JATI-Journal of Southeast Asian Studies, Volume 29(1), June 2024, 1-26
ISSN1823-4127/eISSN 2600-8653

CHARACTERISTICS OF THE MARKET STRUCTURE ON-DEMAND APP GIG ECONOMY IN ASEAN

Yosuke Uchiyama[1]* & Fumitaka Furuoka[2]
*First & corresponding author
[1]Department of East Asian Studies, Faculty of Arts and Social Sciences, Universiti Malaya, 50603, Kuala Lumpur, Malaysia
[2]Asia-Europe Institute, Universiti Malaya, 50603 Kuala Lumpur, Malaysia
(yosuke@um.edu.my, fumitaka@um.edu.my)
DOI: https://doi.org/10.22452/jati.vol29no1.1

Abstract

On-demand app gig work in the ASEAN region significantly impacts people's lives and the market order. Conversely, the growing balance of power in these sectors threatens the sustainability of the ASEAN digital market and the over-exploitation of customers and workers, exposing companies to fierce regional competition. By focusing on the e-hailing and online food delivery sectors, this study examines the characteristics of the on-demand app gig economy market structure in ASEAN. This study develops an analytical framework applying the concept of four types of market structure in industrial relations theory. The descriptive analysis of market data related to the two markets and in-depth interviews with 14 individuals in 10 ASEAN countries identify the national and regional balance of power created by multi-layered market principles in the two main gig economy sectors. The findings of the study provide a detailed characterisation of the overall regional gig economy market of ASEAN in terms of monopolies, oligopolies and monopolistic competition. Based on the findings, the study concludes with a critical discussion of the coexistence of the market principles of the on-demand app gig economy and the existence of the digital market in the ASEAN region.

Keywords: *gig economy, ASEAN, market structure, e-hailing, online food delivery*

Introduction

Developments in advanced digital technologies, including the proliferation of smartphones and the rise of online platforms, and deviations from traditional employer ways of working have encouraged the rise of flexible, task-based "gig

work" (Adermon & Hensvik, 2022; Donovan et al., 2016). Importantly, the gig economy and gig workers concept is not new. In the past, it was referred to as a one-off job (gig) where musicians played in an evening performance and received a fee for it (Batmunkh et al., 2022; Friedman, 2014; Muntaner, 2018). In the contemporary context, the gig economy is a type of labour market characterised by independent contracts entered via or on digital platforms (Woodcock & Graham, 2019), involving work done in a flexible, short-term, task-based manner (Johnston & Land-Kazlauskas, 2018). As a basic modern gig economy feature, Donovan et al. (2016) call it an aggregation of service providers and consumers managed by an online platform on a one-off (gig) basis. Furthermore, "independent workers" are not bound to a regular employment contract (Kaine & Josserand, 2019).

On the other hand, gig work is largely categorised as crowdwork and on-demand app gig work, depending on skill type, offline/online and geographical stickiness. Aloisi (2016) highlights this difference between the two types of work: virtual platform work and real-world work (Aloisi, 2016). Crowdwork refers to tasks performed through online platforms that connect clients and employees across the globe, including organisations, firms and individuals (De Stefano, 2015). This means that clients search for workers in a marketplace, and the selected workers accept the job online and perform the task. When the worker completes the task, he/she receives a monetary reward from the client. Crowdwork can be classified into three main types according to the nature of its operation: freelance-type crowdwork, microtask crowdwork, and contest-based crowdwork. Freelance-type crowdwork is a transformation of traditional outsourcing work from the organisational/firm level to the individual level. Thus, service providers find independent contractors (gig workers) from the worldwide talent pool within the crowdsource and place work orders with them. This type of crowd working is competitive with crowd workers worldwide due to its geographical openness, and their profit margins would vary significantly between the Global North and the Global South depending on their standard of living. Therefore, they justify their high task wages by offering their clients high expertise. Furthermore, freelance crowd-working clients engage in a high level of monitoring to compensate for the online-based and low geographical stickiness. In other words, it involves high skill and performance monitoring controllability to provide greater geographical and time flexibility. Microtasks are segmented tasks for a larger number of crowd workers, who are paid a small fee for completing them. Tasks are made more efficient by fragmenting complex tasks such as data entry, image processing, and tag drawing into smaller pieces, allowing large numbers of people to work on them. These tasks are rarely skilled and involve time constraints to complete

various tasks. Thus, it is at the bottom of the crowd task hierarchy in terms of wages and skills (Webster, 2016). Contest-based crowdwork involves many people performing the same task at the same time, and the person employed is paid. Although the pay for a single task is relatively expensive, it is very low when converted to an hourly rate (Schmidt, 2017). This type of crowdwork is mainly adapted to areas such as design logo creation.

On the other hand, on-demand app gig work is where the platform firm operating the app sets minimum quality standards for the service, selects workers, arranges work through the mobile app and provides work activities and administrative tasks such as transport, cleaning and errands. On-demand app gig work differs from crowd work in that it is characterised as a hybrid of online and offline work. Tasks such as transport and cleaning require offline work, which tends to have relatively high geographical stickiness and worker cohesion (Jarrahi et al., 2020). Advanced digitalisation spills over into traditional industries, where incorporating digital technology into traditional analogue properties allows for more efficient and flexible working methods. While this type of work tends to focus on advanced information and communications technologies (ICTs), there are tasks related to infrastructure that are vital to people's lives. This is epitomised by the creation of some giant/unicorn firms in the on-demand app gig work sector, such as transport (Uber, Lyft, Grab, DiDi) and food delivery (Door Dash, Uber Eats, Foodpanda, Meituan, Zomato).

Although no data is available to calculate the size of this market, approximately 63% of the world's population, or 4.9 billion people, will be connected to and use the internet in 2021. On this basis, the prospects for accessing the gig economy market are very promising (International Telecommunication Union, 2021). Gig work does not only provide easy access to local or international labour markets with an internet connection, but it also offers a different appeal to traditional employment due to its job flexibility and reduced responsibilities as an independent contractor (Donovan et al., 2016; Graham et al., 2017).

The trend has spread to the Association of Southeast Asian Nations (ASEAN) member states, where various online platforms have emerged for many gig workers. In particular, e-hailing (ride-hailing) and food delivery gig work, which uses an app and a private car or motorbike for transport purposes, have spread into daily life as a major on-demand app gig work for people in ASEAN countries (Tran & Nguyen, 2022). At first glance, online platforms appear to create employment for different segments of the workforce, where flexibility and performance-based pay confer the opportunity to earn more wages. However, the International Labour Organisation (ILO) considers gig work to create structural inequalities due to its value, risk, information, resources, and power asymmetries

(Heeks, 2017). This inequality is created from a labour market premised on informality, shielding its flexibility from platform capitalism. Platform firms can legitimately increase their vulnerability by shifting responsibility in operations and social security to workers by regarding them as independent contractors (Uchiyama et al., 2022). Critically, they successfully use the legal and regulatory mechanisms of regular employment and independent contractors to exploit workers and further accumulate capital (Pasquale, 2016; van Doorn & Badger, 2020). As several gig platforms in the ASEAN region are used in several countries across a single country, there is concern that this will accelerate the erosion by platform capitalism and bring various inequalities to the surface.

