.

- b) The methodology assumes that individuals benefitting from the employee-stock-option deduction and their employers would not change their behaviour if the employee-stock-option deduction were eliminated.
- c) The current regulatory filing rules under the System for Electronic Disclosure by Insiders (SEDI) mandates that employee stock options are to be reported by the employee receiving the stock option.
- d) We assume that there is no linkage between granting employee stock options and the dividend policy of the company (many companies buy back shares to offset the dilution effects of issuing stock options and other share-based compensation).

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For media inquiries, please contact Morten Paulsen at 403-220-2540. Our web site, www.policyschool.ca, contains more information about The School's events, publications, and staff.

DEVELOPMENT

For information about contributing to The School of Public Policy, please contact Rachael Lehr by telephone at 403-210-7183 or by e-mail at racrocke@ucalgary.ca.

RECENT PUBLICATIONS BY THE SCHOOL OF PUBLIC POLICY

WHAT DO WE KNOW ABOUT IMPROVING EMPLOYMENT OUTCOMES FOR INDIVIDUALS WITH AUTISM SPECTRUM DISORDER?

<http://policyschool.ucalgary.ca/?q=content/what-do-we-know-about-improving-employment-outcomes-individuals-autism-spectrum-disorder>
Carolyn Dudley, David Nicholas and Jennifer Zwicker | September 2015

CANADA, THE LAW OF THE SEA TREATY AND INTERNATIONAL PAYMENTS: WHERE WILL THE MONEY COME FROM?

<http://policyschool.ucalgary.ca/?q=content/canada-law-sea-treaty-and-international-payments-where-will-money-come>
Wylie Spicer | September 2015

THE IMPACT OF CONVERTING FEDERAL NON-REFUNDABLE TAX CREDITS INTO REFUNDABLE CREDITS

<http://policyschool.ucalgary.ca/?q=content/impact-converting-federal-non-refundable-tax-credits-refundable-credits>
Wayne Simpson and Harvey Stevens | August 2015

HOW IS FUNDING MEDICAL RESEARCH BETTER FOR PATIENTS?

<http://policyschool.ucalgary.ca/?q=content/how-funding-medical-research-better-patients>
J.C. Herbert Emery and Jennifer Zwicker | August 2015

SYMPOSIUM ON THE TRANS-PACIFIC PARTNERSHIP AND BEYOND: ADVANCING CANADIAN TRADE AND INVESTMENT IN ASIA

<http://policyschool.ucalgary.ca/?q=content/symposium-trans-pacific-partnership-and-beyond-advancing-canadian-trade-and-investment-asia>
Randolph Mank | August 2015

EXTRACTIVE RESOURCE GOVERNANCE: CREATING MAXIMUM BENEFIT FOR COUNTRIES

<http://policyschool.ucalgary.ca/?q=content/extractive-resource-governance-creating-maximum-benefit-countries>
Shantel Jordison | July 2015

THE RECESSION'S IMPACT ON CANADA'S LABOUR MARKET

<http://policyschool.ucalgary.ca/?q=content/recessions-impact-canadas-labour-market>
Philip Cross | July 2015

ALTERNATIVES TO CRIMINALIZING PUBLIC INTOXICATION: CASE STUDY OF A SOBERING CENTRE IN CALGARY, AB

<http://policyschool.ucalgary.ca/?q=content/alternatives-criminalizing-public-intoxication-case-study-sobering-centre-calgary-ab>
Alina Turner | June 2015

CANADA-MEXICO TRADE: AN ARRANGED MARRIAGE COMES OF AGE

<http://policyschool.ucalgary.ca/?q=content/canada-mexico-trade-arranged-marriage-comes-age>
Laura Dawson | June 2015

ON LIVABILITY, LIVEABILITY AND THE LIMITED UTILITY OF QUALITY-OF-LIFE RANKINGS

<http://policyschool.ucalgary.ca/?q=content/livability-liveability-and-limited-utility-quality-life-rankings>
Brian Conger | June 2015

THE STRUCTURE AND PRESENTATION OF PROVINCIAL BUDGETS

<http://policyschool.ucalgary.ca/?q=content/structure-and-presentation-provincial-budgets>
Bev Dahlby and Michael Smart | May 2015

THE PROBLEM WITH THE LOW-TAX BACKLASH: RETHINKING CORPORATE TAX POLICIES TO ADJUST FOR UNEVEN REPUTATIONAL RISKS

<http://policyschool.ucalgary.ca/?q=content/problem-low-tax-backlash-rethinking-corporate-tax-policies-adjust-uneven-reputational-risks>
Jack Mintz and V. Balaji Venkatachalam | May 2015

SMALL AND EXPOSED: DEBT ACCUMULATION IN CANADA'S SMALL PROVINCES

<http://policyschool.ucalgary.ca/?q=content/small-and-exposed-debt-accumulation-canadas-small-provinces>
Ron Kneebone | May 2015