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## SUPPORT FOR BUSINESS R&D IN BUDGET 2012: TWO STEPS FORWARD AND ONE BACK

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### SUMMARY

The federal budget contains some sensible changes to the SR&ED investment tax credit, but the decision to reduce support for large firms to provide additional support for small firms is a step in the wrong direction. The Jenkins Panel<sup>\*</sup> expressed concern about excessive subsidization of small and medium-sized firms and recommended cutting back on the enhanced SR&ED credit in order to finance more targeted support for these firms. Following that advice would have improved the social return on support for R&D; in contrast, the budget measures marginally reduce the benefits to society from subsidizing R&D.

The budget also announced \$400 million in additional funding for risk capital. Returns in the venture capital industry are very low and the additional funding is unlikely to be successfully deployed until returns improve. There is abundant evidence that the tax credit for investment in Labour-Sponsored Venture Capital Corporations is crowding out private investment and contributing to low rates of return; eliminating the credit is therefore an essential first step in restoring the financial health of the venture capital industry.

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<sup>\*</sup> More formally known as the Expert Review Panel on Support to Federal R&D, the Panel was chaired by Tom Jenkins, Executive Chairman and Chief Strategy Officer, Open Text Corporation. The Panel was set up in October 2010 with a mandate to review the effectiveness of federal R&D support programs, to assess the mix and design of these programs and to identify any gaps in federal programming. The Panel submitted its report to the government in October 2011.

## LESS SUPPORT FOR LARGE FIRMS

The Scientific Research and Experimental (SR&ED) tax incentive provides a 20 percent investment tax credit for most firms conducting eligible R&D, and a 35 percent refundable credit for small to medium-sized Canadian-controlled private corporations. Budget 2012 reduces the generosity of the SR&ED tax incentive by lowering the regular credit from 20 to 15 percent and by tightening up the treatment of contracts and overhead payments, as well as by eliminating capital spending from the base for calculating the credit. These measures will reduce SR&ED claims by about \$500 million within five years, with about 80 percent of the savings coming from large firms (Table 1). Increased funding for direct assistance programs will amount to about \$150 million by fiscal year 2016-7, with almost all of the benefits accruing to small and medium-sized enterprises (SMEs).

The rationale given in the budget for reducing the regular credit is that corporate income tax rate reductions have increased the relative generosity of the SR&ED tax incentive program and resulted in growing pools of unused credits. The tax credit has indeed become larger relative to the tax liabilities of the typical large firm undertaking R&D, but the economic case for supporting R&D is independent of the taxable income of firms. Governments subsidize R&D because not all of the benefits of undertaking R&D are captured by the firms making the investment; some benefits spill over to the broader economy, so public support for R&D can benefit all citizens, not just the recipients of the subsidy. The subsidy rate that maximizes the net public benefit (the optimal rate) depends on the size of these spillover benefits and the cost of delivering the assistance; the tax status of firms receiving the credit has no impact on the expected net benefit of the public support for R&D. As discussed below, lowering the regular SR&ED credit rate to 15 percent slightly reduces the net public benefit from the subsidy.

**TABLE 1: COSTING OF INNOVATION INITIATIVES IN BUDGET 2012 AND IMPACT BY SIZE OF FIRM**  
(millions of dollars)

	2012-3	2013-4	2014-5	2015-6	2016-7		
					All firms	SMEs <sup>1</sup>	Other Firms
Reduction in Regular SR&ED Credit Rate			-190	-285	-295		-295
Spending on capital equipment non-eligible			-15	-40	-40	-10	-30
Tighten overhead proxy method		-10	-55	-95	-100	-59	-41
Remove profits from eligible contract payments		-25	-55	-60	-65	-21	-44
Total sources of funds		-35	-315	-480	-500	-90	-410
SR&ED Enhancing Predictability	4	2					
NRC-IRAP – additional funding	110	110	110	110	110	110	
NRC – focus on demand driven research	67						
Procurement – CICP		25	35	35	40	40	
Western Innovation Program							
Internships (IRDI - Mitacs)	7	7					
Business-led Networks of Centres of Excellence	12	12	12	12	12	5	7
Forestry Innovation (and Market Development)	55	50					
Subtotal – additional ongoing spending	255	206	157	157	162	155	7
Net Change	255	171	-158	-323	-338	65	-403

<sup>1</sup> The SME share of the SR&ED measures was calculated by considering the share of enhanced credit claims in total claims as well as the relative importance of capital equipment, overhead and contracts in the spending of SMEs and other firms.

