

CASE STUDY: MARKET DEFINITION OF THE MARKET FOR BROADCAST TRANSMISSION SERVICES

Abstract:

This paper deals with the definition of the market for broadcast transmission services and will present et al. the results of an empirical market study on the substitutability of different transmission platforms (cable, satellite) on the end-consumer market. To define the relevant market, the methodology of the hypothetical monopolist test was implemented. Demand elasticity was measured by a conjoint analysis. In the conjoint analysis the following attributes were identified as relevant in the end-consumers' decision making process: platform, monthly prices, one-time costs, number of programs and programme category. These attributes were presented to the respondents with different variations. The empirical examination revealed that at least the transmission platforms cable and satellite belong to the same relevant product market.

Keywords: broadcast, conjoint analysis, HM-Test, substitutability, cable network operators

JEL Codes: K23, L13, C81

Disclaimer: The following paper reflects only the author's opinion.

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Introduction

In order to determine and evaluate competition forces, which affect a market, it is necessary in a first step to define the relevant market. For this a set of tools and guidelines exists. As an example of the practical application of these tools and guidelines an empirical test will be presented in the following. The focus of the analysis lies on the retail market and in particular on the potential substitutability of transmission platforms. The paper presents the empirical method applied to implement the Hypothetical Monopolist Test namely Conjoint Analysis.

Having characterised and defined retail markets which are markets involving the supply and demand of end users, it is then appropriate to discuss competition conditions at relevant wholesale markets which are markets involving the demand of products of, and supply of products to, a third party wishing to supply end users. This means, that - for any competitive assessment on the wholesale level - the interaction between retail and wholesale markets is a key issue.

Description of the broadcasting market

EU telecom legislation proposes several markets to be regulated on the national level. In this context the European Commission has recommended that broadcasting transmission services on the wholesale level, too, are to be considered a relevant market. The European Commission defines the relevant market as *wholesale market for broadcasting transmission services, to deliver broadcast content to end users (market 18)*. As stated in the Explanatory Memorandum of the Recommendation “*electronic communications services include transmission services in networks used for broadcasting but exclude services providing or exercising control over content transmitted using electronic communication networks and services. The provision of broadcasting services therefore lies outside the scope of this regulatory framework, but the networks and associated facilities used for delivery of broadcast services are within the scope*”.¹

Broadcasting transmission services can be realised by using different technologies and via different transmission media, such as satellite, cable, terrestrial networks, mobile and the Internet. Broadcasters can obtain access to physical infrastructure, either through a direct agreement with the provider of transmission capacity or indirectly through an agreement with the distributor. The key element of the market that the European Commission has defined is the broadcasters’ demand for access to physical infrastructure and transmission platforms to distribute their content.²

¹ Commission Recommendation on Relevant Product and Service Markets with the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services, p. 36.

² NPT (Norway), Analysis of the wholesale market for broadcasting transmission services, to deliver broadcast content to end-users, p. 11.

Retail markets

Starting point for the definition and identification of the market for broadcasting transmission services is the characterisation of retail markets: At present five possible platforms are available for the transmission of contents in Germany: cable, satellite, terrestrial broadcast, DSL (IPTV) and mobile broadcast (UMTS/DMB). The European Commission has declared in a decision on DVB-T that that different ways of broadcast transmission in the retail market can be seen as possible substitutes. The European Commission emphasized that in recent time the tendency exists - regardless of the transmission platform – to define only one market for transmission services. This reflects among other things the arising of DVB-T, whereby the capacity of the terrestrial platform increased, as well as the decrease of the prices for satellite systems, Set Top Boxes, DSL connections and mobile devices. The European Commission found a decrease of the so called “Lock-in effect” due to these developments and recognised the increasing willingness to change due to low switching costs.³

Consumer’s preferences on the retail market are decisive for the analysis whether on the wholesale market for broadcasting transmission services workable competition prevails. They finally determine the competition intensity. In order to evaluate the competition conditions on the wholesale market, the competition intensity dominant on the retail market needs to be considered. Intensive competition on the retail market affects the upstream market.⁴ If a company has significant market power on the retail level, it’s likely to ascertain market power on the wholesale level as well. The inversion of the argument tells us that intensive competition on the retail level won’t let companies dominate the wholesale market. They won’t be able to behave independently.

