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FISCAL AND TAX POLICY

## Spurring R&D: Canada Needs Focused Reforms to SR&ED and an IP Box

by John Lester

- Finance Canada is conducting a review to modernize and improve the scientific research and experimental development (SR&ED) tax incentive program, and is considering the creation of a Patent Box for Canada.
- The review of SR&ED should recognize that its raison d'être is to encourage R&D, which benefits society through knowledge spillovers. Separate programs should be used to support other activities on the innovation continuum.
- The spillover benefits from the program would be maximized by rebalancing support in favour of large firms and by subsidizing basic and applied R&D at a higher rate than experimental development. The regular SR&ED tax credit should be made refundable, with the change phased in to reduce its short-run cost. Claims for the refundable SR&ED credit should be made separately from filing an income tax return.
- The scale-up of innovative startups in Canada should be encouraged by modifying the Industrial Research Assistance Program (IRAP) to shift from non-repayable assistance for R&D to repayable assistance for commercializing inventions.
- A preferential tax regime for IP income from more than just patents (i.e., an IP Box) would be good public policy. To maximize its favourable impact, income qualifying for the special low rate must include i) income from all assets developed from R&D performed in Canada, not just income from patents and ii) implicit IP income embedded in products sold that have been developed from R&D performed in Canada.

Finance Canada announced in late January the start of consultations on a cost-neutral modernization and improvement of its scientific research and experimental development (SR&ED) tax incentive program, described in Box 1, and on the suitability of creating a Patent Box regime. A second round of consultations for the SR&ED credit was launched on April 25, with a set of questions that this E-Brief addresses. These consultations are the first step in a review of the SR&ED program

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first announced in Budget 2022. They are taking place against a backdrop of distressingly poor productivity performance, concerns about the amount and effectiveness of R&D performed in Canada, and worries about the ability of innovative startups to scale up their operations domestically.

### Box 1: The SR&ED Tax Incentive Program<sup>a</sup>

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.<sup>b</sup>

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 for the enhanced credit is reduced to zero as capital assets rise to \$50 million from \$10 million. The tax credit is fully refundable for small firms for R&D investment up to their expenditure limit. Small firms exceeding their expenditure limit receive a 15 percent tax credit that is 40 percent refundable.

Large firms must use the 15 percent 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 BC. offer refundability for small firms only. Alberta offers a refundable “grant” through the tax system to small firms only. Most provinces use the expenditure base and 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).

Box 1 Table: Federal and Provincial SR&ED Investment Tax Credit Statutory Rates 2024

	Federal	Provincial <sup>*</sup>	Combined <sup>**</sup>
Small firms <sup>***</sup>	35.0	10.9	42.1
Large firms	15.0	6.0	20.1

Notes:

\* Expenditure-weighted sum of provincial statutory rates.

\*\* The base for the federal credit is reduced by the amount of provincial assistance provided.

\*\*\* Canadian-controlled private corporations.

### Box 1: Continued

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 for R&D. These adjustments result in effective rates that are about 8.5 percent lower than the statutory rates.

a Reproduced with minor changes from Lester (2022b).

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.

## Expanding the List of Eligible SR&ED Expenses

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.

The rationale for subsidizing R&D is the existence of knowledge spillovers. The motivation for subsidizing non-R&D activities is different, so the preferred or optimal subsidy rate for them won't necessarily be the same as the SR&ED credit rates. As a general principle, there should be one policy instrument per target, so that measures can be tailored to achieve a specific objective. This targeted approach allows the net social benefit of supporting innovation to be maximized (Box 2).

The federal government generally respects the one instrument per target principle while providing support at all points on the innovation continuum (Table 1). When assessing suggestions to add to the expenditures eligible for the SR&ED tax credit, the first step should be to see if the need is already met through an existing program. The second step should be to see if a new program is necessary or if there is an efficiency argument for adding a new element, with a distinct subsidy rate, to the SR&ED claim instead.

Consider the suggestion that patenting costs be included in eligible SR&ED expenditures, giving small firms a 35 percent tax credit for these expenses. Introduction of full expensing for patenting expenses in the 2024 budget was a less generous subsidy; however, it could be enhanced by making a further adjustment to capital cost allowance rates to permit a super deduction of expenses. There does not appear to be any efficiency gain from making this adjustment through the SR&ED claims process.

