The Ladder of Investment in Spain

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Outline of presentation

- **Long-run objective**
- **The concept of the “ladder of investment”**
- **Is it the unique approach? Some critics**
- **The ladder of investment in Spain. Success or Failure?**
- **Reasons, What can we do?**

Long-run objective

- More competition and less regulation as this will yield
  - Efficiency improvements lead by competitive forces
  - Benefits from innovation and efficient adoption of new technologies (regulation may distort these incentives)
  - Choice, variety
  - Less regulatory costs
    - Competition in infrastructure between few operators may not be enough to de-regulate the industry but will reduce regulatory intervention

- An early full deregulation is not feasible: significant economies of scale, scope and density
  - It may rise prices in the short- and medium-run
  - predation and foreclosure risks

- Deregulation is only possible when there is an important degree of facilities-based competition, so that entrants do not need access to the incumbent facilities

- through competition in infrastructures → inter-modal competition → higher competition → higher broadband penetration

- But, duplicating the incumbent network at one time is risky and requires high sunk costs

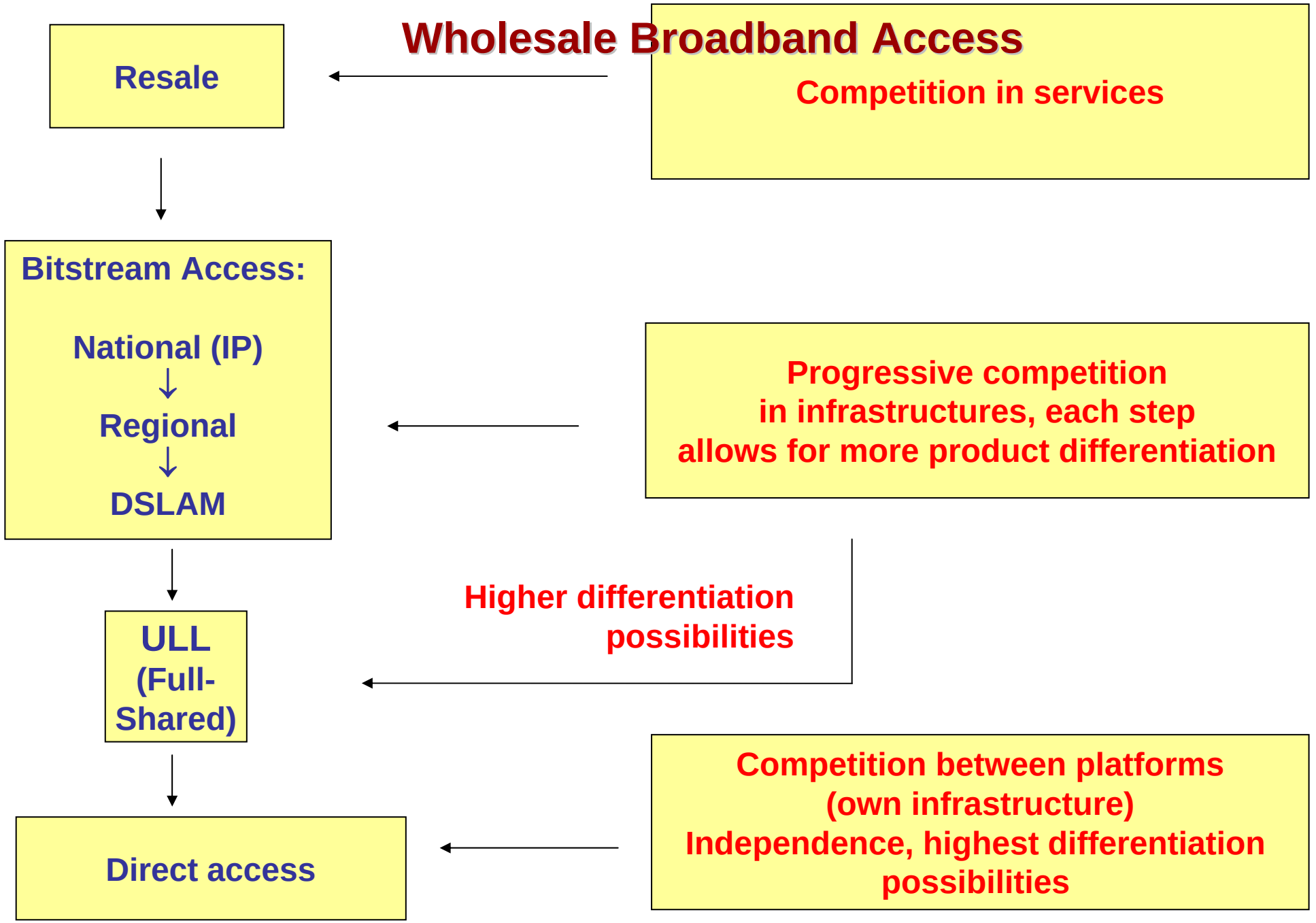
How?

- Alternative:
  - Entrants can progressively deploy their networks and reduce the reliance on the wholesale products of the incumbent
    - Progressively accumulating assets, beginning from the most easily replicable assets
  - Regulators should use regulatory tools to encourage infrastructure competition and prevent inefficient entry

"THE LADDER OF INVESTMENT"

“The ladder of investment” concept

- Regulator makes available access products, from the lowest investment requirement (resale) to the largest (unbundling):
  - Then, firms can use
    - Service-based competition (resale)
    - And Bitstream access
  - As a means to
    - Enter the market and compete in a fast way
    - Achieve progressively facility-based competition
  - E.g., firms may use “resale” until they have acquired a critical customer base that yields enough revenues to acquire capital assets in the next rung “Bitstream access” and so on…
- As their market share increase, entrants can deploy their own infrastructure progressively closer to the customer premises, which
  - results in higher product differentiation and more variety
  - makes them less dependent of the incumbent’s network


Wholesale Broadband Access
Resale
Competition in services
Bitstream Access:
National (IP)
Regional
DSLAM
Progressive competition
in infrastructures, each step
allows for more product differentiation
Higher differentiation
possibilities
ULL
(Full-
Shared)
Competition between platforms
(own infrastructure)
Independence, highest differentiation
possibilities
Direct access

Keys to success

(encourage operators to climb the ladder of infrastructure competition)

- To ensure a proper migration process (from one access product to another –moving up the next rung), no interruption of services