Thus it has to be examined, if the different transmission technologies: cable, satellite, terrestrial, IPTV and mobile can be accounted to the same market at the retail level before analyzing the wholesale market.

³ Commission Decision of 9 November 2005 on the State Aid which the Federal Republic of Germany has implemented for the introduction of digital terrestrial television (DVB-T) in Berlin-Brandenburg, Rn. 79.

⁴ Vgl. Federal Network Agency, Bitstream Access for wholesaler, market Nr. 12 of the EU Recommendation

Digitalisation and switching costs

End-users can choose whether they receive the programme channels via terrestrial distribution, cable, satellite, DSL or mobile. In the past, the substitutability of demand was restricted by factors related to the dissimilarity and availability of the provided services. In addition to this, the substitutability of demand was restricted by costs incurred from the change. Recently cost decreased significantly. In order to receive digital content, Set-Top-Boxes are necessary on all transmission platforms. The prices for these boxes are decreasing and are becoming quite similar over time. Services transmitted in various distribution networks vary. Some of the transmission platforms are subject to a fee and some are free. Usually cable operators collect fees from end-users for network maintenance for example. However, the charge of monthly fees with satellite transmission is discussed as well.

A television broadcaster can choose from a number of platforms on which to deliver its content to end-users. Today nearly 54 % of private households in Germany watch TV via cable. Satellite as transmission platform is chosen by 43% of private households.⁵ The following chart illustrates the different platforms available in Germany.

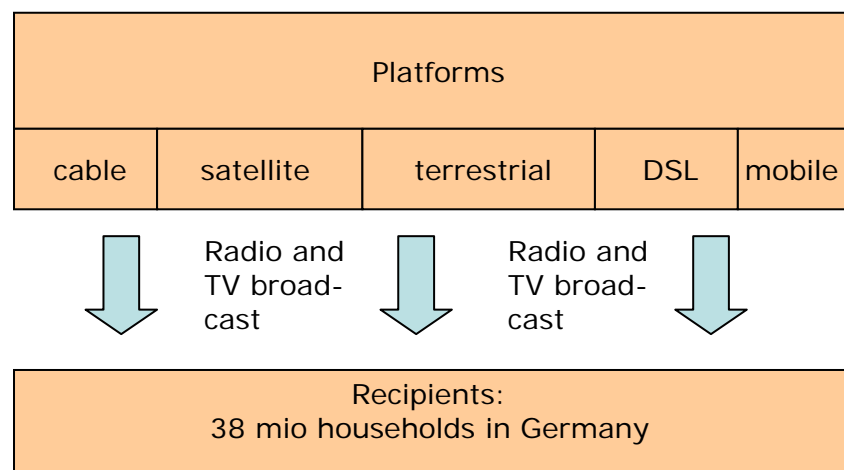


Figure 1, Source: EE&MC

⁵ Digitalisierungsbericht 2007, p. 52; AGF/GfK TV research, method report, available at <http://www.agf.de/fsforschung/methoden/empfangsebenen>

Definition of the Relevant Market: HM-Test and Conjoint Analysis

Firms are subject to three main sources of competitive constraints: demand substitutability, supply substitutability and potential competition. The methodology which the European Commission applies to measure demand and supply substitutability is the so called Hypothetical Monopolist Test (HM-test).⁶ The HM-test is an experiment, postulating a hypothetical small, non-transitory change in relative prices and evaluating the likely reaction of customers to that increase. The question to be answered is whether the parties' customers would switch to readily available substitutes or to suppliers located elsewhere in response to a small (in the range of 5% to 10%), yet permanent relative price increase in the products and/or geographical areas have to be included in the relevant market. This has to be done until the set of products and/or geographic area is such that small, permanent increases in the relevant prices would be profitable.⁷ In principle, the HM-test is relevant only with regard to products or services, the price of which is freely determined and not subject to regulation. Thus, in many telecom markets the working assumption is that current prevailing prices are set at competitive levels. If a service or product is offered at a regulated, cost-based price, the such price is presumed, in the absence of indications to the contrary, to be set at would otherwise be a competitive level and should therefore be taken as the starting point for applying the HM-test. Since end user prices for cable transmission are not regulated, the assumption holds that the prices are competition prices.

