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# Micro, small, and medium-sized enterprises, digital platforms, and competition policies in Asia

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# MICRO, SMALL, AND MEDIUM-SIZED ENTERPRISES, DIGITAL PLATFORMS, AND COMPETITION POLICIES IN ASIA

*Atsuko Izumi, Yasuyuki Sawada, Yasutora Watanabe, and Yesim Elhan-Kayalar*

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## **ABSTRACT**

In this paper, we review the overall micro, small, and medium-sized enterprise landscape in Asia, including the challenges and constraints faced by enterprises in physical (offline) and online markets. We then explore the unique circumstances and externalities that arise due to the special characteristics of platforms and how they impact merchants and other platform users. Our findings suggest that the unique features of platforms, and the two-sided market structure they foster, require a bespoke policy approach from competition authorities and policymakers.

**Keywords:** competition policy, two-sided market, platforms, MSMEs

**JEL codes:** K21, L41, L44

## I. Introduction

Micro, small, and medium-sized enterprises (MSMEs) have been one of the key driving forces of Asia’s phenomenal growth in recent decades. **Tables 1 and 2** show the significance of MSMEs in selected economies in Asia. MSMEs account for 90% or more of all enterprises in these Asian economies, while between 50% and 70% of the total national labor force in each selected economy is employed in the MSME sector. From 2006 to 2021, the gross domestic product contribution of MSMEs was as high as 60.5% in some Asian economies (**Table 3**). More importantly, the MSME sector’s shares of both total employment and output expanded during this period.

A limited, but still sizable, number of MSMEs engage in international trade—for example, small and medium-sized enterprises (SMEs) accounted for about 30% of Asia’s total exports in 2013 (ADB 2014). This indicates that the region’s SMEs participate in global value chains, which have been one of the other main drivers of recent growth in Asian economies.

**Table 1: Number of MSMEs as a Share of all Enterprises (%)**

Country	2010	2015	2021
<b>Southeast Asia</b>			
Brunei Darussalam	97.5	96.6	97.3* <sup>2019</sup>
Cambodia	99.8* <sup>2011</sup>	99.8* <sup>2014</sup>	N.A.
Indonesia	99.99	99.99	99.99* <sup>2019</sup>
Lao People’s Democratic Republic	N.A.	99.8* <sup>2013</sup>	99.8* <sup>2020</sup>
Malaysia	98.5	98.5	97.4
Myanmar*	90.3	87.1	89.9* <sup>2019</sup>
Philippines	99.6	99.5	99.6
Singapore	N.A.	99.4	99.6
Thailand*	99.6	99.7	99.8
Viet Nam	97.5	98.0	97.4 * <sup>2019</sup>
<b>South Asia</b>			
Bangladesh	99.97* <sup>2013</sup>	N.A.	N.A.
India	N.A.	N.A.	99.9* <sup>2016</sup>
Pakistan	N.A.	N.A.	98.6* <sup>2020</sup>
Sri Lanka*	99.8* <sup>2013</sup>	94.9	93.9* <sup>2018</sup>

MSMEs = micro, small, and medium-sized enterprises; N.A. = data not available.

Notes: \* denotes end-of-year data except for fiscal year data (which ends 31 March in Myanmar). For Thailand, 2021 data were sourced from the 2022 Business and Industrial Census. For Sri Lanka, data for 2015 onward refer only to the sum of manufacturing, trade, and services (Annual Survey of Industries, Annual Survey of Trade, and Annual Survey of Services).

ADB has placed on hold its assistance in Myanmar effective 1 February 2021. ADB Statement on Myanmar | [Asian Development Bank](#) (published on 10 March 2021).

Sources: ADB. 2021. *Asia Small and Medium-Sized Enterprise Monitor 2021: Volume 1—Country and Regional Reviews*. Manila; and ADB Asia SME Monitor 2022 database.

**Table 2: Employment in the MSME Sector as a Share of the Total Labor Force (%)**

Country	2006	2010	2015	2021
<b>Southeast Asia</b>				
Brunei Darussalam	N.A.	59.4	55.1	55.7 <sup>*2019</sup>
Cambodia	N.A.	72 <sup>*2011</sup>	71.8 <sup>*2014</sup>	96.9 <sup>*2019</sup>
Indonesia	N.A.	97.3	96.7	96.9 <sup>*2019</sup>
Lao People's Democratic Republic	87.4	N.A.	82.9 <sup>*2013</sup>	82.4 <sup>*2018</sup>
Malaysia*	56.9	57.1	46.6	48.0 <sup>*2020</sup>
Myanmar	N.A.	N.A.	N.A.	N.A.
Philippines	66.8	62.3	61.6	64.7
Singapore	N.A.	N.A.	73.5	70.9
Thailand*	76.0 <sup>*2007</sup>	77.9	80.4	76.9
Viet Nam	39.2 <sup>*2007</sup>	45.1	44.2	37.5 <sup>*2019</sup>
<b>South Asia</b>				
Bangladesh	N.A.	N.A.	85.9 <sup>*2013</sup>	N.A.
Nepal*	N.A.	N.A.	N.A.	73.5 <sup>*2020</sup>
Pakistan*	N.A.	N.A.	72.6	72 <sup>*2018</sup>
Sri Lanka*	N.A.	N.A.	41.6	32.4 <sup>*2018</sup>

N.A. = data not available.

Notes: \* denotes end-of-year data except for fiscal year data (which ends 15 July in Nepal and 30 June in Pakistan). For Malaysia, data from 2015 to 2019 were revised based on a methodology change. Revised data include the government, informal sector excluding agriculture, unregistered businesses in agriculture, and outsourcing activities in computing overall employment, which serves as the denominator. For Nepal, data was extracted from *Industrial Statistics 2019–2020* for small and medium-sized enterprises only. For Thailand, 2021 data was sourced from the 2022 Business and Industrial Census. For Sri Lanka, data for 2015 onward refer only to the sum of manufacturing, trade, and services (*Annual Survey of Industries, Annual Survey of Trade, and Annual Survey of Services*).

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Sources: ADB. 2021. *Asia Small and Medium-Sized Enterprise Monitor 2021: Volume 1—Country and Regional Reviews*. Manila; ADB Asia SME Monitor 2022 database.

In Asia, a majority of MSMEs operate in traditional wholesale and retail trade and other service industries, mostly in rural areas. This means that the sustained growth of MSMEs will play a critical role in achieving inclusive growth, maintaining poverty reduction, and narrowing regional disparities in developing Asia by providing employment and business opportunities for the young, unemployed or underemployed individuals, those working in the informal sector, women, and other vulnerable groups.<sup>1</sup> Hence, it is imperative for the private sector and governments to engage in market-oriented structural reforms and make further investments in physical infrastructure and human capital so that the productivity and growth of MSMEs can be maintained.

<sup>1</sup> Developing Asia refers to the 46 developing member economies of the Asian Development Bank.

**Table 3: MSMEs Contributions to GDP (%)**

Country	2006	2010	2015	2021
<b>Southeast Asia</b>				
Brunei Darussalam	N.A.	17.3	20.3	26.7* <sup>2019</sup>
Cambodia	N.A.	N.A.	N.A.	N.A.
Indonesia	N.A.	56.2	61.4	60.5* <sup>2019</sup>
Lao People's Democratic Republic	N.A.	N.A.	N.A.	N.A.
Malaysia	30.4	32.8	37.0	38.2* <sup>2020</sup>
Myanmar	N.A.	N.A.	N.A.	N.A.
Philippines	35.7	N.A.	N.A.	N.A.
Singapore	N.A.	N.A.	47.5	43.9
Thailand	41.4* <sup>2007</sup>	39.4	41.0	34.2* <sup>2020</sup>
Viet Nam	N.A.	N.A.	N.A.	N.A.
<b>South Asia</b>				
Bangladesh*	N.A.	N.A.	17.8	16.4* <sup>2020</sup>
India*	N.A.	36.1	29.3	30.3* <sup>2019</sup>
Nepal	N.A.	N.A.	N.A.	22.0* <sup>2019</sup>
Pakistan	N.A.	40.0* <sup>2011</sup>	N.A.	N.A.
Sri Lanka	N.A.	N.A.	N.A.	N.A.

GDP = gross domestic product; MSMEs = micro, small, and medium-sized enterprises; N.A. = not applicable.

Notes: \* denotes end-of-year data except fiscal year data (which ends 30 June in Bangladesh and 31 March in India). For Malaysia, real GDP data are used. For Singapore, the nominal value added of small and medium-sized enterprises is used. For Bangladesh, the contribution of cottage and small enterprises to manufacturing gross value added is used. For Nepal, data are cited from the *2019 Nepal Rastra Bank Report*. For Thailand, 2021 data were sourced from the 2022 Business and Industrial Census. For Sri Lanka, data refer only to the sum of manufacturing, trade, and services (*Annual Survey of Industries, Annual Survey of Trade, and Annual Survey of Services*).

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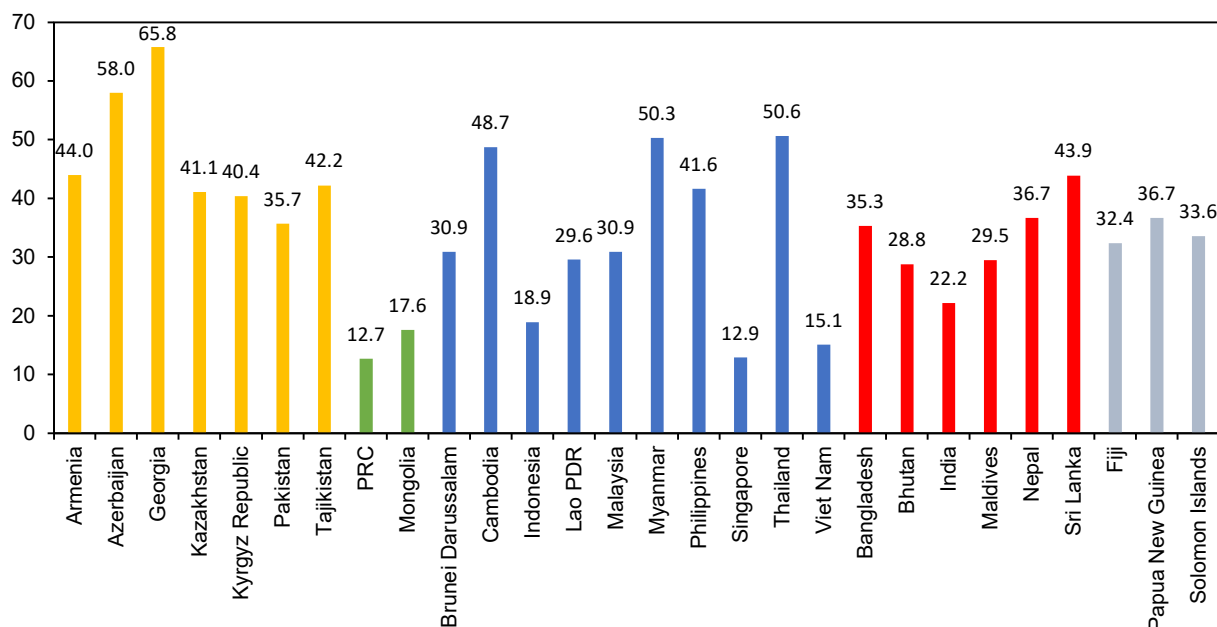
Sources: ADB. 2021. *Asia Small and Medium-Sized Enterprise Monitor 2021: Volume 1—Country and Regional Reviews*. Manila; and ADB Asia SME Monitor 2022 database.