ASEAN promotes a regional economic integration policy known as the ASEAN Economic Community (AEC) (ASEAN, n.d.). In other words, ASEAN aims to approach the global economy by exercising prescience as a single regional economic hub. From a macro perspective, the strategic market creation across the ASEAN region with the gig economy at its core may strengthen the economy and receive more investment from outside the region. However, from a micro perspective, this could strengthen the influence of platform capitalism under the current market structure and bring to the surface the inequality and exploitation of gig workers across the region. Identifying the market structure of the on-demand app gig economy in ASEAN is crucial in avoiding this and achieving a gig-worker-friendly and sustainable regional market.

Previous studies have examined the characteristics of e-hailing or online food delivery platforms in ASEAN countries (Chalermpong et al., 2023; Kee et al., 2021) and consumers (Almunawar et al., 2021; Irawan et al., 2022; Nguyen & Ha, 2022; Thaithatkul et al., 2023). However, the previous studies have scarcely considered the entire picture of the diffusion of platform capitalism in the ASEAN region's gig economy from the market structure perspective. Furthermore, few empirical studies comprehensively identify the characteristics of the on-demand app gig economy market and the distribution of platforms covering the entire ASEAN region.

To fill this gap, this study investigates the market characteristics and challenges of the e-hailing and online food delivery industry in each of the 10 ASEAN member states (AMS) in the gig economy context. Theoretically, this study adopts the elements of incomplete and complete markets, which are core arguments in industrial relations, to identify the market structure at national and regional scales. Specifically, it links four theoretical market structures, monopoly, oligopoly, monopolistic competition, and perfect competition, with the analysis results to specify the on-demand gig economy market structures in ASEAN (Martin, 2012; Muhamed & Magdy, 2020; Pindyck, 1985).

This study is expected to make theoretical and practical contributions. By considering ASEAN as one region, this study enables a comprehensive exploration of the characteristics and challenges in the gig economy of on-demand apps from the visual perspective of market structure. This provides an entry point for a broader theoretical perspective in considering regional gig economy markets that do not limit ASEAN to a single country. Empirically, this study provides important insights into existing ASEAN regional initiatives in the practical development of ASEAN's digital market structure and its economic integration, including the on-demand gig economy market. Although the ASEAN Digital Master Plan (ADM) 2025 is an instrumental initiative in the sustainable competition of the ASEAN digital market, it lacks an adaptive theoretical perspective on the structuring complexity of its mechanisms (ASEAN, 2021). This study provides clues to alternative policies that minimise the adverse effects of private management of platform capitalism in ASEAN digital markets and the potential for a new ASEAN-wide market regulation ecosystem. Practically, ASEAN organisations and governments seriously consider the impact of private management of platforms on gig workers and add new insights into management practices to provide sustainable and worker-friendly economic sustainability in ASEAN.

This study is organised as follows. The next section provides the theoretical perspective: four types of market structure. Then, this study analyses the characteristics of the on-demand app gig economy in ASEAN, as represented by e-hailing and online food delivery. Based on the theoretical perspectives and analysis findings, the study identifies the market structure at the national and regional scales in ASEAN and discusses the respective challenges. Finally, the conclusion is presented.

Methodology

This study identifies the market characteristics of the e-hailing and online food delivery industry, a key on-demand gig economy sector in the ASEAN region. The study is based on a qualitative research methodology based on an inductive research approach. To identify the comprehensive gig market structure in the ASEAN region, the gig market is analysed based on an analytical framework applying the four industrial relations theory market structures: monopoly, oligopoly, monopolistic competition and perfect competition. Additionally, the study follows a twofold data collection process to comprehensively identify the existence and spread of e-hailing and online food delivery platforms in the ASEAN-10 member states. Firstly, the study collected data from official websites, reports from platform companies and government agencies. Second, the study

conducted in-depth interviews with 14 locals living in 10 ASEAN countries in December 2023 to obtain justification for the identification and spread of platform apps. The interviews aimed to confirm the consistency between the data collected by the authors in the presence of apps in the platform market and the actual diffusion of apps and to identify other apps participating in market competition that could not be collected in the secondary data. In terms of respondent selection, the study used random sampling to choose adults who use e-hailing and online food delivery frequently and have a general understanding of the market situation. The study included respondents from all 10 ASEAN Member States. Two respondents were selected from each of the four countries where market data was scarce: Lao PDR, Myanmar, Brunei, and the Philippines, whilst one respondent from each of the six other countries was chosen. The study obtained participants' consent after explaining the purpose of the interviews and the management and destruction of data. Furthermore, this study identified the market size based on the number of app downloads on Google Play as of December 2023, as there is no unified data on the market share rate of gig markets in ASEAN countries (Liu et al., 2014; Roma & Ragaglia, 2016). The criteria for monopoly, duopoly and monopolistic competition in regional competition are based on whether an app has recorded more than one million downloads in this study. If there are more than four apps with more than one million downloads, this study classifies it as monopolistic competition. If the app is not located in the country, the study identifies its presence in the country's market based on interviews and market reports. The data collected is comprehensively analysed through descriptive analysis and is divided into four sections: the main characteristics of the on-demand app gig economy in ASEAN, the e-hailing market, the online food delivery market and the platform distribution and balance of power in the ASEAN region.

Theoretical Perspective: Four Types of Market Structure

This study aims to identify the market structure in the ASEAN region's e-hailing and online food delivery industry from broad contexts. Market structure is defined as the distribution of the number and size of firms, which is one of the most important debates regarding industrial relations (Martin, 2012; Pindyck, 1985). Although the market structure is widely divided into imperfect competition and perfect competition, this section specifically focuses on four different market structure features: monopoly, oligopoly, monopolistic competition, and perfect competition among the various theoretical debates on market structure (Helpman & Krugman, 1987; Kamien & Schwartz, 1975; Machlup, 1937; Stern, 1987). It is challenging to extract consistent numerical data to identify market competition

relations regarding ASEAN's on-demand app gig economy market. Therefore, identifying market structures based on four distinct categories allows for a visualised spatial representation ranging from national market structure features to a cross-regional platform presence (Matthe et al., 2023).

A monopoly market structure is an exclusive right to sell a particular product. A certain firm gains a competitive advantage in a market by having monopoly power with high barriers to entry in a given market (Bresnahan & Reiss, 1990; Chang, 2008; Lerner, 1995). A monopolist can fix price levels and control consumer levies to benefit the company and obtain the largest monopoly profits (Lerner, 1995). An oligopolistic market structure is a situation where the behaviour of two or more sellers influences each other to secure a competitive advantage. Barriers to entry are lower than in monopolistic markets but still relatively high (Muhamed & Magdy, 2020). In other words, it is a situation where several firms secure similar market shares, and although consumers are placed in a small number of competitive markets, the levy varies depending on the size and intensity of competition in the market (Cominetti et al., 2009; Eaton & Kierzkowski, 1984). In particular, an oligopolistic market structure in which two firms sell a particular product to a large number of consumers is referred to as a duopoly (Friedman, 1989). Monopolistic competitive markets have low barriers to entry due to a fixed number of sellers, as well as high selling costs and levels of competition. However, they have a lower structure than perfectly competitive markets (Dixit & Stiglitz, 1977). Chamberlin (1951) states that sellers have some market dominance in their respective locations but are surrounded by competitors. This is characterised by the fact that the goods of each firm continue to produce substitutable goods while other firms do not have the freedom of entry to produce identical products (Chang, 2012). This requires firms to include a minimum of individuality with their goods in entry and competition (Chamberlin, 1951). Particularly, when competing in substitutable industries where the services themselves are largely identical, such as e-hailing and online food delivery, firms tend to produce goods that are differentiated in some way. In the perfectly competitive market, the presence of a large number of sellers and buyers ensures homogeneous products due to free entry and exit and high competition (Muhamed & Magdy, 2020).

