

On the interrelationship between regulation and innovation in telecommunication markets

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Extended Abstract The introduction of VDSL infrastructure in Germany has led to a complex discussion about a potential regulatory framework for service provision. Currently, the European Commission is examining whether to bring a case against Germany at the European Court of Justice for delaying the introduction of regulations. A question which directly relates to this discussion is:

Which impact does access regulation have on service innovations and innovations in other industries?

The regulation of the access to a completely new infrastructure, which offers new potential for extensive innovation in services, has to be discussed very carefully. On the one hand exclusion by non-regulation could lead to unknown monopolistic rents once regulation has come into force, because standards can be established which correspond to an unrecoverable first mover advantage. On the other hand announced governmental intervention reduces the incentive to invest in new infrastructure or in the extension of an existing network. As a consequence services are offered to a smaller number of customers (if at all). An additional effect which has to be considered is the impact of telecommunication on other industries. In particular, current studies underline an increasing importance of ICT in R&D and business processes (see e.g. the ZEW ICT Reports). Despite this continuously growing importance of telecommunications for other industries, access regulation is concentrated on single-market features and ignores its own spillover effects on other industries. Thus the problem, that potential cost reductions or potential innovations cannot be realised –especially in industries with high ICT relevance in production and provision–, is completely ignored in the discussion about the regulation scheme.

To analyse the relationship between governmental intervention and innovations we compare national differences in the long run. Direct effects on R&D and production expenditures can hardly be measured. This problem arises from additional influencing factors which affect telecommunications and the other industries under scrutiny. To overcome this problem we follow a three-step analysis: In the first part we analyse the growing importance of telecommunication innovations. The second part relates to the impact of ICT services on other industries and in the last part we consider the effect of regulation on infrastructure roll-out and service implementations.

To check how important new services have become, we analyse the development of ICT services using data from Eurostat and the ITU Database. One effect we find is the relationship between infrastructure roll-out and the acceptance of new services in the population. The more easily a new service is accessible the faster this service becomes a standard because of customers' acceptance.

To analyse the importance of telecommunications for other industries we use panel data which are collected in regular intervals from about 4000 German manufacturers and service providers. The panel data show that the importance of telecommunication techniques for all sectors is increasing. Additionally and in line with the ZEW ICT reports we find a significantly higher importance of ICT for knowledge based industries. Thus if adequate and reliable telecommunication services are available these services will be used in business processes and for innovations in industries other than telecommunications as well.

The question of whether regulation directly affects infrastructural investments and service provision is followed up in a long-run cross-country consideration. We use data from the ITU and compare the evolution of telecommunications to the timing of regulation in the countries under scrutiny. Taking into account our results from the preceding parts of the paper, we can analyse the impact of regulation on telecommunication services.

Our paper supports the call for a more economic regulation approach which is often asked for by affected firms. We show that innovations in telecommunications are strongly affected by the underlying infrastructure. Furthermore innovations in telecommunication services facilitate the integration of business processes in other industries. Thus, our paper provides evidence that governmental interventions in telecommunications cannot be considered from a one-market perspective but have to be analysed from a multi-market point of view.

Keywords regulation, telecommunications, innovation, inter-market relationships

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