## OTHER SR&ED INITIATIVES

Most of the other changes to the SR&ED tax incentive program are sensible. For example, reducing the generosity of the proxy method for calculating overhead expenses is a highly appropriate change. Under current rules, firms are allowed to calculate overhead expenses directly, or as 65 percent of salaries and wages of employees who are directly engaged in SR&ED activities as a proxy for actual overhead expenses.<sup>1</sup> The proxy calculation was introduced to reduce compliance costs, but, as argued by the Jenkins Panel, it appears to be too generous. In 2007, almost all firms used the proxy method.<sup>2</sup> Given the amount of detail required in the standard calculation, it is not surprising that most small firms make use of the proxy method, but the fact that most large firms also use the alternative method suggests that it is more generous than it needs to be.<sup>3</sup> As noted by McKenzie<sup>4</sup> this generosity biases the choice of inputs by increasing the effective credit rate on labour. Eliminating the profit component from eligible spending in contracted R&D will remove a source of bias in favour of contract versus in-house R&D, since profits are not an eligible expense for in-house R&D.

Under current rules, spending on capital equipment used to undertake R&D, but not spending on buildings,<sup>5</sup> is eligible for a tax credit and can be deducted from taxable income in the year the cost is incurred. Removing spending on capital equipment from the tax incentive program will reduce the benefit received by firms, but this reduction will be partially offset by the lower compliance costs associated with a simpler applications process. Simplification will also reduce administration expenses. Given that equipment accounts for less than five percent of eligible spending, the impact on administration and compliance costs will be small. Further, as pointed out by McKenzie,<sup>6</sup> removal of capital spending from the credit base will hurt efficiency by distorting the choice of inputs and by placing equipment-intensive R&D at a disadvantage. Overall, eliminating capital equipment as an eligible expenditure is likely to make the SR&ED credit less rather than more efficient.

The Jenkins Panel recommended that the CRA improve its pre-claim project review service in order to provide firms with more predictable qualification for the credit. More specifically, the Panel recommended implementing a formal pre-approval process. Firms can now obtain an informal ruling on eligibility from the CRA, but the Panel made the case that a formal ruling would be of more benefit to firms by removing eligibility risk when assessing the value of the credit. In particular, more firms would be able to apply for loans using the credit as security and the cost of hiring third parties to prepare claims would decline along with eligibility risk. The government has accepted this recommendation, announcing measures to improve predictability of access and a pilot study to determine the feasibility of implementing a formal approval process.

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<sup>1</sup> Overhead expenses comprise salaries and wages of support staff; office supplies; general-purpose office equipment and furniture; heat, water, electricity and telephone; travel and training; property taxes; and maintenance and upkeep of SR&ED premises, facilities and equipment.

<sup>2</sup> Review of Federal Support to Research and Development — Expert Panel Report *Innovation Canada: A Call to Action* Publishing and Depository Services, Public Works and Government Services Canada, Ottawa, 2011 page 6-11.

<sup>3</sup> It is highly likely that large firms calculate overhead expenses by both methods and choose the method that provides the largest benefit.

<sup>4</sup> Kenneth J. McKenzie “The Big and the Small of Tax Support for R&D in Canada,” School of Public Policy Research Paper Volume 5 Issue 22. 2012.

<sup>5</sup> Note that special purpose structures such as clean rooms may qualify as equipment.

<sup>6</sup> Kenneth J. McKenzie op cit. supra, note 4.

