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Exclusive contents and next generation networks

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ABSTRACT

This paper analyzes the interaction between the market of contents and the development of the next generation network (NGN) industry. We assume structural separation between the network and service operators and the comparative advantage of the service operators depends on the access to premium contents. On one side, we analyze how the structure of the market of contents (the scope of exclusivity contracts) may affect deployment and competition in a NGN setting. On the other side, we endogenize the structure of the market of contents given the presence of NGNs, where a content provider can sell contents directly to consumers, by-passing telecom operators (disintermediation, over-the-top content). In this context, we show that exclusivity only occurs when the content is not highly valued by consumers. Finally, the implication of our analysis for the evolution of the telecommunications industry is discussed.

1. Introduction

There is an upcoming revolution in the telecom industry. After 100 years of a stable technological framework based on copper networks, we are in front of a drastic innovation in the industry to grant consumers with the advantages of the optical fiber. The deployment of fiber based Next Generation Networks (NGNs) will increase dramatically the speed of broadband services (up to more than 100 MBps). The NGNs will multiply the demand and possibilities of existing Internet services and applications (P2P, Online Games, and so on), and will allow for new services as HD Television on demand, and public applications to e-Education and e-Health. From an economic policy point of view, the deployment of the NGNs may have an important impact over the whole economy: it may foster the digital content industry, it may increase productivity due to the efficiency gains in the production processes, it may improve public services, and so forth.[1] Consequently, the deployment of NGNs is at the center of the public debate on telecommunications and it is expected that the investment in NGNs will be huge in the next decade around the world.[2]

Besides, and crucially, the structure of the telecom industry may change drastically. The shadow of the old incumbent national monopolies may disappear. The NGN is based on IP (Internet Protocol) world and it does not require a centralized network, so that, small independent networks may be efficient.[3] Moreover, some countries have

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[1] Many papers and reports document the positive effect of telecommunication infrastructure on competitiveness (MICUS (2008) for the EU and Reynolds (2009) for the OECD), and economic growth (Czernich et al., 2011; Holt and Jamison, 2009; Koutroumpis, 2009).

[2] See for example, the dimension of the NGNs in the national broadband plans, http://en.wikipedia.org/wiki/National_broadband_plans_from_around_the _world.

[3] In fact, we are observing how many local public authorities or regional development agencies have decided to build their own infrastructure in order to boost the delivery of new services to their inhabitants. See "Asturcom" in Asturias, Spain, "Xarxa Oberta Project" in Catalonia, Spain and "Pau Broadband Country" in France, to mention a few of several cases. See also Jullien et al. (2010) that consider investment in a next generation access network by local authorities. They focus on the interplay between the national regulator, an incumbent and the local authority.

taken the opportunity of the deployment of the NGN to change the regulatory framework towards structural separation (the firm that operates the network cannot provide final services to consumers).[4] Finally, the most important investment efforts have been done by (or with the help of) governments and public administrations that promote neutral operators of the networks.[5]

In a nutshell, NGNs are likely to change the structure of the industry, the availability of consumer's services and the role of telecom operators. We need to understand how market competition is going to be in this new telecom world. This paper is one of the first attempts to do so. We will take as given a market framework based on structural separation and focus on the impact that the exclusivity of media contents can have over the competitive behavior of telecom operators. The distribution and the level of welfare that the NGNs may generate are linked with the market of contents since the added value of the new technology (especially from the private perspective) mainly relies on the consumption of audiovisual contents.

In this respect, this is the first paper studying specifically the interaction between the development of the NGN industry and the market of contents. Firstly, we analyze how the structure of the market of contents (the scope of exclusivity contracts) affects deployment and competition in the NGN setting. Then, we endogenize the structure of the market of contents given the presence of NGNs. In particular, we study the likelihood of exclusive contracts between providers of contents and service operators in NGNs. We also analyze who in the production chain (network operators, service operators and providers of contents) is going to capture the rents of the created value. This is an important question, since the distribution of these rents within the value chain affects the incentives of the agents to promote and invest in NGNs.

