Tax Policy - the role of R&D tax incentives

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Agenda

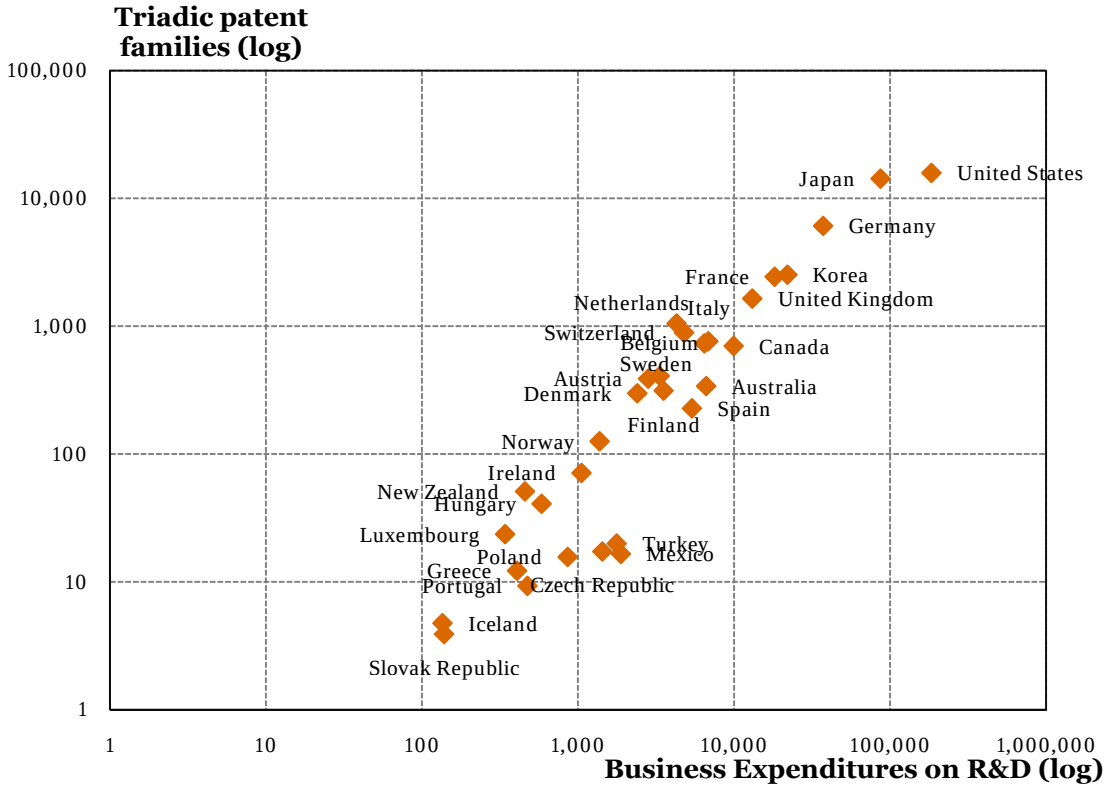
- Why provide R&D tax incentives?
- Who offers the most generous R&D incentives?
- How do (should) governments evaluate their R&D tax subsidies?
- Some recent changes and trends
- Some Conclusions

Section 1

Why provide R&D tax incentives?

R&D has been shown to provide significant societal benefits.

- Increases overall innovation performance (e.g. patent output).
- Linked to higher labour productivity and living standards.



Source: OECD

Without government incentives, businesses would likely under-invest in R&D.

Two Sources of Market Failures

- R&D generates large "spillover" benefits (public good).
  - Knowledge generated by one firm spills over to others.
  - R&D incentives compensate firms for the benefit their R&D provides to others (i.e. brings the private return closer to the social return).
  - *Evidence: Social Return 20-100+%, Private Return: 10-20%*

- R&D is risky and can be difficult to finance (capital market problems)
  - *Evidence: R&D investment is more sensitive to changes in cash flow relative to other investments, particularly among small firms. Suggests that financing constraints are present.*

