



Generosity of R&D Tax Incentives

Presentation by

Jacek Warda

TIP Workshop on

**R&D Tax Treatment in OECD Countries:
Comparisons and Evaluations**

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- Introduction
- Measuring R&D Tax Incentives
- International Comparisons of R&D Tax Treatment
- Summary

About R&D tax incentives

What:

- **Policy instruments that encourage private investment in R&D**
- **Tax expenditures from the budget**

Benefits:

- **Market based**
- **Decision making in hands of the company**
- **Broadly accessible by business**
- **Not targeted to specific technologies or industry sectors**

Chapter 1

Measuring R&D Tax Incentives

The Model

- Summary measure designed to estimate the tax subsidy on an “additional dollar” of R&D
- Allows for international benchmarking of the attractiveness of R&D tax systems
- Enables tracking and comparative analysis of R&D tax policy trends, changes and impact

The B-Index (B) Definition

A minimum present value of before-tax income necessary to pay the cost of R&D and to pay the corporate income taxes, so that it becomes profitable for the firm to conduct R&D

$1-B$ = Tax Subsidy (if positive) or Tax Burden (if negative)

- Tax credits
- Cost allowances from taxable income
- Depreciation allowances
- Corporate income tax rate

- Cost of finance
- Non-corporate income tax incentives
- Ceilings
- Refunds
- Carry-overs

Model is confined to tax measures related specifically to the R&D decision at the corporate level. Some countries may offer no R&D tax incentives but compensate for this by taxing investment income very lightly. Thus broader investigation could result in a different ranking of national tax systems.

- A full flow-through: a representative firm has enough profit to use the full benefit of R&D tax incentives
- Examines only differences in corporate income tax system: other things equal

Generic:

$$\text{B-index} = (1-A)/(1-t)$$

- **A = the net present discounted value of depreciation allowances, tax credits and other R&D tax incentives available (i.e., after-tax cost)**
- **t = corporate income tax rate**

A Country Example:**Canada:**

$$\text{B} = (1 - xt - yzt - c(1-t))/(1-t)$$

France:

$$\text{B} = (1-xt - yzt - c)/(1-t)$$

where:

x = proportion of current R&D expense

y = proportion of capital R&D expense

z = PV of depreciation; c = tax credit; t = tax rate

- 1983 - methodological foundation
 - Canadian Tax Foundation, Paper No. 70, 1983
- 1990 - 1994 – Conference Board updates
- 1997 - major OECD study
- 2000 – OECD adopts the B-index as an R&D tax policy indicator (e.g., STI Outlook, STI Scoreboard)
- 2000 – Ongoing - annual OECD updates
- 2005 - Extension to non-R&D tax treatment
- 2007 – Extension to OECD affiliate countries

- Measures attractiveness of the tax system
- Makes international comparisons possible
- Tracks tax policy trends
- Allows for policy impact analysis
 - Econometric models of effectiveness and impact
 - Sensitivity and scenario analysis
 - Fiscal incentives/cash incentives policy mix
- Can be extended

- Direct Assistance: Grants
- Contribution of Components
- Incentive vs. Non-Incentive Scenarios
- Tax treatment of innovation investments (beyond R&D)
- Tax treatment of other investments (e.g., environment)

Chapter 2

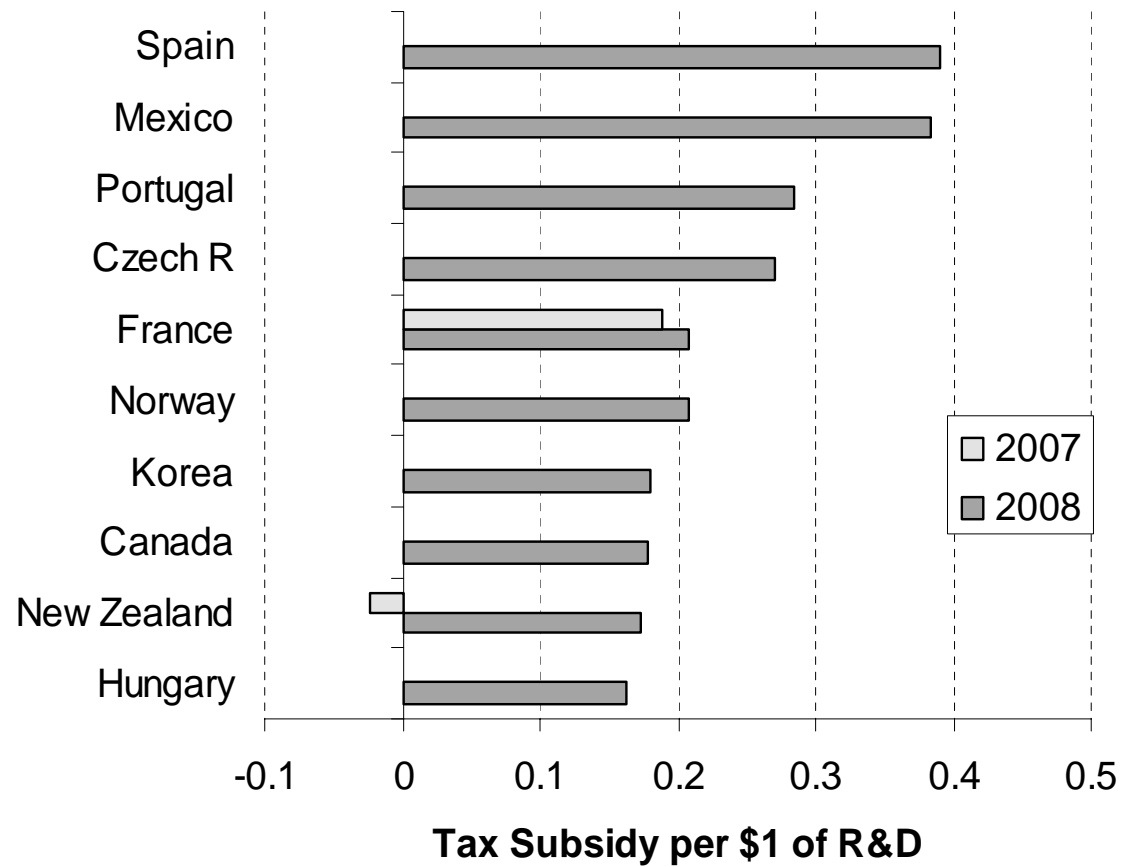
International Comparisons of R&D Tax Treatment