## Challenges and Constraints of MSMEs

MSMEs, and particularly MSMEs in the informal sector, constitute a significant part of economic output across Asia and the Pacific (**Figure 1**). Yet, MSMEs in Asia face various challenges and constraints. We list five of them here: First, they lack resources such as access to credit and insurance, advanced technologies, skilled labor, and the human capital needed for innovation. Second, limited supply chains and insufficient networks plague MSMEs with inadequate information, expertise, experience, and access to markets, especially global ones. Third, MSMEs are usually not nested within an ecosystem for innovative and growth-oriented start-ups, which, in turn, leads to a lack of economies of scale and overall inefficiency. Fourth, there is a deficit of well-organized government support for MSMEs, particularly concerning proper access to basic infrastructure such as electricity, transportation, and the Internet, as well as other information and



**Figure 1: Size of Shadow Economies in ADB Developing Member Economies  
(% of GDP, average in 1999-2007)**



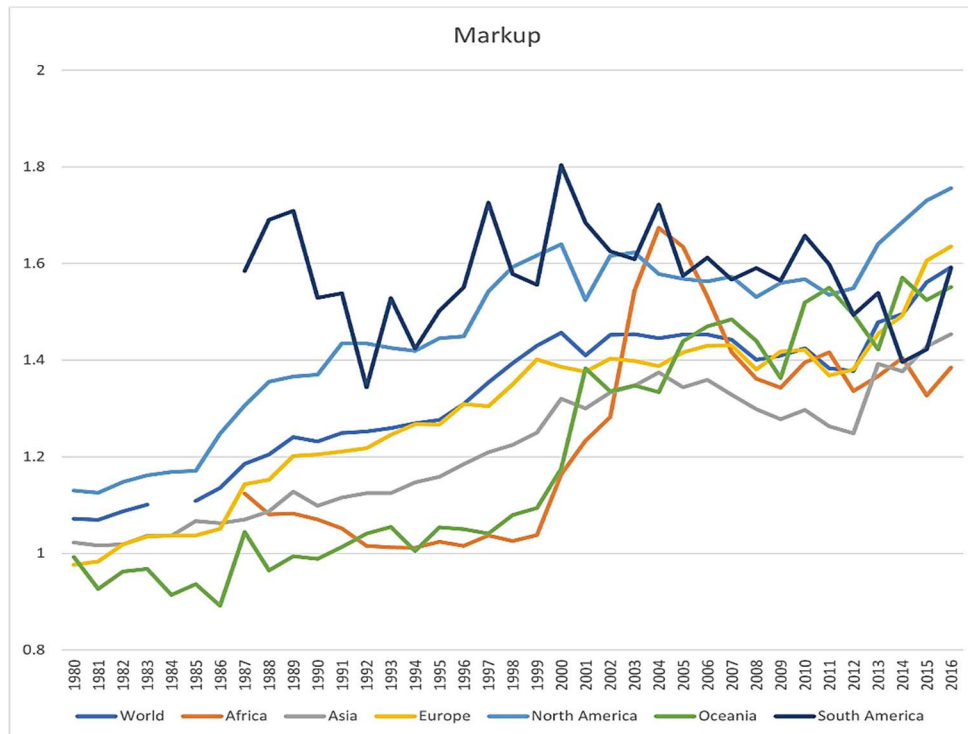
ADB = Asian Development Bank; GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.

ADB has placed on hold its assistance in Myanmar effective 1 February 2021. ADB Statement on Myanmar | [Asian Development Bank](#) (published on 10 March 2021).

Source: Adopted from S. Shinozaki. 2022. Informal Micro, Small, and Medium-Sized Enterprises and Digitalization: Challenges and Policy Actions in Indonesia. In A. Das and B. Susantono, eds. *Informal Services in Asian Cities: Lessons for Urban Planning and Management from COVID-19 Pandemic*. Tokyo and Manila: Asian Development Bank Institute and Asian Development Bank. (Figure 1).

communication technologies. Finally, but most importantly, the lack of a regulatory framework to secure fair competition for MSMEs is a major binding constraint because market concentration by large domestic and multinational enterprises can undermine MSMEs' investments in innovative processes and products, as well as other research and development activities.

According to the global database compiled by De Loecker and Eeckhout (2021), market concentration has increased during the last few decades, which can be seen in **Figure 2** in the trend of the ratio of price to (marginal) production cost (i.e., the price markup). They find that the aggregate global markup increased from close to 1.15 in 1980 to around 1.60 in 2016, mainly driven by market concentration in developed economies. Asia has followed this overall trend of the concentration of economic activity among fewer large enterprises, which is often called the "superstar" phenomenon. The critical question is whether this concentration trend is good or bad (Covarrubias, Gutiérrez, and Philippon 2019), particularly for the MSME sector, where "good concentration" refers to positive trends such as increases in the elasticity of substitution or

**Figure 2: Evolution of Price Markups by Global Region**

Source: J. De Loecker and J. Eeckhout. 2021. Global Market Power database.

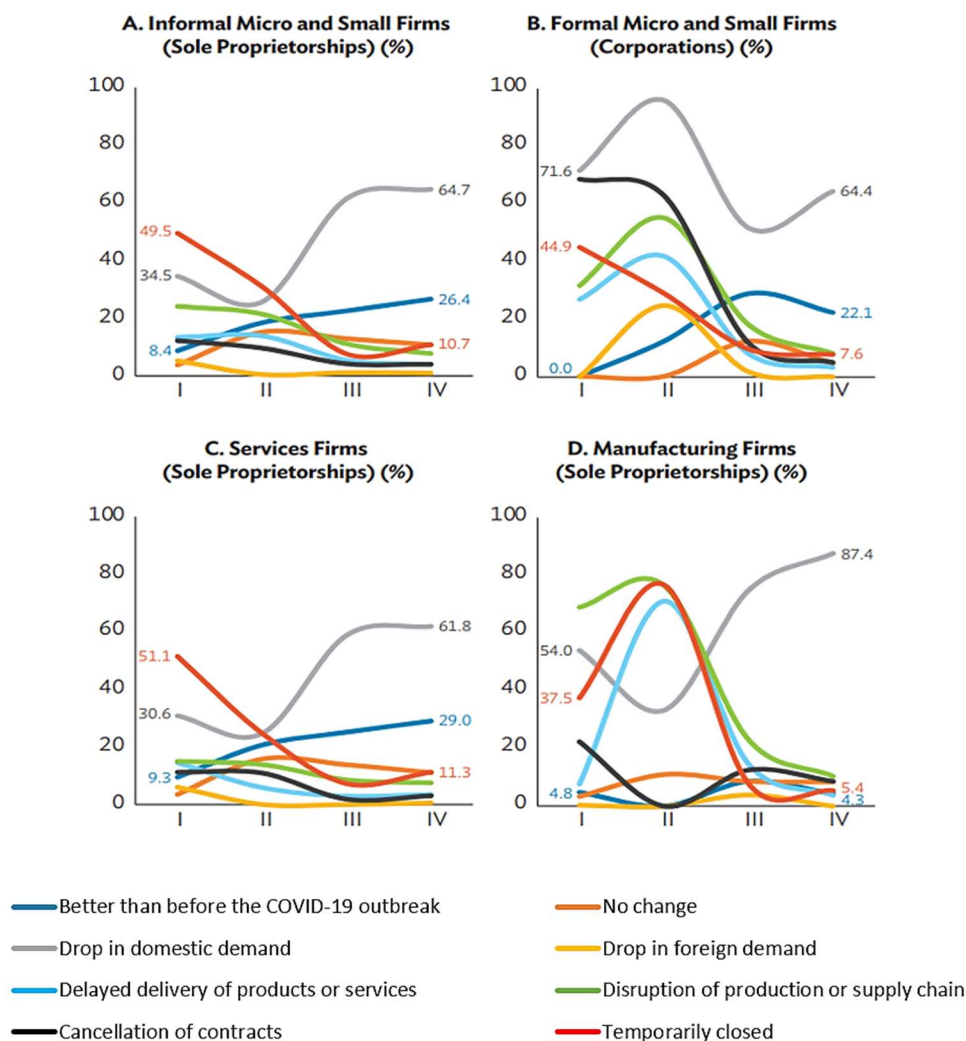
<https://docs.google.com/spreadsheets/d/1oGIDNnE6agYhutkBJa0mxCiwMwelKJ6c/edit#gid=12328242> (accessed on 21 September 2023).

technological change leading to increasing returns to scale, while “bad concentration” reflects negative developments such as rising barriers to competition that can affect MSMEs disproportionately.

### Digitalization, COVID-19, and Competition

Shinozaki (2022) shows that the above-mentioned five challenges were exacerbated during the coronavirus disease (COVID-19) pandemic. While digitalization was also accelerated, not all enterprises in the shadow economy benefited from the additional access and opportunities digitalization provided during the pandemic (**Figure 3**). Oikawa et al (2023) use unique data from Indonesia to investigate whether and how digitalization and global value chain (GVC) participation helped MSMEs weather the adverse shocks arising from the pandemic and the resulting lockdowns. They find that (i) in the early phases of the pandemic, digital transformation had yet to be established stably among MSMEs; and (ii) the MSMEs participating in GVCs showed business resilience through increased sales that enabled them to maintain employment even

**Figure 3: The Business Environment in Indonesia during the Pandemic by Type of Firm**



Notes: I = March–April 2020, II = August–September 2020, III = March–April 2021, and IV = May 2021. There were a total of 528 valid samples in Indonesia for March–April 2020; 129 for August–September 2020; 2,515 for March–April 2021; and 2,207 for May 2021.

Source: Adopted from S. Shinozaki. 2022. Informal Micro, Small, and Medium-Sized Enterprises and Digitalization: Challenges and Policy Actions in Indonesia. In A. Das and B. Susantono, eds. *Informal Services in Asian Cities: Lessons for Urban Planning and Management from COVID-19 Pandemic*. Tokyo and Manila: Asian Development Bank Institute and Asian Development Bank. (Figure 2).

during the most difficult early phases of the pandemic. The latter finding indicates that GVC networks provided a valuable opportunity for MSMEs to diversify amid pandemic shocks.

Digitalization has been occurring at unprecedented speeds in economies in Asia and around the world. The way we interact, communicate, and transact goods and services has been dramatically changed by digital platforms. The pace of digitalization has been more pronounced in Asia than anywhere else in the world, with annual digital platform revenue growth in the region reaching

over 16% in 2019 (ADB 2021). While the penetration of digitalization among MSMEs in Asia remains moderate, overall e-commerce expanded rapidly in the 2010s.

