



Competition, regulation, and investment in new communications infrastructure

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Structure/plan of the talk

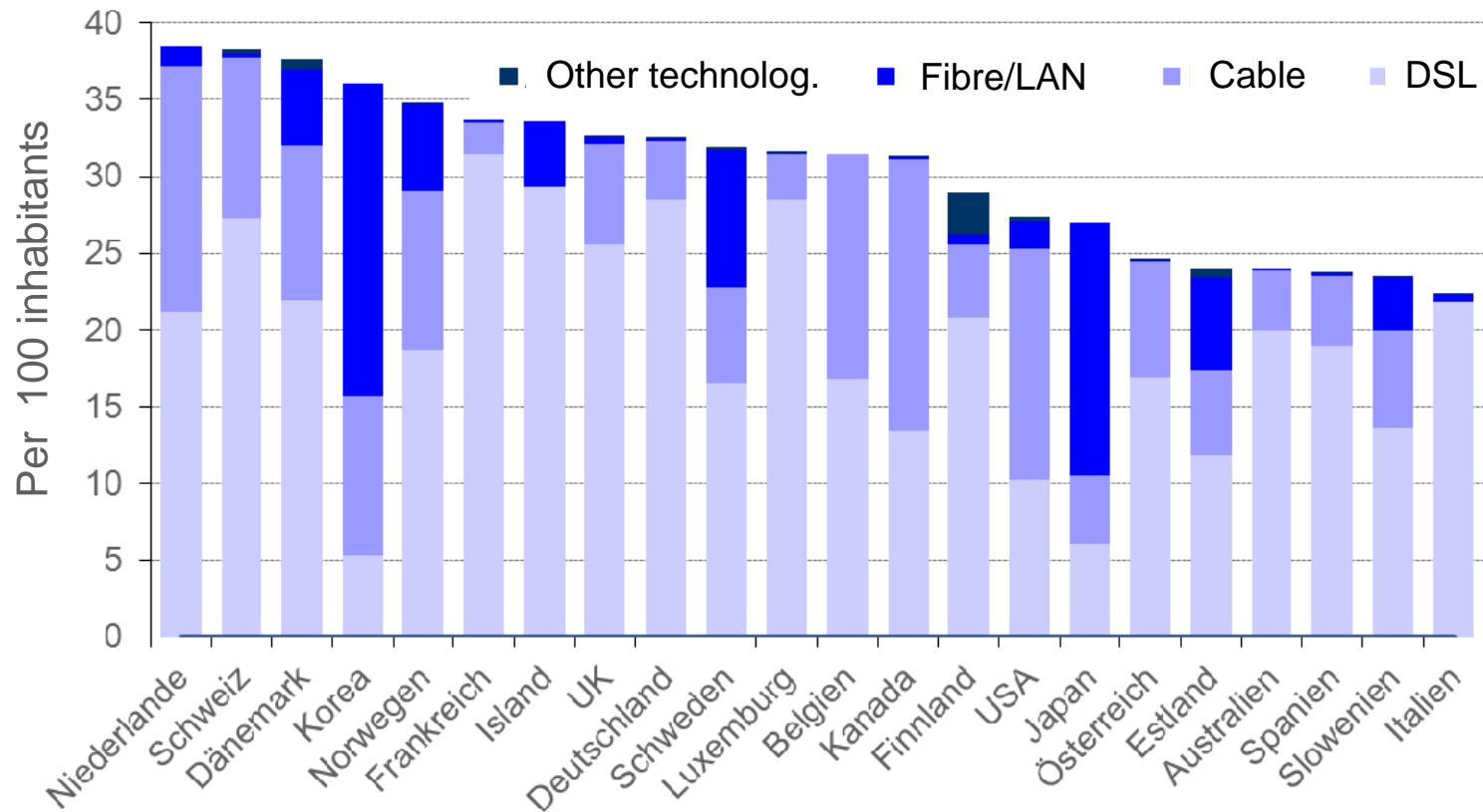
- Disclaimer and disclosure statement!
- State of the debate and some “stylized facts” on “Competition, Regulation, and Investment”
- Some theoretical results (including simple/obvious “truths”)
 - “Monopoly” regulation, penetration, and investment
 - Access charges, the make-or-buy decision, and retail prices
 - Investment risk and regulatory commitment
- (Extended policy) Conclusions

State of the debate

- Carlo Cambini and Yanyan Jiang: **Broadband investment and regulation: A literature review.** TP, 2009
- **“Evidence in empirical findings** exhibits a **certain disunity**. The **majority** concludes that local loop unbundling based on forward-looking cost methodology **discourages** both ILECs and CLECs from investing in networks, so that **the stepping-stone theory is possibly not supported by the data**; other findings support the **non-negative effect** of access regulation on investment. However, apart from a few exceptions, the **lack of reasonable time-series data weakens the robustness of empirical analysis.**” (p. 571)

