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Tax Support for R&D and Intellectual Property: Time for Some Bold Moves

by
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- The federal budget announcement of a review of the Scientific Research and Experimental Development (SR&ED) investment tax credit suggests that the review will be focussed on issues that will have, at best, a minor impact on the effectiveness of the credit.
- The announcement raises the issue of the program's effectiveness in encouraging research and development (R&D) that benefits Canada, presumably by encouraging more commercialization activity at home. The SR&ED program is not the right instrument for achieving this objective. A better approach is to implement policies, such as an intellectual property box or targeted subsidies, that act more directly on the incentive to commercialize R&D in Canada.
- The announcement also highlights the need to simplify the SR&ED program. This is a worthy goal, but before embarking on another round of simplification, the Canada Revenue Agency should gather evidence on the costs firms incur in applying for a SR&ED tax credit.
- Bold changes are needed to improve the effectiveness of the SR&ED investment tax credit.
  - Support for R&D performed by large firms should be increased and support for smaller firms should be reduced. This rebalancing would leave smaller firms with substantial subsidies while increasing support where the social benefits from R&D are greater.
  - Credit rates should vary by the type of R&D performed. The social benefits from basic and applied R&D are higher than the social benefits from experimental development. The credit rates should reflect this difference.
- The budget also announced that the government will consider the merits of taxing income from intellectual property (IP) at a special low rate. Implementing an IP Box as a complement to the SR&ED tax credit would be good public policy.

The announced review of tax support for R&D and intellectual property in federal Budget 2022 is welcome news. The Scientific Research and Experimental Development (SR&ED) investment tax credit is a large program, costing approximately $3.5 billion in 2022. In contrast to government spending programs, which must be evaluated every five years with the results made public (Canada 2016 para. 4.3.15), there is no requirement to assess tax-based spending programs. Formal periodic reviews are therefore needed to ensure that taxpayers are getting

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value for money. The inclusion of the tax treatment of intellectual property (IP) in the review is particularly welcome. If the tentative agreement on a global minimum tax rate of 15 percent is ratified by enough countries, taxing income from IP at a special low rate will be a highly cost-effective way to stimulate R&D and its commercialization in Canada.

The review has two general objectives. The first is to assess whether the SR&ED program is effective in encouraging R&D that benefits Canada. The second objective is to explore opportunities to modernize and simplify the SR&ED program. While these objectives are quite general, the limited amount of detail provided suggests that the review will focus on issues that would be best handled with new measures rather than by modifying SR&ED. The exception is simplification, but its impact on program effectiveness is likely to be small.

Bold moves are required to substantially improve the SR&ED investment tax credit. These include rebalancing support for R&D performed by small and large firms, and varying support by the type of R&D performed. Implementation of a special low tax rate on income from intellectual property would complete the policy package. These measures would result in more R&D, a higher success rate for R&D that is performed, and more commercialization activity undertaken in Canada. Canadian taxpayers would receive a much better return on their investment in a more innovative economy.

The SR&ED Review: Expected Scope

The 2022 budget and the mandate letter to Finance Minister Freeland state several potential objectives for the review. These include encouraging more R&D that benefits Canada, modernizing and simplifying the program, and encouraging more risk taking.

Encouraging R&D that benefits Canada

The budget announcement states that one objective of the review is to ensure that the SR&ED program is effective in encouraging R&D that benefits Canada. This appears to be addressing the frequent observation that while Canadian firms are successful inventors, the benefit to Canada from performing R&D is lower than it should be because too much of the resulting intellectual property (IP) is either sold to foreign firms or commercialized abroad by Canadian firms.[1,2] The argument advanced is that innovative firms, by implementing new processes or bringing new products to market, earn above-normal profits, or economic rents,[3] that can be shared by investors and, if the commercialization activity takes place in Canada, by workers.[4] These rents also result in higher tax revenue, which benefits the broader economy.