The formation of the on-demand app gig economy market in the ASEAN region, brought about by the digital economy, has brought disruptive innovations to traditional markets and created different forms of competition. Whilst previous studies have only provided a limited regional view of the market structure in the ASEAN region in the context of the gig economy, some clues can be gleaned from the Uber–Grab merger. The ceding of regional operations by Uber to Grab in the

ASEAN market in 2018 was a significant turning point in the ASEAN gig economy market. However, it did not have much impact on the overall structure due to mergers of affiliates (Healey, 2020; Ramaiah et al., 2019). Furthermore, Grab's presence in the ASEAN region was already significant at the time of the merger, and Uber's 27.5% stake in Grab did not change the market structure much in terms of size (Rahman et al., 2020). Therefore, identifying the main characteristics of the on-demand app gig economy in the ASEAN region contributes significantly to understanding the presence of the market structure from the country scale to the regional scale.

Main Characteristics of the On-Demand App Gig Economy in ASEAN

This study aims to identify the characteristics and challenges of the ASEAN gig economy and build a process to link them to the theoretical perspectives on the market structure. Firstly, this study provides an overview of the spread of e-hailing or food delivery on-demand app gig work in ASEAN, including the country's internet penetration rates and the scale of platforms. This stage identifies the main players in e-hailing and online food delivery in each AMS. Next, this study explores the market structure of key players from each member state on a regional scale. Finally, this study explores the extent to which those main players are present in ASEAN countries.

Table 1 summarises personal internet usage by country name, population, and the main players in e-hailing (taxi/bike) and online food delivery on-demand app gig platform gig work in ASEAN countries. The table also adds the total number of app downloads on Google Play to show the main players' headquarters and app usage.

Table 1: Summary of the On-Demand App Gig Economy Platforms in ASEAN

ASEAN Member States (AMS)	**Individuals using the Internet (% of the population)** ***Source: International Telecommunication Union and World Bank***	**Main E-Hailing Platforms (Headquarters/Numbers of Google Play Download)**	**Main Online Food Delivery Platforms (Headquarters/Numbers of Google Play Download)**
Brunei Darussalam	98	Dart (Brunei/50,000+)	GoMamam (Brunei50,000+)

			Heydomo (Brunei/10,000+)
Malaysia	97	Grab (Singapore/100 million +) Maxim (Malaysia/50 million +) airasia ride (Malaysia/10 million +) GoJo (Malaysia/100,000 +) inDriver (Malaysia/no data)	Foodpanda (Germany/100 million +) Grabfood (Singapore/100 million +) Shopeefood (Singapore/10 million +) airasiafood (Malaysia/10 million +)
Singapore	91	Grab (Singapore/100 million +) Gojek (Indonesia/100 million +) CDG Zig (Singapore/1 million +) Tada (Singapore/1 million +) Ryde (Singapore/ 500,000 +)	Foodpanda (Germany/100 million +) Grabfood (Singapore/100 million +) Deliveroo (England/10 million +) WhyQ (Singapore/100,000 +)
Thailand	85	Grab (Singapore/100 million +) Bolt (Estonia/50 million +) airasia ride (Malaysia/10 million +)	Foodpanda (Germany/100 million +) Grabfood (Singapore/100 million +) Lineman (Thailand/10 million +) Robinhood (Thailand/1 million +)
Vietnam	74	Grab (Singapore/100 million +) Gojek (Indonesia/100 million +) Be (Vietnam/5 million +) FastGo (Vietnam/500,000+) MyGo (Vietnam/100,000 +	Grabfood (Singapore/100 million +) Gofood (Indonesia/100 million +) Baemin (Vietnam/50 million +) Shopeefood (Singapore/10 million +)
Indonesia	62	Gojek (Indonesia/100 million +) Grab	Gofood (Indonesia/100 million +)

		(Singapore/100 million +) Maxim (Malaysia/50 million +) inDriver (Malaysia/no data)	Grabfood (Singapore/100 million +) Shopeefood (Singapore/10 million +)
Lao PDR	62	LOCA (Laos/50,000 +)	Foodpanda (Germany/100 million +) LadyBug (Lao PDR/100,000 +) Chompa Delivery (Lao PDR/1,000 +)
Cambodia	60	Grab (Singapore/100 million +) PassApp (Cambodia/1 million +) Tada (Singapore/1 million +) WeGo (Cambodia/100,000 +)	Foodpanda (Germany/100 million +) Grabfood (Singapore/100 million +) Nham24 (Cambodia/500,000 +) MealTemple (Cambiodia/5,000 +)
Philippines	53	Grab (Singapore/100 million +) Angkas (Philippines/5 million +) JoyRide (Philippines/1 million +) OWTO (Philippines/100,000+)	Foodpanda (Germany/100 million +) Grabfood (Singapore/100 million +) Zomato (India/100 million +) Pickaroo (Philippines/100,000 +)
Myanmar	44	Grab (Singapore/100 million +) Oway Ride (Myanmar/no data) FastGo (Vietnam/500,000+) GetRide (Myanmar/100,000 +)	Grabfood (Singapore/100 million +) Foodpanda (Germany/100 million +) Yangon Door2Door (Myanmar/10,000 +) Easyfood (Myanmar/5,000 +)

Source: Author's summarisation of Google Play.

Based on the summary in Table 1, this study identifies trends in e-hailing (E) and online food delivery (O) gig market structure at the ASEAN national level and regional level (Table 2). The national column shows the market situation for e-hailing and online food delivery in each country, while the regional column lists which market situation was more prevalent in each sector. This study provides further details on the conditions shaping the market structure in each sector.

Table 2: Market Structure on ASEAN On-Demand Gig Economy Industries

AMS	Brunei Darussalam	Malaysia	Singapore	Thailand	Vietnam
National	E: Monopoly O: Monopoly	E: Monopolistic Competition O: Monopolistic Competition	E: Monopolistic Competition O: Monopolistic Competition	E: Oligopoly O: Monopolistic Competition	E: Oligopoly O: Monopolistic Competition
	Indonesia	**Lao PDR**	**Cambodia**	**Philippines**	**Myanmar**
	E: Oligopoly O:Oligopoly	E: Monopoly O:Oligopoly	E: Oligopoly O: Oligopoly	E: Oligopoly O: Oligopoly	E: Oligopoly O: Oligopoly
Regional	E: 1st: Oligopoly		E: 2nd: Monopolistic Competition		E: 3rd: Monopoly
	O: 1st: Oligopoly		O: 2nd: Monopolistic Competition		O: 3rd: Monopoly

Source: Authors' analysis.

E-Hailing in ASEAN

Table 1 summarises the main players in e-hailing (taxi/bike) and online food delivery on-demand app gig platform gig work in ASEAN countries by country name and personal internet usage by the population. It also adds the headquarters of the main players and the total number of app downloads on Google Play as of June 2023 as a reference to show the scale of app usage. Overall, two or more platform apps of a certain size are in use, apart from the e-hailing sector in Brunei and Lao PDR. For e-hailing, except for Bolt (an Estonia-based platform firm) in Thailand, platforms established in ASEAN countries operate across the board. Grab is the unicorn firm with the most successful regional presence in ASEAN countries, operating in eight countries (excluding Brunei and Laos), followed by Gojek, with operations in four countries and AirAsia ride, Maxim, inDriver, with

operations in two countries each. The market structure can be divided into three main trends, mainly platforms with multiple regional operations (See Table 2).