High-speed internet connections in OECD-countries

OECD-broadband internet penetration, June 2011

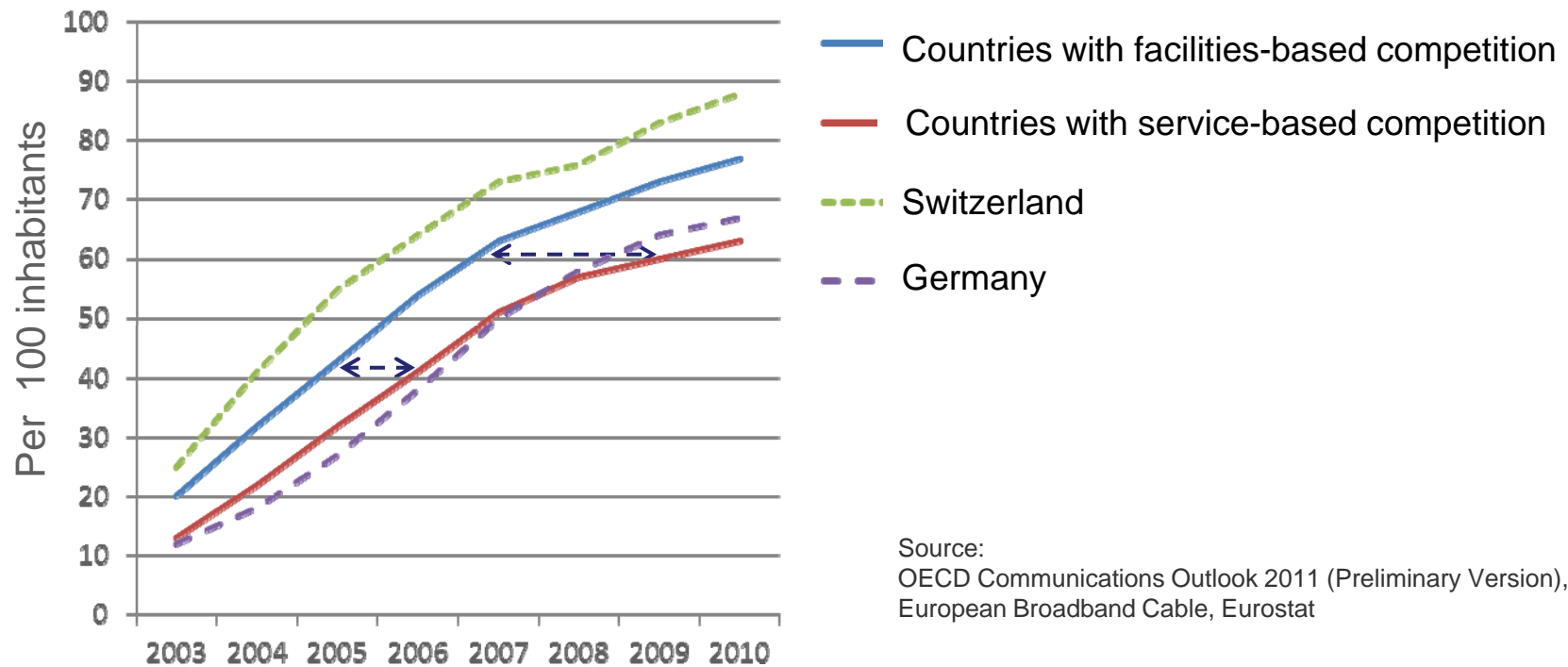


Source:
OECD Broadband
Portal (Dezember
2011)

→ Switzerland among the leaders

Facilities-based vs. service-based competition

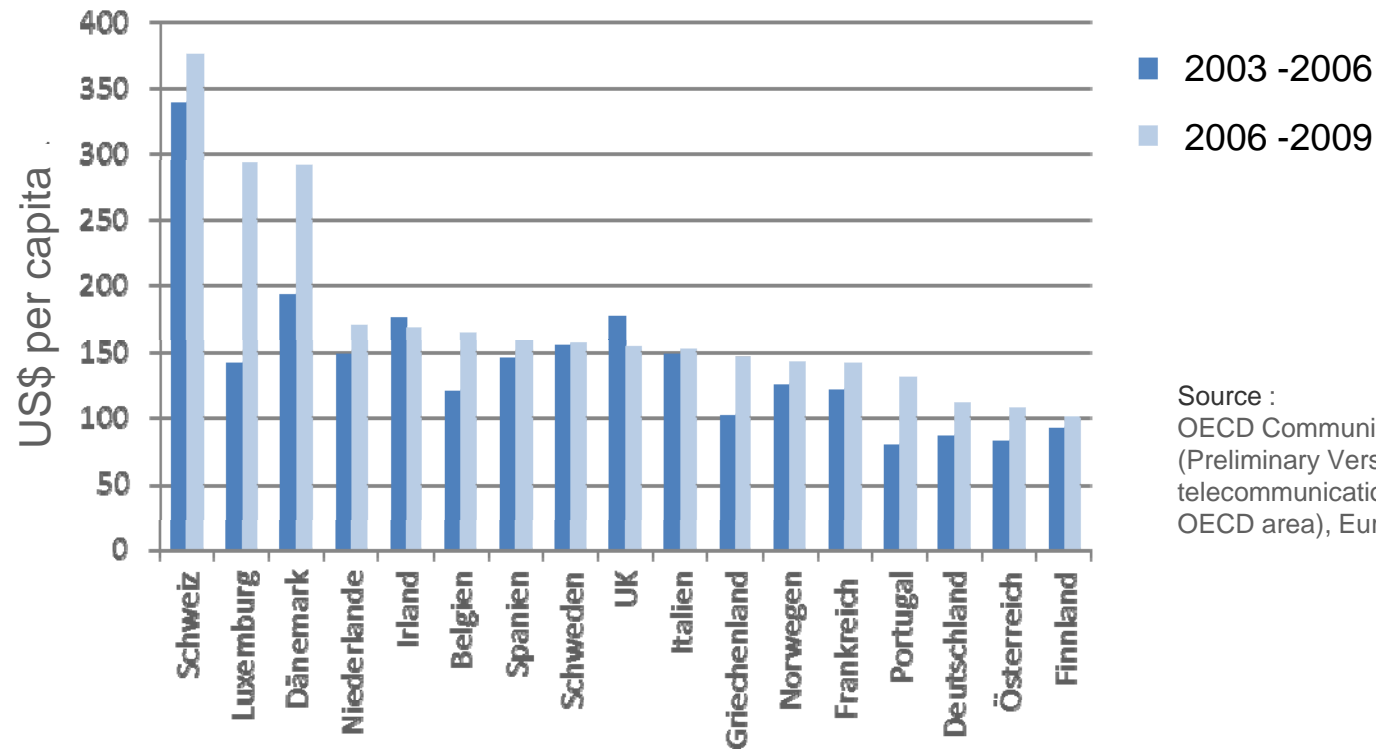
Evolution of broadband penetration in western European countries



