ASEAN Employment Outlook

The Quest for Decent Work in Platform Economy: Issues, Opportunities and Ways Forward

EUROPEAN UNION

Enhanced Regional EU-ASEAN Dialogue Instrument (E-READI)

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The Association of Southeast Asian Nations (ASEAN) was established on 8 August 1967. The Member States are Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam. ASEAN Secretariat is based in Jakarta, Indonesia.

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The Quest for Decent Work in Platform Economy: Issues, Opportunities and Ways Forward
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ASEAN: A Community of Opportunities for All

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ASEAN Employment Outlook aims to investigate emerging issues in the world of work in Southeast Asia that have not been widely covered by other studies or research. This Outlook focuses on workers in the platform economy. It offers a comprehensive analysis of the effects and challenges of the rise of labour platforms across ten ASEAN Member States (AMS), identifies good practices from AMS and the EU, and provides recommendations on how ASEAN can ensure human capital development and social protection for the workers in non-traditional work arrangements amidst the changing world of work. It is hoped to support AMS and other stakeholders for evidence-based policies and strategies to better provide decent work conditions for workers in the platform economy.

Acknowledgement and sincere appreciation go to the following individuals and organisations for sharing their technical expertise and knowledge that led to the completion of this Outlook:

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LIST OF ABBREVIATIONS

4IR	Fourth Industrial Revolution
ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
ASEANstats	ASEAN Statistics Division
AI	artificial intelligence
AMS	ASEAN Member States
AWAs	alternative work arrangements
CAE	Cambridge English Advanced
CET	Continuing Education and Training
COVID-19	Coronavirus Disease 2019
DICT	Department of Information, Communications, and Technology
DOLE	Department of Labour and Employment
E-COMMERCE	Electronic Commerce
EPF	Employment Provident Fund
EU	European Union
Eurofound	European Foundation for the Improvement of Living and Working Conditions
E-READI	Enhanced Regional EU-ASEAN Dialogue Instrument
FHMoms	Filipino Homebased Moms
FOPSCo	Filipino Online Professional Service Cooperative
GCF	gross capital formation
GDCF	gross domestic capital formation
GDP	gross domestic product
GNI	gross national income
GLOW	Global Online Workforce
HDI	Human Development Index
HRD Corp.	Human Resource Development Corporation Corp.
ICT	information and communications technology
ICT4D	Network Information and Communication for Development
IELTS	International English Language Testing System
ILO	International Labour Organization
IMF	International Monetary Fund
IoT	Internet of Things
ISO	International Organization for Standardization
iPREP	Industry Preparation for Pre-graduate Programme
IT	Information Technology

IT-BPO	Information Technology-Business Process Outsourcing
ITR	Income Tax Return
KAGULONG	Kapatiran sa Dalawang Gulong
KII	Key Informant Interview
Lao PDR	Lao People's Democratic Republic
LAPOR	Layanan Aspirasi dan Pengaduan Online Rakyat/Citizen's Aspiration and Complaint Online System
LFP	Labour Force Participation
LFPR	Labour Force Participation Rate
LMICs	Low- And Middle- Income Countries
MDEC	Malaysia Digital Economy Corporation
MSMEs	Micro, Small, and Medium Enterprises
NEET	Not in Education, Employment, or Training
NGOs	Non-Government Organisations
NTUC	National Trade Union Congress
OECD	Organisation for Economic Co-operation and Development
OLI	Online Labour Index
OLPs	Online Labour Platforms
PIDS	Philippine Institute for Development Studies
PPP	Purchasing Power Parity
PRC	People's Republic of China
PSA	Philippine Statistics Authority
PSF	Philippine Skills Framework
PWD	Persons With Disabilities
SCB	Siam Commercial Bank
SMEs	Small And Medium Enterprises
SPDT-FSPMI	Serikat Pekerja Dirgantara dan Transportasi – Federasi Serikat Pekerja Metal Indonesia/ Aerospace and Transportation Workers Division of the Federation of Indonesia Metal Workers' Union
SSCM	Site-Specific Crop Management
TeSA	TechSkills Accelerator
TWG	Technical Working Group
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
USA	United States of America
WHO	World Health Organization
WZB	Wissenschaftszentrum Berlin für Sozialforschung/WZB Berlin Social Science Centre

GLOSSARY OF TERMS

The definitions in this list are general and suggested for this ASEAN Employment Outlook only.

Terms	Meaning
Asset platform	Type of platform that facilitates the monetisation of idle assets and the exchange of financial services (Vaughan and Davario, 2016).
Crowdwork	Type of work on labour platforms that is web-based, done completely online, and exhibits the digitisation of organisation and the conduct of work (Schmidt, 2017; Berg et al., 2018; Hunt and Samman, 2019).
Goods platform	Type of platform that facilitates the market for goods and brings better variety to consumers, higher visibility, and wider business reach (Schmidt, 2017).
Informality	All remunerative work (i.e. self-employment and wage employment) that is not registered, regulated, or protected by existing legal or regulatory frameworks and non-remunerative work undertaken in an income-producing enterprise (International Labour Organization, 2013b).
Labour platform	A digital platform that facilitates the market for work (Kuek et al., 2015; Schmidt, 2017; Hunt and Samman, 2019).
Market power/ Monopsony	The capacity of labour platforms or employers to set remuneration or to remunerate-discriminate, which are dependent on several factors: the number of platforms in a given market, the number of employers on a platform, the limited availability of high-paying jobs, and worker preferences (Dube et al., 2020).
Microtask	Type of task done on labour platforms which are broken down into simple tasks and are sold cheaply due firms to labour arbitrage (Silberman et al., 2019).
Macrotask	Type of task done on labour platforms that involve longer-term projects and require high-level skills (Silberman et al., 2019).
Network Effects	The situation in which the value of a product, service, or platform depends on the number of buyers, sellers, or users who leverage it. Typically, the greater the number of buyers, sellers, or users, the greater the network effect-and the greater the value created by the offering. Related to these effects are the so-called indirect network effects, where the value of the service increases when one user *group* benefits as a new user *group* participates in the platform (Evans, 2016; Kenney and Zysman, 2016; Tucker, 2018).
On-demand work	Type of work on labour platform that is digitally enabled and requires a close interaction between consumers and platform workers. Also known as location-based and is an example of the digitisation of the organisation (but not the conduct) of work (Graham et al., 2017a; Hunt and Samman, 2019)
Platform firm	One that uses a digital interface to provide a product or service or connect buyers and sellers (ASEAN Secretariat, 2020)
Platform work	A broad range of market activities conducted within online platforms to connect demand and supply (Lane, 2020).
Platform worker	A worker either on on-demand or crowdwork platform (Hunt and Samman, 2019).
Self-employed	The International Labour Organization (ILO, 2022) defines self-employment as "a situation in which a person works for himself or herself instead of working for an employer who pays a salary or wage". In self-employment, the individual is responsible for managing and financing their own work and assumes the risks associated with it.

Foreword by

BIENVENIDO E. LAGUESMA

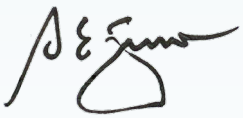
Secretary, Department of Labor and Employment, the Philippines

As the chair of the 27th ASEAN Labor Ministers Meeting (ALMM), the Philippines congratulates ASEAN Secretariat for initiating this study, entitled: "The Quest for Decent Work in Platform Economy: Issues, Opportunities, and Ways Forward", and undertaking the publication of the results thereof as the first edition of ASEAN Employment Outlook. We also commend the European Union for supporting the study and its publication through the Enhanced Regional EU-ASEAN Dialogue Instrument (E-READI).

The publication of the first ASEAN Employment Outlook is opportune. It comes at a time when ASEAN labor market indeed has undergone a massive transformation driven by the advancement of information and communication technologies (ICTs). With more than half of households and individuals in most AMS/ ASEAN Member State having internet access, the region has become a hub for online platforms attracting investments in start-ups, and spurring innovation through technological entrepreneurship.

But as the publication notes, while online labor platforms (OLPs) facilitate the market for work and positively contribute to the growth of ASEAN economy, here is also the need to ensure that OLP workers are afforded decent working conditions, social protection, representation in policy are decision-making processes, and access to technical and vocational training to further prepare them for the 21st world of work.

The employment outlook highlights good practices in platform work in ASEAN and the EU from which valuable lessons may be derived in tackling concerns at the national and regional levels. It provides a perspective from which we may better appreciate and foster ASEAN cooperation, particularly in the context of ASEAN Digital Integration Framework and ASEAN Comprehensive Recovery Framework (ACRF) in order to create an "inclusive human-centered future".



BIENVENIDO E. LAGUESMA
Secretary, Department of Labor and Employment,
The Philippines

Foreword by

H.E. DR. KAO KIM HOURN

Secretary-General of the Association of Southeast Asian Nations (ASEAN)

Platform work has seen significant increase in recent years and has emerged as a key driver of economic growth and social development in Southeast Asia, spurring employment opportunities for the people of ASEAN. In particular, platform work has provided important channels to ensure the continuous flow of products and services during the COVID-19 pandemic, especially in enabling workers to sustain their income and productivity at a time when large-scale movement restrictions were imposed.

Recognising that the adoption of e-commerce and digital technologies and platforms will continue to expand in the coming years, the number of workers participating in platform work is also expected to rise. In this connection, ASEAN has undertaken concerted efforts to ensure that platform workers are provided with adequate support and protection that are aligned with decent work standards and labour norms.

Against this backdrop, ASEA*N Employment Outlook* aims to provide key insights on the growth of online labour platforms in the region, as well as to shed light on its implications on employment relationships, employee access to social security and skills development, women's access to platform jobs, as well as entrepreneurship, among others.

This report also demonstrates ASEAN's commitment towards fostering research and information sharing amongst ASEAN Member States, as called for in the *Vientiane Declaration on Transition from Informal Employment to Formal Employment towards Decent Work Promotion in ASEAN*. Furthermore, it supports ASEAN Member States in promoting adaptive labour market policies and programmes, as committed to in ASEA*N Declaration on Promoting Competitiveness, Resilience and Agility of Workers for the Future of Work*.

I commend the leadership of ASEAN Senior Labour Officials' Meeting with the kind support of the European Union, particularly through the Enhanced Regional EU-ASEAN Dialogue Instrument (E-READI), for their important guidance and contributions in the production of this invaluable study in a bid to promote a safe, decent and progressive work environment for our people in the region and beyond.

It is my hope that the lessons learned and recommendations presented in this publication will be of great value to policymakers and stakeholders in making informed decisions, particularly as we strive in our collective pursuit towards achieving an ASEAN Community that is prosperous, inclusive, dynamic, and resilient.

DR. KAO KIM HOURN
Secretary-General of ASEAN

Foreword by

H.E. IGOR DRIESMANS

EU Ambassador to ASEAN

I was delighted to read ASEAN Employment Outlook, which the European Union supported through the Enhanced Regional EU-ASEAN Dialogue Instrument (E-READI)**.** This first edition, titled**:** 'The Quest for Decent Work in Platform Work: Issues, Opportunities, and Ways Forward', focuses on informal employment, particularly the emerging gig economy and how to protect better the well-being of workers in the gig economy. In 2020, the European Commission, through its Directorate-General for Employment, Social Affairs and Inclusion, commissioned a similar study to gather evidence on the working conditions of platform workers.

Over the past ten years, the platform economy has been a topic of great interest in ASEAN, the EU, and elsewhere. The Fourth Industrial Revolution *(4IR)*, accelerated by the COVID-19 pandemic, has established the digital economy as an essential engine of innovation, competitiveness, and growth.

Business models leveraging digital platforms provide economic opportunities for job seekers, asset owners, and enterprises. While there are clear benefits from labour platforms, asymmetries resulting in structural inequalities and the lack of decent and fair work increasingly occupy policy conversations. Platform workers are considered independent contractors or self-employed. As such, they bear the costs of social protection, training, and human capital investments and lack access to formal mechanisms like social dialogue and collective bargaining.

This publication is an essential contribution to ASEAN region. It is the first comprehensive analysis of digital labour platforms and platform workers in ASEAN Member States. Assessing legal frameworks and regulations, social protection, collective voice and representation, skills development and inclusivity and diversity for on-demand and crowd-work, ASEAN Employment Outlook provides reviews, recent trends, policy developments and prospects of the changing world of work in the region.

It is a relevant source of information to promote and protect platform workers and improve decent work, which helps understand the impact of online digital labour platforms on labour markets in ASEAN and its Member States. It identifies online labour platforms as a potential alternative to informal employment considering countries' ongoing digital transformation, and it recognises that significant steps under these structures need to be taken to improve worker welfare.

Analysing good practices from the EU and identifying emerging business models that have the potential to foster decent work in ASEAN, it is also a tool for sharing best practices at the regional and international level, enhancing collaboration in information management, strengthening existing connections, and forging new pathways to ensure the promotion and protection of platform workers.

I thank all representatives of ASEAN Member States, ASEAN Secretariat, and all those involved in completing this Report. ASEAN Member States and relevant stakeholders could benefit from the analysis and recommendations provided in the Employment Outlook. I am sure that good use will be made of this publication among stakeholders, including policymakers, government officials, parliament members, private business actors, trade unions, civil society organisations, recruitment companies, practitioners and the wider public.

H.E. IGOR DRIESMANS
EU Ambassador to ASEAN

Executive Summary

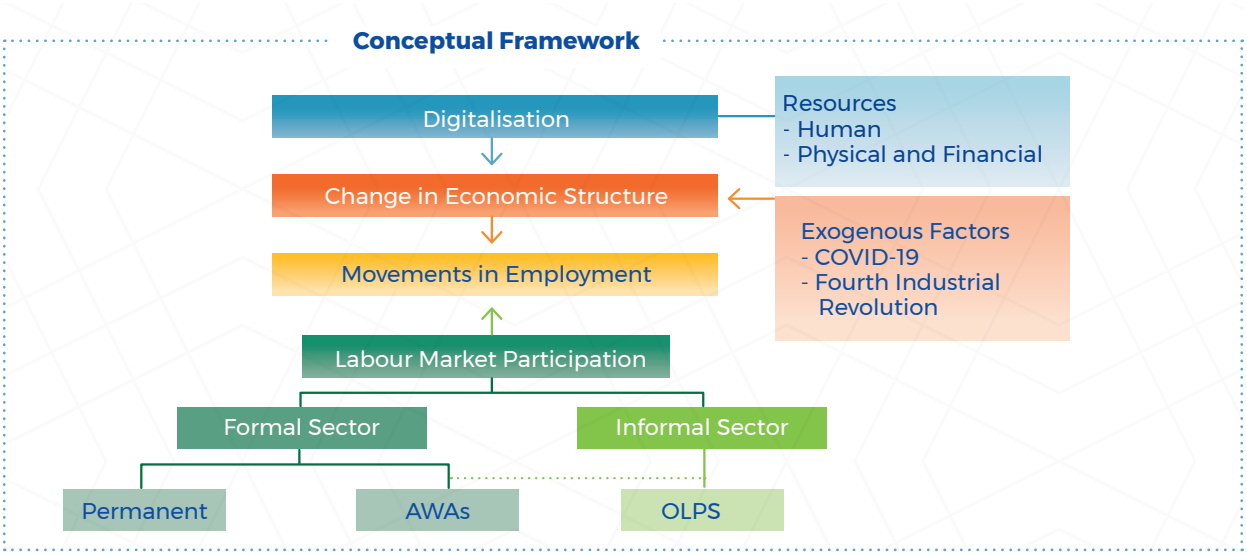
Information and communications technology (ICT) developments have paved the way for new business models, such as labour platforms. Labour platforms facilitate the market for work, which can be location-based (on-demand) or web-based (crowdwork). On-demand work is digitally enabled and requires close interaction between consumers and platform workers. Crowdwork is transacted and delivered online. It is the digitisation of the organisation and the conduct of work. Labour platforms positively contribute to ASEAN economy, with the value of the ride-hailing platforms and food markets in Indonesia alone being around US$7 billion. Platforms brought work opportunities to the region, with millions of workers involved in the delivery, logistics, and food sectors.

However, issues and challenges to decent work arise from innovations largely outpacing regulations. These issues bring to light regulatory deficits, including Labour Codes that have yet to cover work in non-standard work arrangements, and infrastructure deficiencies, including slow internet connectivity and inadequate hard and soft skills. Regulatory deficits have implications for attaining decent work, while excessive regulations can stifle innovations. Thus, it is imperative to understand the nature of platform work and its issues. Are these issues new or just variants of existing problems in non-platform work? How can policies address these challenges? How can these policies promote platforms' responsible growth and innovations? How can ASEAN nations achieve a sustainable ecosystem where innovation and decent work coexist? How can platform work take a human development orientation?

Several large ride-hailing and logistics platforms operate in the region, and small and local platforms have joined the business. In addition, many crowdworking platforms focus on recruiting in specific ASEAN Member States (AMS). Thus, ASEAN is well-positioned to address issues and challenges, set standards and guidelines, and strengthen cooperation for decent work in the region. Given this, the Outlook a) investigated the economic conditions that could have led to the rise of labour platforms in ASEAN and examined their consequences, b) analysed the institutional and regulatory challenges that should be addressed to ensure decent work in platform work in the AMS, c) analysed good practices from the EU and identified emerging business models that have the potential to foster decent work, d) identified policies and initiatives each AMS could pursue to ensure that the human capital development and social protection systems adapt to the changing nature of work, and e) highlight the importance of ASEAN cooperation on the platform economy by identifying programmes and initiatives in which the AMS could collaborate to ensure decent work in platform work. These are addressed using primary and secondary data.

Findings and recommendations based on the analysis of quantitative data

Using secondary data, the quantitative section considers five main issues, namely, (a) the job transformation resulting from OLPs, which deals with the disruption caused by these new arrangements and job tasks in the labour market; (b) the viability of the OLPs or its sustainability given the level of development and structural transformation; (c) The impact of OLPs on women; (d) the potential market power of OLPs emerging from the inherent feature of creating far-reaching network effects; and (e) the ability of workers to transition from the informal to formal work through these OLPs. A conceptual framework is developed to understand how these issues are related, as shown in the following figure.



Source: Authors' compilation

In this framework, digitisation is seen as the key element that brings about the changes and is viewed to expand as the need for simultaneous consumption and production arises. The Fourth Industrial Revolution (4IR), accelerated by the COVID-19 pandemic, has set up the critical significance of digital economy as an important engine of innovation, competitiveness, and growth. Regional trends show that ASEAN and the rest of Asia and the Pacific are at the forefront of global e-commerce dynamism. Consequently, through digital transformation, the role of labour and its linkages to the services and other sectors typically improves an economy's ability for scale, innovation, and spillovers. Those salient characteristics that distinguished services from manufacturing that traditionally questioned the service sector's potential to lead productivity growth and enable lower middle-income countries (LMICS) to catch up were eliminated. Thus, the advent of digital technologies and the increased tradability of services suggest rising productivity in services.

The emergence of OLPs is then viewed as an outcome of these changes. As tasks are gradually altered and as the economies engage in more digitisation, the demand for online labour platforms increases and is further sustained through further structural changes in the economy. The impact of recent events such as COVID-19 and the Fourth Industrial Revolution can either constrain these changes or complement the movements of digital transformation. Technological advancements are perceived to increase labour productivity, create new occupations and industries, supply better-paid jobs, and serve as a foundation for higher economic growth. On the other hand, there are concerns that technological transitioning may displace less-skilled workers and the vulnerably employed.

Furthermore, the unprecedented rise of OLPs introduces another form of labour market arrangement from the usual permanent contracts and alternative work arrangements (AWAs) in the formal markets. Three possible scenarios can happen from these movements. First, the jobs in permanent and alternative work arrangements can be disrupted by OLPs, which can occur if OLPs are able to substitute these traditional work arrangements. If this event occurs, a diminution of the traditional arrangements can lead to greater unemployment if the digitisation or information and communication technology inputs replace labour in the production process. Labour force participation may also decline. Second, OLPs can complement the existing arrangements and offer the workers secondary and complementary forms of work that can add to their incomes. These complementary jobs can be suitable for women and youth workers who need greater flexibility as they are engaged in other activities such as household work and even schooling. In this case, unemployment may not increase, but greater labour force participation may rise. Third, this added labour market option can help these traditional firms employ workers who have been excluded from the formal sector and may likely be engaged in the informal activities often characterised by poor labour characteristics. In this case, unemployment may decrease, and the share of the informal sector may be lower. While OLPs may have similar characteristics as the informal sector, the level of formality found in OLPs can create better working conditions for the workers, such as training and better job quality through improved linkages with formal activities[1]. The challenge now to ASEAN economies is how to transition its huge percentage of informal workers to the formal sector through OLPs. This can be done by improving the work conditions in OLPs, offering a welfare-enhancing choice to the informal workers. This aim is particularly challenging as OLPs can have significant market power because of their size and technological nature.

Based on the data collected, the Outlook finds the unemployment rate in ASEAN labour markets continues to be high. Thus, industry and services should create work options, especially for women and youth. The crucial role of services in the structural transformation of ASEAN economies, the importance of an internet-based, data-intensive, and technology-dependent future, and the acceleration of digitisation resulting from the pandemic are all relevant to the rise of platform work. A considerable number of registered workers engaged in OLPs, amounting to 63 million in online freelancing activities and roughly 40 million in on-demand digital activities. Increased participation in on-demand labour platforms was noted, especially during the pandemic, although there is diminishing access to this work as the market becomes saturated. The rise in crowdwork is associated with the decreased GDP shares of the service and agricultural sectors, suggesting that crowdwork can potentially provide alternatives to workers in countries that face difficulties in creating jobs locally.

1- Based on technical definitions of formality, most online labour platforms, such as Upwork and Freelancer, are informal in nature as workers engaged in these platforms are considered independent contractors than formal workers. However, these platforms connect formal businesses and individuals with freelance talent for a wide range of tasks. Unlike informal organizations, these platforms have mechanisms that verify the identities of workers and employers and offer features such as escrow payments and dispute resolution to help maintain a transparent and secure transactions for all parties.

In terms of the five issues named, the following findings and recommendations can be made.

Issue 1: The transformation of jobs into their digital equivalence

The data show that while OLPs were prevalent in economies with high unemployment, introducing these arrangements did not mean that this was the cause of unemployment. OLPs became a choice for people looking for secondary and complementary jobs. However, those who were looking were not absorbed into these arrangements because of the competitive nature of these arrangements. Negative changes in unemployment were conditional on Gross Capital Formation, and engagement in the informal sector remains substantial. Apart from improving the digital infrastructure, the government should supply subsidies to workers who wish to be employed in OLPs by improving skills and social protection. Because OLPs can create employment opportunities, the government should be open to these alternative work arrangements.

Issue 2: The sustainability of digital platforms

This issue pertains to the viability of using OLPs as another choice for creating jobs. The study observes the deindustrialisation process in AMS and the emergence of the service sector as an engine of growth. These conditions would make it possible for OLPs to thrive. Nevertheless, the data also indicate that only countries with substantial capital formation have succeeded in decreasing unemployment. Thus, employment returns from OLPs maybe limited, making the sustainability of OLPs in ASEAN questionable. The recommendation then is to create conditions for local OLPs to thrive in their setting, thus allowing them to adapt to the available local resources and the needs of the local and regional industries. The aim is to use existing technology to improve labour productivity.

Issue 3: The Impact on Women

This issue is about gender disparities that may affect labour market outcomes. The data show that the average share of crowdworkers in each country relative to the total number of global crowdwork is associated positively with women's labour force participation, with this correlation increasing in countries with lower Human Development Index. This suggests that women in poorer countries are getting more engaged in OLPs, thus increasing participation in labour markets and reducing employment gender disparity. Gender remuneration equality remains an issue given the unequal distribution of human capital (work experience and education) as well as the women's domestic responsibilities, resulting in less work hours. Hence, earnings disparity may remain for these women, especially those living in lower-income economies. The recommendation is to enforce decent work conditions and provide social protection targeted to women.

Issue 4: The Market Power of Platforms

This issue relates to the market power inherent in online labour platforms because of their associated direct and indirect network effects. The data reveal that while only a few major platforms are found in the market, their revenue shares are contestable and can be challenged by potential local entrants. Nevertheless, despite this absence of market power of platforms in terms of the services offered in the global market, monopsony is likely as platforms can possibly markdown earnings below the actual contribution of the workers to their firms' revenues.[2] This is possible given the heterogeneous nature of labour being exchanged and the lack of uniform earning structures in these markets. Workers are unlikely to complain about the earnings offered and shift to other forms of work, especially if they have limited options to engage in these other non-digital or digital work alternatives.

2- Unlike the traditional concept of monopsony defined as a single employer in a labour market, the modern view combines the literature of search with the heterogeneity of worker preferences for jobs. Firms sort out of workers by offering specific remunerations and amenities to workers who are willing to take the job at reduced remunerations (Manning, 2021; Card, 2022). Workers are forced to accept these offers because of idiosyncratic preferences (such as a higher subjective value to perform domestic activities) as well as the high cost of search.

The solution to this problem is not to regulate the platforms, fix remunerations or impose conditions on the platforms. Instead, the proper recommendation is to strengthen and harness workers' bargaining power by giving them more options, supplying social protection, including unemployment insurance, and defining their rights to decent work conditions. The goal is to empower workers with the ability to negotiate their demands better and be paid according to their productivity.

Issue 5: Transition from informal to formal activities

This issue deals specifically with the problem of a huge informal sector in AMS. Formalisation gives government a greater scope of work to generate revenue and enforce the rule of law. Furthermore, the social protection of workers is greatly assured under formal enterprises or arrangements. The characteristics of platforms, particularly the degree of flexibility offered to the workers, are similar to the informal sector. The data, however, show that increasing digital technology had hardly affected the size of the informal sector. A significant part of the problem is the lack of qualifications since platform engagements require a specific set of skills and education to be accepted. Hence, highly skilled workers in the informal sector are more likely to be hired in OLPs. However, the percentage of these workers in the informal sector did not seem to change significantly. This means that apart from the skill set of workers, there are other barriers to the potential transition of workers from informal to formal activities. One possible barrier is the inherent uncertainty in dealing with impersonal platforms where face-to-face transactions and communication are limited. The recommendation is similar to the fourth issue. By strengthening workers' bargaining power, enhancing their social protection, and offering them more options, the transition from the informal to the formal can be made without much cost and uncertainty to the worker.

Findings and recommendations based on the analysis of qualitative data

Issues and challenges to decent work arise from innovations largely outpacing regulations. These issues bring to light regulatory deficits, including Labour Codes that have yet to cover work in non-standard work arrangements, and infrastructure deficiencies, including slow Internet connectivity and inadequate hard and soft skills. Regulatory deficits have implications for attaining decent work. However, excessive regulations can stifle innovations. Thus, it is imperative to understand the nature of platform work and its issues. Using primary data, the qualitative section analyses platform work in five areas: legal framework and regulation, social protection, representation and collective voice, skills development, and inclusivity and diversity.

Legal framework and regulation

While most of the labour codes in the AMS have been amended to improve workplace environments, enhance social protection, increase the ease of doing business, and align with international standards, amendments to the labour codes have yet to incorporate provisions for platform work. Labour Codes provide protection and entitlements when there are employment relations, including safety and health, social protection, and rights to social dialogue and participation in collective bargaining/trade unions. Platform workers in the AMS are considered self-employed or independent contractors and are not covered and protected by Labour Codes. Some AMS have broadened their regulatory framework to include work with service agreements. However, there are challenges to these efforts due to legal precedence or age-old legal provisions containing definitions that need to be revised to include new work arrangements. There is also a challenge in establishing the presence of elements of employment relations, namely, earnings, work, and control.

The legislative attention is skewed towards platforms for ride-hailing and courier services. This situation is possibly due to the ride-hailing and courier services' contribution to the country's income and employment. Nevertheless, other on-demand work like childcare, massage, cleaning, and maintenance are also gaining traction on platforms. This on-demand work has different issues and challenges requiring different policies and initiatives. For example, while sexual harassment is an issue for workers in ride-hailing or courier services, it can be more challenging for those in care and personal services, where work is done in confined environments, and clients can have substantial control.

Enforcing regulations is much more difficult in crowdwork since transactions cross borders. Thus, legislative efforts are directed towards skills and physical infrastructure development. In some AMS, entrepreneurial crowdworkers find existing regulatory requirements burdensome or difficult to comply with, given the nature of the business involved on platforms.

Social protection

Social security schemes in the AMS are tied to formal employment. Thus, platform workers' social protection is wanting, although there are payment schemes for the self-employed, which are voluntary. The uptake of platform workers to the voluntary scheme is hampered by several challenges, including inadequate earnings, the lack of steady income flows, and the fewer benefits in the voluntary scheme than in the mandatory plan for formal workers.

The lack of clear guidelines on treating cross-border transactions of crowdworkers/freelancers and administrative challenges also hound authorities. However, some AMS agencies in charge of the social security system have implemented initiatives and collaborated with on-demand platforms to increase the social protection enrolment of platform workers and simplify savings through an auto-deduct feature on the platform's applications. It is still rare for platforms to share in the workers' contributions.

Representation and collective voice

Due to the independent contractor status of platform workers, they are not entitled to form unions and participate in collective bargaining. Thus, they organised themselves into groups and associations through Facebook, Viber, or WhatsApp, providing avenues to forge solidarity and develop a collective voice. However, the group's level of influence and extent of support from other allied stakeholders vary across the AMS. Some communities provide support through information, while others coordinate with members to organise protests. Some associations work closely with unions with better institutional capacities to advance key issues. However, the level of unionisation, and therefore the level of support to riders, in the AMS varies.

Workers in other on-demand services like repair and personal services do not have as much voice and representation. These workers work in environments where the clients' command/control is substantially felt. They are more at risk of abuse and gender-based violence, which are unknowingly encouraged by some practices on platforms, including posting photos and sensitive information.

Compared with on-demand work, fostering trust and solidarity is a challenge in crowdwork. Work is performed and transacted online in crowdwork by geographically dispersed workers. Thus, there are few avenues for crowdworkers to physically interact, socialise, organise, and form a collective voice. There are also no known unions in the AMS push for crowdworkers' labour rights. However, some associations have working relationships with the government, which resulted in better development initiatives for crowdworkers.

Skills development

Some regional on-demand platforms support their partners' upskilling and personal development, including placement programmes and opportunities for partners to become entrepreneurs. The situation is different on crowdwork platforms, where workers invest in their skills development and leverage these skills to achieve their goals. Grit, patience, courtesy, negotiation, and communication skills have become useful in other freelancing-related ventures.

Inclusivity and diversity

State-led programmes and policies targeting specific vulnerable groups on platforms are not evident. However, some ride-hailing platforms have initiatives for persons with disabilities. Others promote women's

empowerment by improving their location-sharing features or blocking women riders from taking ride-hailing orders.

At least in principle, crowdwork fosters inclusivity and diversity. It provides opportunities to interested workers regardless of gender and race. Furthermore, it does not discriminate based on disabilities or lack of formal educational background. In practice, however, securing a job on platforms may not be easy for everyone. This is true for platforms involved in high value-adding jobs that require niche skills and accredited certification. Despite successful registration and validation, new workers do not easily land a job unless they are willing to spend on some services sold by platforms. Access to devices and equipment can also be an issue since some tasks can be better done using a desktop or a laptop. Thus, crowdwork may not work for everybody.

Policies to explore at the National level

Platform work

Aim for the sustainability of the worker: The skills needed in platform work are not substantially different from those in non-platform work. The AMS must assess the current workforce competencies and how these can be adjusted to the existing and emerging needs of labour markets. Putting up a training and skills development system will guide platform workers to make informed choices on training pathways should they wish to shift to a traditional work arrangement. The system is also useful to workers who wish to pursue platform work, especially those involved in platforms that require certifications.

Target promotion and protection: Expand social protection programmes by exploring the combination of protection and promotion systems. While some comprehensive skills development systems are in place in some AMS, these are currently stand-alone systems. It would be useful to explore how the social protection system can be linked with the training/skills development system. Social protection systems should also be portable to support the workers' movement from one mode of job to another and flexible to accommodate varying capacities to pay. Systems that allow the customisation of payment schedules and structures are imperative. Further, delays in the contribution payment should not result in the deactivation of membership since reactivations entail paperwork.

On-demand work

Amend labour codes to clarify the employment classification of on-demand workers and implement other initiatives while legislative and consultative processes are ongoing: Despite nuances in work on different platforms, decent work remains an overarching issue to be addressed. Labour codes have yet to integrate non-standard work arrangements, which results in regulatory deficits that allow new business models to operate in the context of no-employment relations. Changes in the classification and definitions may take some time due to the legislative and consultative processes. While these processes are ongoing, it is useful to implement other initiatives. These include forging partnerships with platforms on social protection and savings and conducting consultations regarding the applicable minimum standards.

Promote workers' voice and representation: Adjust rules and regulations on collective bargaining to give voice and representation to workers in non-standard work arrangements. Currently, only those with employment relations can organise and negotiate. Thus, the lack of voice and representation in collective bargaining results from the limitations in the workers' employment status. While adjustments are being made, it is prudent to encourage associations and unions to push for issues in platform work in social dialogues and legislative hearings. Finding legislators who will champion the cause of decent work in platform work is also crucial.

Explore partnerships with on-demand platforms to enhance workers' social protection: These collaborations demonstrate how platforms value their partners, which can attract more loyal partners. Other platforms may follow, setting the norms for participating in their partners' savings fund and social protection.

Acquire an in-depth understanding of on-demand work before formulating regulatory frameworks:

- Robust consultations with different platforms and workers are essential in understanding working conditions and minimum standards in pay and security. This will help clarify obligations and set minimum applicable standards approved by all stakeholders, making regulations likely to be successful.

- Different platforms have distinct management policies and foster diverse working conditions, which result in varying issues and challenges. Thus, establishing technical working groups for major sectors can lead to more nuanced policies.

- National governments can explore experimental regulatory sandboxes. These can be valuable tools to determine the workers' employment classification and explore approaches that can enhance institutional capacities and address gaps in social protection. Experiments that establish new employment classifications and determine platform workers' modes of social protection can be valuable exercises.

Improve data collection initiatives to aid evidence-based policies and programmes: Evidence is important to ensure that policies address the issues and challenges. In the case of platforms, the lack of data limits researchers from shedding light on various issues. This presents a challenge, although the government can use innovative approaches, including the use of Application Programming Interface and data crawling to automatically extract information from the Internet. Governments should also explore stronger collaborations with platforms through data-sharing agreements. In addition, statistics authorities should explore the collection of nationally representative data on non-standard work arrangements. In this exercise, careful considerations should be made to strike a balance between survey costs and the quality of the data collection. A clear definition and taxonomy of platform work are also needed to guide the nature of questions that will be asked and the types of indicators that will be collected.

Create sustainable and fair environments for all stakeholders involved: Few players in the market can result in practices that are inimical to the interest of workers. The presence of many platforms can benefit workers as platforms compete through better work policies. Thus, the government must establish free and fair competition, allowing new businesses to enter and thrive in the market.

Explore the viability of platform cooperatives: Platform cooperatives offer alternatives to venture capital-financed platforms. These adopt platform technology to facilitate the conduct of businesses and, as cooperatives, foster shared ownership and democratic governance. However, setting up platform cooperatives has challenges. Financing for platform cooperatives is a key issue since platforms require investments in software and physical and human capital infrastructures. The development of platform cooperatives also requires looking into the suitability of existing regulatory frameworks for cooperatives, which may or may not be conducive to developing platform cooperatives. Reducing regulatory barriers to establishing cooperative platforms and enhancing independence in development and innovation can be explored. The AMS can investigate the successful platform cooperatives in France, Germany, Italy, and Switzerland and analyse how the principles can be adopted into the AMS context.

Crowdwork

Encourage crowdworkers to become formal entrepreneurs:

- Streamline legal and regulatory requirements in licensing and registration and simplify tax administration, reporting system, and payment structures.

- Simplify the registration and payments to social protection programmes by establishing an online portal that will serve as a one-stop payment system for workers' insurance and social security funds and linking this system to various online and offline payment channels.

