

# Effective Competition:

## The importance and relevance for network industries

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### Introduction

Establishing effective competition is a core objective of European regulatory policy for network industries. The intention to establish effective competition is written down and holds a prominent position in telecoms, in railway, as well as in energy legislation. For example, Viviane Reding, former European Commissioner for Information Society and Media, stated with respect to the telecommunications sector that “effective competition is the key for current and future success.”<sup>1</sup> Neelie Kroes, former European Commissioner for Competition, declared that “[s]olutions which will deliver effective competition are long overdue” in the energy market.<sup>2</sup> It is all the more surprising that effective competition lacks a clear definition. This raises two problems: First, it is not possible to judge whether the policy pursued is successful, i.e. there is no benchmark for effective competition. Second, whether a network industry should (still) be regulated ex-ante or be subject to competition law depends on whether competition in the respective market is effective. Without a clear definition, a decision on sunset legislation is hard to make.

This paper discusses the meaning and importance of the concept of effective competition for network industries. To do this, we proceed in four steps. First, we analyse what the various legal

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<sup>1</sup> Cf. V. Reding: The EU Telecoms Reform 2007: Better, more consistent rules for effective competition and sustainable investment, SPEECH/07/765, 28.11.2007.

<sup>2</sup> Cf. N. Kroes: Improving competition in European energy markets through effective unbundling, SPEECH/07/574, 28.09.2007.

frameworks have to say about effective competition. We complement this by a review of what economic theory tells us. Here we highlight the dynamic aspects of competition and the importance of potential competition for the assessment of competition. We also underline that even a market with few players may be competitive.

Second, determining whether competition in a market is effective requires the definition of the relevant market in the first place. Regulators often seem to base their market definitions in network industries on technological rather than economic considerations. However, the relevant market might well exceed the more narrowly and technologically defined industries: e.g. consumers might consider private car transport as close substitute to long-haul passenger rail services, and the high-speed internet market might comprise DSL and cable providers. Accordingly, we present the advantages and pitfalls of the SSNIP test, the work horse for market definition in antitrust cases, when applied to regulated industries in Section 3. We especially point out that the competitive price level may be hard to find if the market or part of it are regulated. Third, in Section 4, we present examples from the telecoms and the railway industry on how regulators and advisory bodies actually evaluate the intensity of competition. In the case of telecoms industry, we present the Three-Criteria-Test (TCT). In case of the railway industry, we find that competition is still generally assessed by considering market shares of competing rail companies. Intermodal competition is often neglected although it might play a crucial role. Finally, we propose a conceptual framework for assessing effective competition in network industries in Section 5. Apart from the importance of market definition and the correct identification of essential facilities, we emphasize dynamic effects and potential pitfalls of the regulatory process.

## **Economic concepts and legal importance of effective competition**

### ***Effective competition in the legal framework***

The concept of effective competition plays a prominent role in European and national law. The New Regulatory Framework for the telecoms sector states that effective competition can best be promoted through an efficient level of investment in infrastructure.<sup>3</sup> Furthermore, a lack of effective competition is defined as the ability of an operator to sustain prices at an excessively high level.<sup>4</sup> In

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<sup>3</sup> Cf. COM 2009/140/EC, recital 54.

<sup>4</sup> Cf. *ibid* (Article 2, amendment 9).

the German Telecommunications Act (TKG), effective competition is defined as the absence of significant market power.<sup>5</sup>

Introducing competition into the railway market is a key objective of the EU 1996 White Paper.<sup>6</sup> German railway legislation states that competition should be effective and undistorted.<sup>7</sup> Effective competition is interpreted as having several railway companies in the market that actually compete, whereas undistorted competition is defined as non-discriminatory access to infrastructure and absence of cross-subsidisation within the incumbent company.<sup>8</sup>

In the energy sector, effective competition is equally desired. This shall be reached through non-discriminatory, transparent, and fairly priced network access.<sup>9</sup> For example, transit fees for long-distance gas pipelines are exempt from ex-ante regulation if they are subject to effective competition.<sup>10</sup>

In Section 4 we give some examples on how regulators and advisory bodies implement and interpret, respectively, these legal provisions. This occurs in the light of economic notions of the concept, to which we turn next.