To capture more of these economic rents and raise real income in Canada, the Council of Canadian Innovators (CCI) recommends making SR&ED benefits conditional on retaining and commercializing the

1 Note that the concern is that the benefit from performing R&D is lower than it should be. As discussed in the online appendix, all R&D performed in Canada provides a social benefit by creating new knowledge.

2 The Business Council of Canada and the Canadian Council of Innovators are two strong advocates of this view. See Expert Panel on the State of Science and Technology and Industrial Research and Development in Canada (2018) for a detailed assessment of the barriers impeding the transformation of Canada's research achievements into commercial applications.

3 In a market economy, competition generally drives down the rate of return on investment to the firm's cost of capital. If firms exceed this competitive rate of return, they are earning rents.

4 See for example Balsillie (2021).

Box 1: The SR&ED Tax Incentive Program[a]

The SR&ED tax incentive program consists of two elements: accelerated depreciation of R&D assets and a tax credit for investment in R&D. Investment in R&D is expected to result in an intangible asset that generates revenue over an extended period. In contrast to the treatment of spending to create tangible assets, qualified spending on R&D can be deducted from income in the year it is made. This favourable tax treatment is equivalent to an investment tax credit of 4 percent for large firms and 2.5 percent for smaller firms.[b]

The federal government provides a tax credit equal to 15 percent of current expenditures on R&D by large firms and 35 percent for current expenditures by Canadian-controlled small- and medium-sized private corporations. For convenience, these two categories are labelled large and small firms. Small firms can apply for the 35 percent subsidy on up to $3 million in R&D investment. The expenditure limit is reduced to zero as capital assets rise to $50 million from $10 million. The tax credit is refundable for small firms, making it equivalent to a direct subsidy, but large firms must use the credit to reduce taxes otherwise payable. Large firms with insufficient tax liabilities to claim the credit as it is earned may carry unused credits forward up to 20 years and back three years.

All provincial governments except Prince Edward Island offer tax credits for R&D performed within their borders. Provincial credits are refundable for all firms in the Atlantic provinces, Quebec, and Manitoba. Ontario, Saskatchewan, and B.C. offer refundability for small firms only. Alberta offers a refundable "grant" through the tax system to small firms only. Most provinces use the base and the expenditure limit defined by the federal government. The key exception is Quebec, where the base is labour costs and 50 percent of outsourced, or contract, R&D. The weighted average federal-provincial statutory rate is 42.6 percent for small firms and 20.2 percent for large firms (Table).

The effective subsidy rates on R&D performed in Canada are lower than the statutory rates because not all spending on R&D is included in the base for the credit: capital expenditures are excluded and only 80 percent of eligible R&D that is outsourced is included. In addition, the base for the federal credit excludes all other sources of government support. These adjustments result in effective rates that are about 8.5 percent lower than the statutory rates.

Federal and Provincial SR&ED Investment Tax Credit Statutory Rates

	Federal	Provincial[1]	Combined[2]
Small firms[3]	35.0	11.7	42.6
Large firms	15.0	6.1	20.2

1 Expenditure-weighted sum of provincial stautory rates.
2 The base for the federal credit is reduced by the amount of provincial assistance provided.
3 Canadian-controlled private corporations.

a This is a modified version of a discussion in Lester (2021).

b The economic depreciation rate of R&D assets is assumed to be 15 percent in this calculation. The subsidy varies by size of firm because the lower tax rate applied to small firms reduces the value of deductions