- Twenty-one OECD countries will provide R&D tax incentives in 2008
- There were only 12 OECD countries in 1996

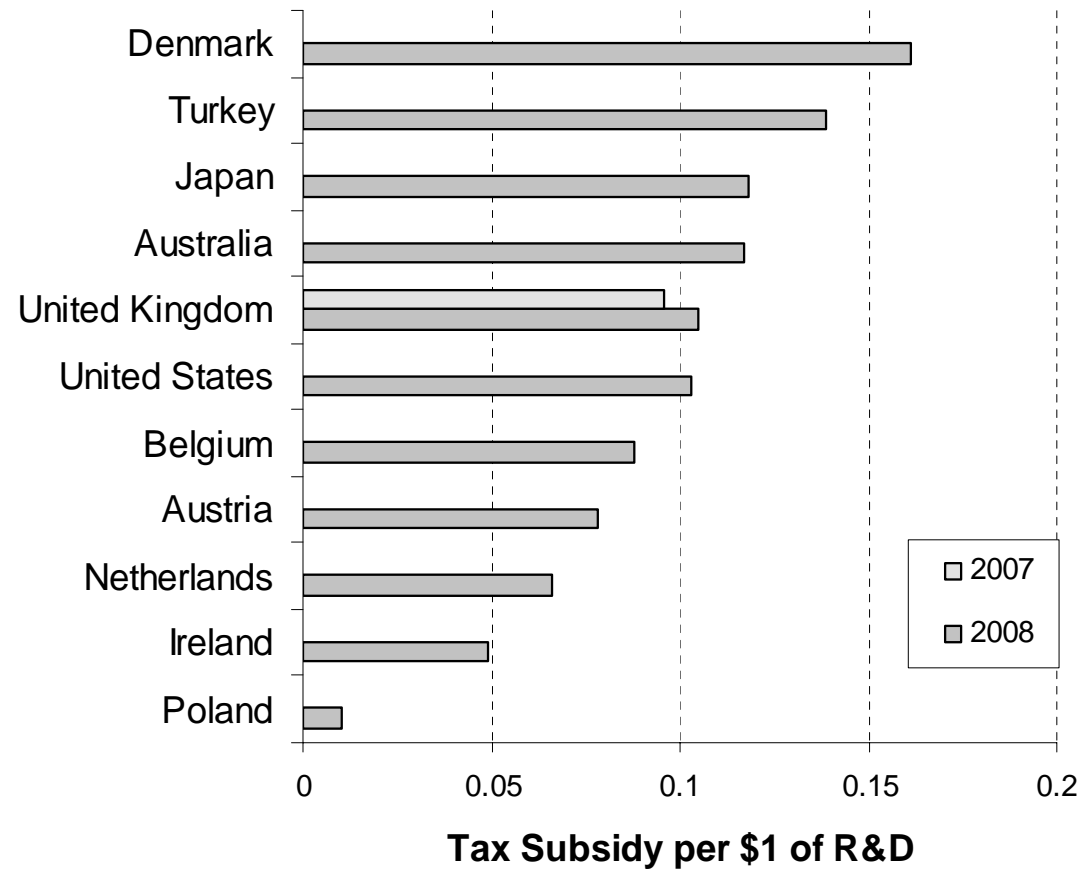
Most Generous 10 : large companies

(as of April 1, 2008)

