

Serafica, Ramonette B.; Oren, Queen Cel A.

Working Paper

Should the Philippines Adopt Net Neutrality Regulations?

PIDS Discussion Paper Series, No. 2023-14

Provided in Cooperation with:

Philippine Institute for Development Studies (PIDS), Philippines

Suggested Citation: Serafica, Ramonette B.; Oren, Queen Cel A. (2023) : Should the Philippines Adopt Net Neutrality Regulations?, PIDS Discussion Paper Series, No. 2023-14, Philippine Institute for Development Studies (PIDS), Quezon City

This Version is available at:

<https://hdl.handle.net/10419/284613>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Should the Philippines Adopt Net Neutrality Regulations?

Ramonette B. Serafica and Queen Cel A. Oren



The PIDS Discussion Paper Series constitutes studies that are preliminary and subject to further revisions. They are being circulated in a limited number of copies only for purposes of soliciting comments and suggestions for further refinements. The studies under the Series are unedited and unreviewed. The views and opinions expressed are those of the author(s) and do not necessarily reflect those of the Institute. Not for quotation without permission from the author(s) and the Institute.

CONTACT US:

RESEARCH INFORMATION DEPARTMENT
Philippine Institute for Development Studies

18th Floor, Three Cyberpod Centris - North Tower
EDSA corner Quezon Avenue, Quezon City, Philippines

publications@pids.gov.ph
(+632) 8877-4000

<https://www.pids.gov.ph>

Should the Philippines Adopt Net Neutrality Regulations?

Ramonette B. Serafica and Queen Cel A. Oren

PHILIPPINE INSTITUTE FOR DEVELOPMENT STUDIES

October 2023

Abstract

Net neutrality has been one of the most controversial issues in internet regulation. Currently, there is no policy or regulation on net neutrality in the Philippines. This might change, however, with the inclusion of paid prioritization and throttling among the prohibited acts in the proposed Open Access in Data Transmission Act. Based on a review of the economic arguments and approaches adopted in other countries, integrating net neutrality principles in the proposed legislation could lead to unintended consequences that may hinder the growth of the data transmission industry. Instead, a separate measure could be introduced, if deemed appropriate, after careful study.

Keywords: internet, network, neutrality, non-discrimination

Table of Contents

1. Introduction	1
2. Background on the net neutrality principle	2
3. The economic arguments on net neutrality	8
4. Approaches to net neutrality	11
5. Implications for developing Philippine ICT policies and regulations	14
6. References.....	16
7. Appendix A. Net neutrality measures by country	20
8. Appendix B. Non-discrimination policies and regulations in the Philippine ICT sector	24

List of Tables

Table 1. Non-discrimination in Philippine ICT-related laws and regulations.....	6
Table 2. Proposed Open Access in Data Transmission Act/Open Access in Internet Services Act: Prohibited acts related to net neutrality.....	7
Table 3. Other concerns and possible trade-offs.....	10

List of Figures

Figure 1. The internet value chain.....	2
---	---

List of Boxes

Box 1. Defining net neutrality.....	3
-------------------------------------	---

Should the Philippines Adopt Net Neutrality Regulations?

*Ramonette B. Serafica and Queen Cel A. Oren**

1. Introduction

Net neutrality has been one of the most controversial issues in internet regulation. It is considered one of the problematic competition issues in digital markets, along with self-preferencing and technology-assisted collusion using algorithms (Silva and Nuñez 2021). Advocates for net neutrality argue that the principle of non-discrimination will ensure that innovation and freedom of expression are not curtailed (Finley 2020). However, critics caution that simplistic interpretations of non-discrimination may also lead to underinvestment in networks and less innovation, particularly in developing new apps and services. Both sides say that consumers will ultimately be harmed.

Currently, there is no policy or regulation on net neutrality in the Philippines. This might change, however, with the inclusion of paid prioritization and throttling among the prohibited acts in the proposed Open Access in Data Transmission Act. By introducing a net neutrality policy, it is expected that large telecommunications companies will be prevented from using their dominant position in the market to influence how people use the internet. For example, a telco might impose a data cap on regular internet access, but exclude certain video streaming or social media services from the cap. This would give those services an unfair advantage over their competitors, and limit people's choices about how they use the internet (“Is Net Neutrality Important” 2022).

Continuing from Serafica and Oren (2022), which provided an overview of the competition issues along the digital sector value chain, particularly in internet access connectivity, the specific objectives of this paper are as follows:

1. Understand the economic arguments for and against net neutrality.
2. Scan evidence of its impact, if available.
3. Synthesize key insights and lessons that could be considered in developing appropriate policies and regulations for the Philippines.

The paper seeks to contribute to promoting competition and improving regulatory efficiency in and through the internet and digital technologies, which are among the cross-cutting strategies identified in Chapter 10 on “Promote Competition and Improve Regulatory Efficiency” in the Philippine Development Plan 2023-2028 (NEDA 2022).

The next chapter presents an overview of the concept of net neutrality and its evolving impact on the increasingly complex internet value chain. Chapter 3 discusses the economic arguments for or against net neutrality, particularly on price regulation, alternative approaches, other concerns, and possible trade-offs. The different approaches of other countries in introducing

* Senior Research Fellow and Research Specialist, respectively, at the Philippine Institute for Development Studies. The views expressed in this paper are those of the authors and do not necessarily reflect the position or official policy of any company or any agency of the Philippine government. The authors are solely responsible for the analysis and conclusions in this paper including any errors.

net neutrality are discussed in Chapter 4. The paper concludes with insights and lessons for developing ICT policies and regulations for the Philippines.

Although various issues such as the proliferation of disinformation and misinformation, freedom of expression, censorship, and privacy are highly relevant to the net neutrality debate, the discussions in this paper are limited to the economic aspects of net neutrality, such as on innovation, investment, price regulation, and competition along the internet value chain.

2. Background on the net neutrality principle

Figure 1 shows the internet value chain developed by A.T. Kearney for GSMA (2022). It involves various segments, from content rights to digital services, the enabling technology and services, internet access connectivity, and the user interface. As the figure illustrates, the flow and types of online content and services that can reach the final consumer can be influenced or restricted along the value chain. This section presents a brief overview of how the issue of net neutrality has evolved, starting from the initial focus on the devices used to connect to the internet in the early 2000s to prioritizing content in the 2010s and, more recently, to the role of new gatekeepers (such as social media platforms like Facebook), app stores, and new technologies such as Artificial Intelligence (AI).

Figure 1. The internet value chain



Source: GSMA (2022)

Net neutrality is generally understood to mean internet service providers should treat all content equally (Finley 2020). This implies that ISPs cannot block, throttle, or prioritize content as they wish (See Box 1). The term net neutrality was coined by Columbia University law professor Tim Wu in a 2003 paper. Back then, some broadband providers in the US banned home internet users from **accessing virtual private networks (VPNs)**, while other companies banned users from using **Wi-Fi routers**. He called for anti-discrimination rules to ensure broadband providers will not restrict **new technologies**. According to Wu (2003, p. 142), “the basic principle behind a network anti-discrimination regime is to give users the right to use non-harmful network attachments or applications, and give innovators the corresponding freedom to supply them.”

Box 1. Defining net neutrality

Although there is no one definition of net neutrality, it is generally understood to include three key components: (1) anti-zero rating, (2) anti-prioritization, and (3) the inability to block and "throttle" internet content.

Zero rating is the practice that exempts some websites or services from data caps.

Paid prioritization is the ability for broadband service providers to charge website operators for users to access their websites at faster speeds than other websites.

Anti-throttling rules would prevent internet service providers from slowing down access to certain websites. Throttling is related to paid-prioritization - throttling is experienced by an end user, whereas paid prioritization is a potential regime that would allow websites to pay broadband service providers a fee to prevent throttling on their sites.

Blocking involves completely cutting off customer access to certain websites.

Source: Lifted in full from Grainger (2020, pp.478–479)

Along with the development of the internet, the application of net neutrality has evolved and affected the entire internet value chain, from using a user interface, such as VPNs and devices to connect to the internet in the early 2000s to prioritizing content in the 2010s involving issues on zero-rating and network fees, and more recently to the role of new gatekeepers such as user interface involving operating systems (OS) and application discovery software (e.g., browsers and app stores) (Krämer and Feasey 2021; Cows et al. 2023); online services (e.g., social media, search engine, online marketplace, and other online intermediate services); and even cross-cutting technologies, such as algorithmic selection and AI (Garz and Szucs 2023; Digital Watch Observatory n.d.).

In some countries like Germany, India, Chile, and Canada, **zero-rating is not allowed** (except in some cases). In Germany, Vodafone and Deutsche Telekom violated regulations on net neutrality because of discriminatory treatment of internet services in offering **zero-rated plans**, particularly in imposing limitations on bandwidth, roaming, and tethering (Telecompaper 2021). India banned **differential pricing** of data services in 2016 (TRAI 2016). This includes prohibiting Facebook's free basic internet services ("India Blocks Zuckerberg's" 2016). Chile's regulatory agency also prohibits zero-rating, except when ISPs provide zero-rating offers as part of a data plan. In Canada, ISPs cannot zero-rate their own services (Garrett 2022; Marsden 2016).