If the demand elasticity of a given product or service is significant, even at relative competitive prices, that may mean that the firm in question lacks market power. If elasticity is high even at current prices that may mean that the firm in question has already exercised market power to the point that further price increases will not increase its profits. In this case, the application of the HM-test may lead to a

⁶ Commission Notice on the definition of the relevant market for the purpose of Community competition law (OJ C 372), 9/12/1997. The HM test is applied in Australia, Brazil, Bulgaria, Canada, EFTA, EU, Israel, The Netherlands, New Zealand, United Kingdom, United States.

⁷ Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services, (2002/C 165/03), 40

different market definition from that which would be produced if the prices were set at a competitive level.⁸

The HM-test is a two-step procedure:

1. The shift in the amount of consumers who do not buy the product due to an increase in price has to be calculated. This analysis depends on the own-price elasticity of the product or service under consideration.
2. A calculation has to take place as to whether the price increase was profitable. This calculation depends on the margin of the product or service in question.

The operationalisation of the HM-test is a demanding task. To implement the HM-test, modern market research tools can be applied. The reaction of customers to a (hypothetical) price increase is central in the execution of the HM-test. The most widely used method in price analysis is “Conjoint Analysis”. Pricing and market segmentation are typical areas where Conjoint Analysis is frequently used. Competition analysis is another one. The components of this method are:

1. a technique of data collection requiring a respondent to consider “trade-offs” among desirable alternatives;
2. a computational method which derives “utilities” accounting as nearly as possible for each respondent’s choice behaviour;

There are many product attributes for which ideal levels in fact differ from consumer to consumer, such as saltiness of pretzels or lightness of beer. For attributes such as convenience, economy, or level of performance, having a high level of each attribute as possible. What is needed in such cases is information about consumer “trade-offs”. It is relevant to determine how consumers value various levels of each attribute and the extent to which they would forego a high level of one attribute to achieve a high level of another. Conjoint Analysis is based on the premise that each consumer’s choice behaviour is governed by such trade-off values. The basic idea of Conjoint Analysis is to confront the cus-

⁸ Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services, (2002/C 165/03), 42

tomers with different product concepts characterised by varying specifications of their attributes including price. Implementing the HM-test with Conjoint Analysis reveals the attractiveness, called the “part-worth”, of each attribute of the product to the respondent. The sum of the part-worth of the combined product features indicates the utility of that certain product concept to the consumer.

The course of a Conjoint Analysis follows a well established methodology.⁹ Different software packages are available to conduct a Conjoint Analysis. The software permits analysing the relationship between the prices of a product and the choice behaviour of consumers. First, a questionnaire is designed and programmed. Interview profiles are developed and face-to-face interviews are conducted with the support of laptops in the field phase. Finally, the collected interview data are analysed. During the analysis, the part-worths, of each attribute of the products are evaluated. The sum of all part-worths of the attributes of a certain product determines its utility from the consumer’s perspective. Finally, these utilities of different product concepts derived from the choices of the respondents are aggregated to conduct hypothetical price simulations.