The outbreak of the COVID-19 pandemic in early 2020 fueled existing global trade tensions and economic uncertainty in Asia, leading to a sharp deterioration of MSMEs' performance in the region (Shinozaki 2021). At the same time, however, Asia's rapid shift to the digital economy in the MSME sector was facilitated by the COVID-19 lockdowns. To encourage the digitalization of MSMEs, several countries in the region launched assistance programs such as Indonesia's e-Smart IKM (industry kecil menengah-IKM) program to spur digitalization in small and medium industries, Malaysia's Accelerating SME e-Commerce Adoption, the Philippines' DigitalJobsPH, and Singapore's SMEs Go Digital. While the pandemic and resulting lockdowns disrupted MSMEs' business operations and consumer activities, particularly in service industries where new online businesses have proliferated, the lockdowns accelerated transactions on digital platforms, generating substantial economic benefits for MSMEs. It is an empirical question as to whether and how these two opposing effects emerged before and after the outbreak of the pandemic. This is also a critical question because, in many ways, MSMEs hold the key to economic recovery in developing Asia.

The process of accelerated digitalization in recent years has also changed Asia's competition landscape dramatically. COVID-19 hastened the widening of the scope of platforms and digital ecosystems, and the extent to which they are impacting markets today. It also accelerated the digital revolution that was already taking place, with firms upgrading their digital know-how and joining platforms to thrive in an increasingly connected and globalized world. However, as we will discuss later in the paper, while these changes are ushering in opportunities and benefits to consumers, firms, and the economy as a whole, digital platforms also have characteristics that potentially yield them too much market power and present challenges to other stakeholders, especially MSMEs, that are an important pillar of many Asian economies. Hence, the contribution of this paper is to highlight the competition issues salient in digital platforms and markets in Asia and provide policy guidance to overcome them so that regional economies can fully reap the benefits of the ongoing digital revolution. Appropriate competition policies, which entail an in-depth understanding of the nature of digital platforms, will generate social benefits and foster further innovation and sustainable development in the region.

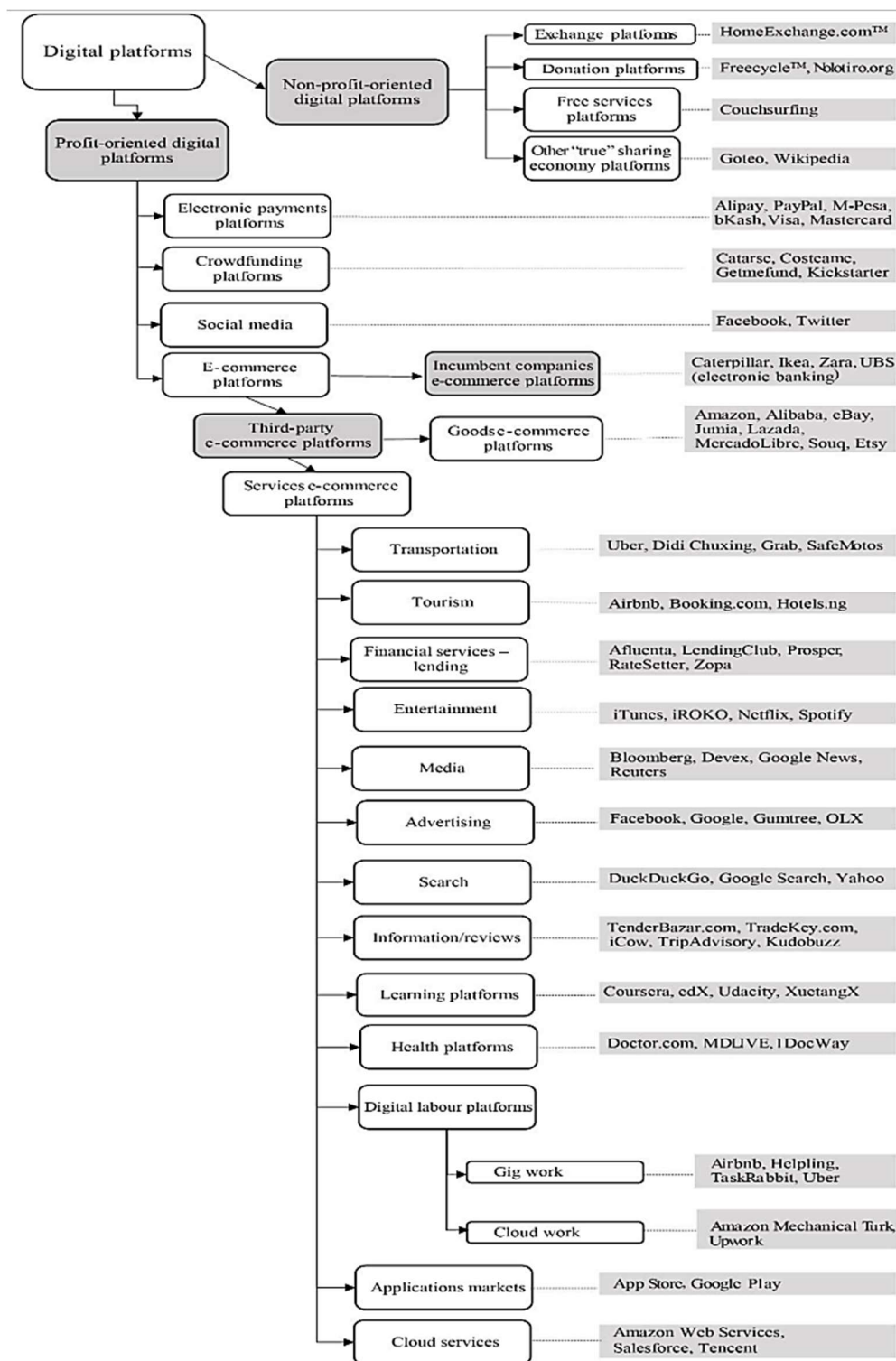
In this paper, we discuss the links between competition, innovation and digitalization, and economic performance, particularly in Asia, showing how market structure and conduct characterize outcomes in the region. In section II, we will review the process of digitalization in the MSME sector in Asia given the role of MSMEs in developing Asian economies. In section III, we will introduce how the distinctive characteristics of digital platforms (e.g., two-sided markets, network externality, and zero or negative pricing) and market environments (i.e., type of platform competition) characterize market outcomes. The paper will then discuss the government's role in evaluating competition performance by considering these special characteristics of digital platforms in section IV. Section V concludes the paper with a discussion of pertinent competition issues, current challenges, and the related policy implications, while noting that competition authorities should not regulate platforms' activities based on the traditional policy tools for offline and one-sided markets.

## **II. Platforms and Economics of Platforms**

### **Definition of Digital Platforms**

Digital platforms are Internet-based, multisided markets that connect user groups. According to the United Nations Conference on Trade and Development (2018), digital platforms are categorized into several kinds, but there seems to be no universal agreement on how exactly to draw a border between them. UNCTAD, in describing the evolving landscape of digital platforms, classifies digital platforms as either profit-oriented (e.g., Uber) or nonprofit-oriented (e.g., Wikipedia). The sizes of the latter are usually marginal compared to profit-oriented digital platforms. In contrast, Belleflamme and Peitz (2021) argue that some platforms start without any monetization tools and then become for-profit platforms after they obtain enough users—thus, there is no clear differentiation between profit-oriented and non-profit-oriented platforms. The focus of this paper is profit-oriented platforms. Because some platforms have multiple purposes and operate in multiple markets, they can be defined in various ways (**Figure 4**).

**Figure 4: Digital Platform Typology per the United Nations Commission on Trade and Development**



Source: Adopted from UNCTAD. 2018. *Fostering Development Gains from E-commerce and Digital Platforms*. [https://unctad.org/system/files/official-document/tdb\\_ede2d2\\_en.pdf](https://unctad.org/system/files/official-document/tdb_ede2d2_en.pdf). (Page 5).

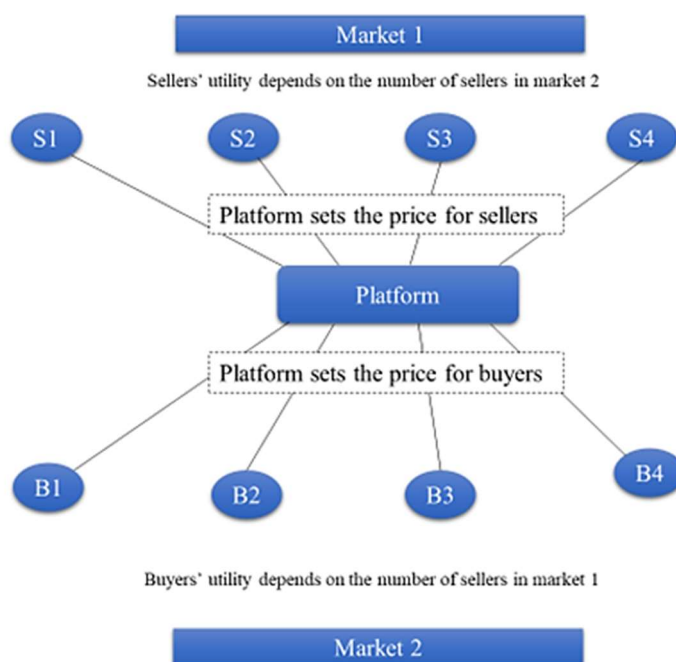
### **Platform Key Characteristics**

A network effect is a fundamental characteristic of platforms and it is important to understanding why platforms tend to be large. Network effects are defined as the impacts that one more user of a product or service, or an additional participant in some interaction, has on the value that other users or participants attach to this product, service, or interaction (Belleflamme and Peitz 2021). Social networking service platforms such as Instagram and Facebook provide a good example of the network effect: The value of their services increases as more people use their services.

Another feature of platforms is that they provide multisided markets that connect user groups. Multisided markets are characterized by network externalities; the benefits of the members on one side (such as levels of utility and profit) depend on the number of participants on the other side. For example, the number of consumers using a type of credit card directly affects the profits of the firms on the other side of the market that accept that credit card. Although interdependence between markets exists for credit card payments, agents on each side do not internalize the effect of participation on the other side of the market. With network effects and network externalities, platforms create more value for users by expanding into a multisided market.

Next, we investigate the effect of network externalities on the pricing behavior of platforms. In a conventional one-sided market, the price is determined by demand, marginal cost, and market power. The price is equal to or larger than the marginal cost depending on how strong the market power is, and it never goes below zero. However, with the existence of network externalities in a two-sided market, the price of one side can be zero, or sometimes even negative. This is because platforms do not only consider the direct effect of price on demand in the first market but also the effect on participation in the second market. **Figure 5** illustrates the network externalities of a platform and its pricing behavior.

**Figure 5: A Platform Facing Two Distinct Markets**



Source: Authors' illustration.

