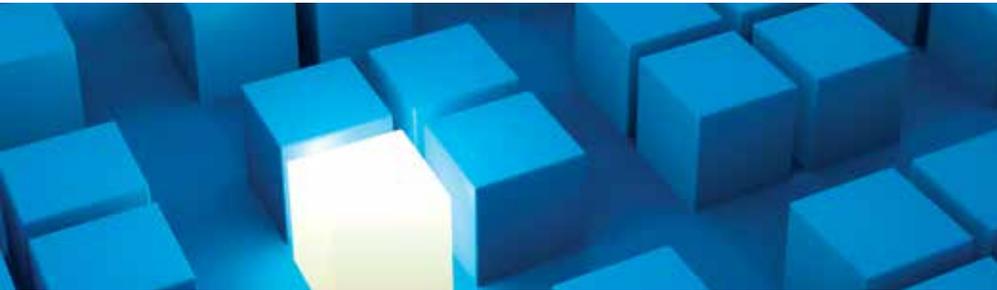


March 2015



The Economics of Zero Rating

By Jeffrey A. Eisenach, Ph.D.

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By **Jeffrey A. Eisenach, Ph.D.**

About the Author

Dr. Eisenach is a Senior Vice President and Co-Chair of NERA's Communications, Media, and Internet Practice. He is also an Adjunct Professor at George Mason University Law School, where he teaches Regulated Industries, and a Visiting Scholar at the American Enterprise Institute, where he focuses on policies affecting the information technology sector, innovation, and entrepreneurship. Previously, Dr. Eisenach served in senior policy positions at the US Federal Trade Commission and the White House Office of Management and Budget, and on the faculties of Harvard University's Kennedy School of Government and Virginia Polytechnic Institute and State University.

Dr. Eisenach's consulting practice focuses on economic analysis of competition, regulatory, and consumer protection issues. He has submitted expert reports and testified in litigation matters, as well as in regulatory proceedings before the Federal Communications Commission, the Federal Trade Commission, several state public utility commissions, and regulatory bodies in Australia, Canada, and South America. He has also testified before the US Congress on multiple occasions. In 2006 he served as an expert witness for the US Department of Justice in *ACLU v. Gonzalez*, the landmark litigation on the constitutionality of the Child Online Protection Act.

Dr. Eisenach is the author or co-author of a number of books, including *The Digital Economy Fact Book*, *The Telecom Revolution: An American Opportunity*, and *America's Fiscal Future: Controlling the Federal Deficit in the 1990s*. In addition, he has edited or co-edited five books, including *Communications Deregulation and FCC Reform: What Comes Next?* and *Competition, Innovation and the Microsoft Monopoly: Antitrust in the Digital Marketplace*. His articles have appeared in a range of scholarly journals such as *Review of Network Economics* and *Telecommunications Policy*, as well as in such popular outlets as *Forbes*, *Investors Business Daily*, *The Wall Street Journal*, *The Washington Post*, and *The New York Times*.

Dr. Eisenach has served in a number of advisory capacities, including on the Board of Directors of the Internet Education Foundation, the Virginia Governor's Commission on E-Communities, and the World Bank's Broadband Strategies Toolkit Advisory Group. He is currently a member of the Advisory Board of the Pew Project on the Internet and American Life and of the Board of Directors of the Information Technology & Innovation Foundation.

Dr. Eisenach is grateful to Internet.org for sponsoring this research. The opinions expressed are his own and do not necessarily reflect those of NERA or of any of the institutions with which he is affiliated.

Introduction

Zero Rating plans enable mobile wireless customers to download and upload online content without incurring data usage charges or having their usage counted against data usage limits. Zero Rating has become increasingly popular in both developed and developing countries, but plays a particularly important role in developing countries, where the costs of mobile data services are higher relative to per capita incomes.

The obvious benefits of Zero Rating include lower prices for consumers, especially those who might have difficulty affording mobile data plans, and expanding Internet adoption, which has been demonstrated to generate substantial economic and social benefits. However, some have expressed concerns about whether such plans violate net neutrality principles by discriminating in favor of some content over other content. Critics of Zero Rating worry that it could harm competition in markets related to Internet access and/or online content, or interfere with consumers' unfettered access to online information (i.e., diversity of expression).