The government also announced that it will study contingency fees charged by tax preparers.<sup>7</sup> The concern is that high contingency fees may be diminishing the benefits of the tax credit to both firms and the overall economy. This concern may be misplaced, particularly if the government is able to increase predictability. Small firms likely view contingent fees as a form of insurance against eligibility risk, as well as a method of improving cash flow. In addition, abstracting from illegal behaviour, firms preparing applications on a contingent fee basis have less incentive to spend time on claims that may not be eligible than firms preparing claims on an hourly basis. Overall, contingent fees likely improve the cost-effectiveness of the SR&ED credit, but their use is likely to decline as predictability of access improves.

## INCREASED FUNDING FOR IRAP

The budget announced a doubling of the Industrial Research Assistance Program (IRAP) funding to about \$220 million a year. IRAP provides funding for R&D undertaken by firms with up to 500 employees. The program is held in high esteem by users and foreign governments. There is, nevertheless, a need to take a second look at the IRAP model of providing firms with a substantial amount of one-on-one advice and imposing relatively burdensome reporting requirements. The most recent publicly available information indicates that prior to 2009, adjusted<sup>8</sup> administration costs of IRAP amounted to almost 25 cents per dollar of assistance provided.<sup>9</sup> Compliance costs are also relatively high at about 11½ cents per dollar of funding assistance received.<sup>10</sup> The sum of compliance and adjusted administration costs is about 33 percent of benefits received, compared to about 17 percent for the enhanced SR&ED credit.

## CHANGES TO OTHER INNOVATION PROGRAMS

The budget also announced increased funding and permanent status for the Canadian Innovation Commercialization Program (CICP), as well as additional funding for risk capital financing. Both of these programs are targeted at SMEs. An additional \$400 million will be made available to promote private sector investment in early-stage, or seed, risk capital and to support the development of large-scale venture capital funds led by the private sector. This approach follows in broad outline the recommendations of the Jenkins Panel.

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<sup>7</sup> Many accounting firms will prepare SR&ED applications for a fee, often expressed as a percentage of the value of the claim, that is contingent on a successful claim. Under this arrangement, the accounting firm absorbs all of the risk of an unsuccessful claim.

<sup>8</sup> Adjusted administration expenses are calculated assuming that management and technical advice provided to client firms is part of the assistance provided to firms. Without this adjustment, administration expenses amount to 37 percent of assistance provided to firms. The calculation is based on data provided in *NRC-IRAP 2007 Impact Evaluation of the NRC Industrial Research Assistance Program — Final Report*, which can be requested on line from NRC-IRAP.

<sup>9</sup> The high administration expenses also reflect IRAP's substantial regional presence and the provision of services to other programs without recovering all costs.

<sup>10</sup> John Lester, "Benefit-Cost Analysis of R&D Support Programs," mimeo, 2012, page 15. Available at: [http://accounting.uwaterloo.ca/tax-conference/Tax\\_Policy\\_Research\\_Symposium\\_2012.html](http://accounting.uwaterloo.ca/tax-conference/Tax_Policy_Research_Symposium_2012.html)

The Panel identified two gaps in the risk capital funding chain. Innovative startups have difficulty getting financing because it is difficult for outsiders to assess the quality of both the technology and managers. More resources have to be devoted to due diligence when investing in innovative startups than when investing in other startups, and lenders try to shift more of the risk to the entrepreneur through high collateral requirements, both of which reduce the flow of financing to innovative startups. In addition to these theoretical observations, the Panel's report notes that rates of return to angel investor groups in the US are substantially higher than for the next stage in the funding chain, venture capital financing.<sup>11</sup> These relatively high rates of return suggest the existence of excess demand for seed capital, although the observed difference could be the result of a higher risk premium on angel capital financing. Given that angel investing is even less advanced in Canada than in the US, the Panel concluded that a financing gap likely exists in Canada as well.

The second gap identified by the Panel is in later-stage venture capital financing, which supplies firms that have revenues but are not yet profitable. This is a surprising finding given the low rates of return in the venture capital industry,<sup>12</sup> which point to either an excess supply of capital or poor management of existing funds. The more subtle point made by the Panel is that the relatively small scale of Canadian venture capital funds hurts returns, in part by spreading fixed costs over a smaller base, and in part by making it more difficult to follow firms from early stage to exit, which allows foreign firms to dominate the more profitable later-stage venture capital stage. This situation does not provide convincing evidence of a financing gap since foreign sources may be providing sufficient supply. Recognizing this point, the Panel report argues that even in the absence of a financing gap, full participation by domestic firms would result in greater benefits to Canada, largely because domestically financed firms are more likely to stay in Canada.

