Multisided Media Markets:
Applying the Theory of Multisided Markets to Media Markets

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Abstract

Media markets recently have been identified as multisided markets. The application of the theory of multisided markets provides a better understanding of such markets. It enriched the hitherto economic approach and led to new insights and perspectives especially for the antitrust authorities when evaluating competition constraints and mergers. This paper reviews the theory of multisided markets and subsequently applies it to media markets. Finally the paper draws attention to the new perspectives and insights the theory provides but also brings open research questions to light.

Keywords: media economics, two-sided markets, multisided platforms, competition

JEL-Code: L82, A20, L13, M21

Contents

1. Introduction

During recent years the theory of two-sided, respectively multisided[1] markets, has been used to explain the work of various industries and provided new perspectives – for companies, for economists and also the antitrust policy (Dewenter 2006a: 7-9, Roson 2005: 143, 155f.). It has thereby been recognized that media markets and their functioning can also be better explained by using the theory of multisided markets. Media, respectively mass media, plays an important role in our society – people spend the majority of their (leisure) time with them (Anderson & Gabszewicz 2006: 569). In Germany, for example, people were found to be using the media[2] for an average of 565 minutes per day in 2008 (BR online 2008). Mass media traditionally include television, radio and printed media, like newspapers and magazines. Since the 1990's the internet has been added as well. Nearly everybody uses at least one of those media types regularly, either watching the evening news on television, listening to the radio during the daytime, reading the newspaper in the morning or surfing the internet. The relevance of media markets becomes even clearer when we consider that media can impart knowledge and can shape public opinion (Anderson & Gabszewicz 2006: 569). It is therefore essential to carefully analyze media markets from an economic and a political perspective. The aim of this paper is therefore to introduce the theory of multisided markets in order to establish a tool to analyze media markets.

What is the difference between two-sided and one-sided markets? First of all using the term two-sided can be confusing. Basically, we are always facing two sides when analyzing markets – the demand side and the supply side. However, in the context of the theory something different is meant. Using the term *markets with indirect network externalities* seems to fit better (Dewenter & Haucap

1 In the following paper both the terms two-sided and multisided will be used when referring to the theory.

2 Media in this term includes: television, radio, internet, newspapers, book, magazines, video, sound recording media (BR online 2008).

2009: 36). The particular feature of the theory of multisided markets is that we actually face at least three participants – at least two market sides and a platform. In the majority of cases both market sides represent demand sides. They are distinct but interdependent and therefore cannot be isolated from each other (Dewenter 2006a: 2). Take the media market, for example. A media company does not exclusively serve the audience by providing content. The platform additionally serves the advertising industry by providing it with advertising space. Both market sides are thereby served simultaneously and furthermore affect each other at the same time through indirect network externalities. Whereas direct network externalities affect the participants on the same side, indirect network externalities come into effect by one (demand) side influencing the other (demand) side. If the demand on side A changes this would affect the demand on side B as well. This means that the utility of both sides depends either positively or negatively on how many participants are present on the other side (Dewenter & Haucap 2009: 36, Dewenter 2006b: 2). These peculiarities lead to new insights and perspectives on such markets.

This paper aims to initially present the theory of multisided markets in general and eventually explains how it exactly applies to media markets. The paper will be structured as follows: In the next chapter the theory of multisided markets will be explained in general including the origin of the theory and the differences to one-sided markets. It will present the general characteristics of the theory; introduce the participants faced on the markets, the market structure and the effects on prices, quantities and social welfare. In chapter 3 the theory of multisided markets will then concretely be applied to media markets. It will present the participants that can be observed on media markets and how they act together. It will thereby especially cope with the indirect network effects, how they come into effect on media markets and what influence they have on prices and quantities. Chapter 4 will subsequently focus on an analysis of the strengths and open research questions of the theory. What additional insights and perspectives does the theory provide by identifying multisided markets? The chapter will elaborate which aspects can be better explained or understood

by using the theory. It will thereby especially refer to essential implications for the antitrust policy. On the other hand it will deal with some problems we face and possible existing constraints that currently cannot be explained through the theory of multisided markets. Chapter 5 will present the conclusion.

2. The theory of multisided markets

2.1. Origin of the theory and further multisided markets

The origin of the theory of two-sided respectively multisided markets lies in the credit card market – a market with particular characteristics. The development of the theory itself can especially be attributed to the antitrust law suits that were filed against *MasterCard* and *Visa* (Dewenter & Haucap 2009: 36). The antitrust authorities of different countries accused *MasterCard* and *Visa* of hindering competition with their price and fee setting for cardholders and merchants (Evans 2002: 62-64; Evans 2004: 238-240, 268-271; Evans & Schmalensee 2005: 74-76; Evans & Schmalensee 2007: 156f, 169f.).

Through analysing the credit card market more carefully, however particular characteristics were brought to light that demanded a different treatment than that according to one-sided markets – especially regarding economic and antitrust policy. The usual practices of antitrust authorities as they were known from one-sided markets seemed inapplicable to the credit card industry. The main finding from the credit card market was that it is actually possible to observe two market sides, respectively (demand) sides, which interact with and influence each other. The value of each (demand) side joining a platform is thereby determined by its expectations about the size on the opposite side (Roson 2005: 142f., Evans 2004: 238).

The participants we face in credit card markets are merchants *(market side 1),* customers *(market side 2)* as well as the credit card company *(platform),* which is offering the credit card. Thus, the credit card company has to offer its product

to two different groups. It has to persuade the merchants to accept the credit card in their shops and simultaneously has to persuade the customers to hold the card and use it for payment. Between market 1 and market 2 indirect network externalities do exist.[3] In the case of the credit card market the network externalities are positive for both sides. On the one hand, the more customers use a specific credit card (e.g. *Visa Card*) the more attractive it gets for the merchants to accept that card. On the other hand the more merchants accept the *Visa card* the more attractive it gets for the customers to sign up for it and use it. This example clearly shows that the network effects influence the other side and therefore have an indirect effect (Dewenter & Haucap 2009: 37, Roson 2005: 142f.). The credit card company eventually acts as a platform that is enabling and coordinating the transactions between the two market sides. Due to the coupling of the credit card, the platform thereby has to achieve critical mass on each market side in order to attract the other. No trivial task for the company. Due to these interdependencies the company cannot attract one side without having enough customers on the other side. However, where should they start? Can one side be attracted if the other one is not yet there? The literature refers to the *chicken-and-egg problem* the platform here faces (Evans 2004: 237, 261, 276; Evans & Schmalensee 2007: 152f.; Caillaud & Jullien 2003: 310, Evans 2003: 195). The work of the platforms will be an important issue in the following.

However, other examples of multisided markets do also exist (see figure 1). Since considering the credit card market as multi-sided, further markets were identified to be two- or multi-sided as well. Hence, the theory of multisided markets emerged. Some other examples of such kinds of markets include shopping malls, real estate agencies, dating agencies, software markets, videogame markets, sports markets and – as already mentioned before – media markets. All these markets are characterized by indirect network effects and can thus be explained using the theory of multisided markets (Dewenter 2006b: 1; Evans & Schmalensee 2007: 152). In the predominant cases we do face positive indirect

3 In general these indirect network externalities can be either positive or negative and finally cause the market to be two-sided (Dewenter 2006b: 1f.).

network externalities for each market side. With the shopping mall example this would mean that the more shops that are present in a mall, the more attractive it becomes for consumers to go there. At the same time the more consumers a shopping mall has the more attractive it becomes for shop owners to open a store. On the real estate market, the more properties real estate agents have on their books, the greater the number of potential buyers who will go there, and vice versa. Again, the effects are positive for both sides. However, negative externalities can and do also occur. Take the media market, for example. As soon as the audience regards advertisements as a nuisance, the advertising industry would exert a negative externality on the audience. This means, the more advertisers there are on the market, the fewer readers (listeners or watchers) will be attracted (Anderson & Gabszewicz 2006: 571). Network externalities and their effects will be discussed in detail later in this paper.

Figure 1. Extended illustration according to Budzinski & Satzer 2009: 8

Market/Intermediary	**Distinct customer groups**	**Externalities (examples)**
Transaction systems (e.g. credit cards)	a) Merchants (accepting the credit card as payment) b) Consumers (using the credit card for payment)	a ↑ ➔ b ↑ b ↑ ➔ a ↑
Matching agencies (e.g. employment agencies, dating agencies, travel agencies)	a) Unemployed / male singles b) Companies with vacancies / female singles	a ↑ ➔ b ↑ b ↑ ➔ a ↑
Brokers, e.g. estate agents and intermediaries, (e.g. real estate agents, exchange markets, auction houses)	a) House owners wishing to sell b) Potential buyers	a ↑ ➔ b ↑ b ↑ ➔ a ↑
Media markets (e.g. magazines, newspapers, commercial television, commercial radio)	a) Audience b) Advertising market	a ↑ ➔ b ↑ b ↑ ➔ a ↓ (?)