- Provide incentives and supports to formal entrepreneurs and conduct dissemination exercises to educate the entrepreneurial community on the advantages of joining the formal sector.

Recognise that not all crowdworkers can be formalised, Ensure equal access to state-led programmes: The few legislative efforts on crowdwork are focused on registered crowdworkers. However, crowdwork is heterogeneous in scope, duration, and complexity. Workers will secure jobs continuously or intermittently, depending on their motivations and skills. Attempts at formalising the latter are challenging since the transaction, and administrative costs of compliance with regulatory requirements may outweigh the perceived benefits of formalisation. Thus, ensuring that informal workers can benefit from state-led programmes and initiatives is important, especially in skills and training development. Doing so enhances the workers' chance to secure higher value-adding and less intermittent jobs, paving the way for potential formalisation.

Recognise the importance of social enterprises, cooperatives, and associations of crowdworkers; empower these entities: Enterprises, cooperatives, and associations enhance the visibility of crowdworkers. They should be recognised as vital links to the communities of crowdworkers. They should be engaged in consultations to craft programmes for the crowdworkers' promotion and protection. Partnerships with social enterprises, cooperatives, and associations are useful in cascading information on government policies and initiatives and in determining sectoral needs and challenges. They also have programmes that assist their members in owning devices and enhancing access to the Internet. Thus, governments can tap into these entities to better understand how successful programmes can be replicated or upscaled.

Policies to explore at ASEAN level

Platform work

Spearhead the management of information on platform work and the platform economy in the region: Information on platforms in the AMS can be valuable tools and resources for policymakers, researchers, platforms, and platform workers. A one-stop repository of information in ASEAN on regulations, laws, minimum standards, and platform ratings will inform stakeholders and governments of good practices and reasonable approaches to address regulatory deficits. To this end, the ICT bureau in each AMS can leverage its management information systems to collect pertinent information that can be customised should consistency in the format at ASEAN level be prescribed. The one-stop repository initiative of the Eurofound can be looked into to determine what other information, tools, and resources can be shared and harmonised.

Facilitate regional dialogue and forum: Various on-demand platforms operate in the AMS. Most take a hyper-local approach to ensure a quick response to changes in local markets. Meanwhile, new entrants and small, local platforms adopt the practices of leading platforms. Thus, workers in the region face similar issues, such as the platforms' substantial control, workers' employment status and its implications for security, lack of representation, and decreasing incentives and incomes. The AMS should spearhead regional dialogues and fora to set standards and guidelines for platforms and workers and to strengthen cooperation to achieve decent work in the region.

On-demand work

Explore crafting regional guidelines for platforms: Big platforms operating in the region can have different policies depending on regulations in specific AMS and on the initiatives pursued by agencies in charge of social protection. Thus, disparities can be observed within and among member states. Regional guidelines are, thus, useful, especially in the absence of standards from the Labour Code. Unlike the Labour Code that mandates standards, regional guidelines crafted in collaboration with key stakeholders can effectively attain decent work on platforms. Government representatives from the AMS, platform representatives, workers, and tripartite partners can agree on the minimum acceptable standards. Having regional guidelines can be beneficial to key stakeholders. It can reduce platforms' vulnerability to disruptions arising from workers' protests and sudden regulations. It can also send positive signals to the labour market. Thus, platforms can attract and retain workers vital to the platforms' operation.

Crowdwork

Facilitate crafting a Code of Conduct for crowdworkers: Crowdworkers are mostly coming from the Global South. Workers in the AMS can have strong bargaining power if they put up a unified front and avoid practices of cutthroat competition among workers. To do this, associations and groups play key roles. Associations and groups representing the interests of crowdworkers in the AMS can come together through a forum/meeting organised by ASEAN secretariat and explore the possibility of crafting guidelines in ASEAN crowdworkers' conduct on platforms. In the short run, a code of conduct targeting platform workers and their groups and associations is easier since these stakeholders will actively participate in consultations given the correct motivations and incentives.

Crowdworkers' adherence to the code of conduct is key. Unity in following the crowdworkers' code sends a strong signal to clients and platforms that crowdworkers in the region mean business. This can compel platforms to participate in future efforts to craft a crowdworking platforms' code of conduct. It is also important for platforms to realize that their adherence to such code can demonstrate their goodwill and attract better workers in the process.

1. Background

Over the past ten years, the platform economy has been a topic of great interest in Asia. Platforms are sets of online digital arrangements that use algorithms to facilitate markets and have two features: economies of scale and network effects (Kenney and Zysman, 2016). Business models leveraging digital platforms provide economic opportunities for job seekers, asset-owners, and enterprises. The value of the ride-hailing platforms and food markets in Indonesia alone is around US$7 billion, which is twice and five times as much as the market value in Singapore and the Philippines[3]. Crowdwork is also gaining traction in some ASEAN Member States (AMS) like Indonesia, the Philippines, and Viet Nam.

While labour platforms have clear benefits, asymmetries resulting in structural inequalities and the lack of decent and fair work increasingly occupy policy conversations. Decent work, following the 2008 ILO Convention, has four strategic pillars: (i) International labour standards and fundamental principles and rights at work (ii) Employment creation (iii) Social protection and (iv) Social dialogue and tripartism (ILO, 2013a). Fair work, a concept borne from the Fair Work Project of the Oxford Internet Institute and the WZB Berlin Social Science Center, evaluates the working conditions on digital platforms and ranks them based on the five fair work principles: fair pay, fair conditions, fair contracts, fair management, and fair representation. The project rates platforms in different countries to aid benchmarking and standard setting in the sector.

For example, the winner-takes-all dynamics typical in platform-based economies means that whoever controls the platform also controls the distribution channel giving the platform owner considerable market power. Formulating appropriate policy responses will be needed to mitigate possible negative impacts from the abuse of the dominant position. More importantly, substantial market power can lead to monopsony in the labour market. Moreover, innovations have outpaced the development of the regulatory and legal framework. For example, Labour Codes provide protection and entitlements when there are employment relations. Since platform workers are considered independent contractors or self-employed, they bear the costs of social protection, training, and human capital investments and lack access to formal mechanisms like social dialogue and collective bargaining. It should be emphasised, however, that these issues are not new since the precariousness of work was already observed in the early Industrial Revolution when piecemeal work and contract-based employment were the norms (Berg et al., 2018; Churchill and Craig, 2019). Even before the rise of the platform economy, a significant proportion of workers, nearly 80% of the total workforce, were employed in the informal sector. A new face of the informal economy, facilitated by ICT, has emerged.

Given these challenges, the main question is whether these platforms demonstrate the quality of work desired by ASEAN. Thus, relevant ASEAN stakeholders, including policymakers, workers, platforms, and social and tripartite partners such as trade unions and associations, have expressed interest in better understanding the platform economy, and rightly so. ASEAN Declaration on Strengthening Social Protection recognises that everyone is entitled to equitable access to social protection. More importantly, social protection shall be adaptive to various risks and vulnerabilities brought about by changes in the labour markets, among other things. As indicated in its Vientiane Declaration on Transition from Informal to Formal Employment, ASEAN has committed to promoting inclusive and sustainable growth, employment, and decent work. Furthermore, ASEAN is cognisant of transformative changes that offer opportunities and challenges for workers and businesses[4].

3- https://asean.org/wp-content/uploads/2012/05/ASEAN_Labour_Ministers%E2%80%99_Statement_on-_the_future_of_work_Embracing_Technology_for_Inclusive_and_Sustainable_Growth.pdf, Statista, Accessed on July 1, 2022.

4- Included in ASEAN Labour Ministers' Statement on the *Future of Work: Embracing Technology for Inclusive and Sustainable Growth* is the strengthening of the capacity of institutions to enable the workforce to take advantage of new technology and participate in the global labour market through closer cooperation with industries. https://asean.org/wp-content/uploads/2012/05/ASEAN_Labour_Ministers%E2%80%99_Statement_on-_the_future_of_work_Embracing_Technology_for_Inclusive_and_Sustainable_Growth.pdf

ASEAN has expressly recognised the importance of digital connectivity. In August 2018, the 50th ASEAN Economic Ministers Meeting adopted ASEAN Digital Integration Framework[5]. In line with the Master Plan on ASEAN Connectivity 2025, the framework emphasises that digital integration is key to creating a more inclusive ASEAN region, enabling countries to compete more effectively in the global economy jointly and individually. However, ASEAN faces many challenges in promoting digital connectivity, including how to align digital rules and standards among different digital systems, support cross-border data flows, safeguard personal data, and encourage cross-border cooperation in nascent areas such as digital identities, artificial intelligence (AI), and data innovation.

Several large ride-hailing and logistics platforms operate in the region, and small and local platforms have joined the business. In addition, many crowdworking platforms focus on recruiting in specific ASEAN Member States (AMS). Thus, ASEAN is well-positioned to address issues and challenges, set standards and guidelines, and strengthen cooperation for decent work in the region. Given this, the Outlook aims to

- Investigate the economic conditions that could have led to the rise of labour platforms in ASEAN and examine their consequences.

- Analyse the institutional and regulatory challenges that should be addressed to ensure decent work in platform work in the AMS.

- Analyse good practices from the EU and identify emerging business models that have the potential to foster decent work. Thus, the Outlook contributes to the EU-ASEAN Dialogue on Labour Migration and Mobility, involving tripartite partners, civil society organisations, and other relevant stakeholders on the latest trends and developments related to employment and the world of work.

- Identify policies and initiatives each AMS could pursue to ensure that the human capital development and social protection systems adapt to the changing nature of work.

- Highlight the importance of ASEAN cooperation on the platform economy by identifying programmes and initiatives in which the AMS could collaborate to ensure decent work in platform work. This is consistent with two of the three focus areas highlighted in the Consolidated Strategy on the Fourth Industrial Revolution for ASEAN: Digital Economy and Digital Transformation of Society. Concerning the former, ASEAN emphasises the importance of capturing opportunities in the digital space. Concerning the latter, ASEAN envisions forward-looking human resource development and social welfare and protection as two of the five strategic priorities. The 38th and 39th ASEAN Summits adopted ASEAN Leaders' Statement on Advancing Digital Transformation in ASEAN[6] and the adoption of ASEAN Digital Masterplan 2025 to guide the region's digital cooperation from 2021-2025 to transform[7] ASEAN into a leading digital economy and economic bloc.

1.1. Approach and sources

The Outlook used mixed methods, including collecting primary and secondary data on platform work. To the extent possible, it covered all AMS. There were limitations to the data collection, however. For the qualitative data, the team had difficulties finding crowdworkers and representatives of crowdworkers' groups or associations. Thus, the discussion in the crowdworking section was centred on the Philippines experience, where several platform workers and groups accommodated the request for an interview. Information related to crowdwork in other AMS was obtained through desk research. For the quantitative analysis, the main limitation has been the data, which are either unavailable or limited. To overcome this, the study used available data and extracted/synthesized observations that can be gathered from this limited dataset. Thus, the inferences are, at best, correlational and will require validation from the qualitative section or other research on this issue.

5- https://asean.org/wp-content/uploads/2020/12/Adopted-ASEAN-Digital-Integration-Framework.pdf
6- https://asean.org/wp-content/uploads/2021/10/7.-ASEAN-Leaders-Statement-on-Digital-Transformation.pdf
7- https://asean.org/wp-content/uploads/2021/08/ASEAN-Digital-Masterplan-2025.pdf

1.1.1. Primary data

The primary data were collected using a virtual key informant interview (KII) with various stakeholders in the AMS from March to June 2022. The KIIs aimed to analyse how countries understand and address platform work's issues and challenges and identify best practices other AMS can replicate. Some stakeholders, mostly key ministries, opted for written responses.

The initial list of subject matter experts, associations, cooperatives, and platforms was drawn through desk research. Then, a snowball sampling was used to ensure that contexts specific to each AMS were analysed. This was done by soliciting information and recommendations at the end of each interview. Combining the initial list and the additional respondents recommended by KII informants, 52 respondents were interviewed. These included government officials from key ministries, subject matter experts, associations, cooperatives, platform workers, and platform representatives (Table A1 in the Annex). Out of the 52 respondents, 32 submitted written responses. In some cases, follow-up questions were sent to these respondents to clarify important points or inquire about key information.

In addition, desk research was conducted to supplement the primary data. This ensured that the Outlook included the details of key points shared by KII informants. The desk research also guaranteed that the Outlook included critical developments in government regulations and programmes, platforms' initiatives, workers' perspectives, and best practices in the EU. It also aided in compiling global, regional, and local platforms.

1.1.2. Secondary data

The purpose of analysing secondary data is to describe the labour markets in each AMS, with the view of assessing and measuring the scope of informal activities and other alternative arrangements. Available labour data of AMS found in ASEAN statistics portal[8] were utilised. In addition, information was also obtained from the International Labour Organization (ILO) website, which contains a significant amount of processed and comparable data related to the labour market. Macroeconomic variables that impact the labour markets were collected mostly from the World Bank development indicators. Data on social indicators from other United Nations agencies, such as the United Nations Development Programme (UNDP) and the United Nations Conference on Trade and Development (UNCTAD), were also obtained. Information sets, such as the Online Labour Index (OLI) on online labour platforms and ASEAN surveys of the informal sector in crucial sectors, were also used and examined for the analysis.

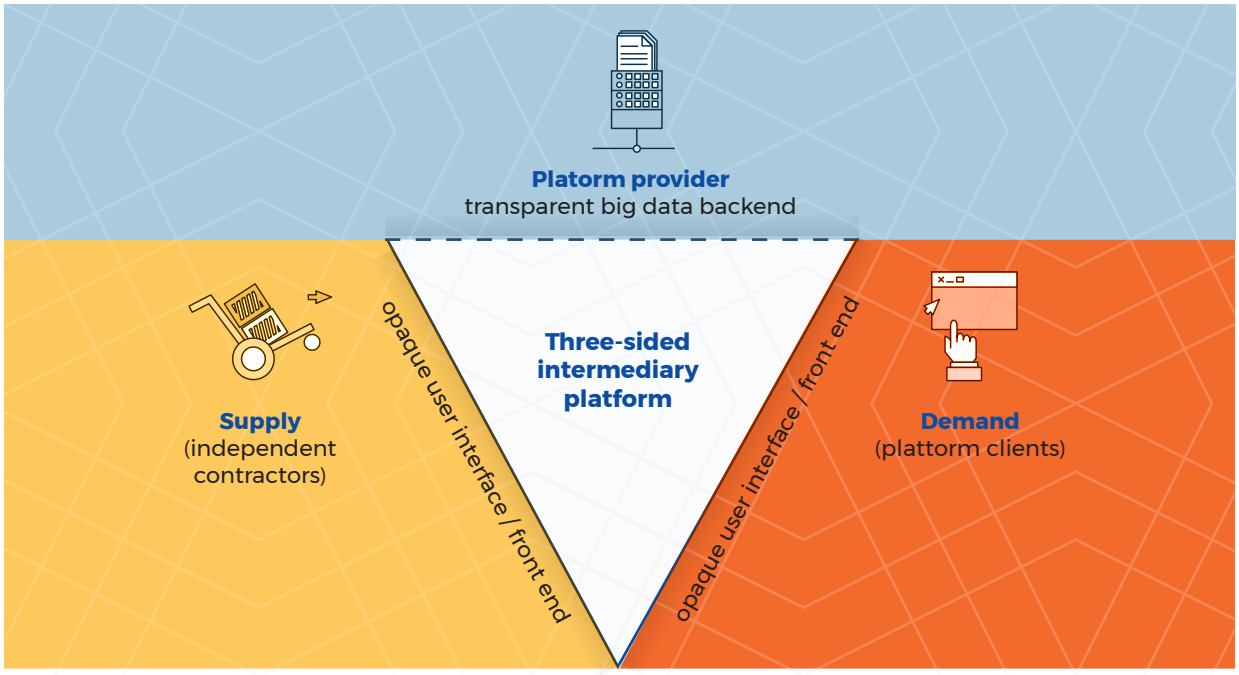
8- www.aseanstats.org

2. Platforms: Features, Definitions, and Challenges

2.1. Business models

The world of work has rapidly changed with the advancement of information and communications technology. Smartphones have sparked innovative ideas to bring together markets for goods and services through platforms. Platforms, while there are many types, share three essential characteristics: they are technologically mediated, they link user groups, and they allow these user groups to do specific things (Koskinen et al., 2019). There are at least three user groups on platforms: platform provider, supply (i.e. workers, contractors), and demand (i.e. clients). Through the platforms' software architecture, platform providers have access to the traffic of data generated by the activities and interactions of user groups (see Figure 1). Thus, they can influence the exchange between supply and demand (Schmidt, 2017). In addition, algorithmic data management[9] enables providers to track and manage huge information flows efficiently and match user groups cost-effectively.

Figure 1. Three-sided platform architecture



Source: Schmidt (2017)

Platforms create and capture value through economies of scale and network effects (Koskinen et al., 2018; Kenney and Zysman, 2016). Economies of scale occur due to the declining average costs following the increase in platform users. The network effect, which can be direct[10] or indirect[11], is the situation that makes platforms attractive due to the number of their users (Evans, 2016). In the case of ride-hailing platforms,

9- Defined as a setting in which "human jobs are assigned, optimised, and evaluated through algorithms and tracked data" (Lee et al., 2015).
10- Which is the situation when a user joins a platform where many users of the same group are registered (i.e. workers will join platforms that have many registered workers) (International Telecommunication Union and the World Bank, 2020).
11- Which is the situation when a user joins a platform where many users of another group are registered (i.e. workers will join platforms that have many registered clients) (International Telecommunication Union and the World Bank, 2020).

incentives are given to entice the participation of user groups. However, these may be withdrawn once critical mass has been achieved and network effects commence.

With information asymmetry and efficiency in data tracking and management, economies of scale and network effects can yield substantial market power to a few platform providers. Thus, it is not surprising that platform providers have evolved from facilitation to arbitration and the provision of allied services. This is manifested in ride-hailing platforms offering diverse products and services. This is also seen on crowdwork platforms. For example, Upwork, in its early days, was merely a facilitator of markets but has since branched out into the recruitment and management of workers for clients (Beerepot and Lambregts, 2017). It now sells services to enhance workers' visibility and hide information such as their earnings history.

2.2. Definitions and typologies

Platform work refers to the broad range of market activities conducted within platforms to connect demand and supply[12]. Digitisation plays a role in platform work, either in the organisation of work or in the conduct of work. Many platforms are based on the goods/services they mediate (see Figure 2). Asset platforms, like Airbnb, facilitate the monetisation of idle assets and are sometimes used in a collaborative or sharing economy (see, for example, Vaughan and Davario (2016)). However, the term collaborative or sharing is a misnomer since platforms do not share any investment in assets or capital goods.

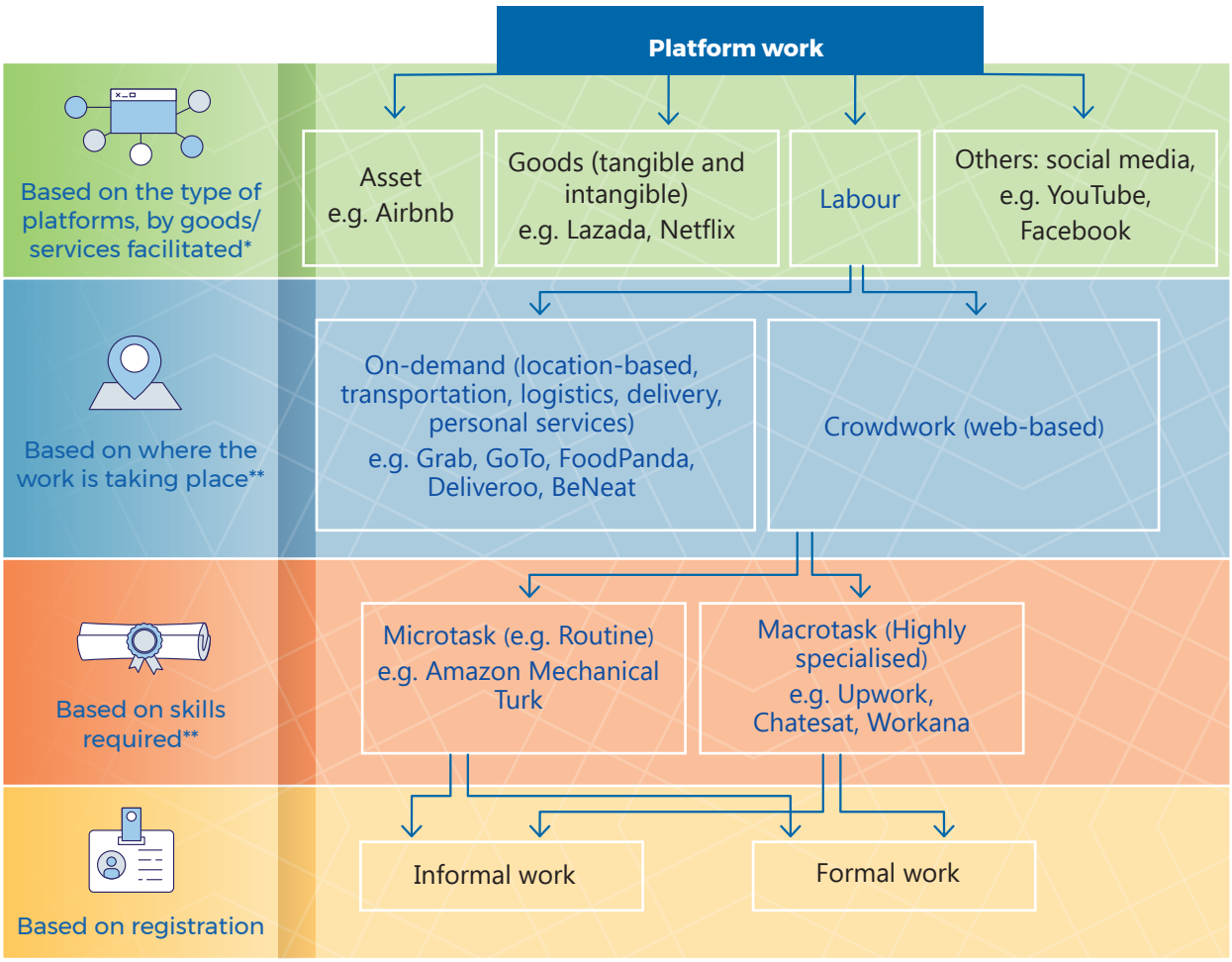
Meanwhile, goods platforms facilitate the market for goods and bring better variety to consumers, higher visibility, and broader business reach. Goods can be tangible, such as those found on Amazon, eBay, and Lazada, or intangible, like those offered on Netflix and Spotify. Goods platforms are examples of multi-sided platforms that connect households/individuals, sellers, and riders/logistics workers. Thus, administrative, finance, or ICT officers of platforms like Lazada are not considered platform workers since they are neither user groups nor are their services traded on the platform. Platform workers are involved in goods platforms when riders/delivery workers are matched with sellers to complete the sale of goods. In this case, platform workers are considered on-demand workers (discussed below).

Labour platforms, which are the focus of this Outlook, facilitate the market for work, which can either be location-based or web-based. In the literature, terminologies for these types of work are varied. Location-based work is called gig work (Schmidt, 2017) or on-demand work (Hunt and Samman, 2019). Web-based is called cloud work (Schmidt, 2017), online sourcing (Kuek et al., 2015), or crowdwork (Hunt and Samman, 2019). The term "gig" has negative undertones (Forde, 2017), and it includes contingent work that does not involve platforms (World Economic Forum, 2020). Meanwhile, collaborative or sharing does not accurately capture the arrangements among user groups. Thus, the Outlook will steer away from using these terminologies. Instead, it adopts the Hunt and Samman (2019) typologies to refer to work on labour platforms: crowdwork and on-demand work.

On-demand work is location-based, digitally enabled, and requires close interaction between consumers and platform workers. It is an example of the digitisation of the organisation of work (Hunt and Samman, 2019; Graham et al., 2017a). Examples of on-demand platforms are those related to home-related maintenance services like bTaskee (regional platform) and Fixzy (Thailand), cleaning services like Happy Helpers (the Philippines), and ride-hailing services like Gojek (now GoTo due to the merge with Tokopedia) and Grab (regional platforms).

12- The services provided by digital labour platforms can be those that can be performed digitally or on location (see for example, Lane, M. (2020)).

Figure 2. Types of platform work



Source: Authors' elaboration. *See Schmidt (2017). **Hunt et al. (2017).

Ride-hailing platforms are hybrid platforms and can also be considered asset platforms (i.e. monetising cars and motorcycles). However, the matching of work takes place on platforms. The number of workers involved is far too many, and classifying these as asset platforms can have implications for attaining decent work. For example, ride-hailing platform services, like Grab, have generated employment in the AMS. Grab, first established in Malaysia, has expanded to Singapore, Thailand, the Philippines, and Viet Nam, while Gojek (now GoTo) has collaborated with local teams in Viet Nam and is operating in 167 cities and districts in Indonesia (Kurniawati and Khoirina, 2019). Grab has more than 2.8 million riders and 2 million merchant partners, while GoTo has around 2 million riders and 900,000 merchant partners (see Table 1 and Tables A7-A17 in the Annex for more information). Other delivery platforms (e.g. Borzo, Deliveroo) and logistics platforms (e.g. Lalamove, GOGOX) have millions of rider partners as well.

Crowdwork is transacted and delivered online. It is the digitisation of the organisation and the conduct of work (Berg et al., 2018). Crowdwork can be disaggregated into either microtask or macrotask[13]. Microtask, such as those done on Amazon Mechanical Turk, are simple tasks that firms can buy at a low cost due to labour arbitrage. These are short-term projects, and tasks on these platforms are routine and clerical, such as data labeling, annotating, transcription, product categorisation, and content moderation. Macrotasks, such as those done on Upwork, are longer-term projects and require high-level skills, such as those needed in programming and web/game development. The estimated number of crowdworkers in ASEAN (Table 2) is increasing from 2020-2021. However, it is important to note that the Online Labour Index only collects data from selected English-speaking platforms. In addition, it is a challenge to quantify the number of workers in crowdworking platforms. Thus, registered users are not necessarily active users, and the numbers in Table 2 only indicate trends, which can deviate from actual numbers.

13- https://voxeu.org/article/working-conditions-digital-labour-platforms

Other platforms continue to emerge. However, these platforms, including those used in content creation (e.g. vlogging), cannot be classified into any platforms discussed above. This business model is different since platforms do not earn a percentage of the contract price. Rather, they earn through advertisements from views of uploaded content, and vloggers earn not through negotiation or arbitrage but through the content they create. Although people are involved, the content they create is not based on proposals and is not demanded by a user group (Schmidt, 2017). The business model in these platforms appears to mimic the monetisation of assets, except that what eventually gets monetised are digital products using creative talents. The Outlook, while being mindful of the continuous evolution of the work performed as old platforms evolve and new ones are developed, will exclude these other platforms and will focus on work on labour platforms as defined above.

Table 1. Number of workers on selected platforms

Platform	Founded date	Headquarter	Markets	Number of partners/users
Borzo	2012 (Banabikurye in Turkey, formerly known as Dostavista or Mr. Speedy, as Click Entregas in Brazil, as Quickers in South Korea, as NOW/Wefast in India)	Netherlands	Indonesia, Malaysia, the Philippines, Viet Nam, and other international countries such as Mexico, South Korea, Russia, Brazil, India, and Turkey	2 million users, 2.5 million couriers
Deliveroo (Roofoods Ltd)	2013 (Roofoods Ltd)	Singapore	Singapore, and in other international countries such as the United Kingdom, Ireland, Netherlands, France, Belgium, Italy, Australia, Kuwait, Hong Kong, United Arab Emirates	8 million active users, 180,000 drivers globally, 160,000 partner-restaurants
GOGOX (formerly known as GOGOVan)	2013	Hong Kong	Viet Nam, Singapore, and other international countries such as Hong Kong, China, Taiwan, South Korea, and India	4.5 million registered drivers
GoTo (GoTo Group)	2010 (as Gojek), 2021 (as GoTo due to merger with Tokopedia)	Indonesia	Indonesia, Viet Nam, Singapore, and Malaysia	2 million+ partner-drivers (with 1.7 million in Indonesia alone); 900 000+ GoFood merchants; 36.3 million active users as of 2019
Grab (Grab Holdings Inc.)	2012	Singapore	Singapore, Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Thailand, and Viet Nam,	2.8 million active partner-drivers; 2 million merchants; 122 million unique users (as of 2019)
Lalamove	2013	Hong Kong	Indonesia, Malaysia, the Philippines, Singapore, Thailand, Viet Nam, and other international countries such as Hong Kong, Taiwan, Brazil, and Mexico	8 million users; 700,000 drivers

Source: Authors' compilation from the websites, Accessed on May and June 2022

It is important to note that on-demand work and crowdwork are work in non-standard work arrangements, a broad term for to work that deviates from the traditional set-up of work. Thus, other than platform work, "temporary employment[14], part-time and on-call work[15], and dependent self-employment are also considered non-standard work[16]"(https://www.ilo.org/global/topics/non-standard-employment/lang--en/index.htm). Non-standard work arrangements are similar to informal work. ILO definition states that informality refers to "all remunerative work (i.e. both self-employment and wage employment) that is not registered, regulated or protected by existing legal or regulatory frameworks, as well as non-remunerative work undertaken in an income-producing enterprise. Informal workers do not have secure employment contracts, workers' benefits, social protection, or workers' representation." (International Labour Organization, 2013b). Thus, non-standard work like part-time and on-call work are also informal work. However, some non-standard work arrangements are considered formal work depending on existing national laws. Crowdworkers, for example, can register as self-employed and file personal income tax returns. Their registration, in turn, allows them to avail of benefits from State-led programmes and initiatives for small and medium enterprises.

Table 2. Estimated number of crowdworkers from ASEAN

	2020	2021	2022
Brunei Darussalam	280		172.5
Cambodia	18,480	55,944	5,175
Indonesia	210,840	254,079	384,330
Lao PDR	18,340	4,662	863
Malaysia	68,040	78,011	91,943
Myanmar	840	466	
The Philippines	382,060	419,735	398,648
Singapore	24,080	26,263	28,635
Thailand	13,020	15,540	15,698
Viet Nam	131,180	164,879	229,943

Source: Authors' computation.

Figures are obtained by multiplying 1) the percentage of ASEAN's global crowdworkers' percentage share by 2) the estimated workers in 2020, 2021, and 2022. 1) can be found in http://onlinelabourobservatory.org/oli-supply/ while 2) is derived using the 14 million active crowdworkers in 2020 and the projected 11% annual growth on demand as approximated in http://onlinelabourobservatory.org/paper/how-many-online-workers/. The estimated workers in 2021 and 2022 are conservative, given the oversupply of workers on platforms (see, for example, Forde (2017)).

ASEAN Member States have not confirmed the figures since the data presented are estimated from an external source.

14- Workers are engaged only for a specific period of time such as in fixed-term, project- or task-based contracts, seasonal or casual work and day labour.
15- Workers normal hours of work are lower relative to full-time workers.
16- Misclassification of workers to circumvent the provision of benefits.

2.3. Benefits of work on labour platforms

Concerning crowdwork, the flexibilisation of labour markets attracts both firms and workers. From the firm's perspective, flexibilisation means that firms can minimise costs by choosing from a pool of workers with diverse backgrounds. From the worker's perspective, flexibilisation means they can earn while pursuing other interests or fulfilling responsibilities. In the case of crowdwork, flexibilisation is made possible by breaking down complex tasks into many simple ones (Berg et al., 2018). Jobs are mostly coming from the global North and outsourced to the global South, with India, Bangladesh, and Pakistan accounting for 52% of the global online workforce, while among the AMS, the Philippines, Viet Nam, and Indonesia each account for less than 5%[17] (Bayudan-Dacuycuy et al., 2020).

The low barriers to entry, as in the case of microtasks, have enhanced inclusion by providing economic opportunities to people, especially those with challenging personal circumstances such as disabilities, health issues, and care work challenges. Indeed, the flexibility offered by crowdwork attracts women due to the care economy, which is a common reason for most women who are not part of the labour force. Thus, crowdwork can provide earning opportunities to women. In addition, evidence points to empowerment, with women's participation in crowdwork translating to their active involvement in intra-household decisions (see Kuek et al., 2015).

Despite these, there is initial evidence that the benefits of flexibility to women in crowdwork are limited, with a peak of four work hours alongside minimal care work hours (Bayudan-Dacuycuy and Baje, 2021). In addition, women are more likely to take on piecemeal work that pays relatively less, potentially explaining the large percentage of women in Amazon Mechanical Turk, a platform specialising in routine tasks (Ipeirotis, 2010).

Earnings in labour platform work are typically higher than what workers can fetch in a standard work arrangement. The evidence, however, is nuanced along gender and geographic divides. Workers from developing economies receive less than the workers' earnings from developed economies. However, relative to national minimum wages, workers from developing economies earn more than their counterparts from developed economies (Berg, 2016). In the Philippines, initial evidence indicates that the hourly compensation is higher at US$4.6/hour compared to the minimum wage of US$4-9/day (Bayudan-Dacuycuy and Baje, 2021). Along gender lines, women earn less than men (Foong et al., 2018), although evidence shows the gap to be narrower in platform work than in standard work arrangements (see Payoneer, 2020). In the Philippines, however, the gender pay gap is statistically insignificant once workers' and platforms' attributes are controlled (see Bayudan-Dacuycuy and Baje, 2021).

Similar benefits are gained from on-demand work, although earnings gaps are also observed along gender lines, which can be explained by the riders' experience, preferences over where to work, and driving speed (Cook, 2018). In addition, the platform's infrastructure enables automated matching that results in an efficient job search. Riders and drivers also enjoy flexibility since task-related information is visible, which aids them in deciding whether to accept the task.

2.4. Decent work on labour platforms

Notwithstanding the benefits of labour platforms, its business model has promoted the precariousness of work. This is reminiscent of piecemeal work in the early Industrial Revolution and remains pervasive even in the current standard work arrangements.

Regardless of where the work is taking place (i.e. location-based or web-based), there are asymmetries on labour platforms that are interrelated and mutually enforcing. These include value asymmetry, risk asymmetry, resource asymmetry (Heeks, 2017), information asymmetry, and power asymmetry (Heeks, 2017; Schmidt, 2017).

17- Based on the OLI, an index compiled by the Oxford Internet Institute based on data on major English-speaking platforms.

Risk asymmetry arises because workers bear the cost of devices, electricity, connectivity, training investment risks, and social protection costs. This asymmetry feeds into the value asymmetry where workers capture value the least and platforms and clients capture value the most. Platforms harness the most value due to network effects and economies of scale, while clients get the most for their money due to the cheap but good labour pool. Information and power asymmetries work together to ensure that platforms shape the interaction of supply and demand through matching, ratings/review systems. Platform ratings/reviews and work credentials are not portable. In crowdwork, platforms sell additional services designed to conceal information or enhance visibility. In addition, the skills required and the sheer number of workers on platforms contribute to the workers' lack of bargaining power. For example, low-skilled tasks in microtasks can be done by anybody in the pool of numerous workers. Thus, the refusal of some workers to take on the tasks does not translate to notable disruptions in the clients' value chain.

These have raised concerns about how labour platforms are becoming sophisticated avenues to deliver age-old inequalities due to the lack of decent work. Decent work has three domains: employment context, employment, and work conditions (see International Labour Organization (2013a)). Employment context is the broadest dimension under which the other two domains are subsumed (Figure 3).

How, then, do labour platforms fare in attaining decent work conditions?