In this context, this study presents an assessment of the benefits and costs of Zero Rating. It concludes that Zero Rating programs in general represent an economically efficient mechanism for increasing consumer welfare given the unique characteristics of information technology markets, which make it beneficial to offer lower prices and other incentives to expand the size of the market, especially in developing countries where incomes, and market penetration, are low. Further, the most common types of Zero Rating programs are the ones most likely to benefit consumers, not harm them, and the ones most likely to expand consumer choice, not limit it. With respect to diversity of expression and related concerns, it is difficult to construct a scenario under which increasing access to online information and adoption of digital communications services would be harmful to online speech. While regulatory authorities should remain vigilant in monitoring business practices, broad-based bans or restrictions on Zero Rating plans are far more likely to harm consumer welfare than improve it.

The remainder of this paper is organized as follows. Section II describes the state of play with respect to both the types of Zero Rating plans currently in the marketplace and efforts by regulators in some countries to limit or prohibit their availability. Section III presents a brief explanation of the economic characteristics (i.e., dynamism, modularity and demand-side effects) that distinguish information technology markets from markets for other types of goods, and which affect both market performance and the nature of the competitive process. Based on this framework, it outlines the primary issues involved in assessing the impact of Zero Rating plans on economic efficiency, competition, and overall economic welfare. Section IV presents an assessment of the two primary criticisms of Zero Rating, namely the asserted potential for anticompetitive market foreclosure and concerns about diversity of expression. It explains that the Zero Rating plans currently being offered almost certainly generate benefits well in excess of any costs. Section V provides a brief summary of conclusions.

Zero Rating Plans: The State of Play

All Zero Rating plans share one characteristic: They allow mobile subscribers to access certain online content “for free” – that is, without having the associated data usage counted against their usage allowances under wireless service plans. The plans differ in two main respects: The types of content included, and the underlying business arrangements.

The type of content included in Zero Rating services varies widely, and includes access to online government and community service sites as well as access to popular services like Facebook, Google, Twitter and Wikipedia. In the U.S., T-Mobile offers its data plan subscribers zero-rated access to more than 25 online music services, including iHeartRadio, Pandora and Spotify. In some cases, carriers offer customized content designed specifically to be offered in conjunction with Zero Rating. For example, Facebook Zero and Internet.org provide customized content designed specifically for use on devices with limited capabilities or over networks with limited capacity.

Zero Rating business arrangements vary mainly according to the nature of the relationship between the access provider and the content provider. The most common form of Zero Rating plans are “carrier initiated” – that is, the mobile carrier simply chooses to zero-rate certain content as a means of attracting customers. “Sponsored data” plans represent a different model, under which content providers pay carriers to have their content zero rated. In some cases, carriers may choose to zero-rate their own content or content produced by affiliated companies, as was the case until recently with mobile TV plans offered by Canadian carriers Bell Mobility and Videotron.

Content-oriented applications like Facebook, Twitter and Wikipedia have been especially active in working with mobile operators to develop and promote Zero Rating plans in developing countries. Facebook Zero allows customers of participating mobile carriers to access Facebook’s standard mobile site content, send messages, update their status and engage in other typical activities on a zero-rated basis. (Facebook Zero users can also access additional Facebook content, such as photographs, but when they do so the resulting data usage counts as paid usage.) First launched in 2010, Facebook Zero has been implemented by more than 50 mobile operators in over 40 countries.¹ Facebook Zero is carrier initiated: Facebook does not pay carriers for participating in Facebook Zero.

Internet.org is a global partnership involving Facebook and other technology companies, local governments and NGOs which focuses on decreasing the cost of delivering data and expanding Internet access in underserved communities outside of the U.S. and Europe.² The internet.org app, which is offered in partnership with local mobile carriers, allows subscribers zero-rated access to customized content from multiple providers, including Facebook, Wikipedia and a variety of local content providers. First launched in Zambia in 2014, the internet.org app has expanded to Tanzania, Kenya, Columbia, Ghana and India, as shown in Table 1 below. As with Facebook Zero, internet.org does not pay ISPs to zero-rate its content.