Software platforms (e.g. operating systems)	a) Application software developers b) Software users	a ↑ ➔ b ↑ b ↑ ➔ a ↑
Videogame markets	a) Game developers b) Players	a ↑ ➔ b ↑ b ↑ ➔ a ↑
Shopping malls	a) Shops b) Consumers	a ↑ ➔ b ↑ b ↑ ➔ a ↑
Professional sports markets	a) Audience (in the arenas) b) Sponsors, advertisers c) Media (broadcasting rights)	? ? ?

2.2. Defining multisided markets

This section will define and analyze the theory of multisided markets in more detail. The theory actually combines two different well-known theories, on the one hand the theory of (market or regulated) multi-product pricing and on the other hand the theory of network externalities (Rochet & Tirole 2006: 646). From the first theory it borrows the notion of focusing on price structure and emphasizes that price structures are more distorted by price levels than by market power. By contrast the theory of network externalities states that externalities are not internalized between the end-users.

According to Roson (2005) "a market is two-sided if platforms serve two groups of agents, such that the participation of at least one group raises the value of participating for the other group." Rochet & Tirole (2006) speak of a two-sided market "in which one or several platforms enable interactions between end-users and try to get the two (or multiple) sides 'on board' by appropriately charging each side". As it was pointed out earlier, the use of the term "two-sided" could cause confusion as nearly every market then would be two-sided. We always face demand and supply sides and the overall aim is to get buyer and seller together for transactions. More precisely, therefore, Rochet and

Tirole (2006) define a market as two-sided "if the platform can affect the volume of transactions by charging more to one side of the market and reducing the price paid by the other side by an equal amount; in other words, the price structure matters, and platforms must design it so as to bring both sides on board". In order to provide a clearer distinction between one-sided and multi-sided markets, we can say that a market is *one-sided* if the volume of transaction *V* depends only on the total price *a* (aggregate price level). In contrast, a market is said to be *two-sided* if the volume of transactions *V* depends or varies with the price of the buyer *a(b)* or the price of the seller *a(s).* In other words the moment the price structure is changed in multi-sided markets but the total price *a* is kept constant, there will be an effect on the participation level and the volume of transactions (Roson 2005: 144, Rochet & Tirole 2006: 648).

According to Evans & Schmalensee (2007) a multi-sided market exists when the following criteria are met:

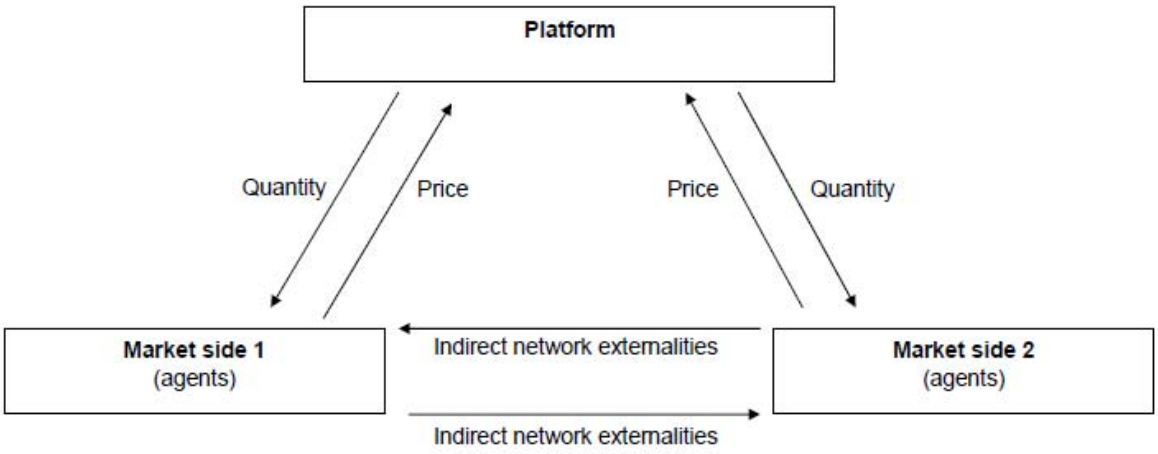
- ✓ There are two or multiple distinct customer groups.
- ✓ Externalities exist between these two customer groups.
- ✓ These externalities cannot be internalized between the customer groups. In other words "the relationship between end-users must be fraught with residual externalities".

2.3. Participants and their goals

Which participants are faced on multisided markets? There are at least three different groups (see figure 2):

- ✓ The platform
- ✓ Market side 1 (agents)
- ✓ Market side 2 (agents)

Figure 2. Own graph, source Dewenter & Haucap 2009: 38



The participants are connected to each other; though they do have different intentions and goals: As the term multisided already states we initially face at least two groups of agents (*market side 1 and market side 2*). These groups are distinct, meaning that they act on different markets; however they are interdependent (Evans & Schmalensee 2007: 152). The market sides influence each other through the already mentioned positive or negative indirect network externalities (Roson 2005: 144). No matter which exact market is faced, both market sides aim to maximize their utility and consider this when deciding whether or which platform to join. In the case of the credit card market the merchant wants to maximize profits through selling his products to the customer. He therefore needs to offer his customers different payment systems, including credit cards. The merchant will thereby choose to accept the credit card that most of the consumers hold and thus joins the respective platform (credit card company). The aim of the customer is to purchase products easily. Through holding a credit card he can purchase goods cashless. The consumer in turn would always choose the credit card (platform) that is accepted by the most merchants. This is where the platform comes into play. The different goals of the market sides are brought together by the platform who then appropriately charges all sides. The final usage decisions by both market sides depend on

what the platform charges to them (Rochet & Tirole 2006: 647). Thus, the *platform* is the third participant in multisided markets and acts as a coordinator that is bringing the market sides and their activities together, and subsequently enabling the transactions between them (Rochet & Tirole 2004: 5; Evans 2004: 237). The platform reduces information and transaction costs for both market sides that emerge from finding and interacting with each other. In other words the platform internalizes externalities that the market sides are not able to internalize on their own. By bringing the market sides together the platform increases the gains from trade (Evans & Schmalensee 2007: 152, 158; Evans 2004: 243, 290).

The actual interaction of the market sides can be anything depending on the market we are talking about. We have seen that on credit card markets, for example, the interaction occurs when a cardholder (market side 1) pays with the credit card at a merchants' place (market side 2). On the software market an interaction would occur if a user (market side 1) buys the software that the developer on the other side (market side 2) has developed (Rochet & Tirole 2006: 645). The platform has different methods for reducing transaction costs. Due to this, three kinds of multisided platforms can be defined, according to Evans (2004):[4]

1. **Market-Makers enable members of distinct groups to transact with each other** (e.g. shopping malls; the platform brings together retail shops and customers. Thereby both, the value of the shops increases the more customers can be found and the value of customers increases with a greater number of shops).

4 Depending on the market we are talking about the measures matchmaking, building audiences or minimizing costs occur. The platform uses mainly one of them to reduce transaction costs. However, most platforms use each method to some degree (Evans & Schmalensee 2007: 158).

2. **Audience-Makers match advertisers to audiences** (e.g. yellow pages market; the platform brings advertising and audience together. Thereby the audience values more advertising companies and vice versa).

3. **Demand-Coordinators make goods and services that generate indirect network effects across two or more groups** (e.g. credit card market; the platform enables the transaction both for merchants and consumers through offering the actual payment card).

Every platform aims to maximize profits (Evans & Schmalensee 2007: 160). Through operating on two or multiple sides the platform gets its profits from two or more industries at the same time (Anderson & Gabszewicz 2006: 570). In contrast to one-sided markets the platform has to provide both (multiple) groups in order to create demand from any of them (Evans 2004: 246). It sets prices and/or quantities for both sides and has to figure out how to charge each side appropriately in order to get all parties on board and hence receive money from all participated sides. Thereby prices can be either membership or usage fees, or both (Rochet & Tirole 2006: 647; Evans 2004: 237).

2.4. Indirect Network Externalities

A market is said to be multisided as soon as indirect network externalities do exist on *both sides* (Dewenter 2006b: 1).[5] In contrast to direct network externalities where the consumption of agents on side A depends on the consumption of agents from the same side (A) the indirect network externalities come into effect when the consumption of agents on side A depends on the consumption (better: the network size) of agents from the other (opposite) side B (Roson 2005: 144). Thus, the utility of one side increases through an extension on participants on the other market side and in turn influences its decision whether to join a platform (Amstrong 2006: 668). For example, when joining a dating

5 If the network externalities would only come into effect from one side we would not face a multisided but a one-sided market (Dewenter 2006b:2).

agency the singles on the men's side will – additionally to the price considerations – always consider how many female singles they will face on the other side. If a consumer is deciding for a credit card he would figure out which credit card is accepted by as many merchants as possible and hence join the platform that offers this card. An important aspect in multisided markets is that the network externalities cannot be internalized (see section 2.2). This means that the two market sides cannot make side-payments, i.e. interact with each other directly. Instead, the platform is taking over this task. Through using the externalities the platform thereby enables transactions between the market sides and aims to maximize profits (Evans & Schmalensee 2007: 154, 160; Roson 2005: 144). Therefore, it is important that the platform has a solid knowledge of the network externalities – especially its strengths and relations – in order to use them optimally and price each market side appropriately (Dewenter 2006b: 3; Rochet & Tirole 2004: 1).[6] Thus, in any case the platform will always aim to take advantage of the positive externalities and limit the negative ones (Evans & Schmalensee 2007: 163).