However, **zero-rating is considered beneficial** or is a common practice in other countries, such as Australia, Brazil, New Zealand, and Japan. In Indonesia, telecom operators can partner with or block certain content providers. Zero-rating is a common practice in Australia and Brazil (in the case of mobile ISPs) and is allowed in New Zealand. Japan's working group on net neutrality provided guidelines to avoid its abuse. The report by the Commerce Commission of New Zealand in 2012 stated that its relevance would diminish as the data cap increases (Garrett 2022; Marsden 2016).

Some economies, such as the European Union (EU), South Korea, India, and Vietnam, face ongoing debates among content providers, ISPs, and other stakeholders regarding imposing

content providers to pay **network fees**. Large telecom operators demand content providers to pay network fees, which is opposed by other stakeholders such as the creative industry, sports, civil society, and consumers in the EU. More than 12 civil society groups appealed to the government to revoke the sending party network pays (SPNP) rule in South Korea. In India, the Internet & Mobile Association of India (IAMAI), with members such as Amazon and Meta, opposed the proposal mandating over-the-top services (OTTs) to pay network fees (Clover 2023; Mehta and Srivastava 2023; Sarkar 2023; Malvania 2023). A public consultation was launched from February 23 to May 19 in 2023 by the European Commission, which includes a proposal called “**fair share**”, whether content and application providers in general or largest traffic generators should be required to pay for network fees to contribute to network deployment and whether these payments should be given to electronic communications networks or internet service providers (European Commission 2023).

South Korean government implemented the **sending party network pays** (SPNP) rule in 2016. This included requiring large content providers to pay network fees to network operators in 2020. Adverse effects included reduced quality of audiovisual content by OTT providers, increased subscription prices, data costs and latency, and exit of market players. More than 12 civil society groups appealed to the government to revoke the SPNP rule (Mehta and Srivastava 2023). There is also an ongoing dispute between SK Broadband (ISP) and content provider US Netflix. SK Broadband compels US Netflix, an **OTT service, to pay for network fees**. However, US Netflix states that it is against the principles of net neutrality because of discriminating content based on origin (Yun 2023). A similar issue can be observed in Vietnam, wherein telecom operators demand OTT players to pay network fees to contribute to developing telecommunications infrastructure (Quy 2023).

The Cellular Operators Association of India (COAI), composed of major telco operators, demands that OTTs pay network fees. The association also claimed that revenue sharing does not violate net neutrality. This proposal is opposed by the Internet & Mobile Association of India (IAMAI), with members such as Amazon and Meta. The Department of Telecommunications (DoT) mandated the Telecom Regulatory Authority of India (TRAI) to develop a consultation paper introducing a framework that would regulate OTTs like the telcos (Sarkar 2023; Malvania 2023).

The Dutch government warned against the adverse effect of imposing network fees on OTT providers since it would ultimately be passed on to consumers already paying subscriptions for both internet and OTT services. According to the study commissioned by the government, there is no robust evidence to say that imposing network fees would increase economic efficiency, and network operators are not burdened by network costs due to modernization (e.g., decreasing the need for employees and capital costs) (Chee 2023). See Appendix A.

Krämer et al. (2013) recognized that while the net neutrality debate focused primarily on internet access providers, similar concerns would emerge in the other segments of the internet value chain. Krämer and Feasey (2021) explained that **device neutrality** is another application of the non-discrimination principle. They described the internet access value chain as having three main components or building blocks – (1) Online content, (2) the network, and (3) the device. The device is further made up of several layers: the hardware layer, the operating system layer, the app discovery layer (e.g., app store), and the app layer comprising all the apps (including web apps and websites) that are accessed and used on a device. Typical content will have to go through these various layers to reach the final consumer. With the emergence of **new gatekeepers**, they examined whether the principles of ‘openness’, ‘non-discrimination’,

and ‘transparency’, embodied in net neutrality regulation, should also extend to other layers of the internet access value chain, specifically to devices. Issues involve pre-installing apps, self-preferencing in app stores, limiting the functionality of browsers in certain OS, and limiting certain content in browsers (e.g., ad blocking).

Cross-cutting technologies, particularly **algorithms and AI**, are employed in different activities along the internet value chain and also have roles in net neutrality. For instance, the algorithm of **social media platforms** may incentivize or disincentive the generation of certain content. The study of Garz and Szucs (2023) stated that Facebook’s changes in the algorithm are mainly driven by the objective of optimizing profit by increasing user engagement. Its algorithm update in 2013 and 2014, favoring high-quality news content, resulted in a 30 percent increase in news publishers’ number of political posts on Facebook compared to printed articles. In 2021, Australia passed a law mandating large platforms and news publishers to negotiate on the remuneration of news content provided by news publishers as content for large platforms. Canada, the EU, and the UK legislators are also pushing for similar initiatives. However, this might disadvantage small publishers with lesser user engagement since large platforms are more likely to select content providers that generate more user engagement, consequently producing less diversified content. In addition, ISPs may use AI to manage traffic, particularly in analyzing data traffic patterns and user behavior. It can serve as a monitoring tool to ensure that ISPs comply with net neutrality principles and identify practices of ISPs that could be discriminatory. However, it would also be easier for ISPs to prioritize content or applications and determine which services to zero-rate (Digital Watch Observatory. n.d.).

Krämer (2019) highlighted the main concern in the EU regarding Internet Access Service (IAS) providers, considering their potential dominance as gatekeepers due to control over termination points. Their market power might distort competition between content providers and hinder consumers’ access to content. The discussions on net neutrality centered on four key goals: (1) Discouraging vertically integrated providers from limiting downstream competition; (2) Curbing content fragmentation of content and service incompatibility; (3) Encouraging investment and innovation incentives; and (4) Enhancing welfare, particularly regarding consumer surplus. These objectives are vital for net neutrality regulations. These are applicable to IAS providers, intermediation services, or devices. The fourth objective was a comprehensive assessment that could be weighed against other objectives or new considerations. The EU implemented stringent ex-ante rules for IAS providers to establish an “open Internet”, ensuring free information flow and fair competition among content and service providers.

Non-discrimination in Philippine ICT and the possible introduction of net neutrality rules

Although net neutrality regulations have not yet been introduced in the Philippines, non-discrimination principles are embedded in various Philippine ICT-related laws and regulations (Table 1). For example, in the Public Service Act, rates that are unjust, unreasonable, unduly preferential, or unjustly discriminatory are prohibited. In the Public Telecommunications Policy Act, telecommunications companies that provide value-added services must make sure that other providers of value-added service (VAS) are not discriminated against in rates nor denied equitable access to their facilities. Interconnection must also be provided by a telco under non-discriminatory terms, conditions (including technical standards and specifications), and charges. See Appendix B, specifying the relevant provisions.

Table 1. Non-discrimination in Philippine ICT-related laws and regulations

Year	Policies/regulations
1935	Commonwealth Act No. 146, The Public Service Act
1988	Memorandum Circular (MC) No. 4-08-88: Revised Rules and Regulations Governing Cable Television Systems in The Philippines
1990	MC No. 10-18-90: Rules and Regulations Governing the Public Repeater Network Services in The Philippines
1992	DC No. 92-269: Cellular Mobile Telephone System Policy
1993	MC No. 9-7-93: Implementing Guidelines on the Interconnection of Authorized Public Telecommunications Carriers
1993	MC No. 8-4-93: Mandatory Provisioning of PSTN Trunklines to Paging Operators and Other Similar Service Providers
1993	Department Circular No. 93-273: Domestic Satellite Communications Policy
1993	EO 109: Policy to Improve the Provision of Local Exchange Carrier Service
1993	EO 59: Prescribing the Policy Guidelines for Compulsory Interconnection of Authorized Public Telecommunications Carriers in Order to Create a Universally Accessible and Fully Integrated Nationwide Telecommunications Network And Thereby Encourage Greater Private Sector Investment In Telecommunications
1995	Republic Act (RA) 7925: An Act to Promote and Govern the Development of Philippine Telecommunications and The Delivery of Public Telecommunications Services; MC No. 8-9-95: Implementing Rules and Regulations for Republic Act No. 7925
1998	Executive Order (EO) No. 467: Providing for A National Policy on The Operation and Use of International Satellite Communications in The Country
2000	MC No. 14-07-2000: Implementing Rules and Regulations (IRR) for the Interconnection of Authorized Public Telecommunications Entities
2001	MC No. 06-09-2001: Implementing Rules and Regulations (IRR) For Retail Pricing
2002	MC No. 09-07-02: Implementing Rules and Regulations (IRR) For Specific Guidelines for Competitive Wholesale Charging for Interconnect Services
2003	MC No. 10-10-2003: Implementing Rules and Regulations Governing Community Antenna/Cable Television (CATV) And Direct Broadcast Satellite (DBS) Services to Promote Competition in The Sector
2005	MC No. 05-08-2005: Voice Over Internet Protocol (VOIP)
2007	MC No. 10-07-2007: Mandating the Development of Reference Access Offers (RAO) To Facilitate Fair and Expeditious Interconnection or Access Between Service Providers
2008	MC No. 02-05-2008: Value-added services
2022	RA 11659, The Public Service Act, as amended