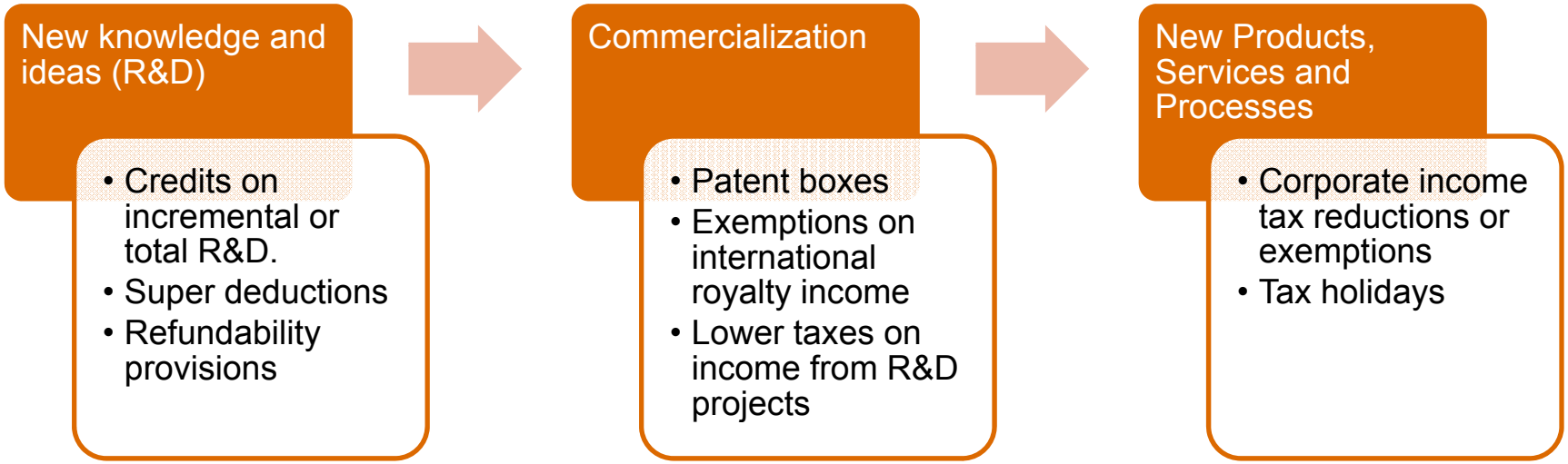
Section 2

Who offers the most generous R&D incentives?

There are a number of tax policy levers governments use to foster innovation .