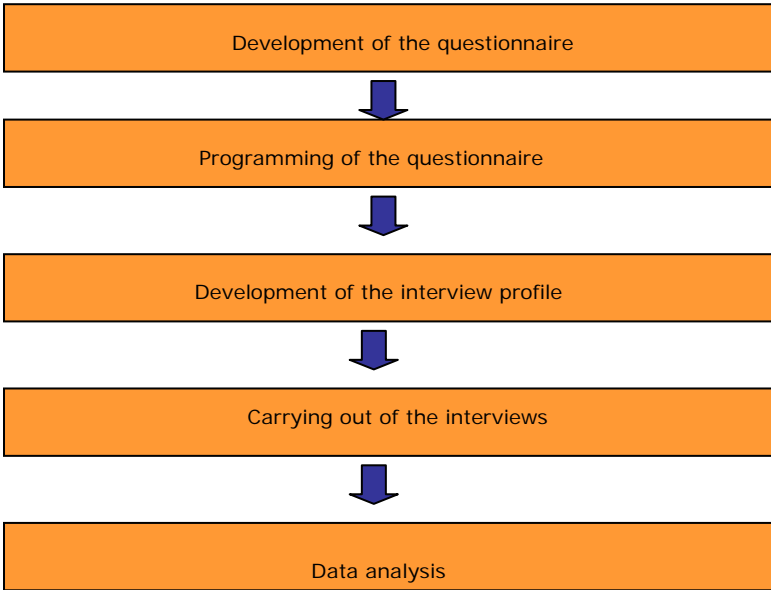


Figure 2, Source: EE&MC

⁹ Most studies of conjoint analysis have involved a verbal description of product profiles. Due to increased computing capabilities, ongoing research has developed approaches to integrate virtual reality and conjoint analysis. See, eg., Dijkstra, J. and H.J.P. Timmermans, 1997, Employing the possibilities of conjoint measurement as a decision-making tool for virtual wayfinding environments.

Development and Programming of the questionnaire

Before starting the interviews, the questionnaire was computer-aided programmed. The examined attributes were the

- characteristics,
- prices and
- the intended use

of substitutes.¹⁰ The attributes most important to end-users were: transmission platform, number of programmes, purpose, monthly fees and one-time costs. By using the attributes, the software was programmed to generate decision situations for each respondent. Some combinations which do not make sense at all have been excluded like the combination of using the analogue satellite platform and having sixty programmes. The interviewed respondent can choose between a left and a right possibility in every question. The choice is made several times. This way it's possible to get utility values for every single attribute.

Welchen Empfang bevorzugen Sie?	
Digitaler Empfang über Antenne (DVB-T)	Analoger Empfang über Kabel
Ich kann bis zu 30 Sender empfangen.	Ich kann bis zu 50 Sender empfangen.
Spielfilme/Hörspiele sind mir wichtig.	Bundesweite Nachrichten sind mir wichtig.
Ich habe keine monatlichen Kosten.	Meine monatlichen Kosten sind 9 €.
Einmalige Kosten: 200 €	Einmalige Kosten: 100 €

Figure 3, Source: EE&MC

Some additional questions were asked like which transmission platform is mostly in use. This allows the building of categories when analysing the answers.

¹⁰ Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services, (2002/C 165/03), 44.

Wie empfangen Sie Ihr Rundfunkprogramm ?

Kabel analog

Kabel digital (DVB-C)

Antenne analog

Antenne digital (DVB-T)

Satellit analog

Satellit digital (DVB-S)

Internet

Figure 4, Source: EE&MC

The design of the questionnaire is based on broad experiences in the application of Conjoint Analysis to implement the HM test for market definition purposes. The HM-tests performed by EE&MC have been reviewed in a number of cases by national competition authorities, national courts as well as the European Commission.

Implementation of the Conjoint Analysis

EE&MC assigned the interview bureau “Trend Census” from Essen for the implementation of the interviews. The computer calculated an inspection size of 1,000 persons who need to be asked for the programmed questionnaire so that the analysis is representative. In order to secure a sufficient number of interviews, an interview number from 1.250 was specified. Before implementation a representative interview profile was submitted to Trend Census by EE&MC based on household and population data of the Federal Statistical Office. Clusters were built, sorted by federal state and age group. In the addition, the interview bureau was briefed.

Number of respondents	18-29	30-49	50-64	65 and older	Total:
Schleswig-Holstein	7	16	10	10	42
Hamburg	5	10	6	6	27
Niedersachsen	20	45	27	28	119
Bremen	2	4	2	2	10
Nordrhein-Westfalen	45	103	60	63	271
Hessen	15	36	21	21	92
Rheinland-Pfalz	10	23	14	14	61
Baden-Württemberg	28	62	35	35	160
Bayern	32	72	41	41	186
Saarland	3	6	4	4	16
Mecklenburg-Vorpommern	5	10	6	6	27
Brandenburg	7	15	9	9	40
Sachsen-Anhalt	7	14	9	10	39
Thüringen	7	13	9	9	37
Sachsen	12	23	16	17	68
Berlin total	10	20	12	10	53
Gesamt	213	471	282	284	1250

Figure 5, Source: EE&MC

The field phase took place between October, the 31st and November, the 16th in 2005. Since questionnaire was computer-aided, interviews were performed with laptops. During the questioning the answers were automatically stored into a data base. In order to receive representative results, customers of all platforms and also competitors were asked.