Table 1. **Internet.org Deployments, 2014-2015**

| Country | Carrier | Launch Date | Free Services* |
|----------------|----------------|--------------------|-----------------------|
| Zambia | Airtel | July 31, 2014 | 16 |
| Tanzania | Tigo | October 29, 2014 | 19 |
| Kenya | Airtel | November 14, 2014 | 18 |
| Colombia | Tigo | January 14, 2015 | 16 |
| Ghana | Airtel | January 22, 2015 | 17 |
| India | Reliance | February 10, 2015 | 38 |

Source: internet.org. *Services listed are as of February 27, 2015

Despite its *prima facie* benefits, regulators in a handful of countries have taken steps to limit or ban Zero Rating programs.³ For example, the government of Chile has found that Zero Rating plans violate the country’s net neutrality law;⁴ regulators in the Netherlands have fined mobile carrier Vodafone for zero-rating HBO;⁵ and, regulators in Slovenia have fined the country’s two largest mobile operators for zero-rating music and cloud storage services.⁶ Canada’s CRTC recently banned offerings by mobile providers Bell Mobility and Videotron which offered differential pricing for the companies’ mobile TV services.⁷ Regulators in other countries have either suggested that such programs are likely to violate neutrality rules (e.g., Norway),⁸ or have initiated investigations (e.g., India).⁹ In the U.S., Federal Communications Commission officials have indicated that Zero Rating plans will be evaluated on a case-by-case basis under the Commission’s new Open Internet Order.¹⁰

The analysis below explains why broad-based bans or restrictions on Zero Rating plans are likely to be counterproductive and harm consumer welfare.

The Competitive Dynamics of Information Technology Markets

In general, the welfare effects of pricing schemes and other business practices depend on the characteristics of the markets in which they are deployed. Zero Rating programs are deployed in information technology (IT) markets, which are distinguished from more traditional “textbook” markets by three primary characteristics: *dynamism*; *modularity*; and *demand-side effects*.¹¹

Dynamism refers to the significance of innovation as a measure of market performance: In dynamic markets, the ability of a firm to offer new and improved products plays at least as significant a role in its success (*i.e.*, its profitability) as the ability to produce and sell existing products at lower prices.¹²

Typically, firms create new products by making significant sunk cost investments (which may take the form of either “R&D” or capital expenditures in non-recoverable facilities). As a result, production benefits from economies of scale – *i.e.*, average total costs that decline at higher levels of production, but always exceed marginal costs. Producers are able to recoup their sunk cost investments because products are differentiated through innovation (Innovation can be thought of as simply product differentiation over time.), meaning that long-term prices in such markets are higher than marginal cost, notwithstanding the existence of robust competition. Under traditional antitrust doctrine, the ability to earn high margins might be mistaken for monopoly power (the ability to earn excess profits), but assuming low entry barriers, they are not only consistent with, but necessary for, robust competition and the maximization of consumer welfare in these types of dynamic markets. In this such markets, high accounting margins not only allow firms to recoup sunk cost investments, but also provide the incentive to take the risks inherent in innovation.¹³

A second characteristic that distinguishes IT markets is *modularity*, or what is sometimes referred to as “platform competition.” From an economic perspective, modularity is associated with strong complementarities in production or consumption: Operating systems are strong complements with personal computers; smart phones are strong complements with both communications networks and online content, such as mapping services, restaurant reviews, or social networks. Modularity also creates demand for compatibility or “interconnection.” Firms that produce complementary products (*e.g.*, Microsoft and Nokia, or Facebook and Bharti Airtel) may team up to create platforms (sets of compatible complements); in other cases (*e.g.*, Apple, Blackberry) firms choose to achieve compatibility through vertical integration. Competition in such markets takes place both within platforms (*e.g.*, between HTC and Samsung for share on the Android platform) and among them (*e.g.*, between the Android and iOS operating environments).

Finally – and importantly for assessing Zero Rating – IT markets are also characterized by significant *demand-side effects*, including economies of both scale and scope. Demand-side economies of scale, also known as network effects, imply that a product is more valuable to consumers as the number of users increases. The prototypical, if now somewhat dated, example is the fax machine. Demand-side economies of scope, by contrast, imply that a product’s value increases with the diversity (as opposed to simply the number) of users: The value of a credit card network to both consumers and merchants depends on the presence of the other *type* of participant. Markets characterized by demand-side economies of scope are referred to as “two-sided” or “multi-sided.”