"Push" incentives

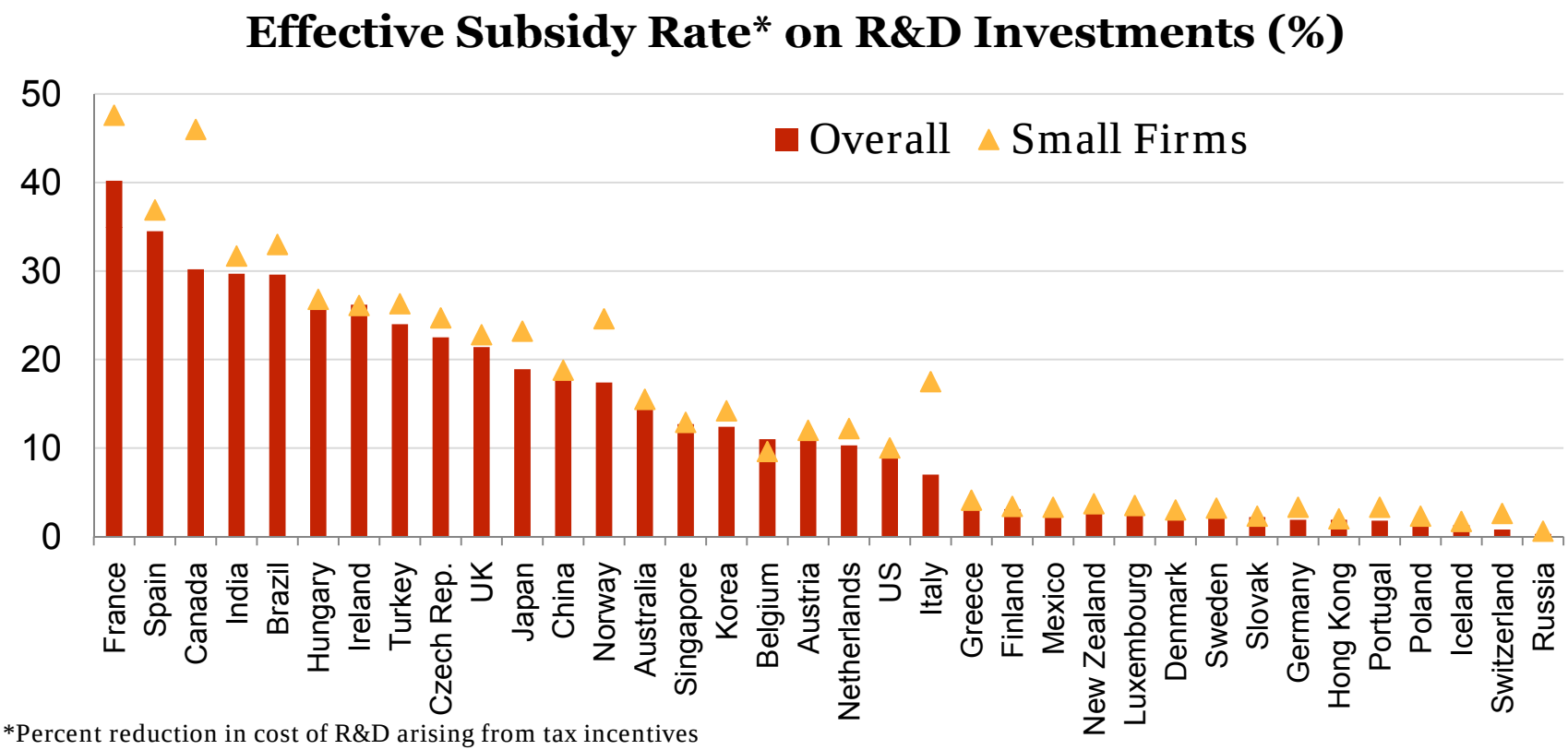
Market "Pull" incentives



Many countries provide R&D tax incentives, but they vary significantly in size and structure

Country	Federal Tax Credit	Super Deduction	Refundable in current year	Patent Box
Australia	X	√	√	X
Canada	√	X	√	X
U.S.	√	X	X	X
U.K.	X	√	√	√ (proposed)
Ireland	√	X	√	X
France	√	X	√	√
Spain	√	X	X	√
Japan	√	X	X	X
China	X	√	X	√