The government is now considering how to structure the additional support. The first step should be to eliminate the federal tax credit for investment in Labour-Sponsored Venture Capital Corporations (LSVCCs), which would recover about \$130 million in forgone tax revenues. There is convincing evidence that LSVCCs have earned low returns and crowded out private funds to the detriment of the overall venture capital industry.<sup>13</sup> While performance could undoubtedly be enhanced by setting more tightly focused mandates and improving governance, performance will remain relatively poor because of the incentives created by the near-perfect separation of ownership by small retail investors and control by professional managers.<sup>14</sup> This structure also makes LSVCCs more costly than necessary.

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<sup>11</sup> The Panel report (page 7-15) cites returns of 27 percent for angel investor groups and 18.3 percent on overall venture capital investments.

<sup>12</sup> The Canadian Venture Capital Association reports that the rate of return on private independent venture capital funds averaged one percent over the three years ending in mid-2011; 0.2 percent over a five-year horizon and -3.1 percent over a 10-year horizon. See a CVCA news release "Performance Data – Private Independent Funds," dated December 13, 2011. ([http://www.cvca.ca/files/News/Q2\\_11\\_CVCA\\_Performance\\_Public\\_Release\\_Private\\_Independent.pdf](http://www.cvca.ca/files/News/Q2_11_CVCA_Performance_Public_Release_Private_Independent.pdf) )

<sup>13</sup> See Jeffrey G. MacIntosh "Tantalus Unbound: Government Policy and Innovation in Canada," School of Public Policy Research Paper Volume 5 Issue 8, March 2012, pp. 5-9.

<sup>14</sup> Ibid pp. 3-4.



Instead of subsidizing supply by many small retail investors, the government should structure incentives to encourage the participation of industry professionals in joint public-private funds. In order to attract private funding, the government could cap its return at its cost of borrowing, while accepting the possibility of losing some or all of its capital. This approach provides private investors with a leveraged return: they face the same risk of loss, but because the government return is capped, private investors have a higher upside. An important advantage of this approach is that fund managers have an incentive to work closely with entrepreneurs, because they get all of the benefit from returns higher than the government's target return. As noted by the Panel, variants of this approach have been successfully applied in the US, the UK, Israel, New Zealand and Russia.

The private participants in the fund would have the right incentives to invest wisely — their own money is at risk — so the cost to the government can be kept low. In fact, if private investors make the investment decisions, if the government can resist the temptation to impose regional and sectoral performance requirements on the fund managers and if the LSVCC tax credit is eliminated, it would be perfectly reasonable to assume that over the longer term, the government will get a return equal to its cost of borrowing. There would still be a cost from administering the fund, but these costs could be kept low by having the Business Development Bank of Canada (BDC) administer the fund, as recommended by the Jenkins Panel. Based on the cost of running BDC's venture capital program, these costs are likely to be around five percent of the government contribution to the fund. Assuming 50 percent private sector participation, the cost per dollar of financing provided would be 2.5 cents.

## **ASSESSMENT OF CHANGES TO SR&ED AND IRAP**

Most of the announced changes to innovation programs were inspired by the recommendations of the Jenkins Panel. An important exception is the reduction in support for large firms. The Jenkins Panel recommended scaling back the enhanced credit to finance increases in direct programs that would be more effective in raising the number of small innovative firms that become global competitors. The Panel raised two concerns about existing levels of support for innovative SMEs. First, only a small number of the approximately 18,000 SMEs receiving the enhanced credit will grow into large, successful firms, which makes the credit a blunt instrument for supporting the gazelles among the many recipients. Second, the Panel expressed concern that public support for R&D undertaken by SMEs may be so high that the costs of the subsidy exceed the benefits.