The first is the monopolistic structure of one platform, as seen in Brunei and Lao PDR. Dart in Brunei (Thambipillai & Pang, 2020) and LOCA in Lao PDR (Thaithatkul et al., 2023) are both domestically developed platform apps, creating a market oligopoly structure. These countries are the only ASEAN countries that have not accepted the entry of regional e-hailing platform leaders Grab and Gojek, which has led to an oligopolistic market structure.

The second is the case of oligopolistic conditions in Thailand, Vietnam, Cambodia, Philippines, and Myanmar. Within the oligopoly, this study identifies two main trends. One trend is that in Indonesia and Thailand, where two apps practically compete as major players in the e-hailing market, they are in a duopoly situation. Indonesia has created a competitive duopoly market between Grab, ASEAN's largest e-hailing platform, and Gojek, an Indonesian-made app. Figure 1 illustrates the market share of Gojek and Grab in terms of sales in Indonesia from January 2021 to July 2022, although in 2021, Grab had the upper hand over Gojek with more than half of the market share; from the first quarter of 2022, Gojek is regaining market leadership in the country (Measurable AI, 2022a).

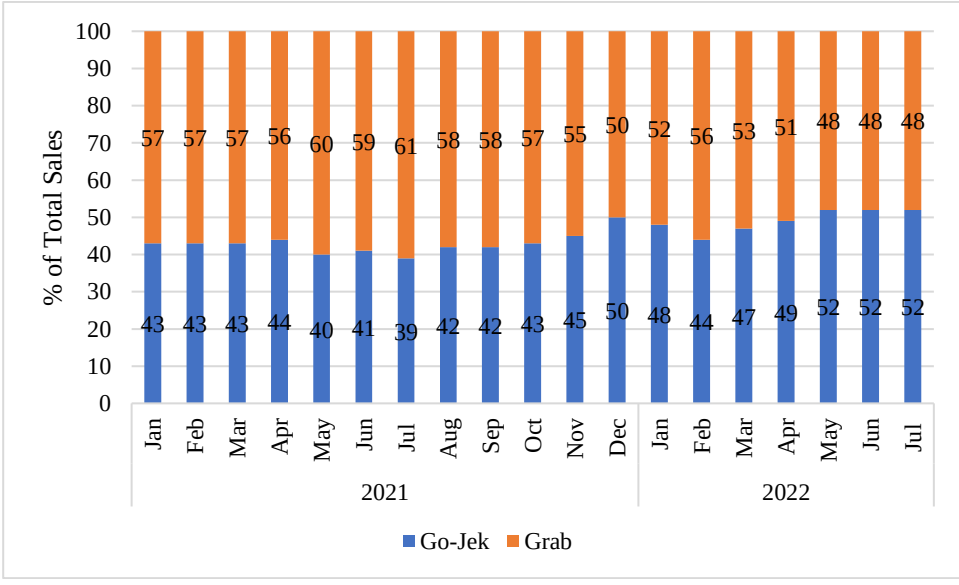

Figure 1: Market Share by Sales between Gojek and Grab from January 2021 to July 2022

(Source: Measurable AI. [2022a].)

A duopoly phenomenon is also occurring in Thailand, with virtually two apps dominating the market: Grab and Bolt. Figure 2 compares Grab and Bolt's market share in terms of order volume in Thailand from January 2021 to March 2022 (Measurable AI, 2022b). Bolt was ceding market share to Grab. However, by August 2022, Bolt had increased its share to 36%. This is because Gojek's e-hailing business, which had been serving the Thai market since 2019, was taken over by AirAsia's super-application business on 31 July 2021 (Gojek, n.d.). After this, Bolt lost market share and dropped to 19% in December 2022 but recovered its market share to around 30% by the beginning of 2022. AirAsia started operating AirAsia ride on 31 March 2022, mainly in urban areas such as Bangkok (AirAsia, 2022). However, due to widespread use and name recognition throughout the region, the leading players, Grab, and Bolt, which are following it, continue to have a substantial duopoly.

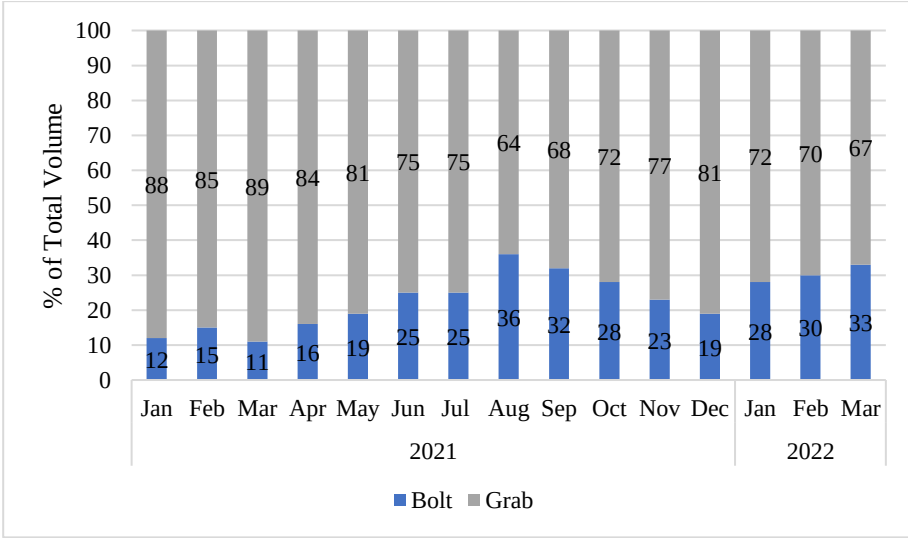

Figure 2: Market Share by Order Value between Bolt and Grab from January 2021 to March 2022

(Source: Measurable AI [2022b].)

Another trend is the formation of oligopolistic market structures by Grab and other firms in Vietnam, Cambodia and the Philippines. Like the Indonesian e-hailing market, Vietnam is similarly dominated by two supermarket apps, Grab and Gojek, each accounting for the top 1.2 % of the market share. The difference from Indonesia is that Vietnam's first e-hailing platforms characterise the industry's race to the back of the pack, Be, FastGo, and MyGo, which developed their services, respectively. In particular, Be, which launched in 2018, is the third

most influential player in the industry, with a 16% market share in H2 2019, which creates an oligopolistic market structure (Be, 2020). In addition, FastGo is also expanding in Myanmar and Singapore and is keen to play a role as a balancer in ASEAN's duopolistic ride-hailing market in regional market developments (Nikkei Asia, 2018). In Cambodia, domestically-based e-hailing apps PassApp and WeGo are threatened by competition for market share from foreign influential apps, including Grab and Tada (Turton & Phorn, 2019). In the Philippines, Grab services are also prevalent throughout the country and continue to have a near-monopoly. However, Angkas and OWTO, local platforms offering bike-type e-hailing, operate mainly in urban areas such as Manila and Cebu. In addition, Joyride, one of the country's super apps with an operating licence from the Land Transport Franchise Regulatory Commission in 2022, has entered the e-hailing industry. As a result, the rise of locally based platforms has created oligopolistic competition for Grab's monopolistic operations. In Myanmar, the service is used mainly in urban areas in Yangon. Although Grab's e-hailing business dominates the market as a major player due to its financial strength, local apps such as Oway Ride and Get Ride and Vietnamese FastGo are also widely used.