### ***Effective competition in economic theory***

In economic theory, there is no single concept that defines effective competition. Therefore, it is helpful to consider some ideas from oligopoly theory which may provide insights that help shape a concept of effective competition. With respect to competition in network industries, two aspects appear especially important: market power and potential competition.

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<sup>5</sup> Cf. TKG 2004 (3(31)). Note that the European Commission in the beginning of the telecoms liberalization considered an operator with a market share greater than 25 percent as exerting significant market power (see Interconnection Directive 97/33/EC).

<sup>6</sup> Cf. European Commission: White Paper – A Strategy for Revitalising the Community's Railways, COM (96) 421 final.

<sup>7</sup> Cf. AEG (1(1)). In original terms „wirksam und unverfälscht“.

<sup>8</sup> Cf. Beck AEG Kommentar/ S. Gerstner: §9, recital 9et seq., in G. Hermes, D. Sellner: Beck'scher AEG Kommentar, 2006, C.H. Beck. For a similar definition of undistorted competition cf. also Monopolkommission (2007): Die Privatisierung der Deutsche Bahn AG – Wettbewerbs- und Regulierungsversuche im Eisenbahnverkehr, Baden-Baden 2007, Nomos.

<sup>9</sup> Cf. European Commission: Directive 2003/54/EC, recital 6; European Commission: Directive 2003/55/EC.

<sup>10</sup> Cf. Gasnetzentgeltverordnung (GasNEV). See Haus: Effective competition & the essential facilities doctrine, in: #####Intereconomics, Vol # (#), 2010, p.#. for a more thorough discussion of this aspect.

The concept of workable competition introduced by Clark<sup>11</sup> explicitly takes market power into account and constitutes the basis for what is termed today effective competition in economic theory and law. Clark found market imperfections like product heterogeneity, intransparency, time-lags etc. to be indispensable for economic progress.<sup>12</sup> These market imperfections are necessary to make competition workable. This is also the "Austrian perspective".<sup>13</sup> Following this approach, the major aim of regulation is not to eliminate all excess profits, but to let competing companies the freedom to discover more efficient ways of production and to find out what customers want. This dynamic approach allows a better accounting for dynamic developments in the industry like product innovation and cost reduction than a static one.

Potential competition is also relevant in network industries.<sup>14</sup> If a monopolist that produces a homogeneous good in a market without entry cost faces potential competition, the outcome in the market will be first or – if we consider fixed costs – second best because competitors may replace him immediately. This means a high market share does not necessarily indicate market power. Although there is criticism concerning the robustness of the assumptions, e.g. goods are rarely homogeneous and entry generally not costless, this concept is valuable because it highlights that potential competition might serve as a disciplining device for dominant firms. This may apply to intramodal as well as intermodal competitors. For example, a rail provider might trigger entry by bus transport operators if his prices are sufficiently high.

The German Monopolkommission, the Government's academic advisory group for antitrust and regulation issues, states with respect to the interplay of sector-specific regulation and general competition law that competition is workable ("funktionsfähiger Wettbewerb") if it is structurally established and persists even when regulation is reduced. Workable competition does not necessarily exclude having a dominant player in the respective market.<sup>15</sup> Kahn argues that even a small number of competitors with a small combined market share might impose high competitive

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<sup>11</sup> Cf. J.M. Clark: Towards a Concept of Workable Competition, in: American Economic Review, Vol. 30 (2), 1940, p. 241–256.

<sup>12</sup> J.M. Clark: Competition as a Dynamic Process, Washington 1961, The Brookings Institution.

<sup>13</sup> Cf. S. Littlechild: The nature of competition and the regulatory process, in: #####Intereconomics, Vol # (#), 2010, p.#.

<sup>14</sup> Cf. W.J. Baumol, J.C. Panzar, R.D. Willig: Contestable Markets and the Theory of Industry Structure, New York 1982, Harcourt Brace, Jovanovic.