The relationship between competition and consumer welfare in markets with demand-side effects is more complicated than in more traditional markets in several ways. For example, it is well established that the operator of a two-sided market has strong incentives to set efficient relative prices (*i.e.*, to engage in efficient price discrimination).¹⁴

The Economic Foundations of Zero Rating

The discussion above provides a conceptual framework for assessing the effects of Zero Rating. This section applies this framework to assess the economic implications of Zero Rating for online content and applications, mobile access, and the Internet ecosystem overall. Specifically, it discusses: (a) the role of Zero Rating in capturing network externalities (demand side economies of scale); (b) Zero Rating as a form of efficient differential pricing; (c) Zero Rating as an efficient pricing mechanism in the two-sided market for mobile wireless services; and, (d) Zero Rating as a mechanism for competitive product differentiation on mobile wireless markets. In each of these respects, Zero Rating is a market-driven mechanism for achieving economically efficient (and socially desirable) outcomes.

Zero Rating and Network Effects

Online content providers and mobile networks operate in markets that can have network effects, in that the value of the network to customers grows with the addition of other customers. As described below, the extent and type of network effect can vary significantly in particular cases. In some cases, expansion increases the value for all customers on the network. In others, the effects are limited to additions within smaller groups. And in others, benefits arise when different kinds of participants join a network.¹⁵ Thus, it is often in the interests of current participants in a network to promote its growth in some form, and sometimes in the interests of society generally to promote universal participation. Governments often subsidize participation in industries with network effects through direct or indirect government subsidies (e.g., universal service for telephone and, more recently, broadband adoption).

One obvious and likely significant benefit of Zero Rating is to expand participation in zero-rated online content and applications, while also increasing mobile wireless penetration, especially in developing economies.¹⁶ There is a substantial literature in support of the proposition that expanded Internet access, principally through higher mobile wireless adoption, has a variety of economic and societal benefits.¹⁷

It is also important to understand that the power of network effects is greatest within “communities of use.” That is, the value of adding an additional member is greater for members who are more closely connected with (*i.e.*, who value interactions with) existing members than those who are (in the same sense) further away. In this context, Zero Rating is appropriately understood as a mechanism for achieving increased participation within relatively small communities, including within lower-income populations in developing economies.¹⁸

By promoting the positive network effects of increased adoption, Zero Rating thus generates positive social as well as economic externalities.

Zero Rating and Differential Pricing

Both online content providers and mobile broadband services are characterized by dynamic competition – that is, both industries make large, non-recoupable investments in R&D and physical infrastructure which are largely invariant to the number of users. As discussed above, in such industries, the average cost curve is declining over the relevant range of output: Simply put, it always costs less to produce an incremental unit of output than it costs, on average, to make the previous ones.

In such industries, consumer welfare can be increased if firms are able to identify and offer discounts to “marginal” customers, that is, those with lower willingness (or ability) to pay, thus expanding the size of the market and generating the additional revenues that can be used to defray the fixed costs of investment and innovation. It is widely agreed that such differential pricing – referred to by economists as – “competitive price discrimination” – is not only widespread, but generally improves economic efficiency and increases consumer welfare.¹⁹

In this context, zero rating of offerings like Wikipedia Zero, Facebook Zero and the internet.org app can be understood economically as a mechanism by which mobile carriers engage in efficient price discrimination through the bundling of two goods (mobile wireless service and content), thereby creating the ability for marginal consumers to pay a reduced price by choosing a differentiated product in the form of a “basic” form of online access.²⁰ In so doing, Zero Rating improves economic efficiency by supporting continuing investment and innovation in both networks and content while expanding Internet access to consumers who would otherwise be unserved.

Zero Rating and Two-Sided Markets

The central economic challenge for an operator of a multi-sided platform is to set prices and other product characteristics in such a way as to attract the optimal mix of customers and thus maximize the value of the platform. Newspapers, for example, must run enough advertisements to defray costs, but not so many as to drive away customers.