The consultation questions provided by Finance imply that the higher SR&ED tax credit for small firms is justified because it compensates for the difficulties innovative small firms have accessing risk capital. This view ignores the substantial amount of support for risk capital investment already provided by the federal government. The Business Development Bank of Canada has a risk capital portfolio including uncommitted funds of approximately \$4 billion. As discussed in Box 2, a separate financing program is superior to relying on the SR&ED tax credit, which would entail all firms getting the same benefit, while risk capital financing can be tailored to the needs of individual firms. The amount of support provided by the BDC should be carefully assessed to determine if it is at the right level. If it is too low, financial support should be increased, funded with a reduction in the SR&ED refundable credit rate.

## Box 2: Maximizing the Net Social Benefit from the Innovation Support System

As noted in the text, the federal government provides support at every point on the innovation continuum. With some exceptions, these measures target well-defined activities, often by using program sub-streams. This is a sound approach since it allows the net social benefit of market intervention to be maximized.

The gross social benefit from a subsidy consists of the positive impact on subsidy recipients and any positive “spillover” effects on the rest of society. The social costs of intervention consist of the opportunity costs – the forgone earnings – of the additional workers and capital pulled into the subsidized activity and the cost of delivering the subsidy. In many cases, the earnings of the workers and capital drawn into the subsidized activity don’t change, in which case the net social cost equals the spillover benefits for the rest of society less the cost of delivering the subsidy. Broadly defined, delivery costs include the efficiency losses caused by overriding the market-determined allocation of workers and capital, by raising taxes or issuing debt to finance the subsidy, and by using resources to administer and comply with the subsidy.

In general, the delivery costs rise more quickly than the spillover benefits as the subsidy rate rises. It is therefore possible to calculate the subsidy rate that maximizes the net social benefit. For the SR&ED tax credit, the net social benefit will be maximized when the subsidy rate equals the spillover rate, if it is assumed that raising taxes does not harm economic performance. Making the more realistic assumption that taxes do affect economic performance, the optimal subsidy rate will be lower than the spillover rate.

Assuming for a moment that it is possible to determine the optimal subsidy rate for the SR&ED credit, increasing the rate to achieve another objective, such as mitigating the financing constraints of small innovative firms, will necessarily reduce the net social benefit of subsidizing R&D. Since it is in principle possible to implement a separate financing program that maximizes the benefit of that subsidy, the overall net social benefit will be maximized by setting up two separate programs. It is clearly not possible to determine the optimal subsidy rates with any precision. However, even if the subsidy rates are not at their optimal levels, setting them by considering the social benefits and costs specific to each measure will result in a higher net social benefit than if a single program is used to achieve two objectives.

### Maximizing the Spillover Benefits from R&D<sup>1</sup>

The principle of one policy instrument per target implies that reforms to the SR&ED tax incentive program should focus on maximizing spillover benefits and separate programs should be used to support other activities on the innovation continuum. Maximizing the spillover benefits from R&D requires rebalancing subsidy rates for small and large firms and varying subsidy rates by the type of R&D performed. As discussed in Lester (2021), R&D incentives should increase with the spillover rate.

The spillovers generated per dollar of R&D performed by small firms are substantially less than the spillovers from larger firms.<sup>2</sup> However, R&D spending by small firms responds more strongly to a subsidy,<sup>3</sup> which narrows

1 This section is a modified and condensed version of a discussion in Lester (2022).

2 Kim and Lester (2019) report that large firms generate 52 cents in spillovers for each dollar spent on R&D, while the spillover rate for small firms is 19 cents.

3 A study by Finance Canada (2021) finds that small firms are about 30 percent more responsive than large firms. A literature survey indicates that this finding is consistent with results for other countries.