<sup>15</sup> Monopolkommission (2007), op.cit., recital 15; Monopolkommission (2009): Strom und Gas 2009: Energiemärkte im Spannungsfeld von Politik und Wettbewerb, recital 3.

pressure, especially when their investment costs are sunk.<sup>16</sup> Cable providers with a small market share in the broadband internet access market, for instance, might exert sufficient competitive constraints on a telecommunications incumbent, if their network is already in place and consequently their marginal costs are low.<sup>17</sup>

Effective competition does not imply absence of market power. On the contrary, “the prospect of having some market power (i.e., some profit) represents a most powerful incentive for firms to innovate and invest”.<sup>18</sup> In competition policy, it is important to mind that “[d]efending competition is not tantamount to defending competitors. [...] Protecting inefficient firms [...] would be detrimental from a welfare perspective.”<sup>19</sup> Thus, politicians and regulators should take into account that a variety of different market settings are in line with what economic theory would call a competitive market. Furthermore, they need to consider that regulation should protect competition rather than competitors or business models based on regulation.<sup>20</sup>

### **Definition of the relevant market in network industries**

In the previous Section, we assume that the market is clearly defined. As mentioned above, an evaluation of the intensity of competition in an industry requires taking account of all forces that exert competitive pressure on the companies in that industry. This is the task of market definition. In the following, we discuss whether and how the standard instrument for market definition in antitrust cases, the SSNIP test,<sup>21</sup> can be applied to delineate markets in regulated industries. We argue for an economic market definition, which takes the substitutability of services and products into account, rather than one based on technological consideration as is often done. For example, if we consider the broadband access market from a technological perspective, the local telephone company has significant market power as it owns 100% of the local loops.<sup>22</sup> From an economic perspective, the

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<sup>16</sup> Cf. A.E. Kahn: Telecommunications: The Transition from Regulation to Antitrust, in: Journal on Telecommunications & High Technology Law, Vol. 5, 2006, pp.159-188.

<sup>17</sup> Ibid, p.162.

<sup>18</sup> M. Motta: Competition Policy — Theory and Practice, Cambridge, MA 2004, Cambridge University Press, p.89.

<sup>19</sup> Cf. *ibid*.

<sup>20</sup> Cf. D.L. Weisman: A “Principled” Approach to the Design of Telecommunications Policy, Journal of Competition Law & Economics, forthcoming, 2010.

<sup>21</sup> Cf. S. Bishop, M. Walker: The Economics of EC Competition Law, London 2002, Sweet & Maxwell, p. 82 et seq.

<sup>22</sup> Cf. the recent decision M 3/09 of the Austrian telecom regulator on ULL regulation.

situation may change if one examines the substitution potential of alternative access technologies, e.g. cable or mobile networks.

The above discussion touches the relation between market definition and the existence of an essential facility. Many network industries are subdivided into the network infrastructure itself (upstream market) and the markets for services (downstream markets) that need the infrastructure as an essential input. There is a long discussion about the conditions, under which an input constitutes an essential facility and whether viable alternative ways to enter the downstream market exist.<sup>23</sup> Market definition is the key for answering these questions. An input might be a bottleneck for an industry, but it may be that the relevant market goes beyond the boundaries of the industry. Accordingly, the decision whether and how to regulate may change drastically: Imagine an industry with fierce intermodal competition like the shipping industry where river boat, freight railway, and road transport compete. Considering only the railway industry qualifies tracks as essential facility. In the broader context of the relevant market, this assessment may be different.

Market definition also has a geographic dimension. Infrastructure facilities might be an essential input in some regions whereas they are not in others. For example, the local copper loop of the telephone network is an essential facility in the broadband access market in regions without intermodal competition whereas there are alternative ways to enter the market in regions with different infrastructures, e.g. cable or mobile networks. Hence, it is ambiguous whether the local loop is an essential facility in all regions and therefore geographically differentiated markets should be considered.

Finally the time dimension enters. Technology changes over time, especially in dynamic markets, such as telecommunications.<sup>24</sup> Based on this insight, we should focus on persistent essential facilities and distinguish them from temporary bottlenecks.