The third is a monopolistic competitive market structure, with a clear market-leading platform that competes with several other platforms. In Malaysia, 37 e-hailing companies have been authorised to operate by the Land Public Transport Agency (APAD) as of June 2023. However, the market structure is dominated by e-hailing giant Grab, which holds a large market share, whereas AirAsia ride, Drivers in urban areas, and Maxim in regional cities are also prominent. Singapore also has the largest Grab market share, while Gojek and other local apps also enjoy some demand. According to Measurable AI, in terms of e-hailing market share based on order value in Q1 2022, Grab (50.2%), followed by Gojek (17.7%), CDG Zig (15.1%), Tada (11.1%), Ryde (5.9%) (Measurable AI, 2022c).

Online Food Delivery in ASEAN

ASEAN countries' food delivery market has a gross merchandise value (GMV) of USD 1.63 billion as of 2022. Figure 3 presents the size of platforms in GMV in 2022 (Momentum Works, 2023). In terms of the online food delivery sector in ASEAN, similar to the e-hailing sector, Grab's Grabfood is the dominant presence in the ASEAN region, with Grab reporting that from Q2 2021 to Q2 2022 delivery sales volumes increased to 24% year-on-year, indicating its growing influence across the region (Grab, 2022). Gofood, under Gojek super app, also has a presence in four countries. As a platform specialising in food delivery, the next regional leader after Grabfood is Foodpanda, a giant platform headquartered in Berlin, Germany.

In other words, all countries except Brunei have at least one of these services deployed, competing for market share with other local apps. Three broad trends can be observed in the market structure of the online food delivery sector in ASEAN countries (see Table 2).

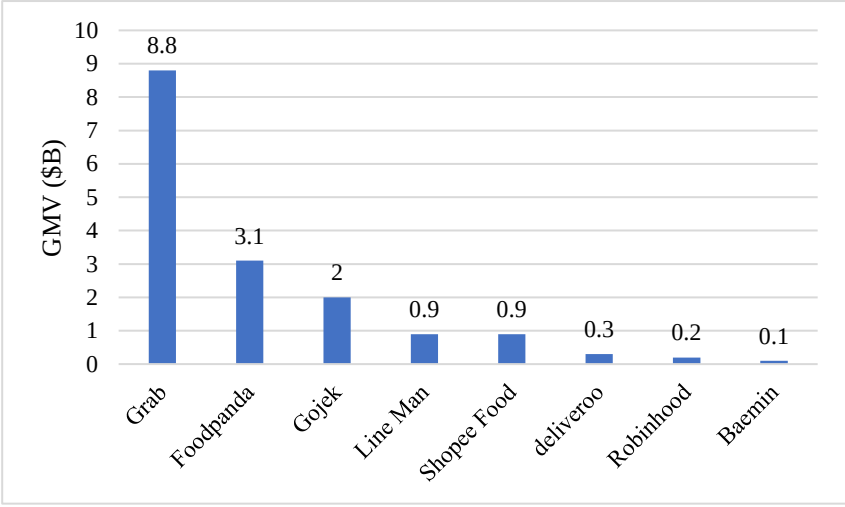

Figure 3: GMV of Online Food Delivery Platforms in ASEAN in 2022
(Source: Momentum Works [2023].)

The first trend is a monopolistic structure in Brunei. GoMamam has dominated Brunei since Foodpanda withdrew from the market in 2018. However, online delivery marketplaces such as Heydomo also offer food delivery services locally.

The second structural market trend is monopolistic competition in Malaysia, Singapore, Thailand, and Vietnam. In Malaysia, Singapore and Vietnam, Grab Food has the leading market share, followed by Foodpanda, whereas in Thailand, Foodpanda has the largest market share, and Grab Food is the biggest competitor. Although there are clear differences in the market size of the platforms in these four countries, there can also be seen a degree of monopolistic competition in terms of the various apps having a particular market share. In Malaysia, it is followed by competitors such as Shopee Food and AirAsia food, which are ASEAN-based platforms, whereas in Singapore, deliveroo, headquartered in England, and WhyQ, which is a local hawker food delivery platform. In Thailand, Grab competes with 51%, Line Man with 24%, Foodpanda with 16% and Robinhood with 6%. Furthermore, in Vietnam, Grab Food and Shopeefood compete as the main players, whilst local platform Baemin has also gained some market share as the third largest player in the industry (Momentum Works, 2023).

The third market trend in the online food delivery sector is oligopoly, which like e-hailing, is the most common market structure in ASEAN countries. In the Philippines, Grab Food and Foodpanda have the top one or two market shares, while India-based giant platform Zomato also has a certain amount of presence. Momentum Works statistics show similar market trends in Indonesia, with Grab Food (49%) and Gofood (44%) securing most GMV in close competition, followed by Shopeefood (7%) as the third largest player in the industry (Momentum Works, 2023). In Cambodia and Myanmar, whilst major delivery platforms such as Grab and Foodpanda are expanding, local platforms such as Nham 24 and Yangon Door2Door are also developing. Like e-hailing, Foodpanda is a major player in Laos, where Grab has not entered the market, and operates in 17 regions in addition to Vientiane. Other local platforms, such as LadyBug and Chompa Delivery are also operating services in Vientiane as competitors.

Distribution and Balance of Power of the Major Platforms in the ASEAN Region

After specifying the major e-hailing and online food delivery platforms in each ASEAN country, this study identified the basic market trends in each country. Table 3 summarises platform penetration presences across ASEAN. Based on the presence identified in Table 3, Figure 4 illustrates the linear relationship between the penetration of platforms deployed in more than one country.

Table 3: Regional Prevalence of On-Demand App Online Platforms in ASEAN

Online Platforms	Operating Counties	Number
Foodpanda (F)	Malaysia, Singapore, Thailand, Vietnam, Indonesia, Lao PDR, Cambodia, Philippines, Myanmar	9
Grab (G)	Malaysia, Singapore, Thailand, Vietnam, Indonesia, Cambodia, Philippines, Myanmar	8
Shopeefood (S)	Malaysia, Vietnam, Indonesia, Thailand	4
Gojek (J)	Singapore, Vietnam, Indonesia	3
AirAsia ride/food (A)	Malaysia, Thailand	2
inDriver (I)	Malaysia, Indonesia	2
Tada (T)	Singapore, Cambodia	2
Maxim (M)	Malaysia, Indonesia	2
FastGo	Vietnam	1
Dart	Brunei Darussalam	1
Gojo	Malaysia	1
CDG Jig	Singapore	1
Ryde	Singapore	1
Bolt	Thailand	1
Be	Vietnam	1

MyGo	Vietnam	1
LOCA	Lao PDR	1
WeGo	Cambodia	1
Angkas	Philippines	1
OWTO	Philippines	1
JoyRide	Philippines	1
Oway Ride	Myanmar	1
GetRide	Myanmar	1
GoMamam	Myanmar	1
heydomo	Brunei Darussalam	1
Deliveroo	Singapore	1
Lineman	Thailand	1
Robinhood	Thailand	1
Baemin	Thailand	1
LadyBug	Lao PDR	1
Chompa	Lao PDR	1
Nham24	Cambodia	1
MealTemple	Cambodia	1
Zomato	Philippines	1
Pickaroo	Philippines	1
Yangon Door2Door	Myanmar	1
Easyfood	Myanmar	1

Sources: Authors.