Table 1: Innovation Support System – Small Firms

Support for:	Inputs				Outputs	
	Talent	Digital Technology	Other Inputs	R&D	Commercial-ization	Scaleup
Key Programs	Canada Digital Adoption Program		Intellectual Property Strategy	SR&ED	AI Assist Program	AI Technologies
	Homegrown Research Talent	AI Compute Access Fund		Elevate IP	IRAP	Regional Economic Growth through Innovation
	Mitacs	AI Sovereign Compute Strategy	Expensing of patents, data processing equipment			Sustainable Development Technology
	Youth Employment and Skills Strategy	Sectoral AI Adoption		Global Innovation Clusters		
				Innovation Solutions Canada*		
				BDC venture capital programs**		
Annual Funding \$m ***	355	765	185	2445	1030	
Notes:						
* Support is targeted using separate program streams.						
** BDC's venture capital portfolio is \$4 billion, including uncommitted funds. Support is targeted using separate program streams.						
*** Excluding BDC venture capital programs.						
Source: Author's compilation from departmental plans and Budget 2024.						

the gap in spillovers generated per dollar of subsidy received. The adjusted spillover ratio suggests revenue-neutral rates for small and large firms of 12 and 25 percent respectively, which is almost the exact inverse of the current 35-15 percent rates.

I am not prepared to recommend this rate structure; it would be too substantial a change based on the results from a single study. The second round of consultation questions invites consideration of one rate for all firms. My estimate of the revenue-neutral rate is 21 percent. However, instead of a single rate, I recommend setting the small firm subsidy rate about 5 percentage points above the large firm rate, which would equalize the subsidy rates net of compliance costs.<sup>4</sup> The revenue-neutral rates would be 25 percent for small firms and 19.5 percent for large firms.

Theory and empirical evidence support the view that spillovers decline as R&D becomes more focused on resolving the technological issues raised by bringing specific products and services to market.<sup>5</sup> Spillovers are highest for basic research, which is performed without a specific application or use in mind. Applied research has a specific practical aim or objective while experimental development is undertaken with the intention of creating or improving specific products and processes. The specific results from applied research and experimental development can be protected through trade secrecy and patents, leaving less scope for unintended knowledge

4 Compliance costs are discussed below.

5 See Lester (2022) for a more detailed discussion.

spillovers than basic research. While the empirical evidence is limited, spillovers from basic research appear to be several times larger than for applied research and experimental development.

Increasing the subsidy rate for basic and applied research while reducing it for experimental development would shift expenditures from the latter to the former and raise the spillover benefit from supporting R&D. To reduce the upward pressure on administration and compliance costs from this change, different rates should be applied to the existing reporting categories, which are basic/applied research and experimental development.

I have illustrated the potential changes to subsidy rates by assuming that spillovers from basic and applied research are three and two times larger, respectively, than spillovers from experimental development. With these assumptions, spillovers from the combined basic/applied category are 2.1 times higher than for experimental development. However, given the low share of basic/applied research,<sup>6</sup> the revenue-neutral credit rates for experimental development do not decline substantially from the weighted average of rebalanced rates discussed above. The rates shown in Table 2 would keep the fiscal cost of the SR&ED tax credits roughly constant, before any induced effects on the composition of R&D. This calculation assumes that the distribution of R&D by type is the same for small and large firms. This should be verified before the rates are revised.

### Refundability

Refundability of the regular credit would be good public policy, primarily because the subsidy rate for R&D should be aligned with the spillover rate; it should not vary with the tax status of the recipient. Work undertaken for the Jenkins Panel by Finance Canada showed that the inability to claim credits as they were earned reduced the effective credit rate by about 15 percent in the early 2000s. The regular credit is well below the rate that maximizes its social benefit (Lester 2021), so the reduction in the effective credit rate lowers the net social benefit. Further, the impact varies substantially by firm for reasons that may be difficult to predict. The resulting uncertainty could reduce the responsiveness of R&D spending to the subsidy by more than implied by the average impact.

A second consideration is that non-refundable tax credits reduce the effective income tax rate and can therefore trigger “recapture,” or transfer of the benefit, to the US government. A plausible upper limit on the share of the non-refundable credit recaptured under the Global Intangible Low-taxed Income (GILTI) legislation is 40 percent (Box 3). However, the actual share is likely to be substantially less because US multinationals calculate their tax payable under GILTI on a world-wide basis – a low effective tax rate in Canada could be offset by higher taxes

**Table 2: Proposed Rate Structure for SR&ED Tax Credits (percent)**

	Small Firms	Large Firms
Federal		
Current Rates	35	15
Rebalanced	25	19.5
R&D by type		
Basic/applied	45	35
Experimental Development	21	17
Combined federal-provincial		
Rebalanced	33.2	24.3

Source: Author's calculations.