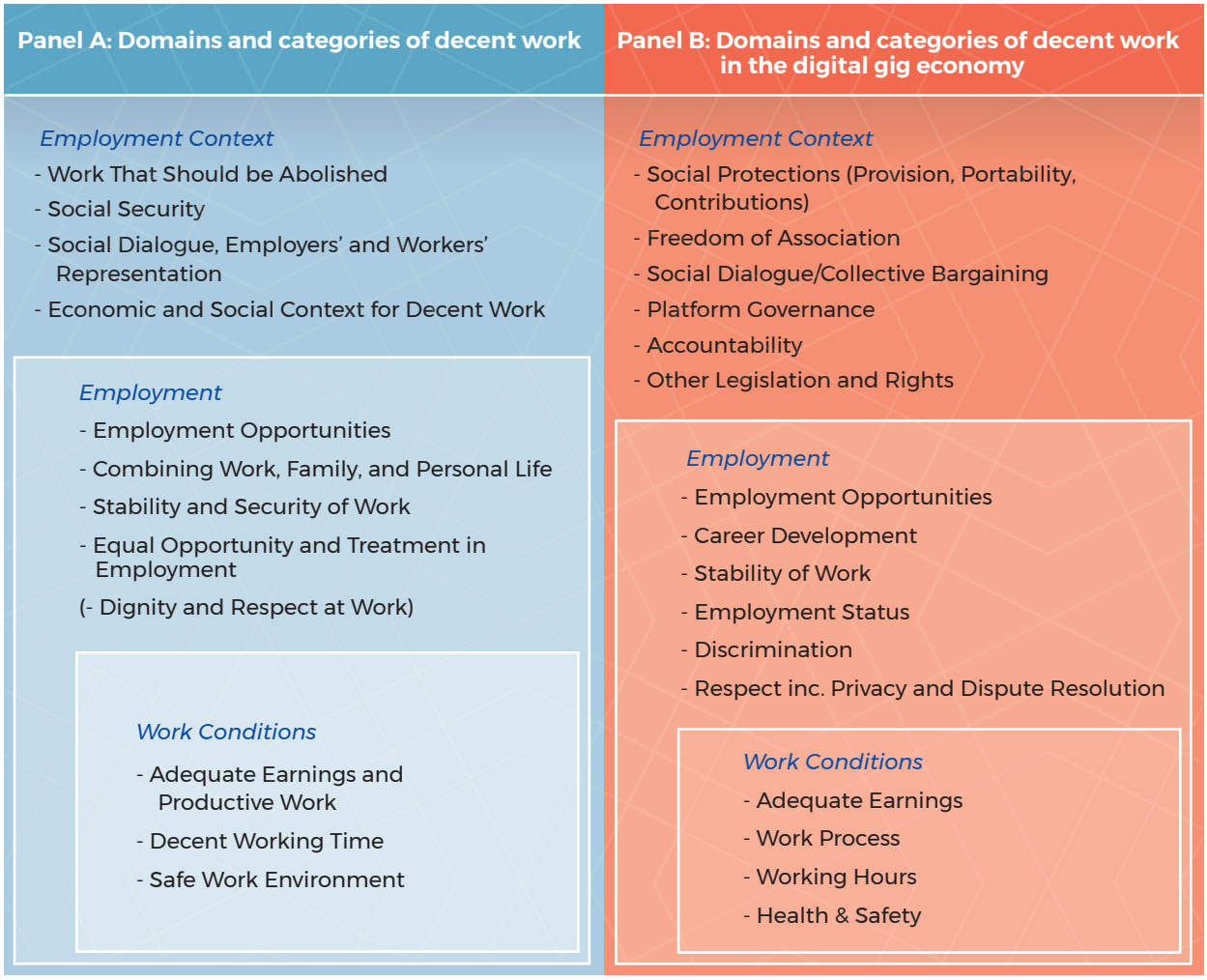
Under the broad employment context (see Table 3), workers are governed by the terms of service agreements that stipulate they are independent contractors. The absence of an employer-employee relationship in platform settings leaves workers without institutional (i.e. formal representation in trade unions and collective bargaining) and social security entitlements. In crowdwork, workers' heterogeneity and geographical dispersion pose a challenge in creating appropriate mechanisms for voice and representation. In on-demand work, workers have avenues for face-to-face interaction. However, fears of losing opportunities to earn (e.g. deactivation) and the technological monitoring of workers may dampen the appetite for collective action (Hunt et al., 2019; De Stefano, 2016). Nevertheless, evidence indicates platform workers can freely associate with and form groups or associations. Thus, workers rely on associations to make their voices heard. The objectives of most associations and groups, however, are not necessarily to bring about a change in the system but to cascade information to maximise the benefits of platform work (Heeks, 2017; Schmidt, 2017).

Concerning the employment domain (see Table 3), crowdwork platforms were initially touted to have low institutional barriers and can provide opportunities to all. However, some have become stricter on the quality of workers and are now admitting only those with niche skills. In addition, tasks are based on contracts, and there is no guarantee of future engagement. This is especially the case for microtasks, which are short-term in nature, and workers need to always be on the lookout for job postings.

While flexibility is a selling pitch of platform work, its realisation depends on whether the platform work offers autonomy and is paired with other work arrangements (OECD, 2017). Indeed, crowdwork provides more flexibility than on-demand work, with the time and place being influenced by clients in the latter's case. However, evidence points out that work-life balance, a touted offshoot of flexibility in crowdwork, is not necessarily achieved due to work intensification (Lott 214), greater stress due to increased working hours (OECD, 2017), and isolation (Graham et al. 2017b, Kuek et al., 2015). Both crowdwork and on-demand platforms design incentive-based gamification that encourages workers to meet targets to earn points and secure rewards. While this provides bigger opportunities, this also results in workers pushing for more working hours.

Under work conditions (see Table 3), evidence indicates that the remuneration on crowdwork platforms is higher than the national minimum wage (Berg et al., 2018) or the average hourly wage (Payoneer, 2020). Given the assumption of continuous engagement, crowdwork is highly rewarding. This is true for macrotasks that require specialised skills, and workers are paid not by the hour but after completing tasks. However, for microtasks, workers must strategise to secure jobs, including monitoring job postings and making the first offer. This means that workers from Asia will stay up late since most jobs are coming from the global north. The time difference between countries also means that workers need to adjust to the work hours of outsourcing countries. This, however, is not unique to platforms since this adjustment is also observed in the Business Process Outsourcing industry.

Figure 3. Decent work



Source: Heeks (2017)

In addition, the growing number of workers with varying backgrounds and capabilities competing for jobs on the platform can also result in practices that are disadvantageous to the community of workers. These include the race to the bottom mentality or asking for the lowest price possible to secure a job and build a work history. This practice is observed in crowdwork, where workers need a brief/proposal to respond to the jobs posted. Regarding food/grocery riders, the abundant supply of riders, especially during the pandemic, has ensured the timely delivery of goods/merchandise to customers. However, this has created competition among riders, resulting in fewer bookings per rider and lower take-home pay.

Concerning a safe work environment, workers' issues can be overlooked by occupational safety and health inspection. There is evidence that some jobs in microtasks may pose health risks, especially those engaged in content moderation due to too much exposure to pornographic materials and violent content. In addition, on-demand work can pose challenges to safety. For example, riders risk road injuries and accidents, while personal services providers are at risk of harassment.

Due to how the work is organised and conducted, the work process is proposed as one major area that needs to be included in decent work conditions (see Heeks, 2017). This is due to the role of algorithmic data management that controls matching, facilitates the review/rating system, hides information, and enhances visibility. The extent of algorithmic data management depends on platforms, with on-demand work platforms managing workers based on location and crowdwork platforms managing workers based on heterogeneous age, skills, and historical profiles. The opacity of information, a vital issue in algorithmic

data management, is pervasive on microtask platforms due to the lack of information on which part of the bigger and more complex tasks the atomised tasks will become inputs. This information may be crucial for microtaskers to upskill and ascend the value chain of jobs. The opacity of information in ride-hailing, food/grocery services, and logistics is not as much since riders have access to job information that they can decline or accept at their discretion.

Table 3. Domains of decent work and work on labour platforms

Domain	Crowdwork	On-demand work
	Employment context	
Social Security	Workers are governed by service agreements that stipulate that workers are independent contractors. No security benefits and entitlements.	Workers are governed by the terms of service agreements that stipulate workers are independent contractors. No security benefits and entitlements.
Employers' and Workers' Representation	None, resulting from their employment classification	None, resulting from their employment classification
Social dialogue	Challenging to organise due to invisible and geographically dispersed workers	Evidence of associations and groups' dialogue with the government
	Employment	
Employment Opportunities	Low barriers, although some platforms have become stricter in onboarding requirements. Provides opportunities to men and women, persons with disabilities (PWD)	Low barriers Low participation of women, PWD in ride-hailing and courier services, Women are overrepresented in personal services
Combining Work, Family, and Personal Life	Flexible, although work-life balance is not necessarily achieved due to work intensification Workers may push for longer work hours due to incentive-based gamification (workers are awarded points for meeting targets, and rewards (e.g. monetary) are unlocked).	Clients dictate the time and place. Workers may push for longer work hours due to incentive-based gamification.
Stability and Security of Work	Contract-based workers are always looking out for jobs.	Contract-based
Equal Opportunity and Treatment in Employment	Use of algorithmic data management, assigning tasks based on history, rating system	Use of algorithmic data management, assigning tasks based on location
	Work conditions	
Adequate Earnings and Productive Work	Pay is higher than the national minimum wage or an average hourly wage. Generally true for macrotasks. For microtasks, workers must strategise to secure jobs, including monitoring job postings and making the first offer.	Pay and incentives are initially high and decline as network effects occur.
Decent Working Time	Workers from Asia need to adjust to the work hours of outsourcing countries, mostly from the global north.	Workers may push for extended hours due to incentive-based gamification.
Safe Work Environment	Some jobs in microtasks may pose health risks (e.g. too much exposure to pornographic materials and violent content).	There are safety challenges, like road hazards and harassment.

Source: Authors' compilation

It is important to emphasise the observed polarisation of work on platforms along gender and geographical divides. Along gender lines, women dominate on platforms for cleaning and care services, while men dominate on platforms for ride-hailing and delivery services (Churchill and Craig, 2019; Hunt and Samman, 2019). In Thailand, massage therapists and workers in the care economy are mostly women (Just Economy and Labour Institute, 2022). Women also dominate in customer service, administrative and support, translation, writing, and sales/marketing, while men dominate in jobs related to information technology, software development, engineering, and data science (Churchill and Craig, 2019). Along geographical divides, crowdworkers in Africa and the Asia Pacific earn less than those in North America, Europe, and Central Asia (Berg et al., 2018).

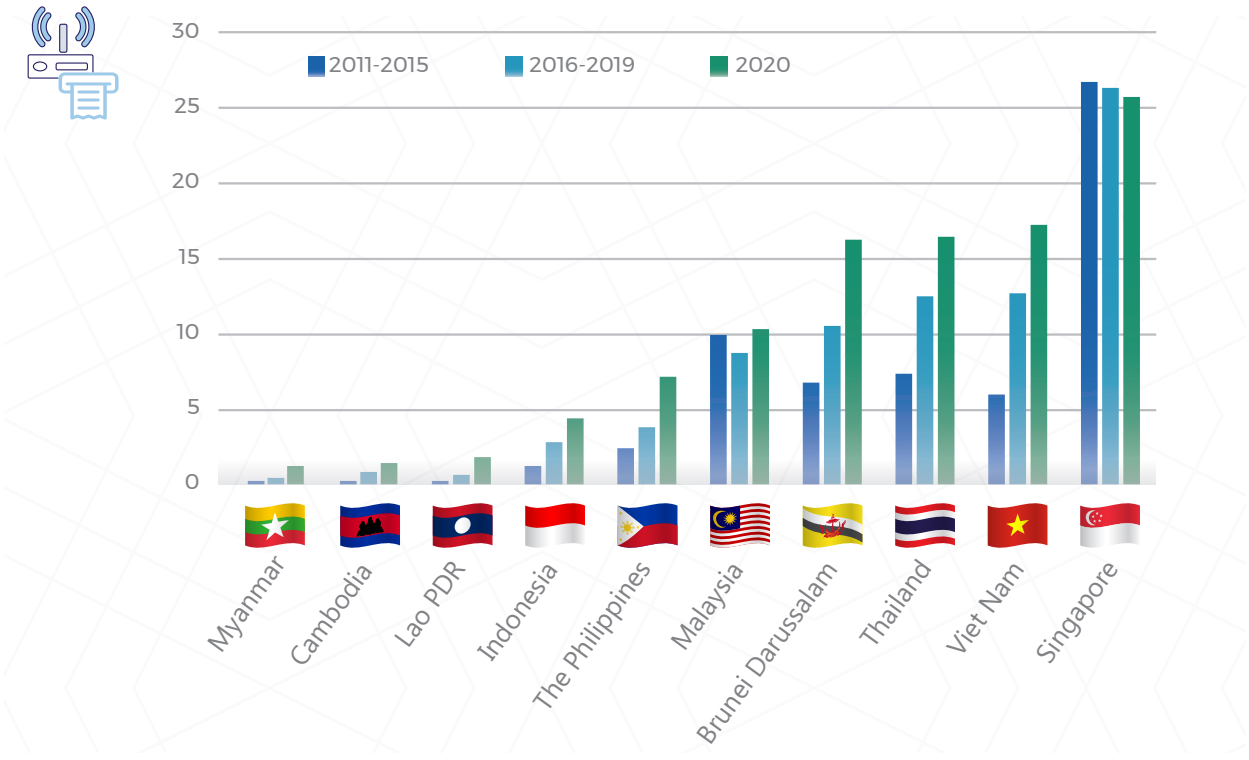
3. Conceptualisation, Sizing, and Future Prospects

3.1. Conceptual issues on the use of the platform economy

The project section seeks to determine the effects of digital technology, particularly on the economic structures which then influence the online labour platforms (OLPs) through ASEAN labour markets, and determine the future consequences of this development on worker's welfare, particularly in the informal sector. The objective is to assess the impact of OLPs on labour markets and the general ASEAN economies.

The starting point of our analysis is the rise of the digital economy in ASEAN. Figure 4 shows the average fixed internet broadband subscriptions. Significant increases are found in most countries, especially during the pandemic. These improvements are expected because of the expected positive effects on production and structural change. The digital economy is the economic activity that results from billions of daily online connections among people, businesses, devices, data, and processes. The backbone of the digital economy is hyperconnectivity, which means the growing interconnectedness of people, organisations, and machines that results from the Internet, mobile technology, and the Internet of things (IoT).

Figure 4. Average Fixed Internet Broadband Subscriptions, 2011-2020



Source: World Bank (2022)

However, the huge differences in internet access across the countries within the region can result in substantial income inequality. As shown in this Outlook, internet access causes the movements in labour employment and welfare to differ across these countries. The digital economy is taking shape and

undermining conventional notions about how businesses are structured, how firms interact, and how consumers obtain services, information, and goods. This outlook considers precisely the opportunities and risks involved as the AMS adapts to the changes brought about by the new technology.

The emergence of OLPs is an offshoot of the digitisation effects on the economy. Hence, to examine the impact of OLPs on employment in ASEAN economies, digitisation effects on the region's structural transformations must first be considered. As shown in Figure 5, digitisation expanded as the need for simultaneous consumption and production rose. In effect, the role of labour and linkages of one economic activity to other activities have typically improved the services sector's potential for scale, innovation, and spillovers. Those salient characteristics that distinguished services from manufacturing that traditionally questioned the service sector's potential to lead productivity growth and enable lower middle-income countries (LMICS) to catch up were eliminated. Thus, the advent of digital technologies and the increased tradability of services suggest rising productivity in services.

In the process, economic structure has tended to be more service-oriented. Before the emergence of the digital economy, the potential of the services sector as an engine of growth has been constrained in three ways:

1. This importance of face-to-face interactions constrained service providers from achieving scale by accessing demand beyond the local market, including through international trade. This meant that producers in lower-income countries could not exploit the rising demand for services in higher-income countries. Unlike goods, the consumption of services cannot be detached from their production because they cannot be stored.

2. Early descriptions of the services sector outlined the "intrinsic role of labour" as a constraint to labour-augmenting capital accumulation and technology adoption. Baumol (1967) argued that the productivity of many services sector activities could not be readily increased through capital accumulation, innovation, or economies of scale because of their high labour content. Labour was simply an incidental requisite for the attainment of the final product in manufacturing, and it was an important end for services.

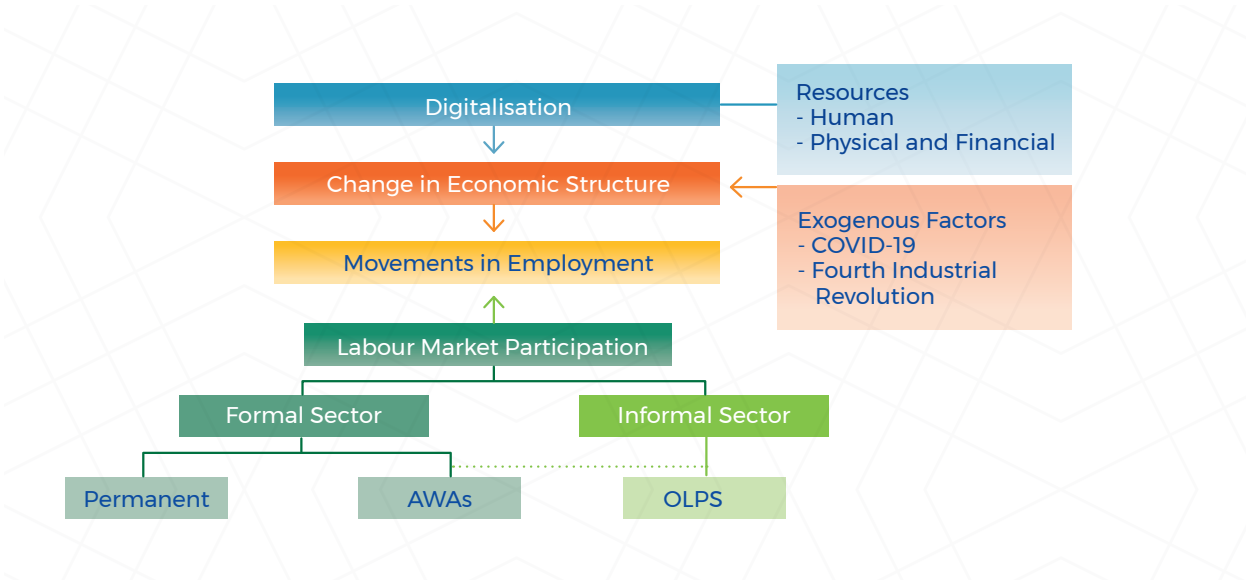
3. The potential role of spillovers applied to only a limited number of services (such as transportation and distribution) intricately linked to the production of agricultural commodities and manufactured goods. This point abstracts from a larger literature on spillovers that looks at broader sources of externalities and market failures that have often resulted in the public provision of many services, such as telecommunications, finance, education, and health care.

With the emergence of digitally enhanced services, there is now greater scope for services firms to achieve efficiency gains through scale, labour-augmenting innovation, and backward or forward linkages with other sectors. As will be noted later, these changes were even more observed during the COVID-19 pandemic. Consequently, employment either expands or takes on different alternative work arrangements (AWAs). Specifically, the Internet and information technology (IT) can change the costs of offering work arrangements, making it easier for employers to allow workers to work remotely (Oettinger, 2011) and to provide workers with flexible schedules or schedule workers on-demand (Lambert et al., 2012). In effect, permanent work arrangements rooted in work locations may decline in favour of alternative work arrangements, including OLPs. The advent of OLP has allowed firms to contract on specific tasks for an increasing number of activities. Since informal work can be coursed through the Internet, part of the informal work can be considered by OLPs. In this framework, the main focus is how to transition informal workers in the OLPs to formality. While OLPs can remain distinct from formal structures, workers can establish themselves as formal individuals by obtaining necessary licenses and permits and registering for taxes. In this way, the workers can seek support and guidance from professional associations, trade unions, or government agencies that support freelance work.

The utilisation of digital labour platforms in each country rests on the ability to harness its resources to take advantage of the benefits of the digital economy. Digital technology can spawn other forms of labour arrangements besides OLPs (crowdworkers and freelancers). These include (Jesuthasan and Bourdeau, 2022):

- Exchange talent with other organisations: Build capability, perspective, and relationships by swapping/ rotating talent with entities outside your enterprise.
- Innovation partnerships: Engage start-up organisations and/or academic units for new ideas, commercialisation, or launching new ventures.
- Co-ops/internships/apprenticeships: Use students and others who are early in their careers or are transitioning to take on specific tasks and build a future talent pipeline.
- Non-traditional talent: Source talent from traditionally under-tapped sources such as underserved populations, different socioeconomic groups, and differently-abled people.
- Internal talent marketplace: Offer employees flexible opportunities to take on projects or tasks beyond their jobs to fill unmet needs.

Figure 5. Conceptual Framework



Source: Authors' compilation

Unlike these alternative work arrangements, OLP work rarely serves as a substantial and primary source of income for individuals (Collins et al., 2019). For workers, the main advantage of these contracts is the feature that allows workers occasional moonlighting and smoothing of income, although income is often variable even for non-gig jobs (Mas and Pallais, 2020). Farrell and Greig (2016) find a high degree of turnover in participants of online labour platforms, which may come about due to changes in their outside options. Its benefit is to favour employers as Internet and IT advancements reduced the costs of offering work arrangements.

In recent years, given the relatively low barriers to entry and participation in online labour markets and the sudden lack of traditional employment opportunities, many individuals might seek work online, at least in the short term. However, because this online work lacks fringe benefits, such as health insurance, and because it does not offer long-term job security, workers may ultimately choose to return to the conventional offline labour markets once new employment opportunities in the local economy can be identified (Manyika et al., 2016).

In assessing the relevance of OLPs in ASEAN, the crucial question is the number of jobs that online labour platforms have produced. It is feasible that unemployment can be unaffected despite increases in platform work. If labour force participation remains constant, increases in platform work can simply transform existing jobs into non-standard forms. Platforms offer traditional firms new ways to outsource a variety of tasks, which improve the organisational performance of the firm, but at the same time, exacerbate the working conditions, reduce the regularity of work and income, and restrict access to social protection, freedom of association, and collective bargaining rights. Meanwhile, if labour force participation increases, as in the case of women, then online labour platforms can be an alternative source of jobs that reduces unemployment. Nevertheless, the question of how much these emerging job platforms can absorb these new labour entrants remains.

The research will cover several underlying issues that have emerged because of the shifting job arrangements made feasible by digital technology. The first issue is how much of the existing types of work can be transformed into its digital equivalent. If broad categories of jobs are displaced by digital automation in a short timeframe (e.g. less than ten years), this could lead to both political and economic disruption. While new forms of work are not created, the question is how much work is now being shifted into alternative or informal arrangements that can result in greater worker vulnerability. The estimates can vary widely from predictions of an immediate overdependence on capital in the coming years to a potentially challenging transition over a longer period (i.e. a transition towards more decent labour outcomes). In that latter case, if some aspects of jobs are automated over several decades, and the jobs are consequently reconfigured and transformed, then a challenging but more conventional and inclusive economic transition from low-productivity to high-productivity sectors can be observed.

The second issue is the sustainability of the work arrangements created by the platform economy. More specifically, the COVID-19 situation has accelerated the use of the platforms, magnifying the economies of scale, network effects, and the presence of asymmetries in favour of platforms. At the same time, the Fourth Industrial Revolution is currently pushing more automation into different sectors. Given these external factors, what key policies can make the platform work sustainable? For higher-income countries that have expanded their service sector and have developed other AWAs, several attenuating factors can affect the relationship between digital platforms and unemployment. However, for other countries that have not kept pace with the alternative work arrangements or have not expanded their services sectors, workers have sought opportunities in OLPs originating from other countries. OLPs allow individual workers to engage in offshore contracts without the benefit of established institutions often affected by negative country reputations (Lehdonvirta et al., 2019).

The third issue is the impact of greater flexibility in terms of work arrangements allowed by the platform economy on women in crowdwork. Several questions then surface: Will increasing women's labour force participation result in greater platform involvement? Will the participation of women in these arrangements lead to lower gender disparity in employment and earnings? How will this affect the labour market in terms of diversity and inclusivity?

The fourth issue is the degree of market power possessed by OLPs, given the high market shares of several platforms. Crucial in this matter are the network effects that distinguish platforms from other business models (Evans, 2016). The more people use a platform, the more attractive the platform becomes to potential new users. A dynamic is created that triggers a self-reinforcing cycle of growth. There are two kinds of network effects: (i) direct network effects, where more users attract more users on the same side of the platform, and (ii) indirect network effects, where more users on one side of the platform attract more users on the other. The challenge is promoting a competitive business environment in the platform economy while allowing for more social protection for the workers[18]. Understanding the network effects within each country and among AMS may be important in understanding regulations. The difference in regulatory regimes for online and offline services can sometimes lead to unfair market competition for workers and users. Therefore, it is important to examine two essential questions: How can a level playing field be achieved? And what rules will promote fair competition?

18- The main issue is whether labour market exists because of larger market networks. If this is the case, then direct government regulations on these networks can be justified.

The fifth issue relates to the transition from an informal to a formal status of workers assuming platform work can lead to job creation and income generation. This pertains especially to platform workers' access to social protection and benefits. As platform workers do not operate within traditional employee-employer relations, the responsibility and contribution of employers to workers' social security become unclear. Because platform work is not considered regular employment, there is no regulation regarding remuneration - even though platforms exercise considerable control over workers' earnings (ASEAN Secretariat, 2020). Platforms for on-demand work can be compelled to comply with national labour laws because these platforms use the country's physical infrastructure to conduct their businesses. However, platforms for crowdwork, where transactions cross borders, present a challenge to decent and fair work since national labour laws no longer apply. Related to this issue is the reinforcement of gender disparity in access to social protection. Initial evidence indicates two common themes in crowdwork: 1) the platform provides no social protection although workers can be covered by their formal job, and 2) Flexibility is a defining feature that draws women to the platform since platform work provides them economic opportunities while performing care work (e.g. childcare and elderly care) and housework. Given that a sizeable portion of women are not participating in the labour force, ranging between 48-79% in the AMS (ASEAN 2020), and their increasing attraction to platform work, how can the AMS prevent more labour disruptions, reduce gender disparities, and improve social protection coverage and training and skills development as well?

The fourth and fifth issues are related. Both price setting and the creation of other mandates regarding labour protection "often turn on political decisions about levels of service and the rate of return to capital needed to provide those services" (Carlton and Picker, 2014). This reality suggests a plethora of challenges resulting from platform market power. Answers to these issues will require a range of regulatory analyses and, importantly, better integration between traditional antitrust law approaches, social protection measures, and cross-country arrangements.

3.2. Relevance to ASEAN

Based on the framework in Figure 5, this section looks at the region's macroeconomic and labour market trends to understand the conditions created by the digital economy and the likelihood of engaging in the labour platforms. As the output and employment of the region shift towards the service sectors, it is argued that digitisation and the utilisation of OLPs for job creation may become prominent.

3.2.1. Macroeconomic trends

ASEAN is comprised of countries at various stages of development. Using the Gross Domestic Product (GDP) per capita, one can categorise these countries into three main groups: (a) lower-income countries consisting of Cambodia and Myanmar; (b) middle-income countries composed of Indonesia, Lao PDR, the Philippines, and Viet Nam; and (c) higher-income countries comprised of Brunei Darussalam, Malaysia, Singapore, and Thailand[19]. These categories, based on GDP per capita, can be seen in Table 4. Apart from the similarities in GDP per capita within these groups, there are also similarities in growth rates. Higher-income countries, on average, have lower GDP growth rates because of their higher baseline incomes.

19- The goal of the income ranking is to infer the impact of incomes on the variables to be considered and to reflect the income standing of a country in relation to its ASEAN counterparts. To achieve this, the ranking is based on the median income in 2021 for the AMS, which is arguably a more relevant reference point than some fixed absolute level of real income. Countries with GDP per capita below US$3,000 than the median is considered a lower-level income country. Those whose GDP per capita is within US$3,000 is considered middle income while countries with a GDP per income larger than US$3,000 are considered higher income.

Table 4. GDP per capita (PPP Current International US$) and average GDP growth rates in ASEAN, 2011-2020

Country	Average GDP per Capita			Average GDP growth		
	2011-2015	2016-2019	2020	2011-2015	2016-2019	2020
Lower-income countries						
Cambodia	3,019.90	4,109.30	4,421.50	7.17	7.11	-3.15
Myanmar	3,733.90	4,442.80	5,123.80	6.68	7.35	3.17
Middle-income countries						
Lao PDR	5,264.80	7,524.20	8,239.20	7.79	6.41	0.5
The Philippines	6,584.90	8,459.20	8,389.80	6.04	6.64	-9.57
Viet Nam	5,354.50	7,469.40	8,650.10	5.91	6.78	2.91
Indonesia	9,880.50	11,346.60	12,072.70	5.53	5.07	-2.07
Higher-income countries						
Thailand	15,020.10	17,950.80	18,232.80	2.98	3.52	-6.1
Malaysia	23,515.60	27,517.60	27,923.70	5.31	4.89	-5.65
Brunei Darussalam	79,976.30	60,963.80	65,612.70	-0.07	0.69	1.13
Singapore	83,303.40	96,980.60	98,520.00	4.51	3.17	-5.39

Source: World Bank (2022)

In the past decade or so, Southeast Asia has been characterised by dramatic growth. This has been continued by countries that seemed to have started late in their development. Table 4 shows Cambodia, Lao PDR, Myanmar, the Philippines, and Viet Nam have achieved impressive growth rates in Gross Domestic Product (GDP) from 2011-2019.

The effect of COVID-19 on the AMS has been widespread, even in higher-income countries. The worst hit were the Philippines, Thailand, Malaysia, and Singapore. Other countries like Myanmar and Viet Nam have somehow remained unscathed, registering positive though modest growth rates. The effect of COVID-19 depends to a large extent on the governments' response to the pandemic. The more stringent measures that effectively reduced the infections in the Philippines and Thailand involved full-scale lockdowns, which may have reduced growth rates in these countries.

One significant factor affecting the GDP growth rates is gross capital formation (GCF), defined as additions to fixed assets and inventories or investments put in place. On average, a positive relationship exists between the GCF and GDP growth (Mankiw, et al., 1992). Because growth rates are higher in lower-income countries, an increase in GCF indicates an increase in the productive capacity of an economy, thus resulting in growth. The effect of the GCF on labour employment may, however, be ambiguous. There can be a capacity-enhancing effect that leads to greater demand and productivity of labour. But there is also a substitution effect (Petrucci and Phelps, 2005) where the increase in capital can result in labour-saving and thus less employment. For higher-income countries, a lower GCF can mean that labour is a crucial source of growth, but for lower and middle-income countries, a higher GCF can result in more labour-using activities as growth is achieved.

Table 5 shows the GCF of each AMS as a percentage of GDP. Except for relatively higher-income countries, like Singapore and Thailand, where growth rates are relatively lower, the AMS maintained or increased this ratio from 2011-2019, before the pandemic. However, several countries, including Malaysia, Singapore, and the Philippines, experienced declines in the percentage share of GCF in GDP because of lockdowns during the pandemic.

Table 5. Average Gross Capital Formation, % of GDP, 2011-2020

	2011-2015	2016-2019	2020
Lower-income countries			
Cambodia	20.03	23.15	24.9
Myanmar	30.31	32.76	29.7
Middle-income countries			
Lao PDR	30.52	30.28	..
The Philippines	20.64	25.01	17.4
Viet Nam	27.64	26.84	27
Indonesia	34.11	34	32.4
Higher-income countries			
Thailand	25.71	23.06	23.9
Malaysia	25.06	24.38	19.7
Brunei Darussalam	32.24	36.88	40.6
Singapore	28.14	25.76	22.6

Source: World Bank (2022)

Given the limits of capital formation in determining economic performance, another way of assessing the economy's capacity is through the quality of its labour resources. The Human Development Index (HDI), measured by the United Nations Development Programme (UNDP), is a composite of factors related to human development, such as life expectancy, expected years of schooling, mean years of schooling, and Gross National Income (GNI) per capita. These components are considered factors of three dimensions of human development (i.e. health, education, and a decent standard of living). Table 6 shows the Human Development Index for AMS in selected years. The higher-income countries are in the top 100 UNDP rankings, while lower- and middle-income countries are above 100. Note that Singapore, which has a lower GCF, achieved the highest HDI, while Lao PDR, which recorded a relatively high GCF, has a comparatively lower HDI. Greater capital formation does not necessarily relate to a higher human development index.

The country's development path depends fundamentally on its ability to undertake structural transformation, i.e. transitioning from a low-productivity sector to a higher one. Table 7 shows the percentage output share of three main sectors: agriculture, manufacturing, and services. In general, agricultural share diminishes as income increases. This can be traced to two factors: (1) the low price and income elasticity of agricultural products at higher levels of income and (2) the existence of a dominant fixed factor, land, in agricultural production, which restricts the capacity of the agricultural sector to absorb labour with a growing population (Foster and Rosenzweig, 2008). The first factor indicates that demand for agricultural products tends to be constant regardless of price and income changes as an economy reaches a higher income level. In contrast, the second factor explains the selective exit of educated and skilled workers from agriculture to other economic activities as the country's income and human capital improve.

Historical evidence shows that the manufacturing sector can increase productivity and create large-scale job creation, especially for the unskilled. Manufacturing has distinct advantages: the effects of economies of scale, access to international markets, innovation, and supply chain linkages with other sectors (Nayyar et al., 2021). Thus, employment and outputs are expected to shift from agriculture to manufacturing.

Table 6. Human Development Index, selected years

	2010	2013	2015	2016	2017	2018	2019	Rank in 2019
Lower-income countries								
Cambodia	0.539	0.559	0.57	0.576	0.582	0.585	0.594	144
Myanmar	0.515	0.543	0.557	0.563	0.572	0.579	0.583	147
Middle-income countries								
Lao PDR	0.552	0.582	0.598	0.605	0.608	0.609	0.613	137
The Philippines	0.671	0.691	0.701	0.704	0.708	0.711	0.718	107
Viet Nam	0.661	0.681	0.688	0.693	0.696	0.7	0.704	117
Indonesia	0.665	0.687	0.695	0.703	0.707	0.712	0.718	107
Higher-income countries								
Thailand	0.724	0.734	0.749	0.756	0.765	0.772	0.777	79
Malaysia	0.772	0.785	0.796	0.8	0.805	0.805	0.81	62
Brunei Darussalam	0.827	0.839	0.838	0.839	0.838	0.836	0.838	47
Singapore	0.909	0.921	0.931	0.935	0.933	0.936	0.938	11

Source: UNDP (2022)

Note: The highest value of the HDI is 1 and is based on the geometric mean of the three factors, life expectancy, education, and GDP per capita.

Manufacturing in ASEAN grew in the 1990s, explaining much of the region's dynamism. Singapore, Malaysia, Thailand, and Indonesia have emerged as significant industrial powers. This can be explained by factors that similarly underlie high economic growth rates: sound macroeconomic management, international orientation, observance of property rights and judicial independence, and investments in human capital and physical infrastructure (Hill, 1997). Massive foreign direct investment (FDI) inflows into the manufacturing sector and increased trade helped drive this rapid growth.

Table 7. Average share of GDP by economic activity (in %)

	Agriculture			Manufacturing			Services		
	2011-2015	2016-2019	2020	2011-1015	2016-2019	2020	2011-2015	2016-2019	2020
Lower-income countries									
Cambodia	31.03	22.71	22.38	15.43	16.2	16.43	38.66	39.49	36.6
Myanmar	30.39	24	21.98	22.89	21.64	22.28	49.77	52.89	54.77
Middle-income countries									
Lao PDR	18.54	16.08	16.21	8.94	7.56	7.62	42.55	41.99	40.73
The Philippines	12.59	9.72	10.19	20.79	19.18	17.67	56.41	59.96	61.42
Viet Nam	18.29	15.08	14.85	13.37	15.52	16.7	38.3	41.24	41.63
Indonesia	13.41	13.04	13.7	21.26	20.06	19.88	41.71	43.72	44.4
Higher-income countries									
Thailand	10.68	8.3	8.63	27.9	26.63	25.24	52.29	56.96	58.27
Malaysia	9.5	7.95	8.2	20	23.32	..	37.36	39.98	41.77
Brunei Darussalam	0.78	1.07	1.22	16.04	12.95	15.77	31.83	39.84	41.45
Singapore	0.03	0.03	0.03	18.49	19.12	20.54	69.86	70.22	70.95

Source: World Bank (2022)

However, as indicated in Table 7, the output share of services grew at a much higher rate as the agricultural output share declined rapidly. This reflects faster growth in services relative to manufacturing. In effect, countries gradually shift from agriculture to services, as manufacturing has remained constant.