We propose a model where the owner of the network does not operate in the downstream market and gives access to two operators. These two operators compete for consumers and have access to contents. This accessibility determines competition on consumers' side. In particular, operators will be vertically differentiated as long as only one of them has access to premium content.[6] In the first part of the paper we take the exclusivity of the premium content as given, but we parametrize the scope of this exclusivity. We show that the less concentrated is the market of contents, the larger are the network profits and the consumer welfare.

In the second part of the paper we introduce the content provider as a strategic player. He takes two decisions: whether or not to provide in exclusivity its premium content to an operator, and second, whether or not to charge a positive price to consumers for its premium content. This second model is motivated by the fact that NGNs will allow content providers to reach consumers directly with their contents, via streaming, for example. This kind of content is nowadays known as OTT (over-the-top) contents. Particularly, OTT content means online delivery of video without the Internet service operator being involved in the control or distribution of the content itself.[7] Furthermore, only high speeds may ensure the delivery of a good OTT content experience. Therefore, it means that NGNs generate a new valuable outside option for content providers and the possibility of disintermediation.[8] Under this possibility we show that, in contrast with the previous literature on the market of premium contents, non-exclusivity is the expected outcome when the premium content is highly valued by consumers. The complete characterization of the equilibrium involves exclusivity when the differentiation due to premium content is low. This result is driven by the complex pricing interaction between the network (access fee), operators (service price) and content provider (operator payment for exclusivity and content price).

Important industry implications are derived from our results. We show that the presence of the NGNs and, the capacity of content providers to reach directly the potential consumers by implementing OTT contents, will result in a rent reallocation among different agents in the value chain. In particular, we show that there will be a transfer of rents from the network and service operators to the content providers. The current policy debate is focused on the lack of investment effort by traditional telecom operators in NGNs and the potential need for public intervention. In fact, as we said before, the public sector is nowadays the most active investor in NGNs. Our results may help to explain this lack of incentives of traditional telecom operators to invest in NGNs, and therefore, this paper provides arguments to the voices that advocate that without public intervention there will be a delay in the deployment of NGNs.[9]

[4] Many of the operating NGNs and the existing plans follow this structural separation pattern (the NBN project in Australia, the Next Gen NBN in Singapore, the Asturcom network in Spain, etc.).

[5] See for instance the NBN projects in Australia, New Zealand and Singapore for plans that consider the deployment of a public NGN with national coverage.

[6] A premium content may be thought of as a content that is highly attractive to viewers, such as live coverage of popular sports or the latest Hollywood movies. This content has no close substitutes, in other words, equally attractive content cannot be created or acquired by the rival (Weeds, 2012).

[7] See for instance *Ultraviolet*, www.uvvu.com, a platform recently created by the major Hollywood movie studios (Paramount Pictures, Sony Pictures Entertainment, Twentieth Century Fox, Universal Pictures, and Warner Bros among others) to give consumers great choice and freedom to purchase, manage, and watch digital movies, TV shows, and other entertainment by streaming. Some other premium rights owners are also responding with new strategies including the launch of their own web TV services, as NFL, NBA (see Analysis Mason (2010)). *Netflix* and *Pandora* are also ones of the most representative examples of OTT content provider.

[8] See the announcement in www.free-football.tv: "*Do you want to avoid costly set up fees or monthly subscription costs? . . . If the expense of your cable service has got you down, you'll love how affordable it is to catch football games through our service! In a matter of minutes, you can sign up for an account right here at www.free-football.tv and use our secure encrypted payment processors to purchase your membership*".

[9] On the top of that, there are other factors that may lead to a telecom company to consider the investment in NGNs as an expensive and risky choice. It reduces drastically the value of its current assets and business model (ADSL, fixed telephony, etc.), the return is uncertain and the regulatory framework has not been established in most of the countries.