Broadband and Contributions to Economic Growth: Lessons from the U.S. Experience

Conference on Telecommunications Infrastructure and Economic Performance

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Outline

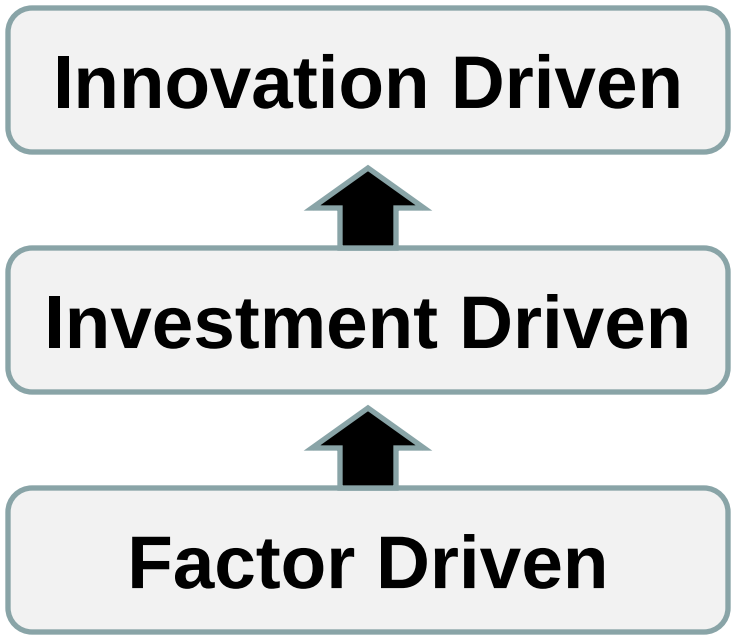
- ICT and Broadband: Innovation Economy
  - ICT and innovation
  - Broadband applications and penetration
- Broadband Challenges for the U.S.
  - National debate on broadband policy
  - Digital divide
  - Regulatory barriers to competitive entry
  - Network management

Innovation Economy

- WEF Global Competitiveness Index
  - US, Switzerland, Denmark, Sweden, Germany
  - US ranking resulted from efficiency, innovativeness, higher education, infrastructure, business sophistication, and technology