Table 8. Average share of merchandise trade in GDP (in %)

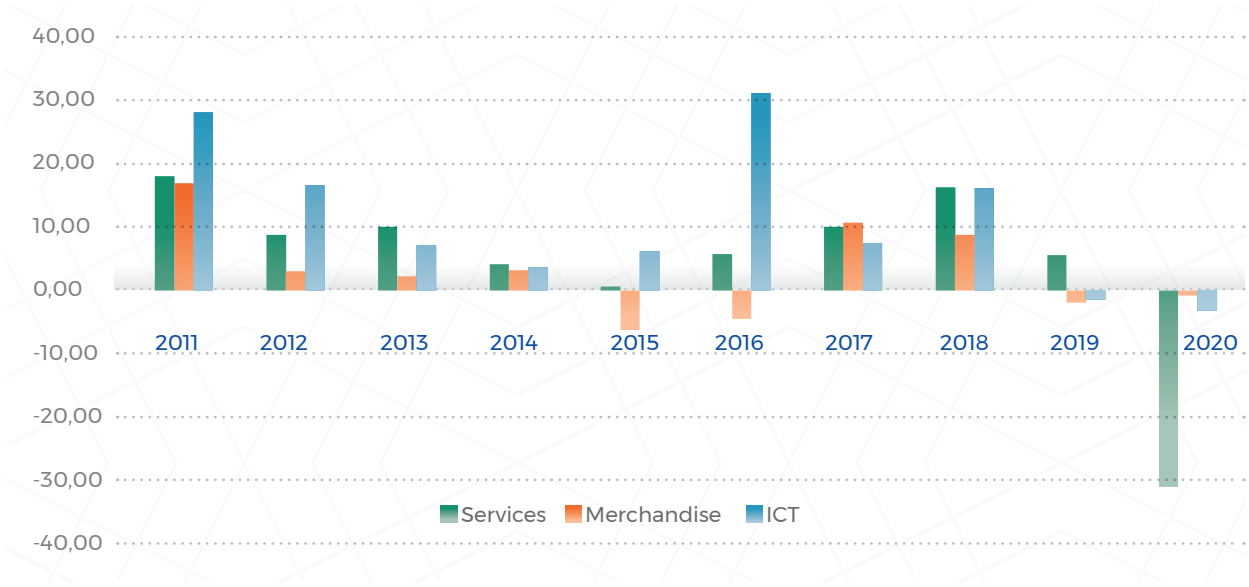
	2011-2015	2016-2019	2020
Lower-income countries			
Cambodia	124.34	125.05	123.81
Myanmar	28.89	59.52	54.47
Middle-income countries			
Lao PDR	94.58	75.09	..
The Philippines	58.21	67.74	58.17
Viet Nam	166.57	201.22	208.25
Indonesia	47.68	39.32	33.19
Higher-income countries			
Thailand	133.11	117.99	97.99
Malaysia	143.04	128.36	116.43
Brunei Darussalam	101.69	93.73	110.29
Singapore	361.06	316.98	320.56

Source: World Bank (2022)

One explanation is trade. Table 8 shows AMS average share of merchandise trade in GDP. In this case, China's trade has been so dominant that other counties have found it difficult to enter the global markets (Nayyar et al., 2021). Other lower-income countries cannot break into lower-quality and lower-priced products that China dominates. Other countries can trade only in high-quality products, such as Singapore, or raw materials and natural gas, such as Myanmar. In addition, the trade war between the USA and PRC resulted in higher tariffs, which resulted in lower demand for products in both countries and then affected the export markets of Southeast Asia, particularly Thailand (Fajgelbaum and Khandelwal, 2022).

Figure 6 shows the trade growth in ASEAN region's services, merchandise, and ICT services. Note that merchandise growth is slowly being overwhelmed by services. This is partly driven by trade through ICT. This pattern was only broken during the pandemic, which resulted in an expected decline in all sectors. The significant decline in services in this period thus justifies adopting the service sector as the path towards recovery.

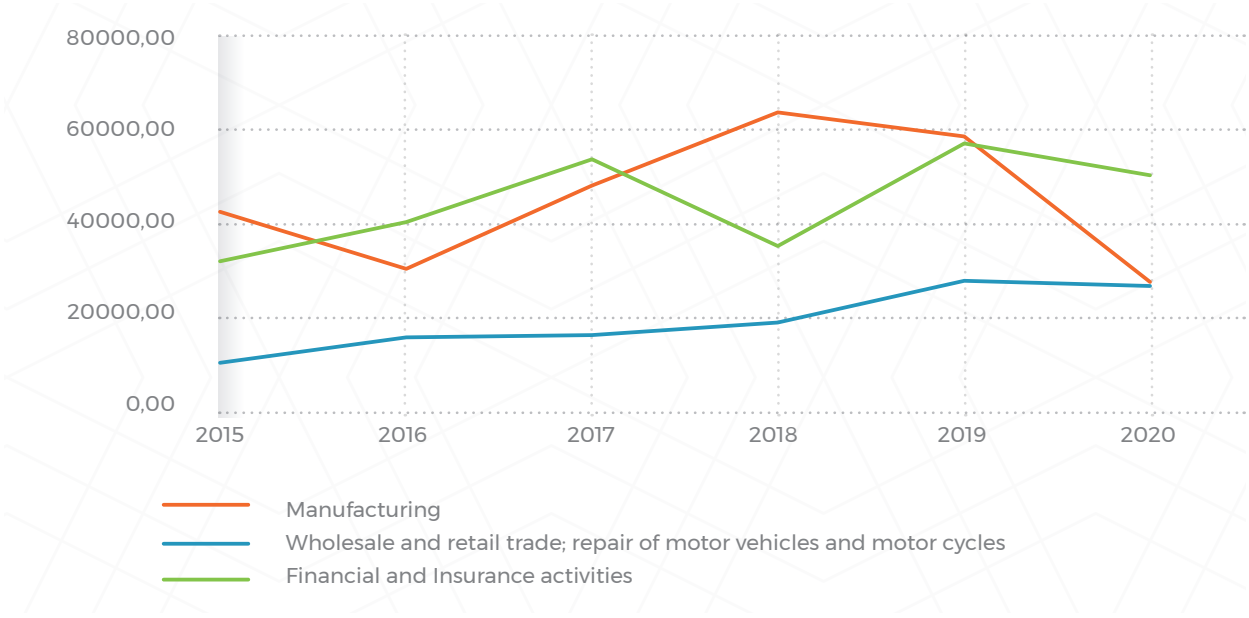
Figure 6. Annual growth rates of ASEAN trade in services, merchandise, and ICT services, 2011-2020



Source: United Nations Conference on Trade and Development (UNCTAD)

Apart from trade, another trend favouring services is the amount of foreign direct investments in services (Figure 7). The foreign investments in financial and insurance activities have kept pace with the investments in manufacturing and are noted to be more stable, especially during the pandemic. While investments in manufacturing seem erratic, investment in wholesale and retail trade is steadily growing.

Figure 7. ASEAN Foreign Direct Investments in manufacturing and key service subsectors, 2015- 2020



Source: ASEAN (2022)

Table 9 shows a better description of these movements in terms of changes in the share of services trade to the GDP. Lower-income countries such as Myanmar, the Philippines, and Cambodia have improved trade in services from 2016-2019 as the country is shifting away from agriculture. However, even in the case of higher-income countries, Thailand, and Singapore, a growing share of services in GDP can be found. While services require a more educated workforce, the expansion of services is noted to be viable for both higher- and lower-income countries. The impact of COVID-19 on the economies can also be noted in the decline in the services share in the GDP.

Table 9. Average share of services trade to GDP (in %)

	2011-2015	2016-2019	2020
Lower-income countries			
Cambodia	32.93	33.66	14.69
Myanmar	6.23	12.12	..
Middle-income countries			
Lao PDR	12.93	11.98	4.14
The Philippines	14.60	18.29	13.77
Viet Nam	14.39	13.73	9.40
Indonesia	6.16	6.11	3.76
Higher-income countries			
Thailand	23.71	25.81	15.65
Malaysia	26.13	24.23	16.45
Brunei Darussalam	15.65	16.93	12.97
Singapore	92.74	105.11	121.62

Source: World Bank (2020)

For lower-income countries, the declining manufacturing trade share and decreased demand in terms of investment and output may reflect the phenomenon of "premature deindustrialisation", which had been observed in the higher and lower-income economies outside of ASEAN. This indicates the diminishing industrial opportunities sooner and at much lower income levels compared to the previous experience of industrialisation in most developed countries. Rodrik (2016) hypothesised that, for lower-income countries, the decline in industrialisation could be attributed to unskilled labour-saving technologies, making it more expensive to raise industries. However, for lower-income countries, the problem can be seen in their inability to provide globally competitive industrialisation, resulting in lower relative prices for manufactured goods and thus creating disincentives for further trade and industrialisation. Lower-income countries experiencing deindustrialisation thus lose the opportunity to expand production and employment opportunities previously found in more industrialised countries.

However, for higher-income economies like Singapore, Brunei Darussalam, and Malaysia, deindustrialisation is principally the result of initially higher productivity in manufacturing than in services (Rowthorn and Ramaswamy, 1997). The pattern of trade specialisation among the advanced economies explains why some countries deindustrialise faster than others. The spillover effect of these industries thus led to the expanded service sector.

In short, this discussion points to the need for greater digitisation transformation as a precondition for growth and the change in labour market arrangements for all AMS. The growth in the service sector is attributed to digital transformation, which is associated with the increasing prominence of online platforms in the medium- to long-term. This can be noted in both lower-and higher-income countries in ASEAN and the rest of the world (see UNCTAD, 2022, for latest evidence). Two reasons can be cited for this correlation. First, the role of services in structural transformation for lower-income countries has been noted in the production of goods. The service sector facilitates production and exports throughout productive processes, especially in back-office activities (quality control and engineering services) and in the establishment, pre-production, post-production, and after-sales stages (UNCTAD, 2017). Hence, for lower-income countries, whose trade in goods has particularly been reduced in the past decade, enhancing the service sector can improve export competitiveness and increase the tradability of services, especially when the value added of services is traded in combination with the value added of tradable goods.

This involves blurring the service and manufacturing sectors by providing intermediate inputs from the service sector that can serve as catalysts for enhanced efficiency, productivity, and competitiveness of all sectors. Expanding the use of digital technologies can offer changes within the service sector so that innovation can affect all sectors. The service sector can create opportunities for many firms to join export value chains, including microenterprises and the informal sectors. Incorporating ICT services into agricultural and manufacturing exports through improved wholesale and retail trade and business services can be pursued.

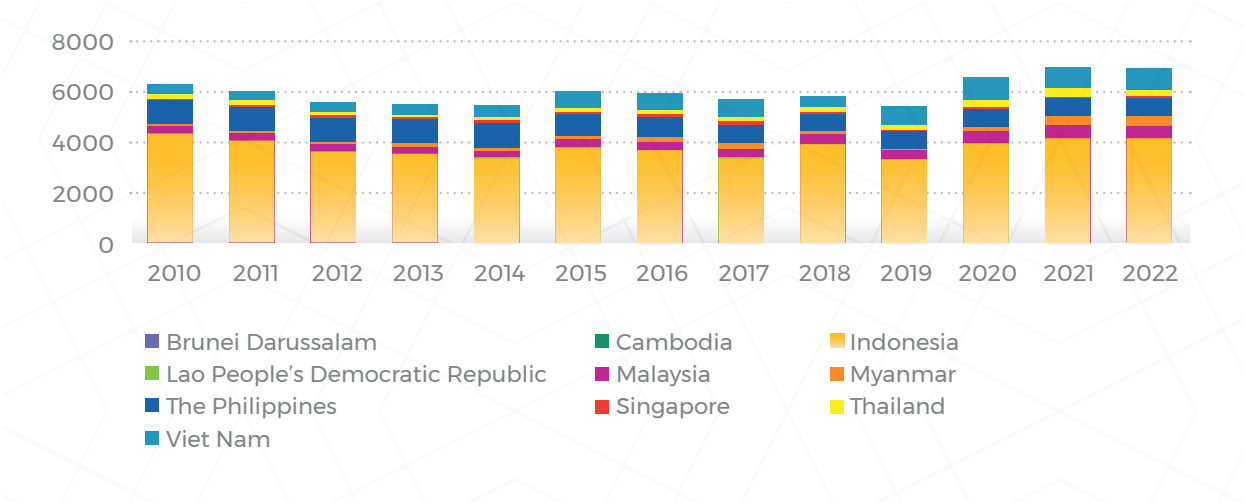
Second, for the higher-income AMS, the acceleration of digital technologies offers new opportunities for increasing scale and innovation in the service sector. The idea is to improve the new ICT features, further enhancing previously experienced spillover effects (Nayar et al., 2021). These features include (a) scale economies through access to international markets, (b) capital and investing in technologies for labour-augmenting innovation, such as data and research centres whose fixed costs are high but diminish rapidly through scale, and (c) creating spillover effects by raising service trade and using services as inputs in production and export of goods (Nayar et al., 2021). These have implications for jobs which we examine in the next section.

3.2.2. Labour market trends

The disruption of COVID-19 on the labour market can be seen in Figure 8, which presents the total unemployed workers in ASEAN from 2011-2019. The lockdowns and other measures during the pandemic have increased the number of jobless. Before this period, however, the unemployed workers gradually decreased over time, and the magnitude has been limited to middle-income and higher-income countries like Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam. It is crucial to note that lower-income countries have higher but mostly informal and low-productivity employment. The relatively higher-income countries may have higher unemployment, but the magnitude is not significant enough to be a perceptible number in the graph.

These macroeconomic trends mirror, to some extent, the sectoral movements in output. Table 10 shows each country's sectoral percentage of labour to total employment. For the years before the pandemic, all economies, except for Brunei Darussalam, shifted labour from agriculture to industry and services. However, a disproportionately higher share can be observed in services than in manufacturing. For relatively higher-income countries such as Malaysia and Thailand, the increasing share of services indicates a shift in the mix of skills needed in the labour market. In the case of lower-income countries, the movements towards services can be accompanied by increases in the informal sector.

Figure 8. Number of unemployed in ASEAN, 2010-2022 (in Thousands)



Source: ILO (2022)

Two points are important. First, the service sector emphasises the importance of human capital, which must first be developed to facilitate the dynamic ability of the services sector to absorb surplus labour from agriculture (Buera and Kaboski, 2012). Turning an agricultural worker into a garment worker in manufacturing will necessitate a substantial amount of physical capital but not as much human capital as transforming the agricultural worker into a software engineer in services. Second, while services may seem to be on the rise, there is a need to categorise different forms of services. One type is low-productivity service, which does not result in substantial spillovers in the other sectors. These are observed in the Philippines and Indonesia, where services have a larger share of employment but are accompanied by a relatively lower increase in manufacturing share. Another type of service creates the conditions for the two other sectors to be productive and efficient. It creates the needed economies in scope, which reduces the costs of inputs in the industrial sector.

Table 10. Average employment shares by economic activity (in percentage), 2011-2019

	Agriculture		Manufacturing		Services	
	2011-2015	2016-2019	2011-2015	2016-2019	2011-2015	2016-2019
Lower-income countries						
Cambodia	49.51	36.66	14.88	16.22	30.02	36.79
Myanmar	52.33	49.70	10.87	10.54	31.08	33.67
Middle-income countries						
Lao PDR	67.82	63.00	.	5.07	22.15	24.77
The Philippines	31.06	24.83	8.29	8.57	53.28	56.74
Viet Nam	46.54	39.47	14.35	18.04	31.88	34.37
Indonesia	35.06	30.15	13.45	14.10	43.84	47.75
Higher-income countries						
Thailand	38.17	31.55	14.90	16.45	40.51	45.41
Malaysia	12.58	10.87	15.31	17.24	59.58	61.82
Brunei Darussalam	0.63	1.36	3.65	4.05	80.76	80.19
Singapore	0.09	0.05	13.07	10.18	80.67	83.74

Source: Author's calculations based on ILOSTAT (2022), accessed on November 2022.

Table 11, which presents the change in employment by economic activity, shows further evidence of deindustrialisation within ASEAN. Except for Brunei Darussalam and Lao PDR, which are in the process of economic diversification, increases in employment in services are greater than in industry. For lower-income countries such as Cambodia and middle-income countries such as the Philippines, Indonesia, and Viet Nam, substantial decreases in agricultural employment can be observed. Simultaneously, the rise in employment shares in manufacturing and the greater increase in services compared to the previous period suggests that the employment shifts in manufacturing and service are complementary. Enhancing services can thus be the path towards raising industry output and employing lower-skilled workers.

Table A2 in the Annex shows the composition of employment by gender in each economic activity. In the countries where employment has recently shifted out of agriculture from 2011 to 2015, such as the Philippines, Thailand, and Viet Nam, the share of females was greater than the males in the services sector. From 2016-2019, as the employment share of the service sector increased, the same countries had a greater share of females employed in services. This points to the relevance of the service sector in providing jobs to women and other vulnerable groups.

Table 11. Growth rates in employment by major economic activities, 2011-2019

	2011-2015				2016-2019			
	Agriculture	Industry	Services	Total	Agriculture	Industry	Services	Total
Lower-income countries								
Cambodia	-4.79	10.57	5.26	1.04	-2.74	5.27	6.17	2.32
Myanmar	0.32	1.18	1.67	0.88	-2.05	-0.23	1.38	-0.67
Middle-income countries								
Lao PDR	0.73	8.36	5.54	2.48	0.37	6.28	4.32	2.02
The Philippines	-0.10	2.94	3.59	2.32	-4.66	5.65	3.07	1.44
Viet Nam	-0.52	2.49	3.87	1.49	-3.42	5.57	2.27	0.71
Indonesia	-1.63	5.25	3.02	1.75	-1.32	2.77	4.75	2.40
Higher-income countries								
Thailand	-2.77	2.96	1.53	0.01	-0.83	-1.09	0.75	-0.20
Malaysia	2.53	3.56	3.93	3.60	-2.92	1.39	3.03	1.88
Brunei Darussalam	4.05	-0.32	1.79	1.40	35.01	6.18	-0.03	1.35
Singapore	-4.11	-1.66	4.04	2.87	-16.99	-1.88	1.46	0.89

Source: ILO (2022)

Table 12 provides the average labour force participation (LFP) rates by sex of the AMS across the three-year periods considered in the study. The higher labour force participation (LFP) rates in lower-income countries indicate the value of increasing employment opportunities, particularly in manufacturing, where the demand for relatively unskilled labour is relatively high. The relationship between LFP and development is complex and reflects changes in the pattern of economic growth, educational attainment, fertility rates, social norms, and other factors. Lower-income countries are expected to have high LFP rates since employment is one of the avenues to move out of poverty. This can be seen in the case of Cambodia, Lao PDR, and Viet Nam. The Philippines and Indonesia have the lowest level of LFP rates because of the low LFP rates of women. This can be attributed to households' attitudes regarding the allocation/bargaining of housework in the family (Bayudan-Dacuycuy, 2019). Another possibility is the weakness of institutions to provide decent conditions for local employment activities causing women in the short-term to reduce their work participation or to look for work abroad (Lanzona, 2022). The declines in LFPR due to the pandemic can also be attributed to weak institutional support, which could have led to severe lockdowns in developing countries. Institutional weaknesses in lower-income countries can hinder labor markets' role in raising and distributing incomes (ADB, 2021b; Lanzona, 2022).

While structural factors may influence LFP, the absence of robust labour conditions due to deindustrialisation may have reduced the LFP for males and females in all countries, except for the slight improvements in higher-income countries, such as Malaysia and Singapore. Even before the onset of COVID-19, the participation of working-age individuals has waned. This may be seen as the symptom of deindustrialisation, which has affected lower-income countries. The only way to compete in industries is for these countries to engage in labour-saving industry processes.

Furthermore, this deindustrialisation made services the remaining option because the type of skills needed in services can vary. Services can be classified into sub-sectors: low-skill tradable services, high-skill global innovator services, skill-intensive social services, and low-skill domestic services. Given the country's skill level, there is enough variation for moving into services, thus making it feasible to move from agriculture to services. However, workers in highly skilled services are better compensated and contribute more to production.

Table 12. Average labour force participation rates by Sex, 2011-2021

	2011-2015			2016-2019			2020-2021		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Lower-income countries									
Cambodia	75.57	85.45	80.26	74.49	84.60	79.33	72.06	82.83	77.23
Myanmar	52.43	77.58	64.36	46.61	72.31	58.82	40.78	65.80	52.66
Middle-income countries									
Lao PDR	74.38	76.00	75.15	73.20	74.37	73.77	71.92	73.13	72.50
The Philippines	45.33	70.49	57.90	42.41	67.81	55.08	39.65	62.16	50.87
Viet Nam	67.90	76.98	72.39	66.23	75.70	70.91	64.18	73.65	68.87
Indonesia	47.69	76.76	62.24	49.09	75.97	62.57	50.17	75.55	62.90
Higher-income countries									
Thailand	56.03	72.64	64.16	52.54	68.90	60.52	51.55	67.09	59.12
Malaysia	45.10	71.56	58.74	47.58	71.06	59.65	47.73	71.29	59.83
Brunei Darussalam	52.03	67.23	59.93	51.02	64.54	58.07	48.54	65.59	57.40
Singapore	54.41	68.62	61.85	55.91	68.83	62.69	53.43	66.68	60.38

Source: ILO (2022)

In the case of women, gender gaps were larger in the past in most AMS, particularly in primary education. Despite recent progress, however, barriers to education continue to persist, especially for those belonging to marginalised groups. Data show that ethnic minority and rural women with limited infrastructure access are less likely to complete higher education (ASEAN, 2007; Duerto, et al., 2021). Available data also indicate that less educated women are inclined to early marriage and become adolescent mothers. This, in turn, resulted in non-participation in the labour market and decreased bargaining power in family decisions, including matters about their health (Duerto, et al., 2021).

Table 13 shows the distribution of workers by education from 2011 to 2019. The following points are noteworthy. First, lower- and middle-income countries have a relatively high share of workers attaining at most basic education, but from 2016 to 2019, significant reforms in education have resulted in more or less doubling the share of advanced education. Second, middle-income countries have lower shares in less than basic and basic education than lower-income countries. Third, higher-income countries have a higher share of intermediate and advanced education than other countries.

Finally, higher-income countries are more likely to transition from agriculture and industry to higher productivity sectors because of higher education. The heterogeneity of the service can allow any country to move to the service sector. However, while countries may transfer to services, this shift can cause income disparity among the AMS as certain countries do not have the resources to transition.

The persistence of unemployment can be traced to the continued high unemployment rates of vulnerable populations, such as women and the youth, along with the potential threat of declining formal social protection provisions, making it necessary for workers to look for supplementary means of income. The average unemployment rates by age and sex are seen in Table A3 in the Annex. The following points are important. First, as seen in Panel A, middle- and higher-income countries, like the Philippines, Indonesia, Malaysia, Brunei Darussalam, and Singapore, tended to have much larger unemployment rates than lower-income countries, like Cambodia and Myanmar[20]. This phenomenon has been attributed to the fact that

20- Countries are listed by income level, as shown in the previous section, to highlight the importance of income as the country develops.

as modern-sector productivity rises in middle-income countries, greater numbers of lower-skilled workers are drawn into the modern sector. This raises overall unemployment as more workers search for jobs, with some unemployed for longer periods. In lower-income countries, skills and education are generally low. As seen in Table 13, workers are willing to accept jobs in informal and low-productivity markets. Most higher-skilled workers are already in the modern sector and searching for jobs in lower-income economies. As modern-sector productivity grows, the less skilled workers switch sectors, and their unemployment rate rises faster.

Table 13. Average distribution of the workers by educational attainment (in %), 2011-2019

	Not Stated	Less than Basic	Basic	Intermediate	Advanced
Lower-income countries					
Cambodia	17.49	31.75	41.97	8.23	4.45
Myanmar	18.22	19.68	43.88	12.40	9.46
Middle-income countries					
Lao PDR	5.57	22.26	51.43	13.73	7.02
The Philippines	0.00	1.81	54.37	20.21	26.56
Viet Nam	0.52	16.01	52.10	21.66	9.71
Indonesia	0.00	17.33	47.60	26.35	8.72
Upper-income countries					
Thailand	0.56	29.60	38.13	19.62	12.09
Malaysia	0.00	3.67	30.95	42.52	22.86
Brunei Darussalam	3.20	7.44	20.46	53.76	17.06
Singapore	0.00	14.58	15.93	29.02	40.46

Source: ILO (2022)

Second, female workers in any age group seem to have a higher unemployment rate than their male counterparts. This is surprising since women have lower LFP rates (Table 12). Traditionally, women, however, look for temporary and irregular jobs. However, it can be noted that for the older population (aged 25 and more), the difference in unemployment between males and females declined. This seems to imply that job-specific training for women in all AMS can significantly affect their chances of employment.

Third, workers aged 15 to 24 all seem to have higher unemployment rates than their older counterparts. The limited skills and experience explain the younger population's difficulties in securing employment.

3.3. COVID-19 and the new normal

Since 11 March 2020, when the World Health Organisation (WHO) defined the new coronavirus as a global pandemic, the virus has infected millions of people and killed hundreds of thousands across 210 countries. In Southeast Asia, on October 17, 2020, the AMS confirmed at least 869,515 cases and 21,076 deaths. However, this figure may be considerably higher due to the large number of unreported or undiagnosed cases, especially in developing countries with fragile medical systems (ADB, 2022c). As of August 2020, Indonesia has the highest fatality ratio as a percentage of its population (4.56), while Singapore has the lowest death rate in the region (0.05)[21].

Except for Singapore, which has the highest services share among all AMS, the pandemic weakened the service sector (see Figure 4). This resulted from the lockdowns that the governments imposed during this period. At the same time, given the decline in services activities, workers have resorted to increased activities in digital labour platforms. The transportation and delivery platforms specifically played a key role in providing essential services to consumers during the lockdowns, as people were restricted to their homes across the globe. These services were increasingly vital for those in quarantine while providing an important option to those particularly vulnerable to COVID-19 to access food, groceries, goods, and medical services. The workers providing such services also played an important role in connecting consumers with enterprises, including Small and Medium Enterprises (SMEs), and contributed to meeting demands and ensuring business continuity. Because no data is available on the number of workers engaged in these platforms, it is difficult to estimate their size. Still, in most countries, these workers were declared part of the "emergency or frontline services" during the COVID-19 lockdown.

Furthermore, except for Viet Nam, all countries in the region in 2020 experienced declines in economic growth rates (see Table 4). During the same period, the industry share in output declined as the services seemed to have slightly increased (Table 6). Despite these difficulties, services greatly increased their GDP share in 2020.

A more detailed account of the impact of COVID can be seen in Table 14. The hardest-hit sectors in 2020 in terms of sector growth were mostly services, particularly accommodations, transport and storage, wholesale and retail, and education. However, the industry sectors affected in 2020 were construction, mining and quarrying, and manufacturing. The rise in the information and communication and financial services sectors thus resulted in a slightly higher share of services in the GDP.

The global labour market outlook has deteriorated at a lower rate than expected; a return to pre-pandemic performance is likely to remain elusive for much of the world over the coming years. According to a 2021 UN report, the COVID crisis is expected to push global unemployment to over 200 million workers. The economic recovery, which started in 2021, may have been led by increased growth in agriculture as the unemployed workers emerging from the decline of tourism and construction were absorbed in this sector. Manufacturing also grew because of the partial opening of the global economy, which increased external demand. This coincides with the decline of Chinese manufacturing due to extended lockdowns. Finally, the continued growth in the ICT sector dependent on digital transformation resulted in the widespread use of OLPs, indicating substantial interest in these new arrangements.[22] The increased use of the digital economy has proven to be quite effective in countering the negative effects of the pandemic.

Information technology (IT) offered the medical and economic benefits of the right to information access; moreover, IT was the only way out during the lockdown and social distancing, compensating for economic

21- ASEAN BioDiaspora Virtual Center (ABVP) regularly issues situational reports on COVID-19 developments including vaccine updates in ASEAN region. The cases of infections have declined since 2021, and ASEAN Member States have ramped up their efforts with a view to achieve full vaccination by 2022. In ABVP's situational report issued last November 21, 2022, there were more than 35 million confirmed cases of COVID-19 reported in the region. The case fatality rate among ASEAN Member States ranged from 0.1 to 3.1%, and the fully vaccinated rate ranged from 62 to 99% (ASEAN BioDiaspora Virtual Center, 2022).

22- The growth in the use of OLPs is expected to grow higher even in the post-pandemic (ADB, 2022c). While the high growth during the pandemic and earlier can have base effects because these engagements have been almost nil at the beginning, the increasing interest of ASEAN on these platforms is noted to have been sustained.

and business losses. Table A21 in the Annex shows examples of the highly integrated digital solutions used by the private (through Business to Consumer apps) and public (through Government apps) sectors to offer advice, information, and reports on the COVID situation.

Its economic benefits in such a situation are widespread, including fast communication and novel compensating methods. AI-assisted virtual assistants, chatbots, and information centres help the health sector diagnose and test for COVID-19 and play a vital role in maintaining social distancing to stop the spread. Hence, the pandemic accelerated the digital transformation already in place before 2020. One would then expect that future movements in the region's structural transformation would be dependent on its digital transformation.

Despite the steady recovery, the pandemic may have scarred or caused lasting damage to the economy. The decline in industry resulted in regional unemployment and financial stress in most sectors due to prolonged lockdowns, creating long-term labour disruptions. Mounting national debt, trade restrictions, and impeded supply chains have placed unprecedented burdens on the weak healthcare and educational systems in low- and middle-income countries across Southeast Asia, causing human capital formation to be derailed. Employment losses were particularly worrisome to women, the youths, and micro, small, and medium enterprises, including the informal sector, as these units were most vulnerable to economic stoppages (ADB, 2021b; ASEAN, 2020).

Table 14. Growth rates in GDP and key sectors, 2020-3Q2021

		2020								Q2 2021		Q3 2021				
Sector	**Industry**	LAO	VIE	BRU	IND	SIN	MAL	THA	PHI	BRU	MAL	VIE	IND	SIN	THA	PHI
GDP		3.3	2.9	1.1	-2.1	-5.4	-5.6	-6.2	-9.6	-1.5	7.1	1.4	3.2	7.6	1.4	4.9
Agriculture	Agriculture	1.1	2.7	14.4	1.8	-10	-2.2	-3.6	-0.2	57.1	-0.7	2.7	1.6	24.9	2.3	-1
Industry	Manufacturing	12.8	5.8	23.9	-2.9	7.3	-2.6	-5.7	-9.8	-4.9	15.8	6.1	2.9	11.9	5	9.1
	Utilities	20.1	4.1	-2.2	-1.8	-2.2	-1.3	-7.2	-0.4	3.2	3.6	5.1	4.8	3.9	-3	4.5
	Construction	14.5	6.8	3.2	-3.3	-35.9	-19.4	2.3	-25.7	-11	8.3	-0.6	2.4	26.7	3.7	6.1
	Mining and Quarrying	-16.7	-5.6	-4.9	-2		-10.6	-6.9	-18.9	-3.7	3.5	-7.2	3.6		-3.2	0.5
Services	Information and Communication	8.6	7.4	15.9	10.6	2.1	6.0	4.6	5.0	3.4	6.1	5.2	7.0	9.1	5.8	9.3
	Health/Social Work	4.6	10.6	2.8	11.6			0.5	-3.8	8.6		21.2	9.8		3.6	14.8
	Finance/Insurance	1.2	6.9	-2.8	3.2	5.0	2.7	2.7	5.5	-3.6	16.9	8.4	3	8	3.1	5.3
	Public admin.	5.7	6.3	-3.9	0		4.5	1.7	4.6	-1	5.5	3	-1.1		0.9	5.8
	Education	2.2	6.1	-10.5	2.6			2.0	-10.8	-0.4		4.2	-0.1		0.8	8.6
	Wholesale and Retail	1.3	5.5	2.8	-3.7	-3.7	-6.1	-3.7	-6	10.6	9.9	-3.1	4.3	5	1.7	3
	Prof and Business.Services	4.2	2.6	5	-5.4	-12.1		-10.7	-10	9.2		-1.5	0.7	-0.8	-3.6	5.9
	Other Services	3.9	-0.9	-2	-4.1	-8.9	-10.5	-7.4	-41.1	6.7	-3.3	-6.1	1.7	6.6	2.5	-7.9
	Transport/Storage	-2.9	-1.9	-21.6	-15.0	-25.4	-21.9	-21	-30.9	-17.3	3.4	-7.8	1.6	1.4	-4.9	1.7
	Accommodation	-55	-14.7	-6.6	-10.2	-26.6	-26.5	-36.6	-45.4	16.7	-15.3	-23.2	3.5	5.5	-17.2	2.2

Source: ADB (2022)

Notes: BRU = Brunei Darussalam, GDP = gross domestic product, INO = Indonesia, LAO = Lao PDR, MAL = Malaysia, PHI = The Philippines, SIN = Singapore, THA = Thailand, VIE = Viet Nam

Based on the latest economic growth forecasts, the ILO projects that total hours worked globally in 2022 will remain almost 2% below their pre-pandemic level when adjusted for population growth, corresponding to a deficit of 52 million full-time equivalent jobs (assuming a 48-hour working week). This outlook represents a substantial deterioration since the previous projections in June 2021 amounted to a shortfall in working hours relative to the fourth quarter of 2019 was projected to narrow to less than 1% in 2022. Global unemployment is projected to stand at 207 million in 2022, surpassing its 2019 level by some 21 million.

The pandemic's impacts on the labour market are likely to persist as inactive workers would depreciate their human capital and the chances of the poor to access employment opportunities diminish. These impacts are as follows (ILO, 2021a):

1. *Unemployment and inactivity:* Based on ILO estimates, most of the 6.7 million unemployed workers in ASEAN went into economic inactivity, which increased by 4.8 million compared to the figures in 2019. The slowdown in the industry, accommodating the relatively unskilled, can be the reason for the decline. The available jobs created in the post-pandemic may mostly require higher skills.

2. *Unprecedented jobs gap:* While employment in the region had been increasing before the pandemic, due to structural transformation, the COVID-19 pandemic has caused a discrepancy between expected employment and actual employment. The significant closures of firms that broke long-standing relationships between employers and workers have made it difficult for workers to secure jobs in the more resilient firms. Firm-specific skills may not also be adequate for the workers.

3. *Disproportionate job losses for women and young workers*: According to the ILO, women workers were more likely to lose employment than their male counterparts globally and in ASEAN region. More specifically, female employment in ASEAN region in 2020 was 3.9% lower than expected in the absence of the crisis. Likewise, young workers have been particularly hard hit by the pandemic. Youth employment losses were 6.2%, compared with 2.8% for adults, with many young workers moving into either unemployment or inactivity. The share of youth not in employment, education, or training (NEET) increased between 2019 and 2020 in large parts of ASEAN region, including Indonesia, Singapore, Thailand, and Viet Nam, in line with global trends (ILO 2021b).

4. *Reduced working hours*: COVID-19 reduced work hours of workers who remained in employment, lost their job, or were engaged in flexible labour arrangements. Firms on the verge of recovering may reduce labour costs by offering these irregular job arrangements. The impact of the pandemic on overall working hours describes the difficulties that employers and workers faced during the pandemic, globally and in ASEAN region.