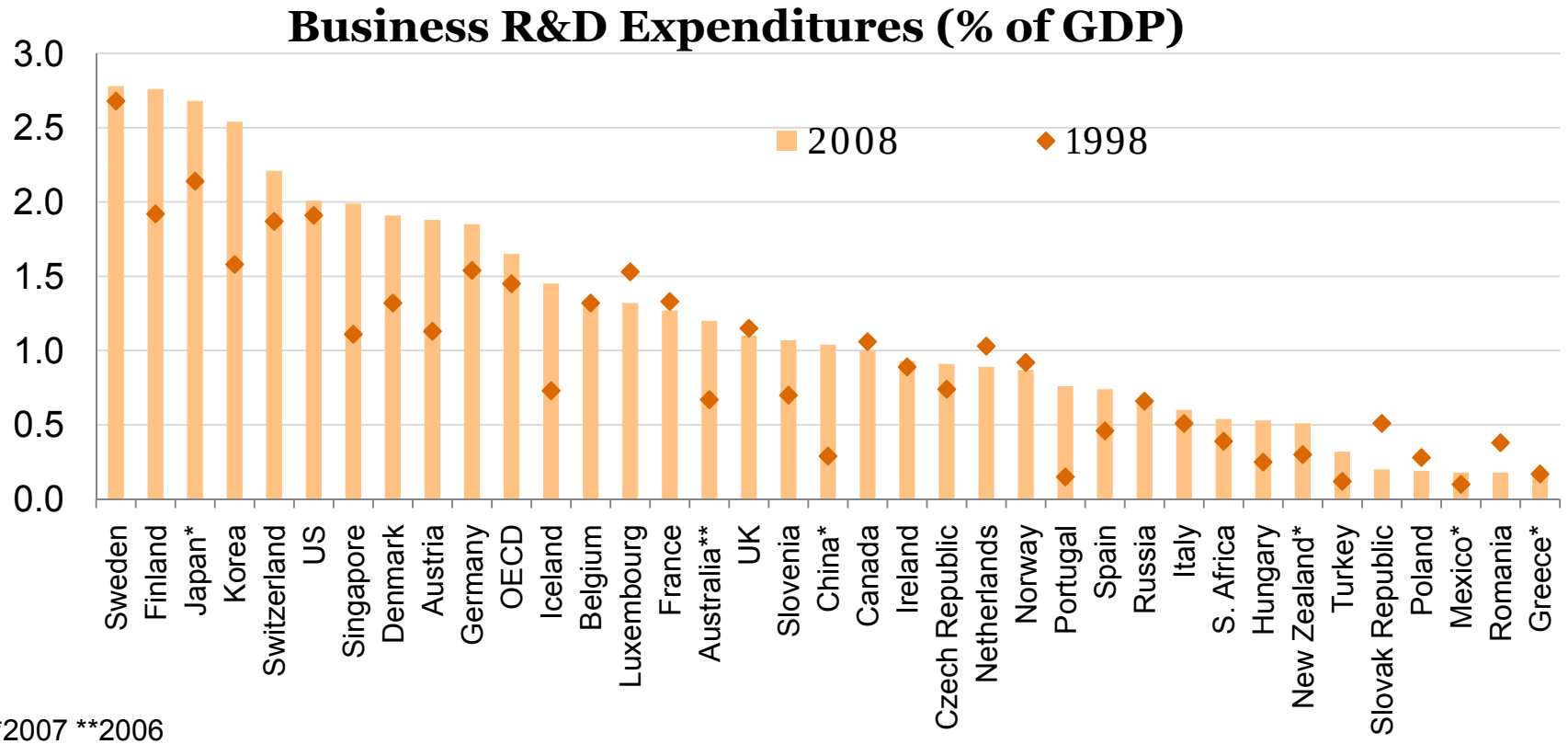
France, Spain and Canada have the most world's most generous R&D tax regimes



*Percent reduction in cost of R&D arising from tax incentives

Source: Department of Finance Canada (2009), "An International Comparison of Tax Assistance for Investment in Research and Development"". Tax Expenditures and Evaluations 2009, Ottawa.