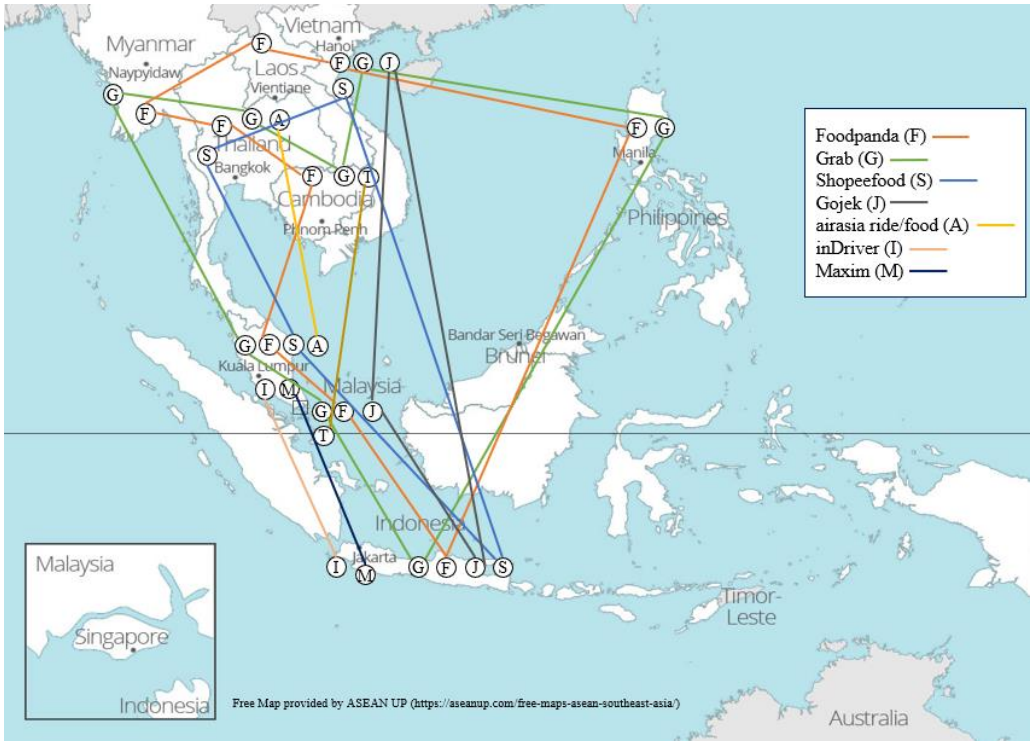

Figure 4: Linearity of On-Demand App Gig Platform Presences in ASEAN
(Source: Authors' modifications from the free map by ASEAN UP)

Foodpanda and Grab are the major gig players encompassing the whole of ASEAN, with operations in nine and eight countries, respectively. The results of this study position these two apps as the main players with the most influence on the gig market structure across the ASEAN region. Gojek, regarded as the regional market leader along with Grab in the e-hailing industry, is currently only present in three countries due to its withdrawal from the Thai market. Whilst Gojek has established itself as a super app in the Indonesian market, which has the largest population in ASEAN, it has yet to expand into the inland regions of ASEAN. On the other hand, Shopeefood, the food delivery business of Shopee, ASEAN's largest e-commerce platform, is considered a competitor in four countries, especially in Vietnam, where it competes with Grab as a market leader. Furthermore, the rollout is geographically balanced between the coastal areas of Malaysia and Indonesia and the inland areas of Thailand and Vietnam. Gojek and Shoppe Food have positioned themselves as the second main players in the region that can compete with Grab and Foodpanda for oligopoly in terms of gaining a certain market share in the operative countries. AirAsia, which operates in the main aviation sector in ASEAN, has an e-hailing and food delivery business called

AirAsia Ride/Food. These operations are centred in Malaysia, where AirAsia is headquartered, but also have a presence in some parts of Thailand. Platforms specialising in e-hailing services include inDriver, Tada and Maxim, but their influence in the markets of the two countries still tends to be lower than that of the regional leaders.

Discussion

This study used the theoretical perspective of four market structures to analyse the characteristics of the on-demand gig economy industry represented by e-hailing and online food delivery in the ten AMS. The analysis of this study showed that the e-hailing and online food delivery sector in ASEAN countries is dotted with several leading platforms in the region despite the vigorous market competition principle at work. Considering ASEAN as a whole, the results highlighted some phenomena. Grab and Foodpanda play the role of leading platforms in the regional gig market competition with the largest presence in the market structure. Gojek and Shoppe Food have a dominant market presence in the country of deployment as a second-layer presence in the market whilst acting as competitors to the oligopoly competition between the two regional leaders. The other four apps (AirAsia ride/food, inDriver, Tada, and Maxim) operate in multiple countries but are structured to compete with the above apps' competitors only in their respective countries.

Overall, the e-hailing and food delivery markets in ASEAN countries are structured in such a way that firms can easily induce service prices and labour distribution. Three main patterns support this. The first is the oligopoly structure. This is the most common situation for market competition in ASEAN, similar to a monopoly structure, where the market mechanism tends to be determined by two or three firms, making it difficult for other competitors to enter. The second is monopolistic competition (competition between one big player and other apps). This is where the presence of a major player influences the pricing and customer and labour distribution of the other players. The third is the market monopoly structure in the Brunei Darussalam and Laos e-hailing sectors. This structure maximises the power of the companies, making pricing and customer and labour rights completely dependent on them.

The findings of this study serve as a new catalyst to address the complexity of market structures in the on-demand app gig economy sector in ASEAN countries and the region as a whole. This study is of great significance as an early-stage study of conceptual considerations on the characteristics of digital market structures and digital economic integration in ASEAN and the region. In addition, this study provides significant insights into the similarities and differences in the

countries' regulatory regimes in pushing for specific market policies to develop sustainable digital competitive markets. E-hailing and online food delivery markets are oligopolistic, with six and five countries, respectively. Furthermore, with the exception of the monopoly market in Brunei, the other countries have monopolistic competitive market structures. It can be assumed that countries with similar market situations have similar legal and regulatory frameworks. Although this study only approaches the characteristics of the market structure in the ASEAN region and does not classify legal and regulatory frameworks, the theoretical development of the market structure helps to view the on-demand app gig economy market from different perspectives. Future research could significantly contribute to ASEAN's digital economic integration through the gig economy by identifying a common consensus of laws and regulations in the market and considering planning for their extension across the region.

In addition, identifying multi-layered market principles in the main gig economy sectors in ASEAN offers a range of issues and further research possibilities. Firstly, policymakers need to recognise the dangers of excessive labour intensification in industries in the pursuit of excessive profits in the industry caused by market form. The more monopolies and oligopolies that develop, the more control firms have over the market, and the more labour-intensive the gig industry is, the more it risks promoting worker vulnerability and inequality. Secondly, monopolies and oligopolies in the gig market can have a disruptive impact on the traditional sector. There is a rivalry between gig workers and traditional taxi drivers or deliverers. For example, both gig workers and taxi drivers may feel a sense of a "zero-sum game" in the transport industry, with gig workers benefiting at the expense of taxi drivers and vice versa. Finally, there is a danger that the siege of market fundamentalism in the gig economy of on-demand apps in ASEAN countries will harm workers' rights and the existing sector. The rise of the gig economy in the ASEAN region has shaped the economic development orientation of the region as a whole in terms of creating mega-platforms and operating many apps. However, this excessive platform capitalism in the ASEAN region is dangerous in maintaining market principles. Therefore, future research is recommended to take a more focused approach towards the development of a healthy ecosystem of gig economy markets in ASEAN.