→ Countries with facilities-based competition (cable homes-passed > 75%) exhibit more dynamic markets

Telecommunication investment in recent years

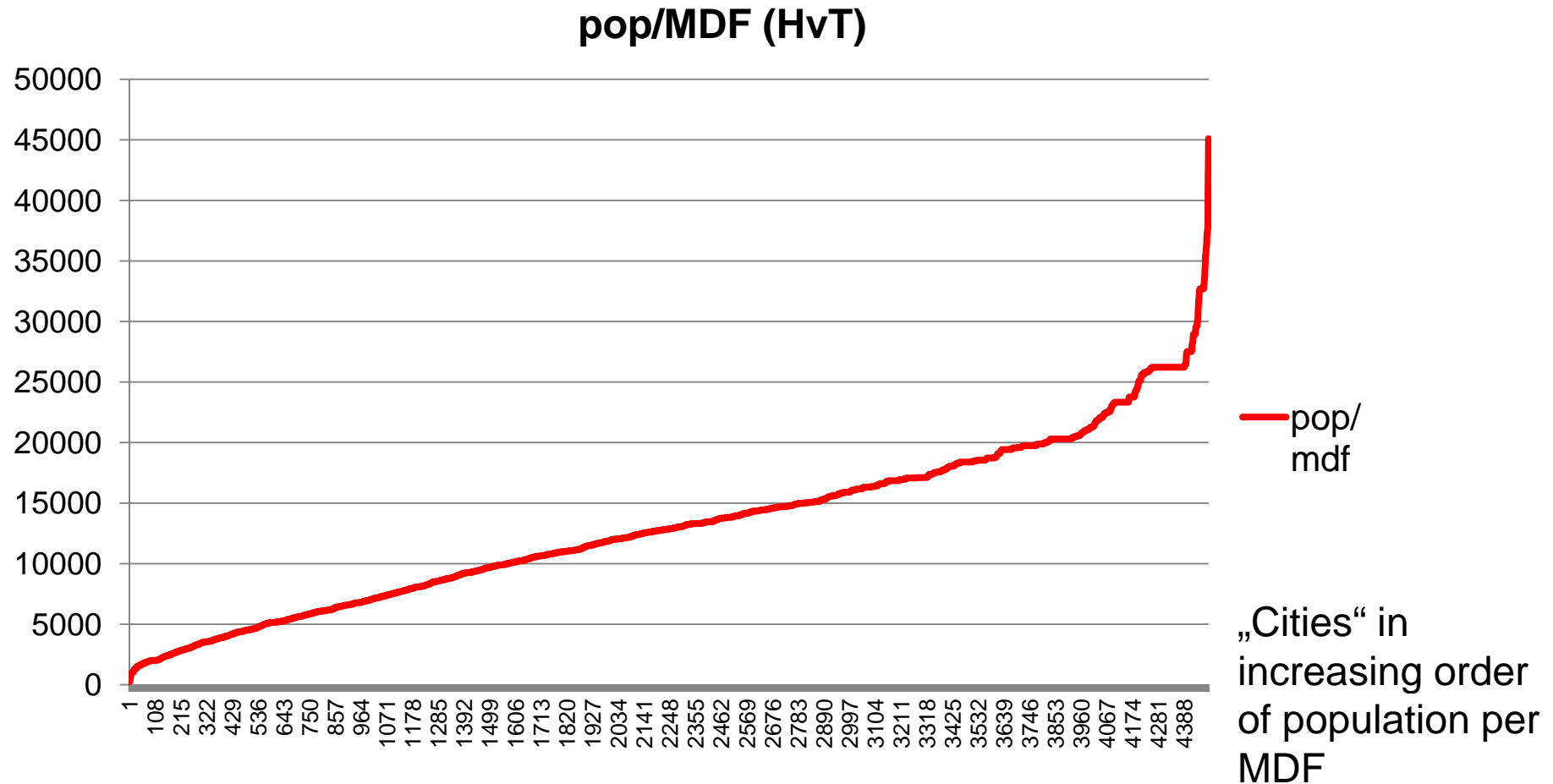
Average yearly telecommunications investment western European countries



