Internet and Sustainable Economic Growth in Developing Countries

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Berlin, Nov. 6th, 2014

What do we know about the growth effect of the Internet?

- Convincing studies on the growth effects of ICT infrastructure in the context of developing countries is rare

  ➔ Studies concentrate on mobile telephony but not the Internet (e.g. Klonner and Nolen, 2008)

- Convincing studies have to solve the hen-egg problem

  ➔ Does the Internet trigger growth? OR

  ➔ Does growth trigger the roll-out of broadband infrastructure?

- But we have evidence from developed countries

  ➔ Evidence from the introduction phase of basic broadband infrastructure (at least 256kb/s) in developed countries might be transferable to the context of developing countries

Evidence from OECD countries (Czernich, Falck, et al., 2011)

- Focus of the study

  ➔ OECD countries 1996-2007

  ➔ Roll-out of fixed-line broadband infrastructure that offers download speeds of at least 256 kbit/s

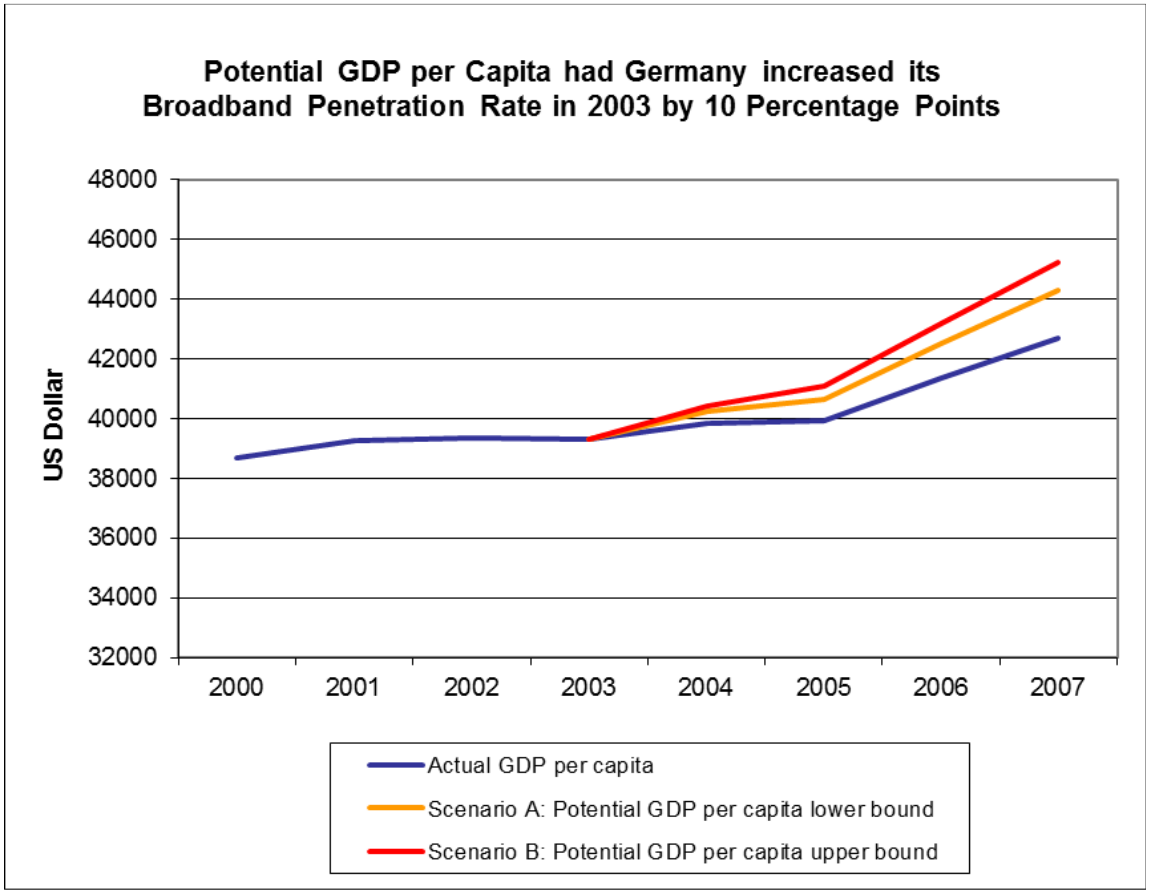
- How do we solve the hen-egg problem?