A key reason for the concern about excessive subsidization is that, in addition to the federal tax credit, firms undertaking R&D can take advantage of provincial tax assistance, which raises the average credit rate to 25 percent for large firms and to 43.6 percent for SMEs.<sup>15</sup> As a result, Canada provides the most generous level of tax assistance to SMEs undertaking R&D in a

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<sup>15</sup> Calculated as the weighted sum of federal plus provincial statutory credit rates in each province, using provincial shares of business enterprise spending on R&D as weights. Note that provincial assistance is excluded from the base for calculating the federal credit.

comparison group of countries comprising all members of the Organisation for Economic Co-Operation and Development, Brazil, Russia, India, China, Hong Kong and Singapore.<sup>16</sup> Canadian SMEs also have access to direct assistance programs (e.g., the federal Industrial Research Assistance Program, or IRAP) offered by the federal and provincial governments. In 2007, approximately a quarter of firms receiving the enhanced federal SR&ED tax credit received financial assistance amounting to 45-50 percent of their spending on R&D and roughly nine percent of the total, about 1600 firms, received assistance amounting to more than 50 percent of their R&D spending.<sup>17</sup>

### Box 1: The Benefit-Cost Approach to Program Evaluation

The benefit-cost approach focuses on what should be the ultimate objective of government support for R&D — higher real income — and therefore provides a basis for comparing programs and determining how program effectiveness could be enhanced by reallocating funding. Governments provide support for R&D because the private market fails to provide the socially optimal amount of investment. This market failure arises because, despite their best efforts and the benefits of patent protection, firms cannot prevent the knowledge gained through their R&D from leaking out, or spilling over, to other firms.

Providing financial support to firms that undertake R&D is therefore in the interest of all Canadians because, to the extent that this assistance results in additional R&D, it will contribute to a higher standard of living for all citizens. But intervening in the economy has costs, so support programs have to be carefully designed to realize a net economic benefit.

The largest cost of supporting R&D arises from the need to raise taxes to finance the assistance provided to firms. Higher taxes hurt economic efficiency through adverse effects on incentives to work, save and invest. Analysis undertaken by Dahlby and Ferede<sup>a</sup> indicates that raising an extra dollar of tax revenue reduces economic efficiency

by about 26 cents. Administering and applying for the subsidies absorb resources that could be used elsewhere, which adds to the cost of providing the assistance. For example, SMEs incur, on average, about 14 cents in compliance costs for each dollar of tax benefits received from the enhanced SR&ED credit.

Finally, government support for a specific activity hurts economic efficiency by shifting labour and capital from their best uses. A more intuitive way to look at this issue is to note that with government assistance, projects with a below-market private rate of return become viable and that the lower return represents a loss in economic output. In other words, government support shifts investment from activities where it earns a competitive private return to activities where it earns a lower rate of return, and this puts downward pressure on the net economic benefit from supporting R&D. As a result, everything else being equal, rising subsidy rates result in a lower net economic benefit, reflecting lower private returns.

a. Bev Dahlby and Ergete Ferede 2011 *The Effects of Tax Rate Changes on Tax Bases and the Marginal Cost of Public Funds for Provincial Governments*. Online Working Paper. Toronto: C.D. Howe Institute.

<sup>16</sup> See John Lester and Jacek Warda “Modifying the B-index to Improve International Comparisons of Tax Assistance for Investment in R&D,” mimeograph 2012, available on request from the author. Only six countries in the comparison group provide more generous tax incentives for SMEs than for larger firms.

<sup>17</sup> Review of Federal Support to Research and Development — Expert Panel Report *op cit. supra*, note 2 pp. 6-9.

