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

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Outline

- 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

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