Source: Author's compilation

Legislation that would incorporate net neutrality principles have been proposed since the 17th Congress. House Bill No. 6 and various counterpart versions¹ in the Senate entitled Open Access in Data Transmission Act/ Open Access in Internet Services Act were filed in the 19th Congress. As defined in the various proposals, the data transmission industry is composed of international cable landing station, nationwide backbone network, middle mile, and last mile, while data transmission is defined as “the process of sending digital or digitized analog signal over a communication medium to one or more computing networks, communication or electronic devices. It enables the transfer and communication of devices in a point-to-point,

¹ Senate bills 2146, 815, 1876, 183, 864, 1845, 1611, 1383, and 1213

point-to-multipoint and multipoint-to-multipoint environments. The term data transmission includes the provision of Voice over Internet Protocol (VoIP) services but does not include the provision of basic telephone services” (HB 6, Sec. 3e). The main objective of the proposed legislation is to reduce the digital divide in the country by promoting the growth of data transmission infrastructure and removing entry barriers to supply internet services (e.g., the requirement of a legislative franchise if a Value Added Service/ISP will set up its own network or directly purchase from international bandwidth providers).² Furthermore, it shall maximize the utilization of finite spectrum resources; set performing standards for ISPs to follow; and promote transparency, fair competition, infrastructure sharing, and co-location among data transmission participants. In addition, the bills contain provisions on prohibited acts, including refusal to plug and play, paid prioritization, and throttling, which are considered net neutrality principles (See Table 2).

Table 2. Proposed Open Access in Data Transmission Act/Open Access in Internet Services Act: Prohibited acts related to net neutrality

Prohibited Acts	HB 6	SB 2146	SB 815	SB 1876	SB 183	SB 864	SB 1845	SB 1611	SB 1383	SB 1213
 REFUSAL TO PLUG AND PLAY	X	X	X	X	X	X	X	X	X	X
 THROTTLING	X	X	X	X	X	X	X	X	X	
 PAID PRIORITIZATION	X	X	X	X						

Note: X = The bill includes a provision regarding the prohibited act

Source: Author’s compilation

In HB 06, the three (3) prohibited acts related to net neutrality are:

- Refusal to plug and play - Data transmission industry participants must provide access to their infrastructure to other participants, except for failure to pay open market fees for such access. They should not hinder end users from accessing or sharing information, using or offering applications, or choosing their equipment, regardless of the end user’s or provider’s location or content’s origin or destination.
- Paid Prioritization - A participant in the data transmission industry is prohibited from favoring paid content or services for financial gain or other reasons. However, the National Telecommunications Commission (NTC) may allow this if the participant shows that such a practice will bring notable public benefits and will not unfairly disadvantage non-prioritized content or disrupt the open structure of the internet.
- Throttling - Data transmission industry participants must treat all data traffic equally when delivering data access services without any bias, limitations, or disruptions. This applies regardless of who is sending or receiving the data, the content being accessed

² See Serafica and Oren (2022) and. Mirandilla-Santos (2021)

or shared, the applications or services being used or provided, or the specific equipment being utilized. It is not allowed for a participant in the data transmission industry to obstruct or decrease the speed of services, applications, or access to specific internet sites, except for cases such as blocking illegal contents, services, and applications or preserving the network's integrity and security.

3. The economic arguments on net neutrality

Hahn and Wallsten (2006) note that although there is no widely accepted and exact definition of net neutrality, it usually means that “broadband service providers charge consumers only once for Internet access, do not favor one content provider over another, and do not charge content providers for sending information over broadband lines to end users. In other words, ‘net neutrality’ is actually a friendly-sounding name for price regulation” (p. 1). While some types of price regulations are acceptable, they add that these could also distort incentives to invest in broadband and hinder the development of new services or applications. Mandating net neutrality could also harm consumers, for example, if hospitals were not allowed to offer faster and guaranteed delivery of telemedicine. Some pricing flexibility may be acceptable to proponents, such as pricing customer bandwidth capacity differently depending on the connection speed. Certain application-specific tiering could also be accommodated. Consumer tiering of services could also be allowed as long as this is open to all providers. However, Hahn and Wallsten (2006) point out that defining a tier could be problematic and that large inefficiencies could arise from price regulation. Thus, they argue that it would be better for the government to promote competition, remove artificial regulatory barriers, and enforce antitrust laws.

In 2007, a group of economists prepared a position paper warning that proposals to implement net neutrality may do more harm than intended (Baumol et al. 2007). According to the Economists' Statement on Network Neutrality Policy, in a highly dynamic market such as high-speed Internet services, regulators would find it difficult to determine and forecast the appropriate prices given the changes in consumer demand as well as technology. They believe that there is sufficient competition in these markets that would prevent anti-competitive practices. Even if there are service providers with market power, there are powerful incentives not to engage in such practices. Specifically, since internet service providers operate in **multi-sided markets**, they would be careful in blocking or controlling content to avoid losing subscribers. They ask the government to allow internet providers to experiment with different business models and that instead of the net neutrality proposals, the following should be pursued (p. 2-3):

- Recommendation 1: The antitrust enforcement agencies should be directed to investigate and, if the evidence warrants, file actions to prevent abuses by Internet service providers with market power that distort competition on the Internet.
- Recommendation 2: Firms should be allowed to experiment with different pricing schemes for providing Internet access.
- Recommendation 3: Congress and federal regulators should promote policies that increase the opportunities for competition and foster Internet innovation. One such policy would be spectrum liberalization.

It could be argued that other countries like the Philippines may not have the same degree of competition or safeguards as the US. Thus, too much reliance on competitive forces to discipline internet providers may be misplaced even in multi-sided markets. However, the concern about the effectiveness of pricing regulation remains valid, regardless of the market structure.

Weisman and Kulick (2010) stressed the need to distinguish between **differential pricing** and **discriminatory pricing**. The former refers to charging different prices for different levels (or types) of service and should not be treated as discrimination, which implies charging different prices for the same service. Both cases could lead to welfare improvements. In the case of differential pricing, allowing ISPs to offer content providers a variety of price-quality combinations encourages innovation and improves consumer welfare. Price discrimination can be welfare-increasing as well, for example, if ISPs are able to charge users based on their demand characteristics, thereby increasing the subscriber base. The welfare-increasing effect of price discrimination also extends to content providers, given the two-sided nature of broadband service provision (i.e., linking content and users) and the increasingly competitive market for internet services. Moreover, price discrimination by ISPs promotes dynamic efficiency by encouraging innovation in the provision of broadband services. However, some forms of price discrimination could be anti-competitive (e.g., ISPs favoring affiliated content providers). Still, they argue that the solution is not to introduce blanket ex-ante regulation but rather to enforce antitrust law on a case-by-case basis, which is similar to the position taken by others.

Schuett (2010) reviewed the available economic studies on network neutrality, which looked at two sets of issues. Since internet access is a two-sided market, the **zero-price rule** focuses on whether network operators should be allowed to charge content providers (the originator) a fee to access its customer base. The **non-discrimination rule** focuses on whether network operators can discriminate with respect to the price or quality of transmission based on factors such as the origin, type, or destination of the data packet. Related to this issue is whether a network operator has the incentive to engage in vertical foreclosure or degrade the traffic of its competitors in favor of its affiliates. Except for cases involving actual degradation of services, which could be addressed by existing competition laws, the survey did not reveal compelling and unambiguous welfare effects of net neutrality regulation. The effect would depend on factors such as relative sizes of network externalities or the nature of competition. Faulhaber (2011) likewise assessed existing economic literature and found no convincing arguments that net neutrality would be unequivocally welfare-enhancing. Moreover, the **cost of regulation** itself and the risks from **rent-seeking behavior** should be considered. Since there is weak support for ex-ante regulation, it was deemed more prudent to wait for actual evidence of harm before intervening in specific cases.

Economic trade-offs from net neutrality rules³

Although it is acknowledged that net neutrality is still a relatively young topic with scant empirical support for either side of the argument, Greenstein et al. (2016) explain the possible economic trade-offs regarding the likely effect on the **distribution of rents** and the **efficiency of outcomes**. Two definitions of net neutrality have been the subject of economic literature (See also Schuett 2010). One focuses on the **pricing model**. One-sided pricing prohibits internet service providers from collecting or receiving payments from content providers. This

³ This section is adapted from Greenstein et al. (2016)

contrasts with a two-sided pricing model, which allows such payments. The other focuses on **prohibiting, whether paid or unpaid, the prioritization of traffic**. The possible trade-offs would be shaped by factors such as the extent to which the inputs provided by firms (i.e., the ISPs and the content providers) complement each other; the size and direction of traffic and payment flows; and whether some firms, particularly the ISP which links the content to the users, have market power.

Greenstein et al. (2016) further note that price setting interacts with the **quality of service** when networks regularly suffer congestion. Although any form of congestion pricing would not be consistent with strong net neutrality principles, it could provide the right incentives to users and reduce congestion. Traffic could be delayed until nonpeak hours, while some types of traffic or users could be treated unequally during peak hours. For example, a slow lane that is provided for free and a fast lane that will require payment. Such a scheme could be welfare-enhancing if reduced congestion allows high-value and time-sensitive traffic to be delivered. However, it could also be welfare-reducing if this leads to lesser content being made available for users or distorts the market shares of content providers in favor of those willing to pay for prioritized delivery. In addition, there is concern regarding the ability of ISPs to manipulate traffic prioritization schemes.