Conclusion and Recommendations

The gig economy, underpinned by digital technology, is changing how people work around the world and transforming the industrial structure into an advanced one. This trend has expanded into the ASEAN region, where various application platforms have emerged. In terms of market structure, this study

identified the overall characteristics of the e-hailing and online food delivery industry, the leading on-demand app gig economy sectors in the 10 AMS. The ASEAN e-hailing and online food delivery platform market are multi-layered, and various features characterise its market principles. The emergence of several dominant main players across countries and competition from many regional apps has created a monopoly, oligopoly and monopolistic competitive market structure. The market dominance of the main players in the ASEAN region has the potential to create a significant role in the economic revitalisation and integration of the entire region. The insights of this study are valuable in that they provide an empirical and theoretical outline for the co-existence of the market principles of the on-demand app gig economy and digital market presence as a region. Given the rapid developments in the gig economy market, future research should develop new arguments in line with this phenomenon, including legal monopolies and network and technological monopolies that are differentiated from traditional market structures. This would provide a clear picture of how gig market structures work in the ASEAN region, surrounded by digital economic networks and their regulations. It would also contribute to the development of a specific theoretical framework for gig market structures.

Acknowledgement

The authors gratefully acknowledge financial support from the SATU research grant (SATU) from Universiti Malaya (Project No. ST051-2021).

Disclosure Statement

The authors reported no potential conflict of interest.

References

Adermon, A., & Hensvik, L. (2022). Gig-jobs: stepping stones or dead ends? *Labour Economics*, *76*, 102171.

Airasia. (2022, March 31). airasia Super App announces the launch of airasia ride, the latest e-hailing service in Thailand https://newsroom.airasia.com/news/airasia-super-app-announces-the-launch-of-airasia-ride-the-latest-e-hailing-service-in-thailand#gsc.tab=0

Almunawar, M. N., Anshari, M., & Ariff Lim, S. (2021). Customer acceptance of ride-hailing in Indonesia. *Journal of Science and Technology Policy Management, 12*(3), 443-462.

Aloisi, A. (2016). Commoditized workers: Case study research on labour law issues arising from a set of 'on-demand/gig economy' platforms. *Comparative Labor Law & Policy Journal*, *37*(3), 653-689.

ASEAN. (2021). *ASEAN Digital Master Plan 2025*. file:///E:/P21%20ASEAN%20Gig%20Economy/ASEAN-Digital-Masterplan-2025.pdf

ASEAN. (n.d.). About AEC. https://investasean.asean.org/index.php/page/view/asean-economic-community/view/670/newsid/755/about-aec.html

Batmunkh, A., Fekete-Farkas, M., & Lakner, Z. (2022). Bibliometric analysis of gig economy. *Administrative Sciences, 12*(2), 51.

Be. (2020, November 16). Vietnamese ride-hailing startup Be Group's alternative approach to success. https://be.com.vn/en/story/vietnamese-ride-hailing-startup-be-groups-alternative-approach-to-success/

Bresnahan, T. F., & Reiss, P. C. (1990). Entry in monopoly market. *The Review of Economic Studies, 57*(4), 531-553.

Chalermpong, S., Kato, H., Thaithatkul, P., Ratanawaraha, A., Fillone, A., Hoang-Tung, N., & Jittrapirom, P. (2023). Ride-hailing applications in Southeast Asia: A literature review. *International Journal of Sustainable Transportation*, *17*(3), 298-318.

Chamberlin, E. H. (1951). Monopolistic competition revisited. *Economica, 18*(72), 343-362. https://doi.org/10.2307/2549607

Chang, E. K. (2008). Expanding definition of monopoly leveraging. *U. Miami Bus. L. Rev., 17*(2), 325-342.

Chang, W. W. (2012). Monopolistic competition and product diversity: Review and extension. *Journal of Economic Surveys, 26*(5), 879-910.

Cominetti, R., Correa, J. R., & Stier-Moses, N. E. (2009). The impact of oligopolistic competition in networks. *Operations Research, 57*(6), 1421-1437.

De Stefano, V. (2015). The rise of the 'just-in-time workforce': On-Demand work, crowd work and labour protection in the 'gig-economy'. *Bocconi Legal Studies Research Paper on SSRN*. https://doi.org/10.2139/ssrn.2682602

Dixit, A. K., & Stiglitz, J. E. (1977). Monopolistic competition and optimum product diversity. *The American Economic Review, 67*(3), 297-308.

Donovan, S. A., Bradley, D. H., & Shimabukuro, J. O. (2016). *What does the gig economy mean for workers?* Cornell University Library.

https://ecommons.cornell.edu/bitstreams/c768a7f6-106f-4c14-9a4f-822267dc3d78/download

Eaton, J., & Kierzkowski, H. (1984). Oligopolistic competition, product variety, entry deterrence, and technology transfer. *The RAND Journal of Economics*, *15*(1), 99-107.

Friedman, G. (2014). Workers without employers: Shadow corporations and the rise of the gig economy. *Review of Keynesian Economics, 2*(2), 171-188. https://doi.org/10.4337/roke.2014.02.03

Friedman, J. W. (1989). Duopoly. In J. Eatwell, M. Milgate, & P. Newman (Eds.), *Game theory* (pp. 133-138). Palgrave Macmillan UK. https://doi.org/10.1007/978-1-349-20181-5_12

Gojek. (n.d.). Thank you' from Gojek Thailand, Hello airasia Super App. https://www.gojek.com/en/th/driver/

Grab. (2022). *MY food & grocery trends 2022*. https://www.grab.com/my/merchant/food-and-grocery-trends-report-2022/

Graham, M., Hjorth, I., & Lehdonvirta, V. (2017). Digital labour and development: impacts of global digital labour platforms and the gig economy on worker livelihoods. *Transfer: European Review of Labour and Research, 23*(2), 135-162. https://doi.org/10.1177/1024258916687250

Healey, D. (2020). Grab–Uber merger in Southeast Asia: The Singapore approach. *Journal of Antitrust Enforcement, 8*(3), 638-648. https://doi.org/10.1093/jaenfo/jnaa051

Heeks, R. (2017). *Decent work and the digital gig economy: A developing country perspective on employment impacts and standards in online outsourcing, crowdwork, etc* (Development Informatics Working Paper No. 71). Centre for Development Informatics, Global Development Institute, SEED, University of Manchester.

Helpman, E., & Krugman, P. (1987). *Market structure and foreign trade: Increasing returns, imperfect competition, and the international economy*. MIT press.

International Telecommunication Union. (2021). *Measuring digital development Facts and figures 2021*. https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2021.pdf

Irawan, M. Z., Rizki, M., Chalermpong, S., & Kato, H. (2022). Mapping the motorcycle-based ride-hailing users in Yogyakarta: An analysis of socio-economic factors and preferences. *Asian Transport Studies, 8*, 100073.