Source :
OECD Communications Outlook 2011
(Preliminary Version), Table 3.6 (Public
telecommunication investment in the
OECD area), Eurostat

→ Investments are “higher” in countries with facilities-based competition

Population per MDF in 2000 German “cities”

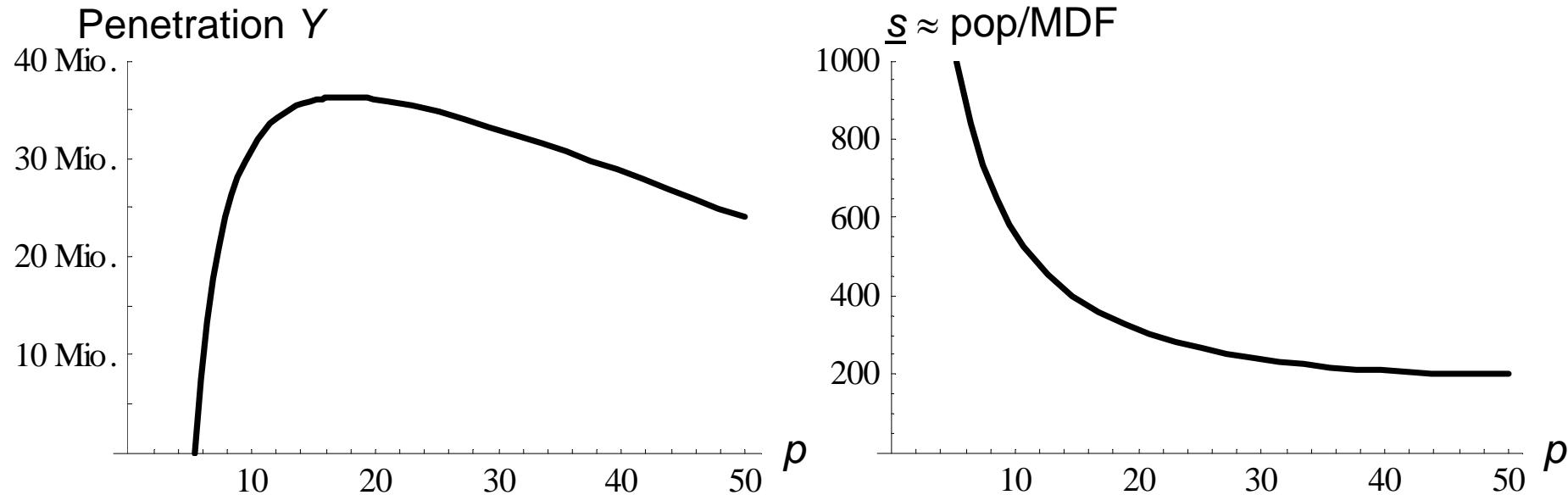


→ Population distributed rather unevenly across exchanges

„Obvious truths“

- Framework: incumbent “monopolist” with many regional markets of different size (MDFs)
- Highest incentive to invest for an unregulated monopolist
 - Incumbent’s decision to invest: Invest $\Leftrightarrow \Pi^R(s) \geq f$
 - \Rightarrow Schumpeter
 - \Rightarrow Open-access-debate (Chicago doctrine: „one monopoly profit“)
- Underinvestment from total welfare perspective
 - Consumer surplus effect
 - Remark: Subsidies? Strategic behavior by and windfall gains for firms/certain regions/ certain consumers?
 - Which governmental level should decide/pay? Political economy!
 - Overinvestment in certain regions?

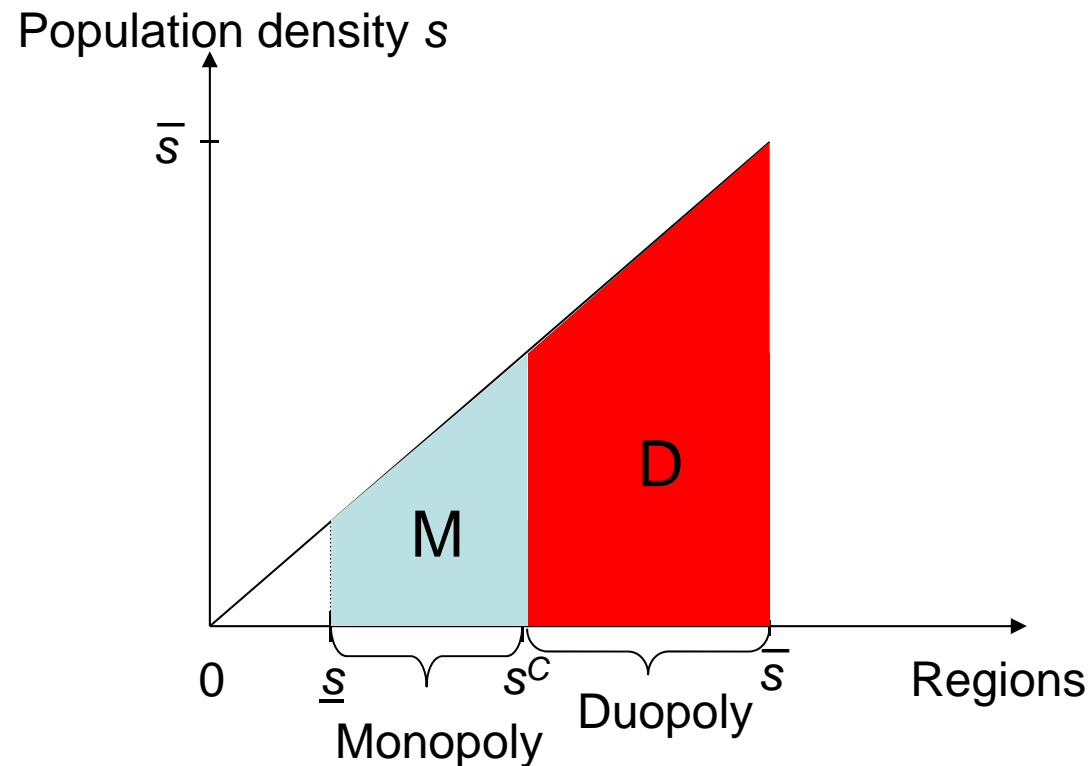
Penetration and coverage as a function of price cap p