For a better understanding of how the price can become negative under network externalities, let us consider the model of platform competition in Armstrong (2006). In this model, a platform has two sides of consumers (A, B) whose utility depend on the price of their own side and the number of participants on the other side. In the equilibrium, the price on side A depends not only on the marginal cost and market power, as in the conventional one-sided market, but also on how much benefits the platform can extract by attracting more participants to side B. In other words, if platforms raise the price on side A, it reduces the number of participants in group A, but such a reduction on side A affects the attractiveness of the platform for side B and reduces the participants on side B. The price on side A is lower compared to the case without the effect of participants on the other side. The effect on the other side directly results from network externalities. If the network externalities are high enough—that is, the participation from a group is highly attractive to the other side—benefits from lowering prices exceed those from increasing prices. As a result, setting a negative price to maximize their profit on one side may be optimal.

An example of zero pricing in platforms is Google search services. Google offers search services to users at zero price, and they charge fees to advertisers. This is an optimal business strategy to provide search services to users at zero price, because if more people use their search



services, the value of advertising their search service becomes higher. Likewise, Yelp, Facebook, and YouTube do not charge users on one side of markets.

Given the multi-sidedness of markets and a zero-pricing strategy, digital platforms could have strong network effects and enjoy significant economies of scale and scope. Another issue with platforms is the accumulation of data on consumer behaviors. Data accumulation through platforms can increase social welfare by improving the quality of matching sellers and consumers by learning consumer behavior. De Cornière and De Nijs (2016) argue that learning consumers' tastes through platforms improves consumer–advertiser matching qualities.

However, there also exists a view on the downside of platforms' data accumulation. Having more users generates more data that helps improve the recommendation algorithm for platforms. However, this mechanism can lead to a vicious circle; platforms that successfully obtain many users have more data, and their attraction to users becomes higher. These characteristics together result in digital platform companies with significant market power and the ability to dictate the rules of the game in the market ecosystems where they operate. Significant economies of scope, as well as the nature of data accumulation through platforms, raise competition concerns as firms in dominant positions may engage in anti-competitive behavior that stifles innovation and reduces consumer welfare and overall economic growth (Libre et al., 2021). We discuss how competition issues arise with digital platforms in more detail in Section III.

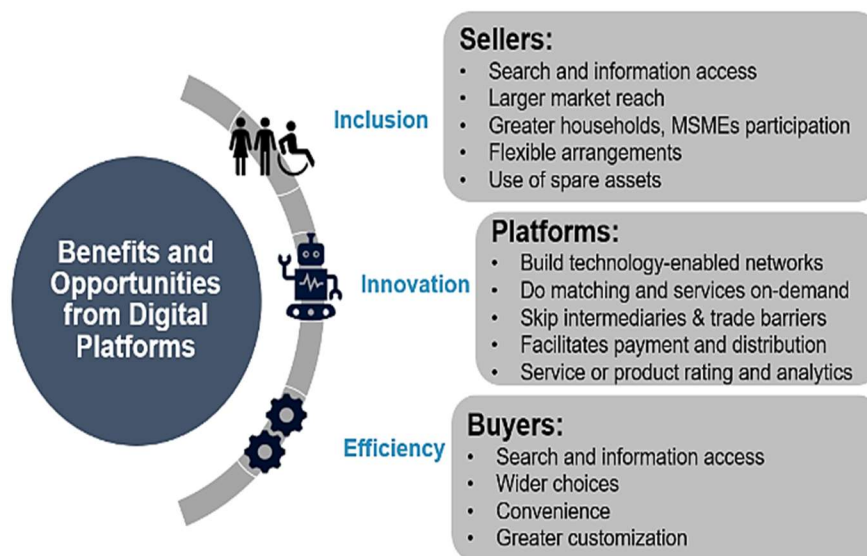
To illustrate the benefits and costs for MSMEs of utilizing digital platforms in Asia, a study by the Japan Fair Trade Commission (2019) provides insight on the views of sellers regarding platforms for e-commerce and mobile apps. Sellers claim they must accept unreasonable terms or changes determined by platforms to maintain business operations due to a high degree of dependency on sales through a specific platform. Unnegotiable actions taken by platforms vis-à-vis sellers include increasing transaction fees, requiring the use of payment settlement services, enforcing “Most Favored Nation” clauses that forbid sellers from offering cheaper prices or better conditions on their own website, and manipulating search algorithms to showcase products that are favored by the platform. Even though these actions potentially harm the businesses of sellers, they most likely would not leave the platform because the overall benefit that sellers derive from platforms is large—for example, digital platforms generate exposure for sellers' products that consumers otherwise might never have seen. Moreover, big e-commerce and app store platform operators'

websites provide an enhanced consumer experience through transactions that utilize superior payment systems and a user-friendly interface.

While antitrust concerns exist, digital platforms are expected to spread benefits to economic agents in three interrelated ways (**Figure 6**). The first is through inclusion (search and information). E-commerce platforms, for example, have enabled small producers or distributors to find and connect with consumers in real time and to sell in both domestic and international markets. This has contributed to providing goods and services on demand, raising their quality, and reducing prices. The second is through efficiency (automation and coordination). The digital platforms augment the production or sales factors, and as a result, the cost of performing certain functions decreases with an improvement in efficiency by allowing companies to better allocate resources. Enterprises, industries, and households, as well as the public sector, can thus experience higher efficiency. The third is through innovation (scale economies and platforms). Digital platforms enhance innovation by creating technology-enabled marketplaces that can bundle the ordering of goods and services, payments, as well as transportation and delivery. Furthermore, digital platforms provide marketplaces where buyers and sellers instantly match without high trade boundaries and complex intermediaries. This has allowed companies—such as Airbnb (lodging); Amazon and Alibaba (retail); Facebook (media); and Uber, Grab, and Gojek (transport)—to take advantage of economies of scale through digital platforms and other online services that compete with traditional business models. Through technology mediation, buyers and sellers also provide and receive feedback that helps the market expand and improve services (Park, Villafuerte, and Yap 2021). For the purpose of this discussion, we note that MSMEs can be viewed as complementors (sellers, developers, content providers) in the literature of platform economics. This definitional caveat will allow us to discuss the effects of platforms on MSMEs by emphasizing their effects on complementors in the remainder of the paper.

A positive perspective of digital platforms was also introduced in the study by Goldfarb and Tucker (2019), who conducted a comprehensive survey of how digitalization affects economies by lowering various kinds of costs. They present five channels through which costs are lowered: (i) search costs: the digital environment reduces the cost of finding specific information, including information related to price, vacancy, and other economically important variables; (ii) replication costs: digital goods can be replicated with almost zero additional cost, though a legal framework is required to reduce negative aspects of non-excludability; (iii) transportation costs: information is delivered to distant places with almost zero cost, and it reduces the geographic constraints of

**Figure 6: Benefits of Digitalization**



Source: Heerschap, Pouw, and Atme (2018), as cited by ADB. 2021. *Asian Economic Integration Report 2021: Making Digital Platforms Work for Asia*. Manila.

economic activities; (iv) tracking costs: lower costs through connecting agents, enabling firms to deliver information more efficiently; and (v) verification costs: lower costs to check individual reputations.

The positive effects of e-commerce in lowering search costs have also been reported by Couture et al. (2021), who used a randomized controlled trial and micro data to analyze the effect of expanding e-commerce in the People's Republic of China (PRC) on the welfare of households. They conducted experiments in eight counties in Anhui, Henan, and Guizhou provinces to show that e-commerce opens access to rural households by removing logistical barriers. Relatively younger and richer rural households benefitted the most from e-commerce. This result indicates that e-commerce enables MSMEs to access new customers that had been impossible to reach.

Regarding how platforms may increase matching efficiency, De Cornière and De Nijs (2016) propose an auction model of an online advertising market in which advertisers compete with one another. Consumers are heterogeneous in terms of their willingness to pay. In their model, platforms gather information correlated with consumers' willingness to pay, but they cannot interpret this information on willingness to pay, while advertisers can. Platforms choose either "disclosure" or "privacy." If a platform chooses to disclose, it sends the information about consumers to advertisers. Digital platforms such as Tencent and Alibaba tend to accumulate data

about their consumers, and hence, the platforms' decision to protect privacy or to disclose information is aligned with their practices. They show that the quality of matching between consumers and advertisers increases when a platform chooses disclosure. This increase means that MSMEs would benefit from advertising technology that targets better-matched consumers on platforms. In practice, broad matching improves the quality of matching consumers' interests with sellers not only through using exact keywords in search terms but also through related words and terms.<sup>2</sup> Broad matching allows sellers to reach a broader range of consumers than exact matching. With better matching mechanisms, sellers are reaching consumers with a higher willingness to pay. Although consumers pay higher prices with this mechanism, social welfare would increase. Teh (2022) shows how to frame incentives of platforms that govern their own platforms to be welfare-enhancing.

### The Digital Platform Landscape in Asia

The digital landscape has been rapidly changing around the world. In 2022, among the eight largest companies in the world, five were online companies: Apple, Microsoft, Alphabet, Amazon, and Meta. According to Statista, business-to-consumer revenues from digital markets—comprising e-commerce, e-services, apps (including transport), digital media, advertising, and digital health—doubled to more than \$5.5 trillion in 2022 from about \$2.4 trillion in 2017 (**Table 4**). The COVID-19 pandemic enhanced the spread of digital activities and contributed to the sharp growth of the digital sector. E-commerce (\$3.5 trillion) accounted for two-thirds of all digital revenues in 2022, of which about \$1.8 trillion was earned in Asia.

**Table 4: Digital Markets Revenues Worldwide, 2017–2025 (\$ billion)**

	2017	2018	2019	2020	2021	2022	2023*	2024*	2025*
App	150.9	194.9	245.6	323.1	425.1	475.9	543.6	604.6	659.0
Digital advertising	241.5	303.0	363.8	430.9	565.4	611.1	676.0	736.2	794.4
Digital health	42.1	59.8	78.5	109.7	133.2	145.4	169.8	190.8	212.7
Digital media	253.9	293.4	344.0	415.2	504.8	541.1	621.1	692.2	746.8
E-commerce	1,527.0	1,875.2	2,166.6	2,825.4	3,513.5	3,508.8	4,103.1	4,736.5	5,504.8
E-services	150.1	169.9	196.8	192.5	237.9	295.3	347.7	383.9	416.2
Total	2,365.5	2,896.3	3,395.3	4,296.7	5,380.0	5,577.6	6,461.2	7,344.1	8,333.9

\* Denotes forecasted revenue.

Notes: Digital market revenues exclude data for online food delivery, smart homes, and fintech.