In the medium to long term, congestion could worsen due to a lack of investment or by the rules (or lack thereof) regarding the prioritization of traffic. Depending on the competitive environment, both vertical competition (between content providers and ISPs integrated into content) and horizontal competition (among ISPs) might result in long-term trade-offs. See Table 3.

Table 3. Other concerns and possible trade-offs

Issues	Arguments for and against NN
Investment	Those who oppose net neutrality argue that paid prioritization will allow ISPs to invest in increasing the capacity of their networks. However, others argue that without net neutrality, an ISP might benefit from intentionally degrading the quality of the non-priority lane or creating artificial scarcity to drive traffic to a paid priority lane. ISPs could do this by investing less in the capacity of lower-tier service, making it slower and less reliable, thus inducing content providers to pay for the faster lane.
Innovation	Some innovative services offered by content providers may need a certain level of network performance or quality of service to be feasible. For example, guaranteed delivery quality may be essential for socially valuable innovations in interactive e-learning, e-healthcare services, and self-driving cars. In this case, prioritization would allow ISPs to generate additional revenue from content providers through priority fees. At the same time, some highly congestion-sensitive applications that were not viable under net neutrality would enter the market if they could negotiate deals for high-priority lanes. As a result, innovation in content provider services would also increase.
Competition and Bottlenecks	If there is an increased competition among internet service providers, there could be no need for net neutrality regulation. If the content provider has the bargaining power to negotiate its termination fees with the internet service provider or if it can reach some users across multiple platforms (i.e., if some end users "multi-home"), the "termination bottleneck", a problem that was prevalent in traditional telephony regulation, would not be as critical.

Competition and Vertical issues	ISPs can stifle competition by charging termination fees for other content providers to reach their customers while giving their own services an unfair advantage. Without net neutrality rules or competition law, this leads to partial or full exclusion.
---------------------------------	--

Source: Greenstein et al. (2016)

Greenstein et al. (2016) caution against making bold claims either in support or against net neutrality as there is still little evidence or experience to draw from, even from other industries. They stress that the actual trade-offs will depend, among other things, on the specific net neutrality rules and their implementation.

4. Approaches to net neutrality

Some countries have implemented measures, in varying degrees, to comply with net neutrality principles, whether in the form of laws, regulations, or guidelines, while others have not adopted net neutrality measures (See also Appendix A).

Laws and regulations

Some countries incorporated net neutrality measures in their **existing telecommunications laws**. In 2010, net neutrality provisions, Articles 24H, 24I, and 24J, were added to Chile’s General Law of Telecommunications. According to Article 24H, “[ISPs] may not arbitrarily block, interfere, discriminate, hinder or restrict the right of any Internet user to use, send, receive or offer any content, application or legal service through the Internet, as well as any other type of activity or use legal made through the network.” However, exceptions include traffic management, network administration, user privacy, virus protection, network security, and customer request. To uphold transparency, ISPs must publish minimum information on internet connection services set by the Subsecretaria de Telecomunicaciones. Chile’s regulatory agency also prohibits zero-rating, except when ISPs provide zero-rating offers as part of a data plan (Garrett 2022).

In Switzerland’s Telecommunications Act, Article 12e (Open Internet) was inserted in 2019, stating that “the providers of internet access shall transmit information without making any technical or commercial distinction between senders, recipients, content, services, service classes, protocols, applications, programs or terminals.” Exceptions include complying with legal requirements, guaranteeing network security and integrity, complying with customer requests or offering other services to meet customer requirements, and resolving temporary network congestion. Customers and the public must be informed of any changes in handling data transmission.

Brazil enacted a **specific law governing Internet use** called the Marco Civil Law of the Internet, which contains provisions on net neutrality. In 2014, Brazil enacted a specific law (Marco Civil Law of the Internet in Brazil) governing internet use that involves net neutrality provisions. According to Chapter III, Section I, Article 9, “The party responsible for the transmission, switching or routing has the duty to process, on an isonomic basis, any data packages, regardless of content, origin and destination, service, terminal or application.” Other measures were also provided in case of discrimination of data traffic for reasons other than complying with technical requirements and prioritizing emergency services. Mobile networks commonly offer zero-rating, and existing regulations do not have a clear statement on whether this is prohibited or not (Garrett 2022).

Guided by net neutrality principles, the Telecom Regulatory Authority of India (TRIA) issued an **ex-ante regulation** prohibiting “discriminatory tariffs for data services” in 2016 after its consultation with stakeholders and internal deliberations in 2015. This regulation implied prohibiting Facebook’s free basic internet services (“India Blocks Zuckerberg’s” 2016).

The Regulation (EU) 2015/2120 of the European Parliament and of the Council laid down measures wherein internet service providers are mandated to practice equal and non-discriminatory treatment of data traffic in providing internet services. The regulation also includes “transparency measures for ensuring open internet access” (Article 4). However, traffic management may be reasonable for managing temporary network congestion, protecting network integrity and security, adhering to legal requirements, and providing specialized services.

Appendix A shows some similarities of net neutrality provisions in laws and regulations of various countries. In general, ISPs are mandated to comply with **non-discrimination** of data traffic. Countries also provided **exceptions** when discrimination of data traffic is necessary, such as to comply with legal and technical requirements, prioritize emergency services, ensure the integrity and security of the network, resolve temporary network congestion, and comply with quality requirements or provide specialized services requested by customers. Countries like Chile and the EU provided **transparency measures**, requiring ISPs to inform consumers of data traffic management policies and practices. Economies like Brazil, the EU, and India conducted public consultations with companies, consumers, and other stakeholders to gather insights and feedback in creating laws and regulations based on net neutrality principles.

Guidelines

Japan and South Korea have set guidelines regarding net neutrality. In Japan, the Working Group on Net Neutrality recognizes the benefits of zero-rating to consumers and provides guidelines to avoid abuse. Net neutrality violations are then investigated case-by-case using laws that uphold fair competition and consumer protection. In 2019, due to the developments in the broadband industry, particularly the proliferation of mobile broadband services, the Ministry of Internal Affairs and Communications (MIC), a Telecommunications regulator in Japan, released an interim report containing four (4) user rights in line with net neutrality principles where users pertain to both consumers and businesses. These involve users’ right to access and provide content and applications, connect to the internet using any equipment that meets technical standards, and use communication and platform services for proper prices (Jitsuzumi 2020). In South Korea, consumers must be adequately informed about traffic management policies and practices, which should be implemented reasonably (Garrett 2022; Study Group on Network Neutrality 2019).

Among the ASEAN countries, Singapore and Brunei Darussalam provided explicit guidelines on net neutrality. Singapore conducted a public consultation in 2010 and released guidelines in 2011. These involve the following: (1) ISPs should not block legal content. (2) They should also comply with competition and interconnection rules, (3) provide transparent information, and (4) meet quality of service (QoS) standards. (5) Compliant ISPs are eligible to provide differentiated internet services, such as specialized services (IMDA 2011).

The Authority for Info-communications Technology Industry of Brunei Darussalam (AITI) conducted an industry consultation in 2018 and found that net neutrality is not an immediate concern. However, the telecommunications regulator published three (3) guiding principles on

net neutrality: (1) No discrimination of data, (2) transparency of terms and services, and (3) reasonable traffic management practices, except for national security, emergency services, law enforcement, and content regulation (AITI n.d.).

Non-regulated

Regulation on net neutrality was revoked at the federal level in the US in 2017. Nonetheless, states may impose partial or full net neutrality rules. In 2005, the Federal Communications Commission (FCC) under the Bush administration issued the first anti-discrimination rule in a policy statement prohibiting ISPs from blocking legal content or preventing customers from choosing their preferred devices to connect to the internet. In 2008, Comcast was ordered to stop slowing connections that used peer-to-peer file-sharing software BitTorrent. However, this was challenged in the courts and the FCC lost. Another order was issued in 2010, suing the FCC again. Verizon argued that the FCC had no authority to impose non-discrimination regulations on services that were not considered common carriers, such as traditional telephone services. Thus, the FCC decided to reclassify broadband providers as carriers with fewer obligations, allowing them to pass new net neutrality regulations in 2015 under the Open Internet Order. This was again challenged. In December 2017, the FCC voted to throw out the 2015 rules and drop the common-carrier status for broadband providers and any restrictions on blocking or throttling content. They are required instead to disclose information about their network management practices. The Federal Trade Commission is responsible for protecting consumers from net neutrality violations. However, since the FTC is only an enforcement agency and not a rule-making one, it cannot do anything unless a net neutrality violation is also considered a violation of existing fair competition laws. Thus, outright blocking a competitor might be an antitrust violation, but creating fast lanes for companies that pay extra for special treatment might not be considered as such.

Although there are no net neutrality rules in Australia, it has a **competitive broadband market** and a strong **consumer protection law** that prevents blocking or throttling of content and mandates ISPs to be transparent. New Zealand also has a competitive broadband market, and the **ISPs are transparent** to consumers. Later, a public discussion document on revising the Telecommunications Act of 2001 was released, containing issues on net neutrality to gather perspectives from consumers, ISPs, content providers, and other stakeholders.