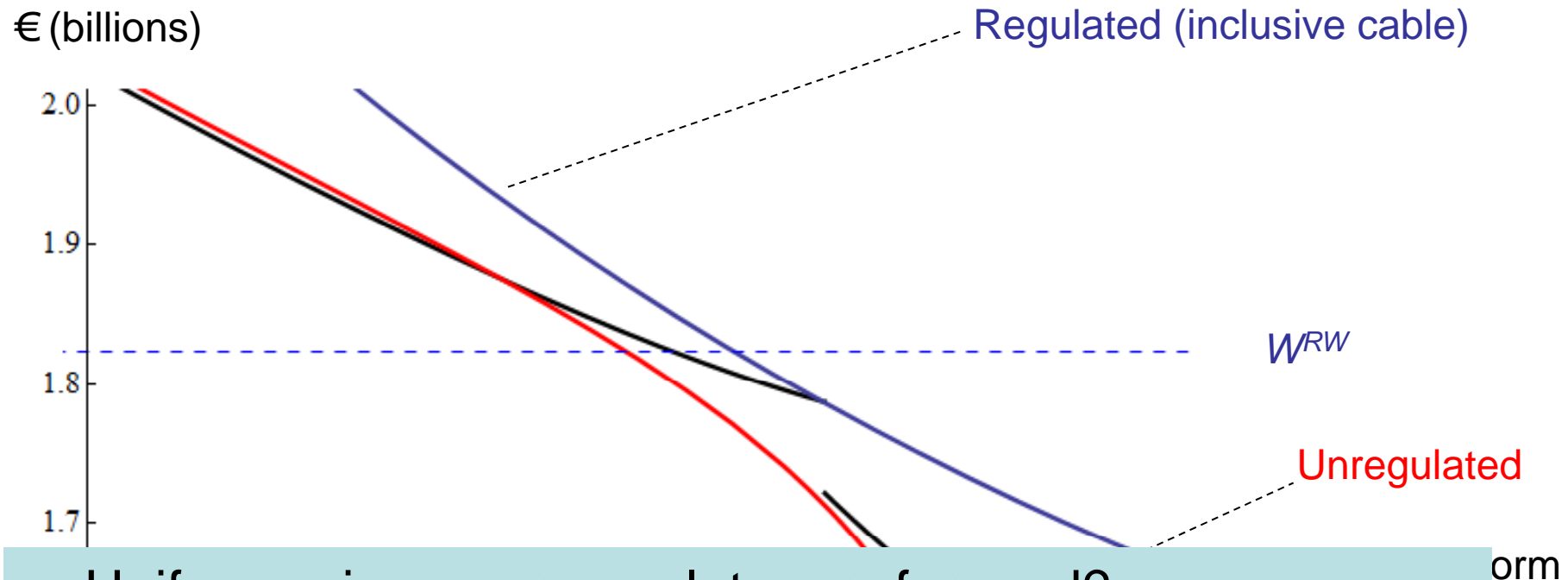
- Penetration initially increases with decreasing prices. However, as the price cap becomes very low, penetration eventually decreases.
 - ⇒ Price decrease increases demand in covered regions
 - ⇒ Monopolists invests less and coverage and number of potential consumers decreases

Facilities-based competition with uneven population distribution

- Differentiated Bertrand model
- unregulated or uniform-pricing rule for incumbent