- Prices must
  - Satisfy Margin Squeeze test at each rung

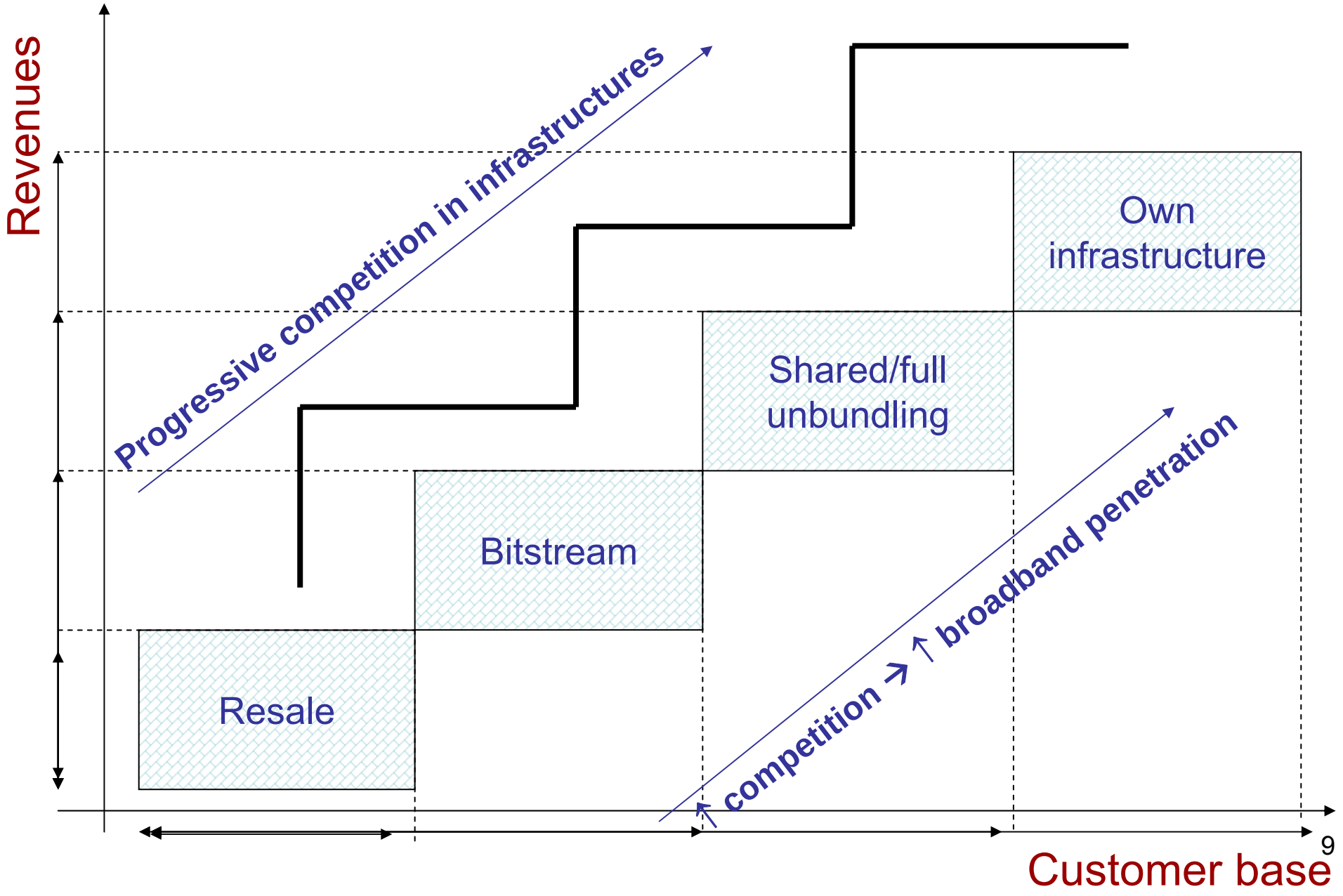
    Incumbent's retail price – access charge at each rung > cost of providing the retail service of a firm as efficient as the incumbent

  - Encourage operators to climb the ladder of infrastructure competition

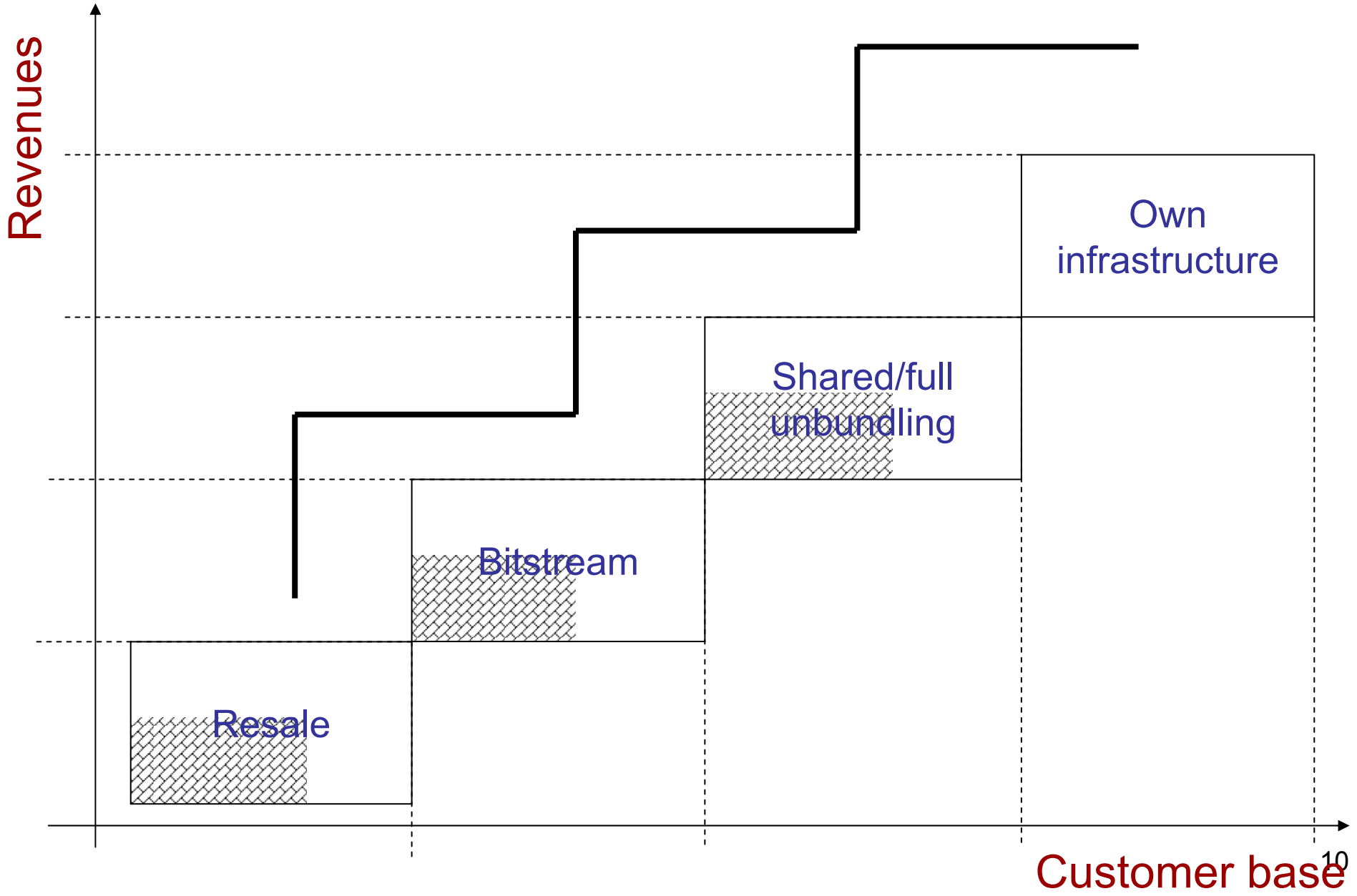
    NPV resale ≤ NPV National BS ≤ NPV Regional BS ≤ NPV ULL