Other ASEAN countries do not have explicit net neutrality rules. Indonesia does not restrict ISPs from discriminating against content (ICLG 2023a; Christopher & Lee Ong 2018). ISPs in Malaysia may also set differentiated services and rates provided that they comply with the law. In Malaysia and Thailand, ISPs are required to comply with Quality of Service (QoS) standards (ICLG 2023b; Jirakasem and Smerchuar 2021). The Law of Telecommunications 2009 in Viet Nam prohibits obstruction of access to lawful information and internet services, except for national security and public interest (Tran 2022).

5. Implications for developing Philippine ICT policies and regulations

Should the Philippines adopt net neutrality regulations? It depends on the ultimate objective, and whether the approach taken will have clear-cut results. Net neutrality may lead to unintended consequences depending on how the regulation is specified and implemented. As noted above, the actual trade-offs will also be shaped by several factors that may differ from one jurisdiction to another. Is the current competition law sufficient to prevent anti-competitive behavior by ISPs vis-à-vis content providers (e.g., vertical foreclosure)? What is the role of consumer protection law? Is there a need to adopt a guaranteed minimum standard of quality? Will new technologies (e.g., AI, big data) and business models (e.g., multi-sided digital platforms) lessen or increase the need for net neutrality regulations? Furthermore, in adopting net neutrality principles, the government may need to develop measures to ensure the transparency of network traffic management and procedures are in place in case of discrimination of data traffic, identify minimum quality of service, and define the roles of relevant government agencies (e.g., PCC⁴, DICT⁵, NTC).

Policymakers must clearly identify the public interest at stake and assess the government's enforcement capacity to identify the most suitable regulatory approach and instrument. The government could first create a technical working group and seek inputs from various stakeholders such as industry associations and firms (e.g., content and online service providers to internet service providers and network providers); relevant non-governmental organizations and academe; and consumer groups to understand their view on discrimination in internet access as well as their experience with network congestion, bandwidth pricing, etc. Their inputs will inform to what extent net neutrality principles should be applied in ICT regulations regarding policies and practices, exceptions, and transparency requirements in managing data traffic. It will also help the government assess net neutrality's priority level and gravity.

Several regulations are in place to prevent anti-competitive discriminatory practices in the ICT sector. Are these being enforced? Are these effective? It would be useful to determine if existing access regulations have helped create a level playing field before additional non-discriminatory regulations are introduced that would have implications across the entire internet value chain. As pointed out in Serafica and Oren (2022), for example, there may be a need to clarify the interpretation of the non-discrimination provision in the regulation governing value-added services (NTC MC No. 02-05-2008) to ensure that it is consistent with the intention of the policy, which is to prevent a vertically integrated internet access and service provider to discriminate against rival internet service providers.

An open internet policy is ideal where all content can reach all users and vice-versa. But how would this affect those who are not yet connected to the internet? In a country where the digital divide is still a major problem, net neutrality regulation could be a double-edged sword that must be carefully wielded, given the potentially dampening effect on network expansion and the introduction of novel services.

The objective of the proposed Open Access in Data Transmission (OADT) Act is to accelerate the growth of broadband infrastructure. According to its advocates, the OADT Act is “a curative law designed to address legal obstacles and bridge broadband infrastructure gap.” (Mirandilla-Santos, 2021). However, the impact of net neutrality on investment and innovation is ambiguous. Thus, if not carefully studied and crafted, it may have the opposite

⁴ Philippine Competition Commission

⁵ Department of Information and Communications Technology

effect that the OADT Act seeks to achieve. By inserting net neutrality provisions, the OADT ceases to be a curative law and may even introduce a new set of disincentives to bridge the broadband infrastructure gap.

Removing barriers to entry and other constraints to the growth of the internet access connectivity segment of the internet value chain should be addressed with utmost urgency. Given the risks of unintended consequences (e.g., slower investment and innovation), it may not be prudent to incorporate net neutrality provisions in the OADT. Instead, a separate measure could be introduced, if deemed appropriate, after careful study.

6. References

- AITI. n.d. Net neutrality. Authority for Info-communications Technology Industry of Brunei Darussalam <https://www.aiti.gov.bn/regulatory/net-neutrality/> (accessed on May 10, 2023).
- Baumol, W. J., M. Cave, P. Cramton, R. Hahn, T. W. Hazlett, P. L. Joskow, A. E. Kahn, R. Litan, J. Mayo, P. A. Messerlin, B. M. Owen, R. S. Pindyck, V. L. Smith, S. Wallsten, L. Waverman and L. J. White. Economists' Statement on Network Neutrality Policy. AEI-Brookings Joint Center for Regulatory Studies.
- BEREC. 2022. BEREC Guidelines on the Implementation of the Open Internet Regulation. <https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-on-the-implementation-of-the-open-internet-regulation-0> (accessed on April 26, 2023).
- Chee, F. Y. 2023. Dutch warn against internet toll as EU looks to Big Tech to fund networks. Reuters. February 27. <https://www.reuters.com/technology/dutch-warn-against-internet-toll-eu-looks-big-tech-fund-networks-2023-02-27/> (accessed on May 15, 2023).
- Chile Law No. 20453. 2010. Establishes the principle of net neutrality for consumers and internet users. <https://www.bcn.cl/leychile/navegar?idNorma=1016570&idParte=&idVersion=2010-08-26> (accessed on April 27, 2023).
- Christopher & Lee Ong. 2018. Repeal of U.S. Net Neutrality and What it Could Mean for South-East Asia. https://www.christopherleeong.com/media/3054/clo_jan2018.pdf (accessed on May 10, 2023).
- Clover, J. 2023. Telco coalition warns against EU network fees mechanism. Broadband TV News. May 04. <https://www.broadbandtvnews.com/2023/05/04/telco-coalition-warns-against-eu-network-fees-mechanism/> (accessed on May 8, 2023).
- Comeig, I, K. Klaser, and L. D. Pinar. 2022. The paradox of (Inter)net neutrality: An experiment on ex-ante antitrust regulation. *Technological Forecasting and Social Change* 175.
- Cowls, J., J. Morley, and L. Floridi. 2022. App store governance: implications, limitations, and regulatory responses.
- DoT. 2018. India Regulatory Framework on 'Net Neutrality'. Department of Telecommunications. https://dot.gov.in/sites/default/files/DoT%20Letter%20on%20Net%20Neutrality%20Regulatory%20Framework%20dated%2031%2007%202018_0.pdf?download=1 accessed on April 26, 2023).
- Digital Watch Observatory. n.d. Net neutrality and zero-rating. <https://dig.watch/topics/network-neutrality#ai-and-net-neutrality> (accessed on July 31, 2023).
- Easley, R. F., H. Guo, and J. Krämer. 2017. From Network Neutrality to Data Neutrality: A Techno-Economic Framework and Research Agenda. <https://ssrn.com/abstract=2666217> (accessed on February 20, 2023).
- Eloksari. 2020. Explainer: How Netflix went from foe to friend in Indonesia. *The Jakarta Post*. August 09. <https://www.thejakartapost.com/news/2020/08/07/explainer-how-netflix-went-from-foe-to-friend-in-indonesia.html> (accessed on May 10, 2023).
- European Commission. 2023. Consultation: The future of the electronic communications sector and its infrastructure. <https://digital-strategy.ec.europa.eu/en/consultations/future-electronic-communications-sector-and-its-infrastructure> (accessed on May 8, 2023).
- European Parliament and of the Council of the European Union. 2015. Regulation (EU) 2015/2120. Laying down measures concerning open internet access and amending

- Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union (Text with EEA relevance). https://eur-lex.europa.eu/legal-content/EN/TXT/?toc=OJ%3AL%3A2015%3A310%3ATOC&uri=uriserv%3AOJ.L_2015.310.01.0001.01.ENG (accessed on April 26, 2023).
- FCC. 2015. In the matter of protecting and promoting the open internet. <https://docs.fcc.gov/public/attachments/FCC-15-24A1.pdf> (accessed on April 26, 2023).
- Faulhaber, G. R. 2011. Economics of Net Neutrality: A Review. *Communications & Convergence Review* 3(1):53–64.
- Finley, K. 2020. The WIRED Guide to Net Neutrality. <https://www.wired.com/story/guide-net-neutrality> (accessed on March 15, 2023).
- Garrett, T., L. E. Setenareski, L. M. Peres, L. C. E. Bona, E. P. Duarte Jr. 2022. A survey of Network Neutrality regulations worldwide. *Computer Law & Security Review* 44.
- Garz, M. and F. Szucs. 2023. Algorithmic Selection and Supply of Political News on Facebook. *Information Economics and Policy*.
- Grainger, K. 2020. Net neutrality: state(d) approach. *Hastings Law Journal* 71(2): 475-500.
- Greenstein, S., M. Peitz, and T. Valletti. 2016. Net Neutrality: A Fast Lane to Understanding the Trade-offs. *Journal of Economic Perspectives* 30(2):127-150.
- GSMA. 2022. The internet value chain. <https://www.gsma.com/publicpolicy/resources/internet-value-chain> (accessed on October 03, 2022).
- Hahn, R. and S. Wallsten. The Economics of Net Neutrality. AEI-Brookings Joint Center Working Paper No. RP06-13.
- ICLG. 2023a. Telecoms, Media and Internet Laws and Regulations Indonesia. International Comparative Legal Guides. <https://iclg.com/practice-areas/telecoms-media-and-internet-laws-and-regulations/indonesia> (accessed on May 10, 2023).
- ICLG. 2023b. Telecoms, Media and Internet Laws and Regulations Malaysia. International Comparative Legal Guides. <https://iclg.com/practice-areas/telecoms-media-and-internet-laws-and-regulations/malaysia> (accessed on May 10, 2023).
- IMDA. 2011. Net Neutrality. Info-Communications Development Authority of Singapore. https://www.imda.gov.sg/-/media/Imda/Files/Inner/PCDG/Consultations/20101111_Netneutrality/NetNeutralityExplanatoryMemo.pdf (accessed on April 27, 2023).
- India Blocks Zuckerbergs's free net app. 2016. *BBC*. <https://www.bbc.com/news/technology-35522899> (accessed on April 26, 2023).
- Is Net Neutrality Important for Businesses in the Philippines? 2022. *Rise*. <https://blog.rise.ph/is-net-neutrality-important-for-businesses-in-the-philippines/> (accessed on July 24, 2023).
- Jirakasem, M and N. Smerchuar. 2021. Net Neutrality Regulations in Thailand towards the Basis of Free and Fair Competition: Stick or Carrot? *The Journal of the National Broadcasting and Telecommunication Commission* 5(5). https://so04.tci-thaijo.org/index.php/NBTC_Journal/article/view/245377/172961 (accessed on May 10, 2023).
- Kim, J. -Y. 2023. Prioritization between asymmetric content providers. *Information Economics and Policy* 62.
- Koziol, M. 2017. Countries Around the World Tackled Net Neutrality in Different Ways Net neutrality is just a piece of how the Internet is regulated. <https://spectrum.ieee.org/countries-around-the-world-tackled-net-neutrality-in-different-ways> (accessed on April 27, 2023).

- Krämer, J., L. Wiewiorra, and C. Weinhardt. 2013. "Net Neutrality: A Progress Report." *Telecommunications Policy* 37(9):794–813. doi: 10.1016/j.telpol.2012.08.005.
- Krämer, J. 2019. Device Neutrality: The Missing Link for Fair and Transparent Online Competition? Issue Paper. Brussels: Centre on Regulation in Europe.
- Krämer, J. and R. Feasey. 2021. Device Neutrality: Openness, non-discrimination and transparency on mobile devices for general internet access. Centre on Regulation in Europe.
- Lee, D, and Y. -H. Kim. 2014. Empirical Evidence of Network Neutrality – The Incentives for Discrimination. *Information Economics and Policy* 29:1–9. doi: 10.1016/j.infoecopol.2014.07.001.
- Malvania, U. 2023. Network usage fee not against net neutrality: COAI. The Economic Times. February 27. <https://economictimes.indiatimes.com/industry/telecom/telecom-news/network-usage-fee-not-against-net-neutrality-coai/articleshow/98268788.cms> (accessed on May 15, 2023).
- Marco Civil Law of the Internet in Brazil. 2014. Establishes the principles, guarantees, rights, and obligations for the use of internet in Brazil. <https://www.cgi.br/pagina/marco-civil-law-of-the-internet-in-brazil/180> (accessed on April 25, 2023).
- Marsden, C. T. 2016. Comparative case studies in implementing net neutrality: critical analysis of zero rating. *SCRIPTed: Journal of Law, Technology and Society* 13(1):1-39.
- Mehta, P. S. and S. Srivastava. View: Consumers cannot be the collateral in OTT tussle. The Economic Times. April 25. <https://economictimes.indiatimes.com/industry/media/entertainment/view-consumers-cannot-be-the-collateral-in-ott-tussle/articleshow/99763004.cms?from=mdr> (accessed on May 8, 2023).
- Mirandilla-Santos, M. G. 2021. Open Access in Data Transmission: Key to Achieving Better Philippine Internet. Presentation discussed at the webinar on "Deleting the Digital Divide: Open Access in Data Transmission Act", July 7.
- NEDA. 2022. Philippine Development Plan 2023-2028. National Economic and Development Authority.
- O'Brien, K. J. 2011. Dutch Lawmakers Adopt Net Neutrality Law. <https://www.nytimes.com/2011/06/23/technology/23neutral.html> (accessed on May 03, 2023).
- Quy, L. 2023. Telecom operators want OTT players to pay for use of networks. *VnExpress*. April 09. <https://e.vnexpress.net/news/economy/telecom-operators-want-ott-players-to-pay-for-use-of-networks-4591583.html> (accessed on May 10, 2023).
- RA 11659. An act amending commonwealth act no. 146, otherwise known as the public service act, as amended. Metro Manila: Congress of the Philippines.
- Sarkar, G. 2023. Tussle Over Usage Fee: DoT to Invite Telcos, OTT Players For A Joint Discussion. *Inc42*. March 02. <https://inc42.com/buzz/tussle-over-usage-fee-dot-to-invite-telcos-ott-players-for-a-joint-discussion/> (accessed on May 15, 2023).
- Schuett, F. 2010. Network Neutrality: A Survey of Economic Literature. *Review of Network Economics* 9(2). doi: 10.2202/1446-9022.1224.
- Senate Bill 815. An act promoting open access in data transmission, providing additional powers to the national telecommunications commission, and for other purposes. <https://legacy.senate.gov.ph/lisdata/3855535009!.pdf> (accessed on May 10, 2023).
- Serafica, R. B. and Q. C. Oren. 2022. The Philippine Digital Sector and Internet Connectivity: An Overview of the Value Chain and Barriers to Competition. PIDS Discussion Paper Series No. 2022-47. Quezon City: Philippine Institute for Development Studies.
- Study Group on Network Neutrality. 2019. https://www.soumu.go.jp/main_content/000666187.pdf (accessed on May 03, 2023).

- Switzerland Telecommunications Act. 2021.
https://www.fedlex.admin.ch/eli/cc/1997/2187_2187_2187/en#sidebarLink (accessed on April 27, 2023).
- Telecompaper. 2021. EU court finds Vodafone, Deutsche Telekom zero-rated offers violate net neutrality. <https://www.telecompaper.com/news/eu-court-finds-vodafone-deutsche-telekom-zero-rated-offers-violate-net-neutrality--1395751> (accessed May 04, 2023).
- TRAI. 2016. TRAI Releases the 'Prohibition of Discriminatory Tariffs for Data Services Regulations, 2016'. Telecom Regulatory Authority of India. https://web.archive.org/web/20160208211507/http://www.trai.gov.in/WriteReadData/PressRealease/Document/Press_Release_No_13%20.pdf (accessed on April 26, 2023).
- Tran, M. H. 2022. The legal landscape of Net Neutrality and Zero-rating in Vietnam. <https://www.connectontech.com/the-legal-landscape-of-net-neutrality-and-zero-rating-in-vietnam/> (accessed on May 10, 2023).
- Yun, S.-H. 2023. Netflix's 'net neutrality' lawsuit with South Korean Internet service provider enters appeals. <https://www.thelec.net/news/articleView.html?idxno=4481> (accessed on April 26, 2023).
- Weisman, D. and R. B. Kulick. 2010. Price Discrimination, Two-Sided Markets, and Net Neutrality Regulation.
- Wu, Tim. 2003. Network Neutrality, Broadband Discrimination. *Journal on Telecommunications & High Technology Law*, 2:141-178.

7. Appendix A. Net neutrality measures by country

Country	Year	Type	Net neutrality	Exception	Remarks
Brazil	2014	Law	“The party responsible for the transmission, switching or routing has the duty to process, on an isonomic basis, any data packages, regardless of content, origin and destination, service, terminal or application.”	Technical requirements; Prioritizing emergency services	Provided measures to be followed in case of discrimination in data traffic
Chile	2010	Law	“[ISPs] may not arbitrarily block, interfere, discriminate, hinder or restrict the right of any Internet user to use, send, receive or offer any content, application or legal service through the Internet, as well as any other type of activity or use legal made through the network.”	Traffic management; Network administration; User privacy, virus protection, and network security; Requested by users	To uphold transparency, ISPs must publish minimum information on internet connection services set by the Subsecretaria de telecomunicaciones.
Switzerland	2019	Law	“The providers of internet access shall transmit information without making any technical or commercial distinction between senders, recipients, content, services, service classes, protocols, applications, programs or terminals.”	Comply with legal requirements; guarantee security and integrity of network; comply with customer requests or offer other services to meet customer requirements; resolve temporary network congestion. If there are any changes to how information is handled, customers and	