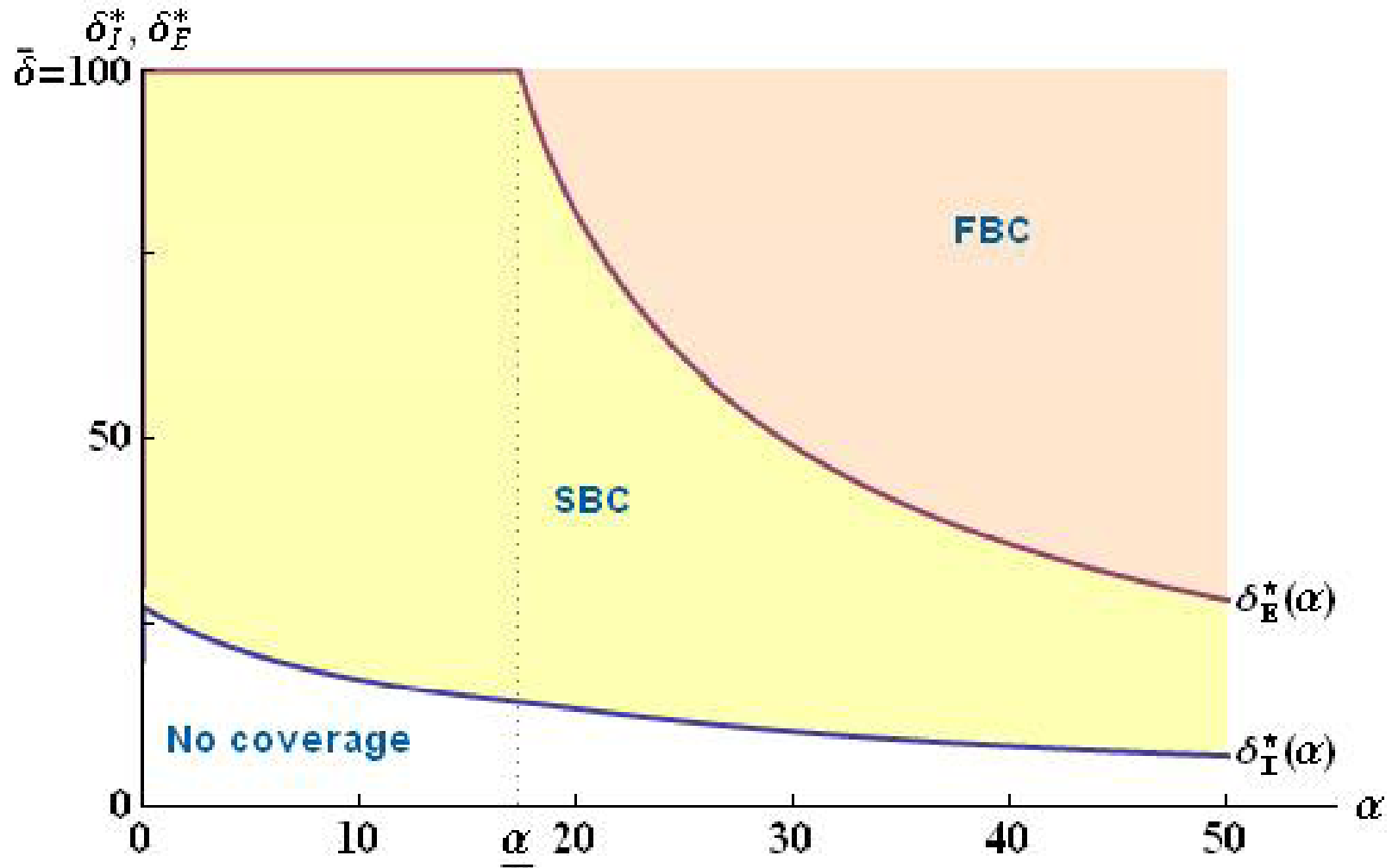


Welfare under facilities-based competition

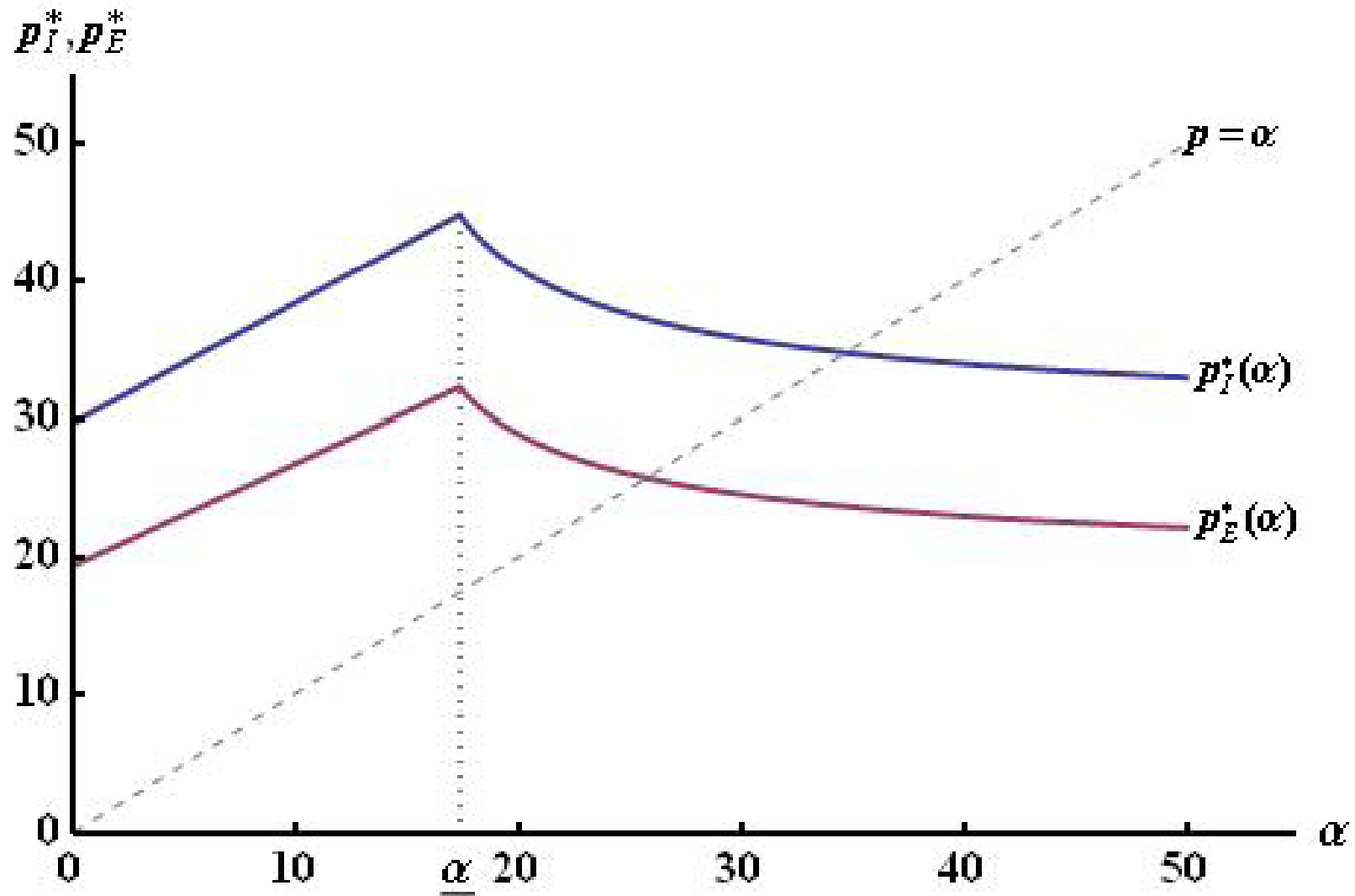


- ⇒ Uniform prices as a regulatory safeguard?
- ⇒ Differences in welfare are small.
- ⇒ Even regulation by an omniscient and benevolent regulator cannot improve much on the unregulated situation