<sup>6</sup> Business R&D over the five years ending in 2021 was distributed as follows: basic research 3.4 percent, applied research 11.7 percent and experimental development 84.9 percent. (Source: Statistics Canada. Table 27-10-0344-01.)

### Box 3: Recapture of the Regular SR&ED Tax Credit by Foreign Governments

The US has imposed a rough and ready minimum tax on the intangible income earned by US corporations through the global intangible low-taxed income (GILTI) legislation. With some simplification, foreign source income of US multinational enterprises (MNEs) is taxed at minimum of 13.125 percent now, rising to 16.4 percent in 2026, with a carve out for real activity in the host jurisdiction. However, the carve out – 10 percent of the value of tangible capital in the host jurisdiction – is such that the tax could result in some recapture of non-refundable tax credits in Canada.

The average effective income tax rate paid by US affiliates operating in Canada was 11.8 percent in 2018.<sup>a</sup> A US affiliate with no intangible capital and earning a 10 percent return on its tangible capital would not be subject to GILTI, but if the return was 15 percent, more than a quarter of Canadian non-refundable tax credits would be transferred to the US (Table). For an affiliate with 25 percent of its profit from intangibles, from 20 to 40 percent of refundable credits could be recaptured. As discussed in the text, the recapture rate could be reduced to zero by world-wide pooling of GILTI liabilities.

As with the GILTI legislation, the intention of the global minimum tax (GMT) is to discourage shifting of income from intangibles to low-tax jurisdictions. This is achieved by allowing a “substance-based income exclusion” from the minimum tax calculation. The income exclusion is now calculated as 10 percent of payroll costs and 8 percent of the value of tangible capital employed, with both rates falling to 5 percent over 10 years. This proxy for the normal rate of return on tangible capital is high enough that it is unlikely that any refundable tax credits will trigger the GMT. For example, if an affiliate earns all of its net income from tangible capital and payrolls are 1.5 times profits, the income exclusion would reduce the 15 percent GMT by 6.125 percentage points.<sup>b</sup> If the effective tax rate of affiliates of non-US MNEs is also 11.8 percent, some recapture of refundable tax credits would only occur if the share of profits from intangible assets reaches 50 percent and if payroll expenses represent one-eighth of capital income.

**Box 3 Table: Percentage Recapture of Refundable Tax Credits under GILTI**

Rate of Return on Capital (percent)	Percentage of Profits Arising from Tangible Capital		
	100	90	75
10	0	8.3	20.7
12.5	16.5	23.2	33.1
15	27.5	33.1	41.4

a Internal Revenue Service SOI Tax Stats—International business statistics, Controlled foreign corporations, Table 2 (<https://www.irs.gov/statistics/soi-tax-stats-controlled-foreign-corporations>)

b The relationship between profits – the return to capital – and payrolls is based on assumed income shares from tangible capital for capital and labour of 40 and 60 percent.

in another jurisdiction. Using the upper limit of the recapture share for US firms, the overall percentage of the regular credit transferred to the US would be about 10 percent.<sup>7</sup>

In contrast, the regular SR&ED tax credit is unlikely to be recaptured under the 15 percent global minimum tax (GMT) rate because of the substantial “carve out” for real activity (Box 3).

Refundability could be set up to be revenue-neutral in the long run by reducing the credit sufficiently to capture the impact of delayed claims on the effective rate. However, the cost would be front-end loaded. Full refundability in 2022 with an adjustment to the credit rate for delayed claims would have cost approximately an additional \$1 billion, which is the amount of credits earned in the year but carried forward, reduced by 15 percent.<sup>8</sup> The additional cost would decline in subsequent years as the stock of unclaimed credits is worked off.

Since there is empirical evidence that the regular credit is well below the rate warranted by the spillovers generated by large firms, we recommend that refundability be implemented without any reduction in the statutory rate. This would raise the long-term cost of the credit by about \$270 million a year. The short-term cost could be reduced substantially by phasing in refundability. Access to firm-level data on credits is required to determine a phase-in profile that would keep the additional cost within the additional funding allocated over the next five years.