Jarrahi, M. H., Sutherland, W., Nelson, S. B., & Sawyer, S. (2020, April 1). Platformic management, boundary resources for gig work, and worker

autonomy. *Computer Supported Cooperative Work (CSCW), 29*(1), 153-189. https://doi.org/10.1007/s10606-019-09368-7

Johnston, H., & Land-Kazlauskas, C. (2018). *Organizing on-demand: Representation, voice, and collective bargaining in the gig economy*. International Labour Office.

Kaine, S., & Josserand, E. (2019). The organisation and experience of work in the gig economy. *Journal of Industrial Relations, 61*(4), 479-501. https://doi.org/10.1177/0022185619865480

Kamien, M. I., & Schwartz, N. L. (1975). Market structure and innovation: A survey. *Journal of economic literature, 13*(1), 1-37.

Kee, D. M. H., Rusdi, S. A. f. M., Mokhtar, S. S., Ridzuan, S. A. M., & Abdullah, S. A. A. (2021). How Grab becomes one of the greatest start-ups in South-East Asia. *International journal of Tourism and hospitality in Asia Pasific (IJTHAP), 4*(1), 73-81.

Lerner, A. (1995). The concept of monopoly and the measurement of monopoly power. In S. Estrin & A. Marin (Eds.), *Essential readings in economics* (pp. 55-76). Macmillan Education UK. https://doi.org/10.1007/978-1-349-24002-9_4

Liu, C. Z., Au, Y. A., & Choi, H. S. (2014). Effects of freemium strategy in the mobile app market: An empirical study of Google Play. *Journal of Management Information Systems, 31*(3), 326-354. https://doi.org/10.1080/07421222.2014.995564

Machlup, F. (1937). Monopoly and competition: A classification of market positions. *The Journal of Economic Review*, *27*(3), 445-451.

Martin, S. (2012). Market structure and market performance. *Review of Industrial Organization, 40*(2), 87-108. https://doi.org/10.1007/s11151-012-9338-8

Matthe, M., Ringel, D. M., & Skiera, B. (2023). Mapping market structure evolution. *Marketing Science, 42*(3), 589-613. https://doi.org/10.1287/mksc.2022.1385

Measurable AI. (2022a, September 9). 2022 Indonesia ride-sharing race: Gojek vs Grab. https://www.linkedin.com/pulse/2022-indonesia-ride-sharing-race-gojek-vs-grab-measurable-ai/

Measurable AI. (2022b, May 20). Grab vs Bolt: Ride-hailing market share in Thailand. https://blog.measurable.ai/2022/05/30/grab-vs-bolt-thailand-ride-hailing-market-share-in-thailand/

Measurable AI. (2022c). *Gojek vs Grab market share report 2022 Q1: Ride-hailing*. https://blog.measurable.ai/2022/04/10/gojek-vs-grab-ridehailing-market-share-report-2022-ridesharing-indonesia-singapore/

Momentum Works. (2023). Food delivery platforms in Southeast Asia (SEA). https://momentum.asia/product/food-delivery-platforms-in-southeast-asia-2023/

Muhamed, N., & Magdy, Y. (2020). *Market structure analysis (perfect competition, monopolistic competition, monopoly, oligopoly)* [Research paper, Suez University]. https://doi.org/10.13140/RG.2.2.14844.56969

Muntaner, C. (2018). Digital platforms, gig economy, precarious employment, and the invisible hand of social class. *International Journal of Health Services, 48*(4), 597-600.

Nguyen, D. G., & Ha, M.-T. (2022). What makes users continue to want to use the digital platform? Evidence from the ride-hailing service platform in Vietnam. *SAGE Open, 12*(1), 21582440211069146.

Nikkei Asia. (2018, October 8). Vietnam's first car-hailing app FastGo heads overseas. https://asia.nikkei.com/Spotlight/Sharing-Economy/Vietnam-s-first-car-hailing-app-FastGo-heads-overseas

Pasquale, F. (2016). Two narratives of platform capitalism. *Yale Law & Policy Review, 35*(1), 309-319. http://www.jstor.org.ezproxy.um.edu.my/stable/26601713

Pindyck, R. S. (1985). The measurement of monopoly power in dynamic markets. *The Journal of Law and Economics, 28*(1), 193-222.

Rahman, N. A., Khan, M. A., Azmi, I. M. A. G., & Zakaria, M. R. A. (2020). E-Hailing services: Antitrust implications of Uber and Grab's merger in Southeast Asia. *IIUM Law Journal, 28*(S1), 373-394.

Ramaiah, A. K., Sirait, N. N., & Smith, N. N. (2019). Competition in digital economy: The state of merger control on consumer transportation in ASEAN. *International Journal of Modern Trends in Business Research, 2*(7), 66-82.

Roma, P., & Ragaglia, D. (2016). Revenue models, in-app purchase, and the app performance: Evidence from Apple's App Store and Google Play. *Electronic Commerce Research and Applications, 17*, 173-190. https://doi.org/https://doi.org/10.1016/j.elerap.2016.04.007

Schmidt, F. (2017). *Digital labour markets in the platform economy: Mapping the political challenges of crowd work and gig work*. Friedrich-Ebert-Stiftung . http://library.fes.de/pdf-files/wiso/13164.pdf

Stern, N. (1987). The effects of taxation, price control and government contracts in oligopoly and monopolistic competition. *Journal of Public Economics, 32*(2), 133-158.

Thaithatkul, P., Chalermpong, S., Laosinwattana, W., Liang, J., & Kato, H. (2023). Car versus motorcycle ride-hailing applications: User behaviors and adoption factors in Bangkok, Thailand. *Case Studies on Transport Policy*, *11*, 100950.

Thambipillai, P., & Pang, L. L. (2020). Urban service delivery and access: the special case of Brunei Darussalam. In B. Dahiya & A. Das (Eds.), *New urban*

agenda in Asia-Pacific: Governance for sustainable and inclusive cities (pp. 251-278). Springer Singapore.

Tran, L. Q. T., & Nguyen, M. T. (2022). Digital economy: A comparative study in ASEAN. *Theory, Methodology, Practice-Review of Business and Management, 18*(2), 83-92.

Turton, S., & Phorn, B. (2019, July 8). Grab takes on Cambodia's PassApp for ride-hailing supremacy. Nikkei Asia. https://asia.nikkei.com/Business/Startups/Grab-takes-on-Cambodia-s-PassApp-for-ride-hailing-supremacy

Uchiyama, Y., Furuoka, F., & Md. Akhir, M. N. (2022). Gig workers, social protection and labour market inequality: Lessons from Malaysia. *Jurnal Ekonomi Malaysia, 56*(3), 165–184. http://dx.doi.org/10.17576/JEM-2022-5603-09

van Doorn, N., & Badger, A. (2020). Platform capitalism's hidden abode: Producing data assets in the gig economy. *Antipode, 52*(5), 1475-1495. https://doi.org/https://doi.org/10.1111/anti.12641

Webster, J. (2016). Microworkers of the gig economy: Separate and precarious. *New Labor Forum, 25*(3), 56-64. https://doi.org/10.1177/1095796016661511

Woodcock, J., & Graham, M. (2019). *The gig economy: A critical introduction.* Polity.

How to cite this article (APA):

Uchiyama, Y., & Furuoka, F. (2024). Characteristics of the market structure on-demand app gig economy in ASEAN. *JATI-Journal of Southeast Asian Studies*, *29*(1), 1-26.

Date received: 11 June 2024 Date of acceptance: 26 June 2024