Facilities-based vs. service-based competition as a function of the access charge



High access charges lead to low retail prices: Static and dynamic efficiency reconciled!



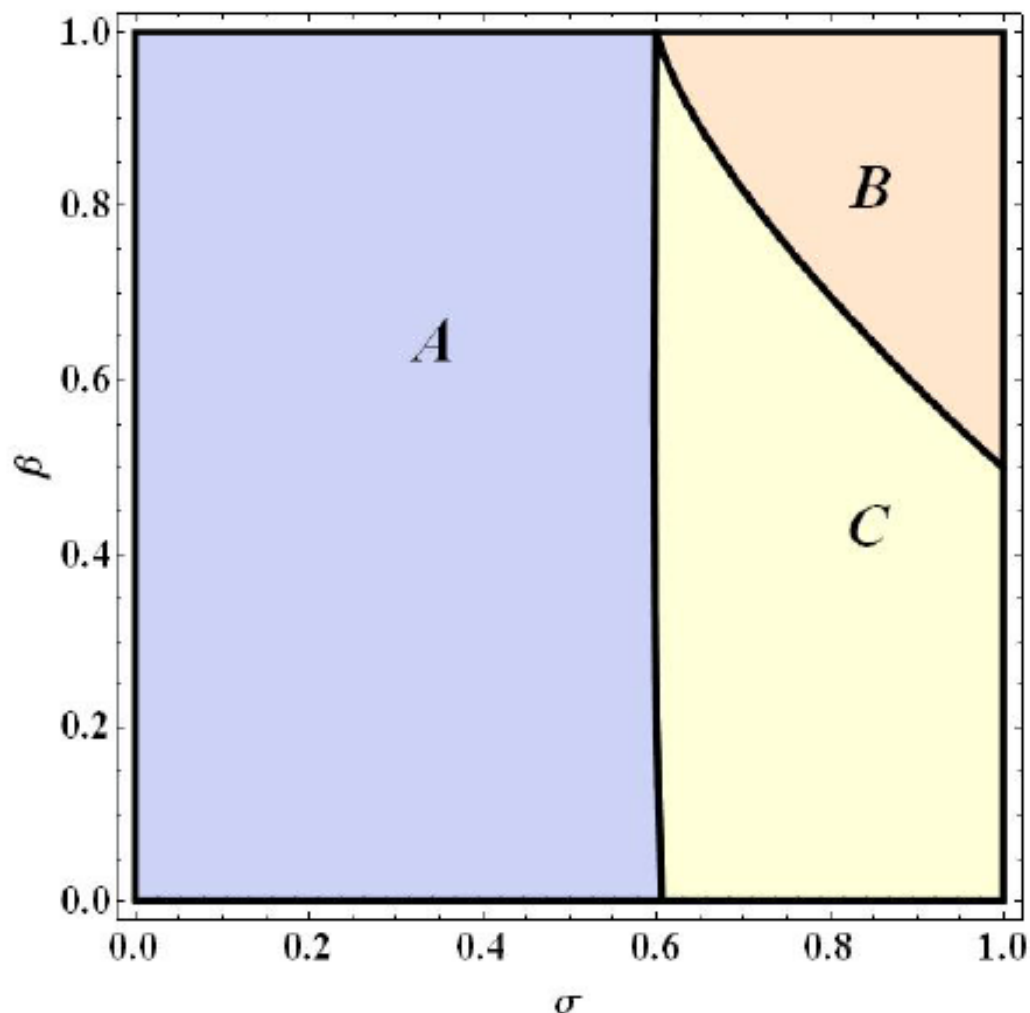
Legacy networks and regulatory commitment