The economics of multi-sided markets help to explain Zero Rating programs in at least two respects. First, thinking of mobile operators as the platform provider, Zero Rating is a means by which carriers create opportunities for distribution by content providers (by increasing the number of subscribers), while enhancing the value of the platform for subscribers (by increasing the amount of available content). To the extent content providers contribute financially to Zero Rating through sponsored data programs, they do so in reflection of the increased value (at least over the long run) of enhanced distribution. But carriers may (and do) choose to offer Zero Rating even without a financial payment from content providers simply because it increases the value of their platforms.

A second aspect of multi-sidedness relevant to Zero Rating relates to the dual nature of consumers in relation to platforms like Facebook, Twitter and Wikipedia, in which “consumers” are also content creators. Thus, by attracting additional participants onto the platforms of such services, Zero Rating increases *both* the number of content consumers and the amount of content available. This “double whammy” effect helps to explain why firms like Facebook are taking the lead in encouraging Zero Rating programs.²¹

Zero Rating and Competition in Mobile Wireless Markets

Lastly, firms in dynamic industries are better able to defray their fixed costs to the extent they can differentiate their products and attract more consumers. Zero Rating programs are an instrument by which mobile wireless firms can differentiate themselves from competitors by offering access to customized content with their mobile wireless services. Product differentiation also can serve to intensify competition in such markets. In this context, it is notable that the most prominent examples of Zero Rating in the U.S. have involved MetroPCS, Sprint and T-Mobile, all of which have used zero-rate offerings in order to differentiate their products from larger competitors. Similarly, Zero Rating plays a significant role in product differentiation for Globe (Philippines), which has offered zero-rated access to Facebook and other applications as part of its marketing campaigns.²² Thus, Zero Rating (like other types of innovative pricing plans) generally contributes to the competitiveness of mobile wireless markets.

Addressing Concerns about Zero Rating

As noted above, some net neutrality advocates have challenged Zero Rating by asserting that it violates the principle of non-discrimination and hence (a) risks anticompetitive effects and (b) limits freedom of expression.²³ For the reasons explained immediately below, however, Zero Rating programs typically do not raise serious concerns with respect to anticompetitive effects. Further, as explained in the second subsection below, concerns about diversity of expression appear to be based more on speculation than empirical evidence, and to ignore the positive effects of Zero Rating in increasing access to online communications and information.

Zero Rating and Competition

The types of Zero Rating programs currently observed in the marketplace do not appear to raise significant competition concerns.

First, as noted above, most Zero Rating programs are carrier initiated and do not involve payments to carriers by the providers of the zero-rated content. Particularly in the absence of payments, Zero Rating cannot plausibly be characterized as anticompetitive foreclosure by content providers. Rather, to the extent that carriers elect to include certain content providers in a Zero Rating plan, the decision reflects the carrier's unilateral determination that doing so improves the value of its platform.

Second, even in sponsored data programs where content providers are providing payments to carriers, there appears to be no evidence that such arrangements involve exclusivity: Rather, it appears that opportunities to participate are being held out to content providers of all kinds.²⁴ Without exclusivity – the inclusion of some participants and the exclusion of others – there is no foreclosure, and hence no anticompetitive concern.²⁵

Third, there is no *prima facie* basis for concluding that Zero Rating programs involving exclusivity would be anti-competitive. Exclusivity arrangements are commonplace, and typically are justified by efficiency motivations, such as the desire to avoid “free riding” on brand-specific investments. Exclusivity raises competition concerns, on the other hand, only under limited conditions, including that the exclusive arrangement must be sufficiently widespread so as to foreclose entry (and expansion) by an otherwise equally efficient competitor (*i.e.*, by preventing such a competitor from achieving minimum efficient scale). The characteristics of the mobile wireless and online content markets suggest that exclusivity in Zero Rating programs, to the extent it occurs, is of the efficiency-enhancing variety.²⁶

The case advanced by critics of Zero Rating amounts to a claim that any form of differentiated carriage necessarily advantages some firms over others, and thus has potential competitive effects, and that the “victims” of such discrimination are likely to be small, innovative firms that lack the financial wherewithal to engage in Zero Rating programs of their own.²⁷ There are powerful arguments against this view, including: (a) mobile broadband providers have incentives to maintain a diversity of actual and potential complementors (e.g., content providers) and thus are not likely to willingly participate in activities that might foreclose competition; (b) the most common Zero Rating programs are carrier initiated and do not require financial contributions from the content provider; (c) many small content providers engage in Zero Rating (e.g., Aquato, hipcricket, Syntonic)²⁸ and (as discussed above) Zero Rating is easily explained on efficiency grounds; and, (d) Zero Rating critics have not demonstrated any harm to competition or consumers from Zero Rating, or even shown that any individual competitors have been disadvantaged.²⁹

