



mappp  
MICROÉCONOMIE APPLIQUÉE  
MICROECONOMIC APPLICATIONS

**The *ex post* assessment of state aid – remarks on the  
R&D and an SGEI cases in the Oxera report**

*ACE annual conference*

Bologna, 16 November 2018

**David Spector**

# Aid to R&D

## *Description of the aid*

- Aid granted in 2007 to Soitec, a French manufacturer of substrates
  - Input sold to semiconductor producers (Intel, Samsung, Toshiba...)
  - Direct subsidy + reimbursable grant
  - Aimed to finance 'Nanosmart' R&D programme aimed at producing improved 'silicon-on-insulator' (SOI) substrates (higher performance than bulk substrates)
  - Products developed thanks to this R&D program brought to market in 2011
- A short description of the relevant market(s)
  - Little short-run but significant long-run substitutability between SOI and bulk substrates
  - Product market
    - Both a narrow (SOI only) and a broad (SOI and bulk) market definition have been considered
    - Broad market definition considered more relevant owing to focus on long-run effects
    - Also a market for substrates-related IP licensing, but small
  - Geographic market: global

# Aid to R&D

## *Potential impact on competition a priori*

- Potential direct effects on Soitec's position in the substrates market
  - Broadening of IP portfolio leading to increased market power in IP licensing
  - Improved products leading to increased share of substrates market
- Potential effects on existing competitors' actions in the substrates market
  - Increased efforts in R&D to improve quality in order to regain competitive edge, conceivable since competitors are large firms with significant R&D capabilities
  - Product repositioning
  - These two potential effects would be compatible with the 'inverted U-curve' theory of the relationship between competition intensity and innovation
    - Enough market power to give rivals *ability* to innovate more
    - Enough competition to provide *incentive* to try and escape it (vertically or horizontally)
  - According to this view, R&D efforts in substrates market are *strategic complements*
- Conversely, if R&D efforts are strategic substitutes
  - Crowding out of rivals' R&D
  - At the extreme, exit the substrates market (or less entry than in counterfactual)

# Aid to R&D

## *Assessing the impact on competition*

- Oxera conducted 5 tests and found (almost) no discernible effects
- Commendable caution: as Zhu Enlai is supposed to have said about the effects of the French Revolution, *'it's too early to tell'*
- Five hypotheses, none of which finds support in the data
  - H1: did aid to Soitec allow it to expand its market share at the expense of competitors? *No, not even in SOI segment, which became a bigger part of total substrates market*
  - H2: did it lead to an increase in Soitec's operating profits? *No discernible change after 2011 (products brought to market)*
  - H3: did it affect competition on R&D&I spending? *No discernible change, but possible (positive) impact on Intel's R&D*
    - *Increased R&D to improve 'FinFETs' based on bulk substrates – attempt to escape increased competition from SOI-based products along both horizontal and vertical dimension*
  - H4: did it influence entry or exit decisions? *No discernible change*
  - H5: did it modify clients' countervailing market power? *Unlikely given clients' size, sophistication, and the existence of alternatives*

# Aid to R&D

## *Comments - questions*

- Does the absence of discernible effect on beneficiary's market share or operating profit suggest that there was little *incentive effect* (R&D efforts or R&D output)?
- Two possible replies hinted at in Oxera reports
  - Measurement issue: lack of disaggregated data, or too early to tell
  - No discernible effect because of the market failure that justified aid in the first place: positive externality as first innovator paved the way for others to follow suit in SOI segment