### ***Employing the SSNIP test in regulated industries***

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<sup>23</sup> Cf. *United States vs. Terminal Railroad Association of St. Louis*, 224 U.S.338 (1921) and 236 U.S.194 (1914), R. Sherman: *Market Regulation*, Boston 2008, Pearson, p. 354; in Europe, today's essential facility doctrine is based on the 1998 Bronner case of the European Court of Justice, cf. *European Court of Justice (1998)*. Recent cases for the relevance of this doctrine for the network industries are provided by F. Haus, op.cit.

<sup>24</sup> Cf. C.B. Blankart, G. Knieps, P. Zenhäuser: *Regulation of new markets in telecommunications: Market dynamics and shrinking monopolistic bottlenecks*, in: *European Business Organization Law Review*, Vol. 8, 2007, p. 413–428.

The SSNIP-test evaluates if a small but significant and non-transitory increase in prices of all products offered by the firms in a candidate market yields higher profits. If the price increase is profitable, the included products (and geographic areas) are considered as one market, otherwise one has to include the closest substitutes among the remaining products and to perform the test again.

It is of particular importance for regulated industries that the SSNIP-test takes the competitive price level as starting point, which is not necessarily the same as the actual price level. Considering only the actual price level could induce consumers to substitute the product with products of inferior quality<sup>25</sup> or with products that would not be in the same market at competitive prices. The actual price level may be higher than the competitive one which would lead to a too broadly defined market.<sup>26</sup> The case that seems more relevant for regulated industries is that the price level is – due to regulation – low with respect to the competitive one. Therefore one would tend to define the market too narrowly and conclude that the companies possess market power.<sup>27</sup>

Applying a SSNIP test to network industries is more the exception than the rule. Markets defined by regulatory authorities generally do not exceed the boundaries of the industry in the technological sense.<sup>28</sup> Nonetheless, the SSNIP test can also be (and should be, as we argue in Section 5) of assistance in network industries.<sup>29</sup>

## **Measurement of effective competition**

After having delineated the relevant market, we turn to the question of how to measure the intensity and effectiveness of competition. We discuss possible approaches and the implementation of certain instruments and indices in network industries.

### ***Measurement of effective competition in competition policy***

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<sup>25</sup> This was the case in *US v. Kodak*, cf. S. [Bishop](#), M. [Walker](#), 2002, op.cit., p. 99.

<sup>26</sup> The case “*United States vs. E.I. du Pont de Nemours & Co* (1956) 351 U.S. 377; 76 S. Ct. 994; L.Ed.1264” is eponym for the “cellophane fallacy” which provides an often cited example for a too high benchmark price level.

<sup>27</sup> Cf. D. J. [Aron](#), D. E. [Burnstein](#): Regulatory policy and the Reverse Cellophane Fallacy, in: *Journal of Competition Law and Economics*, forthcoming.

<sup>28</sup> For a detailed discussion cf. Section 4 below.

<sup>29</sup> Cf. T.J. [Brennan](#): Applying “Merger Guidelines” market definition to (de)regulatory policy: Pros and cons, in: *Telecommunications Policy* Vol. 32 (6), 2008, pp. 388–398 for an example on how to apply the SSNIP test to network industries.

In competition policy, a few instruments are generally used to measure competition in a market. The Lerner index is among the most important ones. However, in the context of network industries this index does not seem appropriate because fixed costs are not considered. With respect to regulated industries the notions of “dominance” and “market power” are of greater importance. Dominance is generally measured in terms of market shares whereas the appraisal on whether a company exerts market power requires a more detailed analysis. The concept of dominance goes back to the Structure-Conduct-Performance (SCP) approach developed in the 1930ies by Chamberlin and Mason. The difficulty with a definition of dominance based on high market shares is that the latter might be an economic signal that a company is more efficient or more innovative than its competitors.<sup>30</sup> Boone et al.<sup>31</sup> argue in a similar way and state that a sector becomes more competitive if the profit distribution becomes more unequal. This leads to higher market shares for efficient firms at the expense of inefficient firms. This argument is all the more relevant in network industries where network effects or economies of scale lead to high market shares for one or two companies, but this does not necessarily mean that the companies have strong market power.