Zero Rating and Freedom of Expression

While freedom of expression concerns arguably invoke values that go beyond economic efficiency *per se*, economic analysis can nevertheless inform the debate around the key issues. First, as noted above, Zero Rating programs do not generally involve exclusivity. Thus, no one’s views are being foreclosed, or muzzled. Second, the firms engaging in Zero Rating are to a significant extent (e.g., Facebook, Twitter, Wikipedia) vehicles for the open expression of views by all participants, subject only to *de minimus* limitations. Increasing the number of Facebook (or Twitter or Wikipedia) users thus arguably enhances freedom of expression and the diversity of opinion in the public square – especially in developing countries, where such outlets have demonstrably enhanced freedom of political expression. Third, as an empirical matter, the diversity of content suppliers is growing rapidly; concerns about “a few media outlets controlling the news” seem increasingly anachronistic. Fourth, and finally, in order to argue that Zero Rating programs deprive subscribers of access to information (“the full and open Internet”), one needs to argue that nothing is better than something – that those who gain access to online content as a result of Zero Rating would be better off with no access than some access, an argument which seems difficult to sustain.

Conclusions

Concerns about Zero Rating are misplaced. The Zero Rating programs that are observed in the marketplace are readily explained as market-driven mechanisms for capturing economic efficiencies associated with the characteristics of information technology markets. By expanding the reach of online content and distribution services, they generate economic social benefits. Concerns that Zero Rating could serve as a means of foreclosing competition, or limit freedom of expression, appear misplaced and lacking both theoretical and empirical support.