Depending on whether usage or membership fees (or even both) the market sides pay to the platforms we face membership or usage externalities. When agents have to pay ex ante for the transaction they pay a fixed fee regardless of the following transaction. In the case of the credit card market the cardholder for example pays a yearly fee for holding the card. The merchant benefits from this insofar as people more frequently use this card since they already paid for it. Therefore, merchants experience a positive membership externality from the consumer side. On the other hand when agents have to pay ex post for transactions we talk of usage fees. Taking the credit card market for example, the consumer does not have to pay any usage fee for transaction (hence he only benefits from using the card) whereas the merchant pays a so-called merchants discount. Therefore, the merchant exerts a positive usage externality on the con-

6 The importance of the strengths and relations of the indirect network externalities for price setting will be one of the issues coped with in more detail in 2.5.

sumers through accepting the credit card (Rochet & Tirole 2006: 647; Armstrong 2006: 669).

As already pointed out earlier, in the predominant cases we face positive network externalities in multisided markets (see also figure 1). This means, one side profits from the other side and vice versa. The more participants that exist on one side will result to move (increase) participants on the other side as their utility increases with the opposite side (Roson 2005: 142). This will furthermore have a positive feedback effect on the other side again and so forth. However, negative externalities do exist as well; for example with media markets. Chapter 3 will refer to media markets in more detail. The effects that network externalities exert on the price setting will be pointed out in the following section.

2.5. Price setting and social welfare in multisided markets

2.5.1. Platform's price setting

When coping with prices, which platforms set on multisided markets, we first of all have to distinguish between variable charges and fixed charges. The latter one affects the presence of each market side on the platform whereas the variable charges have an influence on each market sides' willingness to trade on the platform. In the case of the credit card market the variable charge (ex post payment) would be the merchant discount a merchant is charged for every transaction. A fixed charge (ex ante payment) on the other hand would be the yearly membership fee a consumer has to pay for holding a credit card without having used it yet (Rochet & Tirole 2006: 646f.; Evans & Schmalensee 2007: 160f.; Caillaud & Jullien 2003: 310). In the real estate market both market sides – house sellers and potential house buyers – would have to pay a variable charge to the platform as soon as the interaction has taken place.

Pricing principles in multisided markets clearly differ from those in one-sided markets. In contrast to one-sided markets, platforms have to consider the *interdependent demands* of all sides when deciding on the appropriate pricing strategy (Evans 2004: 238).[7] The definition respectively the characteristics that cause a market to be multisided clearly showed that the price structure matters for transactions (see section 2.2). The structure of prices influences profits and the economic efficiency (Rochet & Tirole 2006: 648). For maximizing profits price setting of the platform does not have to follow marginal costs (Evans & Schmalensee 2007: 152). Instead, in order to get both sides on board, the platform must carefully determine which side can be charged at what price. It is important to find out how much each side can bear as the distribution of prices has an influence on market participation of each market side and hence the volume of demand (Roson 2005: 142).

As well-known from one-sided markets, companies which are setting prices have to consider price elasticities of demand and marginal costs – in multisided markets this has to be done for *every market side* (Dewenter 2006b: 3; Evans & Schmalensee 2007: 159f.). However, in multisided markets especially the indirect network externalities, which cause a market to be multisided, plays an essential role for pricing strategies. They have to be taken into account carefully by the platform. Consider a two-sided market where the platform plans to change prices. Between both market sides **A** and **B** network externalities do exist. If the platform (e.g. dating agencies) increases the price for market side **A** (e.g. female singles) this initially result in fewer **A**s joining the platform. As well-known from one-sided markets the relationship between price and number of participants depends on the price elasticity of demand. We now assume that market side **A** exerts a positive externality on market side **B** (e.g. male singles)**,** which means that side **B** values the members on side **A**. Then, the decreasing number of members on side **A** would also lead to a decrease in members on side **B**. As long as market side **B** in turn also exerts a positive externality on

7 In addition to this, these interdependent demands also need to be considered regarding production and investment strategies (Evans 2004: 238).

market side **A,** fewer participants on side **B** will lessen the number of members on side **A** once more and so forth. This effect is known as the feedback loop between the two sides (Evans & Schmalensee 2007: 159). Concisely, presuming positive externalities on both sides, a price increase (decrease) on one side will first of all result in a demand decrease (increase) on that side (*direct effect* of the price elasticity of demand) and secondly will cause a decrease (increase) in demand on both market sides due to the *indirect externality effects* (Evans & Schmalensee 2007: 159f.).[8] However, the concrete resulting effects due to price changes depend on the strength of network externalities and whether these network effects are positive or negative for each side. Therefore, they have to be determined carefully in each particular case.

We have to be aware that in the majority of cases the two market sides do not exert the same (strength of) externality on the opposite side. As long as the network externalities differ in relation to cost structure, market size and price elasticity the prices for the market sides will be different as well (Dewenter & Haucap 2009: 45). Usually one side exerts a stronger externality effect on the opposite market side. In order to reach the most profitable overall pricing the platform thus has to have a solid knowledge of the indirect network effects on the one hand and especially on their relative effects on the other hand. Predominantly, prices will be lower on the market side that exerts a relatively strong effect on both markets (Dewenter 2006b: 3). Through lowering prices on the side that creates a significant externality on the other one, this side gets attracted to join the platform which in turn makes it profitable for the platform (Rochet & Tirole 2006: 659). For example, a dating agency that has more male customers will impose a higher price to them. In order to attract the female customers they in contrast will have to pay a lower price. The relative network effects can even result in negative prices for one market side. However if negative prices cannot be set just one of the multiple market sides – the one with the smaller network externality effect – will have to take the (whole) price burden.

8 For a more theoretical explanation of the mentioned effects on elasticities and demand functions refer to Evans & Schmalensee (2007) pp 159-161.

The other side on the contrary then would not be charged at all (Roson 2005: 147f.).[9] The optimal price set by the platform on one side of the market thus does not seem to follow marginal costs. For a better understanding of the multisided markets and possible judgements by the antitrust authorities the second market side *always* has to be taken into account as well. When talking about multisided markets we usually face a situation where – according to marginal costs – one side of the market is charged quite high whereas the other one is charged little or even nothing. This, however, is neither a given sign for market power nor for predatory pricing (Evans 2004: 238). Chapter 4 will show in more detail that antitrust authorities will have to evaluate price setting in multisided markets differently to those in one-sided markets.

2.5.2. Resulting effects of price setting on social welfare

Closely connected to price setting is social welfare. It plays an important role – especially with regard to antitrust policy. Social welfare is taken into consideration when evaluating market structures, competitive situations and identifying possible restraints of competition. However, the results in multisided markets have to be judged differently to those in one-sided markets. The price structure is non-neutral in these markets; for this reason the composition of prices matters. It was just stated that prices below costs for example are not automatically a sign of predatory pricing. In the same way prices above marginal costs do not automatically imply market power (Roson 2005: 155f.; Dewenter 2006a: 5; Evans 2004: 267-271, 280).

As with price setting, social welfare in multisided markets also depends on several more aspects than in one-sided markets. In addition to market size, cost structure and price elasticities the strengths of indirect network externalities again have to be taken into account very carefully. Due to indirect network externalities a monopolistic market structure might even lead to a higher social

9 This can for example be observed in the markets of Yellow Pages directories that are provided to the households for free while only the advertisers are charged (Holland 2007: 7f.).

welfare than a competitive environment. When analyzing social welfare in multisided markets we have to cope with a *competition effect* and a *market extension effect*, which lead into opposite directions. Both effects are influenced by the strengths of indirect network externalities and the intensity of competition. In a *competitive market* the quantities in total (quantity of all competitors) are – compared to the quantity of a monopolist – higher on both market sides as long as we face positive externalities. In this case the producer surplus for each single competitor will be smaller. However, due to competition the consumer surplus would increase and hence social welfare as well *(competition effect).*[10] In a *monopolistic situation* this one company has a bigger quantity than each single supplier would have in a competitive environment. Hence, the monopolist could use (internalize) the (positive) network externalities better than with competition. In the case of positive externalities both sides will profit from more participants on the other side and vice versa. Thereby, the market side that profits more from the network externalities will then be willed to pay even more for joining the platform (*market extension effect)* (Dewenter & Haucap 2009: 44f.; Budzinski & Lindstädt 2009: 12f.).[11]

To conclude, analyzing social welfare in multisided markets is quite complex. It is not possible to put a general statement which market structure leads to more social welfare. It is always necessary to carefully analyze each situation individually. Antitrust authorities have to keep this in mind, when coping with multisided markets. This is also essential when evaluating mergers and acquisitions. Chapter 4 will refer to this part in more detail.