resulting IP in Canada.[5] This policy may not be administratively feasible.[6] Further, even if feasible, imposing these performance requirements may not raise real incomes in Canada. Consider first the sale of IP developed from R&D performed in Canada. If, as seems likely, the price of Canadian IP is determined in the US, the SR&ED credit will not affect the sale price. Recapture of SR&ED benefits would therefore reduce the return to R&D, resulting in less of it being performed. If the prospect of recapturing SR&ED benefits induces firms to commercialize IP in Canada instead of abroad, the return to R&D will also fall, in this case because commercialization abroad would have been more profitable. Finally, if a firm would maximize its profit by licensing its IP to parties outside Canada, recapture of SR&ED benefits would again reduce the return to R&D, either by reducing the net return from licensing abroad or by inducing firms to restrict licensing to Canadian entities. Less R&D means less new knowledge will be created, which hurts economic performance, while additional commercialization activity is expected to result in more economic rents, so the net impact cannot be determined without further analysis. However, in contrast to R&D, which has well-documented benefits, the existence of rents from commercialization is more controversial (Box 2).

A better policy approach than imposing performance standards on SR&ED beneficiaries would be to implement new measures encouraging commercialization activity in Canada. As discussed below, an IP Box would have a favourable impact on the propensity to commercialize IP in Canada while stimulating R&D. In addition, careful analysis may demonstrate that targeted subsidies are appropriate to encourage commercialization of IP in Canada.

Broader Eligibility Criteria

"Modernization" of the SR&ED tax incentive is a stated goal of the review. The budget announcement makes it clear that modernization will include revisions to the definition of work eligible for the SR&ED credit. This objective is motivated by Minister Freeland's mandate letter, which refers to "aligning eligible expenses with today's innovation and R&D."

The internationally accepted definition of R&D is "creative and systematic work undertaken in order to increase the stock of knowledge … and to devise new applications of available knowledge" (OECD 2015). The current eligibility criteria for SR&ED are consistent with this definition, with the exception that research in the social sciences and humanities is excluded.[7] Changes to eligibility criteria must be carefully assessed to determine if the newly eligible spending is consistent with the definition of R&D, in which case it would qualify for a subsidy.[8] If the spending under consideration is not R&D, the merits of providing a subsidy and the best instrument for delivering it should be assessed.

5 This would be like conditions imposed on IRAP recipients, who may have restrictions placed on the disposition of intellectual property developed with IRAP funding. See National Research Council. 2018. "Terms and Conditions, Industrial Research Assistance Program (IRAP)."

6 The enhanced SR&ED benefit paid to small Canadian-controlled firms is refundable, and therefore classified as a spending program, which would make it easier to impose performance requirements on recipients. But the number of beneficiaries, around 20,000, would make performance requirements administratively challenging. The regular credit must be deducted from taxable income, making it particularly difficult to impose performance criteria on beneficiaries.

7 R&D in the social sciences and humanities accounts for about 0.1 percent of total business R&D (Statistics Canada Table: 27-10-0343-01.)

8 See the on-line appendix for a discussion.

Box 2: Should Governments Subsidize the Commercialization of R&D?

The case for subsidizing R&D rests on the existence of knowledge spillovers. Commercialization of R&D does not create any new knowledge, but there may be another spillover effect that justifies government intervention. The argument starts with the idea that innovative firms earn above-normal profits, or economic rents. Society has an interest in maximizing these economic rents because they are shared by investors, workers, and the broader economy through taxation. In this framework, subsidizing commercialization activity will result in higher profits, higher wages, and increased tax revenue.

However, the case for subsidizing the commercialization of R&D is ambiguous. One concern is that it can be difficult to identify sectors that are earning economic rents. For example, above-average wages may reflect skill differences rather than rents. Further, rents may be confined to a small proportion of firms in an industry, which would reduce the cost-effectiveness of general commercialization subsidies.

A second consideration is that even if the existence of economic rents can be demonstrated, careful analysis is required to determine if the benefits of support exceed the cost. Commercialization rents represent a transfer of income from consumers to producers. As a result, they raise national income if they are realized on sales to foreign consumers or if domestic sales displace imports that generate rents for foreign producers. Any increase in national income must be balanced against the costs of providing the subsidy.