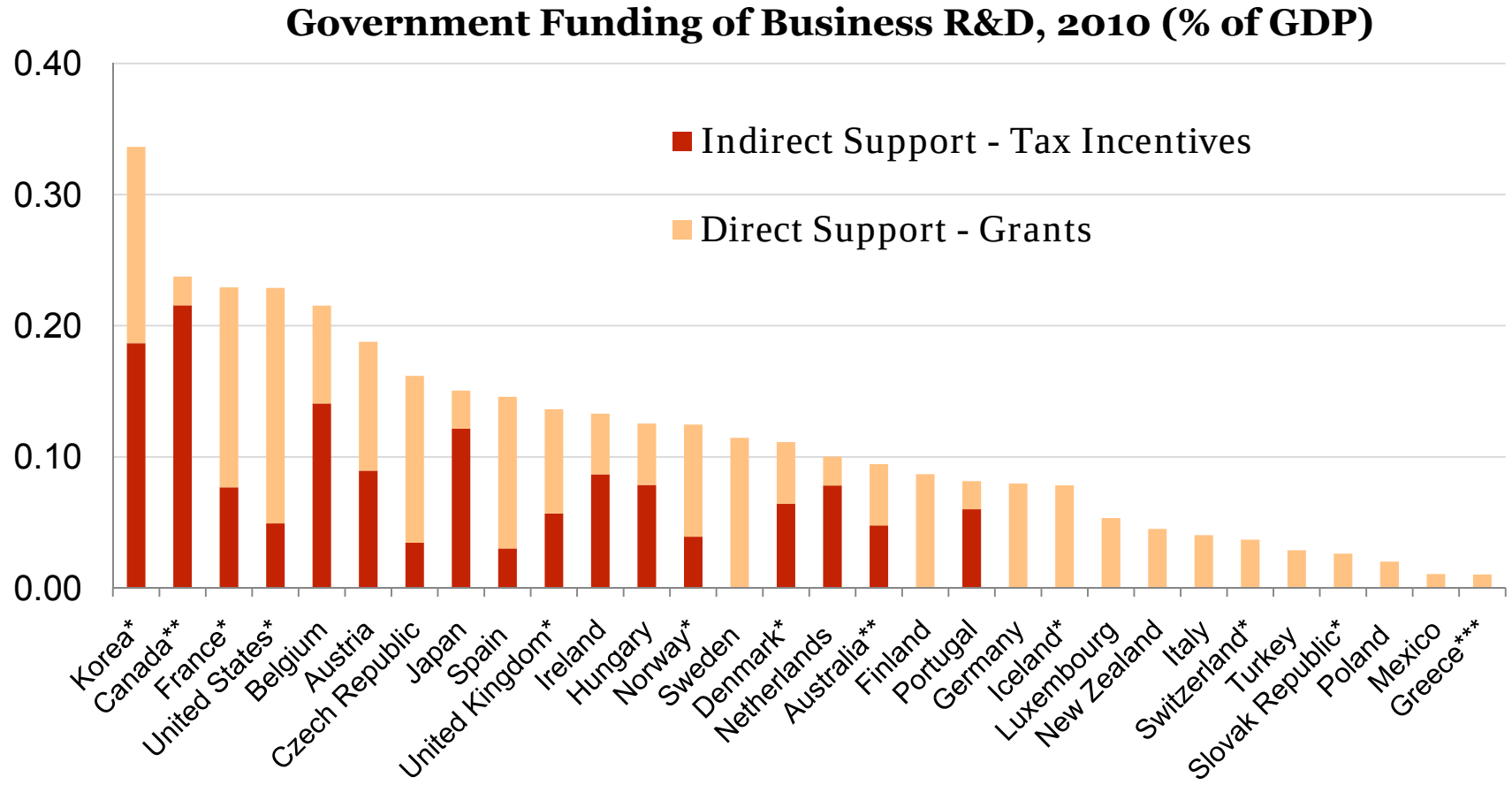
R&D tax incentives are one of many factors that influence R&D spending. Some countries with high levels of business R&D have few, if any, targeted tax incentives.



*2007 **2006

Source: OECD (2010) "Measuring Innovation: A New Perspective", OECD: Paris.

Some countries rely more on grants than tax incentives.



*2008 **2006 ***2005

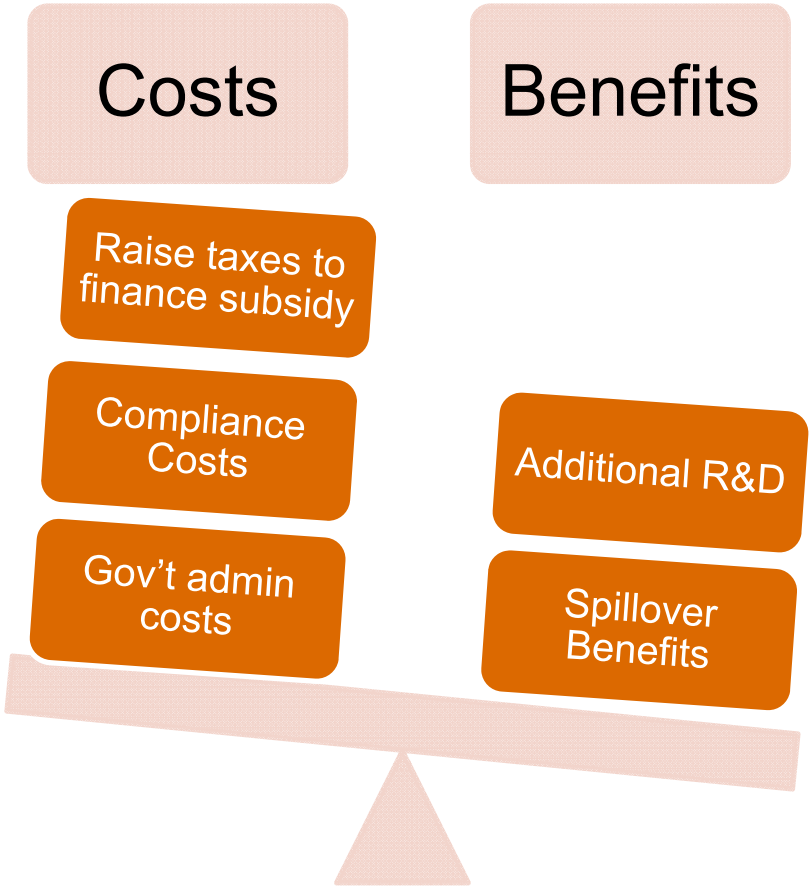
Indirect support excludes sub-national governments. Indirect support based on government estimates provided by each country.