Notes

- ¹ See Matt Hicks, "Fast and Free Facebook Mobile Access with 0.facebook.com," May 18, 2010 (available at <https://www.facebook.com/notes/facebook/fast-and-free-facebook-mobile-access-with-0facebookcom/391295167130>).
- ² See internet.org/about.
- ³ For an interesting discussion of issues associated with Zero Rating programs, see "Net Neutrality, Zero Rating, and Development: What's the Data?" *Internet Governance Forum* (September 3, 2014) (available at <http://www.intgovforum.org/cms/174-igf-2014/transcripts/1969-2014-09-03-ws208-net-neutrality-zero-rating-and-development-room-5>) (hereafter *IGF Transcript*).
- ⁴ See e.g., David Meyer, "In Chile, Mobile Carriers Can No Longer Offer free Twitter, Facebook or WhatsApp," *GigaOm* (May 28, 2014) (available at <https://gigaom.com/2014/05/28/in-chile-mobile-carriers-can-no-longer-offer-free-twitter-facebook-and-whatsapp/>) (hereafter, Meyer, Chile).
- ⁵ Authority for Consumers & Markets, "Fines Imposed on Dutch Telecom Companies KPN and Vodafone for Violation of Net Neutrality Regulations," (January 27, 2015) (available at <https://www.acm.nl/en/publications/publication/13765/Fines-imposed-on-Dutch-telecom-companies-KPN-and-Vodafone-for-violation-of-net-neutrality-regulations/>).
- ⁶ See "Mobile operators in Slovenia Fall Foul of Net Neutrality Rules," *MobileWorldLive.com* (January 26, 2015) (available at <http://www.mobileworldlive.com/mobile-operators-slovenia-fall-foul-net-neutrality-rules>).
- ⁷ See Canadian Radio-television and Telecommunications Commission, CRTC, Broadcasting and Telecom Decision 2015-26 (January 29, 2015) (available at <http://www.crtc.gc.ca/eng/archive/2015/2015-26.htm>).
- ⁸ See e.g., David Meyer, "Pro-Net Neutrality Norway Advises Carriers to Avoid Zero-Rating," *GigaOm* (November 18, 2014) (available at <https://gigaom.com/2014/11/18/pro-net-neutrality-norway-advises-carriers-to-avoid-zero-rating/>).
- ⁹ See e.g., "Net Neutrality Also an Issue in Emerging Markets Like India," *Business Monitor* (February 3, 2015) (available at <http://www.businessmonitor.com/news-and-views/net-neutrality-also-an-issue-in-emerging-markets-like-india>); see also Anandita Singh Mankotia, "Trai examining Bharti Airtel's special deals on Facebook and WhatsApp," *The Economic Times*, November 25, 2014 (available at http://articles.economictimes.indiatimes.com/2014-11-25/news/56455517_1_net-neutrality-mobile-data-services-uninor).
- ¹⁰ The FCC voted to approve a new Open Internet Order on February 26, 2015. See Federal Communications Commission, "FCC Adopts Strong, Sustainable Rules to Protect the Open Internet" (February 26, 2015). The text of the Order has not yet been released, but FCC officials have indicated they will evaluate Zero Rating plans on a case-by-case basis. See Lauren Walker, "Why the Net Neutrality Fight Isn't Over," *Newsweek* (February 6, 2015) (available at <http://www.newsweek.com/why-net-neutrality-fight-isnt-over-305060>).
- ¹¹ This section relies in part on Jeffrey A. Eisenach and Ilene Knable Gotts, "In Search of a Competition Doctrine for Information Technology Markets: Recent Antitrust Developments in the Online Sector," in Fabrizio Cugia di Sant'Orsola, Rehman Noormohamed, and Denis Alves Guimarães, eds., *Communications and Competition Law: Key Issues in the Telecoms, Media and Technology Sectors* (Wolters Kluwer Law and Business, 2014) 69-90. For a more extensive discussion of these phenomena and their implications for competition analysis, see Jeffrey A. Eisenach, *Broadband Competition in the Internet Ecosystem* (American Enterprise Institute, 2012); see also Oz Shy, *The Economics of Network Industries* (Cambridge University Press, 2001).
- ¹² See William J. Baumol, *The Free Market Innovation Machine: Analyzing the Growth Miracle of Capitalism* (Princeton University Press, 2002), at 4 ("Innovation has replaced price as the name of the game in a number of important industries. The computer industry is only the most obvious example, whose new and improved models appear constantly, each manufacturer battling to stay ahead of its rivals."); see also Joseph Schumpeter, *Capitalism, Socialism and Democracy* (1942).
- ¹³ Especially in dynamic markets with high rates of innovation, high margins as measured by accounting data do not necessarily equate to high profits from the perspective of economics or competition analysis. The seminal reference is Franklin M. Fisher and John J. McGowan, "On the Misuse of Accounting Rates of Return to Infer Monopoly Profits," *American Economic Review* 73:1 (March 1983) 82-97.
- ¹⁴ See, e.g., Julian Wright, "One-Sided Logic in Two-Sided Markets," *Review of Network Economics* 3(1) at 44 (2004).
- ¹⁵ The impact of network effects can depend on a variety of factors. For example, some of the network effects of increasing wireless penetration are shared among carriers thanks to the fact that carriers interconnect with one another (so subscribers to each network can call subscribers on other networks). Carriers may seek to capture some of these effects through programs ("friends and family" plans) that encourage in-network calling.