- Legacy network and the incentive to invest in NGA
 - ⇒ Arrow (1962) rather than Schumpeter: Monopolist's /incumbent's incentive diminished by replacement effect
 - ⇒ Suggestions: Reduce access charges/rental rates for legacy network
 - Bourreau, Marc, Cambini, Carlo and Dogan, Pinar, Access Pricing, Competition, and Incentives to Migrate from 'Old' to 'New' Technology (July 28, 2011).
- Regulatory commitment/credibility and investment incentives
 - “Expropriate” once, but you never “expropriate” twice?

Investment risk and regulatory commitment

- EC NGA-recommendation, September 2010
- NRAs should estimate **investment risk**, inter alia, by taking into account the following factors of uncertainty: (i) **uncertainty relating to retail and wholesale demand**; (ii) uncertainty relating to the costs of deployment, civil engineering works and managerial execution; (iii) uncertainty relating to technological progress; (iv) uncertainty relating to market dynamics and the evolving competitive situation, such as the degree of infrastructure-based and/or cable competition; and (v) macroeconomic uncertainty. **These factors may change over time, in particular due to the progressive increase of retail and wholesale demand met. NRAs should therefore review the situation at regular intervals and adjust the risk premium over time, considering variations in the above factors.**

Regulatory regimes, NGA investments, and consumer surplus



- Regimes:
 - risk premium (\sim LRIC)
 - risk sharing (\sim FDC)
 - cooperation
- Region A:

$$E(\text{CS}^{\text{Cooperation}}) > E(\text{CS}^{\text{FullyDistributedCost}}) > E(\text{CS}^{\text{LRIC}})$$
- Region B:

$$E(\text{CS}^{\text{FD}}) > E(\text{CS}^{\text{L}}) > E(\text{CS}^{\text{CO}})$$
- Region C:

$$E(\text{CS}^{\text{FD}}) > E(\text{CS}^{\text{CO}}) > E(\text{CS}^{\text{L}})$$

Christian Bender: How to provide access to next generation networks? The effect of risk allocation on investment and cooperation incentives

Conclusions

- Armstrong/Sappington (Regulation, Competition, and Liberalization, JEL 2006, p. 330): „*In an economic paradise, where a regulator is omniscient, benevolent, and able to fulfill any promise he makes, competition cannot improve upon regulated monopoly.*”
 - ⇒ Strange image of an ‘economic paradise’
 - ⇒ Impression: Regulators more afraid of regulating too little rather than regulating too much! [Type I vs. Type II errors]
- Investment is at issue
 - ⇒ (Error) Costs of regulating too much are much higher than of regulating too little

Conclusions

- *„The industry is obviously no longer a natural monopoly and wherever there is effective competition—typically and most powerfully, between competing platforms—land-line telephony, cable and wireless— regulation of the historical variety is both unnecessary and likely to be anticompetitive” (Kahn 2007, p. 1).*
- Benefit of doubt: Safeguards are sufficient
- ⇒ Competition policy ex-post approach
- Rather regulatory holidays than „investment holidays“

Literature

- [Coexistence of service- and facility-based competition: The relevance of access prices for "make-or-buy"-decisions](#), Christian Bender and Georg Götz, [MAGKS](#) Discussion Paper No. 07-2011, February 2011.
- [How to provide access to next generation networks? The effect of risk allocation on investment and cooperation incentives](#), Christian Bender, [MAGKS](#) Discussion Paper No. 49-2011, Dezember 2011.
- [Competition, Regulation, and Broadband Access to the Internet](#), Götz, G. (2011), ITS-conference Budapest.
- [Effective Competition: Its Importance and Relevance for Network Industries](#), Christian Bender, Georg Götz & Benjamin Pakula in: Intereconomics, Vol.46 (1), Januar 2011.
- [Investition und Regulierung bei schnellen Internetzugängen. Ein Vergleich von Deutschland und der Schweiz](#). Georg Götz und Patrick Zenhäusern ([Polynomics](#)). Vergleichsanalyse im Auftrag von [Glasfasernetz Schweiz](#). Dezember 2011.
- [Schnelles Internet und weiße Flecken? Die Rolle von Staat und Regulatoren](#), Christian Bender und Georg Götz in: Wirtschaftsdienst, Vol. 91 (1), Januar 2011, S. 42-48.
- Die neuen Rahmenbedingungen für Investitionen in die Kommunikationsinfrastruktur. Nikolaus Forgó, Georg Götz und Gerald Otto (5/2010) in "medien und recht- Zeitschrift für Medien- und Kommunikationsrecht"