Source: OECD (2010) "Measuring Innovation: A New Perspective", OECD: Paris

Section 3

How do (should) governments evaluate their R&D tax subsidies?

From a public policy perspective, tax subsidies should lead to additional R&D that generates enough "spillover" benefits to more than offset the costs



How can the government raise the net benefit of R&D tax incentives?

↑ Benefits	↓ Costs
✓ Increase amount of R&D stimulated per dollar of tax subsidy.	✓ Lower cost of financing the tax subsidy (i.e. rely on least harmful taxes to raise revenue).
✓ Increase spillover (e.g. social) benefits from additional R&D.	✓ Lower business compliance costs ✓ Lower government administrative costs.

R&D tax incentives appear to be effective at stimulating more R&D.

Additional R&D generated per dollar of tax subsidy.

Country	# of Studies	Range	Mid-point Estimate
U.S.	7	0.19-2.96	1.52
Canada	6	0.28-1.38	0.86
Other	6	0.26-2.8	1.1

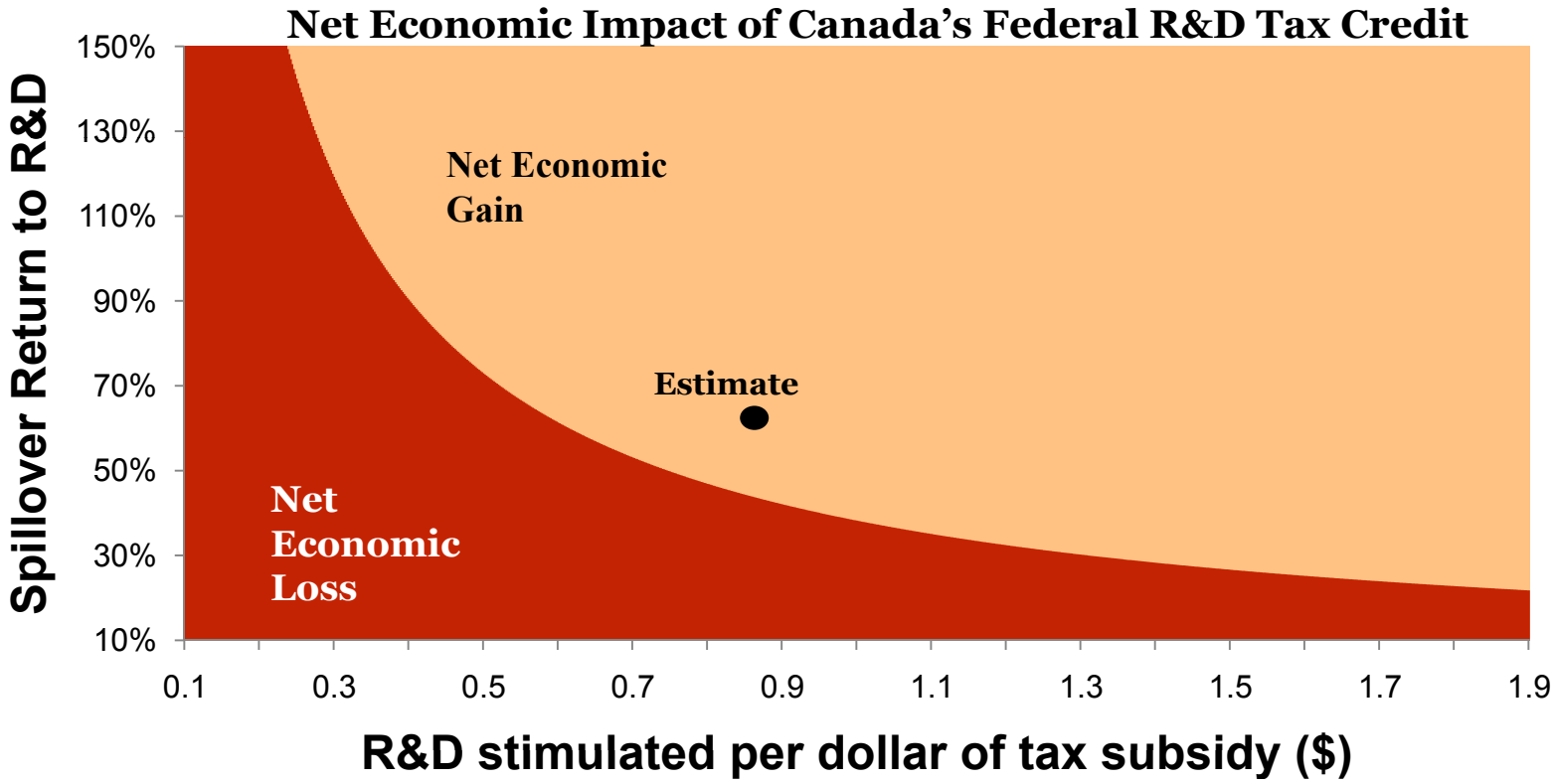
Source: Parsons, M. and Phillips, N. (2007), "An Evaluation of the Federal Tax Credit for Scientific Research and Development", Finance Canada Working Paper 2007-08.