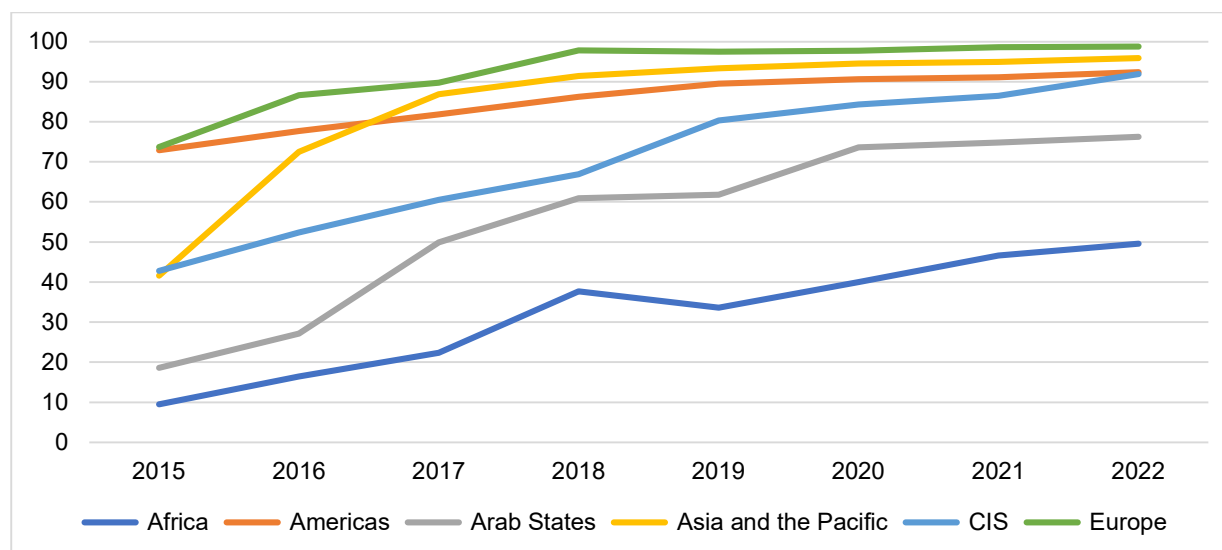
Source: Statista database (accessed 28 May 2023).

<sup>2</sup> Google. Broad Match: Definition. <https://support.google.com/google-ads/answer/2407779?hl=en>

Although Asia accounted for a significant share of global e-commerce sales in 2022, a large disparity in sales existed between individual economies. Heterogeneities in digital platform penetration across the region are partially due to the different maturity levels of the preconditions needed for digitalization. There are four fundamental conditions that digital platforms must meet to contribute to inclusive development for MSMEs (ADB 2021). First, there is a need for effective access to information and communications technology (ICT) infrastructure by making ICT affordable and ensuring proper digital literacy for widespread adoption. Second, digital financial inclusion is indispensable for making financial settlements in e-commerce feasible, reliable, and stable. Third, logistics and delivery infrastructure are indispensable for the completion of e-commerce transactions (although transactions for some services, such as music, movies, and other entertainment services, can be fully online). Fourth, a viable ecosystem is fundamentally based on laws, rules, and regulations for data privacy and cybersecurity. Platforms and online service providers in Asia are creating and expanding such ecosystems to provide business development services, access to noncollateralized finance, “one-window” marketing, and supply chain and linguistics support through dashboards on their platforms for entrepreneurs. For example, GoJek Indonesia’s GoBiz platform for GoFood (a cooked food delivery service) merchants is one such example. Through a more structured registration system, the GoBiz platform was able to onboard merchants, provide customized support according to their respective business and financing needs, and slowly usher many MSMEs out of the informal sector to a more formal setup using e-wallets and payment systems. Similarly, Plentina in the Philippines is helping to build a financial and credit history database for individuals who have not used any formal sector financial services in the past given the relatively small size of their income-expenditure profiles, lack of collateral, and limited access to credit, among other reasons.

Both ICT infrastructure and technological adoption are essential for the development of platforms. **Figure 7** shows recent developments in the share of the population covered by at least an LTE/WiMAX mobile network by region. Asia has seen dramatic improvement in Internet access, with over 90% of the region’s population now enjoying high-speed Internet coverage, which is about the same as in Europe and higher than in the Americas. The figure shows that the maturity of the infrastructure is no longer an issue for the development of platforms in Asia. However, a caveat in the interpretation of this graph is that “Asia and the Pacific” also includes developed Asian economies Australia, Japan, and New Zealand. Therefore, developing Asia might face insufficient ICT infrastructure despite the impression given by this graph.

**Figure 7: Share of the Population Covered by at Least an LTE/WiMAX Mobile Network (%)**



CIS = Commonwealth of Independent States, LTE = Long-Term Evolution.

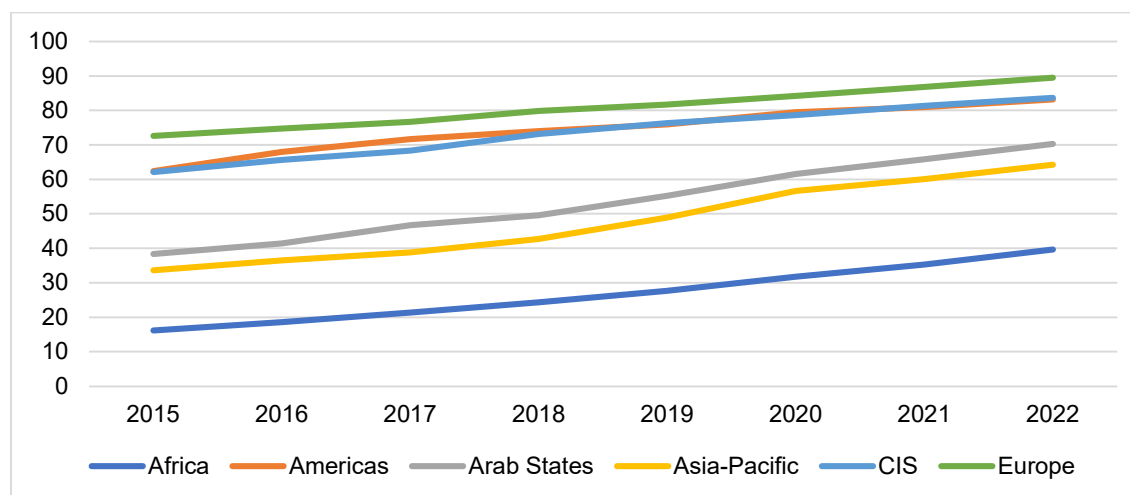
Note: Regions are based on the International Telecommunication Union regions.

Source: International Telecommunication Union. Global and Regional ICT Data. <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx> (accessed 20 March 2023).

A different picture emerges when we consider Internet penetration rates (**Figure 8**). Less than 70% of people in Asia use the Internet, although the share of users has doubled since 2015. Compared to Europe and the Americas, the Internet penetration rate is low in Asia, indicating that the region's technological maturity is an issue for platform development.

In 2019, Asia may have lagged other regions in terms of digital infrastructure and people's adoption of digital technologies, but COVID-19 accelerated the process of digitalization across the region. According to data from Statista, the value of e-commerce activities in the Asia and the Pacific were projected to increase from \$1.4 billion in 2019 to more than \$2.0 trillion in 2022 and to \$2.6 trillion in 2025. Meanwhile, the value of e-services activities was projected to double from \$154 billion in 2019 to about \$294 billion in 2022 and to \$364 billion in 2025.

**Figure 8: Share of the Population Using the Internet (%)**



CIS = Commonwealth of Independent States, LTE = Long-Term Evolution.

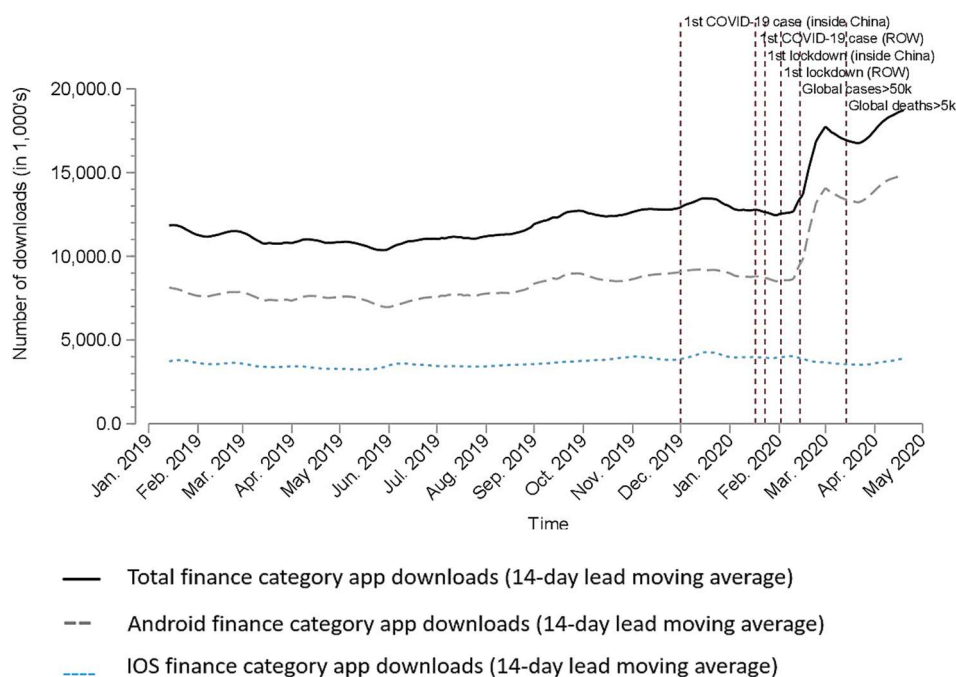
Note: Regions are based on the International Telecommunication Union regions.

Source: International Telecommunication Union. Global and Regional ICT Data.

<https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx> (accessed 20 March 2023).

Fu and Mishra (2020) analyze the effect of COVID-19 and related lockdowns on fintech adoption among 74 economies, including members of the Asian Development Bank such as Hong Kong, China; Japan; Kazakhstan; Malaysia; Pakistan; the Philippines; Singapore; Thailand; and Viet Nam. **Figure 9** shows that the number of downloads of fintech apps drastically increased after the pandemic. Fu and Mishra (2020) estimate the effect using panel data and conclude that the spread of COVID-19 and related lockdowns increased the rate of daily downloads by 24%–32%. Therefore, during the pandemic, the degree of digital adoption increased throughout the region. Such increases in consumers' technological adoption could contribute to successive online transactions after the pandemic. An increase in the number of online users has a persistent effect on social online activities, because using the Internet incurs upfront fixed costs such as purchasing a device. In developing Asia, the high fixed costs of using the Internet is part of the reason that penetration has not spread as quickly as in Europe or the Americas. However, due to the new social environment that arose during the COVID-19 pandemic, people were more willing to use the Internet even when paying an initial fixed cost. The continued use of the Internet does not incur such upfront fixed costs, so we expect that if the pandemic created more Internet users, then online activities should continue to expand post-pandemic.

**Figure 9: Impact of COVID-19 on the Adoption of Fintech Mobile Apps**



COVID-19 = coronavirus disease; ROW = rest of the world.