A preliminary benefit-cost analysis undertaken for the Jenkins Panel indicated that the enhanced SR&ED credit “likely does not generate a positive net benefit because of the high subsidy rate and compliance costs relative to the spillover benefit.”<sup>18</sup> (See Box 1 for a description of the benefit-cost approach to evaluating programs.) Further analysis has confirmed that the enhanced credit fails a benefit-cost test for the reasons noted by the Panel, while the regular credit generates a net economic benefit.<sup>19</sup> Firms claiming the enhanced credit incur compliance costs amounting to about 14 cents per dollar of credit claimed, compared to just under five percent for firms accessing the regular credit.<sup>20</sup> But even if compliance (and administration) costs were the same for both the enhanced and regular credits, the enhanced credit would still show a net loss, because the credit rate is well above the rate that maximizes the net benefit and the extra support available from other federal and provincial programs drives the net benefit more deeply into negative territory. The benefit-cost analysis indicates that the optimal rate for the regular credit is approximately 20 percent, while the loss associated with the enhanced credit would be minimized with a rate of about 15 percent, reflecting the impact of substantially higher compliance costs.

The various tightening measures announced in the federal budget reduce the effective credit rates for both large and small firms (see the Annex for details). The changes to the regular credit reduce the effective rate further below the optimal rate, causing the net benefit to fall about \$40 million (Table 2). In contrast, the tightening measures in the budget reduce the effective rate for the enhanced credit closer to its optimal rate, so the net benefit rises. Overall, the budget measures marginally reduce the net benefit from the SR&ED program. The benefit-cost results suggest that a more effective policy change would have been to leave the statutory rate for the regular credit unchanged and reduce the enhanced credit rate to 20 percent: with this policy, the net benefit for the overall program would have been \$115 million higher.

**TABLE 2: BENEFIT-COST ANALYSIS OF SR&ED AND IRAP**  
(millions of dollars)

	SR&ED			IRAP
	Regular Credit	Enhanced Credit	Combined	
Assistance provided to firms <sup>1</sup>	1958	1298	3256	93/186
Net Benefit				
Pre-Budget	205	-185	20	-12
Post-Budget	165	-155	10	-18
Budget Impact	-40	30	-10	-6
Single 20% rate	195	-90	105	

<sup>1</sup> Funding levels are for 2007 for SR&ED and 2009 for IRAP, which is doubled for the post-budget analysis.

<sup>18</sup> *Ibid* pp. 6-12.

<sup>19</sup> John Lester *op cit. supra*, note 10.

<sup>20</sup> Expert Review Panel on Research and Development *Assessing the Scientific Research and Experimental Development Tax Credit* page 9. Web publication: [http://rd-review.ca/eic/site/033.nsf/vwapj/4\\_Assessing\\_the\\_SRED\\_Tax\\_Credit-eng.pdf/\\$FILE/4\\_Assessing\\_the\\_SRED\\_Tax\\_Credit-eng.pdf](http://rd-review.ca/eic/site/033.nsf/vwapj/4_Assessing_the_SRED_Tax_Credit-eng.pdf/$FILE/4_Assessing_the_SRED_Tax_Credit-eng.pdf)



The benefit-cost analysis of IRAP indicates that the program is generating a net economic loss, despite the assumption that the spillover benefits associated with IRAP-sponsored projects are greater than for SR&ED projects.<sup>21</sup> The main reason for this outcome is administration and compliance costs that sum to about a third of the assistance provided to firms. While there are some economies of scale in administering the program, doubling funding for IRAP without any changes to the basic approach to delivering assistance increases the net loss.

The benefit-cost analysis does not include any administration and compliance cost savings arising from the elimination of capital equipment from eligible spending. Nor do they include the benefits from improvements in CRA's pre-claim service, which could be substantial, particularly if a formal pre-approval process is set up. Finally, the results do not include the negative effects arising from the distortions to input use and choice of firm size emphasized by McKenzie.<sup>22</sup>

Taken at face value, the benefit-cost results suggest that real income would rise if the enhanced credit were eliminated, or scaled back to provide the same benefits as for large firms. There are, however, a number of benefits from supporting small firms that are not captured in the benefit-cost analysis, so some caution in drawing conclusions about the effectiveness of extra support for small firms is warranted.