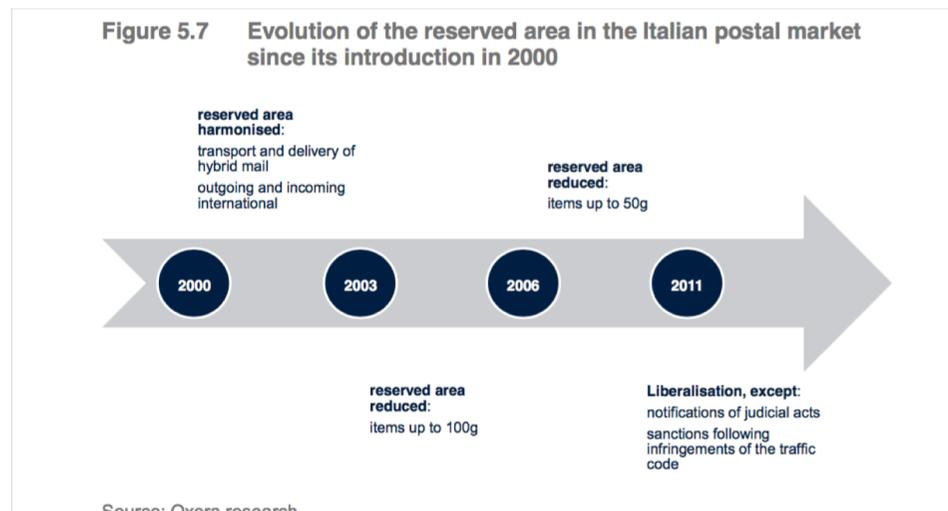
*The fact that the share of SOI within the wider silicon market increased (between 2007 and 2015) and Soitec's share of SOI has fallen is consistent with the aid potentially having benefited Soitec's rivals. In line with this, GlobalFoundries, STMicroelectronics and Soitec stated that other SOI manufacturers benefited from Soitec developing and expanding the SOI market. GlobalFoundries and Soitec further noted that Soitec first competes to establish SOI within the wider market in the long run, and then competes with other SOI manufacturers in the short run. As a result, Soitec's SOI market share tends to be high when it introduces a new product to the market, before other SOI manufacturers catch up and Soitec's market share falls again.*

- Almost too good to be true!
  - Is it likely that the aid had an incentive effect but no impact *at all* on beneficiary's market position?
  - This is more about a 'discovery externality' than knowledge spillovers (supposed to justify R&D aid)

# Aid to SGEI

## *Description of the case*

- Need to compensate Poste Italiane for losses generated by USO
- Two main instruments
  - Direct subsidies: around 300-400 million € per year
  - Indirect aid by granting monopoly on some market segments ('reserved area')



- Relevant market: domestic business mail (not including express mail)

# Aid to SGEI

## *Assessing impact*

- Impact of changes in competition intensity (gradual introduction of competition in various segments) on quality and prices
- Three main market shocks
  - 2003: liberalisation of letter mail above 100g
  - 2005: liberalisation of letter mail above 50g
  - 2011: almost complete liberalisation, aid is solely provided through subsidies
  - Focus on the 2011 shock (most significant one since most mail is below 50g)
- Even though the interplay of changing regulation of the pricing of USO services and declining demand complicates the assessment, shock analysis points towards benefits from competition
  - Some segments became quite competitive (bulk mail, registered mail) while others did not (priority mail)
  - Prices increased in non-competitive segments, remained flat in competitive ones
  - Quality of service (timely delivery) increased only in competitive ones

# Aid to SGEI

## *Comments on the counterfactual and the set of 'admissible' distortions*

- What do these findings tell us about whether the aid was appropriate?
- Counterfactual is not absence of aid but substitution with direct subsidies
- Direct subsidies are less likely to distort competition... but they decrease social welfare through other channels
  - Deadweight cost of taxation, crowding out of more efficient public spending
  - Failing to account for these channels would bias assessment against indirect measures
- Should state aid control account for effects other than competition distortion?
  - One such effect is mentioned in Oxera report: distortion of locational choice
  - But, if cost of public funds is ignored, subsidy races *increase* social welfare: countries subsidize firms up to level of the local positive externality (Besley-Seabright)
  - Subsidy races are detrimental to social welfare *only* because taxation entails social costs
  - If the issue is a negative net effect on social welfare because public funds have a cost (even without any distortion), why bother about distortions of locational choice?
  - What is the implicit criterion? Correct only aid measures that involve either distortion of competition or a coordination failure across governments (e.g. when it distorts location decisions), but refrain from paternalistic prohibition of all inefficient aid?