Nonetheless, concentration ratios or the Herfindahl-index witness the relevance of the SCP approach in today’s competition policy. They may serve as an indicator for a deeper analysis of the industry, but are not sufficient to evaluate if an industry is competitive or not. For they often fall short of a sufficient assessment of industry-specific and case-specific characteristics. Moreover, as argued in Section 2, potential competition and/or strong price competition may impose a strong competitive constraint on a dominant firm.

Hausman and Sidak have shown for the Irish mobile phone market that despite high concentration ratios of the two largest mobile operators the market outcome was competitive. Thus, a structural analysis might be the first step but further analyses are required.<sup>32</sup>

Consequently, we should distinguish between dominance in terms of high market shares and (significant) market power. The term “significant market power” is defined by the European Commission as the ability “to behave to an appreciable extent independently of competitors,

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<sup>30</sup> Cf. European Advisory Group on Competition Policy: An Economic Approach to Article 82, 2005, [http://ec.europa.eu/competition/publications/studies/eagcp\\_july\\_21\\_05.pdf](http://ec.europa.eu/competition/publications/studies/eagcp_july_21_05.pdf).

<sup>31</sup> Cf. J. Boone, J. van Ours, H. van der Wiel: How (not) to measure competition, in: CPB Discussion Papers, No. 91, 2007, CPB Netherlands Bureau for Economic Policy Analysis.

<sup>32</sup> J.A. Hausman, J.G. Sidak: Evaluating market power using competitive benchmark pricing instead of the Herfindahl-Hirschman Index, in: Antitrust Law Journal, Vol. 74 (2), 2007, pp. 387-407.

customers, and ultimately consumers.”<sup>33</sup> This can be translated as the ability to significantly raise prices above competitive levels.<sup>34</sup> Determination of these competitive levels is a particular problem in network industries exhibiting network effects, economies of scale and scope, and a large amount of sunk (entry) costs. The appropriate benchmark appears to be an industry that is served by few firms.

### ***Assessment of competition in the telecommunications industry: The Three-Criteria Test***

The telecommunications industry is a network industry where sunset legislation is intended.<sup>35</sup> The procedure to evaluate if a market is sufficiently competitive and may be released from ex ante regulation to competition law contains two steps: First, a list of different markets, based on a recommendation from the European Commission, is analysed by the National Regulatory Authorities (NRAs) using the “Three-Criteria-Test” (TCT). The NRA examine whether (i) there exist “high and non-transitory barriers to entry”, whether (ii) the market “structure does not tend towards effective competition in a relevant time horizon”, and whether (iii) the application of “competition law alone would not adequately address the market failure(s) concerned”. These three criteria are used cumulatively so that “[a]ny market which satisfies the three criteria in the absence of ex ante regulation is susceptible to ex ante regulation”.<sup>36</sup> Second, if a market passes the TCT, the market is analysed on whether any firm has significant market power. If this is not the case, the market is said to be effectively competitive and may be deregulated.

The TCT is criticised for several reasons. For example, the Commission defines structural barriers to entry as cost or demand structures which yield “asymmetric conditions between incumbents and entrants preventing market entry for the latter”<sup>37</sup>, and includes economies of scale and scope within this definition. From an economic perspective, asymmetries between firms based on economies of scale and/ or scope are neither a necessary nor a sufficient condition for barriers to entry and the focus should be put on the question whether there are sunk costs related to market entry.<sup>38</sup> The European Commission argues that, in the presence of barriers to entry, competitive constraints may

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<sup>33</sup> COM 2002/C165/03, recital 30.

<sup>34</sup> Cf. L.-H. Röller, M. de la Mano: The Impact of the New Substantive Test in European Merger Control, European Competition Journal 9 (2006), p.14.

<sup>35</sup> COM 2009/140/EC, recital 5.

<sup>36</sup> COM 2007/879/EC, recital 5.

<sup>37</sup> COM 2007/ 879/ EC, recital 9.