2.6. Multihoming

Multihoming in multisided markets means that some agents – either just on one side of the market or even on both sides – stick to more than one platform

10 This leads to a movement on the demand curve which in turn results in an increase of the consumer surplus (Dewenter & Haucap 2009: 44).

11 This leads to a shift of the demand curve to the right (Dewenter & Haucap 2009: 44).

(Rochet & Tirole 2003: 991f.). In the example of the credit card market cardholders would multihome as soon as they hold more than one credit card. On the other hand merchants typically also multihome insofar as they accept not just one credit card but various cards. Regarding agencies, people who want to sell their houses usually will mandate more than one real estate agent. In the same way house buyers would not just stick to one real estate agency when looking for houses. However, in the software market we usually face multihoming just on one side. Developers write for various software platforms, whereas end-users usually stick to one software product exclusively (Evans & Schmalensee 2007: 166). The decision for a market side to multihome usually depends on the price that is set by the platform. If the platform sets fixed fees it is less attractive to multihome. However, if only variable (per transaction) fees occur multihoming gets attractive for the market sides. In any market multihoming has an impact on the degree of competition. The platform faces more competition, either just from one side or from both. This in turn could have positive effects on the prices for the multihoming market side (Roson 2005: 151f.). Multihoming is quite common[12] – however, it usually makes the analysis of such markets more complex.

3. Media markets as multisided markets

After the theory of multisided markets has been explained in detail this chapter will finally apply it concretely to media markets. Why do we face two-sidedness on media markets, who are the exact participants and how do they interact with each other? Before applying the theory of multisided markets to media markets the traditional media economic[13] approach was analogical to the traditional competition analysis by defining the relevant markets. The analysis thereby also identified two relevant markets of media companies – advertising

12 For a more detailed overview on examples of two-sided markets where multihoming is common for at least one market side see also Evans 2003 (199).

13 For general literature on media economics see for example: Heinrich (2001), Hoskins et. al (2004), Beck (2005), Beyer & Carl (2008).

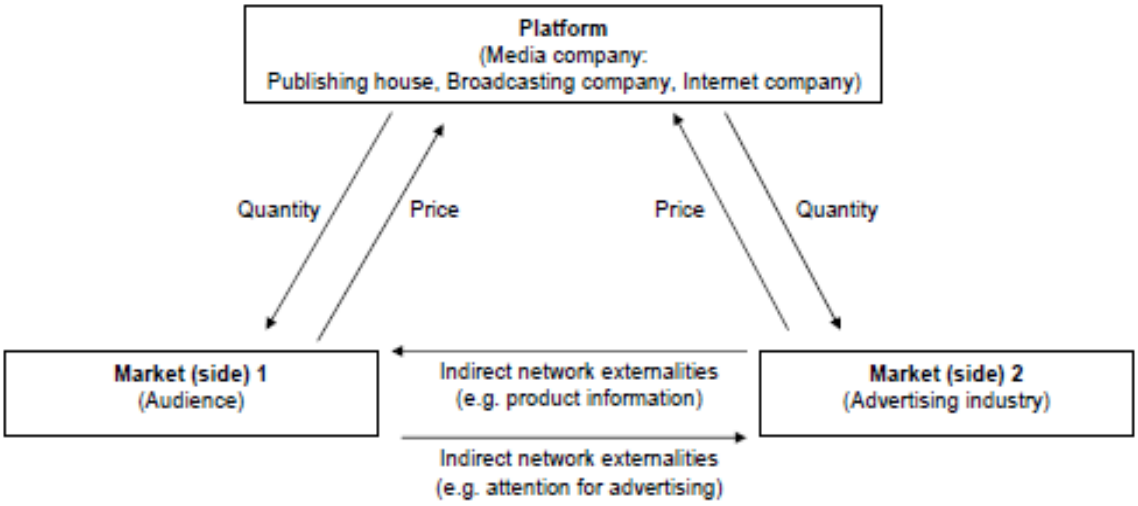
market and audience market. However, these markets were defined and analyzed separately and not brought into connection with each other sufficiently. Although, the traditional economic approach discovered a connection between advertising and audience market – also known as the circulation spiral[14] that was predominantly applied to newspaper markets. The theory of two-sided markets however is continuing and widening the perspective and provides an even more detailed approach for media markets (Dewenter 2006a: 1, Dewenter & Haucap 2009: 36). Through the direct connection of advertising and audience market right from the beginning when analysing the relevant markets it clearly brings interdependencies – respectively indirect network externalities – to light and hence provides new perspectives. The well-known circulation spiral can thus be finally attributed to the existence of these indirect network externalities (Dewenter 2006b: 1).

3.1. The participants on media markets and their intentions

Figure 3 specifies the participants we face on media markets according to the more general figure 2 that has already been introduced in Chapter 2:

14 With the circulation spiral positive effects for both participants – readership and advertising industry – were assumed: An increase in the demand for newspapers (increasing readership) results in an extended circulation of the newspaper. This in turn leads to a price decrease for advertisements (usually measured in cost per thousand (CPT)). Consequently, more advertising companies would demand for advertising space since they are reaching more readers to a lower price. Subsequently increased advertising leads to another increase in the demand for newspapers by the readership. This increase could be caused by two reasons: either, because the readers value advertisements, or because the publishing house has improved the quality (e.g. hiring better journalists) of the newspaper due to additional profits. Depending on the strengths of the effects the spiral goes on (Dewenter 2006a; Dewenter 2003; Heinrich 2001).

Figure 3. Own graph, source Dewenter & Haucap 2009: 38



In media markets the two-sidedness is reflected by the concurrence of *media companies (platform)*, the *audience (market side 1) and the advertising industry (market side 2)*. The audience thereby simultaneously acts as prospective consumers for the advertising industry. Audience and advertising industry are interrelated with each other (Dewenter 2003: 3). However, they follow different goals which have to be harmonised by the media company in order to enable any transactions.

The *audience*[15] *(market side 1)* can be either readers of newspapers, watchers and listeners of television and radio programmes or users of the internet. Their goal is to consume the media content – news, information or entertainment – offered by the media company. Thereby the audience predominantly wants to get access to these programs without any disturbance in the form of advertisements (Anderson & Gabzsewicz 2006: 571). On the other hand we face the *advertising industry*[16] *(market side 2*) meaning companies that advertise in different

15 Also called primary market (Dewenter 2003: 2).

16 Also called secondary market (Dewenter 2003: 2).

types of media in order to promote their products, services or companies. Their final goal is to make and maximize profits through getting consumers to buy their products. By advertising in different media types such as newspaper, TV, radio or the internet, the company aims to reach as many potential consumers as possible which they have defined as their target group in advance. Thus, it is not the primary aim to reach as many people but to identify and catch the *right people* (Dewenter 2003: 17). In order to reach the right target group it is furthermore necessary for the advertising industry to figure out over which media type and within this over which media program this can be accomplished. The third participant is finally *the media company (platform)* which can be a publishing house, a television, a radio or an internet company. It finally provides a medium that is necessary to enable any transaction between both market sides since the media company sells two products – media content to the audience and advertising space to the advertising industry (Anderson & Gabszewicz 2006: 569f.; Ferrando & Gabszewicz 2003: 1). Due to the interdependencies of the audience and the advertising market the platform acts as an intermediary or coordinator (Dewenter 2006a: 2). In order to get both these sides on board the platform brings together the different goals of the advertising and the audience side by appropriately charging them (Rochet & Tirole 2006: 645). It sets a price for the audience (e.g. copy price) and another one for the advertising industry (e.g. advertising price). An interaction between two market sides would occur when the readership (side A) of a newspaper spots the advertisement of a company (side B) and takes it into account when making a purchase decision. In the end it is the platforms overall aim to realize and maximize profits. The profits are finally received from both market sides (Anderson & Gabszewicz 2006: 570, 579; Kaiser & Wright: 2006: 2). However, bringing both market sides together does not seem trivial. Therefore it is essential for the platform to optimally use the indirect network externalities from all sides.

3.2. How indirect network externalities work

As pointed out in the beginning of this chapter, the impact of indirect network externalities in media markets has already been partly described over the circulation spiral for several years (esp. for newspapers). So, how do the indirect network externalities exactly come into effect on media markets and in what way can the media platform optimally use them to enable transactions between the two market sides? On media markets we face two-sided indirect network effects between the audience and the advertising market. Again, these network externalities need to be identified on *both sides*. Thereby it does not matter if the effect is either positive or negative (Anderson & Gabszewicz 2006: 579f.; Ferrando & Gabszewicz 2003: 2, Dewenter 2006b: 2). After predominantly discussing the positive externalities in the previous chapter, we now face a market where both – positive and negative externalities – can and do exist (Dewenter & Haucap 2009: 37; Schmidtke 2006: 5).