5. *Continued labour income losses*: Working-hour and job losses have contributed to the loss of job incomes for millions of workers, substantially increasing their risk of falling into poverty. In ASEAN region, 7.8% of labour income was lost in 2020, corresponding to US$100 billion (using 2019 market exchange rates) or 3.3% of the region's gross domestic product (GDP) in 2019.

COVID-19 exposed the pre-existing weaknesses in governance and social protection provision in ASEAN, as much as globally. Moreover, it has accelerated the two movements that affected the structural transformation in the region: the rise of services and digitisation. Nevertheless, one weakness that has received far less attention than it deserves is the disproportionate impact of the pandemic on the livelihoods of millions in informal employment who have become newly unemployed or underemployed. Addressing rural/urban divides in access to broadband and underserved socio-economic groups, upgrading networks to the next evolution of fixed and wireless broadband, and enhancing access to and sharing data can help spur economic and social benefits (OECD, 2020).

3.4. ASEAN labour market and the Fourth Industrial Revolution (4IR)

Technological advances and investments in information and communication technology (ICT) infrastructure have dramatically transformed economies, improved production processes, and unlocked market opportunities worldwide. For example, digital solutions enabled people to make online purchases, conduct mobile fund transfers, and rely on real-time traffic applications to increase travel efficiency. The adoption of the most recent 4IR technologies, such as advances in the Internet of things, AI, and robotics, among others, has drawn out the huge potential to transform businesses, processes, and consumption behaviour. Digitisation and automation have permeated every stage of the value chain, and developing economies in Asia are poised to benefit immensely from these advancements. Global experience of COVID-19 hastened the uptake of 4IR and contingent digital technologies, which has been underway in the region pre-pandemic.

The agriculture sector, for example, which heavily relied on manual labour, can now leverage technological revolutions to boost farmers' labour and resource efficiency. Precision farming employs sensor and drone technologies to install site-specific crop management (SSCM) monitoring systems to guide farmers about optimal farming management. This data-driven farming method is practised in the PRC, India, and Indonesia, among others (FAO, 2016). The onset of developing Asia's digital boom coincided with some Asian economies' graduation from low-skilled to more complex manufacturing jobs. Technological advancements complemented these transitioned economies to produce higher value-added manufacturing jobs and services that contributed to faster economic growth (Prakash, 2019). Technological improvement likewise improved the tradability of some services sectors, as in the case of ICT. The positive impacts of new technologies on developing Asia's labour markets are manifested through the creation of decent job opportunities and the facilitation of more tradable services.

Developing economies in Asia, including ASEAN region, are poised to benefit immensely from these advancements. With its growing middle class and increasing internet penetration, Asia is at the forefront of global e-commerce dynamism. According to the Ecommerce Foundation (2016), Asia and the Pacific region had the largest share of the business-to-consumer e-commerce market, accounting for over US$1 trillion of the US$2.3 trillion global e-commerce in 2015. The size of e-commerce relative to GDP was also the biggest in Asia and the Pacific at 4.5%, compared to the regional shares in North America (3.1%), Europe (2.6%), Latin America (0.8 %), and the Middle East and North Africa (0.7%).

In 2017, the internet retail market share of Asia and the Pacific exceeded that of North America and Europe combined (ADB, 2018a). Ecommerce Europe and eMarketer reported that some of the world's largest e-commerce markets were in East Asia: People's Republic of China (PRC) was the largest e-commerce market; Japan is Asia's second-largest and the fourth-largest in the world; and the Republic of Korea was Asia's third-largest and was seventh in the world (ADB 2018a). In 2019, Asia accounted for 57.4% of global e-commerce sales (business-to-consumer) and was predicted to reach 61.4% of the global e-commerce market by 2024 (Eastspring Investments, 2020). Asia was also at the forefront of automation, with an estimated 65% of the world's total industrial robot usage in 2017, the International Monetary Fund's (IMF) Regional Outlook for Asia Pacific reports. In the same year, the PRC became the biggest producer of these robots, with an estimated 50% of the region's total industrial robot deliveries, followed by the Republic of Korea and Japan (IMF, 2018).

ASEAN's digital economy is sustaining its upward growth trajectory. The region's digital economy grew 16% annually in the past decade from 2008 to 2013. In 2013, more than half of its 650 million population were internet users; and the region reached a more than 100% mobile phone penetration rate, next to other Asian giants like India and the PRC (Chang and Huynh, 2016). The tech-savvy region also became home to an ecosystem of digital platforms such as Gojek, Grab, Lazada, Sea, Tokopedia, and Traveloka, among others. These start-ups cater to an expanding range of OLP services, including logistics, ticket booking, delivery services, cleaning services, retail, and digital payments. Google, Temasek, and Bain and Company (2018) disclose that Southeast Asia's internet economies reached US$72 billion in gross merchandise value in 2018 from e-commerce. ASEAN's e-commerce market expanded almost six times in four years, increasing from US$9.5 billion in 2016 to US$54.2 billion in 2020.

The unprecedented disruption caused by the COVID-19 pandemic has raised the urgency to embrace the shift towards digital operations and leverage electronic commerce (e-commerce) to keep businesses agile. The accelerated digitisation and increased appetite for access and use of innovative technologies indicate that a digital economy future is here to stay and is underway. For example, e-commerce has also surged since the start of the pandemic, with the strongest uptake in Indonesia, followed by the Philippines and Malaysia. More than three out of five people in these economies were online in June 2021 since the pandemic began, bringing the total number of ASEAN internet users to 400 million, up from 250 million in 2015. Time spent online per day rose by an average of one hour across AMS, with the highest spike in the Philippines, where consumers spent more than five hours a day online (Ho, 2021). ASEAN Member States have seen stronger e-commerce adoption among internet users than the world average and many mature markets. Indonesia was found to have the highest e-commerce adoption in the world in 2021, with 87% of its internet users having purchased online via an electronic device, followed by the U.K. (86%), Thailand (84%), and Malaysia (83%). Adoption in other AMS, such as the Philippines, Singapore, and Viet Nam, has also outrun mainland China, considered one of the world's largest e-commerce markets. With increasing online penetration and continued rise in digital consumption observed among AMS, the e-commerce sector is set to grow at an annualised rate of 22% and reach US$146 billion by 2025 (Ho, 2021).

Against the backdrop of scientific and economic progress resulting from digitisation and automation, this trend could also potentially trouble workers. This is particularly evident in Asia, where relatively low-cost and low-skilled labour has driven the region's role as the 'factory to the world' (World Economic Forum 2018). Robots doing a greater share of technical work than manual labour bring down costs. As a result, workers may be displaced and replaced as firms are more likely to use labour-saving robots that cost less and perform more efficiently. World Bank (2016) estimated that up to two-thirds of all developing countries' jobs might lose to automation. A higher figure was estimated in Southeast Asia, where 56% of jobs are at high risk of displacement due to technology over the next decade or two (Chang and Huynh, 2016).

On the one hand, recent technologies are perceived to increase labour productivity, create new occupations and industries, provide better-paid jobs and serve as a foundation for higher economic growth. On the other hand, there are concerns that technological transitioning may displace less-skilled workers and may cause technological unemployment. Thus, less-skilled workers are disadvantaged as they are more likely to experience lower wage growth, exacerbating income inequality. (ADB, 2018b).

Technological change has been taking place since the industrial revolution, and despite job displacement, new occupations are emerging, and opportunities are increasing (ADB, 2018b). A 2020 ADB study on the 4IR opportunities and challenges in Cambodia, Indonesia, the Philippines, and Viet Nam reports that 4IR technologies will eliminate some jobs—displacing, for example, up to a third of the agro-processing workforce in Viet Nam. At the same time, 4IR technologies may generate new labour demand. The study estimates a positive net effect in all sectors analysed: 39% for garments and 2% for tourism in Cambodia, 14% for food and beverage manufacturing and 1% for automotive manufacturing in Indonesia, 11% for IT-BPO, and 10% for electronics in the Philippines, and 34% for agro-processing and 12% for logistics in Viet Nam. The study also warns that many displaced workers will likely lack the skills to move seamlessly into new jobs without adequate and timely investments in skills development (ADB, 2020).

As ASEAN gears towards a more internet-based, data-intensive, and technology-dependent future, there is a concurrent need to reinforce a more secure and inclusive approach to digital transformation. While technological changes will create new jobs, the inevitable displacement of workers from some sectors remains a concern. Furthermore, with a sizeable share of the vulnerably employed coming from rural, female, and informal sectors, 4IR also poses a real risk of extensive displacement due to the adoption of 4IR technologies. Thus, governments play a vital role in facilitating and encouraging reskilling in industries most likely to be affected by technological transitions. To maximise good outcomes, policy makers and businesses will need to embrace automation's benefits and address the challenges brought about by these. Continued human capital development, investments in ICT infrastructure and digital connectivity, and an enabling policy and regulatory environment are needed to narrow the digital divide within and across economies.

As part of Brunei Darussalam's 2021 ASEAN Chairmanship priority deliverable, the Consolidated Strategy on the Fourth Industrial Revolution[23] for ASEAN provides a regional, holistic approach towards its vision of

23- https://asean.org/wp-content/uploads/2021/10/6.-Consolidated-Strategy-on-the-4IR-for-ASEAN.pdf

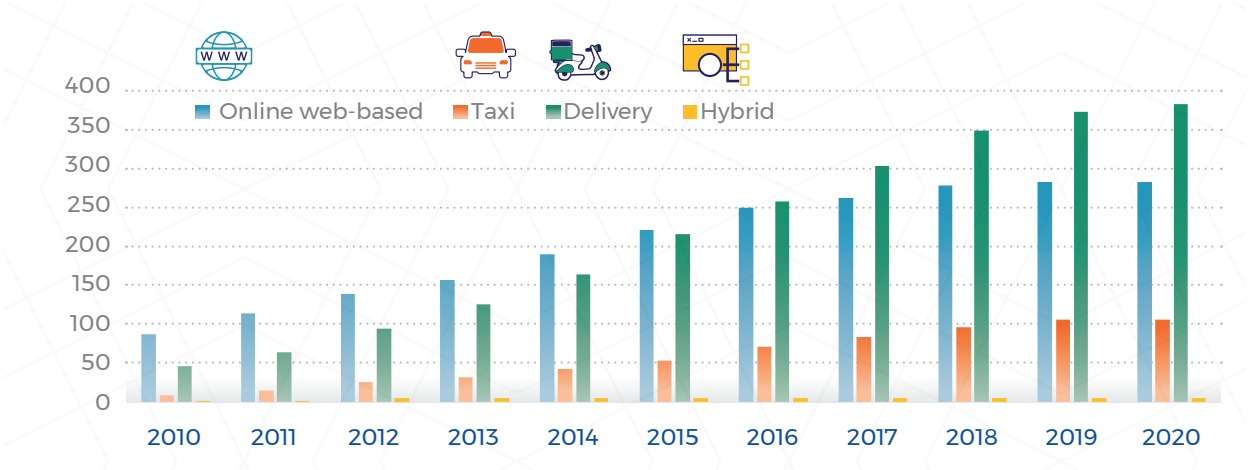
a Digital ASEAN Community. In pursuit of this vision, the Consolidated Strategy pursues three focus areas: technological governance and cybersecurity; digital economy; and digital transformation of society and is enabled by digital infrastructure, capacity building, institutions and governance, resource mobilisation, cooperation and collaboration, and effective monitoring. To ensure that the benefits of 4IR remain inclusive and contributory to social progress and sustainable development, the Consolidated Strategy articulates practical, actionable steps to address the possible job market disruptions brought about by the 4IR. This includes promoting forward-looking human resource development, particularly in key sectors such as informal and platform workers, among others. Aware that the sector is not usually covered by employment or government social protection measures, the Consolidated Strategy acknowledges the need to ensure that informal and platform workers' labour rights are not compromised after the shift to digital avenues. To this end, the Consolidated Strategy stipulates that "adequate measures, such as laws, must be formulated to protect platform workers from exploitation, such as non-payment for their services; allow access to insurance, medical benefits, and retirement savings programmes; support them in connecting with other market stakeholders; facilitate more seamless processes to manage obligations such as tax payments; facilitate opportunities for training, upgrading skills, learning, and development; and allow platform workers to organise to advance their common interests, among other things (ASEAN Consolidated Strategy on 4IR, 2021).

3.5. Trends, drivers, and development paths

Considering these factors, this section accounts for the increased demand for online labour platforms on ASEAN labour market, examines its implications in terms of employment, and determines the extent by which such platforms can reinforce the structural transformation in the region. In particular, the section seeks to determine whether online labour platforms can be used to further its structural transformation, especially in countering deindustrialisation and its push for digitisation. More importantly, we intend to see if the adoption of digital labour platforms can lead to an improvement in efficiency. Kässi and Lehdonvirta (2018) estimate that use of platform economy platforms is growing at an annual rate of 25%. Such digital platforms increased in sectors restrained by the COVID-19.

Figure 9 shows the number of platforms globally across work categories. Delivery and taxi sectors, despite the pandemic, have increased over time. Other forms of web-based employment have also been affected slightly, as their level remained constant in 2020. This indicates that while digitisation has contributed significantly to weathering the impacts of the COVID-19, the web-based online labour platforms intended to directly improve structural transformation have largely remained constant. At best, the other online labour platforms were able to augment the transport system. The perceived significance of online labour platforms to the region can be seen further by looking at the number of platforms and the number of online workers and how these relate to the economic structure of the AMS.

Figure 9. Number of active global labour platforms in selected categories, 2010-2020



Source: ILO (2021c)

3.5.1. Platform revenues and market power from network effects

The number of digital labour platforms has increased almost five-fold since 2019 (ILO, 2021c). However, these platforms are concentrated in North America, Europe, and Asia. Table 15 shows the frequency of OLPs in 2019 which have reported revenues (ILO, 2021c). The following points are noteworthy. First, slightly more than 50% of the sample platforms are in the on-demand category (i.e. delivery, taxi, and hybrid, which is a combination of these activities). Second, more than half of all categories originate from Northern America (particularly USA), Europe, and East Asia. Roughly 60% of the online web-based platforms are from North America and Europe. Third, the hybrid category has the least share in the total platform sample and is found in East Asia, Southeast Asia, and Sub-Saharan Africa.

There are many reasons why the more developed countries in North America and Europe created these labour platforms. For one, they seem more advanced in engaging in digital connectivity. In addition, relatively higher demand for labour is found in these countries, and because of digital technology, they can significantly reduce labour costs. But more importantly, these countries can avoid any legal and social restrictions on job creation through these platforms. This has become a version of outsourcing that does not rely on operations overseas. For the less developed countries, the combination of the desire to have more jobs and the expansion of digital technology has resulted in people reverting to outsourced digitally mediated work to transcend some of the constraints of their local labour markets (Graham et al., 2017).

Table 15. Frequency of OLPs platforms reporting revenues, 2019

Sub-region	Delivery	Hybrid	Online web-based	Taxi	Total
Arab States	7			1	8
Australia and the Pacific	1		3	2	6
Central and Western Asia	1		1	1	3
East Asia	10	2	6	1	19
Eastern Europe	7		3	1	11
Latin America and the Caribbean	7		1	2	10
North Africa	1			1	2
Northern America	33		61	9	103
Northern, Southern, and Western Europe	16		19	7	42
South Asia	10		7	4	21
South-East Asia[a]	5	2	4	1	12
Sub-Saharan Africa	2	1	1	1	5
Total	**100**	**5**	**106**	**31**	**242**

Source: ILO (2021b)

Note: [a]South-East Asia includes Timor-Leste.

In short, through these OLPs, advanced countries were able to obtain substantial market share in adopting digital connectivity for their labour market transactions by lowering their transaction costs in the absence of clear regulations. Network effects, both direct and indirect, have often been seen as a source of market power because larger firms would necessarily possess more users, which could help reinforce their initial positions and make it costly for new rivals to enter the market (Belleflamme and Peitz, 2018).

Nevertheless, since the field remains contestable, OLPs ability to control the market can be limited (Rivares et al., 2019; Tombal, 2022). While platforms are often extremely concentrated as they feature strong multi-sided network effects, the market share of dominant platforms is threatened if these face continuous threats from new platform rivals emerging from the local markets themselves. Thus, the contestability of platform markets should be promoted, specifically by reducing switching costs between platforms and strictly enforcing competition policy tools.

This last point can be seen in Table 16, which presents the average revenue of OLPs by region in 2019 using the sample of platforms reporting revenues. Despite the larger market share of Northern American and European platforms, their average revenues in delivery and online web-based were lower relative to other regions. Since the output in these dominant regions is higher than the other regions, this would suggest that their average prices are lower. In the case of taxi services, the average revenues for these dominant regions are observed to be higher than the other categories, but it is also in taxi services where their dominance is less clear, given that other sub-regions also have higher revenues.

For the hybrid category, the average revenues are significantly higher for the platforms involved in Southeast Asia. This category also has the lowest market shares relative to the other categories, but within this category, the dominant regions have approximately 40% of the market, indicating less contestability in this activity and hence greater market power. The required investment for hybrid activities and scale of operation for maximising profit can be an effective barrier.

The data then present that network effects are no longer intertwined with hardware or service, as was the case before the evolution of multiple devices and applications. Other firms can duplicate or even improve applications and services, making network effects unstable rather than entrenching (Tucker, 2018).

Moreover, network effects can be disadvantageous to firms and service providers (Tucker, 2018). This can be due to the following reasons. First, network effects can lead to congestion, thus preventing workers from satisfying their needs and making employers fail to closely examine the numerous prospective workers. Second, the privacy of workers is often threatened if a particular platform possesses substantial information about their work history, forcing them to search for other platform providers with lower levels of usage.

Table 16. Estimated average annual revenues of sample platforms, 2019 (US$million)

Sub-region	Delivery	Hybrid	Online web-based	Taxi	Total
Arab States	16.16			119.00	29.01
Australia and the Pacific	51.30		155.97	5.50	88.37
Central and Western Asia	231.00		107.00	1000.00	446.00
East Asia	910.60	1246.50	21.28	400.50	638.27
Eastern Europe	9.03		7.93	500.69	53.43
Latin America and the Caribbean	133.50		0.90	8.50	95.24
North Africa	5.00			3.00	4.00
Northern America	275.47		25.73	1613.50	244.48
Northern, Southern, and Western Europe	295.07		8.14	42.90	123.24
South Asia	69.04		3.77	114.98	56.03
South-East Asia[a]	7.64	1800.00	6.50	5.90	305.84
Sub-Saharan Africa	2.55	180.00	2.40	4.00	38.30
Total	**250.50**	**1254.60**	**23.64**	**559.44**	**211.45**

Source: ILO (2021b)

Note: [a]South-East Asia includes Timor-Leste.

Another source of instability due to network effects is the positive relation between firm size and the chances of statistical discrimination. Large platform firms can afford to ignore certain groups of workers and limit their choices to a select group, particularly those residing in higher-income countries (Lehdonvirta et al., 2019). The technology works around imperfect information (algorithms), and the less information there is, the greater the role of stereotypes. Hiring an "average" provider from a high-income country is assumed to be less risky by default, so additional information about them results in comparatively smaller adjustments. Information on the level of individuals is needed to address this problem.

Empirical support for this theory was noted in stereotyping disadvantaged minorities and women in local labour markets (Altonji and Pierret, 2001; Lang and Manove, 2011; Pinkston, 2006). The mechanism, according to statistical discrimination theory, is that the "average" worker from a lower-income country is viewed as a riskier choice by clients because there is more uncertainty about the quality, as the worker is drawn from a labour pool perceived as weaker or more mixed. Nevertheless, given additional verified information and firm experience, firms can realise the losses they incurred due to discrimination. The advantage of local platforms is that they possess more information than foreign-based platforms.

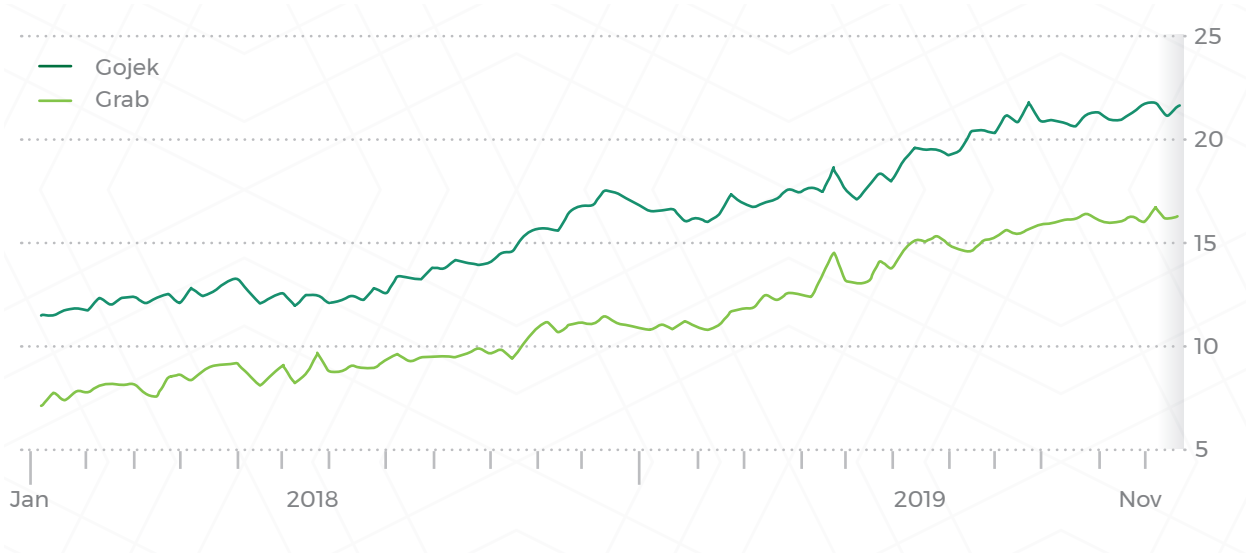
In summary, dominant market shares may lead to market power depending on the degree of contestability or the number of substitutes for the available services. Creating more options for the users of the platforms reduces the market power as the price elasticity of demand increases. In this way, platforms face difficulties in marking up their prices. Furthermore, OECD (2019) pointed out that these platforms have a high potential for economies of scale since the additional costs of expanding their operations are relatively smaller compared to their fixed costs. While this feature can increase the market shares of the existing platforms, it also makes it less costly for new entrants to contest their hold over the market.

3.5.2. Supply of platform workers

3.5.2.1. On-demand platform versus crowdwork platform workers

The number of workers engaged in on-demand labour platforms is dependent on the market users of the services offered. Given the absence of data on the number of these workers in the on-demand platforms, one can infer the continuous demand for workers from the increasing market users of the services. In ASEAN, ride-hailing is a key source of on-demand labor, both from taxis and deliveries. For instance, Figure 10 shows the weekly market users of Grab and Gojek in Indonesia before the pandemic.

Figure 10. Weekly active users of Gojek and Grab in Indonesia (in millions), 2017-2019



Source: Ruehl (2019)

The following points are noteworthy. First, demand for the services is not high in magnitude, but the rate of increase is also significant, suggesting the great interest of workers in this area. Second, based on the ILO (2021a) world survey, the following are the differences between on-demand (mainly, taxi and delivery) and crowdwork (freelance and microtask) workers:

1. The average age for crowd work platform workers is the same (33 years). The average age of those engaged in taxi and deliveries are 36 years and 29 years, respectively. Those involved in traditional ride-hailing activities were older, with 36 years for taxi and 31 years for delivery.

2. While workers in web-based platforms were well-educated, those engaged in freelance relative to those in microtask were more educated, with 34% having postgraduate studies, while only 20% of those engaged in microtask platforms had graduate degrees. Those in the transport platforms with 48% of taxi drivers and 49% of the delivery drivers completing only their secondary schooling.

3. Women played a significant role in web-based platforms, since 38% of the activities are run by women. More importantly, women in on-demand platforms are more active compared to the traditional forms of taxi and delivery jobs, with a 100% increase in both activities.

4. For web-based online work, average hourly earnings were US$4.5 for developed countries but only US$2.8 for developing countries. Female hourly earnings were slightly higher in developing countries at US$3.4 compared to US$2.6 for males. Females had been observed to have significantly higher earnings in freelance jobs in developing countries. The average hourly remuneration for the taxi and delivery sectors is US$2.31, ranging from US$3.4 in Chile to US$0.9 in Ghana.

The findings indicate that on-demand platform activities are more accessible for relatively unskilled workers, especially because of their large market demand. However, while the market may be large, the markets for these services may be saturated, particularly in the taxi sector (Sun and Ertz, 2021). The formation of hybrid platforms such as Gojek and Grab, combining taxi with delivery, indicates lower market shares in their previous activities, necessitating the creation of larger scaled operations to maintain dominance in the markets. This hybrid activity involves significant capital formation, which prevents other platforms from competing.

Given the possibility of saturation, the more compelling source of job growth is on crowdwork platforms. A key issue to consider then is the number of workers in crowdwork. Data are difficult to collect for these arrangements. Currently, the top 10 countries with workers on five major platforms[24] include the Philippines and Indonesia, according to the OLI (Stephany et al., 2020). The Global Gig Economy Index ranked the Philippines as the sixth-fastest growing gig economy market in the world (Diesel, 2019). Filipino online workers represent 18.9% of the global freelance digital labour force. In Indonesia, about 170,000 users were registered on major digital freelance platforms in 2022, based on the OLI report (2022). Other unconfirmed industry reports indicate that 40,000 registered platform users are in Viet Nam, another 40,000 in Singapore, and 20,000 in Thailand (Jobandwork.asia, 2022).

3.5.2.2. Determinants of crowdwork platforms usage and its Impact on unemployment

According to the ILO (2021c) survey, 44% of the workers engaged in web-based OLPs consider these jobs their main income source. This was true for 32% of the women on web-based platforms as opposed to 29% of the males. It is crucial, then, to understand the determinants of participation in these crowdwork platforms.

This study will consider the OLI data. The determination of the actual number of OLP workers is tricky. The data were gathered from 162 of the 351 globally relevant online freelance platforms and used public data sources to obtain three measures of worker numbers for each platform: the number of registered worker profiles, the number of active workers (i.e. who have ever worked on a platform), and the number

24- These five major platforms by web traffic are Upwork, Amazon Mechanical Turk, Freelancer, People perHour, and Guru.

of full-time (who completed at least ten projects or earned at least US$1000). Moreover, the data were limited to fully digital transactions or work delivered and paid through the Internet. Local platform economies, such as ride-hailing apps and food delivery platforms, are thus excluded.

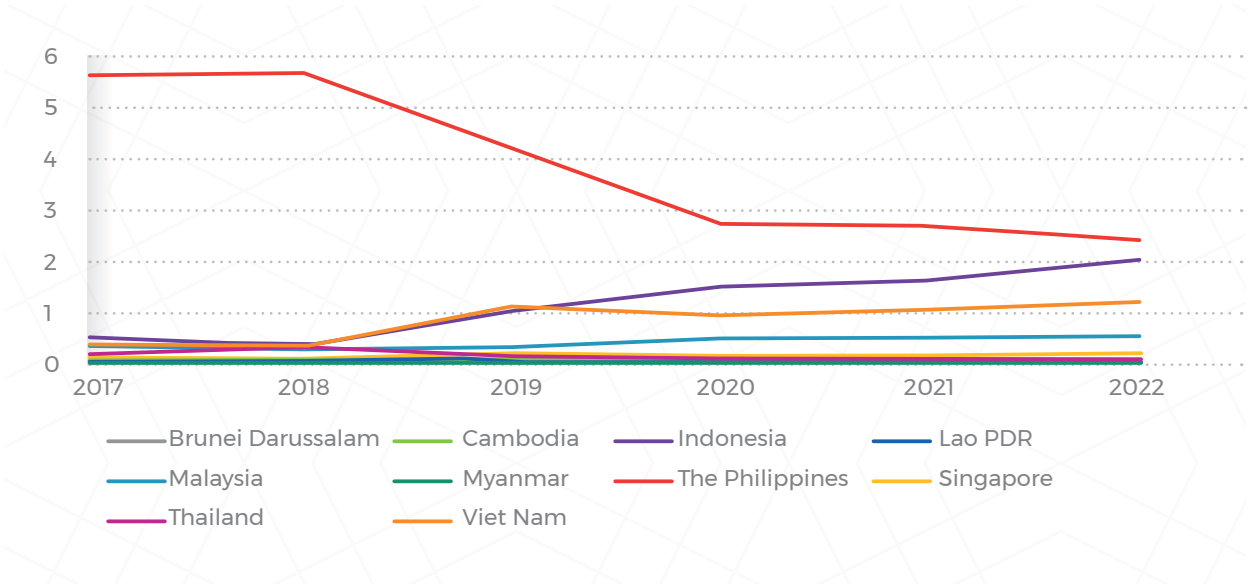
Based on Stephany et al. (2021), the OLI estimates 63 million registered worker profiles on online freelancing platforms. Of these, roughly 14 million have ever worked, and 3.3 million have worked significantly[25]. Adjustments were then made to correct for multihoming or cases when the person is working on two or more platforms, which leads to double counting. After these adjustments, those who ever worked were reduced to 7.7 million, and those who worked significantly were calculated at 1.8 million. Finally, adjusting further for possible multi-working increases these numbers to 9.3 million and 2.2 million, respectively.

Compared to most recent previous estimates (Kuek et al., 2015), these figures support the narrative that interest in online work is increasing rapidly (Chan and Wang, 2018; Huws et al., 2019). Nonetheless, the fact that only a small minority have completed any projects, despite a substantial number of projects, suggests that digital platform work is a viable way to make a living only for a small minority of registered workers.

Data from OLI 2020, which accounts for the Internet, which employs a different approach from OLI worker share, reports the shares in the number of active online workers on major online labour platforms from their total sample. The use of shares, instead of the number of workers, seems appropriate for two reasons. First, the sample of platforms changes over time, depending on the popularity and dominance of the platforms considered. The increase in platforms may confound the number of workers with the number of platforms considered. Using the shares then controls the workers and the sampled platforms simultaneously. Second, workers compete with the rest of the other workers in the world, making shares an appropriate measure of a particular country's prospects of obtaining employment.

Figure 11 shows the OLI data of shares of workers engaged in crowdwork. While Filipino workers seem to have been more engaged in this activity, their share has declined over time while other countries have created the conditions necessary to participate in platforms. Indonesia, Viet Nam, and Malaysia have gradually increased their involvement in these platforms. Other countries, particularly lower-income countries that still have a substantial portion of their GDP in agriculture, have not engaged in OLPs. Thus, their engagement in OLPs can still be raised.

Figure 11. Online crowdwork worker shares (in Percentage) by Country, 2017-2022

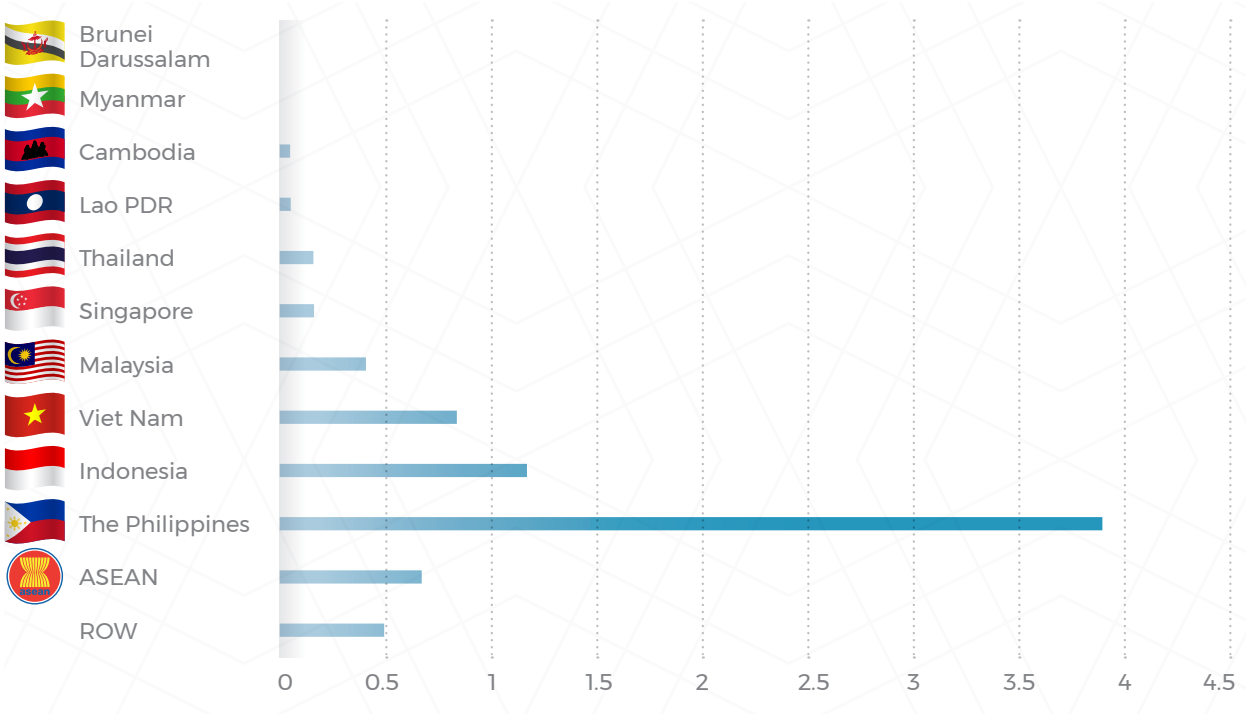


Source: Online Labour Index (2022)

25- The definition applies to workers who have had total earnings of at least US$1000 or who have at least ten completed projects

Relative to other countries in the world, the average shares of ASEAN, while small, is higher than the global average, as seen in Figure 12. Furthermore, the middle-income countries (the Philippines, Indonesia, and Viet Nam) appear to have engaged more in these activities compared to the lower-income and higher-income countries. Workers in middle-income countries, often trapped within inefficient institutions and poor technology, can use digitisation to create their own one-person technology-enabled offshoring operation (Lehdovirta et al., 2019).

Figure 12. Average worker shares (in percentages) in ASEAN and the Rest of the World (ROW), 2017 to 2022



Source: Online Labour Index (2022)

Given the limited data available, a simple model of platform worker shares and their consequences on unemployment can be formulated (see Table A3 in the Annex). This model measures the effects of structural transformation, the HDI, the GDCF, and the rural location on platform shares and unemployment. Table 17 shows the means and standard deviation of the variables used in the analysis in two periods, i.e. the years before the pandemic (2017-2019) and the year of the COVID-19 pandemic (2020). The small number of observations gathered limited the number of included variables in the analysis. These variables were discussed in the previous sections.

The following points are noteworthy. First, platform shares declined, and unemployment increased during the pandemic. These outcomes can be associated with the decline in economic activities as incomes fell at the onset of the virus spread. Second, women labour participation increased in 2020 as households may have searched for various alternatives. Third, as expected, the key economic variables, such as the HDI, the sectoral output shares of agriculture, services, and manufacturing, and gross domestic capital formation, declined during the pandemic. Fourth, the percentage of people moved to rural areas during the pandemic as income opportunities decreased.