Finally, the policy raises fairness issues. The additional rents accrue to the investors and workers in the firms making the innovation. While the rest of society shares in these rents because they are taxed, the policy targets sectors with relatively high wages. To avoid a regressive outcome, the subsidy should be financed by taxes on the relatively well-off or by reductions in program spending that benefits high-income individuals. This could be achieved, for example, by financing the subsidy through personal income taxes or surcharges on incomes above a certain threshold. But the fairness of having one group of high-income individuals bear the cost of the subsidy that primarily benefits another high-income group needs to be carefully considered.

The CCI has advocated, most recently in its 2022 pre-budget submission, that the costs incurred to manage IP should be a SR&ED-eligible expense.[9] IP management expenses are clearly not R&D, so the case for making them eligible expenses would have to be based on practical considerations, such as avoiding the cost of setting up a separate program. However, modifying SR&ED would make it more complex and would tie assistance levels to the SR&ED tax credit rate. If support for IP management expenses is considered appropriate, a separate measure with a distinct subsidy rate, such as allowing multiple deductions for these costs, should be considered. Until now the government has kept support for R&D, which is motivated by well-known spillover benefits, separate from support for other innovative and commercialization activities, which are motivated by other considerations. This is a sound approach and should be maintained.

Varying support by degree of risk

Minister Freeland's mandate letter states that the SR&ED incentive should be more generous for firms that take the greatest risks. Since it would be inefficient to subsidize risk when markets are functioning properly, the

9 The CCI is the only institution advocating this policy measure.

underlying assumption must be that a market failure is preventing firms from undertaking the socially optimal amount of risky R&D projects.

Theoretical analysis suggests capital market imperfections cause the amount of seed capital and hence the number of innovative start-ups to be inefficiently low. On the other hand, capital market imperfections are likely resulting in overinvestment in the venture capital segment, leaving the net impact on innovative firms ambiguous (Lester 2017). While not all innovative firms are R&D intensive, there do not appear to be any compelling reasons to assume that investment in risky R&D projects is too low. Further, even if it were too low, the SR&ED tax credit would not be the right instrument to use. Whenever possible, government intervention should act directly on the market failure, which in this case would be related to the provision of risk capital.

Simplification

Simplification is a worthy goal. If it succeeds in reducing business compliance costs and government administration expenses, simplification has two positive effects. First, it raises the net social benefit of the program by freeing up resources to be used productively elsewhere. Second, reducing the cost of making a claim is equivalent to an increase in the subsidy rate arising from the tax credit, which would boost R&D spending.

There is, however, unavoidable friction between ease of access and maintaining the integrity of R&D support programs. These programs have a net benefit for society only if they subsidize the creation of new knowledge. Less stringent review of claims will improve take up and user satisfaction but at some point, increasingly relaxed standards will reduce the net social benefit of the program by allowing some ineligible spending to qualify as R&D. Even with clear eligibility criteria and sensible risk-based verification procedures, there will be a cost to maintaining program integrity and some unhappy clients.

The CRA has modified its procedures on several occasions since 1999 to make the program more accessible while maintaining its integrity. CRA has implemented and enhanced pre-claim project reviews, process reviews, personalized account services, and a first-time claimant advisory service.[10] A key objective of these initiatives is to improve the speed and predictability of the claims process, which is often described as reducing eligibility risk.

Before embarking on another round of simplification, the government should gather information on the costs incurred by firms when making a SR&ED claim. It would be particularly useful to obtain a perspective on how compliance costs have changed over time.[11] A partial picture can be obtained from information reported to CRA since 2014 on the amounts paid to third parties to prepare claims. Since not all firms make use of claim preparers, a more complete picture would be obtained by undertaking a survey of SR&ED claimants and comparing the results to the survey undertaken for the Independent Panel on the Review of Federal Support to Research and Development (Jenkins et al. 2011).[12] The new survey should also ask firms

10 See Secretariat to the Review of Federal Support to Research and Development Expert Panel (2011) and "Evolution of the SR&ED Program – a historical perspective" for additional detail.

