

ZfTM-Work in Progress Nr. 81:

**On- Versus Off-Net Call Price Discrimination
in European Mobile Telecommunications Markets**

**– A Review of Previous Evidence and a Comparative International Analysis
with Special Reference to Germany –**

Torsten J. Gerpott*

© 2007

* Univ.-Prof. Dr. Torsten J. Gerpott, Lehrstuhl Unternehmens- und Technologieplanung, Schwerpunkt Telekommunikationswirtschaft, Universität Duisburg-Essen, Lotharstr. 65, 47057 Duisburg.



Zentrum für
Telekommunikations- und
Medienwirtschaft

Work in Progress

für die Telekommunikations- und Medienwirtschaft

ZfTM-Work in Progress ist eine Schriftenreihe des Förderkreises Zentrum für Telekommunikations- und Medienwirtschaft e.V. Alle Angaben erfolgten nach bestem Wissen, jedoch ohne Gewähr für Richtigkeit und Vollständigkeit. Für Fehler im Text und in Grafiken wird keinerlei Haftung übernommen. Aus der Veröffentlichung kann nicht geschlossen werden, daß die beschriebene Lösung oder die verwendete Bezeichnung frei von gewerblichen Schutzrechten ist. Nachdruck oder sonstige Reproduktion (auch Auszüge) nur mit ausdrücklicher Genehmigung des Vorstandes des Förderkreises. Herausgeber (presserechtlich verantwortlich): Prof. Dr. Torsten J. Gerpott, Dipl.-Wirtsch.-Ing. Andreas Walter, Dipl.-Kfz. Sandra Thomas.

Kontakt:
Förderkreis Zentrum für Telekommunikations- und Medienwirtschaft e.V.
Am Freischütz 6
47058 Duisburg
Tel 0203-3793109
Fax 0203-3792656
Internet www.zftm.de
Email kontakt@zftm.de

Abstract

One pricing strategy which can be observed among European mobile network operators (MNO) for many years is on-net versus off-net price discrimination. This approach entails connection price differentials for mobile-to-mobile (M2M) voice calls depending on whether calling and called parties are subscribers of the same MNO (on-net service) or not (off-net service). Typically, on-net calls are charged at significantly lower rates than off-net traffic. On-off-net price differentiation practices may have anti-competitive effects in national markets where MNO dates of market entry and resulting subscriber market shares vary substantially as an outcome of staggered licence allocations. Scholarly findings concerning *on-off-net price differentials* (OONPD) of MNO have been sparsely analyzed in the literature. Therefore, the present paper reviews evidence related to the extent of OONPD and its impacts on mobile subscriber behaviours. Further, it includes an empirical study of OONPD patterns of 32 MNO from nine European countries to explore the extent to which OONPD were used by early entrants in a national mobile communications market to protect their competitive position. The empirical analysis places special emphasis on OONPD of the four MNO working in Germany. The international comparisons suggest that the OONPD of the two early German entrants, *Vodafone* and *T-Mobile*, were large compared to the two German followers and relative to corresponding values in most of the eight other countries taken into account. A policy conclusion of the results could be that regulators should consider remedies, which reduce the customer lock-in and acquisition distortions likely to originate from large OONPD of early entrant MNO in general and in Germany in particular.

Keywords: Early entrant/pioneer advantage; Late entrant/follower disadvantage; Mobile network operator; Off-net traffic; On-net traffic; Price differentiation

Summary

1. Introduction	1
1.1. On-off-net price differentials as a competitive factor in mobile telecommunications markets.....	1
1.2. Scope of the present study.....	6
2. Review of previous evidence on on-off-net price discrimination in mobile telecommunications markets	7
2.1. M2M traffic structure statistics.....	7
2.2. Consumer surveys on perceived drivers of one's own MNO choice	8
2.3. Non-perceptual scholarly investigations.....	9
3. International comparative on-off-net price discrimination analysis	14
3.1. Methodology.....	14
3.2. Cross-country results	18
4. Conclusions.....	25
References	29

1. Introduction

1.1. On-off-net price differentials as a competitive factor in mobile telecommunications markets

There is no European country in which digital mobile telecommunications services have not experienced enormous demand growth since the mid 1990s. This growth is reflected in an increase of the number of mobile subscriptions per 100 inhabitants in the EU15 states from 8.9% at the end of 1996 to 113.3% at the end of 2006 (OECD, 2005, p. 109; Credit Suisse 2007, pp. 66-91). One reason for this market expansion is that in each country more than one corporation was allowed to roll-out a national "Global System for Mobile Communication" (GSM) network. Competition among mobile network operators (MNO) supported a faster and more comprehensive network deployment and more aggressive sales promotion and pricing strategies in the mobile market.

In most countries the introduction of mobile GSM-supply competition was organized in a way that a national regulatory authority (NRA) awarded 3 to 4 licences in beauty contests which did not take place simultaneously, but in a staggered mode. For instance, in Germany the first two GSM-licences were allocated in 1990 to *T-Mobile Deutschland (TMD)* and *Vodafone D2 (VD2)*. Three years later *E-Plus* obtained the third German GSM-licence. Finally, *O2 Germany (O2G)* received the fourth and last German GSM-licence in 1997.¹

In spite of the tremendous demand growth and the market entry of several MNO in each European country today's subscriber and revenue market shares and profitability levels of MNO entering a market relatively early still tend to exceed strongly the comparable performance indicators of the late entrant(s) even after long periods of competition (cf. Gerpott, 2005, pp. 505-508). This is quite striking since each MNO sells communication services which adhere closely to the same set of technical standards to ensure network and end user mobile terminal equipment interoperability.

¹ Throughout this document current MNO names are used regardless of whether a name was already effective when referring to past incidents/facts.

Therefore, MNO differentiation at the service level is difficult. Nevertheless, in a short-term perspective early entrants might have some competitive advantages compared to followers because pioneer MNO can offer higher population and regional network coverage than the late entrant(s) during the first years of commercial operations of the followers. In addition, early entrants should have been already able to establish distribution channels and to create market awareness for their services/brand when a follower starts its business. However, these early entry advantages should not be sustainable but rather vaporize once a follower MNO has rolled-out major portions of its radio network and has implemented its marketing strategy. Consequently, at least in a mid-term perspective, it appears reasonable to expect that MNO competing in a country obtain similar subscriber/revenue shares in a national market regardless of their entry rank and date since the firms supply services lacking a clear unique selling proposition.

Unfortunately, the preceding theoretical reasoning is not in line with reality in most European mobile markets. In France, for instance, the early entrant *Orange France*, which started its commercial GSM-operations in July 1992 and 42 months ahead of the last French GSM-entrant *Bouygues Telecom*, reported a subscriber market share of 45.2% at the end of 2006 (Credit Suisse, 2007, p. 68). This is about 1.4 times higher than the 33.3% share which *Orange* would control if the three GSM-operators in France would have equal subscriber bases. Similarly, in Germany *TMD* which started its commercial GSM-operations in July 1992 (*VD2*; commercial GSM-start: June 1992) obtained a subscriber market share of 36.2% (35.3%) at the end of 2006 (Credit Suisse, 2007, p. 70) which is about 1.4 times higher than 25% proportion which each MNO is expected to hold in a homogeneous service market with four competitors.²

A key variable in explaining the endurance of subscriber, traffic and sales share differences between early and late entrants in mobile markets is pricing. Various empirical studies (for a review see Gerpott, 2006, pp. 514-520) show that mobile access and usage prices are among the pivotal factors in shaping the MNO selection deci-