Arguably related to ICT/broadband

Three progressive stages of competitiveness



Highest Level of Competitiveness

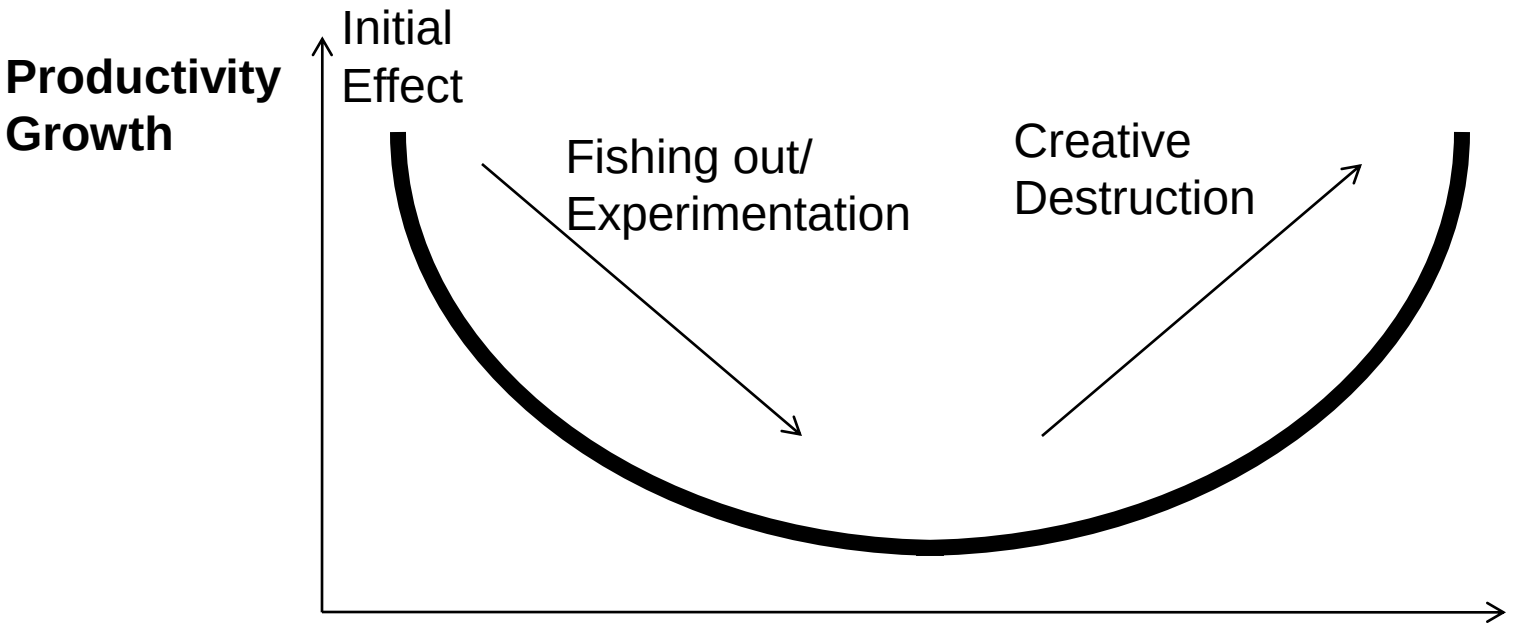
Schwab and Porter, 2007

Short and Long Term Views

- Short term
  - ICT lowers costs, drives investment, increases labor productivity
- Long term
  - ICT enables innovations for new things and new ways that have not existed before

Van Ark and Inklaar (2005)

- European ICT productivity gains lagged US gains, 1995-2004



Studying Broadband Penetration

- Geographic disparity
  - Commercial viability in rural areas
- FCC data problems
  - Existing data collected at zip code level
  - New data to be collected at census tract level

U.S. Study Results

- Gillett et al. 2006 (for U.S. Department of Commerce)
  - Cross-sectional panel
  - Broadband ⇒ job growth, number of businesses, property value. No wage impact.
- Crandall et al. 2007
  - Cross-sectional data
  - Broadband ⇒ more jobs and increased GDP, particularly in the service sector, such as finance, real estate, and educational services.
  - 1.0% increase in state broadband penetration yields approximately 300,000 jobs
    - magnitude of job impact increases over time

Connected Nation/ConnectKentucky

- Connected Nation (2008)
  - Applying Crandall et al. (2007) found 2.4 million U.S. jobs created or retained
  - Adds savings from health care, less travel time, reduced pollution, and online transactions
- Shideler et al. (2007) ConnectKentucky
  - Broadband availability contributes to employment growth
  - Only accommodations and food services realized reduced employment
  - Too much or too little broadband infrastructure saturation portends lower returns on investment

Lake County, Florida

- Ford and Koutsky (2005)
  - Impact of municipally owned broadband systems on economic growth. Comparisons to other counties.
  - Compares three years prior to and the three years after 2001, the year the broadband network was first used extensively throughout the county
  - Findings suggest 128% growth in gross sales per capita
    - Omits differing impacts of 9-11 and 2004 hurricanes

California Study

- Sacramento Regional Research Institute (Van Gaasbeck et al. 2007)
  - Economic impact of broadband on 39 California counties from 2001 through 2006; 92% of the state population
  - Measures broadband use and not deployment
  - Broadband deployment appeared to contribute to employment and total payroll growth
    - Negative impact on number of physical business establishments

US Broadband Challenges

- Primary Question: Will the U.S. continue on a path of creative destruction or move to a path that is less adaptive?
- Secondary Question: Will broadband policies only relate to pipes or also embrace other dimensions of advanced communications?

National Policy Debate

- Arguments for proactive government policies
  - Network externalities
  - Competitive externalities
  - Disparities in availability and affordability
  - Lack of customer understanding/knowledge

Network Externalities

- The arguments confuse network externalities with network effects
- Externalities exist only if markets fail to internalize the network effects
  - Liebowitz and Margolis (1995) demonstrate that failure is rare

Competitive Externalities

- Proponents believe ICT hardware, software, and service producers will locate where broadband is already widely available and used
- Not really an externality
  - Factors that spur ICT industry – educated workforce, wage rates, and business-friendly government – also drive demand for broadband.
- The Asian broadband success stories demonstrate that ICT industry preceded broadband

Disparities in Availability and Affordability

- Concerns with high deployment costs and low income users
- US experiences with telecom subsidies have been very unsatisfactory
- Demand side efforts, such as education and R&D, can address the under-utilization problem

Digital Divide

- Deployment ≠ Subscribership
- U.S. federal broadband efforts focus on education and rural health care
- States becoming proactive
  - Federal-State Joint Board on Universal Service
  - Subsidies: Bond issues (Vermont and South Georgia), Grants (Kentucky, Arkansas, and Utah), and Universal Service Support (Maine)

Regulatory Barriers

- Uncertain regulatory status (information service vs. common carrier designation?)
- Legacy subsidy systems
- Treatment of wireless
- Measurement
  - FCC, OECD, etc. data issues

Network Management

- Net neutrality research
- Industry efforts to ration bandwidth
  - Issues of vertical integration (Will companies favor their own content?)

Conclusion

- Each country has its own set of institutions, legal traditions, socio-demographic profiles and geographical constraints
- Different approaches (Korea vs. U.S.)
- Each country needs to find the best mix of market forces and government intervention