The *advertising industry* on the one hand will *exclusively* receive positive indirect network externalities from the audience side (Dewenter 2007: 55). This means that the advertising industry will always benefit from a bigger network size of the audience. As soon as the number of readers (respectively viewers or users) increases, this will have a positive effect on the advertising side and in turn will enlarge their network size as well. The reason lies in the following: the more advertising the audience "consumes" the more likely it is that they will become a potential customer of the advertising companies. For this, the advertising industry is willed to pay (more) money (Crampes et al. 2005: 1). The audience thus influences the utility for the advertising side – not for itself. On the other hand, with what exact type of network externalities we are coping on the *audience side* depends on how the audience views advertising and cannot be answered in a lump sum. If the audience views advertising as something good (e.g. informative or helpful advertisements) they will also benefit from a larger number of (advertising) participants on the opposite side *(positive indirect network externality).* An increase in advertising would result in a bigger audience

as well. An example could be advertising in newspapers; interesting ads could be viewed, uninteresting ones can be easily skipped. However, if the audience regards advertising as a nuisance we would face a *negative indirect network externality*. An increase in advertising would then lead to a decline in the audience size. In other words less advertising would then attract more people. Advertising on television or on the internet, for example, is often associated with negative network effects as it interrupts the actual programme. The audience can avoid it only through switching to another program (Dewenter 2006a: 3f.; Anderson & Gabszewicz 2006: 571.; Ferrando & Gabszewicz 2003: 1f.). The multisidedness of markets or more precise the existence of indirect network externalities has consequences on quantities. The quantities in media markets can be higher than those faced on one-sided markets as long as in total positive indirect network externalities do exist. However, as soon as negative effects dominate on such media market the quantities offered on the markets would be lower than in one-sided markets (Dewenter & Haucap 2009: 37-39).

3.3. Price setting in media markets

3.3.1. Some general implications on price setting in multisided media markets

Regardless of the market structure which will be analyzed in more detail in 3.3.2 initially some general statements about price setting in media markets: take the newspaper market, for example, and assume that for both sides positive indirect network externalities exist. The readers exert high indirect network effects on the advertising market. That is the more readers notice the advertising the more probable they will become potential buyers of the products. This effect is usually stronger then the effect the advertising industry exerts on the readership.[17] A high(er) readership will therefore make advertising more attractive and lead to an increase in the demand for advertising space and thus to high

17 However, since we assume positive network externalities on both sides, also the readers profit from advertising (e.g. through getting product information) that helps them to make purchase decisions.

revenues for the platform. In order to get a bigger readership the media company has to make the newspaper attractive – one possible action is to set attractive, respectively low(er), prices. These prices could be even below marginal costs which are then balanced through higher prices on the advertising side. As the indirect network externalities of the advertising side do not have such a strong impact on the reader side price changes or higher price setting is more attractive on the advertising side. Even if advertisers change their behaviour (e.g. less demand due to a price increase) this will not cause a significant damage to the readership. The advertising industry will usually bear higher prices since they profit anyway. When the readers pay quite low prices this will result in a bigger readership which in turn is useful for the advertising side because of the ability to reach more potential customers (Dewenter 2006a: 3-5; Rochet & Tirole 2003: 1015). Depending on the strengths of positive externalities the advertising side exerts on the reader side there will be a feedback effect. That is more advertising will attract more readers, which in turn result in another positive effect on the advertising side. When considering the television market the indirect network effects however can be both, positive and negative. Whereas the viewers exert the familiar positive effect on the advertising industry the advertising industry can exert a positive or a negative effect on the viewers. Advertisements disturb the viewers from watching the TV programme without any interruption and hence are often seen as a nuisance (Anderson & Gabszewicz 2006: 571, 586). As soon as a media company faces this situation it will set eminently high prices on the advertising side in order to outbalance the negative effects for the viewer side (Dewenter 2006a: 5).[18]

To conclude, when a media company is setting prices or considering price changes it is not enough to focus on price elasticities of demand, marginal costs and market structures exclusively. Instead it is especially the indirect network externalities the company must always cope with. It needs to have a solid knowledge of their strengths and relations (Dewenter & Haucap 2009: 38). This

18 Like in any other multisided market also platforms on media markets will always take advantage of the positive externalities and try to avoid the negative ones (Evans & Schmalensee 2007: 163).

means the platform has to anticipate what effect a price change on one side will have on the other side. Rising prices only makes sense as long as the utility outbalances a possible resulting damage. Due to this, a price should only be increased on the market that exerts fewer or lower (positive) indirect network externalities than the other market side. Hence, media companies usually set low prices on the audience side (Dewenter 2006a: 4f.). Oftentimes, this results in cross-subsidization which we mainly face in media markets. In the newspaper market, for example, the readership is subsidized. Profits come mainly from the advertising side; in doing so the advertising industry is subsidizing the copy price of the readership (Kaiser & Wright 2006: 23; Rochet & Tirole 2003: 1015). As it was already pointed out in section 2.5.1 the existence of indirect network effects can go to such lengths that prices on one side will be zero whereas the other side has to take the whole price burden. In media markets this would, for example, apply to gratis newspapers.

3.3.2. Price setting in different market structures

However, when dealing with price setting and its effects on multisided media markets we have to make a distinction between (more) monopolistic and competitive (mainly oligopolistic) markets. Market structure is quite an interesting issue in media markets. These markets are characterized by high fixed costs respectively sunk costs and large economies of scale. Additionally, the indirect network externalities play an important role. All parameters result in high barriers of entry and cause many media markets to be quite concentrated. This in turn concerns the antitrust policies because of possible anti-competitive behavior (Dewenter 2003: 19; Dewenter 2007: 53; Evans 2004: 266f.).

We already learned that as soon as we face a *monopolistic market structure*[19] the media company logically consistent does not have to consider competition effects but can exclusively focus on the indirect network externalities. The mo-

19 A monopolistic structure is predominantly faced on regional newspaper markets (Dewenter & Haucap 2009: 40).

nopolist will use high (positive) indirect network effects from one side (usually the readership) to lower the prices on this side. In turn, prices on the market with lower (or even negative) externalities (i.e. the advertising industry) will be higher (Dewenter & Haucap 2009: 40). Take the newspaper market, for example. The publishing house will focus on the externalities exclusively. When the circulation (in other words the audience) exerts a strong impact on the advertising side the latter ones value the quantity of readers. Thus, the publishing house would set high(er) prices for advertising space. The readership in contrast will be charged a quite low or even negative price and consequently will be subsidized by the advertising side. Through using the interdependencies of advertising- and audience market– a monopolistic media company can maximize its profits (Dewenter 2006b: 5-8; 13). However, on an *oligopolistic media market* the media companies have to additionally consider competition effects. The firms are now facing competition regarding prices and quantities. Hence, the resulting quantities of each single media firm will be lower than in a monopolistic market whereas the total quantity (of all competitors together) in such an environment will be higher. Competition usually leads to a price decrease. However, with competition each single media company cannot internalize the network externalities to the same extent that a monopolistic media company is able to do. Consequently, prices on oligopolistic media markets could be even higher than in a monopolistic structure (Dewenter & Haucap 2009: 41). Nevertheless, analyzing different market structures is a complex task. As long as not every market parameter is thoroughly known, a final evaluation of prices is neither possible nor advisable.

3.3.3. Price setting and its effects on social welfare

What consequences does the price setting of the media company have on social welfare? The above mentioned concentration tendencies in media markets due to high sunk costs and large economies of scale make this analysis an essential but no trivial task for antitrust authorities. As it was already pointed out in the previous chapter (see 2.5.2) there are two effects in media markets that appear

and lead to opposite directions: the *competition effect* and the *market extension effect*. Thus, in the same way as with price setting, all relevant market parameters have to be well known and analyzed carefully before making a statement on social welfare. This means that pricing the audience side little whereas the prices on the advertising side are set higher does not automatically imply less social welfare. High prices (e.g. above marginal costs) or profits are neither a given sign for market power nor do extremely low prices (e.g. below marginal costs) automatically imply predatory pricing. Rather these prices and profits are connected with the peculiarities of media markets. These are predominantly indirect network externalities as well as high fixed costs. Again it is indispensable to consider both market sides and their interdependencies before coming to a conclusion on social welfare. In the majority of cases it is one media market side that subsidizes the opposite media market side. This in turn means that a monopolistic structure (on one side) or at least market structures with little competition can be efficient and probably lead to more social welfare than media markets with perfect competition (Dewenter 2003: 18; Dewenter 2006b: 13f.; Dewenter & Haucap 2009: 44f.; Evans 2004: 266f.).