Altogether 1,228 interviews were made available to EE&MC after accomplishing the field phase. In each of these interviews 30 yes-no questions were answered. Thus altogether 36,840 opinions were queried. This number of accomplished interviews is sufficient for the derivation of statistically significant statements. The error rate for all attributes is below 1%.

Results

The 36,840 received opinions made it possible to determine the priorities of the individual attributes which influence the purchase decision concerning the broadcast transmission service. On the basis of this data the evaluation of the HM-Test took place.

To simulate a price increase of cable fees it was necessary to create a “base-case” scenario. This standard scenario reflects existing market realities and is the starting point for the computations of the effects of a hypothetical price increase of the cable fees. Accordingly the “base-case” is based on real market prices.

The definition of the initial values took place on the basis of the already investigated information when determining the attributes. The categories were: single payments, monthly costs and number of receivable programs, given in average values.

In the following table the “base case” is presented:

Platform	Monthly fee	One-time costs	Number of programmes	Purpose
Cable analogue	14,58 €	- €	38	Sportsprogramme is important to me
Cable digital	14,58 €	152,61 €	200 or more	Entertainmentprogramme is important to me
Antenna analogue	- €	- €	5	Movies/radio play is important to me
Antenna digital	- €	168,15 €	21	Local news are important to me
Satellite analogue	- €	- €	47	
Satellite digital	- €	146,13 €	200 or more	Thrillers are important to me
Internet	25,74 €	44,33 €	200 or more	Documentaries are important to me

Figure 6, Source: EE&MC

As starting point for the following computation of the price increase scenarios of 5%, the average price, i.e. the monthly cable fees were at the basis put at a value of 14,58€ These simulations were accomplished, in order to determine the price sensitivity. In the “base case” the most appropriate purpose was specified for each platform: The purpose, which was indicated most frequently by the respondents.

An evaluation of the priority of the criteria indicates that the number of receiptable programmes with 36% portion is the most important attribute in the buying decision making process.

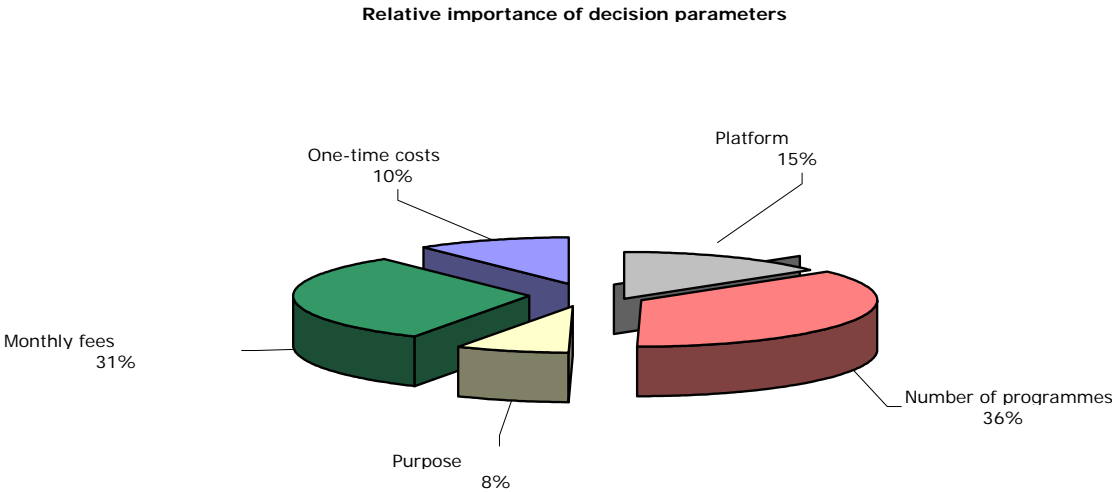


Figure 7, Source: EE&MC

For end users the number of programs, which can be received, is thus of outstanding importance. The price in form of monthly fees is less important in decision making with 31% than the number of programmes (36%). With a portion of 15% platform represents a further important factor in the decision making.