Table 17. Means and standard deviations of variables used in the regression analysis

	Period			
	2017-2019		2020	
	Obs	Mean	Obs	Mean
Dependent Variables:				
Platform Share (%)	30	0.72	10	0.62
		(1.55)		(0.89)
Unemployment Rate (%)	30	2.60	10	2.90
		(2.36)		(2.26)
Independent Variables:				
Women's Labour Force Participation Rate (WLFPR) (%)	30	52.98	10	62.19
		(10.07)		(11.72)
Human Development Index (HDI)	30	0.74	10	0.68
		(0.10)		(0.14)
Services (% to GDP)	30	49.45	10	46.57
		(9.92)		(12.72)
Agriculture (% to GDP)	30	11.50	10	11.74
		(7.53)		(7.63)
Manufacturing (% to GDP)	30	19.02	9	15.87
		(4.91)		(5.37)
Gross Domestic Capital Formation (% to GDP)	27	28.25	9	26.47
		(5.28)		(7.04)
Rural Population (% to Total Population)	30	44.02	10	54.74
		(21.12)		(29.23)

Source: Authors' calculations

Table 18 shows the results of fixed effects estimates of global worker shares using variables related to the AMS economic structure. The following results are significant. First, women's labour force participation and HDI are both correlated with greater global worker shares in crowdwork. However, the interaction between these two terms indicates a negative effect on global worker shares. This suggests that working women in countries with lower HDI are more engaged in this activity. HDI, in this model, is a proxy for education and health. While higher HDI is associated with more crowdwork, this can include men and women. However, the coefficient for the interaction term indicates that greater labour force participation of women in less educated and lower life expectancy countries are more involved in crowdwork compared to their women counterparts in countries with highly educated and healthier workers. This last result indicates OLPs have opened up the possibility for women in lower-income countries to engage in more work, creating more inclusivity in the region and their respective countries. This point seems to supported by higher earnings of women relative to males in the platform economy.

Second, countries where the agricultural and services shares in total output are both decreasing are inclined to have a greater global share in crowdwork platforms. This finding suggests that countries developing out of agriculture but cannot expand their services sector are likely to have more workers in these OLPs.

Workers in middle-income countries whose service sector is not large enough to offer them more secure jobs are more likely to engage in platform work.

Third, countries with larger gross domestic capital formation (GDCF), which proxies for infrastructure and the country's capital investment, including digital infrastructure, are drawn to more platform work. The transaction costs involved in connecting to the internet are reduced with greater capital stocks. Hence, this variable is associated with internet/broadband intervention which is part of digital transformation.

Table 18. Fixed effects estimates of global worker shares in crowdwork, 2017-2020

	(1)	(2)
	Platform Share	**Elasticity**
Women's Labour Force Participation (WLFP)	0.174*	12.32
	(0.0885)	
Human Development Index (HDI)	16.05*	14.97
	(7.308)	
WLFP*HDI	-0.264*	-13.56
	(0.132)	
COVID-19 dummy	0.364	0.10
	(0.243)	
Services Share to GDP	-0.0469**	-2.95
	(0.0173)	
Agriculture Share to GDP	-0.192**	-2.72
	(0.0802)	
Manufacturing Share to GDP	0.0410	0.95
	(0.0239)	
Gross Domestic Capital Formation	0.142**	5.05
	(0.0584)	
Constant	-10.36	
	(5.995)	
Observations	35	
R-squared	0.635	

Source: Authors' calculations

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

In summary, the limited observations indicate that governments can provide the necessary conditions for increased engagement in platform crowdwork activities. This will involve investments in infrastructure, including digital infrastructure, as well as human capital, as measured with HDI. In the case of women, participation in the labour force counts as the most crucial factor as particular arrangements (that may include training) for low-income countries may be available. The high turnover rate of these arrangements can be a negative factor for the relatively skilled women in higher-income countries. The fact that women in lower-income countries are drawn towards platform work raises concern about the quality of work, particularly compensation. At the same time, the governments that may wish to limit involvement in

platform crowdwork may be able to do so by raising the size of their domestic services sector. Apart from capital investments being crucial, one key highlight is the limited set of alternatives for crowdwork providers. These workers are found in countries with a lower HDI for women labour force participants and a small- or medium-scaled service sector.

To assess the impact of crowdwork on the labour market, Table 19 shows the regression results for estimates of unemployment and its relationship with platform work. The unemployment data used in the regression analysis is based on the employment data and the labour force data from the ILOSTAT. While this data set does not clearly specify which worker is engaged in the informal sector, the data on self-employment of the ILO employment data would include those self-employed in the informal sector.[26] Many self-employed workers operate in the informal sector, either by choice or because they are unable to access formal employment opportunities. These workers may be engaged in various activities, including street vending, ride hailing, home-based production and other informal economic activities. Therefore, while the ILO employment data may be anchored to formal employment, it would include self-employed workers in the informal sector. Since platform workers are considered self-employed workers, they are, to some extent, captured in the unemployment and employment figures.

Based on this dataset, the following results are significant. First, predicted platform share has a positive correlation with unemployment, suggesting that much of the platform work was based on job reallocations and as platform activities are associated with greater labour force participation, greater unemployment was simultaneously noted. In effect, platform work generated more job reallocations and complementary work instead of job creation and increased employment.

Table 19. Fixed effects estimates on the impact of crowdwork platform on unemployment

	(1)	(2)
Variables	**Unemployment Rate**	**Elasticity**
Predicted Platform share	0.610***	0.164
	(0.169)	
Gross Domestic Capital Formation (GDCF)	-0.0559*	-0.532
	(0.0340)	
Predicted Platform share*GDCF	-0.0141***	-0.135
	(0.00419)	
HDI	8.752**	2.19
	(3.298)	
Rural	0.0429**	0.669
	(0.0150)	
Constant	-3.966	
	(3.039)	
Observations	35	
R-squared (Within)	0.305	

Source: Authors' calculations

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

26- The ILO defines informal employment as "all remunerative jobs not registered, regulated, or protected by existing legal or regulatory frameworks or jobs in which workers do not enjoy the same rights and benefits as formal workers" (ILO, 2018).

Nevertheless, in countries with greater GDCF, platform work is seen to have indirectly reduced unemployment. This means that capital investment might have brought about spillover effects (such as secure servers) that increased employment in various economic sectors. Hence, given the spillover employment effects of infrastructure and heightened job reallocations generated by platform activities, greater platform worker shares thus have the potential to reduce unemployment.

Second, the HDI seemed to have directly raised unemployment. This was noted earlier when data showed that middle-income countries have more unemployed. This is expected as workers in countries with greater human capital and non-labour assets tend to search longer for better job quality. In addition, the results show these middle-income economies are still developing the appropriate economic structures (ILO, 2020).

Third, countries with greater rural populations are also observed to have a higher level of unemployment. The more limited development, particularly industrialisation, in rural areas relative to the urban areas, has resulted expectedly in greater unemployment. Much of the informal sector are also found in rural areas (Musngi and Purba, 2022), and youth unemployment tends to be higher in informal markets (ILO, 2015). This rural variable reflects the region's youth unemployment (White, 2012). This result indicates that the introduction of OLP may not be enough to reduce rural unemployment.

The main takeaway from the unemployment regression is that online labour platforms can reduce unemployment in countries where capital investment, including digital infrastructure, is substantial. Nevertheless, the elasticity figures in Table 19 indicate a lower percentage decrease of 0.14% in unemployment, given a 1% increase in interaction of higher platform shares and substantial GDCF.

On the other hand, Table 18 indicates that a 1% increase in the share of GDCF to GDP results in a 5% increase in platform shares. This low coefficient measuring the impact of platform participation and capital investment can indicate that active workers in platforms may have formal jobs already. Other explanations are that those who were doing platform work are already or were previously employed aside from the likelihood due to measurement errors. Many platforms can be used simply to reallocate work arrangements for workers possessing specific work qualities, making access to these digital platforms difficult. Even in countries with lower HDI, women engaged in platform work may have distinct skills or experience that qualify them for these jobs. Hence, there is the need to have more unemployed workers or those in the informal sector who are not counted as employed to move towards more formal employment or self-employment.

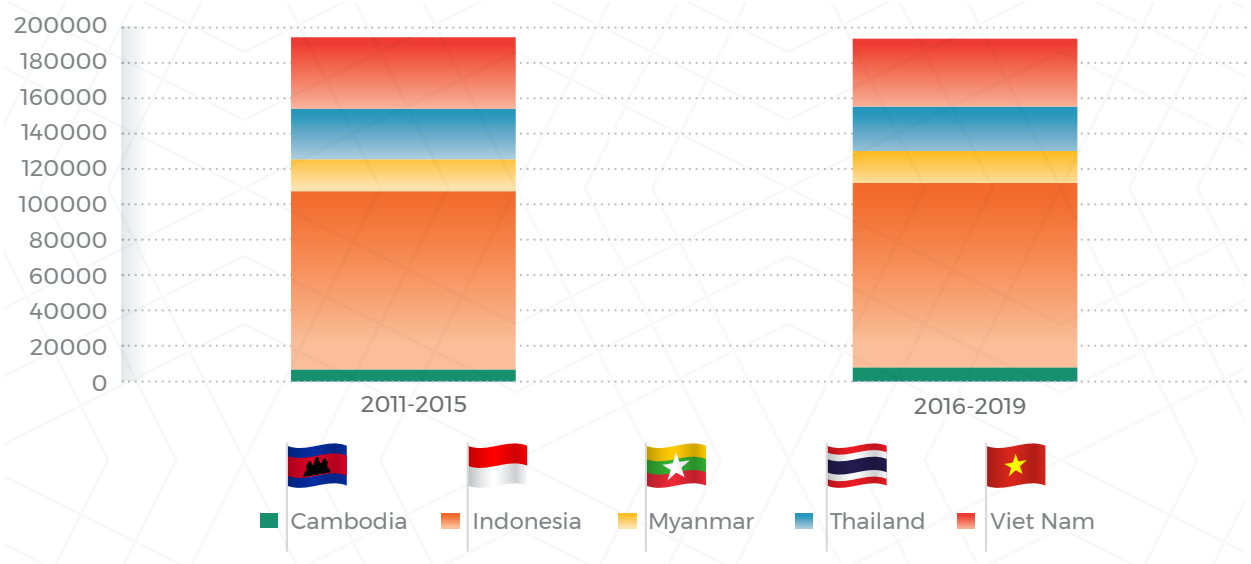
4. Informal Labour Markets in ASEAN and the Extension of Social Protection

4.1. Magnitude and description of the informal sector

The pandemic exposed a weak foundation of Southeast Asian labour systems: the large percentage of informal markets. Restrictions on the movement of people and the sudden stoppage or severe downscaling of economic activities to contain the propagation of COVID-19 strongly impact informal workers. The sectors worst affected by the pandemic – such as accommodation and food service activities (including tourism), wholesale and retail trade, transportation, and construction – all have a particularly high proportion of informal labour (ADB, 2021). According to ASEAN (2019), the informal employment rate in the accommodation and food services sector ranged from 81% to 99% in Cambodia, Lao PDR, Myanmar, and Viet Nam. In the same four countries, informal employment rates range from 70% to 97% in wholesale and retail trade, and from 90%to 99% in construction. From the same ASEAN report, it can be estimated that in eight of the 10 AMS (excluding Singapore and the Philippines, which have no data), 57.5 million workers in these four sectors were in informal employment before the pandemic.

Figure 13 presents the average number in the informal sector in select AMS where data is available. The following points are important. First, despite the presence of platform opportunities, the average number of workers did not seem to change significantly from 2011-2015 and 2016-2019. Second, for countries that have achieved substantial growth from 2016-2019, in their respective income categories, Thailand and Viet Nam, the number of informal workers has slightly declined. Third, for countries with relatively lower-income growth rates and with lower incomes, Cambodia, Myanmar, and Indonesia, the informal workers have slightly increased.[27] Fourth, given the significant changes that occurred during the period, the observed stable number of informal sector workers indicates that informality, in general, is affected by non-economic factors, specifically skill set and demography.

Figure 13. Average number of informal workers in select AMS, 2010-2019 (in thousands)



Source: ILO (2022)

27- The list of countries cited here is based on income levels.

An estimated 244 million workers are in informal employment in ASEAN region, with large disparities between developed and developing countries (ILO, 2019). Nearly 79% of all workers in ASEAN region are in informal employment, exceeding the world average. The levels of informal employment vary significantly across countries. Informal employment is found mostly in informal enterprises, which indicates a strong association between the lack of social protection and the informality of economic units. Thus, expanding social security coverage will require both social security extension strategies and the formalisation of informal businesses. There is also a share of informal employment in the formal and household sectors, which concerns mostly employees and contributing family workers who are not entitled to social security or other employment-related benefits, despite the formally recognised nature of their workplace.

The previous section noted that significant unemployment is found in two demographic sectors, women and youth. It can be shown here that the informal sector also comprised mostly of these demographic groups. Table 20 presents the share of the informal sector to total employment by age group. Lower- and middle-income countries have the highest share of the informal sector, with a significant proportion found in the 15-24 age group. These enterprises are still rooted in agriculture, where jobs are still considered seasonal and informal. Countries that have a substantial number of people that have moved out of agriculture are those that have a lower informal share in total employment.

Table 20. Informal employment by age groups, %

	Age Groups					All employed
	15-24	25-39	40-59	60-64	65 older	
Lower-income countries						
Cambodia (2019)	85.8	86.2	91.5	92.3	94.7	88.3
Myanmar (2017)	94.2	85.5	77.5	78.9	73.6	84.1
Middle-income countries						
Lao PDR (2017)	84.9	70.7	76.0	84.3	87.9	75.4
The Philippines (2018)	N/A	N/A	N/A	N/A	N/A	36.6
Viet Nam (2016)	N/A	N/A	N/A	N/A	N/A	67.7
Indonesia (2018)	31.7	37.4	50.9	71.8	77.9	44.1
Higher-income countries						
Thailand (2018)	30.9	26.3	42.5	69.2	82.9	37.1
Malaysia (2017)	9.7	11.0	18.9	3.4	-	10.6
Brunei Darussalam (2017)	58.8	47.4	43.1	38.4	32.3	46.6
Singapore	N/A	N/A	N/A	N/A	N/A	N/A

Source: ASEAN (2022); Inputs from Cambodia

Notes: Figures are percentages of informal workers to total employment in a given age category. N/A-not applicable

More importantly, the table indicates that the informal sector reflects the youth unemployment problem. Lacking in experience, the youth has limited job options. Thus those belonging to the aged group from 15 to 24 years old have the highest share of workers in informal sectors in low-income countries and Brunei Darussalam. On the other hand, for countries that have shifted mostly away from agriculture, such as Thailand, informal sector workers are mainly retired or nearly retired, making informality seem more of an aging problem. Similar to the youth, the options for older individuals are limited as their productivity is viewed to have diminished.

Table 21. Rate of informal employment by sex

	Male	Female	All employed
Lower-income countries			
Cambodia (2019)	89.0	87.6	88.3
Myanmar (2017)	81.2	87.4	84.1
Middle-income countries			
Lao PDR (2017)	71.8	79.6	75.4
The Philippines (2018)	83.9	73.9	80.0
Viet Nam (2016)	60.7	53.3	57.2
Indonesia (2018)	40.1	50.2	44.1
Higher-income countries			
Thailand (2018)	36.4	37.8	37.1
Malaysia (2017)	11.0	10.1	10.6
Brunei Darussalam (2017)	46.9	46.2	46.6
Singapore	N/A	N/A	N/A

Source: ASEAN (2022) and ILO (2019)

Note: N/A-not applicable

Table 21 features the rate of informal employment by sex. Note that the rate of informal employment similarly shows a greater percentage of female workers in lower-income countries. This same pattern was also found in female unemployment rates, which were higher than male unemployment. Women with lower skills cannot compete with men in the formal sector and are thus more exposed to informal activities. Women tend to have less expertise and skills than men and can be found in lower-valued informal activities.

Table 22 shows the educational profile of informal workers. Informal workers are more likely to have finished primary education, particularly in low-income economies. But in more developed economies, there is still a sizable proportion of those completing secondary education in the informal sector. Informal arrangements seem to persist even as the economy improves among AMS and the inability to complete secondary education exposes the youth to accepting informal work.[28]

The large share of workers in informal employment poses an enormous challenge to effective social protection. The implications for workers' level of protection differ, depending on whether social protection is linked to a contract with a specific employer, employment status (being an employee or self-employed), or linked to participation in gainful employment.

For most AMS, social protection benefits linked to a contract with a specific employer, such as workers' compensation and employer-financed (private) health or pension insurance, are mostly limited to formal employees with a standard employment relationship. Benefits are usually lost once the contract with that employer is terminated. Under the ILO normative framework and policy advice, such forms of protection are considered less effective than protection based on collective risk-sharing and solidarity (ILO, 2019; Behrendt and Nguyen, 2018).

28- Women who have more skills and have the same, if not higher education, than men, are absorbed in the formal sector.

Table 22. Distribution of informal markets by education

	Primary Education and below (ISCED level 0 and level 1)	Secondary education (ISCED level 2 and level 3)	Post-secondary non-tertiary education (ISCED level 4)	Short-cycle tertiary education (ISCED level 5)	Bachelor's level or higher (ISCED levels 6, 7, and 8)	All employed
Brunei Darussalam	13.6	60.2	12.3	-	13.9	100
Cambodia	55.8	40.3	1.1	-	2.8	100
Lao PDR	41.6	44.8	1.5	8.1	4.0	100
Malaysia	20.9	64.7	0.5	-	13.8	100
Myanmar	74.0	11.0	-	15.0		100
The Philippines	46.0	37.0	-	15.0		100
Thailand	31.2	37.7	29.9	-	1.2	100

Source: ASEAN (2022)

Table 23 shows the distribution of workers by the nature of the contract. The following points are worthy. First, significant differences in the shares can be noted across countries, indicating that contracts have changed with economic development. Higher-income countries tend to have more employees than self-employed individuals, suggesting greater social protection. Second, in some low and middle-income countries, like Cambodia and the Philippines, while employees are a majority, it cannot be ascertained whether they work in formal or informal markets as a substantial number of informal workers can be found within formal enterprises. Third, most the middle-income countries have more self-employed persons, but a gradual growth in the percentage of the number of employees can be noted.

Table 23. Percentage distribution of workers by nature of the contract, 2011-2020

	2011-2015		2016-2019		2020	
	Employees	Self-employed	Employees	Self-employed	Employees	Self-employed
Lower-income countries						
Cambodia	39.36	60.64	50.40	49.60	51.93	48.07
Myanmar	33.74	66.26	35.54	64.46	33.62	66.38
Middle-income countries						
Lao PDR	17.53	82.47	20.77	79.23	21.29	78.71
The Philippines	57.29	42.71	62.74	37.26	62.59	37.41
Viet Nam	35.89	64.11	43.30	56.70	45.16	54.84
Indonesia	45.99	54.01	48.50	51.50	47.09	52.91
Higher-income countries						
Thailand	44.86	55.14	49.18	50.82	49.48	50.52
Malaysia	75.06	24.94	73.80	26.20	74.97	25.03
Brunei Darussalam	91.92	8.08	91.47	8.53	90.99	9.01

Source: ILO (2022)

4.2. Social protection for the self-employed

One can assess the state of social protection received by the informal sector by looking at the social protection extended to the self-employed. Self-employment can be formal (registered enterprise) or informal (own-account unregistered worker). In general, being a self-employed person in the informal sector is a much better off position than a worker in the same sector since the government provides more subsidies to the former than the latter. The expansion of voluntary coverage through subsidies often creates a situation whereby relatively well-off self-employed workers are covered by social security and health insurance, while the rest of the informal workers are hardly protected (ILO, 2019). This is crucial since all platform workers are considered self-employed.

Table 24 presents the types and characteristics of social protection offered to self-employed individuals in the informal sector. The following points can be noted. First, lower-income economies tend to exclude the self-employed with more voluntary coverage. Higher-income countries, such as Brunei Darussalam and Singapore, provide universal coverage in health care. Second, mandatory coverage for middle-income countries is quite common. In the case of the Philippines, mandatory coverage is found in almost all types of social protection, but the implementation of such programmes remains a problem. Third, most AMS provide child and family benefits in the form of cash transfers which are targeted at the most vulnerable segments of the population. However, unemployment insurance has not been put in place.

Social protection is viewed as crucial in the transition towards OLPs since these programs provide income security and provide access to health and education services given sudden movements in employment. Given the unstable nature of OLPs, individual workers are likely to fall into poverty unless social protection, particularly unemployment insurance, is provided. It is crucial that these social protection measures be extended to all workers in the informal sector.

Table 24. Social protection in the AMS

	Health Care	Sickness	Maternity (cash)[a]	Old Age[b]	Work Injury[c]	Invalidity	Survivors	Child and Family Benefits (cash)[d]	Unemployment
Lower-Income countries									
Cambodia[e]	E	E	E	None	E	None	None	None	E
Myanmar	V	V	V	None	None	None	None	Selective	None
Middle-income countries									
Lao PDR	V	V	V	V	V	V	V	None	E
The Philippines	MC	MC	MC	MC	MC	MC	MC	Selective	None
Viet Nam	MC	E	E	V	E	V	V	Selective	E
Indonesia	MC	E	E	V	E	V	V	Selective	E
Higher-income countries									
Thailand	V	V	V	V	V	V	V	V	E
Malaysia	U	E	E	V	E	E	E	MC	E
Brunei Darussalam	U	E	E	V	E	V	E	MC	E
Singapore	U	E	MC	MC	E	U	V	Selective	None

Source: ILO (2019): Inputs from Myanmar, Cambodia, the Philippines and Singapore

Note: V = Voluntary participation for self-employed workers.

E = Excluded.

MC = Mandatory coverage for self-employed workers.

None = no scheme in place.

a = In Thailand, self-employed workers have voluntary coverage for cash benefits; the medical benefits are covered through the universal coverage scheme.

b = In Malaysia and Indonesia, self-employed persons can voluntarily participate in the provident fund. In Malaysia, they are excluded from the social insurance scheme. In Singapore, self-employed persons with an annual net trade income greater than SGD6,000 are required to contribute to their Central Provident Fund (CPF) MediSave Account for their healthcare needs and can also make voluntary contributions to their CPF Ordinary Acconut and Special Account for their retirement needs.. In Indonesia, mandatory coverage of self-employed workers by the old-age benefit will be gradually extended according to the Law on the National Social Security System (Sistem Jaminan Sosial Nasional).

c = In Malaysia, registration to occupational insurance is only compulsory for self-employed taxi and e-hailing drivers; other self-employed workers and domestic workers are excluded from the scheme. In Viet Nam, the Law on Occupational Safety and Health (2014) includes an extension of employment injury insurance to all workers, including self-employed.

d = In Singapore, the benefit is universal and unconditional for newborn babies. In Thailand, the cash benefit for children aged 0–6 years is unconditional and non-means tested. Malaysia has both unconditional and conditional cash transfers for children and families.

e = In Cambodia, the Law on Social Security 2019 covered health care, sickness, old age (pension scheme), work injury scheme and unemployment scheme. These four schemes are to be applied to all workers, including the informal workers. Yet, in the current context, informal workers only receive the health care scheme under the Health Equity Fund. The government is currently drafting the Decree to include self-employed workers to be covered by health care and pension scheme on a voluntary basis.

U = Universal coverage (independent of work status).

Selective = means-tested.

4.3. Transition from informal to formal sectors through online labour platforms

Despite the close identity of the informal markets and OLPs, the data presented indicate that size of the informal sector has not been affected. In a selected set of literature (e.g. La Porta and Schneider, 2014), the informal sector is presumed to be marginally productive. Thus, their presence indicates the informal workers' low prospect of thriving in the formal sector. Informality is viewed to be comprised of an infinite number of inefficient and poorly educated workers, resulting in extremely unproductive and small scaled enterprises. Because of their limited contact with the formal sector, the possibility of transitions to formality is quite low unless the country develops.

Nevertheless, certain literature says otherwise (e.g. Lanzona, 1998; Chen, 2006). The sheer size of the informal sector in most developing countries makes this sector a major provider of employment, goods, and services, particularly to lower-income groups. Its ability to reduce transaction costs (including taxes) creates a vital link between the poor and the formal industries.

Another set of literature also points out that many services offered in online labour platforms, such as cleaning, driving, and tutoring, are already being performed by the existing informal sector in developing countries (Weber et al., 2021). For most of these on-demand activities, the informal sector can be an important source of labour supply for OLPs which remain informal in nature.

More importantly, the prevalence of flexible labour relationships and sub-contractual arrangements resulted not in response to economic incentives such as rising remuneration or labour costs (Piore and Sabel, 1984) but because of the emergence of technological innovation and poor regulatory policy (Chen, 2006). Also, since the 1980s, many formal firms in developed countries have decided to subcontract production to workers through the easier transmission of training and knowledge (Baldwin, 2016). The advantages afforded by OLPs are thus not based on economic factors but through a set of exogenous factors that invariably provide the same advantages for the rise of the informal sector. The main proponents of online services can in effect engage in the same type of transactions and arrangements as the traditional informal sector. On the part of the worker, if the OLPs can offer the bridge towards more formal enterprises, this situation then creates a potentially costless transition from informal activities to formal provision of services. In return, the OLPs, especially those that are created locally, can be incorporated into a formal establishment through a series of incentives and subsidies on the part of the government (Weber, et al., 2021).

Formalisation is not an objective but a necessary condition to reach important objectives (ILO, 2021). As the Fourth Industrial Revolution and digital transformation threaten to decrease jobs and push low-skilled individuals towards poverty and informality, the formalisation of enterprises, including OLPs, draws in greater productivity and easier market access, contributing to their sustainability and engendering competition in national and international markets. Formalisation is also a prerequisite for adequate labour and social protection of the workers and other contracted parties. At the macro-level, formalisation improves social welfare because it broadens the area of responsibility of the government, notably by allowing increased public revenues and strengthening the rule of law. It leads to fairer societies by more equitably distributing rights and obligations among its members.

At the level of the workers, transitioning them to register as formal entities is a crucial step to accessing social protection. A key issue then is that current regulatory frameworks, tax systems, and social protection systems are not broad enough to integrate these new and increasingly diverse forms of employment from the OLPs into the formal economy to protect the benefits and well-being of workers. For formalisation to be feasible, strict regulations on the informal sector should be avoided since these may result in lesser options for the workers. Easing the costs of businesses will also not be effective in this shift as this may encourage more informal online activities. Cost-benefit analyses that focus on the worker's transition to formality are not enough.

Instead, governments must create an institutional process mediating informality with formal processes and rules. A crucial element in this process is an agreement or collaboration between the government and the OLPs on minimum conditions to ensure workers' fair treatment and protection. This may include (a) dispute resolution mechanisms, payment protection and identity verification; (b) training and development opportunities for workers; and (c) registration with government agencies and obtaining licenses and permits to fulfill all the legal and regulatory requirements of the country where the OLP operates. It is thus the responsibility of the government to institute appropriate laws and regulations that apply to the OLPs while consulting and recognise the latter's unique features and characteristics. By instituting these measures, workers will be given incentives to become formal as they can now expect support from professional organisations and government agencies in work disputes and problems.

The literature has noted that informal settings are characterised by informal rules and values which may conflict with formal and legal rules (Weber et al., 2021; Sutter et al., 2017). The huge gulf between formal and informal rules can lead to perceptions of fears and uncertainties of the unknown. Another way to consider this point is to take note that social institutions designed to create necessary positive externalities have not kept pace with technologies. Given the depth of these perceptions, no singular policy measure will be effective.

Apart from the usual market-based solutions, a comprehensive intermediation approach that involves socially oriented non-government organisations (NGOs) or social enterprises that can identify irregularities and protect worker rights may be adopted to alleviate the uncertainties resulting from the unfamiliarity with formal digital activity (Sutter, et al., 2017). Two emerging institutional developments can be noted. First, the direct involvement of workers or worker advocates in the platform economy to improve worker conditions in platforms and developing a common global definition of good jobs (Berg, et al., 2018). These include[29], Samasource[30], Fairwork Foundation[31], and Testbirds[32].

Second, there are attempts to require ISO certificates for sharing economies.[33] Specifically, a technical committee (ISO/TC 324) has been established to develop global standards for platforms that connect providers and users of online services (Naden, 2019). These standards aim to ensure safe and trustworthy transactions by encouraging quality transparency, accountability, and consumer protection.

4.4. Barriers to the transition: Labour market power and decent work

One of the fears surrounding OLPs is the lack of decent work conditions and social protection. Online labour platforms may increase productivity as platform intermediation facilitates outreach and matching, creating greater scale in operations and raising incomes. For such activities, these improvements are, however, accompanied by the added cost of longer working hours in the absence of labour standards, including Occupational Safety and Health Standards. Because of this, a substantial number of workers in the informal sector may have reservations about engaging in these transactions.

Lehdonvirta et al. (2018) describe the situation in three conditions. First is the condition of glocalisation, which refers to the integration of local differences in the cost and availability of skills to a standardised global structure. In the process, earnings for the same quality of work may drastically be reduced as more workers worldwide participate in the market. Second, the condition of platformisation of the labour transactions limits the workers' power to mediate relative to face-to-face labour transactions. While signalling raises the possibility that firms will pay fees based on the workers' productivity, these signals are dependent on the ability of platform firms to determine the correct ranking and skill progression. Finally, the condition of individualisation eliminates the market signals that allow for statistical discrimination if the information is not properly relayed to platform firms. According to Ewens et al. (2014), information is "averaged" without sufficient individual-level information, resulting in stereotyping.

However, a serious problem emerges once monopsony power exists. As heterogeneity in jobs is created, the workers' ability to bargain for appropriate fees is limited, especially as platform firms segregate and limit the possibility of workers shifting to other firms. Caldwell and Oehlsen (2019) provided evidence of extremely limited supply response to higher fees, allowing firms to markdown fees below the workers' marginal productivity. These conditions indicate that worker earnings are dependent on outside options that are available in each setting (Caldwell and Harmon, 2019). In lower-income countries where information from social networks can be limited, larger increases in earnings are needed to induce job-to-job transition rates.

Platformisation and individualisation can worsen the situation as platforms can eliminate the value of social networks and labour mobility by setting individualised but marked-down earnings. Dube et al. (2020) demonstrated that market power on platforms can arise due to a small number of employers, which results

29- Turkopticon (a tool which allows workers to rate clients who posts tasks on Amazon Mechanical Turk
30- A non-profit firm that connects low-income workers in developing countries with digital opportunities on major platforms such as Google and Walmart
31- A research project that evaluates and ranks online labor platforms based on their adherence to fair work principles such as pay and working conditions
32- A software testing platform that initiated a voluntary code of conduct for paid crowdsourcing
33- ISO certification is a written assurance by International Organization of Standardization (ISO), an independent body, that a product, service or system meets specific requirements.

from search frictions in locating high-paying jobs or idiosyncratic preferences over tasks (or non-wage) characteristics.

Even if online labour markets are unaffected by traditional markers of anti-competitive markets, these can be rife with monopsony if workers have limited options other than the informal markets. In ASEAN context, the lack of options for workers due to regional industrial concentration and high search costs can result in greater market power for the employers (Flanagan and Khor, 2013).

In the case of OLPs, such market power may arise due to a small number of employers, search frictions in finding higher paying tasks, or from idiosyncratic preferences over task characteristics. One possible indication of this is the gender wage gap. While men's remuneration are also observed to be be lower on the crowdwork platform compared to traditional contracts, women worldwide on average receive 82% less than the males in such jobs (Adams-Prassi and Berg, 2017). While a significant portion of this gap can be attributed to worker characteristics, including education, discrimination can be inferred if lower remuneration relative to male earnings are given to women with the same characteristics as the males. Given the sizeable number of workers in the market but with tasks posted centrally in OLPs, women can choose tasks associated with their gender and complementary to their responsibilities at home. The worker's specific choice over differentiated tasks can result in a greater market power on the part of the OLP, resulting in marked-down earnings below the worker's true contribution to the firm (Card, et al., 2016).

Addressing these issues of monopsony and market power should revolve around creating platforms that can prioritise worker's rights without limiting the viability of the OLPs. The potential technological unemployment due to the fourth industrial revolution can be avoided by creating digital platforms as stepping stones for more gainful employment. This includes creating enough social protection to encourage the workers to engage in OLP activities and developing minimum standards for existing and emerging platforms to register as formal companies.

The proliferation of digital platforms has widened e-commerce market opportunities and has facilitated cross-border trade of digitally ordered and delivered products and services within and beyond the region. While the global pandemic experience has attested to the resilience of e-commerce and the digital economy, it has also shown that digital and data divides continue to exist, resulting to uneven levels of readiness for digital trade across countries.

To fully take advantage of the export opportunities leveraging on digital trends, it is crucial for countries to keep pace with rapid, emerging needs in fostering digital economy sectors such as investing in ICT infrastructure and enhancing digital skills competency. There is also a need to intensify digital regulatory cooperation geared towards adopting common digital standards, minimizing technical duplication, and promoting a higher level of interoperability to facilitate better and increase cross-border trade.

To this end, data and digital economy measures are gaining prominence in bilateral and regional agreement negotiations. Provisions concerning e-commerce, research and development, investment, and furthering services liberalization (particularly those that strategically enable digital services trade such as financial and insurance services; information, computer, and telecommunications; and other business services) are becoming increasingly covered in trade agreements. However, liberalization efforts can only be gainful unless the physical infrastructure and human capacity needs pointed our earlier are sufficiently addressed (Crivelli, et.al., 2022). More recently, digital economy agreements which feature more ambitious binding commitments on ensuring free data flow and cover a wider range of digital topics such as data security, protection, and privacy, are also being advanced (ADB, 2022a; 2022b).

5. Environments for Labour Platforms in ASEAN

5.1. Employment environment

The labour code defines the principles and sets the terms and conditions of labour and employment in the AMS (see Table A4 in the Annex). It provides for the workers' occupational safety and health, social protection, and rights to social dialogue and participation in collective bargaining/trade unions. It also outlines the elements of wage, work, and command to determine employment relations, which are operationalised by tests.

Brunei Darussalam, Indonesia, Lao PDR, Myanmar, Thailand, and Viet Nam use a multifactorial test that considers the personal relationship[34], mutuality of obligation[35], degree of control[36], right to delegate or subcontract[37], and representation as a part of an employer's business[38]. The Philippines uses a battery of tests outlined in the Department of Labour and Employment (DOLE) Labour Advisory No. 14. These include the fourfold test[39], economic reality test[40], and the independent contractor test. Malaysia uses the control test. Some riders and representatives of groups and associations shared that some platforms have policies that appear to impose control over riders. These include requiring riders to wear uniforms and admonishing them to refrain from engaging with passengers in any political-related discourse.

New business models bring to light deficits in the existing regulatory frameworks. For platforms, workers are not employees since the elements of wage and command are absent. Wage is absent since remunerations are coming from clients and end-users. Command is absent since workers have the discretion to accept or reject tasks. On some platforms, workers also have options to accept a job automatically. Automated sourcing and matching workers-jobs are not forms of control. Rather, these enhance the efficiencies in job searches that benefit workers and improve the delivery of services that benefit clients. Some platforms, like Foodpanda, help partner riders to understand market variabilities through heat maps (in Thailand) and peak hour/zone incentives (in Singapore), allowing workers to take advantage of the information to maximise their earnings. Other platforms, like GoTo and Grab, leverage the review/rating system, among other things, when matching workers with tasks.

Platform work is governed by the service agreement stipulating workers as independent contractors. This is the case with ride-hailing, courier, and food delivery services in most AMS except for Brunei Darussalam, Malaysia, and Singapore. Brunei Darussalam classifies on-demand platform workers as freelancers, while Malaysia and Singapore classify these as self-employed (see Table 25). Since no employment relations are established, platforms are not compelled to comply with regulatory standards related to employment, social protection, and taxation.

Work on platforms is akin to self-employment, where willing workers take up work, and workers may incur penalties when tasks are not properly executed. This ensures the quality of services provided to end-users. In the case of partner riders/drivers, penalties are meted out when accepted jobs are regularly missed or left

34- e.g. Worker is not an employee when s/he owes no duty and fidelity towards the employer.
35- e.g. Worker is not an employee when there is an exchange of work for a wage and future performance.
36- e.g. Worker is not an employee when there is no control over what and how a worker does.
37- e.g. Worker is not an employee when s/he engages somebody else to the job.
38- e.g. Worker is not an employee when s/he does not use uniforms/badges/logos.
39- The selection and engagement of the employee, payment of wages, power of dismissal, and power of control over the employee's conduct.
40- Services rendered are integral to the business, degree of control by the platform.

incomplete. Repeated cancellations have implications for securing future tasks. For example, Foodpanda riders can be temporarily banned from receiving orders, while Gojek riders can have lower ratings. LINE MAN Wongnai riders are allowed a daily cancel quota. Upon reaching the quota, riders need to queue to secure another task.