<sup>38</sup> Cf. G.J. Stigler: The Organization of Industry, Chicago 1968, University of Chicago Press, p.67.

exist that are based on “a limited — but sufficient — number of undertakings having diverging costs structures and facing price-elastic market demand”.<sup>39</sup> Thereby, the number of firms to create sufficient competitive constraints is a key question which cannot be answered exactly.<sup>40</sup> Moreover, the Commission’s position regarding diverging cost structures between competitors is problematic. The existence of several firms in one market with different cost structures seems to be an indicator for weak instead of effective competition as firms with higher costs would have to exit the market in a competitive environment.<sup>41</sup> The third criterion does not emphasise structural but legislative problems and verifies the commensurability of ex ante regulation and opens the discussion on whether competition law will ever be appropriate for solving market failures in network industries.<sup>42</sup>

The second step is to verify if the operators in the market have significant market power (SMP). The necessity to perform this test in addition to the TCT is heavily disputed: Briglauer argues that a market analysis which evaluates effective competition would be in opposition to a positive evaluation of the second and third criteria.<sup>43</sup> Moeschel adds that the two-step approach, the TCT followed by a SMP test, turns the analysis upside-down as the analysis within the TCT seems like a rough estimation whereas the detailed examination is relocated to the SMP-test.<sup>44</sup>

To summarise: The two step approach with starting with the TCT followed by a SMP-test on national level seems like an objective instrument to evaluate competition in markets at first sight but there are some major criticism and problems in practice. Nevertheless, a carefully and accurately performed TCT with some specifications might be a useful economic approach to analyse whether there is effective competition in markets.

### ***Assessment of competition in the rail industry***

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<sup>39</sup> COM 2007/ 879/ EC, recital 12.

<sup>40</sup> Cf. P.W.J. de Bijl: Lessons from Telecoms Liberalizations in the Netherlands, in: *Intereconomics*, Vol. #, 2010, p. #-#, discusses the question whether two firms in one industry can ensure sufficient competition.

<sup>41</sup> Cf H. Never, B. Preissl: The Three-Criteria-Test and SMP: How to get it right, in: *International Journal of Management and Network Economics*, Vol. 1 (1), 2008, p.106.

<sup>42</sup> Cf. M. Hellwig: Competition Policy and Sector-specific Regulation for Network Industries, in: Xavier Vives: *Competition Policy in the EU*, Oxford 2009, Oxford University Press, pp. 203-235, for a discussion on the interplay of competition law and sector-specific regulation.

<sup>43</sup> Cf. W. Briglauer: Zwischen Marktabgrenzung und Wettbewerbsanalyse – Der Drei-Kriterien-Test der Europäischen Kommission, in: *Jahrbuch für Wirtschaftswissenschaften*, Vol. 59 (3), 2008, p. 232.

<sup>44</sup> Cf. W. Moeschel: Der 3-Kriterien-Test in der Telekommunikation, Multimedia und Recht, Vol. 10 (6), 2007, p. 345.

In the rail industry, regulation is limited to the essential facilities. Competition is assumed to be possible in the downstream market, i.e. in the provision of rail services. A rough definition of the rail market generally encompasses the long-haul passenger traffic, the local passenger traffic as well as freight transport. A more detailed analysis is certainly required in many cases.

Competition is often assessed by only considering market shares. With respect to the German market, the German regulator, the Bundesnetzagentur<sup>45</sup>, and the Monopolkommission<sup>46</sup> consider competition to be developing in the freight and local passenger traffic with market shares of the competitors of around 20%, whereas there is hardly active competition in the long-haul passenger traffic. In the latter case, intermodal competition is equally considered but estimated as not very intense. As laid down in Section 4.1, market shares serve as an indicator, but not as a proof for market power, so we should handle this analysis with care. Moreover, competition is only measured for the rail industry and not for the different markets, where intermodal competitors may also constitute competitive constraints.

