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journal homepage: www.elsevier.com/locate/telpolA fresh look at zero-rating[☆]Jan Krämer^{a,c,*}, Martin Peitz^{b,c}^a University of Passau, Chair of Internet and Telecommunications Business, Dr.-Hans-Kapfnger-Str. 12, 94032 Passau, Germany^b University of Mannheim, Department of Economics and MaCCI, 68131 Mannheim, Germany^c Centre on Regulation in Europe (CERRE), Research Fellow, Brussels, Belgium

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ABSTRACT

We provide an economic assessment of zero-rating offers in the context of mobile internet access services and draw six lessons: (1) Zero-rating can have several different characteristics that crucially affect their economic and welfare assessment. Thus, regulatory interventions must be based on a careful case-by-case analysis. (2) In the context of zero-rating offers, it is often crucial to evaluate the extent to which users are able to activate and deactivate a (throttled) zero-rated tariff option. If activation/deactivation is easy and instantaneous, a sound economic theory of harm for consumers will in many cases be hard to establish. (3) Similarly, if access to zero-rated partner programs is non-discriminatory and entails low barriers to entry, a sound theory of harm for content providers will usually not be given. (4) Zero-rating can be beneficial for consumers and (legal) content providers alike by contributing to a reduction of illegal content. Combined with throttling it can mitigate congestion problems. However, by requiring all content belonging to the same content category to be treated equally with respect to throttling, independent of whether a content provider opted for zero-rating or not, the existing regulation creates a negative externality on those content providers that do not wish to be zero-rated for some reason. (5) Particular attention should be paid to the impact of throttled zero-rating tariffs on the competition between mobile network operators (MNOs) and MVNOs. The latter may not be able to compete on equal footing with MNOs, because they benefit less from the traffic management aspects of zero-rating. (6) Competition among (infrastructure-based) ISPs provides a safeguard against severe rent extraction and, thus, an abuse of throttling and zero-rating as an exploitative device. Therefore, regulators should carefully account for the competitive environment and the existing tariff portfolio and options before deciding to intervene. Competition policy, rather than ex-ante regulation, may be more suitable for this task.

1. Introduction

In this paper, we provide an economic analysis of zero-rating from a European perspective. Zero-rating denotes a tariff (or tariff option) that allows end-users to access certain content free of charge for the corresponding data consumption. Zero-rating is usually offered in mobile networks, where it is common to sell end-user tariffs that entail a certain data allowance. Zero-rated content would then not count against that allowance. However, zero-rating is also possible in pay-per-use tariffs, where end-users would pay extra

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for each marginal unit of data consumption (say per Megabyte). Here, zero-rated content would incur an incremental data cost of zero.

Zero-rating means that certain content does not impose data costs for *end-users*. This does not rule out that the data costs are borne by a third party, i.e., neither the ISP nor the end-user. In particular, it is possible that a CP pays the ISP for the end-user's data consumption that accrue when accessing that CP's content. This latter practice is called *sponsored data* and offered, for example, by AT & T in the US.¹

Moreover, zero-rating may be coupled with *throttling*, i.e., the ISP may choose to offer zero-rated content only when, at the same time, the download speed of this content is reduced, compared to the download speed for non-zero-rated content. Such zero-rating tariffs with throttling are being scrutinized under the existing EU net neutrality rules, although, to date, the legal assessment is inconclusive with respect to the precise conditions under which zero-rating in combination with throttling is indeed illegal according to EU net neutrality law. We offer a brief summary of the legal perspective on zero-rating in Section 2. However, in light of the legal discretion in the evaluation of zero-rating offers and a need to consider those practices on a case-by-case basis (see also BoR (16) 127 b), the main goal of this article is to offer an economic assessment of different zero-rating practices: What type of zero-rating offers are conceivable and found in practice? Why would ISPs offer such zero-rating offers? Under which circumstances may zero-rating be harmful to consumers, CPs and/or society at large, e.g., by limiting variety or consumers' choice? What are the main takeaways for regulators who have to decide which practices to prohibit?

This list of questions serves as a guide to the organization of this article. In Section 2, we briefly characterise the EU legal landscape and identify important characteristics that help classifying different zero-rating offers and, thus, address the first question.

In Section 3, we explore the business rationales behind different types of zero-rated offers and, thus, address the second question. Here, we discuss alternative revenue models based on charging content providers and making differentiated offers to consumers. We also elaborate on traffic management considerations according to which a reduction of bandwidth (throttling) can help to mitigate congestion problems. Furthermore, we discuss zero-rating offers as a market positioning strategy of ISPs.

In Section 4, we take a closer look at the economics of certain zero-rating practices complementing the discussion of Section 3. In particular, we discuss likely effects on consumers, content providers and society at large and, thus, address the third question. Here, we focus on four aspects that are of particular relevance in the ongoing European debate; first, how the specificities of partner selection on the content provider side affect the different parties involved; second, how throttling as part of a zero-rated offer affects the economic analysis; third, how security and privacy issues can be taken into account; and fourth, how roaming issues can be analysed.

In the conclusion, we draw six important lessons that are relevant from a regulatory perspective. In a nutshell, these lessons can be put as follows: first, the diversity of different zero-rated offers makes it necessary to follow a case-by-case analysis; second, regulatory intervention are likely to be difficult to justify if consumers can easily switch between a zero-rated and a corresponding not zero-rated tariff option; third, on the content provider side, if access to a partnership program is easy, low-cost, and non-discriminatory, harm on the content provider side will be difficult to establish; fourth, throttling not only can mitigate congestion problems, but can also be seen as a tool to inhibit the diffusion of illegal content; fifth, zero-rated tariffs with throttling raise questions about the viability of mobile virtual network operators; and sixth, intense competition between ISPs severely limits rent extraction possibilities through zero-rating. On a more fundamental level, we also argue why in the context of zero-rating existing EU net neutrality regulation should be revisited.

2. A first look at zero-rating

2.1. Legality of zero-rating offers

The legality of certain zero-rating offers has been challenged partly because of an alleged violation of net neutrality rules. For more than a decade the issue of net neutrality has provoked an intense academic and policy debate about the appropriate set of rules that should govern Internet access services (IASs). The adoption of net neutrality rules in 2015, both in the United States and in the European Union (Regulation EU 2015/2120) seemed to have marked a first milestone in the policy debate surrounding net neutrality. However, the debate is far from being over.

In the US, the Federal Communications Commission (FCC) has overturned the existing net neutrality rules in December 2017, essentially allowing (again) contractual freedom between Internet Service Providers (ISPs) and Content Providers (CPs) as well as consumers. This means that ISPs in the US can engage in all kinds of traffic management practices, including commercial agreements between CPs and ISPs to prioritize traffic based on content, type or origin. Moreover, ISPs in the US can experiment freely with different pricing models, including letting CPs pay for consumers' data use.

In the EU, the adopted net neutrality regulation (EU 2015/2120) limits the contractual freedom between ISPs and CPs as well as between ISPs and consumers, but also allows for several exceptions from a strict version of net neutrality. While overt pay-for-priority offers to CPs, which are currently legal in the US, are clearly illegal in the EU, other contractual agreements and practices, in particular zero-rating are currently under scrutiny with regards to their legality by several National Regulatory Authorities (NRAs), for example, by the German Bundesnetzagentur (BNetzA).

Questions about the legality of zero-rating practices arise because the regulation adopts a strict version of net neutrality on the

¹ See <https://developer.att.com/sponsored-data>.

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