Despite the lack of employment relations, platforms claim they ensure fairness to their partners. For example, riders of most platforms are compensated for client-initiated cancellations. In cases of disputes, mechanisms are in place for immediate resolution. Foodpanda, for instance, claims high rates of dispute resolution. Local wages are also used as benchmarks in designing and adjusting the basic fee structure.

Table 25. Comparison of employment status on selected platforms in the AMS

Country	Platform	Current ruling on employment status	Test of an employment relationship
Brunei Darussalam	Go Rush Brunei, Brunei Delivery Service, Dart, GoMamam, HeyDomo	Colloquially known as "Runners", Some are outsourced and freelancers.	Multifactorial Test (5 factors that contribute to the success of On-Demand
Cambodia	Nham24, E-Gets, and Foodpanda	Independent Contractor	2017 Labour Law regulates employment contracts / relationships
Indonesia	Grab and Gojek	Independent Contractor	Multifactorial Test (Certain principles and factors based on 2003 Labour Law)
Lao PDR	Foodpanda	Independent Contractor	Multifactorial Test
Malaysia	Grab, Foodpanda and GoGet	Self-Employed	Control Test (Over working conditions and worker's degree of dependency on the employer)
Myanmar	Foodpanda, Yangon Door2Door, GrabFood	Independent Contractors	Multifactorial Test
The Philippines	Foodpanda, GrabFood, Lalamove, MrSpeedy, TokTok the Philippines	Independent Contractor	Four-fold test, Economic reality, test, independent contractor test
Singapore	Deliveroo, Gojek, and Grab	Self-Employed	Employment Act (prescribes minimum employment conditions)
Thailand	LINE Man, Grab Taxi (providing food-delivery services through the application Grab Food), Food Panda and the Gojek Group (via Get), Grab	Independent Contractors	Multifactorial Test
Viet Nam	Grab	Independent Contractor	Multifactorial Test ("20-Factor Test" Determines whether an individual is an independent contractor or an employee)

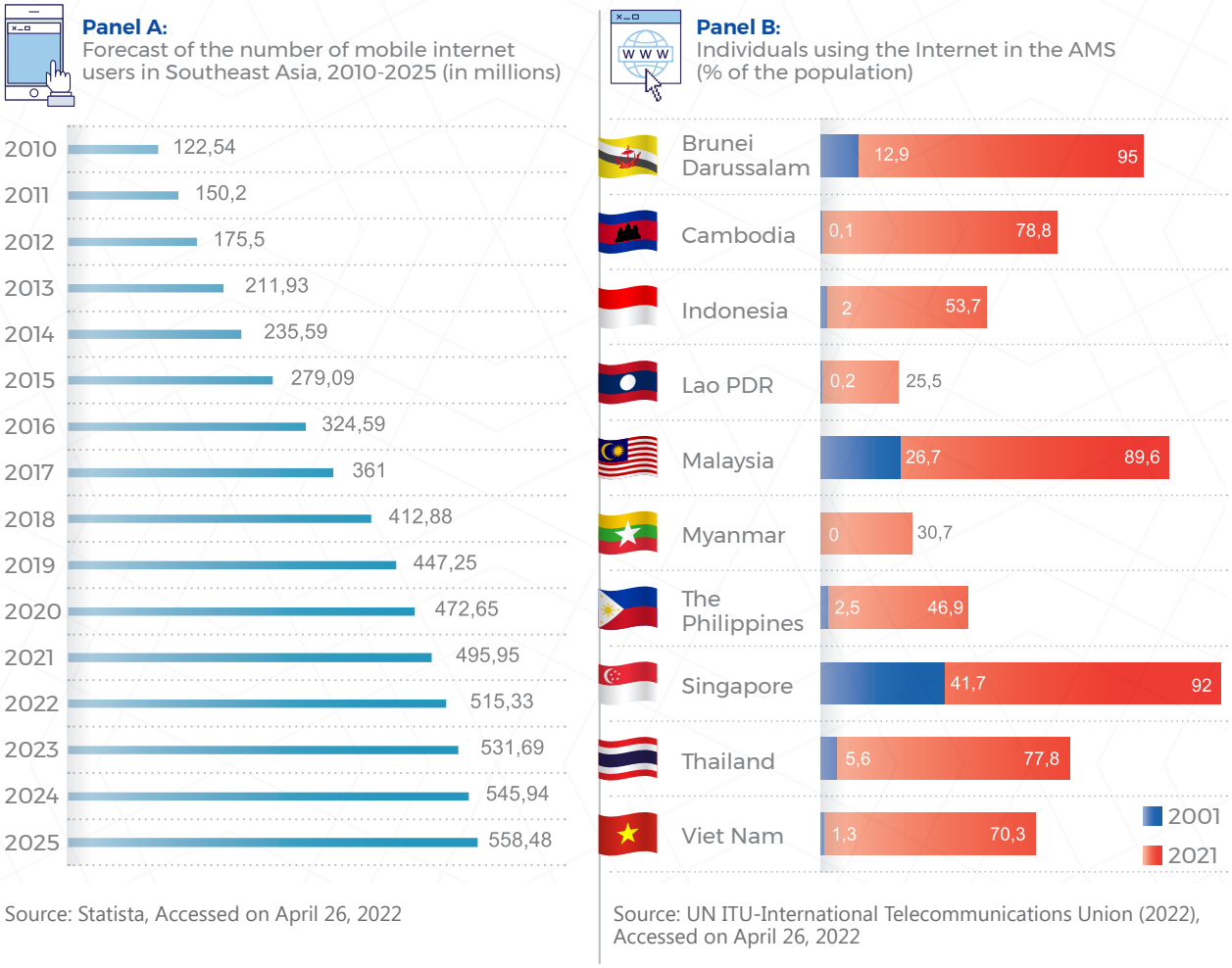
Source: Estrella et al. (2021)

5.2. Infrastructures

Internet connectivity is one of the critical infrastructures enabling labour platforms, and the AMS has made significant progress on this front. The forecast of Internet users in the region is an uptrend (Figure 14, Panel A). In 2000, only Malaysia and Singapore had over 20% of their population using the Internet. Substantial improvement in Internet access occurred two decades after. However, the progress is far from uniform, with some AMS being more advanced than others (Figure 14, Panel B). Brunei Darussalam, Singapore, and Malaysia have at least 90% of their population using the Internet, while Lao PDR and Myanmar have only a fourth and a third of their population, respectively.

Based on Datareportal[41], almost all Internet users ages 16-64 years owned smartphones, and around 70% in Indonesia, Malaysia, the Philippines, and Singapore owned a desktop/laptop. Internet users in the Philippines spent the most time on the Internet/day at around 10.45 hours. Those in Viet Nam spent the least at approximately 6.63 hours.

Figure 14. Internet users, forecast and actual



Source: Statista, Accessed on April 26, 2022

Source: UN ITU-International Telecommunications Union (2022), Accessed on April 26, 2022

Singapore is the most advanced in various digital indicators (Table 26). It is included in the top 10 countries in digital innovation, security, transformation, and trade. It is also included in the top 20 countries in digital government, skills and inclusion, and connectivity. Meanwhile, Malaysia registers in the top 10 countries in digital security and the top 20 countries in digital innovation. Cambodia, Lao PDR, and Myanmar lag behind other AMS in all the digital indicators, although Indonesia, the Philippines, and Viet Nam also underperform in connectivity and skills/inclusion.

41- https://datareportal.com/, Accessed on April 26, 2022

Table 26. Rank of the AMS in various digital indicators

	Digital Transformation and Digital Trade (out of 130 countries)	Digital Government (out of 193 countries)	Digital Connectivity (out of 176 countries)	Digital Skills and Inclusion (out of 187 countries)	Digital Security (out of 182 countries)	Digital Innovation (out of 190 countries)
Brunei Darussalam	-	60	53	47	85	66
Cambodia	106	124	128	144	132	144
Indonesia	66	88	111	107	24	73
Lao PDR	110	167	139	137	131	154
Malaysia	38	47	63	62	5	12
Myanmar	-	146	135	147	99	165
The Philippines	83	77	101	107	61	95
Singapore	7	11	18	11	4	2
Thailand	54	57	78	79	44	21
Viet Nam	63	86	108	117	25	70
Source	World Economic Forum's Network Readiness Index (NRI) 2021	United Nations E-Government Development Index 2020	ICT Development Index (IDI) 2017	United Nations Development Programme Human Development Index (HDI) 2020	ITU Global Cybersecurity Index (GCI) 2020	World Bank Ease of Doing Business Index 2019
Website	https://networkreadinessindex.org/countries/	https://publicadministration.un.org/egovkb/en-us/About/Overview/-E-Government-Development-Index	https://www.itu.int/net4/ITU-D/idi/2017/index.html	https://hdr.undp.org/en/countries	https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-GCI.01-2021-PDF-E.pdf	https://data.worldbank.org/indicator/IC.BUS.EASE.XQ

Source: Authors' compilation

The presence of secure internet servers and the cost of connectivity vary in the AMS. The presence of secure internet servers is necessary to enhance the confidence of consumers in online transactions. In 2010, Singapore led the AMS at 532 secure servers per one million people. A decade after, Singapore and Brunei

Darussalam had the highest levels, although Indonesia and Viet Nam posted the highest growth (Table 27). Concerning cost, a gigabyte of data was the cheapest in Indonesia and Viet Nam in 2020 and 2021. Meanwhile, such cost is the most expensive in Brunei Darussalam and Lao PDR. The cost of a gigabyte of data in the AMS decreased from 2020 to 2021, except in Myanmar (which stayed the same) and the Philippines (which increased).

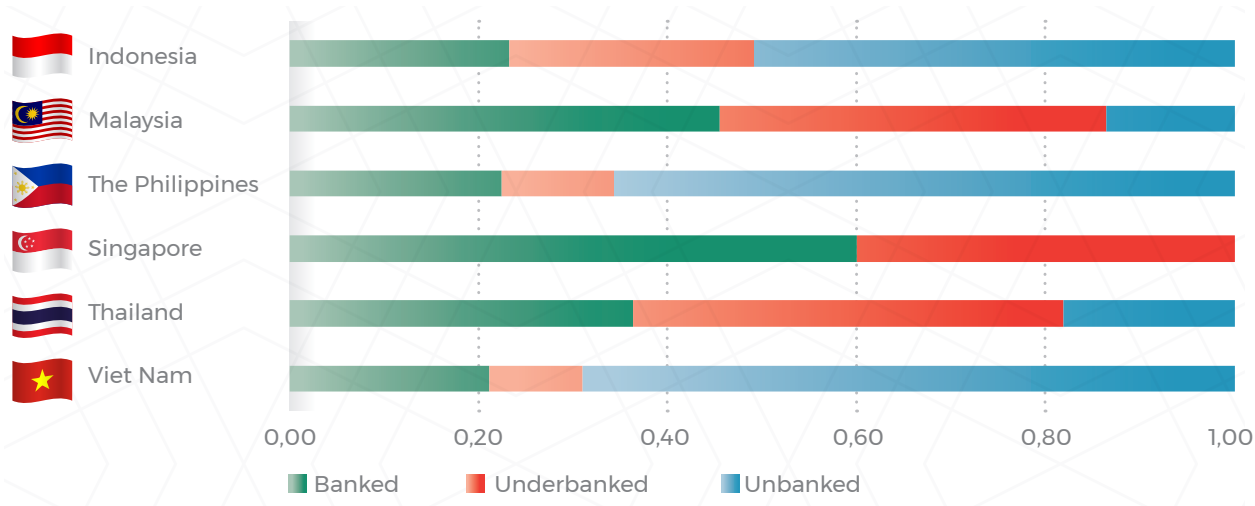
Table 27. Secure internet servers and the average price of 1 GB, growth rate

	Secure internet servers (per 1 million people)*		Average price of 1GB (US$)**	
	2010	2020	2020	2021
Brunei Darussalam	41.2	15,749.2	2.64	2.23
Cambodia	0.7	188.5	1.50	0.83
Indonesia	1.6	1,877.6	0.64	0.42
Lao PDR	0.5	52.8	4.16	3.19
Malaysia	44.9	7,494.4	1.12	0.89
Myanmar	0.0	14.1	0.78	0.78
The Philippines	5.0	113.6	1.42	1.77
Singapore	531.6	128,377.7	2.47	1.09
Thailand	11.2	1,908.1	1.23	1.06
Viet Nam	2.3	3,105.8	0.57	0.49

*Source: World Bank-World Development Indicators https://data.worldbank.org/indicator/IT.NET.SECR.P6, Accessed on April 26, 2022.
**Source: Cable (2021). Worldwide Mobile Data Pricing 2021, https://www.cable.co.uk/mobiles/worldwide-data-pricing/, Accessed April 10, 2022.

A large proportion of the AMS population remains unbanked or underbanked. For example, data from Google, Temasek, and Bain and Company (2019) indicate that out of the 401 million adults in the six AMS in 2019, only 26% had accounts in financial institutions. The same data show that 24% and 46% were underbanked (with a bank account but insufficient access to credit, investment, and insurance) and unbanked (do not own a bank account), respectively. Viet Nam and the Philippines had the highest unbanked population at around 70% (Figure 15). Indonesia's unbanked population is about 50%.

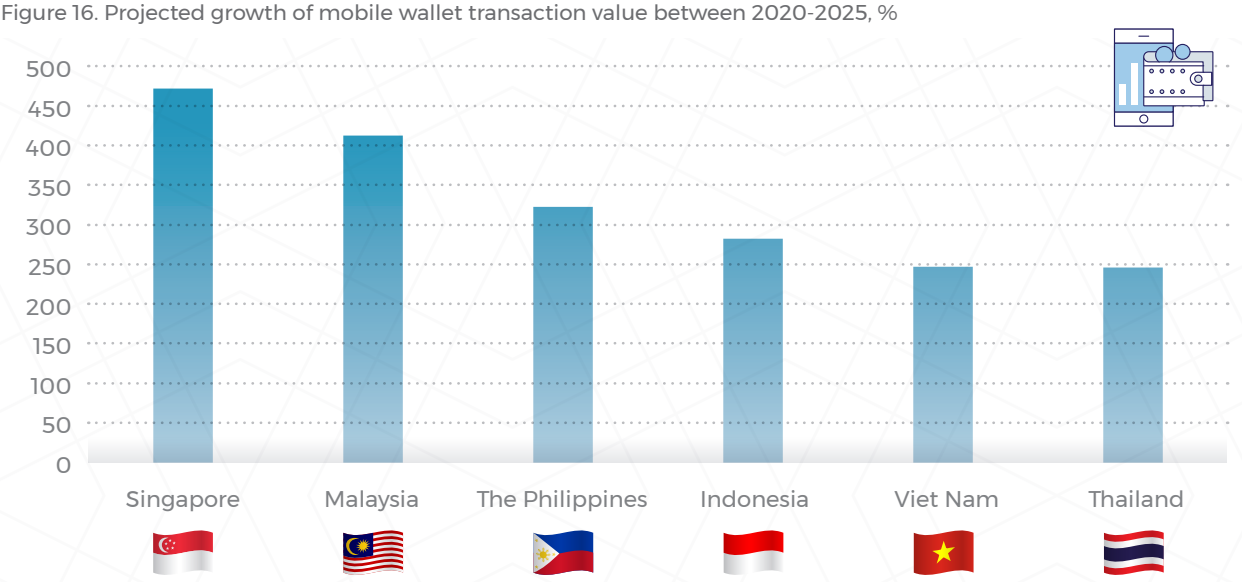
Figure 15. Basic financial inclusion in selected AMS, % of the adult population



Source: Google, Temasek, and Bain and Company (2019)

Thus, it is not surprising that non-bank financial products and services, such as electronic wallets, have become popular channels of digital financial payments. This can be seen in the projected growth of mobile wallet transactions in the AMS (Figure 16). Singapore is leading at 471% growth by 2025, although other AMS are also projected to exhibit significant growth. In the Philippines, the Central Bank launched the PESONet[42] and InstaPay[43] in 2017 and 2018, respectively, to enhance interoperability among banks and other online payment solutions like GCash. This helps create different payment channels, facilitating participation in platform-based activities.

Figure 16. Projected growth of mobile wallet transaction value between 2020-2025, %



Source: Statista, Accessed on April 27, 2022

5.3. Government programmes and initiatives in the digital economy

The AMS has crafted ICT roadmaps to guide plans and policies on digital transformation.

- Brunei Darussalam crafted the ICT Industry Competency Framework (BIICF), which articulates the competencies for ICT occupations, training, and professional certifications. It covers jobs across the ICT industry, including technical and managerial roles. It also targets BIICF user groups of ICT professionals, graduates, employers, and training providers[44].

- Cambodia officially launched the Digital Economy and Social Policy Framework of Cambodia 2021-2035 and the Policy on Digital Government 2022-2035. The former aims to strengthen digital skills and align employment policies with the global context. The latter seeks to establish a government founded on digital infrastructures and technologies and guide reforms in all sectors.

- Myanmar also crafted the Digital Economy Masterplan, envisioned to accelerate the use of digital tools by MSMEs/informal sector.

42- PESONet is an electronic fund transfer service that enables businesses, the government, and individuals to pay or transfer funds from their accounts to other participating financial institutions and electronic money issuers (EMIs) (https://www.bsp.gov.ph/PaymentAndSettlement/FAQ_PESONet.pdf, Accessed on March 10, 2022)

43- Instapay is a low-value electronic fund transfer service that enables customers who have accounts in participating banks and eWallets to send or receive funds (https://www.bsp.gov.ph/PaymentAndSettlement/FAQ_Instapay.pdf, Accessed on March 10, 2022)

44- https://www.biicf.bn/

- Viet Nam approved the National Digital Transformation Roadmap 2025 (with a vision toward 2030). It sets additional targets and guidelines to help Viet Nam achieve its digital transformation goals on three pillars: e-government, e-economy, and e-society. The programme on advancing the development and use of national digital platforms for the three pillars was approved in February 2022, with 35 national digital platforms to be developed in the first stage.

- Meanwhile, Thailand's Ministry of Digital Economy and Society is working on regulations to build a sustainable environment for platform workers and platform work.

State-led online portals have been developed in some AMS.

- Brunei Darussalam established the E-Kadai Brunei, which serves as the directory of all platforms in the country and aims to assist people in accessing services during the pandemic.

- Cambodia established the Digital Community of Cambodia, a platform initiated by the Royal Government of Cambodia to bring together people with digital talents. The National Bank of Cambodia also established the Bakong Platform, a mobile payment system for peer-to-peer fund transfer services to retail customers of local banks, financial institutions, and payment service providers in the country.

- Meanwhile, the Vietnamese government has developed digital government platforms to support small and medium businesses in digital transformation.

ICT Skills initiatives are also being implemented. These include the Network Information and Communication for Development (ICT4D) in Cambodia, Global Online Workforce (GLOW) programmes in Malaysia, digitaljobsPH in the Philippines, and the Continuing Education and Training (CET) efforts under the TechSkills Accelerator (TeSA) programmes in Singapore. ICT4D aims to close the gap in ICT access and skills, while GLOW, digitaljobsPH, and CET are initiatives to strengthen the skill sets of platform workers. Meanwhile, the National Medium-Term Development Plan 2020-2024 in Indonesia recognises the importance of skills by improving the vocational education and training ecosystem spanning demand, supply, and governance.

Strategic plans for sharing economy are also underway.

- Under the 12th Malaysia Plan (2021- 2025), the government has approved and allocated funding for the Sharing Economy Standards Development and Facilitation project, which involves the development of a platform certification programme and industry standards. The certification programme aims to address some critical challenges related to platform work by ensuring that platforms comply with the requirements set out in the Standards to be certified Sharing Gig Platform operators in the country. Six local platforms were assessed based on eight assessment attributes[45]. In addition, the Malaysia Digital Economy Corporation (MDEC) and the Department of Standards Malaysia established the Technical Committee on Sharing Economy in 2021, which serves as the National Mirror Committee to ISO/TC 324[46] at the global level. Malaysia is currently working on the Standards based on the recent publication of ISO 42500[47] and will be developing a similar Malaysian Standard once the ISO publishes ISOs 42501[48] and 42502[49]. MDEC is also proposing to set up the Sharing Economy Committee to serve as the national governing body on the sharing/gig economy.

- Thailand is implementing the NetPracharat (The Village Broadband Internet Project) and Digital Community Centre projects. These aim to strengthen the National Broadband Network by expanding the high-speed internet network to ensure connectivity in rural areas. Meanwhile, Viet Nam implemented

45- Developed based on nine global assessment frameworks/studies, and localised based on focus group discussions with 16 local platforms from three different sectors
46- Sharing Economy
47- Sharing economy-General principles
48- Operation of Platform
49- Provider Verification

a two-year pilot transportation project on applying connection services to contract-based passenger cars with fewer than nine seats.

There are COVID-19 responses relevant to platform work.

- For example, driven by the desire to provide citizens safe access to services, the Brunei Darussalam Authority for Info-communications Technology Industry established an online registry portal called E-Kadai Brunei. This one-stop website compiles active platforms and allows clients to access information about different service providers.

- Meanwhile, Cambodia crafted The Strategic Framework and Programmes for Economic Recovery in the New Normal 2021-2023, focusing on promoting skill development and work-based learning through apprenticeships.

- Indonesia established a Pre-Employment Card Programme to provide workers and entrepreneurs access to training, markets, and cash facilities.

6. Global, Regional, and Local Platforms

6.1. Global stage: Crowdwork platforms

On the global stage, platforms for crowdwork abound. Earlier strategies of businesses involved the relocation of factories in developing economies to take advantage of the input price differential. Later, the offshore outsourcing of business processes (i.e. Business Process Outsourcing, Knowledge Process Outsourcing) prospered in Asian countries like India and the Philippines. Further developments in ICT have elevated offshore outsourcing by allowing firms to break down big tasks into many simple tasks and outsource from a pool of global talents through the help of platforms. Consistent with the earlier motivations for outsourcing, the headquarters of crowdwork platforms are in developed economies like the USA, UK, Australia, and Canada (see Table A5 in the Annex). Crowdworkers from the Philippines, Cambodia, and Viet Nam are involved in Upwork, Fiverr, Freelancers, and Truelancer, among others.

While some crowdwork platforms cater to global clients, they mainly recruit in specific AMS.

- Sribulancer, a platform for design-related jobs and services such as logo design, copywriting, digital marketing, web/app design and development, video production, and translation, focuses on Indonesian crowdworkers.
- Digital services platforms on sales and marketing, design, and creative technology like Toyban, FreelanceCambodia, and Khmerlancer focus on Cambodian crowdworkers.
- MyOutDeskPH, a platform that provides virtual assistance, and OnlineJobsPH and RemoteStaffPH, platforms for various digital services such as programming, graphic design, bookkeeping, writing, and translation, focus on crowdworkers from the Philippines.
- FastGig, a platform that provides offline and digital services such as video editing, and FreelanceZone, a platform for offline and digital services such as graphic design, recruit in the Singaporean market.
- VLance and Freelancerviet.vn, platforms for various digital services, recruit in the Vietnamese labour market.

Crowdworking platforms are heterogeneous. They differ in the job listing, with jobs on some platforms like Fiverr and Amazon Mechanical Turk mostly short-term bite-sized tasks and jobs on Upwork mostly high-value-adding tasks. On some platforms, full-time jobs are rare compared to part-time jobs. To land full-time jobs, workers must submit good proposals that attract the client's attention.

They also have different strategies to earn on top of commission fees. For example, some platforms hide (i.e. previous earnings) or disclose information (i.e. competitive bid range) for a fee, although top-rated workers can hide several bad reviews. In addition, Upwork Agency, a feature in Upwork, allows workers to upload their agency profiles and offers safety features (e.g. timer) for a fee. Some platforms are also offering training services and coaching programmes. Others require "connects" for workers to start bidding for a job.

Crowdworking platforms have systems to ensure job search efficiency and fairness. Matching workers and jobs takes place by ranking applications based on credentials on the platform, including the workers'

profiles, bid rates, success rates, and client reviews. Matches are only suggestions, and final choices rest on the clients, however. In addition, a timer records the number of work hours and serves as the basis of billing. All transactions and communications within platforms are also recorded, which can help workers in disputes. Some platforms, like Upwork, have escrow protection for fixed-price projects. This means that at the beginning of the project, Upwork charges the client, and the payment will be released upon the approval of the workers' outputs. In addition, Upwork offers mediation services in cases of disputes. However, crowdworkers shared that disputes are settled with clients first, and elevating these to the platform's customer support is a last resort. Some no longer bother with disputes and move on to look for other jobs.

Crowdworking platforms specializing in specific AMS labour markets and global platforms have advantages and disadvantages. These platforms differ in workers' registration, job search, job application, and protection mechanisms related to rates, trackers, and review systems (see Table A6 in Annex). Some global platforms have more stringent registration requirements and require workers to spend to apply for jobs. They also charge commission fees to clients and workers. However, their system guarantees workers a minimum fee and fast-release payments and protects workers from fraudulent or bogus clients (i.e. all communications are recorded and can be accessed in cases of disputes). Global platforms only allow communication through their systems, and a violation can be a reason for banning workers.

Some local platforms do not have stringent registration requirements, do not require workers to spend when applying for a job, and do not charge workers' commission fees. Platforms that hire from specific countries can have relatable local management teams. For example, the focal person of one platform specializing in Filipino talents is known to the circle of freelancers in the country. However, local platforms have less stringent policies that influence workers and clients to migrate transactions outside the system. These may be disadvantageous since workers are no longer protected in disputes. Unlike Upwork, these platforms do not put a floor on the workers' fees.

6.2. Regional stage: On-demand platforms

At the regional level, several platforms are involved in on-demand work related to ride-hailing, courier, and food delivery services. These platforms are heterogeneous in terms of markets and the number of users. Most on-demand platforms have headquarters in the AMS, although some have headquarters in other Asian countries (see Table A7 in the Annex). Some platforms operate only in the AMS, including Flash Express, Ninja Xpress, ZTO Express (courier services), Deliveree, FastGo, and TADA (ride-hailing services). Other platforms like Borzo and Lalamove (courier services), Foodpanda and Deliveroo (food delivery services), and GOGOX and Gojo (ride-hailing services) have bigger markets that include European and other Asian countries.

The performance of platforms varies. For example, Deliveree, launched in 2014, operates in three AMS (Indonesia, the Philippines, and Thailand) as a ride-hailing platform but only has around 66 000 active vehicles. Meanwhile, Gojek, founded in 2010, operates in four AMS (Indonesia, Viet Nam, Singapore, and Malaysia) and has at least two million partner drivers. Grab, founded in Malaysia in 2012, operates in eight AMS (Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam) in 480 cities and has nine million registered partner drivers, partner merchants, and agents (Grab, 2021). Grab and Gojek have evolved into super apps offering various services and products. Grab offers food delivery, shopping and courier services, payment services, and insurance and investment products. Gojek offers transport, logistics and payment, food and shopping, business, and entertainment services.

Some platforms/businesses have merged with other platforms/businesses to expand their services and client base. Currently, these are reaping network effects and economies of scale.

- Gojek merged with Tokopedia, an e-commerce platform, to form GoTo in 2021, making it the largest technology group in Indonesia (Gojek, 2021). GoTo offers the widest selection of goods and services through a comprehensive merchant and partner network and promotes financial inclusion through its leading payments and financial services.

- LINE MAN, a food delivery business unit of LINE Corporation Thailand, merged with Wongnai, a restaurant-review platform, to form LINE MAN Wongnai in 2020. LINE MAN is also connected with the LINE messenger app, which has around 40 million users in Thailand. LINE MAN Wongnai's services include food/grocery, transport, messenger services, lifestyle review platforms, and a point-of-sale in-store management app for merchants.

- Robinhood started as a courier service in Thailand during the pandemic as a corporate social responsibility of the Siam Commercial Bank. It currently has 3 million users and 30 000 riders and aims to be a Thai super app by diversifying into parcel, grocery delivery, and travel and hotel/accommodation services. It is also planning to partner with other banks in Thailand.

- Blue Bird, a major player in the taxi industry in Indonesia's pre-platform days, already has strategic partnerships with Gojek[50] that allow Blue Bird to remain competitive while planning to expand into courier and mobility services in the long term. In 2021, Blue Bird became a logistics partner of Shopee[51].

Ride-hailing platforms have contributed to the economies of the AMS. However, the online ride-hailing and food market value in 2021 varies. Indonesia leads the AMS at around US$7 billion (See Figure 17). This is around twice and five times as much as the market value in Singapore and the Philippines, respectively. In addition, the ride-hailing economy has grown in the AMS, although some member states grew more substantially. Based on the data from Google, Temasek, and Bain and Company (2019), the growth of the ride-hailing economy ranged from 22%-45% from 2015-2019, with Indonesia and Viet Nam displaying the highest growth. Projections for 2025 also indicate growth, with Indonesia and Viet Nam again registering the highest growth from 2015-2025. However, the growth in the period has narrowed, ranging from 22%-31%. Based on its 2021 2nd quarter report, Gojek had two million partner drivers and around 900 000 merchant partners. Gojek was hailed as Indonesia's first unicorn startup, contributing US$7.1 billion in value-added to the Indonesian economy in 2019[52].

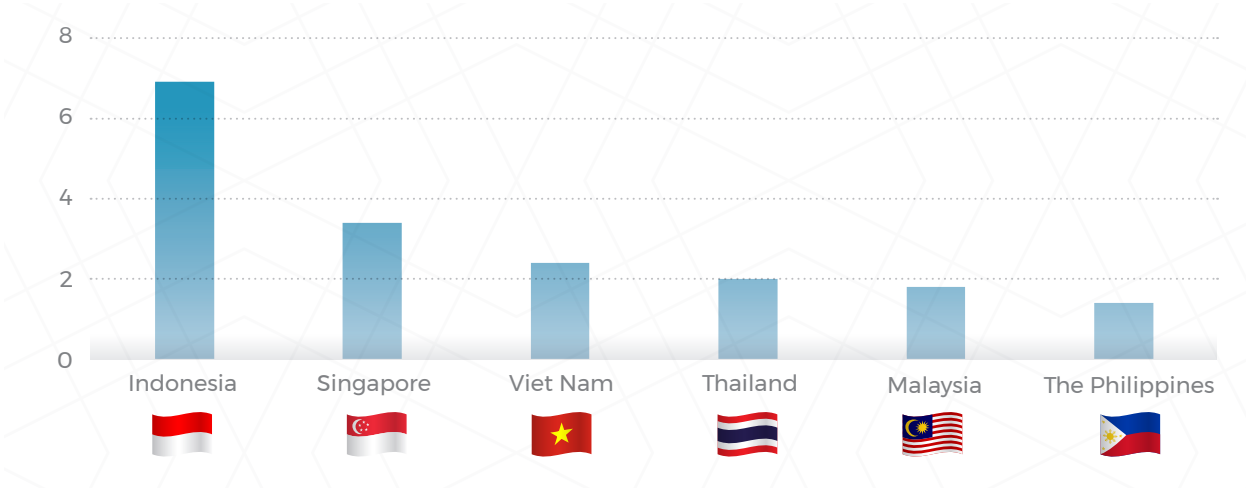
Major platforms have several initiatives to advance developments on various fronts.

- In Indonesia, GoTo, through its GoPay, has provided digital financial services, which are expected to result in financial deepening and inclusion in Indonesia[53]. GoTo is also set to give away thousands of GoTo shares to partner drivers[54].

- Meanwhile, Grab promotes gender equality and women empowerment by improving its location-sharing features to mitigate risks faced by female riders in the Philippines[55] and blocking women riders from taking ride-hailing orders in Indonesia (Fairwork, 2021). Grab also helps MSMEs by offering partner merchants customise working capital financing and providing training to improve the merchants' operational quality and enhance their online presence.

50- https://asia.nikkei.com/Spotlight/Nikkei-Forum-Jakarta/Taxis-can-coexist-with-ride-hailers-says-Blue-Bird-president, Accessed on May 7, 2022
51- https://kr-asia.com/shopee-rolls-out-taxi-hailing-service-in-indonesia-in-partnership-with-blue-bird, Accessed on May 7, 2022
52- https://www.gojek.com/en-id/, Accessed April 7, 2022.
53- https://www.thejakartapost.com/ms/gojek-2019/2021/10/26/universitas-indonesia-gopay-drives-financial-literacy-and- deeper-use-of-financial-services.html, Accessed on April 22, 2022
54- https://www.bloomberg.com/news/articles/2022-04-04/tech-giant-gives-ipo-shares-to-600-000-drivers-in-regional-first, Accessed on April 22, 2022
55- https://www.manilatimes.net/2022/04/01/public-square/grab-the Philippines-empowers-female-drivers-and-delivery-partners/1838467, Accessed on April 22, 2022

Figure 17. Market value of the online ride-hailing and food market in 2021, in billion US$



Source: Statista, Accessed on July 1, 2022

During the pandemic, on-demand platforms have programmes to support partners.

- Gojek set up the Driver Partner Welfare Programme[56], while Grab assisted in setting-up sites for vaccine boosters[57] in Indonesia.
- Grab set up assistance that partners can access through performance-based incentive programmes in the Philippines[58].
- Major platforms like Deliveroo and Foodpanda in Singapore reduced onboarding days and commission fees[59] and provided mental health support for their partner drivers[60].
- LINE MAN Wongnai in Thailand provided masks, protective gear, COVID-19 insurance, and compensation of THB500 for COVID-19 isolation and another THB1000 if the COVID-19 test is positive.
- Foodpanda collaborated with relevant stakeholders in the AMS to increase the riders' vaccination uptake through incentives and awareness campaigns.

Platforms can have different programs and policies in different AMS. For example, Fairwork reports (Fairwork, 2021; Fairwork, 2022) indicate that GrabCar scores higher in Indonesia than in the Philippines. This means that GrabCar in Indonesia was able to provide evidence of better fairness with respect to the Fairwork Principles of fair pay, fair conditions, fair contracts, fair management, and fair representation. In addition, major platforms in Malaysia like Grab and GoGet have a memorandum of agreement with the country's Employment Provident Fund (EPF), which resulted in the former agreeing to pay the additional contribution of high-performing partner drivers to the EPF, while the latter implemented an integrated savings programme with the EPF[61]. These partnerships are yet to be observed in other AMS.

56- https://www.thejakartapost.com/ms/gojek-2019/2021/08/05/gojek-continues-support-for-driver-partners-disburses-rp-25-billion-for-staple-goods.html, Accessed on April 22, 2022
57- https://www.bloombergquint.com/onweb/grab-drive-thru-service-to-boost-indonesia-vaccination-campaign, Accessed on April 22, 2022
58- ttps://mb.com.ph/2022/03/11/grab-ph-earmarks-p25-m-partner-assistance-fund/, Accessed on April 22, 2022
59- https://www.channelnewsasia.com/business/covid-19-food-sector-delivery-apps-lower-commission-fees-764416, Accessed on April 22, 2022
60- https://www.thedrum.com/news/2021/10/25/deliveroo-brings-silver-ribbon-singapore-support-riders-mental-health, Accessed on April 22, 2022
61- https://vulcanpost.com/780273/goget-epf-integrated-savings-programme-gig-workers-malaysia/, Accessed July 5, 2022.

6.3. Local stage: On-demand platforms

There are several on-demand platforms in the AMS at the local stage, although most are small relative to regional platforms. Some member states have more local platforms than others. For example, there are more e-commerce platforms in Brunei Darussalam, while there is one ride-hailing and one food delivery platform in Lao PDR (Table A8-A17 in the Annex). In addition, the AMS has many local platforms in food delivery, logistics, ride-hailing, and courier services. Some of these are reaping network effects as well. These include Paxel (courier platform) in Indonesia, MyCar (food/grocery delivery platform) in Malaysia, JoyRide PH (ride-hailing platform) in the Philippines, and Robinhood (food delivery platform) in Thailand, among others.