11 An international comparison would also be of interest, but I was not able to find empirical evidence on compliance costs for any other country that provides investment tax credits.

12 The summary of the survey provided in Lester (2012) reports that compliance costs represented 14.2 percent of the support received by small firms and 4.7 percent of the support received by large firms. These costs reduce the statutory subsidy rate by 4 ½ percentage points, from 35 percent to 30.5 percent, for smaller firms and about .6 percentage points, from 15 percent to 14.4 percent, for large firms. The higher costs for small firms reflect the existence of substantial fixed costs in making a claim.

to decompose the time spent applying for a SR&ED tax credit into such elements as initial record keeping, filing a claim, and responding to CRA requests for additional information. The resulting information could help focus CRA's simplification efforts.

The SR&ED Review – Expanded Scope

The budget announcement and the limited amount of additional detail available suggests that the review will focus on issues, other than simplification, that would be best handled with new measures rather than by modifying SR&ED. This approach would forgo the opportunity to make two bold changes that would substantially improve the SR&ED investment tax credit.[13] First, support for R&D performed by small and large firms should be rebalanced. Second, the review should assess the merits of varying the subsidy rate by the type of R&D performed, while keeping the overall subsidy rate roughly constant.

Rebalance support for large and small firms

Governments in Canada subsidize R&D performed by small firms at a much higher rate than R&D performed by larger firms. The combined federal-provincial investment tax credit rate is approximately 20 percent for large firms compared to about 43 percent for smaller firms (Box 1). The huge gap in subsidy rates would be justified if spillovers from small firms were greater than those from larger firms. The evidence, however, suggests the opposite. Kim and Lester (2019) report that R&D performed by large firms generates spillovers that are almost three times greater than those generated by small firms.[14]

As discussed in Lester (2021), the misalignment of subsidy and spillover rates is the main reason why investment tax credits for small firms fail a benefit-cost test while their large firm counterparts result in a substantial net benefit. Taking into consideration spillovers and the other factors, such as compliance costs, that affect the net social benefit (see the online appendix), the large firm tax credit rate that maximizes the net social benefit is 2 ½ times greater than the optimal credit rate for smaller firms. Rebalancing the SR&ED tax credit by reducing the rate for small firms and increasing it for large firms would therefore raise the net social benefit of the R&D subsidy.

Rebalancing support would also increase the proportion of R&D projects that are successfully commercialized.[15] Subsidies lower the hurdle rate for private investment, which allows R&D projects with less commercial potential to go ahead. Reducing high subsidies for small firms would therefore reduce the number of unsuccessful R&D projects with little or no effect on the number of successful projects.

13 The government should also monitor how implementation of a global minimum tax rate would affect the value of the SR&ED tax credits to foreign multinational enterprises (MNEs). A subsidiary of a foreign MNE benefitting from SR&ED could in principle see its effective income tax rate calculated for purposes of the global minimum tax fall below 15 percent, which would trigger top-up payments to the home country (Bunn 2022). For this to occur SR&ED-eligible expenses would have to represent a substantial fraction of overall expenses. However, this outcome becomes more likely under the current "model rules" for calculating tax liabilities for purposes of the global minimum tax. These rules replicate standard accounting treatment with the exception that tax liabilities are determined using a 15 percent rate rather than a country's statutory tax rate.

14 Large firms generate 52 cents in spillovers for each dollar spent on R&D, while the spillover rate for small firms is 19 percent.

15 In addition, projects with higher commercial value to the firm performing the R&D may generate larger spillover benefits to other firms.

Varying support by type of R&D

There are good reasons to believe that spillovers vary by the type of R&D performed. Basic research is performed to acquire new knowledge with no specific application or use in mind. It is an early stage activity with a broad range of possible applications and therefore has the potential for higher spillovers (Akcigit, Hanley and Serrano-Velarde 2021). Applied research is directed towards a specific practical aim or objective while experimental development is undertaken to produce new or improved products and processes. Since these activities are closer to market, firms have an incentive to protect the resulting inventions through formal IP strategies. As a result, applied research and experimental development may be less prone to unintended knowledge spillovers than basic research (Hottenrott and Lopes-Bento 2019).

