

Science and Technology - Research and Development

**OECD Innovation Strategy: Fostering the  
Cooperation Between the Public and Private  
Sector in R&D and Innovation**

**Moral Hazard?**

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# Science vs. Technology

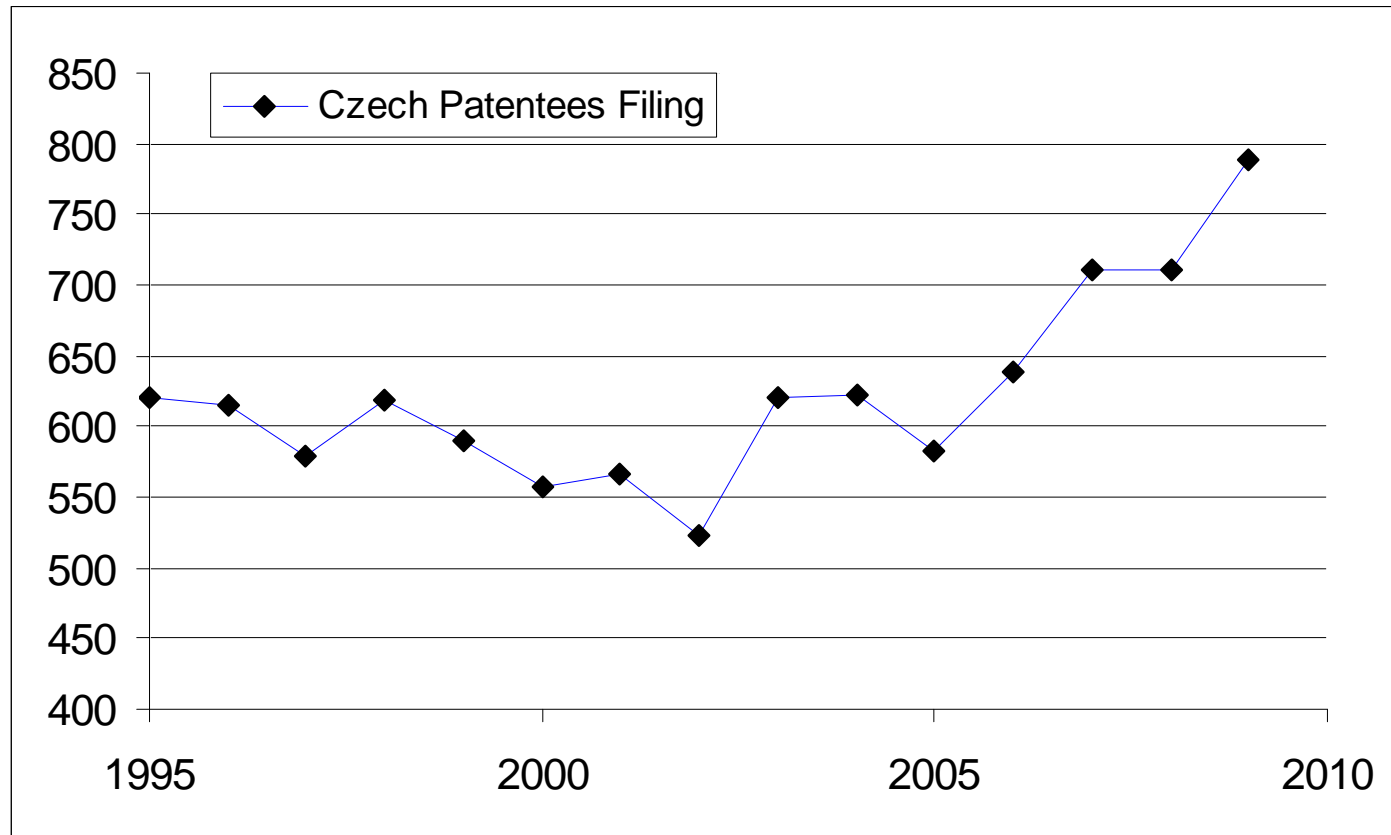
- Science, Research
  - Long-term gains, time span well over generations
  - Generally inestimable total costs and timeframe
  - Driving feature: Uncertainty
    - Not risk, Knight 1921
- Technology, Development
  - Medium to short term horizon
  - Estimable budgets and timelines
  - Risk: Estimable probability of failure/success
  - Insurance possible (portfolio of actions)
- Market failure to sufficiently finance Science is unavoidable

# Patents: Case of S&T

- Use Public Finances to Support Patents?
  - Pros:
    - Motivate invention
    - Promote patenting itself
    - Spill-over effects
  - Cons:
    - Outsourcing of private costs on public shoulders
    - Preference for riskier projects
    - Privatization of (potential) benefits
    - Crowding-out effect of other type projects
- Classical Example of Moral Hazard

# Example: Incentive Matters

- Skyrocketed bogus patents



Incentive 2008: 200pts à 7500CZK à 5 years = 7.5mil CZK = 300 000 Euro  
bra, inflammable blackboard, plant counting device...

# What Shall We Do?

- Marginal (social) benefit of a project
  - Car factory inventing a new seat
    - Zero – the company would do so in any case
  - Car factory inventing new material for the seat
    - Can be the case, but unlikely
- Size matters!
  - Large firms can mix their research portfolio themselves such that expected gains from the full set of projects are positive
  - Small firms
    - Limited access to capital
    - Induced costs matter (legal fees...)
    - Can do one/two projects at most
    - Bureaucratic burden may be prohibitive
    - Risk/technology funds create portfolios out of small firms & projects

# Paradox

- Why the public policy tends to prefer the former instead of the latter?
  - Unlikeness of failure – but lack of failure(s) is an economic proof of socially misallocated funds or even ill-founded mission!
  - Project with **certain success** have either
    - positive NPV: then private funding is likely to appear
      - » might not happen due to financial market failures and rationing
    - Negligible or negative gains: no need for public support anyway (value destruction)

# Principles in (R&)D

- Fair Cost-sharing
  - Deters excess risk projects
- Fair future profit sharing
  - Deters cost-outsourcing strategies in case of high probability success projects
- Focus on small firms & startups
  - Addresses financial market imperfections and failures
- Risk-portfolio creation
  - Failures are inevitable and a sign of proper diversification - if the whole portfolio performs