Co-Investment: Economics and Welfare Effects

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Economic rational for co-investment

- Continuous and large investment necessary for competitive success and welfare-enhancing outcomes
  - Cost of providing 100 Mbps to 50% of households in EU Member States = 180-260 bln€ (Cullen International, 2011)
  - Cost to deploy FTTP/H networks in EU27 around 660 bln€ and 25 years to complete a FTTP network (Boston Consulting, 2016)
- Co-investment as a solution: sharing of fixed cost (passive infrastructure) *and* investment risk. Different kind of agreements (voluntary vs. regulated).
- Welfare perspective:
  - less duplication of fixed cost …. But more coverage/investment?
  - more or less intense competition?
  - trade off between dynamic vs. static efficiency: Welfare?

Some theory: the impact of co-investment/1

- Does co-investment lead to higher investment and more competition?
  - Nitsche and Wiethaus (2011, IJIO). Co-investment option (*risk sharing* in their terminology) as an agreement to share fixed costs. Co-investment can be particularly beneficial in terms of investment incentives: larger investment than with access regulation, though lower than regulatory holiday. Higher consumer surplus.
  - Cambini and Silvestri (2012, IEP): in presence of demand uncertainty, co-investment leads to relatively less incentives to invest than access deregulation, but a higher intensity of competition. Higher welfare.
  - Inderst and Peitz (2012, IEP): co-investment leads to more (quality enhancing) investment.
  - Any of these models however incorporates the real «geographical» dimension of NGA and their peculiar structure in terms of investment cost.

Some theory: the impact of co-investment/2

- Bourreau, Cambini and Hoernig (2018, IJIO): obligation to co-invest in case of entrant's request → "regulated" agreement
- Geographical coverage is considered.
- Co-investment leads to higher coverage and more intense competition in low cost areas as well as higher welfare
- In case of demand uncertainty, options for entrants to wait and use standard access
- Demand uncertainty negatively impact on total coverage and this effect increases when access is an option. In this case, the "pure co-investment" regime is even *more socially desirable* compared to the other regimes.

Some theory: the impact of co-investment/3

- Bourreau, Cambini, Hoernig and Vogelsang (2019): ex post opportunism by entrants and lower incentives to invest in presence of demand uncertainty.
- *Remedies*:
  - **Ex-ante remedy:**
  - The entrant should buy a co-investment option ex-ante.
  - **Ex-post remedy:**
  - The entrant should pay a risk premium ex-post to the incumbent
- Incentive to invest can be restored with a risk premia: total coverage increases wrt co-investment option

Empirical evidence

- Lebourges and Liang (2018) on the French market.
- Detailed data on roll-out of FttH networks and co-investment agreements in 3573 French municipalities from 2013 to 2016.
- Results show that 1% co-financing share by co-investors leads to 0.8% increase in ultra-fast broadband coverage.
- Moreover, co-investment leads to more FttH coverage in co-investment areas than areas without co-investment.
- Finally, they show that 1% increase in co-financing share by co-investors increases Orange's FttH adoption by 1.2% and decreases Orange fixed broadband (ADSL and FttH) penetration by 1.1%.
- Hence, more competition.

Policy Conclusions / 1

- Policy issues:
- 1) Co-investment performs better in terms of total coverage than the standard access regime.
  - Offering access to the entrant, too, leads to both lower total coverage and lower co-investment coverage → the access option constitutes an *opportunity cost* that makes co-investment less attractive.
- 2) Incentives for firms to co-invest:
  - Non-SMP firm will co-invest if economics better than and/or risk lower than:
    - Standalone network investment
    - With/without duplication or with/without regulation (i.e. pricing power vs investment risk)
    - Regulated wholesale access to SMP network
  - SMP firm will co-invest if economics better than/or risk lower than:
    - Standalone network investment (w or w/o duplication, w or w/o regulation)
    - Doing nothing

Policy Conclusions/2

- 3) Investment incentives critically depends on the *ex ante* commitment to deploy by co-investors (i.e. on sharing the *risk* of demand)
- Open co-investment agreements aiming at giving later entrants the chance to enter the agreement give entrants the possibility to 'wait and see' and invite cream-skimming behavior diluting the incentives to invest. Hence, some risk premia should be introduced.
- 4) Voluntary vs. regulated co-investment: the decision depends whether cost savings from co-investment are expected to be larger than the incumbent's lost profits due to the increased competition in a larger share of the country.
- If this is true, no need of any obligation. If not, a regulatory intervention is necessary for co-investment to emerge.

Policy Conclusions/3

- 5) EC proposes that an existing SMP operator deploying 'new network elements' which contribute to VHC would not be regulated if they:
  - Are open to co-investment offers on terms which sustain competition in the long term
  - Are flexible on timing of participation (the terms of co-investment can vary to reflect this)
  - Allow participation to increase over time (subject to minimum initial commitments, again with terms that may vary to reflect changing risks)
  - Allow participation rights to be assigned to other co-investors or third parties
  - Award 'reciprocal rights' of access if individually and separately responsible for different deployments
  - Leave existing users of regulated products undisturbed
- At the end, however, what matters is the expected stream of revenues (and thus on the degree of competition)

Policy Conclusions/4

- 6) Potential drawback: risk of ex post collusion (Kramer and Vogelsang, 2017, RNE). Evidence?
- Co-investment has not triggered collusion between market players:
  - (i) regulators and competition authorities are well aware of the risk of collusion and these agreements are heavily scrutinized;
  - (ii) NGA network operators face competition from xDSL technology, which limits the possibility of collusion on NGA prices;
  - (iii) co-investment, when designed as an alternative to access, does not involve coordination.
  - (iv) Open agreement may limit collusion because of the (relatively) low barrier to entry. In this case, the access charge should reflect the addition cost of capital due to risk → this should not be interpreted as a *discriminatory rule* … However, extremely difficult to assess this risk ex ante, while the detrimental effect on investment is certain

A practical suggestion (in theory!)

- Each co-investment proposal would be submitted to the NRA and be examined on its individual merits (working in co-operation with the NCA)
- The presumption would be that the co-investment proposal would result in a new geographic (and potentially product) market, for which the NRA would immediately undertake a new market review (effectively 'market testing'). The geographic market outside this area would remain unchanged and would not require further review.
- The NRA would be required to issue a decision (within, say, 9 months) setting out its position on the market, SMP and the regulatory conditions, if any, to be applied to the co-invested network.
- This decision would be binding on all parties for the term of the co-investment agreement. If the terms of the co-investment agreement alter or the parties change in way which is likely to alter the analysis, then the NRA would be able to revisit its conclusions earlier.