An Economist's Guide to Local Loop Unbundling

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1. Introduction
   - Aspect of the paper
   - Objectives
   - What is Local Loop Unbundling?
   - Types of Unbundling
   - Benefit/Problem of Unbundling

2. Broadband diffusion and unbundling

3. Effect on Investment and innovation

4. Conclusion
1. Introduction

**Aspect of the paper**
- Summarizes the results of recent research about local loop unbundling
  - What is the effect of unbundling? (pros & cons)
  - The paper does not give a definitive point of view
  - Provides many cases of local loop unbundling analysis
- Guide for research
  - provides various points of view of research
  - Suggests new issues for research

**Objective: Provide us with the recent studies**
- Effect of unbundling regulation on broadband diffusion
- Impact of unbundling on investment and innovation incentives
- Suggestion for further research
1. Introduction

- **What is Local Loop Unbundling (LLU)?**
  - Providing the entrant access to the incumbent’s local network
  - Aims to stimulate competition in the local loop
  - Government regulated: prevents monopoly

- **Types of Unbundling**
  1. Full unbundling (Full Access, Copper Loop Rental)
  2. Line Sharing (Shared Access)
     - Bitstream access
  3. Resale
Types of Unbundling (Continued)

Three types of unbundling:

- **Customer access:** common use for telephone and data transmission
- **Cable bundle of incumbent operator**
- **Telephone network**
- **Data network**
- **New entrant operator site**
- **Incumbent operator site**

**Types of unbundling:**
- **A** = Bitstream Access
- **B** = Shared Line Access
- **C** = Full Access

**Other abbreviations:**
- **S** = Splitter
- **M** = Data multiplexer

BAKOM/ComCom 2002
1. Introduction

ö **Benefit of Unbundling**
- Save investment and save time for entrants
- Allow competing entrants to enter competition easily, and compete on the same level as the incumbent

ö **Problem of Unbundling**
- Undermine the investment and innovation incentives of both entrants and incumbents
- Could delay competition
1. Introduction

2. Broadband diffusion and unbundling
   1. Introduction
   2. Focus of research in Broadband Diffusion
   3. Socio-cultural and demand factors
   4. Supply conditions and traditional regulation
   5. Intra-platform and inter-platform competition

3. Effect on Investment and innovation

4. Conclusion
2. Broadband Diffusion and Unbundling

**Introduction**
- Broadband Diffusion (Broadband Penetration): The diffusion of the broadband usage into the public
- Broadband Diffusion is important because it shows the usage of broadband communication of the population and is affected by local loop unbundling

**Focus of research in Broadband Diffusion**
1. Characteristics of demand
2. Impact of regulation and supply condition
3. Interactions between intra-platform and inter-platform competition
2. Broadband Diffusion and Unbundling

- Socio-cultural and demand factors
  - Demographic factors
    - Education level and interest in broadband [MADDEN, SAVAGE & SIMPSON]
    - Revenue, size of households [RAPPORT, DRIDEL & TAYLOR]
    - Preparedness to use advanced technologies (Information and Communications Technology) [KIM, BAUER & WILDMAN]
  - Socio-cultural factors
    - Application development: the driver of demand [HOWELL]
    - South Korea vs. Singapore, Japan [AIZU]
    - Social and cultural factors > demand and traditional economics factors
Why is South Korea a special case in the socio-cultural factor of broadband diffusion?

1. Game
   “A recent study by the market research firm IDC shows that gaming is the main drive for broadband adoption. Korea exemplifies this trend...
   “...that's related to the country's Confucian heritage. ... They satisfy the urge for social interaction and the need to belong to a group.”

2. Education
   “Rapid Internet diffusion in Korea can be attributed to certain characteristics of Korean culture. .....a social pressure to keep up with their neighbors... is further fuelled by a competitive enthusiasm for children’s education
2. Broadband Diffusion and Unbundling

ö **Supply conditions and traditional regulation**

- **Supply conditions** [GABEL & KWAN]
  - Teledensity, Cost of routing traffic to backbones
  - Cost depends on regulatory conditions

- **Regulation**
  - Three main channels [PRIeger]
    - Direct tools (tax breaks, lending programs)
    - Regulation on broadband access prices
    - Regulations of basic services
  - Rate of return vs. Price Cap (Averch-Johnson effect) [PRIeger]
  - Demand and supply factors is very sensitive to the shape of public policies [KIM, BAUER & WILDMAN]
Intra-platform and inter-platform competition

- What is Intra/Inter-platform competition
  - Intra-platform competition: DSL vs. DSL
  - Inter-platform competition: DSL vs. Cable
- Inter-platform competition significantly influences broadband penetration [ARON & BURNSTEIN]
- But, it does not compensate for the losses from the duplication of infrastructures [HÖFFLER]
2. Broadband Diffusion and Unbundling

ö Conclusion of this section

1. Socio-cultural factors influence broadband diffusion more than other demand factors
2. Inter-platform competition is more effective than intra-platform competition in broadband diffusion
3. Regulation policies (for unbundling) is important for broadband diffusion
1. Introduction
2. Broadband diffusion and unbundling
3. Effect on Investment and innovation
   1. Focus of research
   2. Impact on entry decisions
   3. Investment and innovation decisions
4. Conclusion
3. The Effect on Investment and Innovation

- **Focus of research**
  1. Impact on entry decisions
     - Number of entrants
     - Entry strategies
  2. Impact on investment and innovation decisions
     - Decisions of the entrant
     - Decisions of the incumbent
3. The Effect on Investment and Innovation

- **Impact on entry decisions**
  - Number of entrants
    - Favourable terms of entry (unbundling policy) -> higher expected profit -> higher entry rate
    - Trade off between competition and duplication of fixed entry cost
  - Entry Strategies
    - Service-based Competition
      - Uses the incumbent’s facilities
      - Restricted by the incumbents’ choices of price, service and technologies
    - Facility-based Competition
      - Builds its own access network
      - Long-term efficiency (flexibility and innovation) [BOURREAU & DOAN]
3. The Effect on Investment and Innovation

- **Investment and innovation decisions**
  
  - Unbundling affects the investment and adoption decisions of the entrants:
    
    - There are benefits for entrant to delay investment incentives for reduced costs of technologies, new information regarding demand, technologies or competition, etc.
    
    - Incumbents may delay facility-based entry by providing attractive terms of access to its facilities (entrant decides not to invest)
  
  - Unbundling affects the investment and adoption decisions of the incumbents:
    
    - Decreases the incumbent’s incentives to upgrade and maintain its existing network (it will also help the competitors)
    
    - If innovation fails, the incumbent bears the cost, not the entrant. If successful, the entrant is given access
Conclusion of this section

1. When choosing the regulation policy, the most efficient number of entrants need to be considered
2. Should lean toward facility-based competition in long-term period
3. Unbundling has negative effects on innovation and investment for both the entrant and the incumbent
1. Introduction
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   1. Summary
   2. Suggestion for research
   3. Our conclusion
4. Conclusion

ö **Summary**
- Relation of broadband diffusion and unbundling
- Impact of unbundling on entry and investment decisions

ö **Suggestion for research**
- Public initiatives (intervention)
  - Investment of local policy for public initiatives
  - What is the impact of public investments on private incentives to provide broadband?
- Regulation of different levels of unbundling
  - Build or buy -> Wide range of access offerings (access level)
  - How many levels of access are necessary?
4. Conclusion

- Our conclusion
  - Unbundling: Ladder of investments
Q & A
Thank you