The effect on the Shares of Preference, the probability of demand for each platform was evaluated for the “base case” and for a relative price increase of cable television around 5%. All other factors must be kept constant, because of the hypothetical character of the price increase. Only the portion of the respondents was considered, which believed, to be able to change the receipt platform.

A 5% price increase leads to a reduction of demand: The purchase likelihood would sink in case of a 5% price increase from 54.60% to 43.87%.

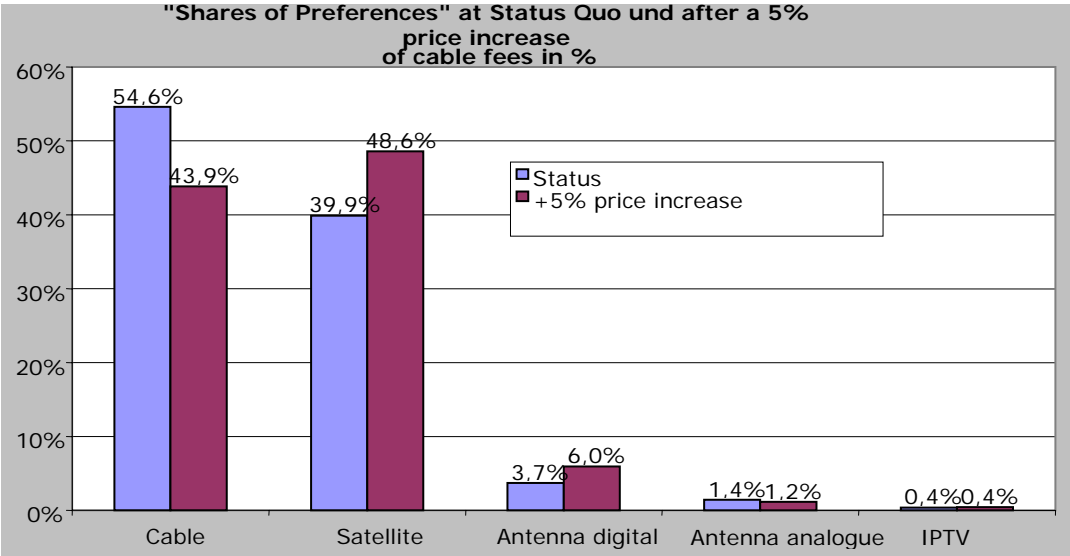


Figure 8, Source: EE&MC

While the platform cable registers a decrease in demand of 10.73 per cent points, the platform satellite can gain 8.72 per cent points. Some other would move to DVB-T (antenna digital). No shifts were detected at the other two platforms, antenna analogue and Internet.

Since the satellite represents the strongest substitute to the cable platform and further analysis revealed that a hypothetical price increase would be negative for the cable transmission platform, the transmis-

sion platform satellite needs to be included into the relevant market. This means that the relevant product market on the end-consumer level includes at least cable and satellite.

The evaluation of the additional yes-no questions supplied further important facts: The following illustration already points the answers to the question „Do you use the Internet for broadcast transmission services?“

