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Regulation and competition in the European mobile communications industry: An examination of the implementation of mobile number portability

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ABSTRACT

Over the past two decades, the mobile communications industry has seen a considerable drop in the consumer switching charges made by service providers in order to promote effective competition and ensure a level playing field for new market entrants. Mobile Number Portability (MNP) is an important regulatory measure taken to reduce switching costs, and it is believed to play an important role in fostering competition in the mobile market. MNP implementation has varied significantly across European Union countries, particularly with respect to porting time and customer fees, both of which are important factors when deciding whether to switch to another provider. The research examines the effects of MNP implementation on competition in the European mobile communications industry. The study findings indicate that subscriber churn rates are negatively affected by both the level of charges levied on subscribers wishing to maintain their current number (porting) when switching mobile providers and the length of time required to switch. The implications of the effectiveness of MNP regulation for competition in the mobile communications industry are discussed.

1. Introduction

The mobile communications industry is a source of substantial growth for the European economy. In the European Union, total mobile industry revenues in 2008 amounted to €165 billion,[2] representing around 1% of GDP and generating an estimated 3.5 million jobs.[3] Furthermore, over the past two decades, the mobile industry has experienced considerable technological progress with the introduction of digital technology and the advent of broadband, which are arguably changing the world more quickly and more profoundly than any other innovation (Lambeek, 2009).

Since the early 1990s, all member states have liberalised their mobile industries, granting additional licences, encouraging new operators, and taking steps to foster competition. Effective competition in the communication markets benefits consumers by affording them increased choice, lower prices, better quality and greater innovation (BEREC, 2010). However, the presence of network effects and switching costs in the mobile telecommunications industry (Corrocher & Zirulia, 2009; Grzybowski, 2008; Doganoglu & Grzybowski, 2007) can favour larger firms, causing distortions that are

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[2] *Source*: European Commission (2010) (15th report). Latest available data.
[3] Retrieved from http://www.gsmworld.com.

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absent in conventional markets (Koski & Kretschmer, 2004). Switching costs include time, money and the psychological impact on consumers of switching mobile operators (Dick & Basu, 1994). All of these make it more difficult for smaller mobile operators to compete with the main players on a level playing field.

According to Klemperer (1995), compatibility, size of discount and transaction costs are the three main sources of switching costs in the context of mobile communications. First, there are compatibility costs, which are related to operators' SIM-locking practices, as well as to standards compatibility. The adoption of common European standards has eliminated compatibility costs by forcing operators to choose a unique type of network technology (GSM, UMTS), but SIM-locking practices still exist as a way of protecting handset subsidies. If clients wish to switch operator, they need to buy another handset or unlock their current mobile phone in order to use the new company's services.

Second, mobile operators usually offer customer discounts, such as handset subsidies and lower prices for on-net calls to raise customer switching costs and lock consumers into their networks (Valletti & Cave, 1998). Handset subsidies have been used as a tool by operators to penetrate the market (Kim & Yoon, 2004). However, customer acquisition costs have increased due to higher subsidies, especially for 3G mobile phones, and customers are obliged to enter into a long-term contractual relationship with the mobile operators (sometimes for 24 months or longer). As far as on-net and off-net prices are concerned, since the seminal article by Laffont, Rey, and Tirole (1998), who studied the impact of termination-based price discrimination, the theoretical literature exploring the impact of on-net and off-net price differentials on competition has been extensive (e.g., Gabrielsen & Vagstad, 2008; Hoernig, 2007). Empirically speaking, some studies have explored the impact of on-net price discrimination, concluding that on-net discounts combined with network size would drive consumer preferences towards a larger network (Kim & Kwon, 2003). In turn, Corrocher and Zirulia (2009), who studied the impact of network effects on customer preferences, found that such preferences are influenced by club effects that induce them to subscribe to the same network as their peers. In general, the termination rate of each mobile operator is determined by its market share (Dewenter & Haucap, 2005) and subscribers in a large network would benefit more than by subscribing to a smaller network. Large operators therefore gain a competitive advantage over smaller players (Laffont et al., 1998; Armstrong & Wright, 2007).

Lastly, transaction costs are accrued when customers breach their contract with their current operator and a contract termination fee is levied. The absence of mobile number portability (MNP) means that customers lose their current mobile number when they switch operators and are forced to inform all their current contacts of their new number. This is more costly to business clients because they may lose potential customers (Sutherland, 2007; Srinuan, 2010). In addition, no portability leads to inconvenience as a result of missed calls from contacts still using the old number. Several studies provide evidence that MNP may play a significant role in reducing the costs to subscribers of changing service providers in the mobile communications industry (Shy, 2002; Lee, Kim, Lee, & Park, 2006; Grzybowski, 2008; Maicas, Polo, & Sese, 2009).

MNP is available throughout the European Union, but there are significant differences in how MNP has been implemented over the past decade.[4] Some rules and regulations enforced by the national regulatory authorities (NRAs) regarding issues such as switching fees and periods vary significantly from country to country. Although there are several descriptive studies on MNP implementation (ECC, 2005; Buehler, Dewenter, & Haucap, 2006; Sutherland, 2007), there is insufficient quantitative analysis of the effects of MNP on competition in the European mobile industry. Existing empirical literature does not provide clear evidence regarding the impact on competition of introducing MNP (Grzybowski, 2005; McCloughan & Lyons, 2006; Viard, 2007), possibly because they do not consider the rules and requirements put into place by NRAs during implementation (except for Lyons, 2010). Moreover, these studies use pricing levels as a proxy for competition, when the churn rate might be considered a better indicator of the impact of MNP on mobile markets.

Accordingly, the study has two main objectives. First, the paper offers an overview of MNP implementation in the European Union since the adoption of MNP in each country through to the end of 2009. Second, the study investigates the effects of the different approaches of MNP implementation on competition within the context of the European mobile communications industry. This paper shows the impact both porting speed and the switching fees charged to subscribers wishing to change providers while keeping their current mobile number have on subscriber churn rates in the mobile communications markets.

The paper is structured as follows. Section 2 provides an overview of MNP implementation in the European Union in order to evaluate and compare the predominant regulatory approaches. Section 3 reviews the literature relevant to MNP and its relationship with competition, and then poses the main research questions. Section 4 describes the sample data gathered and the methodology employed in the empirical part of the study, while Section 5 sets out the results. Finally, Section 6 discusses the main findings and the implications for regulatory policy and firms in the European mobile communications industry.

2. Overview of MNP implementation in the European Union

Today, consumers throughout the European Union (EU) can switch mobile operators while keeping their telephone number. The first European countries to adopt MNP were the Netherlands and the United Kingdom, in 1999. The last, almost ten years later, were Bulgaria and Romania, in 2008. Over the past two decades, the EU's framework for regulating

[4] EU rules on telecoms networks and services are formally adopted by the European Parliament and Council and must be transposed into the domestic legislation of member states.