Ivaldi and Vibes explicitly account for intermodal competition in the intercity passenger market and simulate different regulatory scenarios. They conclude that evaluating the effectiveness of competition in a market requires accounting for all potential travellers, all modes, and all firms. Moreover, they find that a small number of competitors is enough to create a high degree of competition.<sup>47</sup> Friebe and Niffka analyse in a case study how the entry of low cost airlines in Germany affected the traffic volume and pricing strategies of Lufthansa and Deutsche Bahn. They find that the entry put heavy pressure on both companies, which leads to the conclusion that intermodal competition had more bite than usually considered. Moreover, they argue that it was misleading to look at regulation of railroad markets in an isolated way.<sup>48</sup> WIK Consult analyses whether the German incumbent, Deutsche Bahn, holds a dominant position in four markets: long-haul business traffic, local traffic, bulk cargo transport, single wagon freight transport. WIK cannot substantiate a dominant position of Deutsche Bahn in these markets and estimates that intermodal competition (indirectly) contributes to restrict market power of the network company.

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<sup>45</sup> Cf. Bundesnetzagentur: Jahresbericht 2009.

<sup>46</sup> Cf. Monopolkommission: Wettbewerb erfordert Weichenstellung, Sondergutachten 55, 2010, Nomos.

<sup>47</sup> M. Ivaldi, C. Vibes: Price Competition in the Intercity Passenger Transport Market: A Simulation Model, in: Journal of Transport Economics and Policy, Vol. 42 (2), 2008, pp. 225-254.

<sup>48</sup> G. Friebe, M. Niffka: The Functioning of Inter-modal Competition in the Transportation Market: Evidence from the Entry of Low-cost Airlines in Germany, Review of Network Economics, Vol. 8(2), 2009, pp. 189-211.

These studies show that looking only at (the different kinds of) rail transport is too narrow to make an assessment of competition in the respective markets. In the following Section we present a conceptual framework that may help to systematically address the task of defining the relevant market and to assess competition.

## **Assessment of effective competition in network industries: A conceptual framework**

In this paper we have discussed different meanings of the term “effective competition” as used in the network industries. Moreover, we pointed out that there is neither a satisfying nor a consistent approach of how NRAs measure the effectiveness of competition in these industries and markets. In the following, we present a procedure for assessing competition in network industries more systematically in comparison to what is done today. Accordingly, we propose a conceptual framework, as illustrated in figure 1, which has to be applied for different products in order to find out if a market is competitive. To do this, we draw on different instruments that are partially borrowed from competition policy.

### **1. The definition of the relevant market**

The first step in this analysis is the definition of the relevant market. As discussed above, the SSNIP test can be a suitable tool for this purpose. Similar to competition policy, we focus on demand-side substitutes in this first step. The SSNIP test has to be performed carefully because the elasticity of substitution may be distorted because prices in regulated markets do not necessarily reflect the competitive level. All products that belong to the relevant product and geographic market according to the SSNIP test have to be included in the subsequent analysis.

### **2. The assessment of market power**

In order to assess market power of the different companies in the defined market, we consider market shares as a first indicator. If the market shares are unequal, e.g. if the market share of one firm is excessively high, a SMP test should be performed. Moreover, the calculation of market shares should rather be based on available capacities than on actual quantities. The more economic approach applied in competition policy provides a range of instruments to identify market power with econometric methods. If we find that no firm exhibits significant market power, the market should be assigned to competition law.