## Benefits for Canada: More Commercialization

A key motivation for the SR&ED review is to explore opportunities to enhance the benefits to Canada from the R&D performed here. The measures to increase the spillovers from R&D discussed above will contribute to achieving this objective, but the key issue is encouraging the scale-up of small innovative firms through more commercialization activity. This would benefit Canada because innovative firms, by implementing new processes or bringing new products to market, earn above-normal profits, or economic rents,<sup>9</sup> that can be shared by investors and workers, and the broader economy through higher tax revenue. While the benefits are likely to be higher if the additional real activity takes place in Canada, commercialization of Canadian-owned IP in other countries still benefits Canada.

Canada is often described as having a scale-up problem because there are relatively few innovative Canadian-based multinational enterprises (MNEs). One explanation for this situation is that many innovative startups are acquired by foreign entities, who relocate the firm to their home market. Partial and dated support for this point is provided by Carpentier and Suret (2014), who examine successful “exits” by Canadian venture capitalists (VCs) from investments in technology-based startups over the 2001-12 period. The authors find that almost half of these successful exits result in the relocation of the Canadian firm to another country, primarily the US.

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7 Foreign firms accounted for about 55 percent of regular SR&ED claims in the five years ending in 2021 and about 45 percent of the direct investment in Canada was made by affiliates of US firms, suggesting that US firms could account for about a quarter (.55 times .45) of regular credit claims. If the recapture rate is 40 percent, no more than 10 percent of the regular SR&ED tax credit is being transferred to the US.

8 This is an illustrative calculation using the estimate developed for the Jenkins Panel, which was based on data from the early 2000s. The estimate would have to be updated using more recent data.

9 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.



## Performance requirements on SR&ED beneficiaries

To capture more of the economic rents from the commercialization of inventions and hence raise real income in Canada, some propose making SR&ED tax incentives conditional on commercializing the resulting IP in Canada. Following the Israeli model, firms would repay assistance received if the IP generated is commercialized outside of Canada, or if the firm receiving the assistance is purchased by a foreign entity. The Israeli assistance takes the form of grants, not tax credits. In Canada, restrictions on the disposition of IP may be imposed on firms receiving support under the Industrial Research Assistance Program (IRAP).<sup>10</sup> Private correspondence with IRAP officials indicates that the sale of the IP to a foreign entity triggers repayment of financial assistance received.

It would not be administratively feasible to condition the SR&ED tax credits on commercializing the IP in Canada. The enhanced SR&ED benefit paid to small Canadian-controlled firms is refundable and is therefore classified as a spending program, which would make it easier to impose performance requirements on recipients. However, the number of beneficiaries, around 17,000, would make performance requirements an administrative nightmare. The regular credit must be deducted from taxable income, making it particularly difficult to impose performance criteria on beneficiaries.

I recommend leaving the SR&ED tax credits as unconditional assistance for performing R&D and using different instruments to encourage more commercialization in Canada. More specifically, I propose changes to IRAP and note that a properly designed preferential tax regime for income from IP developed in Canada, which is discussed in the next section, would encourage the commercialization of IP in Canada.

### Using IRAP to promote commercialization

IRAP had a budget of approximately \$400 million in the 2023/24 fiscal year, which was used to provide financial assistance to perform R&D for about 3,000 firms. The rate of assistance for projects receiving support from both SR&ED and IRAP is very high (Table 3). These high subsidy rates are well above the rate that maximizes the social benefit of supporting R&D (Lester 2021). The social benefit is the private return plus the spillover benefit, so the adverse effect can happen in two ways. First, the required private rate of return declines as the subsidy rate rises. Second, if the private rate of return is a quality indicator of the R&D performed, the spillover rate would also decline as the subsidy rate rises.

**Table 3: Subsidy Rates for R&D Projects Undertaken by Small Firms (percent)**

SR&ED Investment Tax Credit Rates	
Federal	35.0
Weighted average provincial	10.9
Combined rate	42.1
Exclusion of capital costs	-2.7
Effective subsidy rate	39.4
IRAP subsidy rate	
Contributions	37.6
Advice	1.1
Total	38.7
Combined subsidy rate	
Current	64.6
With proposed SR&ED rate	60.1

Source: Access to Information request to IRAP and author's calculations.