- ¹⁶ The empirical evidence on the impact of Zero Rating on wireless penetration and mobile content usage, though limited, suggests the effects may be substantial. For example, a 2010 program by Turk Cell involving Twitter resulted in a 340 percent increase in Twitter traffic. See *IGF Transcript*.
- ¹⁷ See e.g., *Value of Connectivity: Economic and Social Benefits of Expanding Internet Access* (Deloitte 2014 (available at https://fbcdn-dragon-a.akamaihd.net/hphotos-ak-ash3/t39.2365/851546_1398036020459876_1878998841_n.pdf); see also Digital Entrepreneurship in Kenya 2014 (GSMA, 2014) (available at http://www.gsmaentrepreneurshipkenya.com/GSMA_KENYA-AR2014-060214-WEB-SINGLE-PGS.pdf).
- ¹⁸ Social networks like Facebook and Twitter have been shown to play a significant role in driving Internet adoption in developing countries, where the proportion of Internet users who use such applications is higher than in the U.S. See e.g., Lee Rainie and Jacob Poushter, "Emerging Nations Catching Up to U.S. on Technology Adoption, Especially Mobile and Social Media Use," Pew Research Center (February 13, 2014) (available at <http://www.pewresearch.org/fact-tank/2014/02/13/emerging-nations-catching-up-to-u-s-on-technology-adoption-especially-mobile-and-social-media-use/>).
- ¹⁹ See e.g., William J. Baumol and Daniel G. Swanson, "The New Economy and Ubiquitous Competitive Price Discrimination: Identifying Defensible Criteria of Market Power," *Antitrust Law Journal* 70 (2003) 661-685 at 665; see also See, e.g., Hal R. Varian, "Differential Pricing and Efficiency," *First Monday* 1;2 (August 1996) at 2 ("[M]any important industries involve technologies that exhibit increasing returns to scale, large fixed and sunk costs, and significant economies of scope. Two important examples of such industries are telecommunications services and information services. In each of these cases the relevant technologies involve high fixed costs, significant joint costs and low, or even zero, marginal costs. Setting prices equal to marginal cost will generally not recoup sufficient revenue to cover the fixed costs and the standard economic recommendation of 'price at marginal cost' is not economically viable. Some other mechanism for achieving efficient allocation of resources must be found.").
- ²⁰ Facebook and its partners in Internet.org have made extensive investments to understand the realities of Internet access in the developing world and to use this knowledge to develop ways to expand Internet access in such countries.
- ²¹ Relatedly, to the extent Zero Rating ultimately increases the audience for mobile content services, it also implicates yet another "side" of the multi-sided mobile wireless ecosystem – advertisers. I understand that Facebook Zero does not depend on advertising, but the same is not true for other firms participating in Zero Rating programs, such as Google and Pandora.
- ²² See "Globe Telecom Expands Mobile Data Business with Free Facebook, Free Viber Offer," *Adobo Magazine* (January 8, 2015) (available at <http://www.adobomagazine.com/philippine-news/globe-telecom-expands-mobile-data-business-free-facebook-free-viber-offer>).
- ²³ See e.g., Susan Crawford, "Zero for Conduct," *Medium.com* (January 7, 2015) (available at <https://medium.com/backchannel/less-than-zero-199bcb05a868>, viewed February 6, 2015).
- ²⁴ See, "AT&T Introduces Sponsored Data for Mobile Data Subscribers and Businesses," (January 6, 2014) (available at [http://www.att.com/gen/press-room?pid=25183&cdv n=news&newsarticleid=37366&mapcode=consumer\[mobile-devices\]](http://www.att.com/gen/press-room?pid=25183&cdv n=news&newsarticleid=37366&mapcode=consumer[mobile-devices])).
- ²⁵ The fact that some content providers *choose* not to participate in zero rating does not mean they are "foreclosed" in any sense of the word, since they had the opportunity to do so.
- ²⁶ For example, it is worth recalling that each mobile network is not a distinct market, but rather that all mobile networks in a given geographic area compete in the same relevant product market. Hence, an exclusive arrangement with a single carrier does not foreclose competition in the entire market.
- ²⁷ See e.g., Crawford (2015).
- ²⁸ See AT&T, "Our Sponsored Data Providers" (available at <http://www.att.com/att/sponsoreddata/en/index.html#fbid=PYLLaU9knHP>, viewed February 8, 2015).
- ²⁹ The antitrust laws properly focus on protecting competition, not individual competitors. It is also noteworthy that the firms identified by Zero Rating's critics as potential "victims" tend to be established firms like Netflix and Skype (Microsoft), not startups and new entrants. See e.g., New American Foundation, Center for Media Justice, Media Access Project, *Notice of Ex Parte Presentation: GN Docket No. 09-191 (Preserving the Open Internet); WC Docket No. 07-52 (Broadband Industry Practices)* (January 10, 2011) (available at http://newamerica.net/publications/resources/2011/notice_of_ex_parte_presentation_gn_docket_no_09_191_preserving_the_open_).

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Contact

For further information, please contact:

Dr. Jeffrey A. Eisenach

Senior Vice President

Co-Chair, Communications, Media, and Internet Practice

+1 202 448 9029

jeff.eisenach@nera.com

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