

---

# Do the Commission's State aid controls on R&D make economic sense in promoting competition and/or innovation?

Bruce Lyons

*EAGCP, Brussels, 25 March 2014*

- 
- ✦ Theoretical case for R&D subsidies
  - ✦ Econometric evidence on R&D subsidies
  - ✦ EC control of R&D subsidies
  - ✦ Has the Commission got R&D State aid control right?

# The theoretical case for R&D subsidies

- 
- ✦ Subsidies compensate for **under-investment in R&D**
    - ✦ Lack of appropriation of consumer surplus
    - ✦ Spill-overs to rivals
    - ✦ Financial constraints in the presence of high costs and high risks
    - ✦ Incentivise competitive R&D in high potential sector, when firm would otherwise choose horizontal differentiation (Aghion et al [inc. Legros])
  
  - ✦ But there could already be **excessive R&D** in some sectors
    - ✦ Duplication by competing firms
    - ✦ “Rat race” for patents
    - ✦ Strategic escalation
  
  - ✦ **Political economy** suggests dangers of policy implementation
    - ✦ Rent-seeking in direct support to firms (picking winners)
      - ✦ No additionality – substitute for private funding
    - ✦ High hidden costs of fiscal incentives
    - ✦ Strategic trade policy

# Implications for EC control of State aid for R&D

---

## ✦ **Target sectors** with high...

- ✦ Potential for innovation
- ✦ Spillovers
- ✦ R&D costs and risks (and where firms face financial constraint)
- ✦ Competition that encourages strategic complementarity

## ✦ **SMEs** are likely to be more financially constrained, less able to absorb risk, and projects look relatively big

- ✦ But do they have most potential for innovation?

## ✦ **Avoid sectors** subject to...

- ✦ Duplicative R&D
- ✦ Rat race
- ✦ National champions

## ✦ *Is this the basis for a practical policy?*

# Econometric studies on the effect of R&D subsidies

- 
- ✦ Is there “**additionality**”?
    - ✦ Public and private spending complements or substitutes?
    - ✦ Crowding in or crowding out of private R&D
      - ✦ By recipient and/or rivals
  
  - ✦ Types of additionality
    - ✦ Input (R&D)
    - ✦ Output (innovation, productivity growth)
    - ✦ Behavioural (creating dynamic firms)
  
  - ✦ Numerous (not always sufficiently careful) studies
    - ✦ Selection bias – both in applying for and receiving support
    - ✦ Skew distribution – a few big successes and numerous failures

# Econometric results on the effect of R&D subsidies

- ✦ Mixed, but balance of evidence supports positive **additionality** of R&D
  - ✦ Subsidies stimulate R&D, but mostly to firms already doing it
    - ✦ Gonzalez et al (RAND '05); Spanish mfc
  - ✦ Tax incentives increase R&D; 10% fall in cost raises LR R&D by 10% (only 1% in SR)
    - ✦ Bloom, Griffith & van Reenen (JPubE '02); OECD
  - ✦ Small grants induce additionality but larger crowd out; this applies for domestic ownership but no effect on foreign owned
    - ✦ Goerg & Strobl (Economica '07); Irish plants
  - ✦ Authors model applications, private and public R&D decisions; social r/r = 30%-50% but mostly goes to firm profits, not spillovers
    - ✦ T, T & Toivanen (REStats, '13); Finland project level subsidies
  - ✦ Greater positive effect on financially constrained firms, inc. small firms
    - ✦ Angel et al (J Econ Surveys '12); review

# General case for EC control of state aid

- 
- ✦ Preserve incentive for efficient rivals to invest
    - ✦ If strategic substitution
  
  - ✦ Encourage competitive market structure
    - ✦ If subsidies would go to national champions
      - ✦ But subsidies can be used to promote entry (e.g. Airbus)
  
  - ✦ Member State commitment device
    - ✦ Limits rent-seeking by firms
    - ✦ Limits strategic trade policy (prisoners' dilemma)
      - ✦ This is the main argument that survives a subsidiarity challenge

# EC control of State aid for R&D&I: block exemptions

## ✦ Art.107 TFEU

- ✦ Art.107(1) – all aid is illegal if it distorts competition and affects trade
- ✦ Art.107(3) – allows certain exceptions