<sup>10</sup> See the 2023 IRAP Terms and Conditions, clause 13, for more details. IRAP does not make the Terms and Conditions publicly available. I received a copy through an Access to Information request and would be pleased to provide a copy to interested parties.

Further, high subsidy rates may be contributing to low commercialization and scale-up rates. If almost two-thirds of the cost of an R&D project is paid by the government, a 15 percent hurdle rate for private investment falls to about 5 percent. Commercialization prospects for such projects are likely to be substantially lower than for projects with an expected private rate of return of 10 percent, for example.

My proposed solution is to support the scale-up of innovative startups by modifying IRAP. More specifically, I recommend shifting non-repayable support for R&D to repayable support for commercialization and scale-up. This is allowed under the IRAP's terms and conditions, but repayable assistance for commercialization of IP has not been offered since 2006. A possible approach to take would be to make assistance repayable through royalty payments, as is done in Israel. If ownership of the IP is retained in Canada and the income from the IP is taxed in Canada, but the IP is commercialized elsewhere, partial or zero repayment of assistance would be appropriate.

As discussed in Lester (2022), the case for subsidizing the commercialization of IP is ambiguous. There is a social benefit from any rents earned by innovative firms, but even if such rents are available the cost of providing the assistance may exceed the benefit. However, IRAP's current approach of subsidizing R&D is not generating a net social benefit (Lester 2012), so the opportunity cost of allocating some of its funding to support commercialization is low. Further, IRAP, through its Industrial Technology Advisers, is well-placed to identify commercially viable projects.

### Extending the refundable credit to small public firms

Lortie (2019) makes a convincing argument that restricting the enhanced credit to private firms creates a disincentive to scale up firms in Canada. Small private firms contemplating going public through an initial public offering (IPO) face a substantial reduction in cash flow from lower, non-refundable, SR&ED credits. This reduces the attractiveness for private equity investors to use an IPO to monetize their investment and makes a sale more attractive. Although my recommendation to rebalance the credit rates reduces the credit rate gap between large and small firms, the loss of refundability remains important. Allowing small public companies to access the enhanced credit would be good public policy.

### Accessibility: simplification and timeliness

An important objective is simplification, which leads to lower compliance costs for businesses and lower program administration costs. Successful simplification frees up resources to be used productively elsewhere, raising the program's net social benefit. Lower compliance costs are equivalent to an increase in the subsidy rate arising from the tax credit, which would boost R&D spending.

There is, nevertheless, unavoidable friction between ease of access and maintaining the integrity of R&D support programs. Even with clear eligibility criteria and sensible risk-based verification procedures, there will be a cost to maintaining program integrity and some unhappy clients.

Since 2014, the Canada Revenue Agency (CRA) has collected data on the amounts paid to third parties to prepare claims. About 80 percent of claims by value are prepared by third parties, so this information gives a good reading on overall compliance costs. The payments may be for full or partial claims preparation services, so the average understates true compliance costs by an unknown amount. On the other hand, firms preparing their own claims likely have lower compliance costs than firms using a claim preparation service.

Table 4: Use of Third Parties to Prepare SR&amp;ED Claims

	Cost of Service as a Percent of Amount Claimed		Percent of Claims (by value) Filed by Third Parties	
	Small Firms	Large Firms	Small Firms	Large Firms
2014	13.7	7.7	72.6	58.9
2015	13.3	8.7	73.8	56.0
2016	12.5	8.2	74.4	63.0
2017	12.5	7.9	74.8	67.6
2018	12.3	7.5	77.9	74.0
2019	12.6	7.1	78.7	74.2
2020	12.7	7.1	79.8	76.3
2021	13.0	7.3	91.8	77.4
2022	12.5	7.0	81.8	78.0

Source: Special tabulations by the Canada Revenue Agency and author's calculations.

The data in Table 4 do not support assertions that the SR&ED program is too complex, driving compliance costs to unreasonable levels. Small firms eligible for the enhanced credit paid, on average, about 12 ½ percent of the value of their claims to third-party preparers. This is only slightly higher than the 11.6 percent rate for IRAP reported in Lester (2012). Compliance costs for large firms were lower, due to the fixed costs of preparing a claim (Lester 2012). The cost of service for large firms declined from 2015 to 2022, falling from 8.7 percent to 7 percent of the value of claims filed. The declining cost likely contributed to the increased use of third-party preparers by large firms over the period.