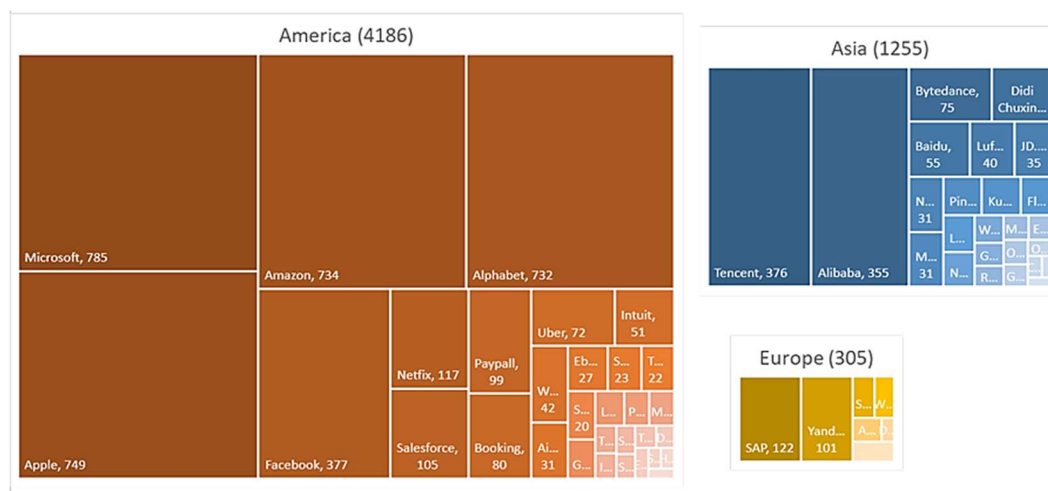
Note: The Asian Development Bank recognizes “China” as the People’s Republic of China.

Source: Adopted from J. J. Fu and M. Mishra. 2020. The Global Impact of COVID-19 on Fintech Adoption. *COVID Economics Vetted and Real-Time Papers*. 12. pp. 158–91. (Figure 1).

So far, regional differences in digitalization and a digitalization catchup by Asia after COVID-19 have been discussed. Next, we examine digitalization and the roles of digital platforms in different economies. Regarding the regional distribution and sizes of platforms in the world, **Figure 10** provides a clear comparison and shows that geographical concentration is one feature of platform business. Wealth creation in the digital economy is highly concentrated in two countries: the United States (US) and the PRC. Together, the US and the PRC account for 75% of all patents related to blockchain technologies, 50% of global spending on the Internet of Things, more than 75% of the cloud computing market, and as much as 90% of the market capitalization value of the world’s 70 largest digital platform companies (UNCTAD 2019).



**Figure 10: Geographical Concentration of Digital Firms, 2018**  
(market capitalization, \$)



Source: UNCTAD. 2019. *Digital Economy Report 2019*. [https://unctad.org/system/files/official-document/der2019\\_en.pdf](https://unctad.org/system/files/official-document/der2019_en.pdf)


**Figure 11** illustrates digital penetration (DPP) and network readiness by economy in Asia. The PRC exhibits the region's highest score for the DPP Index at 2.5847, and Turkmenistan has the lowest score at 0.1565. Network readiness has several elements: technology (which captures access, content, and future technologies); people (which captures the e-readiness and aptitude of individuals, businesses, and governments); governance (which captures trust, regulation, and inclusion); and impact (which captures economic value, quality of life, and contribution to sustainable development goals). A greener box indicates lower network readiness, and a bluer box indicates higher readiness. The economies with a higher DPP Index exhibit higher network readiness in all four elements, while the economies with a lower DPP Index have lower network readiness. This figure illustrates that network readiness is highly correlated with digital penetration and implies that building network readiness is a key step to unlocking the benefits of digital platforms.

**Figure 11: 2020 Digital Penetration Index and Network Readiness Subindexes**

Economy	DPP Index	Network Readiness Main Subindexes			
		Technology	People	Governance	Impact
PRC	2.5847				
Korea, Rep. of	2.5283				
Australia	2.1010				
Hong Kong, China	2.0323				
New Zealand	1.8795				
Japan	1.7794				
Singapore	1.7644				
Malaysia	1.1008				
India	1.0220				
Viet Nam	0.9429				
Indonesia	0.9190				
Brunei Darussalam	0.8322	n.d.			
Philippines	0.8221				
Armenia	0.8077				
Pakistan	0.7960				
Kazakhstan	0.7929				
Thailand	0.7902				
Azerbaijan	0.7833				
Sri Lanka	0.6501				
Georgia	0.5751				
Kyrgyz Republic	0.5018				
Uzbekistan	0.4840	n.d.			
Nepal	0.4619				
Fiji	0.4579	n.d.			
Cambodia	0.4416				
Tajikistan	0.4155				
Bangladesh	0.3928				
Myanmar	0.3909	n.d.			
Bhutan	0.3119	n.d.			
Mongolia	0.2824				
Lao PDR	0.2523				
Timor-Leste	0.2486	n.d.			
Papua New Guinea	0.2111	n.d.			
Turkmenistan	0.1565	n.d.			

Lao PDR = Lao People's Democratic Republic, n.d. = no available data, PRC = People's Republic of China.

**Notes:**

- (i) Maximum and minimum values are set at 0 and 100.
- (ii) Low to high value spectrum 
- (iii) The Technology sub-index captures access, content, and future technologies.
- (iv) The People sub-index captures the readiness and aptitude of individuals, businesses, and governments.
- (v) The Governance sub-index captures trust, regulation, and inclusion.
- (vi) The Impact sub-index captures economic value, quality of life, and contribution to sustainable development goals.
- (vii) The specific indicators used and the methodology are laid out in Appendixes 1 to 3 of Dutta and Lanvin (2020), [https://networkreadinessindex.org/wp-content/uploads/2020/11/NRI-2020-V8\\_28-11-2020.pdf](https://networkreadinessindex.org/wp-content/uploads/2020/11/NRI-2020-V8_28-11-2020.pdf).

ADB has placed on hold its assistance in Myanmar effective 1 February 2021. ADB Statement on Myanmar | [Asian Development Bank](#) (published on 10 March 2021).

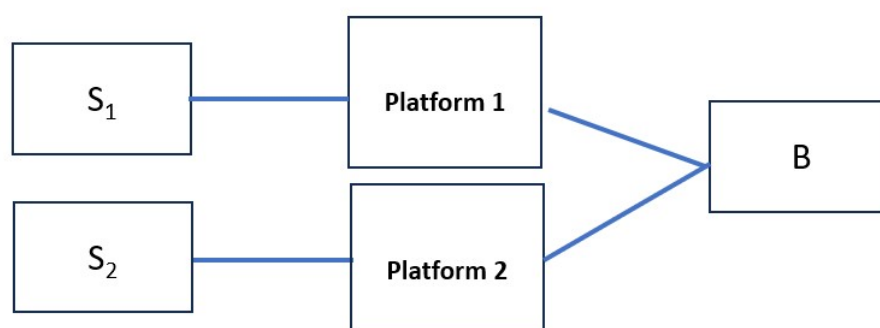
Source: Adopted from ADB. 2021. *Asian Economic Integration Report 2021: Making Digital Platforms Work for Asia*. Manila. (Table 8.17).

In summary, developing Asia can potentially “digitally leapfrog” if governments can guide the required ecosystems swiftly in the right direction. An improvement in digital infrastructure and people’s digital adoption after the pandemic is a good signal for a rapid expansion of digital platforms. Growth in the number of users of GoJek in Indonesia; Grab in Indonesia, the Philippines, and other Southeast Asian countries; and GCash in the Philippines illustrates the promising path toward digital leapfrogging in Southeast Asia. For example, the mobile wallet company GCash increased the number of registered users in the Philippines from 20 million in 2019 to 33 million in 2020 and then to 46 million in 2021.

### Competition Environment of Platforms

Concerning the competition environment of platforms, the “single-homing” or “multihoming” of consumers and sellers is one of the crucial factors. To illustrate a situation where a problem arises from the imbalance in market power between platforms and MSMEs, we introduce the framework of Rochet and Tirole (2003) in which they define the terminology of single-homing and multihoming to indicate the competition environment of platforms. If an agent uses only one platform, it is single-homing. If an agent uses several platforms, it is multihoming. Whether each side of the market is single-homing or multihoming changes the market outcome and the effects on the platforms’ behavior (**Figure 12**).

**Figure 12: Multi-Homing Platform: Competitive Bottleneck**



Note: The left side is single-homing since each agent only has access to one platform, and the right side is multihoming since agent B has access to both platforms 1 and 2.

Source: Adopted from J. C. Rochet and Tirole, J. 2006. Two-Sided Markets: A Progress Report. *The RAND Journal of Economics*. 37 (3). pp. 645–67. (Figure 2).

Armstrong (2006) presents the concept of a “competitive bottleneck,” which involves single-homing for one side and multihoming for the other. The newspaper industry is one example of such a structure. Many consumers subscribe only to one newspaper, but firms may post their advertisements in multiple newspapers. In the newspaper industry, the consumer side is single-homing, and the firm side is multihoming. He theoretically shows that in the competitive bottleneck, a platform maximizes the joint surplus (e.g., volume and value of transactions) of itself and the single-homing agent, while the interest of the multihoming agent is ignored in any equilibrium. However, the surplus from exploiting market power as a monopolist does not necessarily become a benefit for platforms. If platforms face competition on the single-homing side, they transfer revenues from the multihoming side to the single-homing side so that they can better compete on the side of single-homing. In such a case, single-homing consumers enjoy benefits at the expense of the multihoming side.

Related to imposing multihoming on platforms, Belleflamme and Peitz (2019) consider the impact of multihoming on prices, profits, and surpluses of platforms on each side of the market. They show that both platforms and consumers in two-sided markets can be better off by imposing multihoming on one side. They conclude that authorities are not able to determine whether the competitive bottleneck leads to a higher or lower surplus on either side as long as one side is multihomed.

Bakos and Halaburda (2020) argue that joining multiple platforms has become more common with technological progress, and markets on both sides of the platforms are multihoming in many cases. They show that the strategic interdependency between the two sides of the platform vanishes with multihoming on both sides. This disappearance means that platforms never set prices below the marginal cost when both sides are multihoming. For cases where consumers are single-homing and MSMEs are multihoming, platforms exert monopoly power over MSMEs. If technology advancement enhances the multihoming of consumers, MSMEs would benefit from platforms not subsidizing consumers at MSMEs' expense.

Recent studies by Adachi, Sato, and Tremblay (2023) and Teh et al. (forthcoming) find that when consumers are multihoming, sellers have bargaining power over platforms because they can switch platforms when platforms increase transaction fees over sellers.

In summary, the competition environment of platforms depends on the single-homing or multihoming of users and sellers. To evaluate the welfare gains or losses to users, sellers, and platforms from transactions, understanding both single-homing and multihoming is crucial, but it is not enough to determine the welfare changes to each agent.

A PPMI-led survey in Europe reveals facts about the single-homing and multihoming of consumers and sellers on platforms. According to the survey results, smaller firms are more likely to use multiple platforms than larger firms in all sectors: selling goods, selling services, listing accommodations, and distributing apps and other software. For example, between 37% and 64% of small businesses (1–9 employees) use more than one platform. The lowest percentage of multihoming sectors include distributing apps or other software. For the consumer side, the same study shows the percentages of consumers multihoming for food delivery services by country. In the Republic of Korea, more than 70% of consumers only use one food delivery platform. The survey results show variations of prevalence in multihoming by sector and that it is less common to use multiple platforms in some sectors for both consumers and sellers (European Commission 2021).