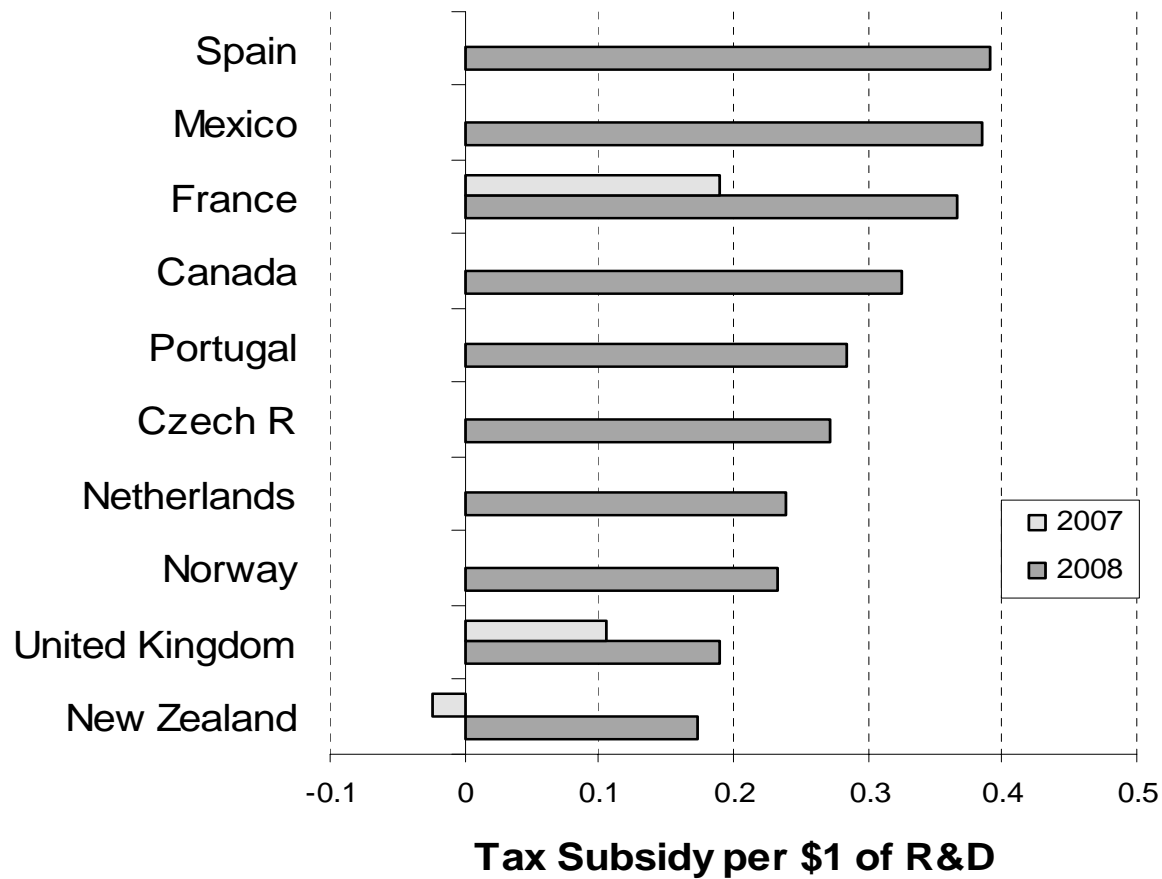
OECD Top 10: Large Companies

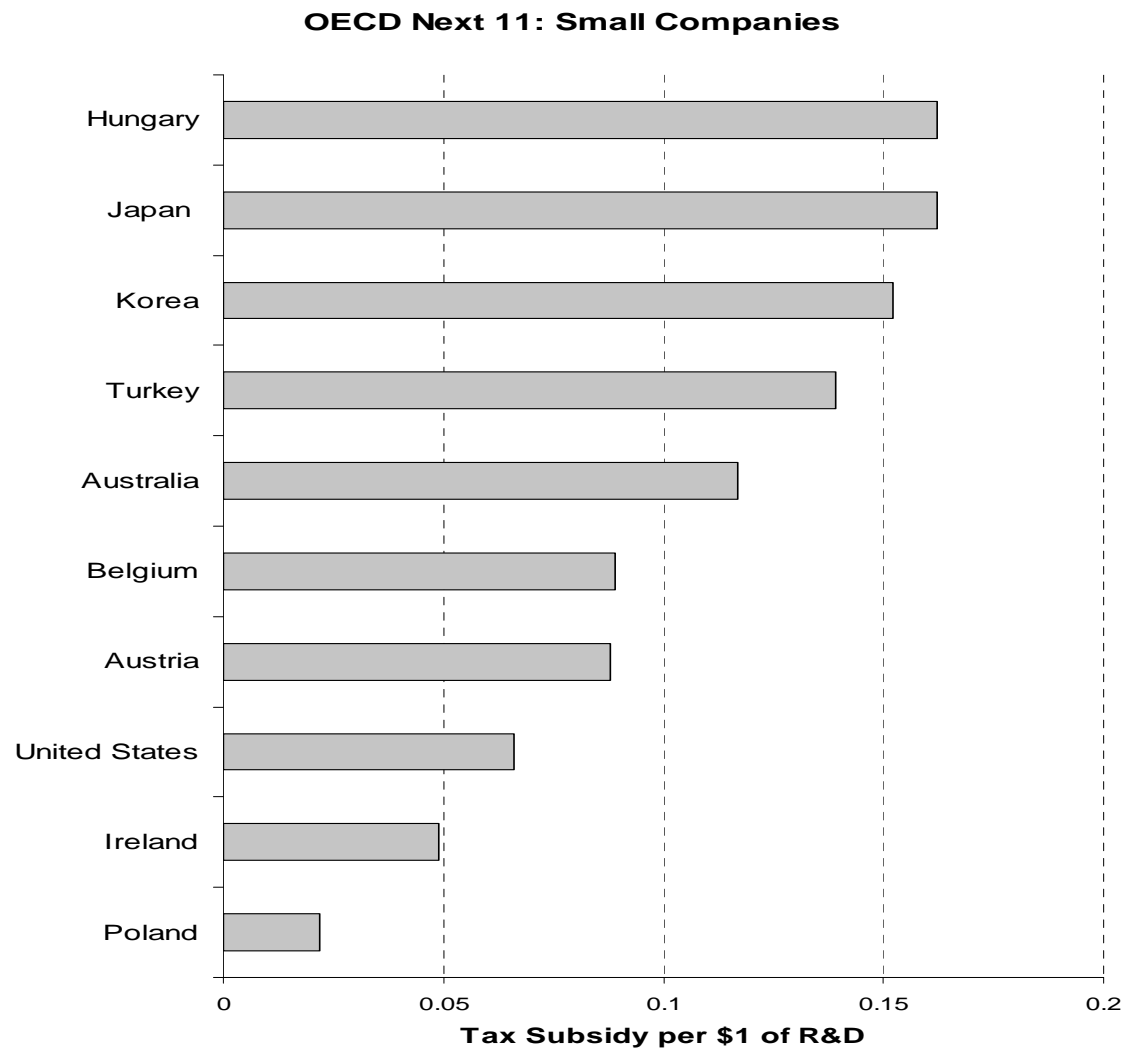


OECD Next 11: Large Companies