## ✦ GBER (under revision) automatically allows aid for **R&D projects** if:

- ✦ Fundamental research [100% if <€40m] or industrial research [50% if <€20m] or experimental development [25% if <€15m] or feasibility study [50% if <€7.5m]
- ✦ Industrial and experimental cap can be raised to max 80% if
  - ✦ Medium sized firm [+10%] or small firm [+20%]
  - ✦ Collaboration includes either one SME or two MS [+15% & threshold doubled]
  - ✦ Results widely disseminated by publication, open source, etc [+15%]
- ✦ Further rules [mostly 50%]; if <[€5m-€20m]] for: research infrastructures [if <€20m]; innovation clusters [if <€7.5m]; **SME innovation aid** (e.g. patenting) [if <€5m]; **process innovation** [if <€7½m; large firms must collaborate with SME and then only get 15%]; fishing(!)
- ✦ Amounts increased by 50% if repayable loans

# EC control of State aid for R&D&I: framework outside block exemptions

- 
- ✦ All aid outside GBER must be notified
  
  - ✦ Framework sets out **principles of a sensible economic analysis**
    - ✦ Additionality in project size, scope or speed of completion
    - ✦ Applications must identify specific market failure
      - ✦ Positive externality/spillovers, asymmetric information/finance failure, coordination/network failure
      - ✦ ‘No market failure’ presumed if other firms do similar R&D unaided within the EU
    - ✦ Must avoid undue negative effects
      - ✦ Entry, incentives for rivals, creation of market power
      - ✦ Location across MS
  
  - ✦ Separate rules on “important projects of common European interest” (e.g. Airbus) are *in preparation*

# Draft Framework for state aid for R&D&I: ANNEX II - MAXIMUM AID INTENSITIES

	Small	Medium	Large enterprise
Aid for R&D projects			
<b>Fundamental research</b>	<b>100 %</b>	<b>100 %</b>	<b>100 %</b>
<b>Industrial research</b>	<b>70 %</b>	<b>60 %</b>	<b>50 %</b>
- subject to <b>collaboration</b> between undertakings (for large undertakings, cross-border or with at least one SME) or between an undertaking and a research organisation; or			
- subject to <b>dissemination</b> of results	<b>80 %</b>	<b>75 %</b>	<b>65 %</b>
<b>Experimental development</b>	<b>45 %</b>	<b>35 %</b>	<b>25 %</b>
- subject to <b>collaboration</b> between undertakings (for large undertakings, cross-border or with at least one SME) or between an undertaking and a research organisation; or			
- subject to <b>dissemination</b> of results	<b>60 %</b>	<b>50 %</b>	<b>40 %</b>
<b>Aid for feasibility studies</b>	<b>50 %</b>	<b>50 %</b>	<b>50 %</b>
Aid for <b>research infrastructures</b>	<b>50 %</b>	<b>50 %</b>	<b>50 %</b>
<b>Innovation aid for SMEs</b>	<b>50 %</b>	<b>50 %</b>	-
<b>Aid for process and organisational innovation</b>	<b>50 %</b>	<b>50 %</b>	<b>15 %</b>
<b>Aid for innovation clusters</b>			
Investment aid	<b>50 %</b>	<b>50 %</b>	<b>50 %</b>
Operating aid	<b>50 %</b>	<b>50 %</b>	<b>50 %</b>

✦ But if “aid is strictly limited to the minimum necessary”, some of above can be raised by 10% points!

# Has the Commission got it right?

- 
- ✦ GBER thresholds and % subsidy take account of:
    - ✦ Nearness to market; product vs process; SME; collaboration; dissemination of results
    - ✦ Sensible in principle but is this enough?
  
  - ✦ Framework outside GBER does take account of:
    - ✦ Externalities, additionality, competition, specific market context
    - ✦ At least in principle!
  
  - ✦ Where do detailed percentage allowances come from?
    - ✦ History; administrative convenience/efficiency/workload
    - ✦ Thresholds doubled in latest proposals – on what evidence base?
    - ✦ Insufficient ex post checks?
  
  - ✦ Need a pragmatic policy and this may be close to being ‘as good as possible’