- NPV depends on:
  - Access prices
  - Product differentiation that allows to charge higher prices
  - Costs
  - Competition

How it works

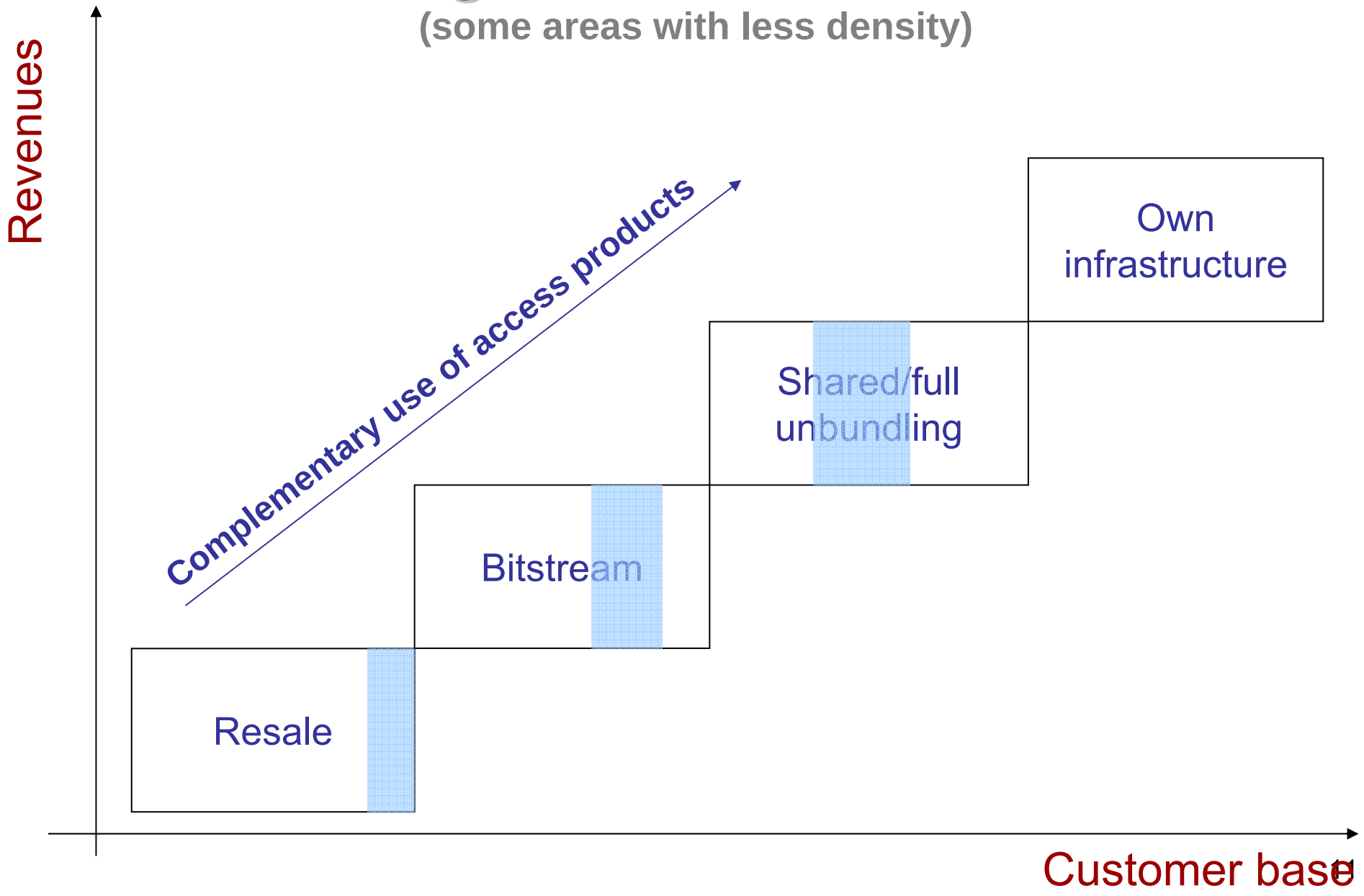

Revenues
Progressive competition in infrastructures
Own infrastructure
Shared/full unbundling
Bitstream
Resale
↑ competition → ↑ broadband penetration
Customer base

Too fast, too risky?