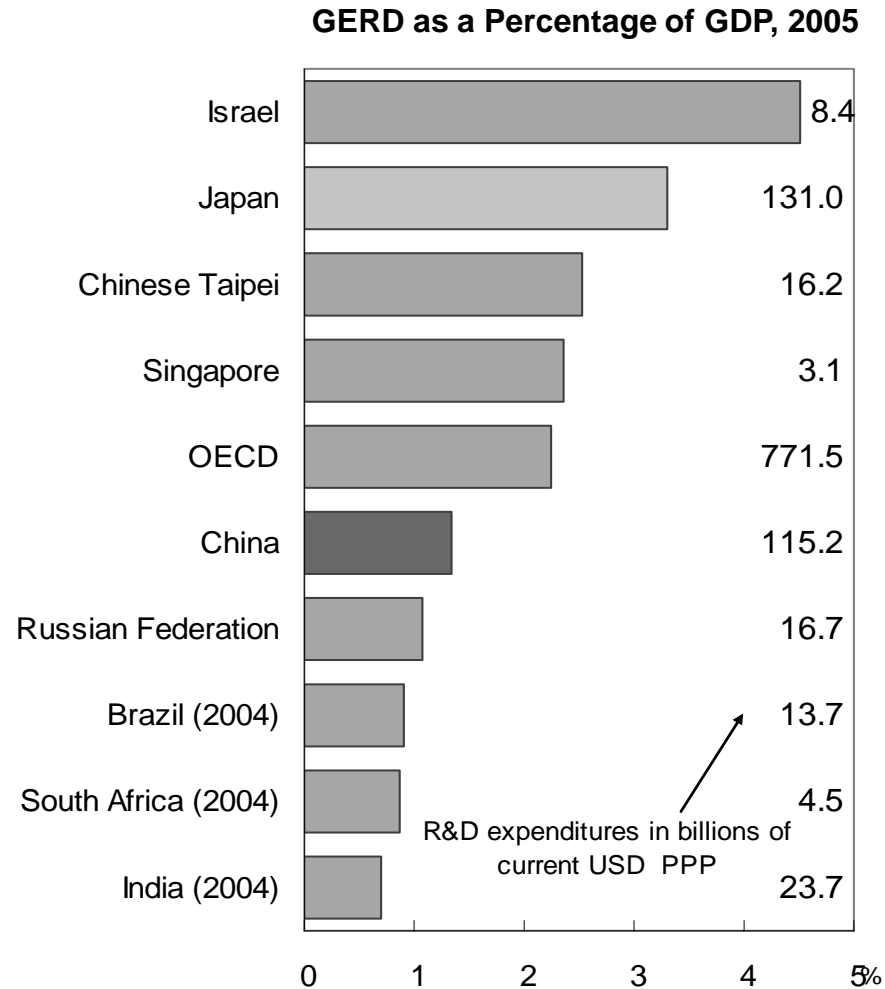
OECD Top 10: Small Companies





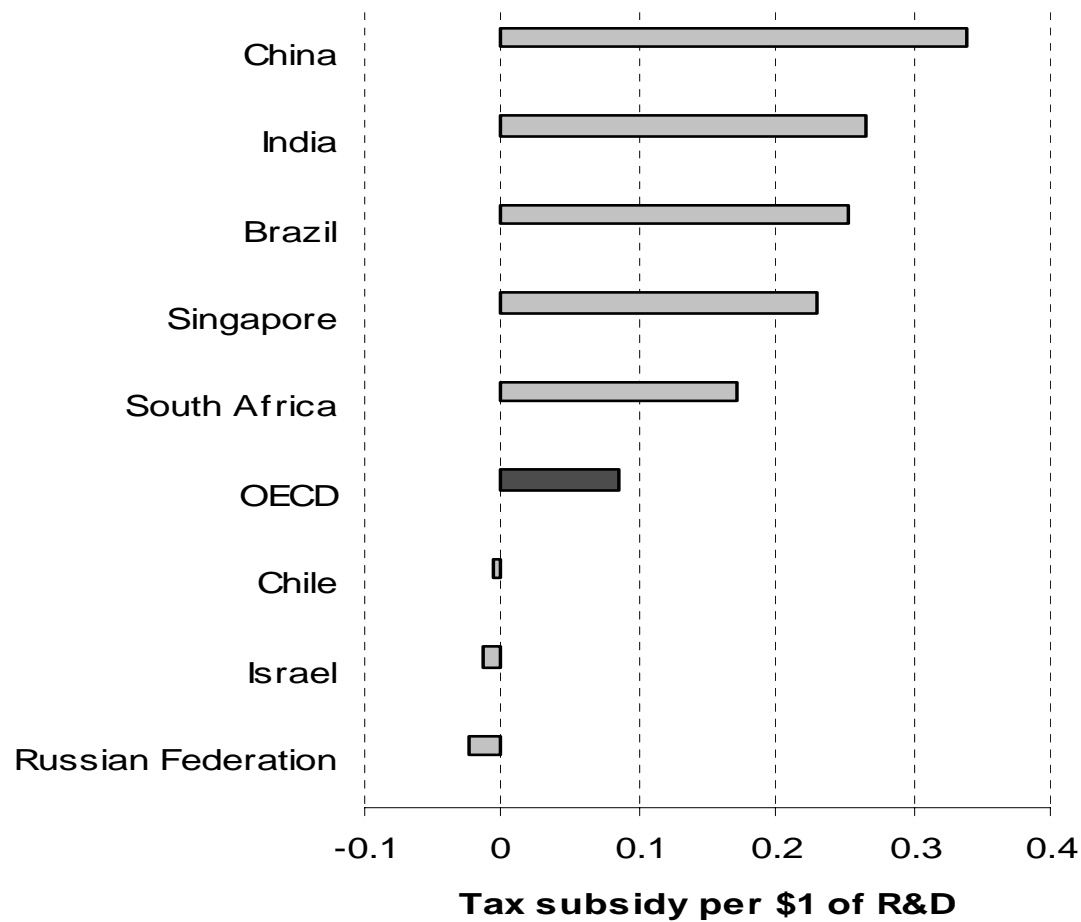
Emerging economies are catching up

- China may soon spend more on R&D than Japan
- Tax incentives are offered to attract foreign R&D investment