The length of time required to process a claim is another important aspect of accessibility. CRA service standards are to process SR&ED claims that have been accepted as filed within 60 days and to complete refundable claims selected for review or audit within 180 days after a complete claim has been filed. These service standards are reasonable if the requirement that a complete claim include an income tax return is overlooked. Refundable tax credits are paid without considering the amount of taxes owed, effectively making them equivalent to grants,<sup>11</sup> so linking refundable claims to filing a tax return creates an unnecessary delay.

Refundable credit claims should be processed independently of their tax returns, which would allow applications for assistance to be made at any time during the year. However, since firms applying for the federal refundable incentive are required to deduct financial assistance received from other federal programs and from

11 Refundable tax credits are classified as grants in the government's financial accounts.

provincial programs, applications would have to be delayed until all sources of financial assistance for a given research project can be reported. Under the SR&ED guidelines, claimants are required to report all assistance they “received, are entitled to receive, or can reasonably expect to receive” for expenditures claimed in the tax year. This guideline should be applied to SR&ED grants. This would be straightforward for grants and for most tax credits provided by provincial governments, which are fully or partially refundable in all provinces. Procedures for avoiding delays associated with non-refundable tax credits in Manitoba and Ontario would have to be developed.<sup>12</sup> Overall, delivering the SR&ED refundable credit as a spending program would not be much more complicated than it is to deliver IRAP as a spending program.

## An IP Box for Canada

Taxing income from IP developed in Canada at a special low rate would be good public policy. It would be a more cost-effective way to stimulate R&D than the SR&ED credit and, if appropriately designed, would encourage the commercialization of IP in Canada. In implementing an IP Box, Canada would join 19 other OECD nations.

A preferential regime for IP income creates an incentive to perform R&D by raising its after-tax return. Providing support at the commercialization phase will have similar a similar effect on R&D as subsidizing R&D spending, after adjustment for the time value of money (Lester 2022a). However, a preferential IP regime will be a more cost-effective way to stimulate R&D than the SR&ED tax credit because its fiscal cost will be reduced as more IP profits are taxed in Canada. Setting the combined federal-provincial IP Box rate at, or slightly above, the global minimum tax rate of 15 percent would remove the incentive for domestic firms to shift IP income to tax havens.<sup>13</sup>

To maximize the impact of a preferential IP regime on R&D and the retention of IP profits in Canada, income qualifying for preferential treatment must be defined as broadly as possible. Income from all assets developed from R&D performed in Canada, not just patents, must qualify for special treatment. The OECD guidance on preferential IP regimes (OECD 2015) states that qualifying assets comprise patents and assets functionally equivalent to patents. The accompanying list of functionally equivalent assets is not exhaustive. Notably, assets developed from R&D and protected by trade secrecy are qualified assets.<sup>14</sup> This is an important consideration because a substantial fraction of inventions is protected by trade secrecy and such assets can be assigned or licensed to other parties, much like patents. In addition, 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.<sup>15</sup>

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12 In Manitoba, half the support offered through the tax system is refundable. In Ontario, the 8 percent Ontario Innovation Tax Credit is refundable while the 3.5 percent Ontario Research and Development Tax Credit is non-refundable.

13 Preferential IP income regimes can only offer favourable treatment to income from IP that was developed from R&D performed in the implementing jurisdiction. As a result, other jurisdictions with preferential IP regimes are not a source of competition for IP income. Low overall corporate income tax rates can be used to attract IP income, but the global minimum tax put a floor on the tax rate applied to mobile IP income.

14 Spain is the only country explicitly defining qualifying IP assets to include assets protected by trade secrecy. In France, qualifying assets include patentable inventions, which includes assets protected by trade secrecy. See the OECD database on IP regimes, accessible here: [https://qdd.oecd.org/data/IP\\_Regimes](https://qdd.oecd.org/data/IP_Regimes)

15 Embedded income is part of qualifying income in 19 countries with preferential IP regimes (Cabral et al. 2023). Canada could benefit from the experience of these countries to set up a regime that minimizes the administrative and compliance burden of including embedded income in qualifying income.