### **III. Platforms and Firms: Competition Issues**

As a few big platforms become predominant in most economies in Asia, there is growing attention being given to the market concentration of platforms and their potentially anticompetitive conduct. We reviewed the unique characteristics of platforms that result from network externalities in the previous section. Due to such unique characteristics, platform activities that potentially entail negative effects on market competition should be approached differently than would be prescribed under existing competition frameworks. In this section, we highlight three competition issues related to platforms to consider the effect that platforms have on the development of MSMEs: concentration, exclusionary conduct, and mergers.

#### **Concentration**

One of the concerns regarding platforms is market concentration. In Asia, as well as other parts of the world, a few big tech companies have become predominant, such as Alibaba, Tencent, and Grab (Figure 10). If the market is concentrated, dominant firms may achieve strong market power and absorb potential profits from MSMEs that participate on the platform. Factors such as strong network effects, data accumulation and portability, large returns to scale, and switching costs may

work in favor of the platforms, and platforms may be able to achieve a high market share and induce concentration based on these factors.

Existing research has examined the advantages of incumbent platforms and mechanisms that create such advantages. One mechanism that provides advantages to incumbents is the network effect. For example, Dubé, Hitsch, and Chintagunta (2010) show that the indirect network effect increases market concentration by more than 24 percentage points by calibrating a model using datasets from the gaming industry. This implies that large incumbent advantages exist for platforms with network effects.

In addition to network externalities, digital platforms can accumulate a vast amount of customer data from their services that enhances their competitive advantage. Hagiu and Wright (2020) show that such data accumulation enables platforms to improve the quality of the services and increase the willingness-to-pay among consumers. As a result, consumers increasingly use their services, and platforms collect more data; hence, incumbent firms which have a data advantage are likely to win the competition with this self-reinforcing mechanism. However, they also discuss that new entrant firms can seize the market with dynamic pricing if they have a steeper learning curve than incumbent firms. Another mechanism through which incumbent platforms can have an advantage in gathering consumer data relates to how consumers think about their privacy protection. Ichihashi (2020) discusses that consumers prefer the incumbent platform because it already has their data, and this preference has a negative effect on competition between platforms as it gives an advantage to the incumbent platforms.

Data portability is another factor affecting the data accumulation and the concentration of platforms. Data portability allows consumers to bring their own data to different platforms. This policy is intended to lower switching costs between platforms by making it easier for consumers to switch across different service providers. Lam and Liu (2020) discuss that increasing data portability encourages consumers to provide more data to a platform while the policy makes it easier for consumers to switch to another platform. They argue that when a big data service is valuable enough, the effect to make consumers switch across platforms would be dominated by the effect to provide more data. Thus, the incumbent firm has an advantage against potential entrants, thereby encouraging concentration.

Depending on the type of platform, as discussed, consumers can use multiple platforms (multihoming), or they can use only one platform (single-homing). Compared to the standard one-sided market setting where price becomes lower when the competition is more intense, single-homing in a two-sided market may result in the opposite behavior: the price becomes higher when the competition is more intense. This is due to the existence of externalities in two-sided platforms, and the policy implication is that policy makers should be careful in understanding how the conduct relates to the market structure.

In addition to how varied factors affect the behavior of platforms and consumers, sellers' choice among platforms can affect the concentration of platforms. If the competition among sellers is severe, sellers would choose a different platform to escape the competition, and the market would become segmented. As a result, the seller side becomes single-homing. Karle, Peitz, and Reisinger (2020) discuss how such segmentation of platforms may not be socially optimal since it reduces consumer choice, but platforms can increase their profit by charging higher rent and extracting more from sellers. From the viewpoint of MSMEs that are typically sellers, they would be charged higher rent when the sellers' market is highly competitive.

This subsection has presented three main implications. First, platforms are likely to achieve higher market shares and induce concentration via multiple channels such as the network effect and data accumulation. We discuss that the relationship between concentration and price (or welfare) is complicated in a two-sided market. Concentration can be socially optimal in a two-sided market, and the degree of concentration is linked to the competitiveness across firms on one side of the market. In terms of competitiveness among platforms, under some conditions, the relationship between price and competition can be reversed; prices may increase as competition becomes greater. Therefore, it is not a simple task to determine the effect on MSMEs which are sellers when the concentration of a platform increases. Regulation authorities should take a careful look at the multiple aspects of market competition, such as competition among firms which are the participants in platforms and competitions across platforms. Finally, the competition environment and market structure, such as single-homing versus multihoming, should be considered to ensure comprehensive evaluation of market outcomes.

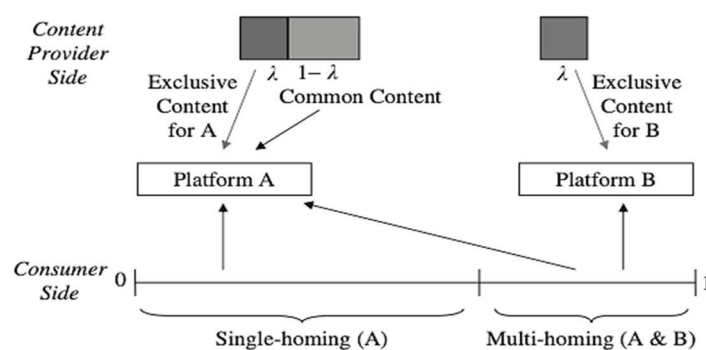
### **Exclusion and Vertical Restraints by Platforms**

In the traditional antitrust literature, a concern exists that incumbent firms will use their market power to foreclose potential competitors in numerous ways. Foreclosure by bundling (Nalebuff

2004), foreclosure by product variety (Klemperer and Padilla 1997), and foreclosure by killer acquisition (Cunningham, Ederer, and Ma 2021) are some of the ways incumbent firms can foreclose. The risks that the platforms may foreclose on their competitors could negatively affect a stable post-pandemic recovery path for MSMEs that rely on platform businesses, thereby undermining the recovery of local economies as well. However, as Evans and Schmalensee (2014) point out, it is not clear whether the foreclosure argument in existing research is applicable to the case of a two-sided market. They argue that the result of the basic one-sided model cannot be simply applied to the case of a two-sided market. There are few articles incorporating two-sidedness in the analysis of exclusionary conduct, and the results seem sensitive to the model's assumptions.

Tying is one of the contexts in which outcomes between one-sided and two-sided markets differ. Extant studies on one-sided markets, such as Whinston (1990), show that tying by incumbent firms works as a tool of foreclosure and has a negative effect on competition. However, in two-sided markets, platforms are constrained by non-negative pricing on one side; hence, tying can be used as subsidies that relax that constraint. In such a setting, Amelio and Jullien (2012) discuss that tying is not only profitable for platforms, but also beneficial to consumers' welfare. Choi (2010) finds that when agents can engage in multihoming on both sides and the rival platform has exclusive content, tying induces more consumers to engage in multihoming too, as shown in **Figure 13**, and the total surplus increases. In addition, tying reduces the total surplus if consumers are not allowed to multihome. These studies indicate that the effect of exclusionary conduct on the social surplus is obscure in a two-sided market and heavily depends on the conditions of market structure and competition environment.

**Figure 13: Two-Sided Market Equilibrium with Tying**



Source: Adopted from Choi, J. P. 2010. Tying in Two-Sided Markets with Multi-homing. *Journal of Industrial Economics*. 58 (3). (Figure 3).



Platforms and sellers may sign exclusive contracts. Typically, MSMEs are sellers participating on the platform. Armstrong and Wright (2007) discuss that sellers' (MSMEs') benefit from network externalities is fully extracted when consumers are single-homing and sellers are multihoming. By contrast, if platforms can offer exclusive contracts to sellers (MSMEs) while consumers are single-homed, then the result is reversed and consumers' benefit from network externalities is fully realized. The exclusive contracts seem disadvantageous to sellers, but in a two-sided market, the economic outcome without the exclusive contract could be worse for sellers (MSMEs).

Like exclusion, the effects of vertical constraints involving platforms may be significantly different from those of the one-sided markets. One type of vertical constraints between firms and platforms is the Platform-Most-Favored-Nation, or Platform-Most-Favored-Customer (PMFC), clause. Once this contract is agreed to, platform participants cannot sell their products or services at a lower price through other platforms.

Boik and Corts (2016) argue that a PMFC clause increases the fees a platform charges and the price that the sellers charge, but the effect on entry is ambiguous. In the basic framework, the PMFC clause of incumbent platforms discourages entries of other platforms; but if the potential entrant has a similar business model to the incumbent, the PMFC clause has a positive effect on entry.

The effects of a PMFC clause depend also on the levels of platform and seller competitiveness. When platform competition is greater than seller competition, Maruyama and Zenny (2020) find that a PMFC clause increases investments by platforms, seller profits, consumer surplus, and social welfare. By contrast, when the competition among sellers is greater, it has a negative effect on all of these aspects.

The two aforementioned studies indicate that the effects of a PMFC clause depend on several aspects of the market structure and competition environment, and it is not straightforward to consider the effects on stakeholders of a two-sided market that includes MSMEs.

Another vertical issue that may arise for MSMEs on platforms would be MSMEs selling not only on platforms, but also selling directly to consumers without using platforms. Platforms lower the search cost for sellers (MSMEs) but charge a transaction fee. If MSMEs sell their product at a

lower price through direct selling without paying transaction fees to platforms, consumers might use platforms to search for goods and then purchase the product directly from the firm at a lower price. To prevent such “showrooming,” platforms impose a price parity clause (PPC) that requires participating firms not to set a lower price in direct selling than the price on the platform for the same product. PPCs have been widely used by platforms. For example, Amazon has imposed “Amazon’s General Pricing Rule,” and online booking platforms such as Booking.com and Expedia have also imposed PPCs.

There are broadly two kinds of PPCs: wide and narrow. A wide PPC requires the price on platforms to be no higher than any other channel, including direct selling and rival platforms. A narrow PPC only requires the price on platforms to be no higher than direct selling. Wang and Wright (2020) discuss that both wide and narrow PPCs distort competition between the platform and firms. This is because both prevent firms from setting a lower price even if the platform imposes extremely high fees. A wide PPC also distorts competition across platforms since it eliminates incentives for platforms to lower fees. Their result implies that wide PPCs are anticompetitive and narrow PPCs are justified only when the platform cannot survive without it.

### **Mergers between Platforms**

Section III showed that platforms may induce higher market concentration. This suggests that an assessment of the outcomes of platform mergers needs to be conducted with additional care and attention to protect consumers and sellers (MSMEs). However, a two-sided market makes it difficult to simply apply the traditional assessment tools to evaluate platform mergers and their consequences.