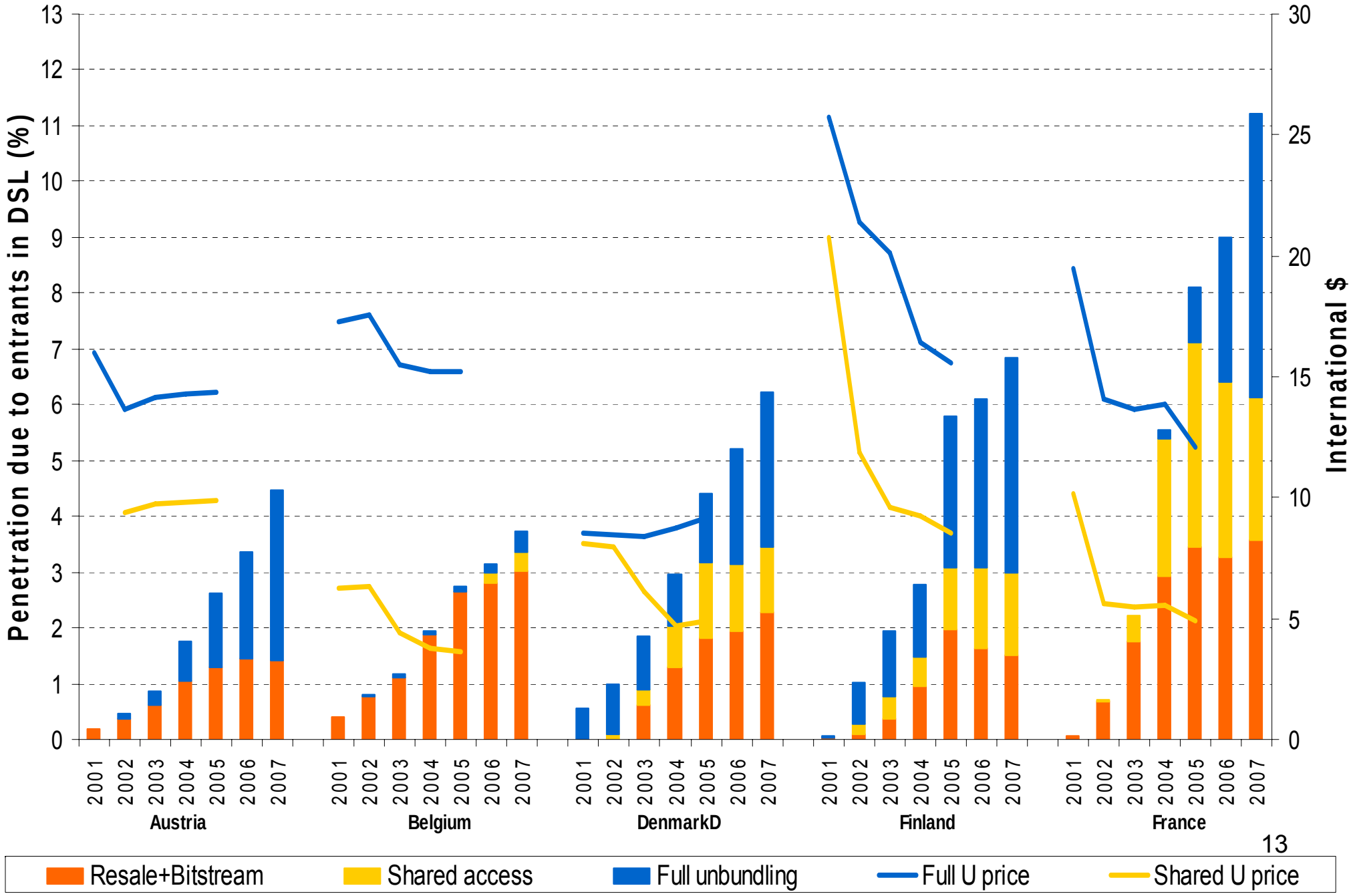
Regional differences

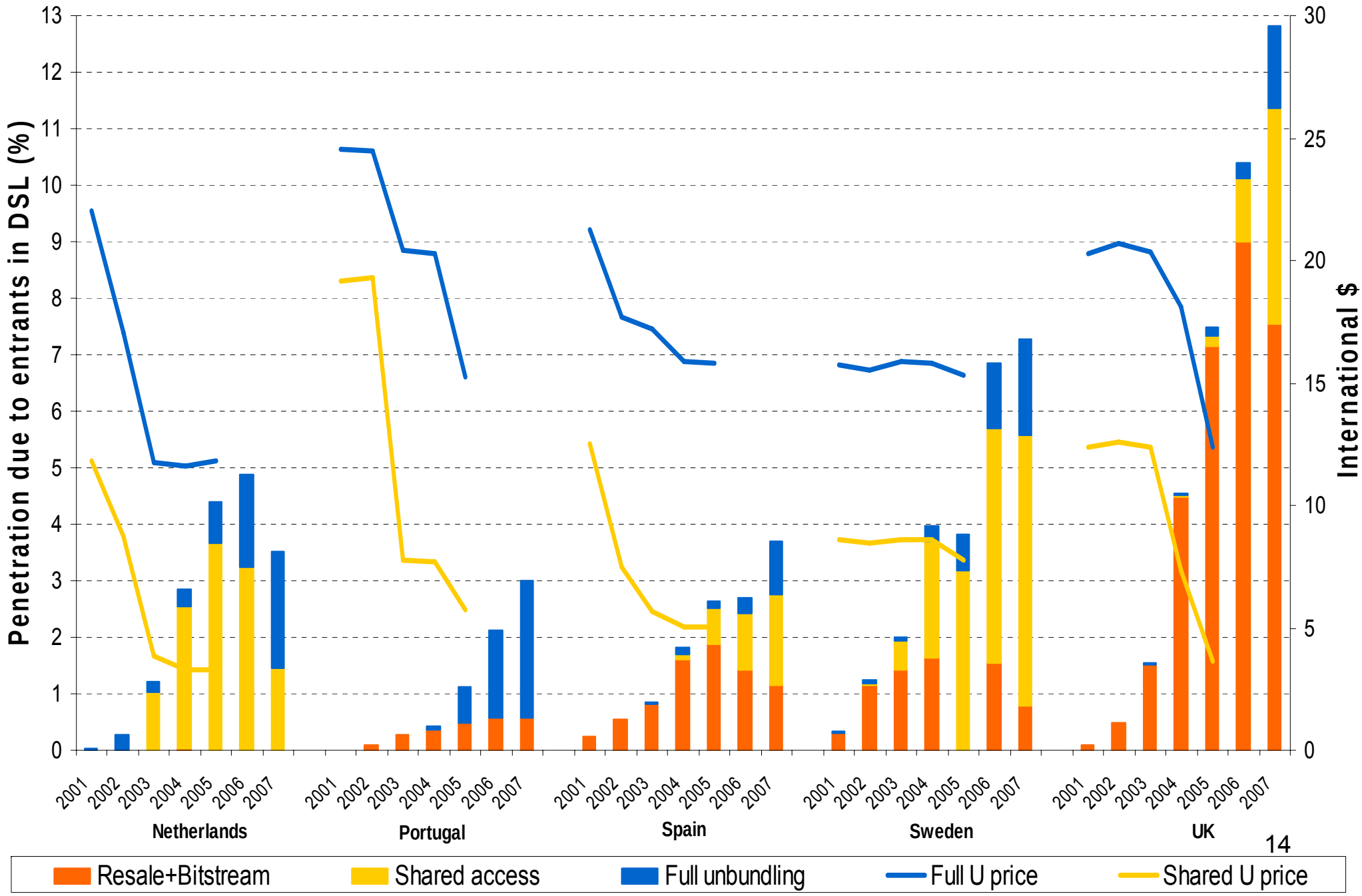
(some areas with less density)



Is it the unique approach?