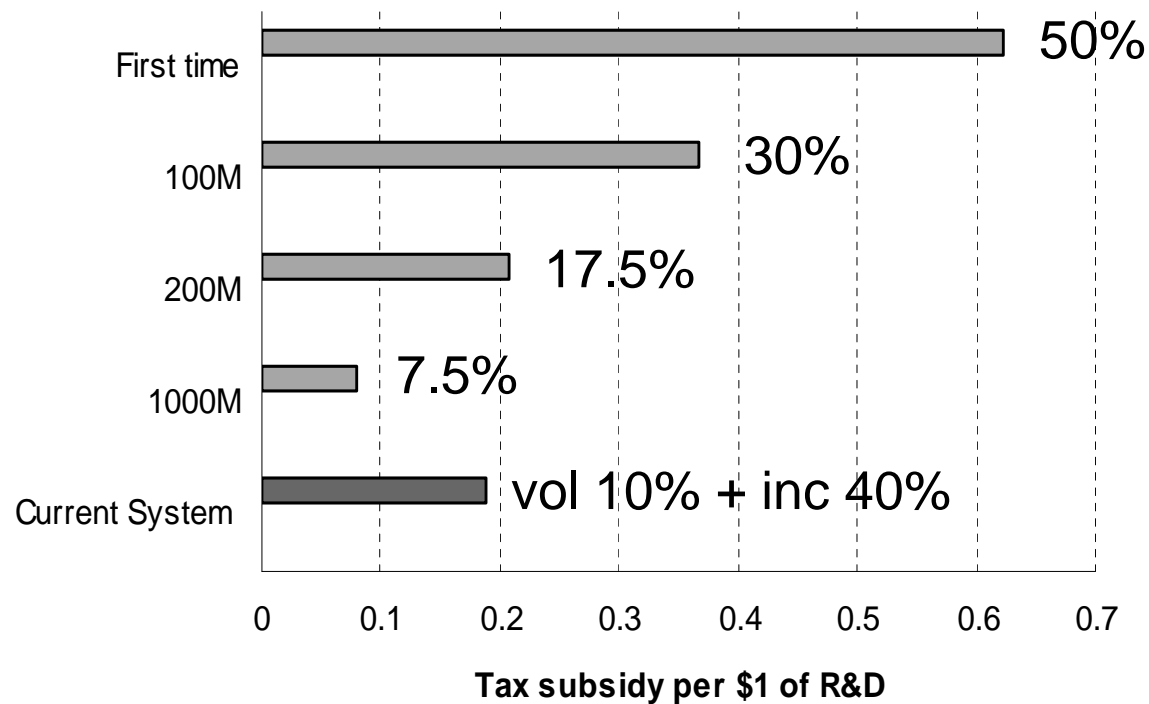


Source: OECD, STI Scoreboard 2007 p. A-4

Tax Subsidies for R&D: OECD and Emerging Economies, 2006

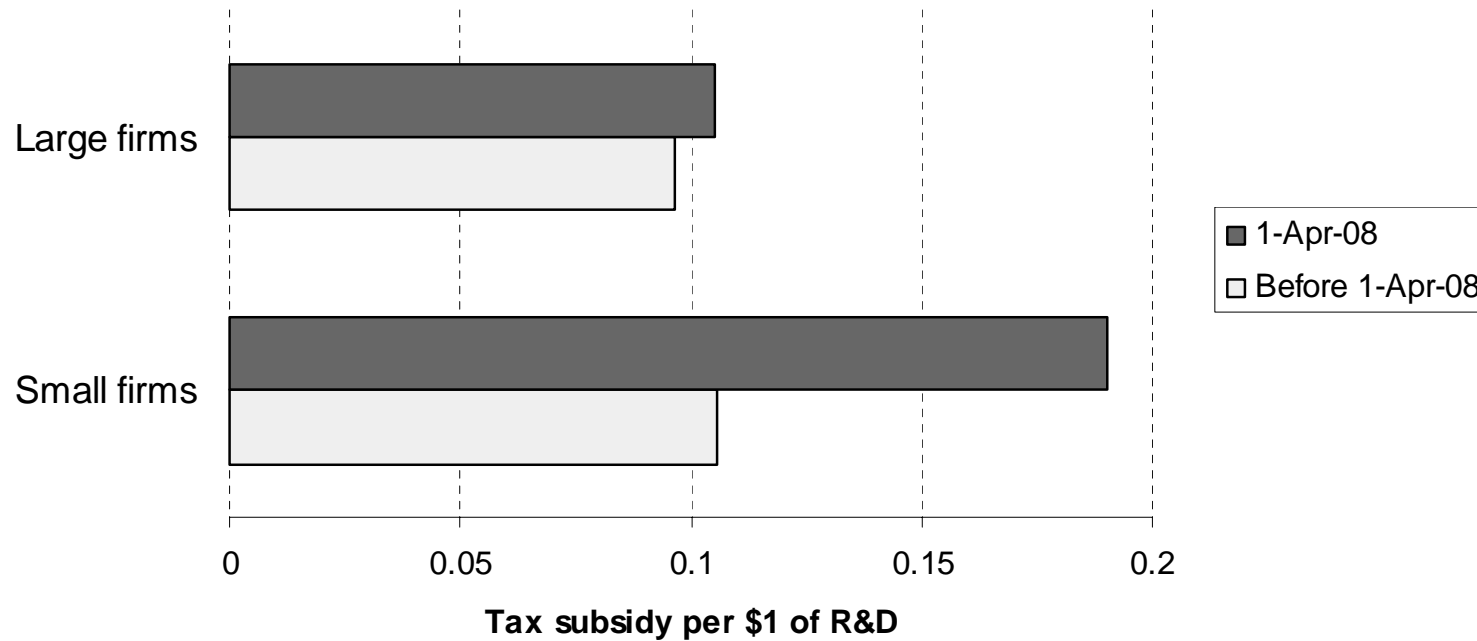


**Tax Subsidies for R&D:
France under New (2008) and Current Systems**

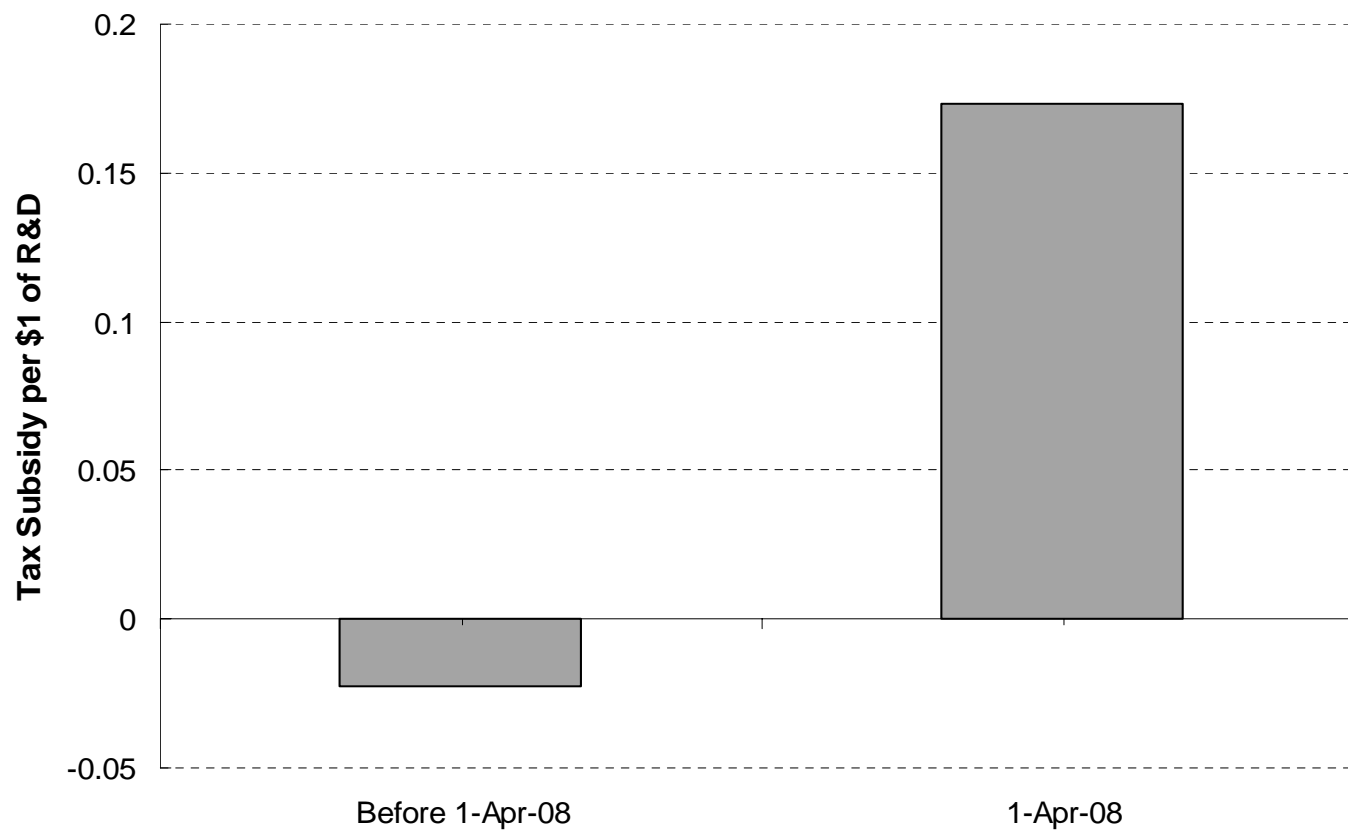