3.4. Multihoming in media markets

As we have learned in the previous chapter multihoming occurs as soon as one market side adapt to more than one platform. This is faced in the majority of cases in media markets. The advertising industry almost always multihomes. By doing so the companies try to maximize their media coverage, i.e. try to reach as many (potential) customers as possible. On the one hand multihoming can occur within the same media type (e.g. advertising in different newspapers). On the other hand the companies can also multihome among different media types (e.g. advertising in newspapers, television, and internet). The audience can also multihome. This is the case if some consumers read different newspapers or watch different TV channels.

Multihoming intensifies competition for the media platform. As soon as both market sides multihome any market side can easily switch to other platforms. Hence, prices could be lower since the media platforms encounter competitive pressure when setting prices. On the other hand, as soon as only one side multihomes (e.g. advertisers) the prices on the opposite side (e.g. audience) could increase (Dewenter & Haucap 2009: 42; Wotton 2007: 238f.).

4. Strengths of the theory and open research questions

4.1. New perspectives and insights with the theory of multisided markets

It was shown in the previous chapters that multisided markets clearly differ from one-sided markets. One of the most relevant differences is the existence of indirect network externalities between distinct customer groups that evidently affect the opposite market side. Thus, the interdependencies of multiple market sides matter (Dewenter 2006a: 2). Since more and more industries were identified to be multisided in recent years a whole theory of multisided markets emerged. As already mentioned before, it provides a better understanding of multisided markets and opens new perspectives and insights. By showing that multiple sides matter it becomes clear that it is not sufficient to determine one side exclusively when analyzing markets, such as the credit card market or media markets. In all cases we face at least three participants – namely the platform and at least two distinct but interdependent market sides. The theory shows that the interaction of these participants takes place through the platform – who is acting as a coordinator bringing together all market sides by reducing their transaction costs. In other words the platform internalizes the existing indirect network externalities among the market sides; something the two (respectively multiple) sides were not able to handle on their own. With this knowledge, the theory provides a better understanding of the platform's behaviour – more precisely understanding its pricing, production, and investment strategies. These in turn are crucial parameters for antitrust authorities when coping with the evaluation of markets and possible competition constraints. Applying con-

ventional antitrust policies that are used in traditional one-sided markets for a multisided market would lead to wrong conclusions (Evans 2004: 241, 268, 294).

In multisided markets we cope with *prices and quantities* that clearly differ from those in one-sided markets – due to the existence of indirect network externalities (Dewenter 2006a: 5, Dewenter 2005: 55). Platforms on multisided markets have to serve multiple distinct but interdependent market sides. The term "getting both sides" on board means that both sides are necessary to generate demand and hence profit at all. However, often one side need to be attracted more than the other side. This is the case as soon as one side exerts a stronger network effect on the opposite side (Evans 2004: 246). Take the media market, for example. In the majority of media markets the audience is subsidized by the advertising market. Due to stronger positive indirect network externalities that the readership of a newspaper, for example, exerts on the advertising side the former one will be charged less. Thus, a platform will usually set low prices (or even no price) on the market side that exerts stronger (positive) network effects on both market sides and set higher prices on the opposite side *(cross-subsidization).* By doing so, the indirect network effects can be used optimally (Dewenter 2006b: 3, Dewenter & Haucap 2009: 40, 45). This in turn means that the optimal price for a platform on one side does not follow marginal costs. Instead it is the second side that needs to be taken into consideration simultaneously (Evans 2004: 238). Figure 4 shows more examples that clearly state that in multisided markets almost always one side is charged less than the other side.

For antitrust authorities this implies that it is not possible to draw conclusions from price setting *on one side* to the degree of competition or the competitive behaviour. That means price setting or price changes on one side of the market cannot be evaluated in isolation. Instead, the parameters on all market sides have to be considered since the sides are intertwined. As we have learned in section 2.2 it is the price structure that matters. Hence, setting prices on one

side below marginal costs is not a given sign to predatory pricing. Instead, those prices might be set to attract, respectively get profits, from the opposite side. On the other hand setting the price on the opposite side above marginal costs does not automatically imply market power. The reason instead might be originated in low indirect network externalities this side exerts on the opposite side. Thus, indirect network externalities lead to the consequences that price equal marginal cost does not create optimal social welfare on multisided markets. Consequently, resulting interventions known from traditional one-sided markets do not seem justified in multisided markets. Instead, when evaluating the platform's pricing strategies the antitrust authorities have to consider *all market sides*. In addition to this, inside each market a careful analysis of the parameters demand elasticities, market and cost structures, and especially of the indirect network effects is essential (Dewenter 2006a: 6f.; Dewenter & Haucap 2009: 45-47; Evans 2004: 267-271, 280).

Figure 4. Own graph, source Evans 2004: 247f.

Industry	Two-sided platform	Side One	Side Two	Side that gets charged little
Real Estate	Residential Property Brokerage	Buyer	Seller	Side One
Media	Newspapers and Magazines	Reader	Advertiser	Side One
Software	Operating System	Application User	Application Developer	Side Two
Payment Card System	Credit Card	Cardholder	Merchant	Side One

Since it was pointed out, that pricing strategies in multisided markets differ and that prices above marginal costs are not automatically a given sign for market power this section will have a closer look at market power. It is closely connected with the evaluation of market structures (see paragraph below). With regard to market power identifying possible barriers to entry is quite helpful. In the majority of multisided markets, platforms face high fixed costs. Take media markets, for example. Very often media markets hold high sunk costs and/or large economies of scale. Consequently, building up critical mass is important. However, in multisided markets this critical mass is essential for all participated sides. This in turn can lead to high barriers to entry. However, high barriers are not a given sign for market power. First of all the potential market entry is important. Secondly, antitrust authorities have to examine the total price in multisided markets when examining possible market power. That means *all sides* have to be taken into account since pricing power for one side depends on the competition on all sides.[20] In addition to this, the total returns and total investments have to be carefully considered as well (Dewenter 2003: 19; Evans: 2003: 266f., 271-279.; Evans & Schmalensee 2007: 165).

Furthermore, the *evaluation of market structures* and hence the effects on social welfare in multisided markets clearly differ from those in one-sided markets. The theory points out that in a monopolistic structure the monopolist can probably better internalize the indirect network effects than many companies in a competitive environment. This would in turn mean that social welfare could probably be higher in a monopolistic market than in a competitive one (Dewenter 2006a: 5f.). Would this possibly even favour monopolistic market structures in multisided markets? Therefore analysing social welfare and the coexisting effects *market extension effect* and the *competition effect* which lead in opposite directions play a crucial role (see 2.5.2). The answer depends on which effect outbalances the other one and cannot be answered in a lump sum (Dewenter & Haucap 2009: 44). According to Evans (2003) analysing social

20 According to Rochet & Tirole this would mean that multihoming on one market side would intensify price competition on the opposite side (Evans 2004: 271).

welfare in multisided markets always has to consider the aspects price level, price structure as well as possible alternatives to get every side on board.

In order to identify market structures *defining the relevant market* plays an important role. Antitrust authorities need the market definition to identify possible anti-competitive conduct and to evaluate mergers and acquisitions (Evans 2004: 268). The theory of multisided markets shows that the definition of the relevant market clearly differs from those in one-sided markets. Despite the interdependencies of the multiple market sides it is essential to define each relevant market (side) separately. This is no trivial task as the markets do not necessarily have to be symmetric (Dewenter & Kaiser 2006b: 348). In the majority of cases the relevant competitors on one side of the market clearly differ from those on the opposite side. Take the media markets for example: When analysing what a reader would substitute for his given newspaper, the most important criteria would be content or political position. When coping with possible substitutes for the advertising industry on the other hand socio-demographical criteria would dominate (Dewenter 2006a: 6; Dewenter & Haucap 2009: 43). Section 4.2.1 will cope with the arising problems of defining the relevant market.

4.2. Open research questions and the concluding need for progressions

Even though the theory provides a helpful instrument to describe and understand multisided markets there are still problems and obstacles left making an easy appliance of the theory not yet possible. This section now draws attention to some of those aspects the theory brought to light, but up till now actually cannot solve in general. These aspects all result in difficulties and problems for antitrust authorities when coping with multisided markets. More precise problems could occur when determining possible anti-competitive behaviour or evaluating mergers and acquisitions in multisided markets.

