

Broadband Access Markets in Europe: Why Regulation should Promote Competition*

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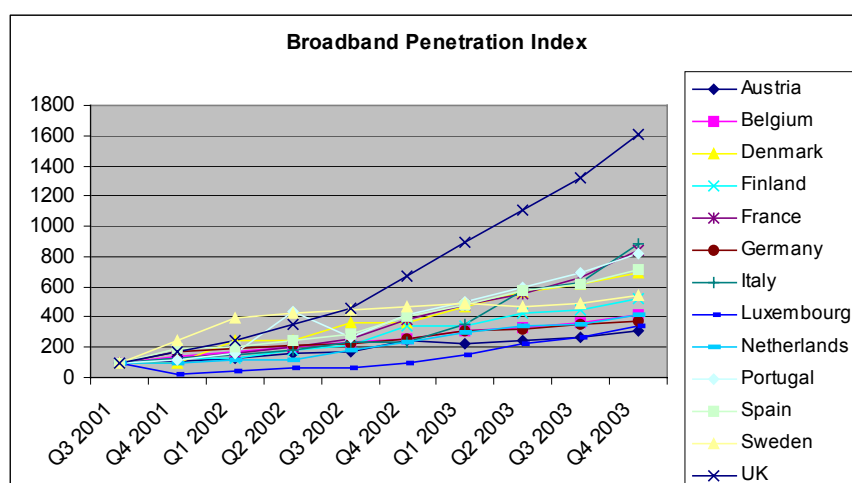
Active competition between Europe's cable and DSL providers of broadband access is good for broadband take-up: investors looking for market growth should also look at competitive intensity. Strategy and Policy Consultants Network Ltd (SPC Network) has developed an econometric model to test the importance of inter-modal competition as a determinant of broadband take-up in the EU. The model demonstrates that about half the variation in penetration rates can be accounted for by variations in the degree of market concentration.

The take-up of broadband in the Member States of the European Union varies significantly. At one extreme, Belgium has highest penetration with 30% of households having broadband whilst Luxembourg and Germany have just 8.8% and 12.1% respectively¹ (Table 1). We also see an even greater variation in the speed at which broadband is being taken up. In the ten quarters from Q3 2001 to Q4 2004 inclusive, broadband penetration grew by just 207% in Austria, but by a massive 1,506% in the UK (though the UK still has the fourth lowest penetration of the countries examined) (Figure 1).

Table 1: Broadband Penetration Rates (Q4 2003)

	Broadband penetration per 1,000 households
Belgium	300.0
Denmark	279.7
Netherlands	277.5
Sweden	208.7
Austria	208.4
Finland	175.4
Spain	170.0
France	153.0
Portugal	137.7
UK	127.4
Italy	126.0
Germany	121.0
Luxembourg	88.0

Figure 1: Development of Broadband Penetration



There are many factors that might explain the variation in both take-up rates and the pace of take-up: price, the date of launch of commercial broadband, alternative sources of premium content and government policy are three possible factors. In this paper we explore just one: the degree of competition between different broadband access modes, primarily cable and DSL.

The proportion of the access market held by different technologies varies significantly (Figure 2). In Germany, 98% of access lines are DSL whilst in Portugal 63% are cable. Only Italy and Sweden have any significant penetration of other access technologies.

The least concentrated of the markets are Sweden, the Netherlands and the UK. The relatively low concentration in Sweden is due to the presence of three technologies whilst in both the UK and the Netherlands the market is fairly evenly divided between DSL and cable. Market concentration is

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¹ All data sourced from ECTA, except number of households (OECD). Due to data problems Ireland and Greece have been excluded from the analysis throughout this paper.

measured using the Herfindahl-Hirschmann Index (HHI) which calculates a score between 0 and 10,000 by taking the sum of the squares of the market share, expressed as a percentage, of each technology. Thus, a country which had just one technology with a share of 100% would have an HHI score of $100^2 = 10,000$. The lower the HHI score, the less concentrated the market². Table 2 shows the countries ranked by HHI.

Figure 2: Share of access technologies

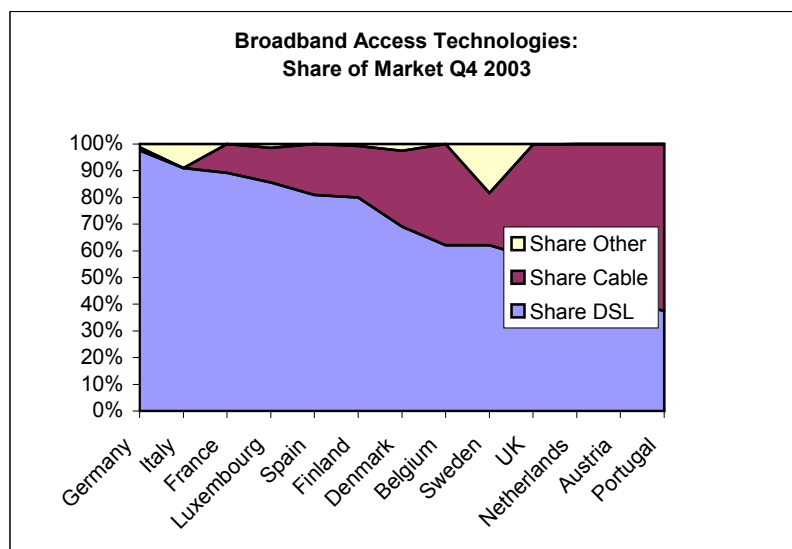


Table 2: Countries ranked by HHI

	HHI
Germany	9,519
Italy	8,356
France	8,081
Luxembourg	7,491
Spain	6,918
Finland	6,770
Denmark	5,584
Portugal	5,313
Belgium	5,293
Austria	5,157
UK	5,081
Netherlands	5,001
Sweden	4,572

Competition authorities in both Europe and North America regard any industry with an HHI of above 1,800 as being concentrated. So, even Sweden, the UK and the Netherlands can be regarded as having concentrated markets *between technologies*.

To calculate the impact of inter-modal competition on broadband penetration, we developed a pooled time-series cross-sectional econometric model using data from the 10 quarters from Q3 2001 to Q4 2003 for the 13 Member States. This simple model used just two variables: HHI and broadband subscribers per 1,000 households.

The resultant estimated equation is:

$$\text{Log}(\text{Subs}_i) = C_i - 3.01 \cdot \text{log}(\text{HHI}_i)$$

where the subscript, *i*, indicates country *i* and *C* is the constant term. The *t*-statistic on the coefficient of HHI is -9.78 , indicating strong statistical significance, and the R^2 is 0.50. Our hypothesis that broadband take-up is affected by inter-modal competition is strongly confirmed. Greater inter-modal competition, as measured by a lower HHI, is associated with higher rates of subscription to broadband.

If we look at the coefficient on HHI as an elasticity, it indicates that a 1% decrease in HHI is associated with a 3.01% increase in the subscription rate. The R^2 of 0.50 indicates that 50% of the variation between rates of broadband take-up can be explained by the variation in market concentration between technologies.

This brief analysis makes it clear that competition between access modes is an important driver of take-up. Policy makers should therefore seek to ensure diversity of access modes and not rely on any single technology. Investors looking for growing markets should look to the degree of competitive intensity between access modes: the more competition, the faster the growth.

² The HHI is normally used to calculate the market concentration between companies rather than technologies, so we are here using it slightly out of context.