- Evidence:
  - Different approaches:
    - No LLU: Mexico, Switzerland
    - Bitstream & no LLU: Switzerland
    - LLU & no Bitstream: Australia, Island, Sweden
    - Bitstream & LLU: Austria (bitstream prices are not regulated), Finland (bitstream prices are not regulated), Rest EU
  - in many European countries, entry has taken place on several or all rungs of the ladder:
    - LLU has been used by some entrants for large scale entry without using Bitstream access. E.g.: Sweden, the Netherlands and Germany


Penetration due to entrants in DSL (%)
International $
0
1
2
3
4
5
6
7
8
9
10
11
12
13
0
5
10
15
20
25
30
2001
2002
2003
2004
2005
2006
2007
Austria
Belgium
DenmarkD
Finland
France
13
Resale+Bitstream
Shared access
Full unbundling
Full U price
Shared U price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10
15
20
25
30
2001
2002
2003
2004
2005
2006
2007
Netherlands
Portugal
Spain
Sweden
UK
Resale+Bitstream
Shared access
Full unbundling
Full U price
Shared U price

Some critics

- Too interventionist?
  - The burden on the regulator as
    - *Inter-modal competition is the result of the dynamic of intra-modal competition in DSL, which depends on the regulated access*
    - *How? Dynamic pricing, sunset clauses?*
  - NRAs will affect the market structure and the business strategies

- What is the optimal number of rungs?
  - E.g., Too many rungs will make it harder to make proper squeeze and predatory tests

Spain

- Resale:
  - "ADSL-IP Total"
    - **The wholesale price is not regulated** (transparency and non-discrimination obligations)
    - Before "Megavía" and "ADSL-IP no tunelizado"
- Bitstream access:
  - **National level:** "ADSL-IP" (IP technology)
    - Introduced by Telefónica in Sep. 2001 but only for internal consumption
    - CMT: mandated access in April 2002
    - CMT: obligation of cost-oriented prices in June 2006
    - **Unregulated prices until** December 2006: precautionary measures
      - between -24% (lowest speed) and -61% (highest speed)

– **Regional level:** “GigADSL” (ATM technology)

- Requires connection to 109 points for full coverage (thus implies a significant initial investment)
- CDGAE made available this service in March 1999 and fixed access prices
- Since January 2001, the CMT regulates the access prices of this service
- **July 2001,** CMT set the GigADSL maximum price through
  - **Retail Minus** (margin 40-42%) which prevails until December 2006
  - Only slight modifications when Telefónica duplicated the DSL speed of its retail services in 2004 and 2005
- Dec 2006: -22% (lowest speed) and -54% (highest speed)

– Nov. 2007:

- Telefónica is allowed to provide retail services with technology ADSL2+ (ADSL TOP -10Mbps- and PREMIUM+ -20 Mbps)

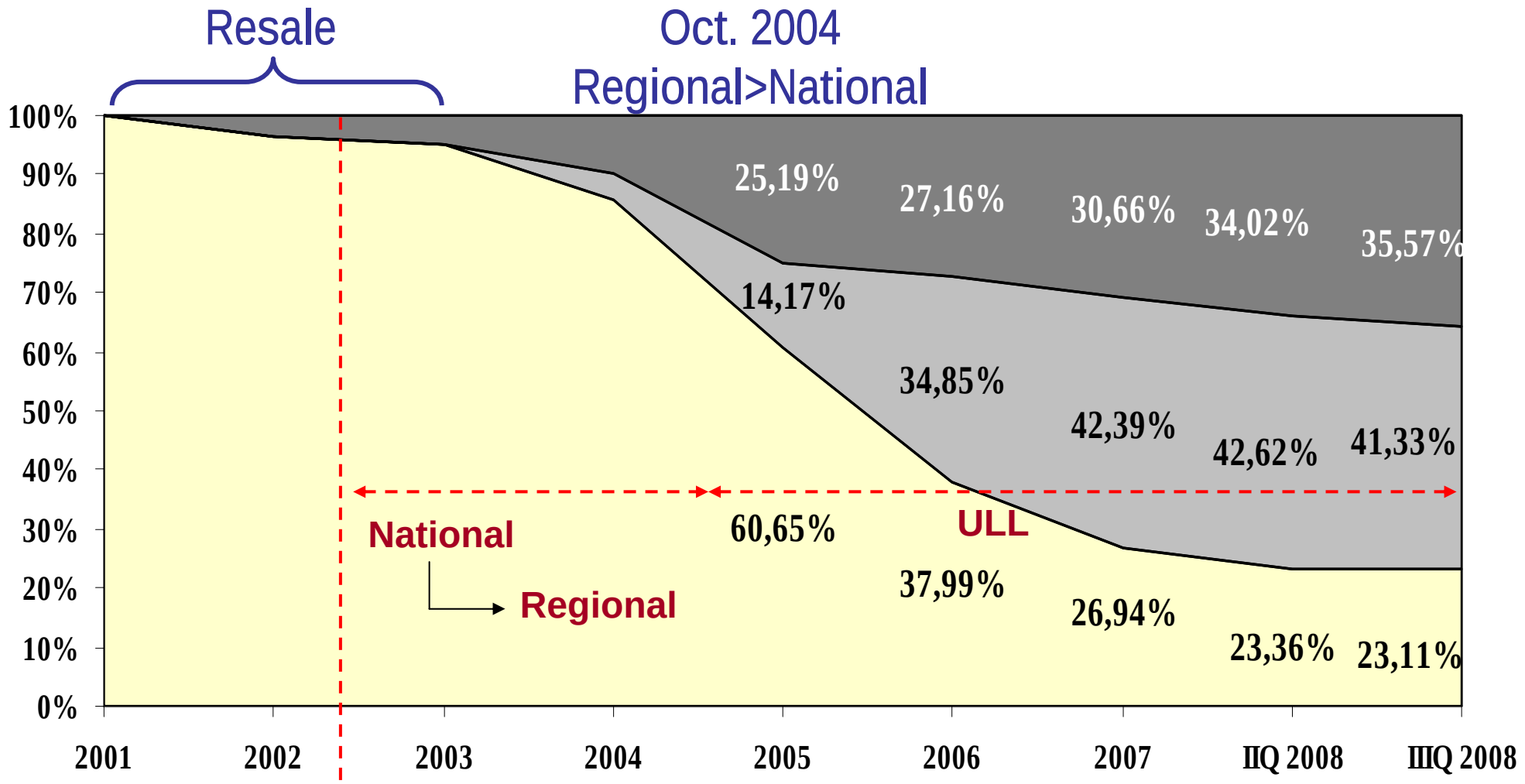
- But mandated access to the same services at wholesale level (with access prices *oriented at cost*)

– March 2008:

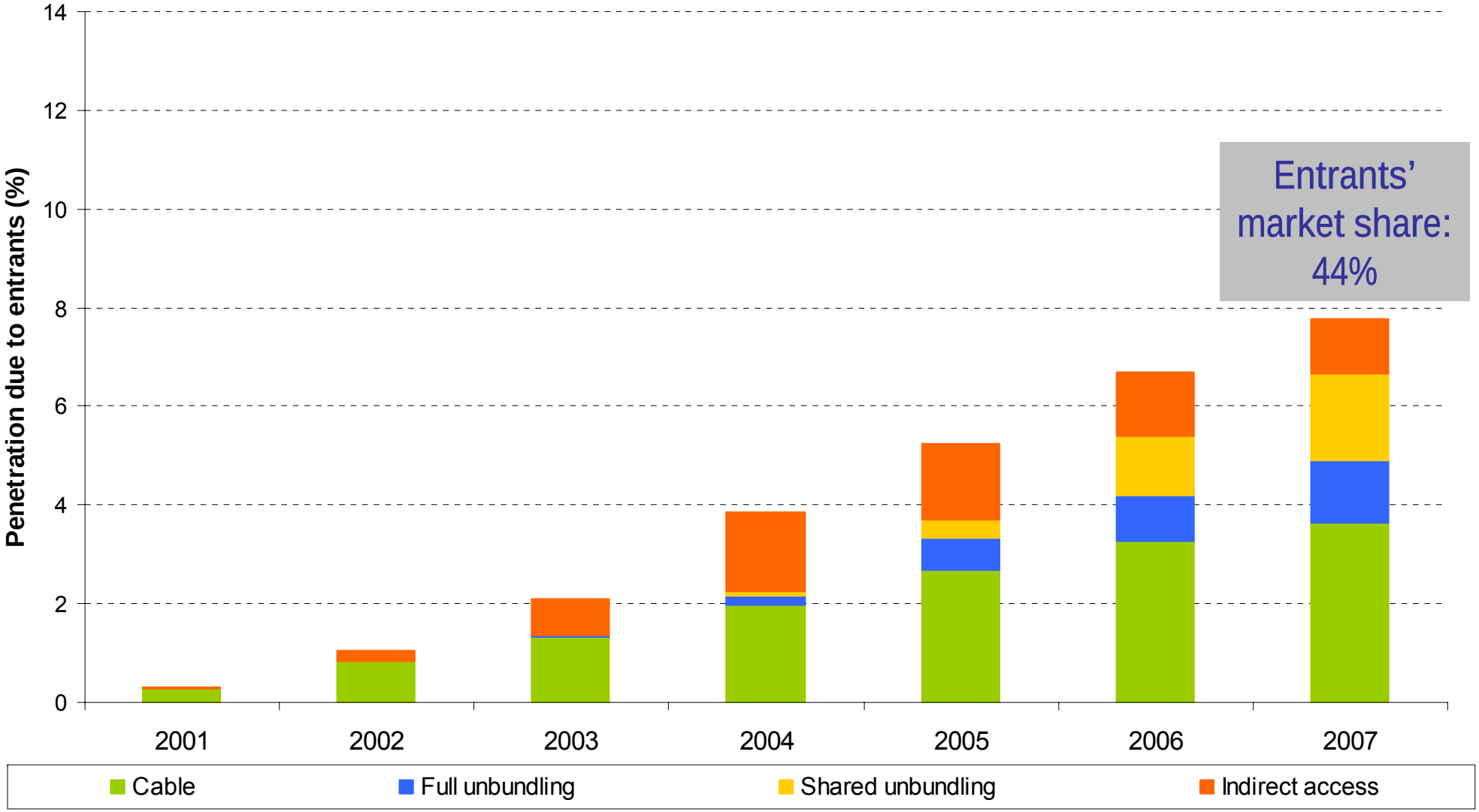
- CMT decreased again prices of Bitstream access (regional (ATM) and national (IP) level)
  - Basic (O) 1Mbps: -8,13% (regional) and -12,85% (national)
  - (A) 3 Mbps: -6,49% (regional) and -16,82% (national)

- Local loop unbundling (LLU):
  - **Shared LLU** (cost-oriented price)
  - **Full LLU** (cost-oriented price)
  - 6836 connection points
  - LLU had initially difficulties with the size and dimensioning of collocation rooms (which explains its slow uptake in the beginning)
  - 2nd revision (2004) and subsequent decisions of CMT, set conditions for block migration of Bitstream connections to full-shared unbundled loops
  - Based on the Telefónica's costs of 2006, the CMT decreased the prices of LLU access by 29,9% at December 2008