A broad definition of qualifying income will also permit a preferential regime to have a favourable impact on commercialization activity in Canada. 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.

The federal government should implement a preferential IP regime by providing a deduction from income that reduces the combined federal-provincial rate (for large firms in provinces that have signed a tax collection agreement with the federal government) to a rate slightly above the global minimum rate. The premium above the global minimum would recognize that firms incur costs to shift profits to other jurisdictions. Assuming a 16.5 percent rate is low enough to remove the incentive for multinational firms to shift profits, the impact on the fiscal cost of the preferential regime could be substantial. As discussed in Lester (2022a), the net fiscal cost of a preferential regime depends on the share of total IP profits now being booked in Canada. If the domestic share is just under 40 percent, the preferential regime could be self-financing.

A 16.5 percent rate would result in approximately a 10-percentage-point preference for IP income for large profitable firms. This would be equivalent to a 3-percentage point increase in the large firm SR&ED tax credit.<sup>16</sup> Including the effects on tax collection agreement provinces and Quebec's existing preferential IP regime raises the impact to 5 percentage points. The support for R&D provided by the federal preferential regime should be in addition to the support provided through the existing SR&ED large firm investment tax credit.

### Other design recommendations

The OECD guidance requires that the preferential rate be applied to qualifying income net of expenses incurred in the same year. The required treatment of R&D expenses is not specified. With no explicit action, these expenses are deducted at the regular rate. A more symmetric approach to income and expenses has been adopted by some countries by requiring that R&D expenses be reclassified as a deduction from gross IP income, which means the incentive rate determines their value. This approach is to be avoided since it would eliminate the subsidy provided by a preferential IP regime in Canada.

There is no OECD guidance on the treatment of existing IP. Countries may choose to include existing IP in qualifying assets or to link qualifying IP to R&D performed after the implementation date. The impact on R&D will not change with the inclusion of existing IP but a tax reduction on income from existing IP assets will encourage repatriation of commercialization activity over time. There will be a windfall gain to owners of existing IP, but the net fiscal cost could be quite low if the tax preference results in repatriation of IP profits booked abroad.

Consistent with the SR&ED tax incentive, qualified spending should include only R&D performed in-house or outsourced to unrelated parties resident in Canada. Acquired IP should qualify only if it is developed from R&D performed in Canada.

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<sup>16</sup> This calculation assumes a 15 percent return on R&D investments, accounts for the time value of money, and assumes that current expenses incurred to commercialize R&D are deducted at the preferential rate while R&D expenses are deducted at the regular rate. See Lester (2022a).

## Conclusion

Until now the government has kept SR&ED, which supports R&D because of the spillovers it generates, separate from support for other innovative and commercialization activities, which are motivated by other considerations. This is a sound approach and should be maintained. The “modernization and improvement” of SR&ED should focus on maximizing the spillover benefits from the program. This primarily involves rebalancing support in favour of large firms and setting separate rates for basic/applied research and experimental development. Other programs, IRAP in particular, should be modified to encourage the scale up of small innovative firms in Canada.

The regular SR&ED tax credit should be made refundable primarily to avoid tying the value of the credit to the tax status of the firm. Refundability should be phased in to reduce its short-run cost.

Claims for the refundable SR&ED credit should be made separately from filing an income tax return. This change would recognize that refundable tax credits are effectively grants paid independently of a firm’s tax status. It would substantially increase the timeliness of the refundable incentive.

A preferential regime for IP would be good public policy. To maximize its favourable impact on profit shifting, R&D, and commercialization, income qualifying for the special low rate must be defined as broadly as possible.

- Income from all assets developed from R&D performed in Canada, not just patents, must qualify for special treatment. In particular, income from assets protected by trade secrecy must qualify.
- 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.

A preferential regime would encourage more IP income to be taxed in Canada, making it a highly cost-effective way of promoting additional R&D. It would also encourage more commercialization activity in Canada.

Canada’s innovation support system would be greatly strengthened by focused reforms of the SR&ED program, modification of IRAP, and implementation of an intellectual property box.

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John Lester is a Fellow-in-Residence at the C.D. Howe Institute. A former federal government economist, John Lester's last public service assignment was as Director of Research for the Expert Panel Review of Federal Support to Research and Development.

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