In many countries, competition authorities investigate cases before they approve or block mergers to preserve a competitive environment. For the horizontal merger, one way to evaluate the effects of a merger is to define the relevant markets by using a significant non-transitory increase in price test and calculate an Herfindahl–Hirschman Index score to determine the degree of concentration in the relevant market. An alternative way to identify the incentive of merging firms to increase prices is to use the upward price pressure (UPP) index developed by Farrell and Shapiro (2010) and the gross UPP index. The advantage of these criteria is that one does not have to decide which is the relevant market. Unfortunately, the UPP and gross UPP indexes do not work in the context of a two-sided market because of the existence of network externalities. Affeldt et al. (2013) develop UPP measures for a two-sided market. Although it overcomes the shortage of the

original measure, they argue that it is often too costly to collect enough information to calculate the UPP in a two-sided market because it requires information on how participants react to the change in participation on the other side.

A few studies, as summarized in **Table 5**, quantitatively examine the effect of mergers by incorporating the two-sidedness of the market. Jeziorski (2014) examines mergers in the US radio industry for the period 1996–2006, which has the property of two-sidedness (listener and advertiser), by using a structural model. He divides the effect of the merger into two parts: product variety and market power. These effects are quantified in terms of the listener and advertiser's welfare. The study finds that the merger created extra product varieties, which increased the listener's welfare by 0.3%. However, due to the decrease in competition, the advertiser's welfare decreased by 17.0%. Also, the subsequent adjustment of lowering the ad quality decreased the listener's welfare by 0.1% and the advertiser's welfare by 5.0%. Overall, the merger increased the listener's welfare by 0.2% and decreased the advertiser's welfare by 21.0%. However, this result is specific to the market and the implication cannot simply be extended to other mergers in a two-sided market.

Sato (2021) suggests the guidelines that can be applied to review mergers in a two-sided market. He develops a model of a multiproduct-firm oligopoly with network externalities to analyze the impact of mergers with network effects. His model predicts that consumers benefit from the merger through an expanded network but also incur costs from the increased market power of the merging platform. With network externalities, the impact of the merger depends on the size of the merging parties relative to the industry. From the analysis of the merger in a two-sided market, he shows that an increase in the number of firms on one side amplifies the incentive to subsidize consumers on the other side, and the benefit to consumers depends on the pre-merger share of the other side. His model's contribution is that pre-merger prices and the market shares of the merging parties can predict the post-merger surplus of consumers. He also argues that a gain in consumers' benefits from network expansion is justified for small mergers, but negative effects from an increase in market power would surpass the benefits for large mergers (Table 5).

**Table 5: Summary of Studies**

<b>Platform concentration</b>	
Indirect network effects	<p>Dubé, Hitsch, and Chintagunta (2010)</p> <ul style="list-style-type: none"> <li>• Calibrate dynamic models with indirect network effects to measure the expansion of a firm's share dominance given network externalities.</li> <li>• Data: Monthly average prices and sales of game consoles in US retailers for September 1995 through September 2002 obtained from NPD Techworld's point of sales database.</li> <li>• Finding: Indirect network increases concentration by 24 percentage points or more.</li> </ul>
Data accumulation	<p>Hagiu and Wright (2020)</p> <ul style="list-style-type: none"> <li>• Theoretically develop dynamic models of platforms with data-enabled learning, which affects the quality of services.</li> <li>• Finding: Competitive equilibrium is socially optimal even with data-enabled learning unless a dynamic network effect leads to a consumer coordination problem and consumer beliefs favor one of the firms.</li> </ul> <p>Ichihashi (2020)</p> <ul style="list-style-type: none"> <li>• Theoretically shows negative effects of data on market outcomes by advantaging incumbent platforms.</li> <li>• Finding: Firms set strict privacy policy as a starting point and loosen it because consumers' marginal cost to provide data decreases as they use the platform. As a result, consumers are locked into the incumbent platform they provided data to.</li> </ul>
Data portability	<p>Lam and Liu (2020)</p> <ul style="list-style-type: none"> <li>• Theoretically shows effects of data portability legislation on platform competition.</li> <li>• Finding: Under the current framework of data portability legislation, which allows data provided by consumers to be portable across platforms but does not include data analyzed by firms, legislation discourages consumers switching across platforms.</li> </ul>
Platform competition and social welfare	<p>Tan and Zhou (2020)</p> <ul style="list-style-type: none"> <li>• Theoretically demonstrate effects of platform competition on price charged to participants in multisided markets with network effects.</li> <li>• Finding: An increase in platform competition could heighten prices charged to consumers when the marginal elasticity of subsidization is smaller than the marginal elasticity of markup.</li> </ul> <p>Karle, Peitz, and Reisinger (2020)</p> <ul style="list-style-type: none"> <li>• Theoretically develop the model that seller competition endogenously determines platform competition and platform fees.</li> <li>• Finding: Increased competition in a sellers' market leads to less concentration in platforms and higher platform fees that result in a negative correlation between platforms' concentration and platform fees.</li> </ul>

*Continued on the next page*

<b>Exclusionary conduct</b>	
Tying	<p>Choi (2010)</p> <ul style="list-style-type: none"> <li>Theoretically investigate effects of tying on social welfare in two-sided markets with externalities</li> <li>Finding: If consumers can multihome across platforms, tying would increase social welfare by enhancing sellers' welfare.</li> </ul> <p>Amelio and Jullien (2012)</p> <ul style="list-style-type: none"> <li>Theoretically show that effects of tying with non-negative price constraint in two-sided markets</li> <li>Finding: Tying is profitable for both platforms and consumers in a monopoly setting.</li> </ul>
Exclusive contracts	<p>Armstrong and Wright (2007)</p> <ul style="list-style-type: none"> <li>Theoretically show that a competitive bottleneck endogenously arises in equilibria where sellers are multihoming and buyers are single-homing in platforms.</li> <li>Finding: All surplus for sellers is extracted and transferred to buyers in baseline setting. Exclusive contracts between platforms and firms. alternate results: All surplus is taken by sellers with no surplus left for buyers.</li> </ul> <p>Boik and Corts (2016)</p> <ul style="list-style-type: none"> <li>Theoretically develop models to examine the effects of Platform-Most-Favored-Customer (PMFC) clause on platform fees, prices charged by sellers, and entry of platforms.</li> <li>Finding: A PMFC clause increases fees charged by platforms and the prices charged by sellers, but the effect on entry is ambiguous.</li> </ul> <p>Maruyama and Zenny (2020)</p> <ul style="list-style-type: none"> <li>Theoretically develop models to examine the effect of a PMFC clause on platforms' incentive for demand-enhancing investment by using a bilateral duopoly model.</li> <li>Finding: When competition between platforms (intra-brand) is greater than the competition between sellers (inter-brand), an industry-wide PMFC diminishes platform investment. This result depends on the relative competition degree in platforms and sellers.</li> </ul> <p>Wang and Wright (2020)</p> <ul style="list-style-type: none"> <li>Theoretically demonstrate negative effects of Price Parity Clause (PPC) on consumers' surplus</li> <li>Finding: A wide PPC clause always leaves consumers worse off. A narrow PPC can be beneficial to consumers if a PPC is needed for the viability of the platform.</li> </ul>
<b>Mergers</b>	
Structural estimation	<p>Jeziorski (2014)</p> <ul style="list-style-type: none"> <li>Empirically estimate the effect of mergers on the welfare of participants in two-sided markets using United States (US) radio mergers during 1996–2006.</li> <li>Data: BIA Kelsey and SQAD Media Market Guide 1996–2006</li> <li>Finding: Listeners' welfare increased by 0.2% and advertisers' welfare decreased by 21 % through US radio merger waves.</li> </ul>
Theoretical model	<p>Sato (2021)</p> <ul style="list-style-type: none"> <li>Theoretically examine the effect of mergers on consumers' welfare with network effects in two-sided markets using a model of multiproduct-firm oligopoly with network externalities.</li> <li>Finding: The positive or negative effect of the merger on consumer welfare depends on the size of merging parties relative to the industry. If merging parties are dominant in the industry, the negative effect from market power surpasses the positive effect from network expansion.</li> </ul>

Source: Authors' compilation.

#### **IV. Conclusion and Policy Implications**

In this paper, we reviewed the overall MSME landscape in Asia, including the challenges and constraints faced by enterprises in physical (offline) and online markets. We then examined platform characteristics and the externalities that are triggered by these characteristics and how they impact merchants and other platform users.

Our findings suggest that the distinctive features of platforms and the two-sided market structure they foster require a bespoke policy approach from competition authorities and policy makers. Conventional measures may not be adequate in estimating the incentives of platforms that earn profits on two or more sides of the market, which makes a compelling case for going beyond existing policies designed for physical or offline one-sided markets. Since single-homing or multihoming on each side of the market determines the anticompetitive effects of exclusionary conduct, examining the switching costs across platforms would also be an important exercise that would benefit from further investigation and more empirical evidence.

During our analyses, we have noted another feature of online platforms that warrants further attention. Namely, platforms create marketplaces that go beyond any one sovereign country and its markets. They facilitate financial intermediation and the movement of goods and services across multiple jurisdictions, countries, and even regions. This virtual global market and the platforms that govern them help broaden the reach of MSMEs and make more competitively priced and diverse products available to consumers.

Platforms also thrive in a regulatory vacuum. Such a vacuum can have multiple implications, including (i) through base erosion and profit-shifting practices that have direct implications for tax revenue and the public financial space available for growth and economic development; and (ii) for protection of consumer rights, data privacy, and security. Elhan-Kayalar et al. (2022) discuss some instances where platforms may contribute to inclusion and distributive justice in online markets with evidence from a recent study conducted among online food delivery merchants in Indonesia. It also shows that without some form of intentional design and oversight, information frictions and cannibalization tendencies among online merchants may emerge, with detrimental economic and social effects. However, further research is warranted to assess what the optimal scope, structure, and agents of oversight in online markets could be, or whether the most efficient way forward would be through the current self-monitoring structure and market mechanisms.

Matsuyama (1996) points out that, in reference to conventional (i.e., offline) markets, the prevalence of coordination failures in markets does not necessarily justify policy activism and a greater role for government. He meticulously argues that there are multiple equilibria in the market with coordination failures, but the government is less knowledgeable about optimal equilibrium and has a limited role in promoting coordination. Matsuyama (1996) also notes there is room to explore centralized coordination within independent enterprises with examples from Toyota Motors and other developers that have successfully capitalized complementarities within and across organizations within the same industry. Various approaches have been and continue to be tested in markets that exist both offline and in online platforms, or only online, including government-led oversight with direct access to the business intelligence of platforms and oversight through self-regulatory organizations staffed and run by industry representatives, such as the Thai Bond Market Association. Oversight in online markets, and whether it should exist and be led by a government agency or a self-regulatory body from within the industry, falls outside the scope of this paper. It warrants further investigation, as a deeper understanding of online market structures can help inform future development policies.

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## **Micro, Small, and Medium-Sized Enterprises, Digital Platforms, and Competition Policies in Asia**

This paper reviews the overall micro, small, and medium-sized enterprise landscape in Asia, including the challenges and constraints faced by enterprises in physical (offline) and online markets. It explores the unique circumstances and externalities that arise due to the special characteristics of platforms and how they impact merchants and other platform users. Findings suggest that the unique features of platforms, and the two-sided market structure they foster, require a bespoke policy approach from competition authorities and policymakers.

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