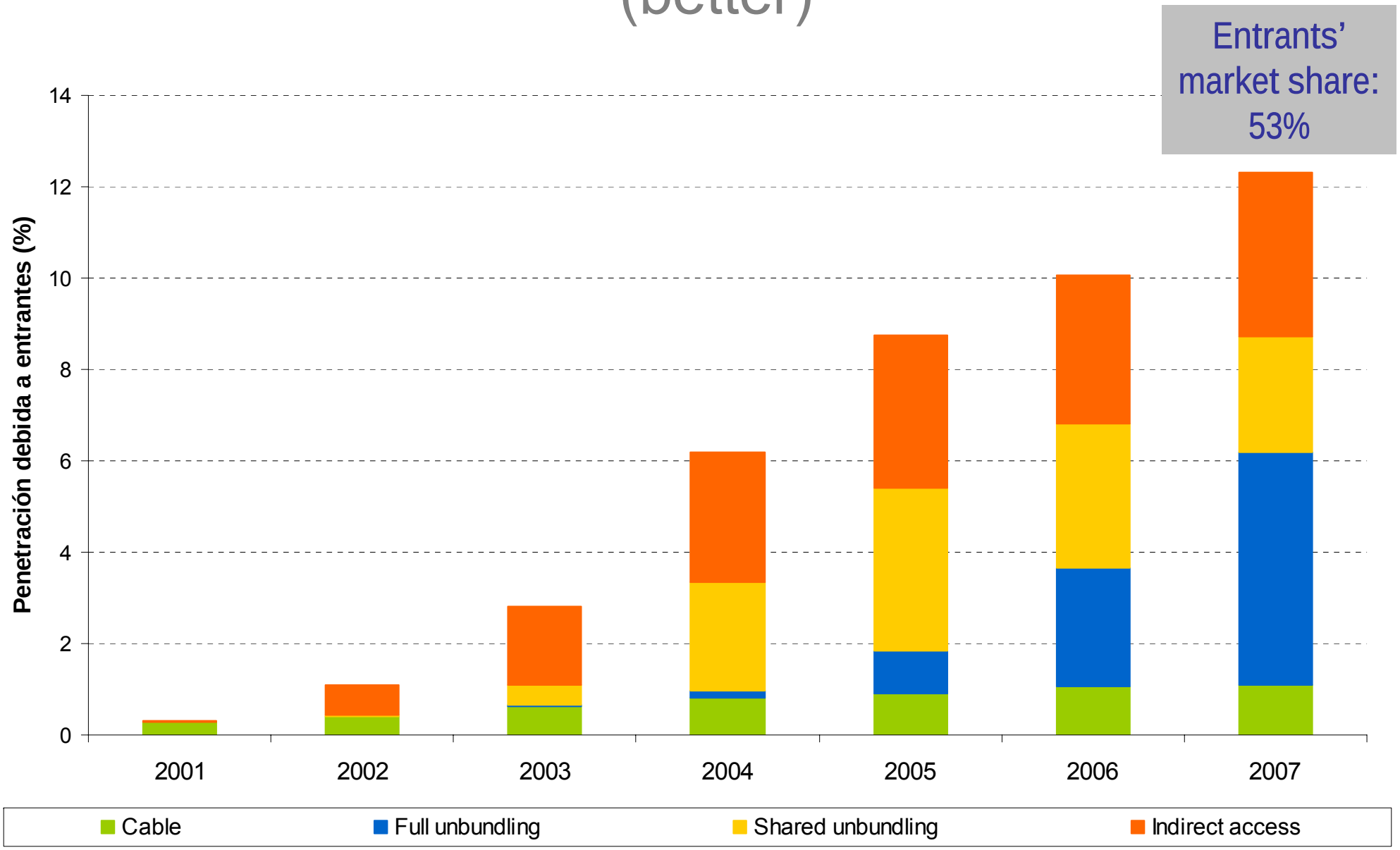
The Spanish ladder of investment



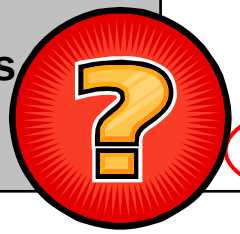
Spain
(good?)


Penetration due to entrants (%)
14
12
10
8
6
4
2
0
2001
2002
2003
2004
2005
2006
2007
Entrants' market share: 44%
Cable
Full unbundling
Shared unbundling
Indirect access

France
(better)



	2004	2005	2006	2007	IIIQ 2008
Cable	**848.103**	1.169.666	1.435.655	1.633.489	**1.749.183**
Telefónica	**1.868.415**	2.708.636	3.717.677	4.540.741	**5.026.888**
Indirect access	686.028	670.001	598.373	499.263	476.575
Total ULLs	113.954	434.760	939.009	1.353.948	1.586.003
Full ULL	79.768	278.246	411.286	568.285	733.631
Shared	34.186	156.514	527.723	785.663	852.372
Total DSL lines	2.668.397	3.813.397	5.255.059	6.393.952	7.089.466
Total entrants' lines	1.648.085	2.274.427	2.973.037	3.486.700	3.811.761
Total lines	3.516.500	4.983.063	6.690.714	8.027.441	8.838.649
Cable / total entrants' lines	**51,46%**	51,43%	48,29%	46,85%	**45,89%**
Indirect access / Total lines	**19,51%**	13,45%	8,94%	6,22%	**5,39%**
(Cable+ULL) / Total lines	**27,36%**	32,20%	35,49%	37,22%	**37,73%**
Entrants' market share	**46,87%**	45,64%	44,44%	43,43%	**43,13%**



Reasons

1. Type of Bitstream access

- Regional Bitstream requires connection to 109 points, which implies a high initial investment

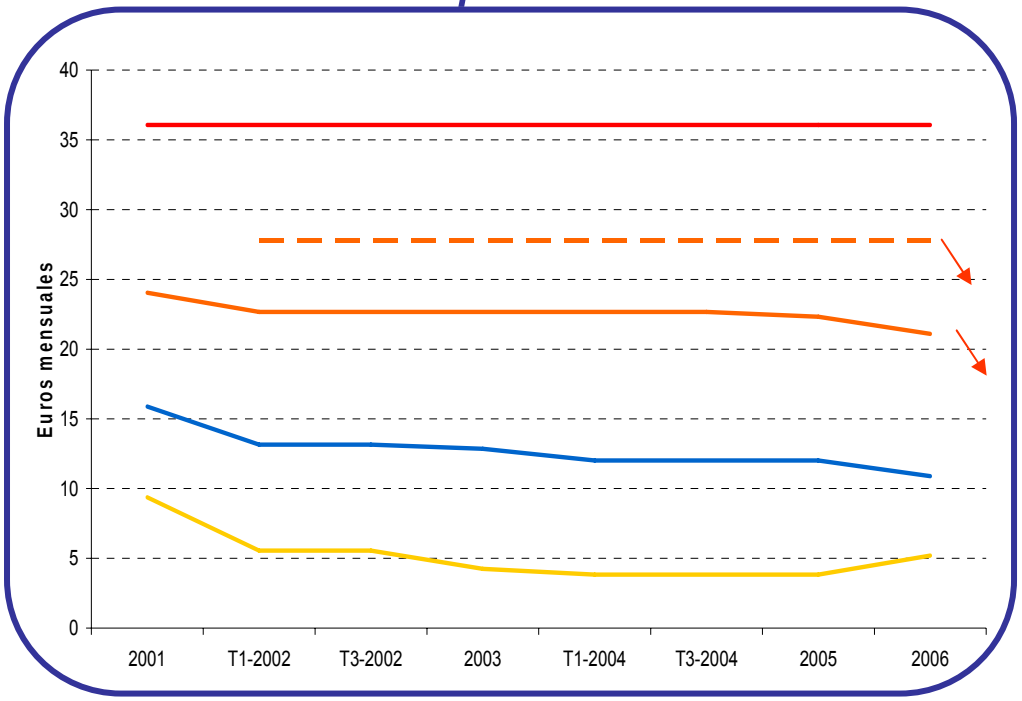
- ➢ Can the number of connection points be reduced to facilitate entry and competition?

- ➢ Are higher quality services through regional Bitstream access feasible?