There does not appear to be any empirical work assessing the size of spillovers by type of R&D. However, two studies of how R&D affects total factor productivity (TFP)[16] provide indirect support for the view that spillovers decline as the distance to market gets smaller. Luintel and Khan (2011) examine how R&D affects productivity growth in a panel of 10 OECD countries over the 1970 to 2006 period. Their results imply that a given amount of spending on basic research has a much stronger impact on economy-wide TFP than spending on applied research and experimental development, the two other types of R&D, taken together. Sun, Wang, and Li (2016) undertake a similar analysis covering the 1996 to 2010 period for 23 OECD member countries. The authors assess the impact of the three types of R&D on TFP; they conclude that basic research has the largest impact on TFP, followed by applied research and experimental development.

The results obtained by Luintel and Kahn imply that spillovers from basic research are several times larger than spillovers from applied research and experimental development.[17] Akcigit, Hanley, and Serrano-Velarde (2021) develop a model to examine the separate impacts of basic and applied research[18] on aggregate innovation and growth. Model parameters are based on French data from the 2000 to 2006 period. Spillovers from the two types of research are not directly estimated; they are inferred from secondary relationships in the data. A key finding of the study is that the optimal subsidy rate for basic research is more than four times higher than the optimal subsidy rate for applied research.

Varying subsidy rates by type of research would raise the spillover benefit from subsidizing R&D, but this gain would be diminished by increased program complexity and more opportunities to relabel spending to take advantage of the higher subsidy rate. Firms making a SR&ED claim are now asked to classify projects in two categories: basic/applied research and experimental development. Applying differential rates to this categorization would mitigate the upward pressure on compliance and administration expense. It would not eliminate the upward pressure because the differential rates would prompt both firms and claims administrators to review the classification more closely. Combining basic and applied research in a single group also reduces the scope for deliberate mislabeling of R&D projects.

The potential changes to subsidy rates can be illustrated by assuming that spillovers from basic and applied research are three and two times larger, respectively, than spillovers from experimental development. Given

16 TFP measures how efficiently all inputs are used to produce goods and services. This is a broader efficiency measure than labour productivity, which measures output per unit of labour input.

17 The authors present estimates of the elasticity of TFP with respect to the two types of R&D. The point estimates are lower for basic research. However, spending on basic research is substantially smaller than the sum of applied research and experimental development, so a given increase in R&D spending has a larger impact on TFP when it arises from basic research.

18 The applied research category includes experimental development.

the distribution of R&D by type,[19] setting the rate for the combined category "basic and applied research" at 28 percent and the rate for experimental development at 12.5 percent would keep the fiscal cost of the SR&ED tax credits roughly constant, before any induced effects on the composition of R&D.

Reviewing the Tax Treatment of Intellectual Property

The review will assess whether a special low tax rate on income from IP, also known as a patent box or IP Box regime, would be good public policy. The announcement includes a commitment to seek views on the suitability of an IP Box.

As discussed in Lester (2022), two recent developments favour the implementation of an IP Box. The first is the international agreement that income from IP can only be given favourable treatment if the income arises from R&D performed in the implementing jurisdiction. The second is a tentative agreement to impose a global minimum corporate income tax rate. Taken together, these developments prevent preferential IP regimes from being used to attract income arising from R&D performed in other jurisdictions while allowing countries to defend against poaching of IP income by other jurisdictions, particularly tax havens.[20]

A preferential regime for IP income encourages R&D by raising its after-tax rate of return. In contrast to the SR&ED investment tax credit, which is payable when the R&D is performed, the tax benefit from an IP Box is paid only if the R&D has been successfully commercialized. Despite this timing difference, the impact of the two measures on R&D performed by large firms will be similar (Box 3). Further, the increase in R&D per dollar of tax revenue forgone is likely to be higher for a preferential IP regime. If the tentative agreement on a global minimum tax rate is ratified by enough countries,[21] setting the IP Box rate at 15 percent, or slightly above, could eliminate outbound shifting of IP profits over time. This effect ensures that the cost effectiveness of an IP Box will be higher than for an increase in the SR&ED tax credit of equivalent value. The cost effectiveness advantage rises with the relative importance of IP profits booked outside of Canada.

