

Inconsistent Regulation, Market Structure and Broadband Adoption in the EU: A Dynamic Model

by

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Summary

The full paper can be downloaded from

<http://www.ccp.uea.ac.uk/publicfiles/workingpapers/CCP08-14.pdf>

In March 2002, the European Union adopted a set of Directives which collectively formed the New Regulatory Framework (NRF) for the electronic communications industry. These Directives were supposed to be passed into national law by the Member States by July 25th 2003³. The purpose of the NRF was to establish a harmonised regulatory framework and to promote competition to ensure that users derive maximum benefit in terms of choice, price, and quality. However, five years after the introduction of the NRF, there is frustration in the European Commission that these objectives have not been met due to fragmentation of the regulatory systems.

In a speech by the Commissioner for Information Society, Viviane Reding, to the European Regulators' Group (ERG) in January 2007, she said:

First let me stress that in the electronic communications sector, two decades after we started to open national markets formerly dominated by state-owned monopolies to competition, we still do not have an internal market for telecoms. The reason for this is mainly a regulatory one: the fragmentation of the internal market into 27 different regulatory systems. (her emphasis)

In November 2007 a new set of Directives was proposed by the Commission to address some of the inconsistencies and remaining market problems. The new Directives are now subject to approval by the European Council and Parliament and transposition into national law.

This paper examines the effectiveness of regulation at promoting competition in, and consumer take-up of, broadband access in the EU. In particular I examine how the key policy of Local Loop Unbundling (LLU) has promoted competition in the wholesale broadband market and how competition in wholesale broadband markets promotes broadband adoption.

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³ May 2004 for the New Member States.

Looking at the market structures⁴ across the EU, we find five distinct clusters:

- Cluster 1 is those countries where cable is the principal competitor to the incumbent's ISP. This is the largest cluster and includes countries such as Austria, Spain and Sweden.
- Cluster 2 contains those countries where the incumbent's ISP retains a high market share and does not face strong competition from any particular broadband platform. It consists of three countries: Cyprus, Finland and Luxembourg.
- Cluster 3 is formed of countries where the principal competitors use "other" technologies for broadband access, principally wireless. All five countries in this group are new Member States and include the three Balkan states, Czech Republic and Slovakia.
- Cluster 4 contains those countries where ISPs using LLU are the main competitor. Three of the large Member States (France, Germany and Italy) form this group.
- Cluster 5 contains those countries where ISPs using some form of bitstream access are the main competitor to the incumbent's ISP. This cluster consists of Greece, Ireland and the UK.

The paper sets the hypothesis that the rate of adoption in Member States of the EU is affected by market structure: the more competition between broadband platforms the higher the level of adoption. Market structure is in turn affected by the price of unbundled local loops: the lower the price, the higher the market share of LLU and therefore the less concentrated the market. The price of LLU is in turn affected by public policy, in particular state ownership of the incumbent operator. The hypothesised causal relationship is shown in the figure below.



To test this hypothesis, I first divide the sample countries into two groups: those where the state retains some ownership and those where there is no state ownership. I find that the mean LLU price in the first group is €11.00 and in the second group is €8.90 and that the difference between the means is significantly different from zero at 8% significance.

Next, I seek to establish whether there is any correlation between the price of LLU and the market structure⁵ in broadband markets using a pooled time series/cross sectional model. I find that there is a significant relationship (at 1% significance) in the expected direction: as the price of LLU increases, so the market tends to be more concentrated and the share of market held by LLU Operators declines.

⁴ All data on market shares of broadband platforms, source: ECTA Broadband Scorecard

⁵ Market Structure has been measured using the Herfindahl-Hirschman Index (HHI). This measures concentration on a scale of 0 – 10,000 by summing the squares of the market shares of each broadband platform (Incumbent ISP, wholesale bitstream, LLU, cable and other). The higher the HHI, the more concentrated the market.

Finally, I produce a pooled time series/cross sectional model for broadband adoption controlling for wealth (GDP⁶ per capita) and period since the launch of commercial DSL⁷ broadband. I use a Lagged Dependent Variable (LDV) model to establish the long run elasticity of the explanatory variables.

I find that in the short term market structure is significantly (at 1%) associated with increased broadband adoption in the expected direction with an elasticity of -0.19: for each 1% decline in market concentration there is a 0.19% increase in broadband penetration. In the long term the elasticity increases to -0.56: for each 1% decrease in market concentration there is 0.56% increase in penetration, indicating that consumers take some time to respond to changes in market concentration.

Wealth is rather more strongly associated with increased broadband penetration (again at 1% significance) with a elasticity of 0.29 in the short term and 0.85 in the long term. The period since launch is also found to be significant and follows an expect “S” curve for adoption.

The model has been tested for robustness by removing one time period. Very similar results were found. Statistical tests indicate strong predictive qualities and no problems with auto-correlation.

I conclude that the European Commission’s frustration with the implementation of the NRF is justified by the evidence and analysis presented in this paper. The different degrees of enthusiasm with which Member States have used LLU to introduce competition into broadband markets appear to have had an effect on market structure. The concentration of these markets is an important factor in driving the demand for broadband and therefore meeting the i2010 and Lisbon policy goals. Whether this means that the European Commission should have greater powers to impose its wishes on Members States, however, is a political matter beyond the scope of this paper.

⁶ Gross Domestic Product

⁷ Digital Subscriber Line