4.2.1. Definition of the relevant markets

The first problem arises with the *definition of the relevant markets.* Defining the relevant market plays an essential role for antitrust authorities regarding merger evaluations and the examination of anti-competitive behaviour. The established approach of antitrust authorities is to initially define a market and subsequently evaluate concentration tendencies. A merger is said to be harmful as soon as market concentration will substantially increase as a result from that merger. Thus, market shares play an important role in the evaluation (Farrell & Shapiro 2008: 3). However, it seems quite complex to define the relevant market in multisided markets. In any case, those markets demand for a definition of the relevant competitors for *all participated markets*. However, these multiple market sides do not necessarily need to have the same competitors – seldom are the relevant markets symmetric. On media markets (see also 4.1) the relevant market for the primary market (audience market) differs from the relevant market identified on the secondary market (advertising market). Therefore, the relevant markets have to be defined separately (Dewenter & Haucap 2009: 43f.; Dewenter 2003: 4). If markets are defined according to standard techniques (i.e. *SSNIP*)[21] this will result in several *separate* markets. This could create a tendency to neglect or underestimate the interdependencies between the two market sides (Hesse 2007: 192f.).[22] This might in turn mislead antitrust authorities when evaluating pricing strategies. At first glance price setting on the audience side of media markets is often associated with predatory pricing. However, this price strategy might be assessed to be pro-competitive as soon as the advertising side is considered – due to the existence of indirect network externalities (Just 2009: 106). In merger cases the traditional market definition approach might lead to a classification of cross-media mergers as conglomerate mergers. This causes some prejudice about likely effects. Due to the multisided character the effects of the merger might be essentially horizontal instead of conglomer-

21 SSNIP: **S**mall but **S**ignificant and **N**on-transitory **I**ncrease in **P**rice.

22 By neglecting the interdependencies of the market sides the antitrust authorities might for example come to the conclusion of over-estimating market power on one of these sides (Holland 2007: 14f.).

ate (Budzinski 2009b: 3). These described aspects were the results of a static definition of markets. However, markets are usually not static but characterized by high dynamics (e.g. convergence of the media) (Just 2009: 106, 108f.). This in turn means that it is not enough to define the relevant markets of each industry once. Simultaneously, the antitrust authorities must never ignore the interdependencies of the market sides as they in turn influence the platform's behaviour. Bringing together all these factors does not seem a trivial task for antitrust authorities but has to be done thoroughly in order to not draw wrong conclusions (Evans 2004: 268-271).

Therefore, the question needs to be raised if market definition is actually helpful to evaluate anti-competitive behaviour and mergers in multisided markets. The peculiarities of multisided markets tend to support approaches like such of Farrell & Shapiro (2008). Those two authors question if market definition is still the right instrument for antitrust policy when facing markets with differentiated products. Thus, Farrell and Shapiro move away from the market definition approach and instead head towards a direct analysis of competition effects.[23] Evaluating mergers on multisided markets only according to the market definition approach might lead to wrong conclusions as well – due to the special characteristics on those markets. It was already stated that a platform usually charges both sides differently and that pricing does not follow marginal costs. If, due to a merger of two multisided platforms one market side (e.g. advertising market) experiences price increases this does not automatically have to be harmful. Instead, the other market side (audience side) has to be carefully evaluated as well. As a result, it might be insufficient to concentrate on the pure market definition approach in multisided markets. Considering Farrell's and Shapiro's approach might be a helpful extension.

23 For a detailed description of this approach please refer to Farrell & Shapiro (2008).

4.2.2. Measuring indirect network externalities

The second problematic issue is the difficulty of measurement. It is no trivial task to determine *the exact strengths and relations of the indirect network externalities*. These externalities have a great influence on price and quantity setting of the platform and also play an important role with regard to the evaluation of antitrust matters. However, they are quite complex to identify (Evans & Schmalensee 2007: 159; Evans 2004: 257f., 286f., Dewenter & Haucap 2009: 47). Anyhow, it would be helpful to have some methods of measurements. The first suggestion is to theoretically split the interdependent markets and try to assume which prices would be set on each side if both markets where independent. By comparing these prices with the actual prices set by the multisided platform it could at least give an idea which market side exerts a stronger externality on the opposite side. Since more industries are said to be multisided a comparison of different industries might be another helpful approach. This might be done by trying to observe similarities between industries. Then, the known strengths and relation of the indirect network externalities in one industry could be (partly) applied to another one. However, this assumes that network externalities and its strengths and relations are already well-known on at least some markets. Another approach could be to compare and look for similarities within the industries over a specific period of time. Platforms in one industry usually have to cope with the same network effects. It could be helpful to draw conclusions on the network externalities and their strengths and relations by comparing the price setting of various platforms in this industry over time. Did price changes occur? If so, how was the price changed on each side, and what effects did this have on the network size of agents on both sides. The question is if network externalities can even be estimated by looking at the “cross quantity elasticity”? In other words, what change in quantity demanded will result on market side A as soon as the price on market side B is changed? However, if analyzing these elasticities could be a helpful approach to identify the network externalities then it is essential to determine which data would be necessary to collect.

However, network externalities are not the only parameter. Furthermore, in order to make a statement regarding the competitive environment and possible competition constraints it is not sufficient to use simple pricing data. Otherwise, pricing strategies of a platform cannot be understood and judged accurately. In addition to the network effects it is the solid knowledge of aspects such as demand elasticities, cost structures, and the market structures that play a crucial role as it was emphasized in previous parts of this paper. Moreover, this solid knowledge has to be gained for *all market sides*. The interdependencies of the markets *always* have to be considered. Analysing all those aspects however demand for a thorough and time-consuming empirical analysis (Dewenter 2006a: 6f.; Evans 2004: 269).

4.2.3. Lack of general conclusions for antitrust policy

A third possible problem we are currently facing in multisided markets is the lack of general conclusions. The same as in one-sided markets we also have to cope with competition concerns in multisided markets (Holland 2007: 12f.). However, it was already pointed out that – due to the peculiarities of multisided markets – the hitherto antitrust policies known from one-sided markets would draw wrong conclusions. Even though the theory of multisided markets provides helpful implications that need to be considered by the antitrust authorities it just gives guidance. The theory does not provide general conclusions and statements yet. Neither regarding price setting, market power, predatory pricing nor social welfare. This is especially due to the fact that the indirect network externalities, how they come into effect and the strengths and relations cannot be judged in a lump sum – sometimes the effects are positive, sometimes they are negative,[24] sometimes they are stronger, other times weaker (Dewenter & Haucap 2009: 68f.; Dewenter & Kaiser 2006a: 21f.). Hence, the antitrust authorities have to analyze each case individually and need to have a solid knowledge of all relevant market parameters before coming to a conclusion (Evans

24 This is especially true for media markets and the influence of advertising on the audience (Dewenter & Haucap 2009: 68f.).

2004: 239-241, 294; Evans & Schmalensee 2007: 159; Dewenter & Haucap 2009: 44-49, 68f.). The lack of general conclusions could be problematic in two ways. First of all analyzing each case individually is extremely time-consuming and furthermore causes high costs. The antitrust authorities have to determine every single case before drawing a conclusion. Since meanwhile more and more industries are said to be multisided this might result in a capacity overload of the antitrust authorities. This in turn could have the following effects: either the cases are not analyzed thoroughly enough which might draw wrong conclusions. Or some evaluation of mergers might be postponed which causes a delay in mergers – thus also for those that might have positive effects on the economy. Secondly, it seems quite complex to have a solid knowledge of all relevant parameters. Usually the parameters are not static but do change over the time. This again goes closely together with the time problem antitrust authorities do face. In order to gain a solid knowledge the merger analysis in multisided markets needs to be done thoroughly on the one hand; this requires time. On the other hand the evaluation has to be done as fast as possible in order to not have a change in any of the already analyzed parameters. General conclusions regarding antitrust policies in multisided markets would overcome these problems. However, is it even possible to establish general conclusions in multisided markets?

According to Hayek competition is a discovery procedure (Hayek 1978; Kerber 2003; Schmidtchen & Kirstein 2001). Every participant in the market faces knowledge problems due to the lack of perfect information. However, these problems can be solved with the help of competition. Competition thereby represents a trial-and-error-process with what the optimal results will be observed. If this is the case how shall antitrust authorities handle competition issues? To which extent do we need general rules without taking the risk of limiting optimal results? Hence, the relevant question is if we need general conclusions in the way of *per se rules* or if it is instead the *rule of reason* approach that represents the right instrument for antitrust authorities to evaluate competition on multisided markets. Or is it possibly even something in between those

two approaches? In general the US and the EU antitrust policies tend to stick more to the rule of reasons instead of the per se rules throughout the last years (Christiansen & Kerber 2006: 216). There are certainly advantages as well as disadvantages with both approaches which are shortly pointed out in the following.[25] The *rule of reason approach* tends to analyze each case individually whereas the *per se rules approach* sets up rules for antitrust authorities that they follow when evaluating competition issues. The advantage of the latter one is that antitrust authorities have a guideline they can stick to and costs as well as resources (time, personnel) are reduced. However, antitrust authorities simultaneously take the risk to draw wrong conclusions due to the knowledge problem. In addition to this, a plain per se rule does not consider any individual effects at all (Christiansen & Kerber 2006: 221). The rule of reason approach on the other hand reduces or even avoids the risk of drawing wrong conclusions since every case is individually and thoroughly analyzed. However, this implies the need for enormous costs and resources. To conclude, both approaches have its pros and cons; therefore it could be helpful to combine them. Christiansen & Kerber (2006) suggest a competition policy with optimally differentiated rules. That is having a certain set of rules which are applied but additionally leaving space for case specific analyses in order to do justice for the differentiation of individual cases.[26] This solution has two advantages. On the one hand it considers differences and complexity – missing when applying only per se rules. On the other hand it limits the time and costs spent for purely single case analysis (Christiansen & Kerber: 220-222, 239f.).