				the public must be informed.	
India	2017	Regulation	“...disallow service providers to offer or charge discriminatory tariffs for data services on the basis of content being accessed by a consumer”; “Internet Access Services, therefore, need to be governed by a principle that restricts any form of discrimination, restriction or interference in the treatment of content, including practices like blocking, degrading, slowing down or granting preferential speeds or treatment to any content.”	Specialized services; reasonable traffic management	With the recommendation from the Telecom Regulatory Authority of India (TRAI), the Department of Telecommunications (DoT) shall create a multi-stakeholder body to collaborate with stakeholders on issues regarding net neutrality. DoT shall monitor and enforce net neutrality regulations.
European Union (EU)	2016	Regulation	“The regulation aims to establish common rules to safeguard equal and non-discriminatory treatment of traffic in the provision of internet access services and related end-users rights.”	Manage temporary network congestion; protect network integrity and security; adhere to legal requirements; and provide specialized services.	Includes transparency measures for ensuring open internet access and supervision and enforcement.
Russia	2014	Regulation	The regulation ensures non-discriminatory internet access for internet users and content providers.	Government can still choose to block access to certain sites.	Russia strictly controls the internet. Around 1200 websites were blocked in 2017.
Japan	2008	Guidelines	“(1) Consumers are entitled to access the content/application layer freely (2) Consumers are entitled to connect to IP-based networks freely through terminals		The Working Group on Net Neutrality also recognizes the benefits of zero-rating to consumers and provides guidelines to avoid abuse. Net

			that comply with technical standards provided by laws and regulations, and these terminals may connect to each other flexibly. (3) Consumers are entitled to use the communication layer and the platform layer free from discrimination at a reasonable price.”		neutrality violations are investigated on a case-by-case basis using laws that uphold fair competition and consumer protection.
South Korea	2011	Guidelines	ISP should not arbitrarily block and discriminate against legal content, services, and applications.	When content, services, or application damage the network	Consumers must be adequately informed about traffic management policies and practices, and they should be implemented reasonably.
United States (US)	2015	Law revoked /Non-regulated	Blocking, throttling, and paid prioritization are prohibited. Zero-rating should be investigated on a case-by-case basis.		Regulation on net neutrality was revoked in 2017. Other states have imposed partial or full net neutrality rules.
Australia	NA	Non-regulated			Although there are no net neutrality rules in Australia, it has a strong consumer protection law preventing the blocking or throttling of content and mandating ISPs to be transparent. The country also has a competitive broadband market.
New Zealand	NA	Non-regulated			According to the report by the Commerce Commission (COMCOM) of New Zealand in 2012, net neutrality regulations

					were unnecessary since ISPs are transparent in informing limitations and restrictions to consumers, and the market for broadband services is competitive. Later, a public discussion document on revising the Telecommunications Act of 2001 was released, containing issues on net neutrality to gather perspectives from consumers, ISPs, content providers, and other stakeholders.
--	--	--	--	--	--

Note: NA = not applicable; ISP = Internet service provider

Sources: Garrett (2022); Koziol (2017); Brazil - Marco Civil Law of the Internet in Brazil (2014, Chapter 3, Section 3, Article 9); Chile - Law No. 20453 (2010, Article 24H, 24I, and 24J); Switzerland - Telecommunications Act (2021, Chapter 2, section 1, Article 12e); India – TRAI (2016, p.1) and DoT (2018, p. 2); Japan - Study Group on Network Neutrality (2019, p. 4); Singapore - Info-Communications Development Authority of Singapore (2011); EU – European Parliament and of the Council of the European Union (2015, par. 1) and BEREC (2022); US- FCC (2015)

8. Appendix B. Non-discrimination policies and regulations in the Philippine ICT sector

Year	Policies/regulations	Portion
1936	Commonwealth Act No. 146, The Public Service Act	<p>“It shall be unlawful for any public service to make or give, directly or indirectly, by itself or through its agents, attorneys or brokers, or any of them, discounts or rebates on authorized rates, or grant credit for the payment of freight charges, or any undue or unreasonable preference or advantage to any person of corporation or to any locality or to any particular description of traffic or service, or subject any particular person or corporation or locality or any particular description of traffic to any prejudice or disadvantage in any respect whatsoever; to adopt, maintain, or enforce any regulation, practice or measurement which shall be found or determined by the Commission to be unjust, unreasonable, unduly preferential or unjustly discriminatory in a final order which shall be conclusive and shall take effect in accordance with the provisions of this Act, upon repeal or otherwise” (Sec. 19).</p> <p>“Acts requiring the approval of the Commission. - Subject to established limitations and exceptions and saving provisions to the contrary, it shall be unlawful for any public service or for the owner, lessee or operator thereof, without the approval and authorization of the Commission previously had (a) To adopt, establish, fix, impose, maintain, collect or carry into effect any individual or joint rates, commutation, mileage or other special rate, toll, fare, charge, classification or itinerary. The Commission shall approve only those that are just and reasonable and not any that are unjustly discriminatory or unduly preferential, only upon reasonable notice to the public services and other parties concerned, giving them a reasonable opportunity to be heard and the burden of the proof to show that the proposed rates or regulations are just and reasonable shall be upon the public service proposing the same” (Sec. 20).</p>

1988	MC No. 4-08-88: Revised Rules and Regulations Governing Cable Television Systems in the Philippines	“c. For purposes of this section, all non-commercial educational television broadcast stations licensed to a community located in whole or in part within a major television market as specified in 6.1.8 shall be treated in the same manner as a major market commercial television broadcast station, and all non-commercial educational television broadcast stations not licensed to a community located in whole or in part within a major television market shall be treated in the same manner as smaller market television broadcast station” (Sec. 6.9.1).
1990	MC No. 10-18-90: Rules and Regulations Governing the Public Repeater Network Services In The Philippines	One of the responsibilities of the public repeater network service grantee-operator: “Shall accept without discrimination all applications for subscription of qualified individuals/entities” (Sec. 6.1.2).
1992	DC No. 92-269: Cellular Mobile Telephone System Policy	“All public switched telephone network (PSTN) service providers shall be required to interconnect to the CMTS service providers, and the latter to each other in a non-discriminatory manner ” (Art II. Sec 3).
1993	MC No. 9-7-93: Implementing Guidelines on the Interconnection of Authorized Public Telecommunications Carriers	“Interconnection shall at all times satisfy the requirements of fair competition and shall be effected in a non-discriminatory manner ” (Sec. 7).
1993	MC No. 8-4-93: Mandatory Provisioning of PSTN Trunklines to Paging Operators and Other Similar Service Providers	“Any telephone exchange carrier shall be required to provide trunklines and other interrelated telephone facilities to all paging operators on a timely and adequate basis as needed by said paging operators; Likewise, a telephone exchange carrier shall be prohibited from engaging in any form of discrimination , direct or indirect, in the granting of PSTN trunklines for the purpose of allowing any competitive and/or favorable advantage of one particular paging operator over another including without limiting the generality thereof, equal accessibility to/from its PSTN network”.

1993	Department Circular No. 93-273: Domestic Satellite Communications Policy	"All public switched telephone network (PSTN) and/or public switched data network (PSDN) service providers shall be required to interconnect with the satellite communications service providers, if so requested by the latter, or vice-versa, in a non-discriminatory manner ...interconnection of satellite networks to the PSTN and/or PSDN, or vice-versa, adhering to the interconnection standards, on the basis of equal access and fair interconnection settlements" (Art 4. Sec 5).
1993	EO 109: Policy To Improve The Provision Of Local Exchange Carrier Service	"Interconnection Requirement. All telecommunications service networks shall be interconnected in a non-discriminatory manner in accordance with Executive order No. 59 (1993) and its implementing guidelines" (Sec. 11).
1993	EO 59: Prescribing the Policy Guidelines For Compulsory Interconnection Of Authorized Public Telecommunications Carriers In Order To Create A Universally Accessible And Fully Integrated Nationwide Telecommunications Network And Thereby Encourage Greater Private Sector Investment In Telecommunications	"Interconnection shall at all times satisfy the requirements of effective competition and shall be effected in a non-discriminatory manner " (Sec. 9).
1995	Republic Act (RA) 7925: An Act to Promote and Govern The Development Of Philippine Telecommunications And The Delivery Of Public Telecommunications Services	"Telecommunications entities may provide VAS, subject to the additional requirements that:... b) other providers of VAS are not discriminated against in rates nor denied equitable access to their facilities" (Sec. 11). "Rights of End Users. - The user of telecommunications service shall have the following basic rights: a) Entitlement of utility service which is non-discriminatory reliable and conforming with minimum standards set by the Commission" (Sec. 20).

