



QUALCOMM/NXP

Observations on the reliance on economic modelling

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OUTLINE

- *Bargaining*

New model, multiple ingredients

- *Pure bundling / innovation*

Natural extension of previous work; applicability?

- *Mixed bundling / MIFARE*

Ambiguous theoretical conclusions; implications?

- *Other approaches*

Synergies / one-stop benefits

MODEL 1: PURE BUNDLING

- *Impact of pure bundling on innovation*
 - Choi – Stefanadis
 - conglomerate firm can commit to bundling
 - potential entrants can invest in stochastic R&D
 - bundling reduces profitability (need both entrants to succeed)
 - Natural extension
 - incumbents can also invest to improve their offerings
 - impact of a merger between incumbents
 - Parsimonious and intuitive: clear ingredients; applicability?
 - [entry in next generation]
 - other BC suppliers (+ in-house) ... but QC dominant; consistency?

MODEL 2: BARGAINING

- *Setup: multiple ingredients*

- SE: NXP / competitor and MIFARE licensing
 - cost of competitor uncertain
 - ex ante royalty setting
- BC: Qualcomm / competitor
 - both can invest in stochastic R&D for next generation technology
 - if available, the new technology eliminates the value of previous one
- Specific bargaining model
 - component-by-component
 - complete information, multiple stages, cooperative / non-coop.
 - equilibrium multiplicity

MODEL 2: BARGAINING

- *Key feature: interplay merger / BC bargaining outcome*
 - Pre-merger
 - if both innovate, Bertrand competition
 - if only competitor innovates, QC gets no profit
 - Post-merger
 - if both innovate, competitor is foreclosed
 - if only competitor innovates, as before; QC gets no profit
 - Micro-foundations
 - timing of licensing decisions?
 - pure bundling?
 - new technology kills previous one even if not adopted?

MODEL 2: BARGAINING

● *Assessment*

- Plus: new and interesting
- Minuses
 - multiplicity of factors
 - critical interplay
 - technicalities
- *Remark: transparency*
- Remedies: no pure bundling?

MODEL 3: MIXED BUNDLING

- *Mixed bundling*

- Bundle offered at lower price, stand-alone prices increase
- Theoretically ambiguous effect
- Calibration?

GE – Honeywell [*disclosure: pers. involvement*]

- *Remark: degrading interoperability*

Alternative: increase stand-alone prices

- Same effect on demand
- Higher margins

MODEL 3: MIXED BUNDLING

● *Mixed bundling + increased royalties for MIFARE*

● Idea

- o merged entity increases royalties
- o exacerbates negative effect of mixed bundling on stand-alone prices

● Issue

- o pre-merger, NXP already has incentive to charge high rates
- o response: limited by “invent around”
- o it is shown that rate increases
constraint more likely to be accommodated pre-merger

MODEL 3: MIXED BUNDLING

- *Mixed bundling + increased royalties for MIFARE*
 - Still theoretically ambiguous
 - existence result
 - critical interplay between invent around and merger
 - calibration?
 - Commission
 - model is inconclusive
 - but investigation leads to same conclusion
 - internal documents? (transparency)

OTHER APPROACHES

- *Synergies / one-stop benefits*
 - §516: ability and incentive to offer an integrated solution
 - NXP's MIFARE-enabled SE / QC's LTE baseband chipset
 - Alenia / de Haviland: maintenance & spare parts, pilot training & cert.
 - ATT / Direct TV: set-up boxes, customer support
 - Chen – Rey (201?)
 - efficiency gains, partly appropriated
 - portfolio differentiation: competition softening
 - potential harm more likely with pure bundling (& mkt concentration)

IP PORTFOLIO

- *Portfolio size and bargaining*
 - Bargaining in the shadow of litigation
 - Litigation skills
 - No-Licence-No-Chips
 - Portfolio size?
 - Other practices
 - delegating monetization to PAEs / NPEs
 - segmenting patent portfolio
 - Implications for R&D incentives (IP / antitrust)