Pending changes in the United Kingdom

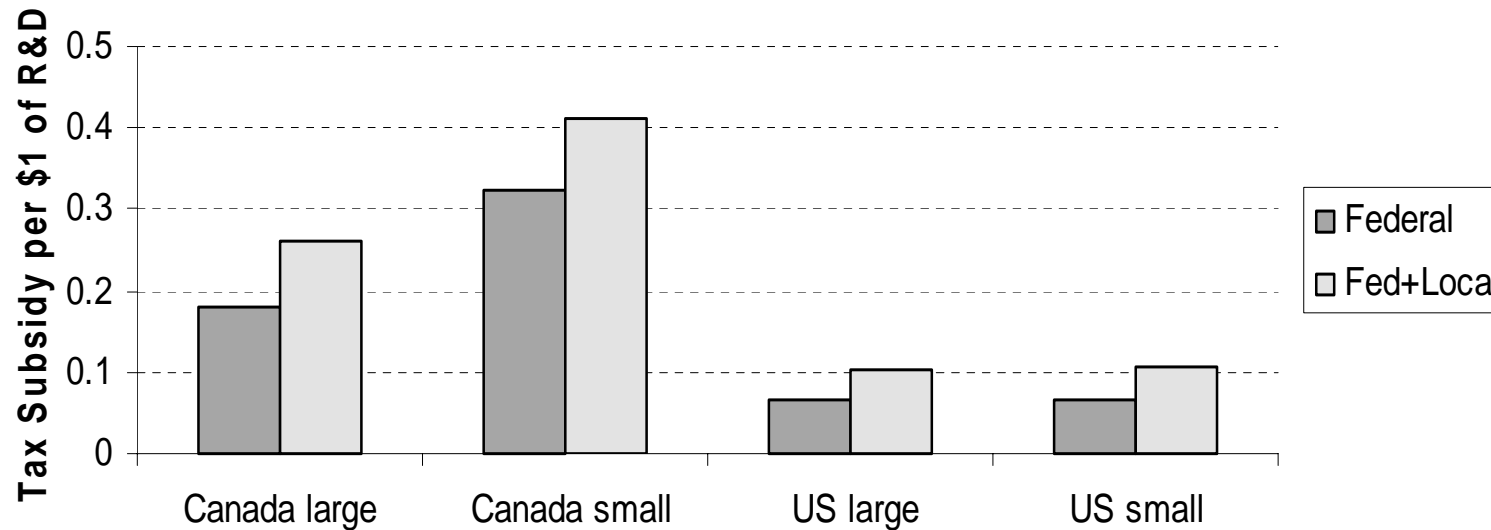
Tax Subsidies for R&D: United Kingdom



Tax Subsidies for R&D: New Zealand



**Combined Federal and Provincial/State R&D Tax Incentives:
Canada and the United States**

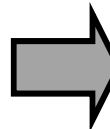
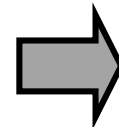