1995	MC No. 8-9-95: Implementing Rules and Regulations for Republic Act No. 7925 Re: An Act to Promote And Govern The Development Of Philippine Telecommunications And The Delivery Of Public Telecommunications Services	<p>“(a) the [local exchange (LE)] operator shall provide universal basic telephone service capable of accessing local, national, international and other networks without discrimination to all applications for such service within its defined authorized service area/s and within the schedule duly approved by the commission” (p. 3).</p> <p>“The [interexchange carrier (IXC) services shall interconnect with other IXCs and with local exchange carriers or other telecommunications entities on a non-discriminatory manner. The interconnection shall be effected pursuant to rule 510” (p. 5).</p> <p>“Actual costs and all accounting charges for provisioning of services and interconnection shall be non-discriminatory, transparent, de-averaged by time of day and unbundled, and subject to review by the commission” (p. 10).</p> <p>“There shall be no access charges to be paid by either party in the interconnection of local exchange networks operating in a given local exchange service area if the monthly local exchange service operators do not discriminate applicants for local exchange service” (p. 11).</p>
1998	EO No. 467: Providing for A National Policy on The Operation and Use of International Satellite Communications In The Country	<p>“Operation and Use of Global Mobile Personal Communication by Satellite (GMPCS). The government shall allow the operation and use of GMPCS to contribute to the attainment of universal access, subject to NTC rules and regulations. In this connection, GMPCS systems shall be required to interconnect with existing terrestrial systems in a non-discriminatory manner in accordance with the provisions of Executive Order No. 59 (Guidelines for Compulsory Interconnection of Authorized Public Telecommunications Carriers) and its Implementing Guidelines” (Sec. 1).</p>
2000	MC No. 14-07-2000: Implementing Rules and Regulations (IRR) for the Interconnection of Authorized Public Telecommunications Entities	<p>“Interconnection should be ensured to any technically feasible point in the network. Such interconnection must be provided by a PTE: a. Under non-discriminatory terms, conditions (including technical standards and specifications) and charges and of a quality no less favorable than that provided for its own like services or for like services of non- affiliated</p>

		<p>service suppliers or for its subsidiaries or other affiliates” (Sec. 5).</p> <p>“The objectives underlying these implementing rules and regulations are to: Establish fair and non-discriminatory provisions for interconnection, and to provide for access to information, transparency and equality of access to services” (Sec. 6).</p> <p>“Interconnection among and between PTEs shall ensure that: A subscriber or customer of a PTE is able to call a subscriber or customer of any other PTE on a non-discriminatory basis” (Sec. 9).</p> <p>“Obligations of All PTEs – In addition to the obligations and duties imposed by other laws, decrees, orders, rules and regulations, all PTEs are obliged: To provide non-discriminatory access to network elements at any technically feasible point on charges, terms and conditions that are just and reasonable” (Sec. 10).</p> <p>“An access provider must: a. treat each subscriber or customer of any interconnecting party on a basis that is non-discriminatory and no less favorable than the treatment which it affords to its own customers or the customers of any other PTE to which it is providing a materially equivalent service; b. deal with each interconnecting party on a non-discriminatory basis in relation to the technical and operational quality of the services which it provides, including the quality, availability, time of provision, and technical standards and specifications” (Sec. 12).</p> <p>“Charges in Interconnection Agreements shall respect the principles of objectivity, transparency, reciprocity and non-discrimination. Undue imposition of excessive is not allowed” (Sec. 42).</p> <p>“An access provider may provide, on such commercial terms and conditions that are just, reasonable and non-discriminatory, any technically feasible method of obtaining interconnection or access to unbundled</p>
--	--	---

		<p>network elements at a particular point upon request by an access seeker” (Sec. 59).</p> <p>“Subject to fair and non-discriminatory compensation arrangements, and to the extent technically feasible an access provider shall provide physical colocation and virtual colocation to access seekers on a first come-first served basis; Provided, that in case the compensation arrangements for colocation are not contained in the interconnection agreement, the delay in the negotiation for and execution of compensation arrangements shall in no way be a cause for the delay in the execution of interconnection agreement and actual interconnection of the parties” (Sec. 65).</p>
2001	MC No. 06-09-2001: Implementing Rules and Regulations (IRR) for Retail Pricing	<p>“A PTE must provide telecommunications services to end-users on terms and conditions that: b. Are non-discriminatory, meaning that any differences in the price and non-price terms and conditions for comparable services provided to different end-users must be based on objective differences, such as differences in the costs of supply, quality of service, or volume of service usage, and due considerations are given by PTEs to the social and welfare needs of the consumers” (Sec. 3).</p>
2002	MC No. 09-07-02: Implementing Rules And Regulations (IRR) For Specific Guidelines For Competitive Wholesale Charging For Interconnect Services	<p>“The charges, terms and conditions for the supply of Basic and Ancillary Interconnect Services shall be pursued through bilateral negotiations subject to the following principles. b. The charges for Interconnect Services should be nondiscriminatory, meaning:</p> <p>(i) At a particular POI, the charges offered by a PTE to other PTEs, should be the same for all PTEs where they are utilizing the same infrastructure and functionality</p> <p>(ii) Where a PTE with end-user access infrastructure at a particular POI offers to another PTE a volume discount, this same volume discount shall be offered to all other PTEs who are interconnected or who seek interconnection at the same POI irrespective of whether they have competing end-user access infrastructure in the same area or not” (Sec. 3).</p>

2003	MC No. 10-10-2003: Implementing Rules and Regulations Governing Community Antenna/Cable Television (CATV) And Direct Broadcast Satellite (DBS) Services to Promote Competition In The Sector	“ As a general rule, exclusive contracts between CATV/DBS operators and program/content providers, (collectively, the “Parties”) and/or any behavior that is tantamount to exclusivity, including but not limited to discrimination in the supply of programs or content, are presumed to be anti-competitive and contrary to sound public policy. Except as otherwise provided under these guidelines, exclusive contracts and/or any exclusive arrangements between the parties are prohibited” (Sec. 2).
2005	MC No. 05-08-2005: Voice Over Internet Protocol (VOIP)	<p>“Any person or entity seeking to provide VoIP for use by the public for compensation shall register themselves as such with the commission prior to operation as a VoIP provider. Local exchange and interexchange operators and overseas carriers are hereby allowed to offer VoIP without need of further registration, provided that, consistent with RA 7925: b. other providers of VoIP are not discriminated against in rates nor denied equitable access to their facilities” (Sec. 3).</p> <p>“Network providers shall ensure equal access in terms of quantity and quality, at the same prices for substantially similar services to VAS providers; and shall not discriminate between VAS providers. For this purpose, the parties shall submit a copy of their agreements on these matters for purposes of the monitoring and supervision by the commission within thirty (30) days upon their execution” (Sec. 5).</p> <p>“No public telecommunications entity, network provider or other entity providing internet access to subscribers and VAS providers, shall impede or degrade the access of such subscribers and VAS providers to the internet content of another applications or service provider, except where such access demonstrably threatens the integrity of their network or facilities” (Sec. 6).</p>

2007	MC No. 10-07-2007: Mandating the Development of Reference Access Offers (RAO) to Facilitate Fair and Expeditious Interconnection or Access Between Service Providers	<p>“In the event that the Commission [NTC] finds an individualized agreement to be unreasonably discriminatory against other licenses, it may either reject the said individualized agreement, or require that the terms and conditions be incorporated into the RAO and extended to all other existing agreements” (Art. II, Sec. 6.10).</p> <p>"The Commission shall determine if the terms and conditions stipulated in the RAO are reasonable, fair, consistent and non-discriminatory" (Art. II, Sec. 11.3).</p> <p>“The terms and conditions of access are deemed discriminatory if they have an effect on the quality and timing of access that are not equivalent to that which the access provider supplies to itself or affiliates” (Art. II, Sec. 11.4).</p>
2008	MC No. 02-05-2008: Value added services	<p>“The application shall include the following documents: e. Written undertaking that the applicant will not discriminate other VAS providers in terms of rates and service quality for similar facilities leased to them (for duly enfranchised and certificated public telecommunications entity)” (Sec. B.6).</p>
2022	RA 11659: The Public Service Act, as amended	<p>“To fix and determine the fair and reasonable individual or joint rates, tolls, charges, classifications, tariffs or schedules thereof, as well as commutation, mileage, kilometrage, and other special rates which shall be imposed, observed, and followed thereafter by any public service when the public interest so requires: <i>Provided</i>, That the Commission may, in its discretion, approve rates proposed by public services provisionally and without necessity of any hearing; but it shall call a hearing thereon within fifteen (15) days, thereafter, upon publication and notice to the affected parties in the territory affected, to ratify its prior provisional approval or change, modify or later the approved rate based on public interest: <i>Provided</i>, further, That in case the public service equipment of an operator is used principally or secondarily for the promotion of a private business, the net profits of said private business shall be considered in relation with the public service of such operator for the purpose of fixing the</p>

		<p>rates: <i>Provided, finally,</i> That when the public interest requires, the Administrative Agency may establish and enforce a methodology for setting rates, taking into account all relevant considerations, including the efficiency of the regulated public service. The rates must be such as to allow the recovery of prudent and efficient costs and a reasonable rate of return to enable the public service to operate viably and efficiently. The Administrative Agency may adopt alternative forms consistent with internationally accepted rate-setting methodology. The adopted rate-setting methodology shall ensure a reasonable price of the commodity or service and that the rates prescribed shall not be discriminatory” (Sec. 6).</p> <p>“Acts requiring the approval of the Commission. - Subject to established limitations and exceptions and saving provisions to the contrary, it shall be unlawful for any public service or for the owner, lessee or operator thereof, without the approval and authorization of the Commission previously had: (a) To adopt, establish, fix, impose, maintain, or collect or carry into effect any individual or joint rates, commutation, mileage or other special rate, toll, fare, charge, classification or itinerary. The Commission shall approve only those that are prudent and efficient and not any that are unjustly discriminatory or unduly preferential, only upon reasonable notice to the public services and other parties concerned. giving them a reasonable opportunity to be heard, and the burden of the proof to show that the proposed rates or regulation are prudent and efficient shall be upon the public service purposing the same” (Sec. 10).</p>
--	--	---

Source: Author’s compilation