### **3. The identification of the essential facility**

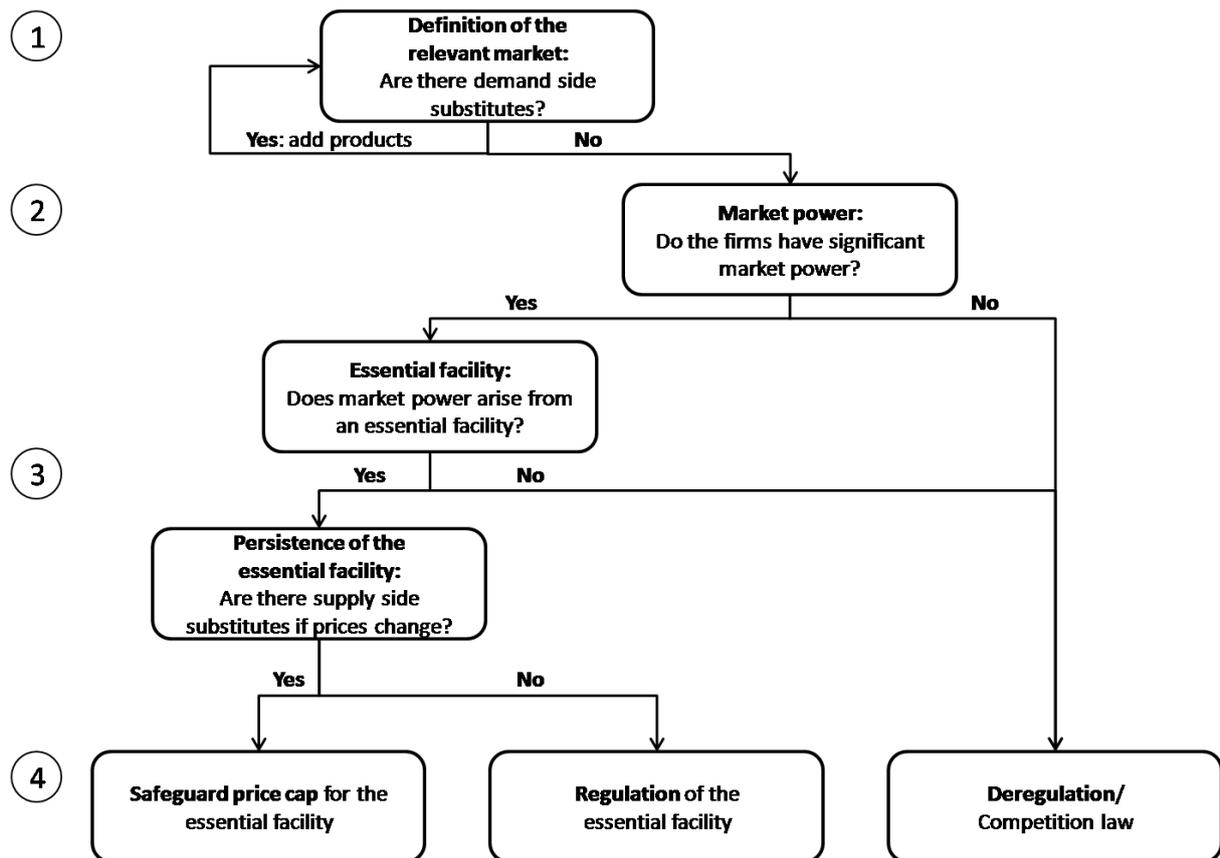
If significant market power is confirmed for one firm, we have to determine if market power is based on an essential facility. Thereby, it should always be focussed on essential facilities from an economic and not from a technological perspective. If market power does not stem from an essential facility, the market should be assigned to competition law. Otherwise, we have to verify if the essential facility is persistent. The question is whether the facility is still considered essential even when the regulatory regime is changed. For example, given a higher access fee the replication of the essential facility might be economically reasonable or firms may offer supply-side substitutes that are not competitive at a lower access price level. If and only if the essential facility is persistent it should be regulated to guarantee competition in the downstream market. If not, the market should be considered for deregulation.

#### 4. The phasing out of regulation

Based on the previous analysis, there are several cases for which regulation should be phased out. In these cases, competition policy should be applied. Additionally, a regulatory safeguard may be implemented, especially if essential facilities are judged non-persistent as discussed above. For example one may impose a safeguard price cap slightly below the level at which prices might be considered excessive under competition law.<sup>49</sup>

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<sup>49</sup> Cf. S. [Littelchild](#), 2010, op. cit., p. ##



**Figure 1: The Conceptual Framework**

To summarise, given this conceptual framework and a thoroughly conducted application of the suggested methods and steps, we are confident that the suggested approach provides an impartial framework to evaluate competition and facilitate sunset legislation. The assessment of competition should not only focus on prices but also consider dynamic aspects. Even though competition in network industries is inherently imperfect, policy makers should not disregard the function of competition as a Schumpeterian discovery process. This may require taking the chance to deregulate to see if competition is effective. The risks appear limited, as competition policy instruments are always available as a last resort. Without taking this risk, one might never find out whether competition would be effective without regulation.