A frequently made argument is that providing an enhanced SR&ED tax credit for R&D undertaken by innovative startups is justified because of the financing constraints faced by such firms. The existence of financing constraints is a strong argument in favour of refundability, but providing a higher credit rate to deal with a capital market imperfection will be less cost-effective than implementing measures that deal directly with the market failure. The government has a number of programs in place to mitigate the financing problems of innovative firms and announced additional funding for risk capital financing in Budget 2012. If funding for these programs is still inadequate, it should be increased and the enhanced credit should be evaluated on its ability to generate a net benefit by subsidizing investment in R&D.

Another argument made for providing additional support for small firms undertaking R&D is that social benefits in addition to knowledge spillovers are realized when young innovative firms become large successful enterprises. While this argument has merit, it is easy to overstate the social benefits from nurturing innovative firms. The owners of the growing firm clearly profit from expansion, and the employees may receive higher wages as well, but the existence of a benefit for the broader economy depends on the ability of firms to generate unusually high profits (i.e. rents) on export sales,<sup>23</sup> which raise national income; taxation of these rents benefits society generally and therefore justifies government support. Note that in the absence of export sales, rents earned by owners and employees of the growing firm represent a transfer of income among Canadians, not additional national income.

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<sup>21</sup> Based on an extensive review of the empirical literature, spillovers from projects subsidized by the generally available SR&ED investment tax credit are set at 56 percent of the R&D undertaken. IRAP sponsors projects that are, on average, "further from the market," and generate spillovers of 76 percent. See Lester *op cit.* supra note 10 for additional details.

<sup>22</sup> Kenneth J. McKenzie *op cit.* supra, note 4.

<sup>23</sup> There would also be a social benefit if strong export demand allowed workers in the growing firm to earn rents that generate additional tax revenue.

In order to rigorously assess the argument, the marginal social benefit in the form of extra tax revenue on export sales should be compared to the marginal cost of the additional benefit provided to small firms. Determining the marginal social benefit requires the following information:

- The number of additional startups induced by the extra support;
- The number of these additional startups that make the transition to large successful firms, or that become part of larger firms through a merger or acquisition; and
- The timing and the size of the rents earned on export sales by these successful firms.

This information is not, to say the least, readily available. But an estimate of the marginal social cost of providing additional assistance to small firms is available from the benefit-cost analysis: the marginal social cost of raising the refundable credit from 20 to 35 percent is about \$65 million a year,<sup>24</sup> assuming that the additional support is financed by a share-weighted increase in all taxes. On the other hand, if the source of financing is higher corporate income taxes, the marginal social cost could be as much as \$375 million, which is a more substantial, but perhaps not insurmountable, hurdle.<sup>25</sup>

It is, however, worth bearing in mind that the benefit-cost estimates are based on the assumption that spillovers are the same for large and small firms. While there is an extensive empirical literature on spillovers, there is only one study that provides evidence on spillovers by size of firm. Bloom, Schankerman and Van Reenen<sup>26</sup> find that spillovers decline with firm size because smaller firms operate in technological niches that limit the scope for spillovers. Specifically, the authors find that spillovers are 55 percent lower for firms in the bottom size-quartile than for firms in the top quartile. This finding did not influence the choice of parameter values in the benefit-cost analysis, in part because only publicly listed firms in the US are included in the analysis; as a result, firms in the bottom size-quartile (less than 500 employees) are likely to be larger on average than the firms making use of IRAP and the enhanced SR&ED credit. Small firms may have more difficulty formally protecting their intellectual property<sup>27</sup> than larger firms and employees may be more mobile, which is an important source of knowledge spillovers; these considerations suggest that there may be an offset to the niche effect on spillovers for small firms. Nevertheless, the Bloom, Schankerman and van Reenen study suggests that the estimated net benefits from the enhanced SR&ED tax credit and IRAP may be too high, making it more difficult to argue that providing additional support for innovative startups provides a net social benefit.

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<sup>24</sup> The \$65 million cost is the difference between -155 and -90 in Table 2.

<sup>25</sup> Dahlby and Ergete estimate that raising one dollar of additional tax revenue reduces economic efficiency by 26 cents if all taxes are increased but the cost rises to 71 cents if the source of financing is higher corporate income taxes. See Box 1.