  ➔ Pre-existing voice telephony and cable TV networks predict maximum basic broadband penetration

- Finding

  ➔ A 10 percentage point increase in basic broadband penetration raised annual per capita growth by 0.9–1.5 percentage points

Illustration for Germany



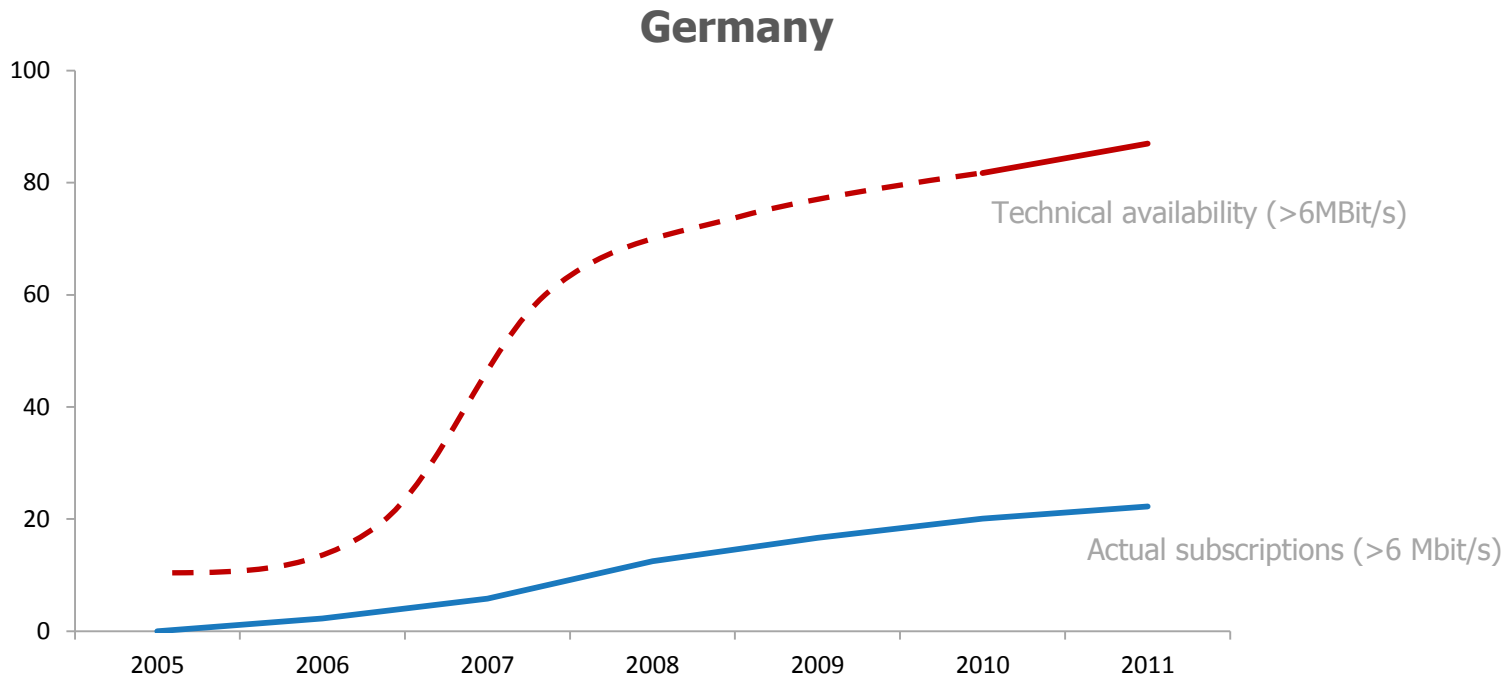
Source: Czernich, Falck, Kretschmer und Wößmann, 2011

Cost of inadequate broadband infrastructure resulting from lost economic growth are considerable.

Spatial distribution of growth effects

- Does the Internet reinforce agglomeration economies or is there a „death of distance"?
- Evidence from the introduction phase of basic broadband Internet in Germany (Fabritz, 2013, 2014) suggests that …
  - ➔ employment growth effects are even stronger in rural areas and
  - ➔ employment growth mainly comes from start-ups („local-entrepreneur" hypothesis)

Should developing countries leapfrog over basic Internet?



Source: Bericht zum Breitbandatlas 2012. Dialog Consult/VATM TK-Marktanalysen 2008 and 2011.

➔ The growth effect of the extensive diffusion of the Internet (access) might be larger than the effect of the intensive diffusion of the Internet (more bandwidth).

➔ Since new technologies might be become available and technologies typically become cheaper over time, waiting might be an option.

Technology-neutrality

- In most OECD countries, broadband Internet is either provided via the pre-existing fixed-line voice telephony or cable-TV network

  ➔ Technological upgrades (e.g. from DSL to DSL2) that allow for higher bandwidths are relatively cheap (as long as no earthworks are involved)

- In developing countries, Voice-telephony is dominated by mobile cell phones

  ➔ Technological upgrades in mobile networks (e.g. from 2G (EDGE) to 3G) are relatively expensive since they require the installation of additional masts and antennas depending on the ground conductivity (mountains, forests, etc.) (Mang, 2014)

- Direct government support for the roll-out of broadband infrastructure in developing countries should be technology-neutral allowing for different solutions depending upon the circumstances of the area