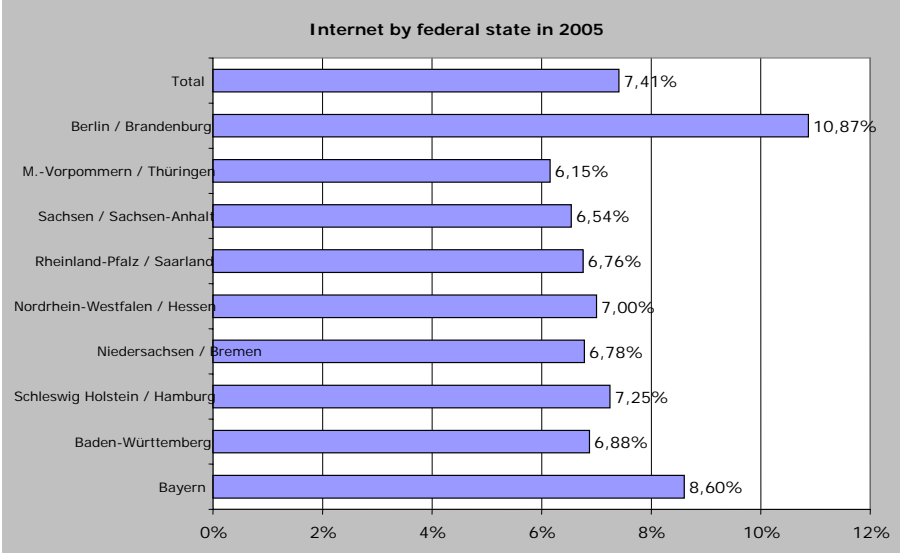


Figure 9, Source: EE&MC

Altogether 7.41% of the respondents already use the Internet for broadcast transmission services. In Berlin Brandenburg, the portion of the Internet use with 10.41% is largest. The meaning of this platform is thus still relatively small, but in the future progress of technological development further potential is to be expected.

Also the analysis of the answers to the question “Are you are able to change the receipt platform” is quite informative: As the following illustration points out, altogether 80.05% of the respondents are in principle able to change the transmission platform.

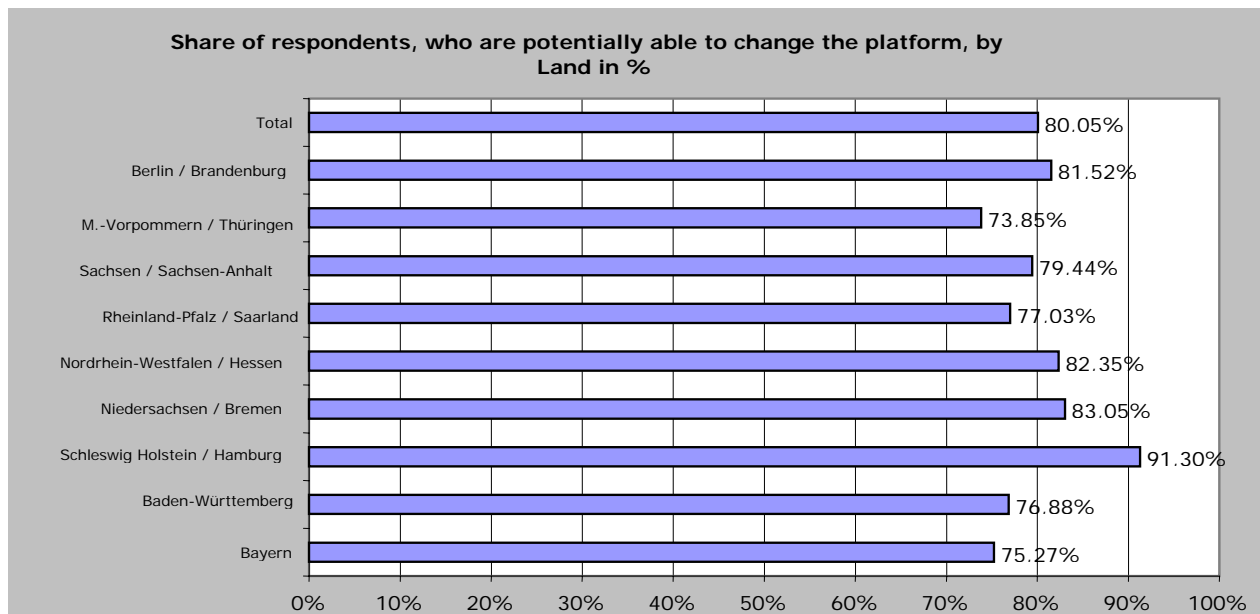


Figure 10, Source: EE&MC

Thus, the majority of the respondents sees itself able to change the platform.

Conclusion

The empirical examination revealed that both transmission platforms cable and satellite belong to the same relevant product market. The end-consumers willingness as well as the ability to change the transmission platforms can be observed. In the process of digitalisation, switching costs become a less important factor. The prices for Set Top Boxes decrease and become similar for every transmission platform. Another conclusion is that substitution effects on the retail level potentially constrain a hypothetical monopolist on the wholesale level too.

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