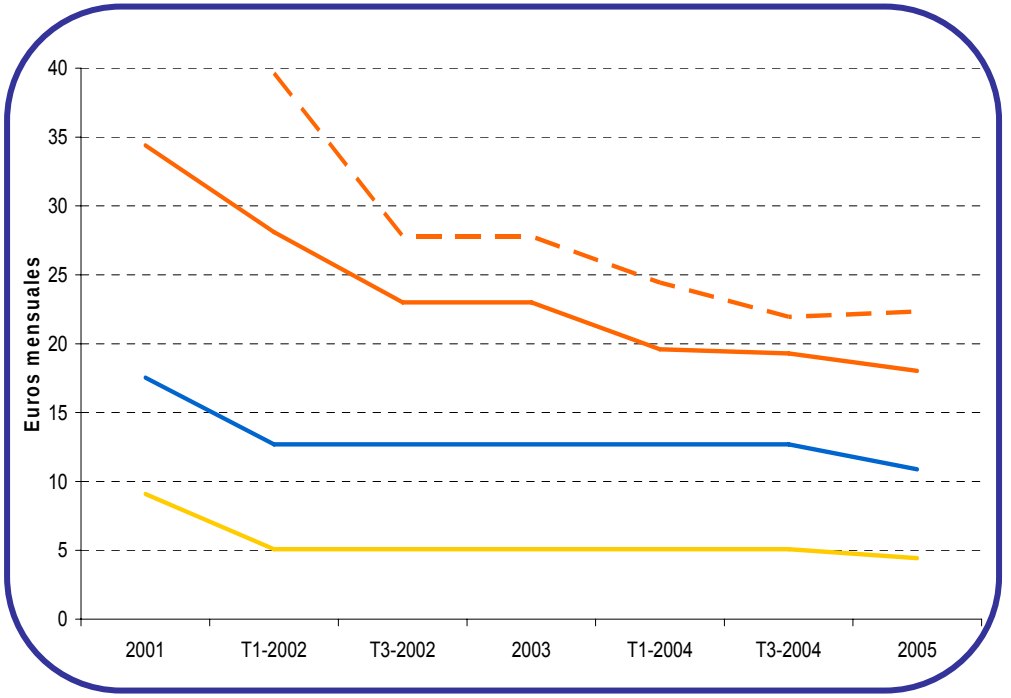
2. Access prices

(2007, EC fined Telefónica €152m for **squeezing rival** operators out of the broadband internet market by setting wholesale prices -indirect access- too high during 2001-2006)

Spain

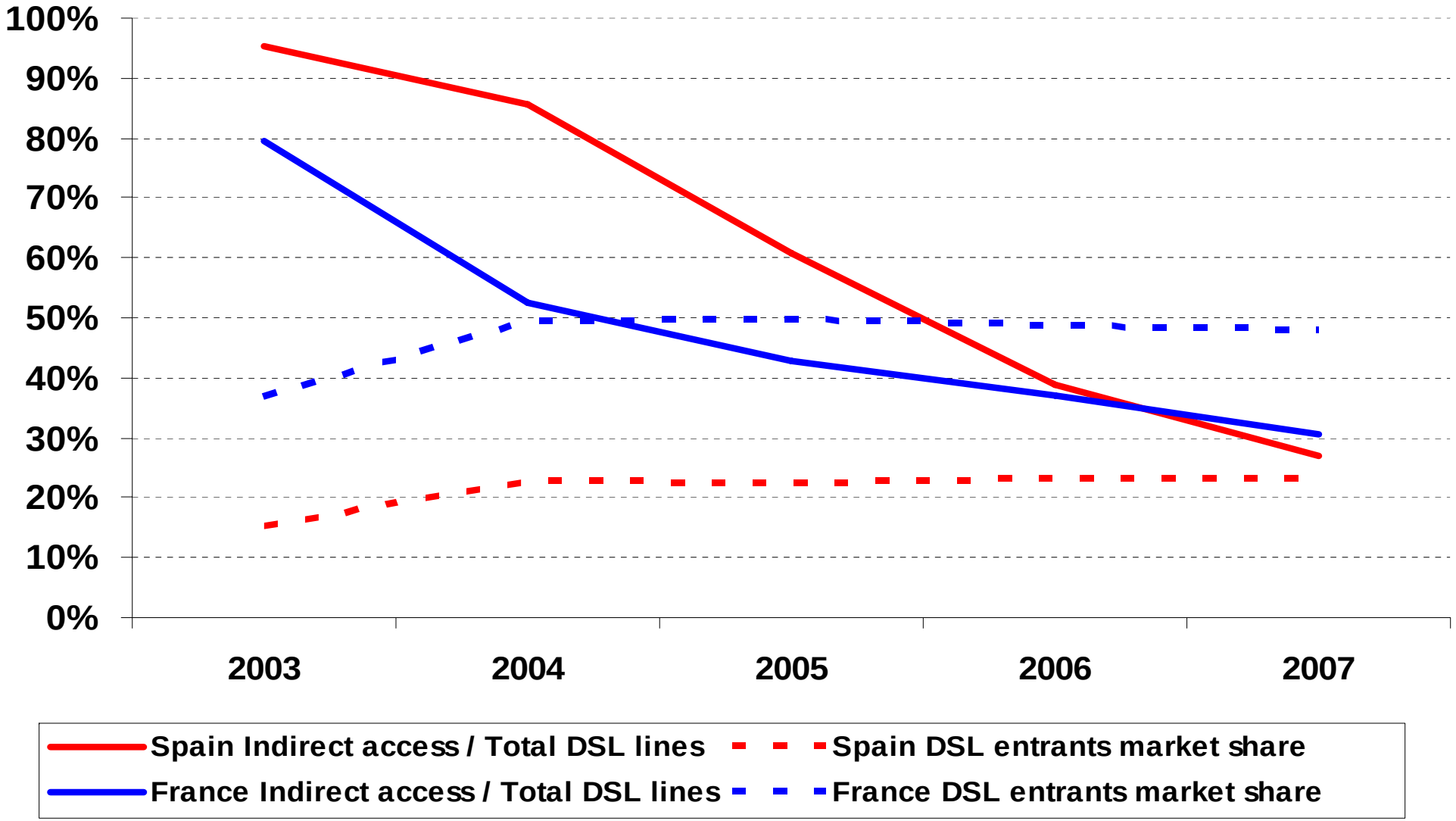


France



Resale price
IP Bitstream price
ATM Bitstream price
Shared access price
Full unbundling price

3. Have the entrants climbed too fast?
Why? Due to Margin Squeeze in the Bitstream access?



4. Regional differences – optimal regulation?

- LLU is economically viable in exchanges that have a high population density around them and with a large number of Internet users
  - A certain critical mass of customers is needed per exchange to break even
  - This is an important barrier
  - Then, Bitstream access seems the only option to offer services in these areas

- Should Bitstream access prices consider the regional cost differences?

  – Price squeeze test of CMT (also for promotions) measures:

    - Wholesale access cost:
      LLU price * x + Bitstream price *(1-x) < Bitstream price,

      where x= proportion of ULL over the total DSL lines

    - Thus, Telefónica can make offers that may not pass the margin squeeze test if considering only the Bitstream price, this means that in those regions where LLU is not economically viable, entrants cannot get profitable customer base

  – What about switching costs?
    - Retail price – Access price > C + ¿ S ?

5. Vertical differentiation?

- If the margin
  - Retail price – access price < retail cost + ¿S?
- Then, entrants could only capture customer base by offering higher quality services,
- However, Telefónica has lead the network improvements:
  - 2004: LLU begins → entrants can offer higher speeds
  - Sept 2004: 256 Kbps – 512 Kbps
  - July 2005: 512 Kbps – 1Mbps
  - Nov 2006: 1 Mbps – 3Mbps
  - July 2008: 3 Mbps – 6 Mbps
  - Nov 2007: ADSL2+: 10 Mbps & 20 Mbps

- Moreover, Telefónica currently offers 6 Mbps,
  - Does LLU allow for enough product differentiation so as to capture customers in low density populations? Or even in high density populations?
- **NGNs:** Do entrants have enough customer base to climb the last rung of the ladder?