This approach could be also suitable for antitrust authorities when evaluating competition issues on multisided markets. By doing so the above mentioned problems faced with solely single case interpretation – especially time and costs – could be overcome by having a certain set of general rules. In addition to this, the complexity of multisided markets – especially the differences in strengths

25 For a more detailed presentation please refer to Christiansen & Kerber (2006).

26 Case specific analyses is thereby justified as long as the marginal benefits of doing so outweigh the marginal costs (Christiansen & Kerber 2006: 237).

and relations of indirect network externalities (see section 4.2.2) – would be taken into account as well since antitrust authorities could additionally focus on an individual case analysis where necessary. This seems to be quite important since even within multisided markets the exact structures and characteristics can differ from each other significantly. However, for applying this approach, especially in order to establish a certain set of rules (i.e. guidelines) further research on multisided markets will be indispensable.

4.2.4. Competition effects on the diversity of opinion in media markets

Finally we are coping with another problem particularly occurring on media markets. It was already pointed out that media markets are typically characterized by high sunk costs, large economies of scale as well as strong indirect network externalities – aspects that lead to concentration tendencies on those markets (Dewenter 2003: 18f.). Furthermore there were many cases regarding mergers that the antitrust policies had to evaluate in recent years.[27] This concerns the national antitrust authorities as well as the European antitrust authorities, i.e. the European Commission.[28] However, when evaluating mergers in media markets it is not only the impact on social welfare and competition that has to be evaluated. In the introduction of this paper it was stated that media can impart knowledge and can shape public opinion (Anderson & Gabszewicz 2006: 569). Therefore, the media fulfils a dual function. As Just (2009: 98) puts it: "Media products and services are simultaneously economic and cultural goods [...]." This fact concerns antitrust authorities when coping with the

27 Two examples were: 1) In Germany the intended merger of Springer-ProSiebenSat1 that was finally prohibited by the *Bundeskartellamt* (Budzinski & Wacker 2007). 2) In Italy the proposed and by the European Commission finally permitted merger – even though with several regulatory requirements – of Telepiù and Stream (Budzinski 2009a: 337-361).

28 Especially in media markets both, the national antitrust laws and the European antitrust laws hold (Budzinski 2009a; Beck & Wentzel 2009). However, the competence thereby should be non-competing. Usually the European Commission is in charge as soon as the merger becomes important for the European Union. For a more detailed explanation of this term and the conditions see Budzinski 2009a: 339-341.

evaluation of mergers. More precisely, we face two kinds of competition on media markets: economic competition (regarding the market structure) on the one hand and competition on the diversity of opinion (journalistic pluralism and diversity) on the other hand. Therefore, the authorities need to cope with the consequences a merger has on the diversity of media and additionally the diversity of opinion.[29] Not surprisingly a broad literature has occurred in recent years coping with this issue. However, it is still an open research question how economic competition and diversity of opinion are concretely connected with each other. Nevertheless, it needs to be taken into account for the analysis of media markets very thoroughly. Regarding the diversity of opinion (journalistic pluralism) it is the overall aim that media represent the majority of opinions people have in the society (Budzinski 2009a: 341f.). Hence, the question arises which market structure will lead to more diversity of opinion? Is it competition that leads to a greater diversity or a monopolistic structure? Closely connected to this is the issue of media bias and the question if competition or concentration tendencies lead to more biased media coverage (Dewenter & Haucap 2009: 49f.). Opinions clearly differ. This will be pointed out by presenting some recent literature:[30]

29 The primal objective of the merger control by the European Commission is to mainly focus on the resulting effects on (economic) competition and its changing structure and that the media pluralism effects should be the task of the member states (e.g. in Germany the *KEK* (Kommission zur Ermittlung der Konzentration im Medienbereich), a regulatory agency that is in charge of ensuring diversity of opinion in German national broadcasting) (Just 2009: 99f., 110; Dewenter 2007: 48). However, in the 1990s the EU argued that the antitrust authorities should take a pro-active role regarding the protection of the journalistic pluralism when evaluating mergers (Budzinski 2009a: 346). Nowadays it seems quite different to what extent the antitrust authorities integrate this issues when evaluating merger cases. In some cases – even though it was not argued with that explicitly – the resulting impact a merger could have on the journalistic diversity supposedly have played some role. An example would be the case of Springer-ProSiebenSat1 that was prohibited by the Bundeskartellamt – the national antitrust authority in Germany (Budzinski & Wacker 2007). In other cases the consequences of a merger on the journalistic diversity did not seem to have played an essential role – which would be valid for example in the Telepiù case that was evaluated by the European Commission (Budzinski 2009a: 337-361).

30 For a detailed overview please refer to the original literature of the mentioned authors.

Mullainathan & Shleifer (2005) differentiate between homogeneous and heterogeneous consumers regarding their preferences of (un)biased news coverage. They bring this into connection with the media companies' strategies of producing media bias in different market structures. The authors argue that a monopolist has fewer intentions to produce media bias. Hence, according to them reducing economic competition has a positive effect on the diversity of opinion. Burke (2008) says that as long as consumers have preferences for biased ('belief confirming') information more competition leads to more media bias. However, this in turn leads to more social welfare due to a greater preferred offer. Xiang & Sarvary (2006) argue that competition is helpful for consumers. The stronger (compared to a monopolistic situation) media bias in a competitive environment acts as a signal and finally leads to more true information as in a monopolistic situation. Gentkow & Shapiro (2005) and Anderson & McLaren (2007) assume information asymmetries for the consumers meaning that consumers cannot clearly identify information to be true or false. Less competition reinforces this effect that finally leads to more market power of opinion. Corneo (2006) and Anderson & McLaren (2007) give up the assumption that media companies strictly aim for maximizing profits. Instead, the utility function of media companies also includes political and social goals. Hence, growing economic market power will result in growing (journalistic) power of opinion. The degree depends on how much consumers are influenced by a monopolistic media bias. According to Dewenter (2007) the existence of political and/or social goals in private companies is plausible, however, in corporate entities (especially when coping with widespread shareholdings) to a lesser extent. This is due to a trade-off between political or social goals and economic goals. Assuming that there are several stockholders with small shares the economic goals would dominate. This is because economic goals are more agreeable than political or social ones. However, in this case we might face a principal agent problem between shareholders and managers. Baron (2006) and Bernhardt et al. (2008) argue that the trade-off between economic and social or political goals is not automatically given. Instead media bias could even be a profit maximizing

strategy. At last according to DellaVigna & Kaplan (2007) empirical analyses state that there is a significant influence of media bias on consumer preferences.

This short overview of diverse opinions regarding media bias and diversity of opinion clearly show that this is still an open issue in media markets. It needs and surely will be further analyzed in the future. Moreover, the economic literature on media bias and the theory of multisided markets have not yet been combined. This means, up to now these two theories are used and applied only separately. However, a combination of these two approaches might lead to further interesting insights. For doing so, additional research is again indispensable.

5. Conclusion

The theory of multisided markets became quite popular in recent years. It has initially been used to explain the work of credit card markets. However, meanwhile more and more industries have been identified to be multisided – media markets as well. Multisided markets face at least two market sides and a platform. The former ones are distinct but interdependent which can be attributed to the existence of indirect network externalities. The platform in contrast acts as a coordinator that is bringing both sides together while optimally using these indirect network externalities.

The theory of multisided markets identifies the main differences to traditional one-sided markets and thus provides helpful perspectives and insights in understanding these kinds of markets. Those peculiarities especially have to be considered by the antitrust authorities as the hitherto existing antitrust policy known from one-sided markets cannot be applied to multisided markets. With regards to media markets the emerged theory provides a better understanding as to why advertising markets are mostly charged quite a high advertising price whereas the audience is charged little. Thereby it reveals that this is neither a given sign for market power nor for predatory pricing.

However, there are still open issues left which demand further research. This is especially given for the evaluation of antitrust matters. Up to now, the theory can only give guidance on how to deal with such issues in multisided markets. However, the final evaluation of antitrust cases still has to be done through thorough analyses of each individual case. This is among other things the case for defining the relevant markets or identifying the strengths and relations of indirect network externalities. With special regard to media markets it is still an open research question on how to combine economic competition and the competition on diversity of opinion. Up to now the two economic theory strings – the theory of multisided markets and the theory of media bias – do not yet embrace each other. Hence, there surely will be further works on multisided markets in the near future. They will on the one hand identify more industries to be multisided. On the other hand they will try to further develop the theory of multisided markets to solve the above mentioned open issues.

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