Tax Incentive Design Considerations – A Public Policy Perspective

- Qualifying expenditures.
- Incremental vs. level (volume) credits.
- Refundability and carry over provisions.
- Target groups (e.g. SMEs vs. large)
- Temporary vs. permanent incentives.
- National vs. sub-national incentives.

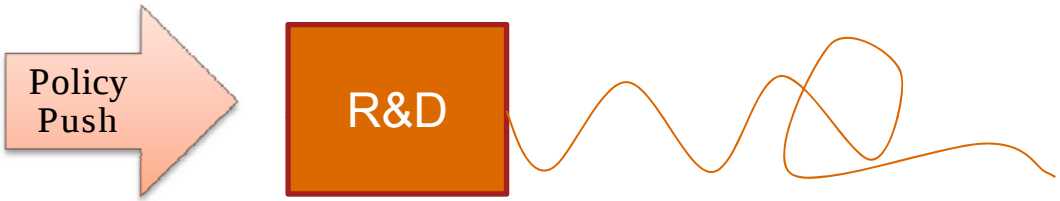
Case Study: Canada.

Canada's federal tax credit appears to generate a net benefit (but need more focus on market "pull" incentives)



Source: Parsons ,M. and Phillips,N. (2007), "An Evaluation of the Federal Tax Credit for Scientific Research and Development", Finance Canada Working Paper 2007-08.

You can't push a rope. Tax policy should recognize both "push" and "pull" drivers of innovation.



Section 4

Some recent changes and trends

R&D tax incentives are becoming more common… but they are also become more scrutinized.

- More than 20 OECD countries offer targeted tax incentives for R&D, up from 12 in 1995.
- Some temporary tax incentives introduced in response to global recession (e.g. Japan, Netherlands).
- Trend towards more generous and more broadly applied tax incentives (e.g. France and Australia replaced incremental/hybrid credits for more generous and simpler volume based credit).
- Increased tax incentives across innovation value chain (e.g. patent boxes) vs. narrow focus on upfront subsidies.
- Deterioration in public finances are forcing governments to re-evaluate all tax expenditures, including R&D tax incentives.

Section 5

Some Conclusions

Some Conclusions

- R&D tax incentives have gained in popularity.
- Research shows that business R&D is responsive to tax incentives.
- The spillovers needed to justify tax incentives appear to be significant.
- However, costs of incentives are also significant and gaining recognition.
- In period of fiscal restraint, tradeoffs will be contemplated. For example, enhance R&D tax incentives or provide broad based tax relief to business?
- Upfront subsidies for R&D aren't the only way to stimulate R&D and innovative activity. Other options are being considered across the innovation value chain (e.g. corporate tax reductions, patent boxes).