<sup>26</sup> Bloom, Nicholas, Mark Schankerman and John Van Reenen “Identifying technology spillovers and product market rivalry,” Stanford University mimeo 2012.

<sup>27</sup> Smaller firms may not be able to use patents or complementary technologies to protect their intellectual property as effectively as larger firms, which would cause spillovers to be higher for the small firms undertaking R&D.

## CONCLUSION

The federal government has made a number of sensible changes to the SR&ED tax incentive program. Tightening up on the proxy method of calculating overhead expenses and contract payments will improve the efficiency of the SR&ED tax credit. Improving predictability of eligibility for the credit will have an important impact on compliance costs and the effectiveness of the enhanced credit. On the other hand, the decision to reduce the regular credit from 20 to 15 percent will have a small negative impact on the net benefit generated by the credit. Furthermore, the budget slightly increases support for innovative SMEs from levels that are so high that there is considerable risk that the taxpayers footing the bill are no longer getting value for their money. A more prudent strategy would have been to give all firms a similar level of tax assistance, while providing additional direct support for SMEs to help mitigate financing constraints and to improve their ability to commercialize their R&D, as was recommended by the Jenkins Panel.

The federal government launched in late June consultations on how the \$400 million in additional funding for risk capital should be delivered. The government would do well to bear in mind that returns in the venture capital industry are very low and that the additional funding is unlikely to be successfully deployed until returns improve. Eliminating the tax credit for investment in LSVCCs is an essential first step in restoring the financial health of the venture capital industry.

## ANNEX: STATUTORY AND EFFECTIVE SR&ED INVESTMENT TAX CREDIT RATES

The Annex provides detail on the effective SR&ED investment tax credit rates used in the benefit-cost analysis.

The pre-budget effective rate for the regular credit is lower than the 20 percent statutory rate, primarily because of delays in claiming the credit. Firms do not always have sufficient taxable income in order to claim the credit as it is earned and delays in claiming the credit lower its present value. The exclusion of buildings also reduces the effective credit rate. On the other hand, a case can be made that the simplified method of calculating overhead expenses and the inclusion of the profit component in contract research increase eligible spending above actual spending, which raises the effective credit rate. For the enhanced credit, the latter two features dominate the impact of excluding capital spending, so the pre-budget effective credit rate is slightly higher than the statutory rate.

**ANNEX TABLE A: SR&ED INVESTMENT TAX CREDIT RATES (in %)**

	Enhanced Credit	Regular Credit
<b>Current System</b>		
Statutory rate	35.0	20.0
Adjustment for present value of delayed claims	0.0	-3.0
Exclusion of buildings from eligible expenditures	-1.7	-1.0
Excess benefit from simplified overhead expenses calculation <sup>1</sup>	1.5	0.5
Excess benefit from including profit component in eligible contract expenses <sup>1</sup>	0.9	0.7
Effective credit rate	35.7	17.2
<b>Budget 2012 Changes<sup>2</sup></b>		
Statutory rate change	0.0	-5.0
Exclude equipment from eligible expenditures	-0.9	-0.6
Eliminate excess benefit from simplified overhead expenses calculation	-1.5	-0.3
Eliminate excess benefit from including profit component in eligible contract expenses	-1.0	-0.5
Interaction effects with pre-budget adjustments <sup>3</sup>		0.7
Effective credit rate	32.3	11.5

<sup>1</sup> Assumes that the revised calculations announced in Budget 2012 closely approximate actual overhead costs and the profit component of contract R&D.

<sup>2</sup> Effective January 2014, except for the change to contracts, which is effective January 2013.

<sup>3</sup> The adjustments for delayed claims and the exclusion for buildings become smaller with a lower statutory rate.

Source: Expert Review Panel on Research and Development Assessing the Scientific Research and Experimental Development Tax Credit *op cit. supra*, note 20 and author's calculations.



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## About the Author

**John Lester** is a Research Fellow with The School of Public Policy at University of Calgary. He is a former federal government economist who writes on public policy issues. His last public service assignment was as Director of Research for the Expert Panel Review of Federal Support to Research and Development. Prior to that he managed the Tax Evaluations and Research Group at Finance Canada.