A preferential IP regime also has the advantage of encouraging more commercialization of R&D in Canada. However, the incentive varies by type of IP income. IP that can be licensed to third parties generates income that can be booked in Canada even if the IP is commercialized elsewhere. In contrast, IP that generates implicit income because it is embedded in the price of products sold would have to be commercialized in Canada to take advantage of the special low tax rate.

Implementation of an IP Box would be good public policy. A preferential IP regime would primarily benefit larger firms, but since support for R&D performed by larger firms is too low from society's perspective, the IP Box should be complementary to support provided by the SR&ED investment tax credit.

There are two key design features that must be adopted to maximize the benefits of an IP Box. First, income from all assets developed from R&D performed in Canada, not just patents, must qualify for special treatment. Second, qualifying income must include not only explicit royalties and licensing fees, but also implicit IP income embedded in products sold, or in production processes developed from R&D performed in Canada.

19 Business R&D over the five years ending in 2019 was distributed as follows: basic research 3.8 percent, applied research 11.5 percent and experimental development 84.7 percent. (Source: Statistics Canada. Table 27-10-0344-01.)

20 Nikolakakis (2022, 8) makes a similar argument without explicitly referencing a preferential IP regime.

21 The agreement contains a "backstop" rule (the Under-Taxed Payments Rule) to ensure that multinational enterprises are subject to the minimum tax even if they operate in or through other jurisdictions that have not ratified the agreement.

Box 3: How Does a Preferential IP Regime Affect Investment in R&D?[a]

Taxing IP income at a special low rate gives firms an incentive to perform more R&D by raising its after-tax return. Although the benefit from an IP Box is received only if R&D projects are successfully commercialized, its impact on R&D performed by large firms is likely to be similar to that of the SR&ED investment tax credit, which is payable when the R&D is performed. Firms performing R&D do not expect all projects to be successful, so the hurdle rate for investing rises to compensate for unsuccessful projects. An IP Box therefore implicitly subsidizes all R&D performed, not just successful projects.

The question remains, however: do firms react the same to an incentive received before they make an investment as to an incentive with the same present value received after the investment has been made? Both measures raise the expected return on R&D investment by a known amount, so unless a firm is credit constrained, they should have the same impact on investment. Large firms are likely to be able to finance investment with internal cash flow or by accessing financial markets. In contrast, many start-ups and small firms would respond less strongly to an after-the-fact incentive because of limited cash flow and limited access to financial markets. Another way to make this point is that the discount rate used to calculate the present value of an after-the-fact incentive would be much higher for credit-constrained firms than for other firms.

a This is a modified version of a discussion in Lester (2022).

Conclusion

The ultimate objective of the SR&ED program is to raise the economic well-being of Canadians. The program is achieving this objective, but its effectiveness could be improved. Unfortunately, the upcoming review is focussed on issues that will have, at best, a minor impact on the net social benefit of the program. The best way to improve the effectiveness of the SR&ED investment tax credit is to align support for large and small firms more closely with the spillover benefits they generate.

Implementation of a special low tax rate on income from intellectual property would be good public policy. An IP Box is a cost-effective way to encourage R&D and its commercialization in Canada. The federal government intends to seek views on the merits of an IP Box. This approach should be extended to the SR&ED review. To make these consultations as productive as possible, the government should release detailed information on the use of the SR&ED program.

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