With combined federal-provincial R&D tax incentives, Canada moves to first place in OECD Top 10 Small Companies

Policy design depends on national goals

Goals

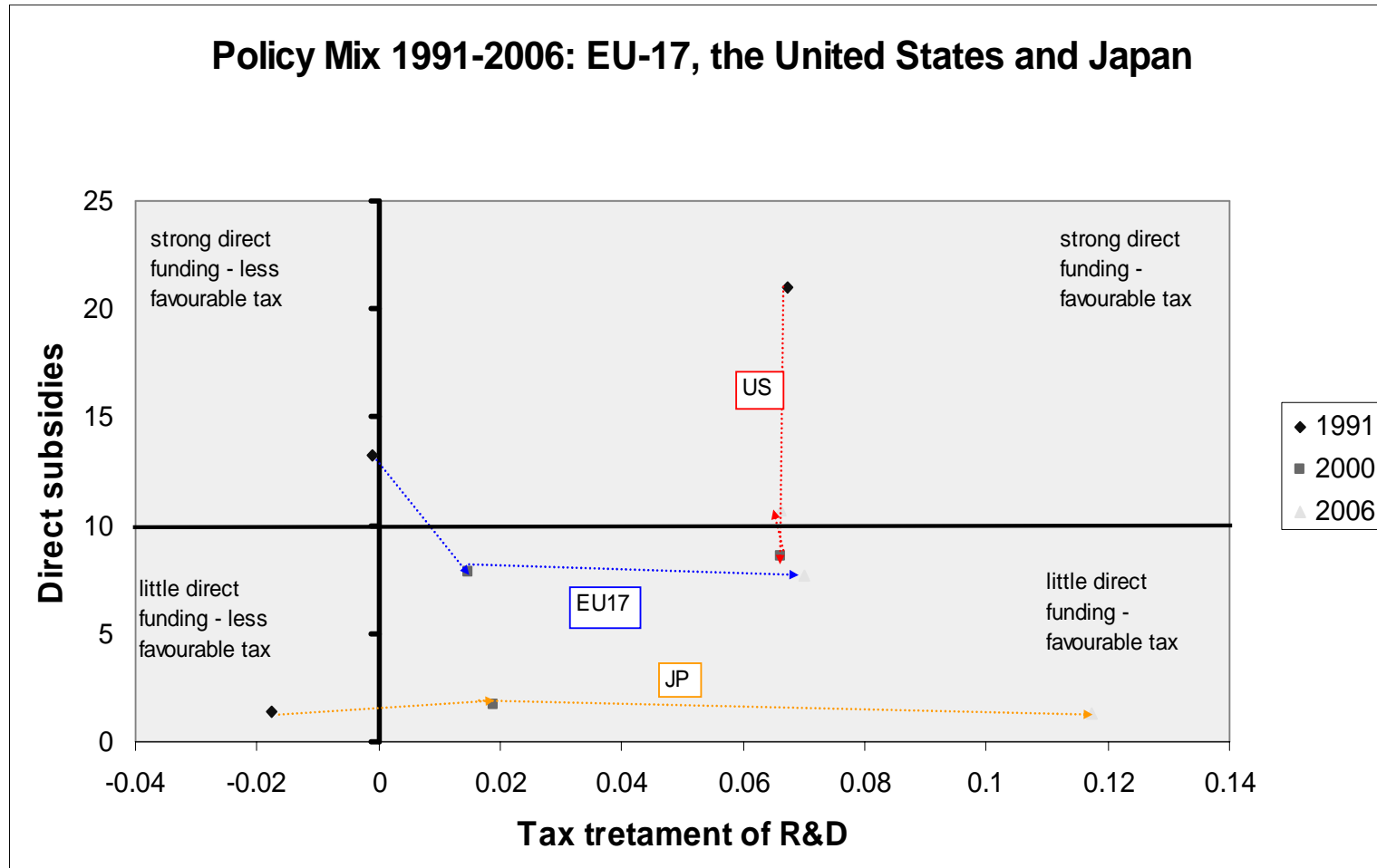
- Explore novel and generic research directions
- Promote linkages between elements of the science and innovation system
- Encourage uptake of new knowledge by business, especially SMEs



Policy

- Grants and subsidies
- Incremental tax credit
- R&D wages tax credit
- Grants and subsidies
- Volume R&D tax credit, possibly some innovation costs

Source: Jan Nill, EU/IPTS



Source: Based on work done for European Commission, 2006

- Incentives for enterprise formation
 - Start-ups
 - Venture capital
- Industrial Design
- Technology Transfer
- Training and Education
- Partnerships

•Integrated tax support emerging
•Comparisons and evaluations will become more holistic

- Generosity on the rise:
 - Governments invest courageously in tax incentives
 - Emerging economies provide competitive incentive environment
- Governments in “assess and improve” mode:
 - Importance of measuring outcomes and justifying the cost
- Next stage:
 - Increased role of evaluations
 - Need for best practices in evaluation and design