Bolt (ride-hailing) and LINE MAN Wongnai (food/grocery delivery) in Thailand and Baemin in Viet Nam are platforms from other Asian countries, although these are heavily focused on the said economies. Nevertheless, these can be considered major local players, given the number of active local users of the apps. Meanwhile, some platforms offer other services, including cleaning, handyman, tutorial, and health-related services. There are several platforms related to health and education in Indonesia, Myanmar, the Philippines, and Viet Nam, and personal services (including handyman, cleaning, and massages) in the Philippines, Singapore, Thailand, and Viet Nam.

Local platforms fare relatively weaker in demonstrating the Fairwork principles[62] *than regional platforms*. Local platforms are likely more attuned to the labour market climate and are in a better position to help attain decent work on platforms. Unfortunately, evidence indicates that this is not the case, with local platforms garnering lower scores in the ratings conducted by the Fairwork project (see, for example, Fairwork, 2021; Fairwork, 2022).

62- The Fairwork project, an initiative of the Oxford Internet Institute and the WZB Berlin Social Science Center. evaluate the working conditions of digital platforms and rank them based on the five fair work principles: fair pay, fair conditions, fair contracts, fair management, and fair representation. The project rates platforms in different countries to aid benchmarking and standard setting.

7. Work on Labour Platforms: Synthesis of Desk Research and Qualitative Data Collected in the AMS

7.1. On-demand work

7.1.1. Legal framework and regulation

Stakeholders are challenging the system on platforms, although efforts may be hampered by legal precedence or age-old legal provisions containing definitions that need to be revised to include new work arrangements.

- In Indonesia, the Supreme Court Decision Number 841 K/Pdt.Sus/2009 ruled, in a case between a taxi driver and a taxi company, that the taxi company was not an employer due to the absence of wage and command (Fairwork, 2021). This decision has set legal precedence, although some argue that the ruling may not apply to ride-hailing and courier platforms because they provide incentives (e.g. gamification). The latter amounts to "hiring a worker by paying wage or reward in any other form," a stipulation in Article 1 Point 6 of the Indonesian Labour Law (Farida, 2021).

- In a case of a GrabCar Driver against the platform in Malaysia, Grab's counsel argued that the driver was not an employee using the Industrial Relations Act 1967. The Act states that a workman is "any person, including an apprentice, employed by an employer under a contract of employment to work for hire or reward"[63]. The Minister of Human Resources declined to refer the case to the Industrial Court, and the High Court upheld this decision. This confirmed the absence of employment relations.

- In the Philippines, instead of providing a definite answer to whether riders are freelancers or employees, the DOLE Labour Advisory No. 14, Series of 2021, provided tests to examine the relationship between platforms and riders. This was criticised by the riders' group Kapatiran ng Dalawang Gulong (KAGULONG) as useless[64]. The lack of concrete policies results from the fact that the Labor Code of the Philippines has yet to integrate the nature of platform work in its provisions.

  In June 2022, the National Labour Relations Commission ordered Foodpanda to pay the legal fees and backwages of riders for the ten years of suspension upon learning of the riders' two-day out-of-town, a plan deemed to affect the platform's operation. This is hailed as a landmark win for riders. However, the arbiter acknowledged that the determination of employment relations was not straightforward, so the ruling used the principles of social justice instead. Foodpanda can still challenge the ruling, however.

Most of the labour codes in the AMS have been amended to improve workplace environments, enhance social protection, increase the ease of doing business, and align with international standards.

63- https://dnh.com.my/high-court-rules-that-grab-drivers-are-not-employees/, Accessed on May 20, 2022
64- https://www.rappler.com/business/riders-group-statement-dole-advisory-delivery-work/, Accessed on May 20, 2022

- The amendment of the 1955 Employment Act in Malaysia was passed by the Parliament in March 2022. Its implementation will begin in January 2023. Its provision includes flexible working arrangements[65].

- The Labour Code of 2019 in Viet Nam provides for better representation/voice and social protection of workers[66].

- The Omnibus Law on Jobs Creation in Indonesia was enacted in 2020 to attract investment, create new jobs, and stimulate the economy[67]. Amended in the Law include those pertaining to regulations on licensing leniency, investment growth, employment, research and innovation, empowerment and protection of small to medium-scale enterprises and cooperatives, ease of doing business, government administration, land procurement, imposition of sanctions and penalties, government investment, and national strategic projects and economic zones[68]. However, issues such as the lack of key stakeholders' participation in drafting the law hounded the implementation of the Law. In a ruling on November 25, 2021, the Constitutional Court ordered the Indonesian House of Representatives and the government to revise the Omnibus Law of Job Creation in two years, or it would be deemed unconstitutional and not valid[69].

Amendments to the labour codes have yet to incorporate provisions for platform work. However, some AMS have attempted to broaden the labour regulatory framework to include work with service agreements. Challenges remain, however[70].

- Viet Nam's Labour Code 2019 broadened the terms of an employment relationship by stipulating that a service contract is a labour contract if it covers agreements on the job, working time, wage, and management/supervision of the employer[71]. The coverage, however, depends on the interpretation, as can be gleaned from the legal precedence set by the Indonesian Supreme Court. Platforms in Viet Nam, for example, can argue that wages are paid not by platforms but by clients, and there is no supervision/ management involved since workers have the autonomy to take on the task. In addition, platforms can reconfigure their algorithms to go around the working time provision by granting workers the autonomy to choose their working time upon login.

App-based ride-hailing platforms, considered technology providers and not transport service providers, are not automatically regulated by transport ministries. Despite this, some AMS have regulations related to platforms for ride-hailing services.

- In Malaysia, the Parliament passed the Land Public Transport Act 2010 and Commercial Vehicles licensing Board act 1987. As a result, E-hailing companies must register with the transport authorities and comply with regulations applicable to the taxi companies. However, fare controls still do not apply to e-hailing companies.

- In Viet Nam, a decree issued in January 2020 paved the way for ride-hailing platforms to be classified as transportation service providers. Platforms must pay taxes based on this new classification. Gojek responded by shifting the tax to the clients (e.g. increasing delivery fees), while Grab responded by shifting the tax to the drivers (e.g. reducing the drivers' fees)[72].

65- https://themalaysianreserve.com/2022/08/26/mohr-delays-implementing-employment-act-amendment-to-jan-1-next-year/, Accessed on November 21, 2022
66- https://www.vietnam-briefing.com/news/vietnam-approves-labor-code-2021.html/, Accessed on May 5, 2022
67- https://investmentpolicy.unctad.org/investment-policy-monitor/measures/3567/indonesia-omnibus-law-on-job-creation- has-been-enacted, Accessed on May 6, 2022
68- https://law.asia/indonesias-omnibus-law-in-limbo/, Accessed on May 6, 2022
69- https://www.theindonesia.id/news/2021/11/25/180759/omnibus-law-should-be-revised-constitutional-court/, Accessed on November 21, 2022
70- An alternative to amending the labour code and classifying workers is to grant them the same labour rights and the same access to social protection (OECD, 2022). Draft regulations in some countries already exist, including the State of California Assembly Bill 5 (AB-5), Italian Law No. 128, French Law No. 2016-1088, Chilean Law No. 21431, and Indian Social Security Code (OECD, 2022).
71- https://www.blawyersvn.com/blog/4-notable-changes-to-new-labor-laws-of-vietnam/, Accessed on May 13, 2022
72- https://www.lexology.com/library/detail.aspx?g=29de16bd-db34-4426-b2a2-39d262fc9666, Accessed on May 24, 2022

- In Indonesia, its transportation law (Article 47(3) of Law 22/2009)[73] does not consider motorcycles (ojek) as public transport. However, its Transportation Ministry released in 2019 (Minister of Transportation Regulation No.12 / 2019) a regulation for online motorcycle taxis that covers passenger safety, standards of service, and the nature of partnerships on platforms[74]. In addition, there are regulations like the Decree of the Minister of Transportation Number 348 of 2019 that provides the guidelines for calculating fees charged by app-based motorcycles and the Minister of Transportation Regulation Number 60 of 2019 that provides guidelines on the transportation of goods by motorised vehicles. The government also determines the lowest and highest cost of the service.

- In the Philippines, the different fare scheme enjoyed by ride-hailing platforms is widely contested by traditional ride-hailing service providers.

- In Thailand, transport laws (including Section 5 of the Vehicle Act, B.E. 2522 (1979) and Sections 23/1 and 49 of the Vehicle Act) require that for-hire vehicles use a yellow license plate to indicate the driver's license and plate information. However, this provision has been violated by allowing private licenses and black-on-white plates to pick up passengers (Theerakosonphong and Amornsiriphong, 2022).

The platform's business model has resulted in two critical issues: widening inequality and strengthening monopoly. The limited opportunity for income growth on platforms can affect the overall remuneration distribution in the labour market. Compensations are mainly determined by platforms, with some platforms assigning partners to tiers depending on performance and ratings, among other things. There is little room for partners to earn higher wages due to the increasing number of platform riders. Monopoly can occur due to the network effects and increasing returns to scale enjoyed by leading platforms. There are platforms established by local companies that have traditionally enjoyed monopoly power. Stakeholders like platform representatives and workers have raised concerns that this monopoly power will be extended to platforms, leading to fewer players in the ecosystem.

Platforms claim they are open to regulations if these are applied to all platforms. Platforms claim to understand the implications of the existing regulatory deficits for their partners' welfare and are willing to comply with the rules and conditions. However, small platforms expressed concerns about the government's fairness in applying these and fear that big platforms or platforms built by traditional companies with monopoly power will enjoy exemptions and privileges.

The legislative attention is skewed towards platforms for ride-hailing and courier services. For example, in the Philippines, the Magna Carta of E-Commerce Delivery Personnel is recently filed in Congress to protect delivery riders from fraud and cancellations. However, regulations and legislations regarding other on-demand services are limited. This situation is possibly due to the ride-hailing and courier services' contribution to the country's income and employment. Nevertheless, other on-demand work like childcare, massage, cleaning, and maintenance are also gaining traction on platforms. These on-demand work have different issues and challenges requiring different policies and initiatives.

73- Only cars, buses, and cargo cars can be categorised as either private motorised vehicles or public motorised vehicles. This article does not allow motorcycles to be categorised as either private or public motorised vehicles.

74- https://kr-asia.com/indonesia-released-new-regulations-for-on-demand-motorcycles-but-without-agreement-on-tariffs, Accessed on November 21, 2022

7.1.2. Social protection

Agencies in charge of the social security system of some AMS have implemented initiatives to increase the protection coverage of platform workers.

- The Badan Penyelenggara Jaminan Sosial in Indonesia has collaborated with some platforms to increase the enrolment of partner riders. The platforms' involvement, however, is limited to facilitating the riders' accounts. The contribution is shouldered solely by the riders.

- Malaysia's Social Security Organisation's programme partners with platforms. For example, Foodpanda's partner riders will contribute RM232.80 per year (around US$53) for medical and educational benefits, among others, while platforms subsidise RM23.3 (around US$5.3) per rider for one-year protection[75].

Agencies for pension funds and savings also have initiatives for platform workers.

- Malaysia's EPF, the agency concerned with retirement and pension funds, has a memorandum of agreement with Grab and GoGet. The former agreed to pay the additional contribution of high-performing partner drivers to the EPF, while the latter implemented an integrated savings programme with the EPF. The GoGetter app simplifies savings through its auto-deduct feature, allowing riders to customise their contributions seamlessly. In addition, GoGet's chief executive officer was recently appointed to the National Employment Council, which aims to create and preserve jobs in Malaysia[76]. In addition, i-Akaun (Business Partner), a third portal account specifically for platform companies, made it possible for platforms to remit contributions on behalf of the riders.

- In Singapore, self-employed persons hired by the government automatically contribute to the MediSave Account through the Contribute-As-You-Earn (CAYE) scheme. Companies in the private sector are encouraged to voluntarily adopt CAYE to help the self-employed save for their healthcare and retirement needs. Recognizing the heterogeneity of the self-employed, the Platform Workers Advisory Committee in November 2021 held a public consultation on strengthening the platform workers' protection. The consultation focused on three priority areas: improving housing and retirement adequacy, strengthening 'financial protection in case of work injury, and enhancing representation[77]. The Report, released in November 2022, makes 12 recommendations: 1). Require Platform Companies to provide the same scope and level of work injury compensation as employees' entitlement under the Work Injury Compensation Act. 2) Align CPF contribution rates of Platform Companies and Platform Workers with that of employers and employees, respectively. 3) Platform Companies should work with the Government to develop a mechanism to deduct CPF contributions from Platform Workers' earnings to help them save for their longer-term healthcare needs. 4) Legislative changes will increase representation to enable platform workers' right to formal representation. A Tripartite Workgroup on Representation for Platform Workers was established in August 2022 to create the new representation framework[78].

Some regional platforms have collaborated with other stakeholders to ensure the welfare of their partners. For example, Foodpanda worked with National Trade Union Congress (NTUC) and Igloo in Singapore to provide affordable microinsurance and with GT Foundation in the Philippines to provide qualified partners and their dependents free surgical operations for six medical conditions.

75- https://www.humanresourcesonline.net/over-60-000-foodpanda-delivery-partners-to-be-protected-under-perkeso-s-self-employment-social-security-scheme, Accessed on May 8, 2022
76- https://vulcanpost.com/780273/goget-epf-integrated-savings-programme-gig-workers-malaysia/, Accessed July 5, 2022.
77- https://www.mom.gov.sg/newsroom/press-releases/2021/1116-public-consultation-on-platform-workers, Accessed on May 7, 2022.
78- https://www.straitstimes.com/singapore/5-ways-to-better-support-platform-workers-in-singapore-highlights-from-committee-report, Accessed on November 26, 2022.

7.1.3. Collective voice and representation

Due to the independent contractor's status of platform workers, they are not entitled to form unions and participate in collective bargaining. Only workers with employment relations can enter into collective bargaining agreements (as provided by the labour code). Thus, platform workers organised themselves into groups and associations that provided avenues to forge solidarity and develop a collective voice[79]. However, the group's level of influence and extent of support from other allied stakeholders vary across the AMS.

With respect to ride-hailing and courier on-demand work, workers have formed communities that foster belongingness and solidarity. Social media like Facebook and messaging apps like Whatsapp or Viber helped communities (see Table A18 in Annex). These channels serve as the workers' forum, centred on sharing information, socialisation, and helping riders in need.

- Indonesia has many communities that are organised based on mutual aid and are effective in addressing the riders' everyday concerns, including navigating the platform's bonus system, understanding the tariff rates, and getting timely information on road conditions. In addition, communities work together through the Unit Reaksi Cepat, a rapid response team to assist riders in trouble (e.g. accident, altercation with traditional ojek). Thailand also has online communities established with similar logic of mutual aid. However, these communities also coordinated with riders to join protests over remuneration issues and advocated for providing riders with accident insurance.

- The Riders Union in Thailand, founded in 2021 as an online page, aims to support riders' welfare and mobility policies. Having worked with several platforms, the page administrator recognises that different management policies result in different problems for riders. The group has also set up a campaign on Change.org.

Workers have also formed associations, which have better institutional capacity than groups/informal communities, to advance the interests of partner riders. Potentially more advanced than the other AMS in organising platform workers, Indonesia has the greatest number of riders' associations. Moreover, associations have better institutional capacity than communities to initiate social dialogue with the government.

- Associations in Indonesia are active in organizing fora to tackle salient issues on tariff reduction and unfair suspension, supporting regulations for the protection of riders, and rejecting burdensome rules. There are efforts to establish a formal umbrella organisation. However, challenges remain, with some factions breaking away from the original organisation (Bekasi United Communication Forum/Forum Komunikasi Bekasi Bersatu) due to the perceived lack of support for riders suspended because they joined the no-bid initiative of the FKBB. The breakaway group formed a new organisation, Indonesian Online Bikers/Bikers Online Indonesia (Ford and Honan, 2019).

- In the Philippines, KAGULONG is an association of two-wheeled riders, both traditional and app-based, that is vocal in its support of legislation related to riders and in labour authorities to issue more binding guidelines. It participated in the May 2021 Job Summit organised by the DOLE, where workers on ride-hailing and courier platforms were consulted in the National Employment Recovery Strategy to address employment shocks due to COVID-19. Proposed action plans include creating a technical working group (TWG) to define the nature of online work, determine applicable standards, and develop model contracts. However, the TWG is yet to be created.

- In Singapore, the National Private Hire Vehicles Association signed a memorandum of understanding with Grab to become the official representative of Grab drivers. It will facilitate two-way feedback between the platform and riders.

79- In OECD countries, unions are actively pursuing strategies to help workers in non-standard work arrangements by pushing for correct workers' classification, lobbying for public interventions, and designing new means of organisation and information-sharing (OECD, 2019).

Some unions help riders advance their interests in the public sphere. However, the level of unionisation, and therefore the level of support to riders, in the AMS varies. Established using the logic of influence, unions have the greater institutional capacity to negotiate with stakeholders, lobby for rules and legislations, and advance workers' rights. However, the extent of the State's support for workers' organizing and participation in collective bargaining varies in the AMS. In Thailand, the 1975 Labour Relations Act supports workers' rights to organise and collectively bargain, although the support is limited to workers in private enterprises. In addition, Thailand has yet to ratify ILO Conventions 87 (Freedom of Association and Protection of the Right to Organise) and 98 (Right to Organise and Collective Bargaining) (see Table 28). Both Conventions have been ratified in Cambodia, the Philippines, and Indonesia, while only Convention 98 is in force in Malaysia, Singapore, and Viet Nam.

- In Indonesia and the Philippines, unions support riders through social dialogue that brings stakeholders to discuss issues openly and through public pronouncements that bring the riders' issues into the public sphere. For example, the Aerospace and Transportation Workers division of the Federation of Indonesian Metal Workers' Union (SPDT-FSPMI) had initiated large-scale demonstrations and no-bid actions. In the Philippines, the Trade Union Congress Party filed Resolution 1974 asking the House Committee on Labour and Employment to probe the working conditions of food and grocery delivery riders[80].

- In Singapore, where rights to organise and collective bargaining is in force, the NTUC is a party to the Tripartite Workgroup Committee that focuses on lower-wage workers and self-employed persons. NTUC is also a member of the Advisory Committee on Platform Workers, which was formed to strengthen the social protection of platform workers.

- In Viet Nam, its new Labour Code provides for independent trade unions (rather than state-run). Thus, the rights to organise and collective bargaining is in force only in 2019.

Table 28. ILO Convention 87 and 98, Ratifications by country

	Convention 87 (Freedom of Association and Protection of the Right to Organise Convention)		Convention 98 (Right to Organise and Collective Bargaining Convention)	
	Status	Date	Status	Date
Brunei Darussalam				
Cambodia	In Force	August 23, 1999	In Force	August 23, 1999
Indonesia	In Force	June 9, 1998	In Force	July 15, 1957
Lao PDR				
Malaysia			In Force	June 5, 1961
Myanmar	In Force	March 4, 1955		
The Philippines	In Force	December 29, 1953	In Force	December 29, 1953
Singapore			In Force	October 25, 1965
Thailand				
Viet Nam			In Force	July 5, 2019

Source: https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11001:0::NO:::, Accessed on May 29, 2022

80- https://www.bworldonline.com/the-nation/2021/07/27/385262/house-probe-sought-on-delivery-drivers-working-conditions/, Accessed May 28, 2022

Platforms recognise the importance of listening to their partners' voice.

- Foodpanda, for example, has designed extensive support mechanisms to ensure that partners have avenues to share and address their concerns. These include quarterly fora and monthly surveys, 24/7 hotlines, and a support system through riders' mobile apps. Riders are also free to participate in peaceful demonstrations.

- Meanwhile, Gojek has instituted a two-way communication, called Kopi Darat, to facilitate the discussion of policies and inputs from partner drivers.

- LINE MAN Wongnai has a riders' chat group and a dedicated rider community team that responds to riders' inquiries.

Despite this, partner riders and drivers have staged protests in recent years. While the contexts vary, protests are centred on lacking regulatory framework to protect partner riders from unfair labour practices. Practices that workers deemed unfair revolve around issues in platforms' control and decreasing incentives and incomes.

- In Indonesia, rallies are held due to the lack of transparency in booking algorithms[81], reduced incentives[82], and riders demanding clarity on their legal status[83].

- In the Philippines, protests are staged due to reduced earnings[84] and delivery jobs[85], unfair labour practices[86], deactivation of accounts[87], and the lack of assistance to riders during the pandemic[88].

- In Thailand, protests are held due to the reduced incomes and incentives and the seemingly onerous conditions the riders need to satisfy to be covered by accident insurance[89]. Accident insurance is essential given that the number of deaths due to road accidents is high in ASEAN, with Thailand and Viet Nam being considered the most dangerous roads in 2019[90].

- Some strikes are also held in Viet Nam due to increased commission fees and the platform's shifting tax payments to riders[91].

Notwithstanding events demonstrating united fronts, there are challenges to the solidarity of riders and drivers. These include the fragmented views of people on the benefits of self-organisation, with some riders initially supporting but stopped joining their groups' activities upon meeting some fallouts. There are also conflicts resulting from the differences in views of platform-related issues, with some workers generally satisfied with their work and others aiming for improvements. Some workers seeking to maximise short-term benefits see cooperation with platforms as a promising strategy, while others who aim to challenge the system join protests. The lack of time to join associations, fear of penalties from the platform, and perception that suggestions are not heard are also some of the challenges shared by riders.

81- https://en.tempo.co/read/921756/online-ojek-to-stage-rally-grab-drivers-will-suffer-loss, Accessed on April 12, 2022
82- https://www.techinasia.com/drivers-gojeks-delivery-arm-gosend-plan-strike-protest-reduced-incentives, Accessed on April 12, 2022
83- https://www.indoleft.org/news/2022-01-05/online-motorcycle-drivers-rally-in-jakarta-demand-legal-umbrella-professional-status.html, Accessed on April 12, 2022
84- https://newsinfo.inquirer.net/1460860/food-delivery-riders-in-davao-city-protest-vs-policies-that-reduce-their-earnings, Accessed on April 12, 2022
85- https://www.cnnthe Philippines.com/business/2020/11/4/grab-food-cyclists-booking-system-concerns.html, Accessed on April 12, 2022
86- https://www.gmanetwork.com/news/topstories/metro/764627/foodpanda-riders-protest-alleged-unfair-labor-practices-in-front-of-dole-office/story/, Accessed on April 12, 2022
87- https://newsinfo.inquirer.net/1128578/tnvs-drivers-operators-to-hold-protest-vs-termination-of-8k-grab-accounts, Accessed on April 12, 2022
88- https://www.facebook.com/defendjobPH/posts/partners-protest-grabs-negligence-in-providing-aid-leaders-of-laban-tnvs-a-group/2955366471216058/, Accessed on April 12, 2022
89- https://www.bangkokpost.com/business/2127003/line-man-drivers-slam-base-payment-cut, Accessed on April 12, 2022
90- https://asiatimes.com/2022/01/southeast-asias-roads-more-dangerous-than-covid/, Accessed May 2, 2022
91- https://hanoitimes.vn/grab-alleged-exploitation-of-legal-loophole-comes-under-fiery-criticism-315270.html, Accessed on May 24, 2022

Some state-led initiatives provide a voice to workers on transportation, logistics, and food-related platforms. Trade and labour unions are vital in providing a voice to riders/drivers. Unions have collective bargaining power and can represent riders'/drivers' interests in formal discussions.

- In Singapore, for example, the NTUC is a member of the Advisory Committee on Platform Workers. Similar trends are also observed in Indonesia and the Philippines.

- In Indonesia, the government has set up LAPOR! (Layanan Aspirasi dan Pengaduan Online Rakyat/ Citizen's Aspiration and Complaint Online System) platform, which provides citizens with a one-stop digital system to file complaints and requests. While this is not specific to platform workers, this is an avenue that can enhance workers' voice.

Workers in other on-demand services like repair and personal services do not have as much voice and representation. These workers work in environments where the clients' command/control is substantially felt. They are more at risk of abuse and gender-based violence, which are unknowingly encouraged by some practices on platforms, including posting photos and sensitive information.

7.1.4. Skills development

Regional platforms provide support for the partners' upskilling and personal development. Foodpanda, for example, collaborated with Yayasan Belia Malaysia, Commerce International Merchant Bankers Berhad, and Taylor's University to develop a one-year work placement programme that provides opportunities for riders to set up their businesses. Foodpanda also partnered with financial institutions in the Philippines and Thailand to provide riders with loans at competitive rates.

Governments in the AMS recognise the value of the digital economy and the contribution of platform work. However, they know that reaping digitisation's full benefits requires addressing several challenges. These include poor connectivity and limited digital and ICT skills. Some AMS whose platform economies have yet to take off, including Cambodia and Myanmar, still need to sharpen their workforce's digital and technological literacies. Other AMS actively engaged in platform work, like the Philippines, Indonesia, and Thailand, also recognise the importance of digital competencies and lifelong learning.

7.1.5. Inclusivity and diversity

There is still no specific policy targeting different vulnerable populations. Stakeholders noted the issue of the general absence of policies for on-demand platform work. Thus, more nuanced policies targeting specific vulnerable groups are still not evident.

However, some issues with other on-demand work have emerged. This emphasises the need for nuanced sector-specific policies. For example, while sexual harassment is also an issue for workers in ride-hailing or courier services, it can be more challenging for those in care and personal services, where work is done in confined environments, and clients can have substantial control. Some practices on platforms can encourage gender-based violence, including posting pictures and private information to attract customers' attention. In addition, mechanisms to assist workers who get into trouble are absent (e.g. they are advised to call the police or get out of the situation independently).

Regional platforms encourage diversity and inclusivity. Foodpanda, for example, has tripled its female riders in 2021 across the AMS. Grab has initiatives for persons with disabilities by collaborating with various organisations for the deaf and hearing-impaired in Indonesia and Singapore[92]. It also promotes women empowerment by improving its location-sharing features in the Philippines or blocking women riders from taking ride-hailing orders in Indonesia.

92- https://www.straitstimes.com/business/companies-markets/grab-contributed-8b-to-south-east-asia-economy-in-a-year, Accessed on July 7, 2022.

7.2. Crowdwork

7.2.1. Legal framework and regulation

There are benefits and challenges in pursuing the formalisation of platform workers. The formalisation will help the government establish the number of people involved in platform work and their contribution to the economy. It will also help the government understand the nature of their work. These will help the government craft initiatives to support platform work. However, platform work is heterogeneous and differs in duration and required skill levels. Thus, formalising those engaged in short-term and highly intermittent contracts can be challenging, especially when no clear incentives exist.

The operation of crowdwork platforms, being at the international level, remains a challenge. However, some AMS have legislation intended to provide social protection and develop programmes for skills and training.

- With respect to legislation, policymakers in some AMS have filed bills in support of crowdworkers. In the Philippines, proposed bills such as the Philippine Digital Workforce Act and the National Digital Careers Act, which provide for digital skills training and scholarship grants, and the Freelancers Act, which recognise the right of freelancers to easy registration and access to social protection benefits (Serafica and Oren, 2022). The legislative scope of these bills remains at the national level. There is no known pending legislation specific to crowdworkers in other AMS, which can potentially indicate that policymakers of member states are still understanding the nature of work in crowdworking.

- However, with respect to skills development, governments in various AMS are making headway. In Malaysia, the eRezeki and the GLOW programmes develop competitive digital freelancers. In the Philippines, the DigitalJobsPH programme provides training to equip Filipinos with ICT-related skills. In Singapore, the Continuing Education and Training under the TechSkills Accelerator programmes offer school-to-work transition opportunities such as internships and mentoring.

Entrepreneurial crowdworkers face several challenges in the administrative requirements of establishing a business. Platform workers are classified either as self-employed or entrepreneurs. In the Philippines, for example, on-demand workers like riders are typically self-employed, while crowdworkers can be self-employed (professionals/general or proprietors) or mixed-income earners. They are self-employed professionals if they earn from the practice of their profession, single proprietors if engage in the conduct of a trade or business, and mixed-income earners if they receive compensation income as well (Serafica and Oren, 2022). These categories have different tax payment schemes, which can be onerous and confusing and discourage some crowdworkers from filing their income tax return (ITR). The ITR is essential when applying for bank loans and travel visas.

As proprietors, crowdworkers can benefit from programmes and initiatives for micro, small, and medium enterprises (*MSMEs*). For example, in the Philippines, MSMEs are exempted from paying the income tax and minimum wage as provided for the Barangay Micro Business Enterprises (Republic Act 9178). However, to qualify as barangay-based enterprises, crowdworkers need to show pictures of their place of business and assets, which may not apply to crowdworking enterprises (Serafica and Oren, 2022).

Some crowdworkers have successfully established their manpower agencies and created jobs in their communities. However, crowdworking enterprises also need to comply with the requirements of traditional businesses. For example, in the Philippines, issuing business receipts is required by the Bureau of Internal Revenue, which some crowdworking enterprises find challenging to comply with since platforms have an automatic invoicing facility, and their clients rarely ask for official receipts.

Crowdworkers are willing to pay their taxes. Crowdworkers recognise the importance of income tax documents in international travel and securing bank loans. However, some raised concerns about the difficulties in navigating the tax system. The confusion arises from how they are classified, with some getting advice that they are professionals selling services and others that they are businesses/enterprises.

Despite the success, entrepreneurial crowdworkers have raised concerns, surprisingly, not about the platforms' conduct of business but their business environments. They highlight the burden of complying with regulatory and legal requirements. Concerning tax payments, some are classified as general professionals, while others are mixed-income earners. The latter must also pay local taxes, with requirements different from the national level. Transaction costs are also issues due to the submission of several requirements to various agencies to provide the necessary social protection for their workers. Thus, too much time is spent on compliance rather than making the business grow.

In the Philippines, enterprises benefit from the government's COVID-19 responses, including lower tax rates. However, some entrepreneurial crowdworkers could not avail themselves of the benefits due to their lack of awareness of the government's initiatives.

Government initiatives to promote virtual work/crowdwork are needed to help potential, interested, and upstart crowdworkers. Based on the 2021 Philippine Institute for Development Studies (PIDS)-Department of ICT (DICT) Online Survey of Market and Non-Market work, the provision of training, improvement of connectivity, setting-up of platforms, and assistance in finding online work is considered useful interventions by Filipino crowdworkers. Job matching programmes are also highlighted in responses from groups/associations. In this regard, Malaysia is ahead of its AMS peers through its training initiatives, with trainees matched with tasks and jobs in local and international platforms that the MDEC has validated and approved. Other initiatives highlighted by crowdworkers and associations include an initiative for a one-stop online resource that provides useful information on platforms, communities, tools, and resources and a rent-to-own programme to acquire devices and equipment.

7.2.2. Social protection

Social security schemes in the AMS are tied to formal employment, although there are payment schemes for the self-employed, which are voluntary. However, there are challenges to the workers' uptake of these schemes. Where there are employer and employee relations, both contribute to a fund for insurance (e.g. life, accident, disability, and unemployment), healthcare, housing, and old-age benefits. In the case of informal and platform workers, the absence of employment relations deprives platform workers of benefits and security entitlements. There are voluntary payment schemes for the self-employed, although there are challenges to the workers' uptake of these schemes. These include inadequate earnings, the lack of steady income flows (Bayudan-Dacuycuy and Baje, 2021), and the fewer benefits in the voluntary scheme than in the mandatory plan for formal workers (Leenoi, 2021). Stakeholders from labour ministries also recognise the issue of affordability, lack of clear guidelines on the treatment of cross-border transactions of crowdworkers/freelancers, and administrative challenges. Workers' attitudes towards paying social protection contributions can also be a challenge. Some view the contribution as a tax, while others have high discount rates (i.e. want higher take-home pay).

Some crowdworkers understand the nature of the work they do on platforms. Thus, for some, the lack of social protection is not an issue. For example, seasoned crowdworkers in the Philippines charge fees that account for their social protection contribution. Some have subscriptions to private insurance companies. New crowdworkers, however, need to build their work credentials and may need to start with lower fees. Despite the perceived precarity in platform work, some crowdworkers have indicated satisfaction with their platform stints. For example, a crowdworker from Viet Nam expressed satisfaction with being able to travel and purchase luxury goods and consumer products (Graham et al., 2017a). Interviews with Filipino platform workers highlighted the benefits of platform work, including flexibility, higher income, and income opportunities for their communities. There is no perception of unfairness or exploitation in their work. However, some Vietnamese workers have been documented to lower their asking price to land a job on platforms (Graham et al., 2017a)

7.2.3. Collective voice and representation

Compared with on-demand work, fostering trust and solidarity is a challenge in crowdwork. Work is performed and transacted online in crowdwork by geographically dispersed workers. Thus, there are few avenues

for crowdworkers to physically interact, socialise, organise, and form a collective voice. There are also no known unions in the AMS push for crowdworkers' labour rights.

Despite this, social media and messaging apps have provided tools for crowdworkers to foster belongingness and shared identity. Online communities in the AMS serve as platforms to exchange information and resources and provide insights on clients, platforms, and practices (see Table A19 in the Annex). These communities help workers navigate the system and maximise the benefits of platform work. To foster belongingness, some communities provide virtual workspace and organise periodic face-to-face gatherings. YouTube also provides information on tools and resources to new and interested crowdworkers. Online communities such as Freelancer Community-Cambodia, Freelance Indonesia, Indonesia Freelance Writers, Myanmar Content Writer, SG Freelance Jobs, and Freelance/Remote/Parttime IT Jobs Viet Nam provide venues for sharing information on job postings, scam alerts, and tips on improving the members' crafts.

Some associations have working relationships with the government. In Malaysia, the Malaysian Allied Freelancer Association focuses on the upskilling of workers and is working closely with MDEC. In the Philippines, Filipino Homebased Moms (FHMoms) started as a Facebook Group in 2017 and later became a social enterprise empowering mothers through online work and entrepreneurship. Potentially due to the active engagement of freelancers' groups and associations in fora and dialogue, policymakers in the Philippines have become more aware of crowdwork.

Communities of freelancers are important. Through cascading information and sharing insights, communities, and groups can guide upstart crowdworkers to navigate platform work. These also provide support and a sense of belongingness, which are essential given that few appreciate the nature of work on platforms. For example, a vibrant community of freelancers in the Philippines provides training services, technical support, and practical tips on negotiations and filing taxes. Some groups have evolved into social enterprises and cooperatives and have become active in state-led training programmes.

7.2.4. Skills development

A combination of soft and hard skills is important in crowdworking. Communication, writing, digital marketing, advertising, and graphic creation are skills that appear to be in demand on platforms. Hard skills are obtained from various sources, including YouTube, and by following agencies and sellers on LinkedIn that recommend skills and strategies. A set of soft skills are also needed, including sociability, patience, diligence, politeness, and grit.

Offline labour market experience and education level are not relevant to securing jobs on crowdwork platforms. Thus, workers' strategies differ depending on the stage of crowdworking they are in. Upstart crowdworkers begin with small tasks/projects, send proposals to a job listing, and specify low bid rates. These increase the possibility of landing a job. As workers accumulate experience and build their platform credentials through the platforms' rating/review system, they start specifying higher bid rates.

Crowdworking can serve as a stepping stone to achieving other goals. Some crowdworkers in the Philippines have become successful in their platform work. They develop good working relationships with clients. Eventually, they directly work with platforms, avoiding platforms' commission fees. They also get referrals from previous clients. Some ask for periodic increases in remuneration, while others benefit from client-sponsored training programmes. Thus, soft skills like negotiation and communication skills are important. Other crowdworkers recognise the unstable nature of work on platforms. They plan to do freelancing-related ventures, such as establishing an agency for freelancers or becoming mentors/trainers of government-led training programmes.

Crowdworkers who took their clients out of platforms maintain their platform accounts to continue building their work history. Some leveraged their credentials and established their businesses. They secure work from platforms, which they accomplish with the help of their workers. These entrepreneurial crowdworkers provide work in their communities, pay taxes, and contribute to their workers' social protection.

7.2.5. Inclusivity and diversity

In principle, crowdwork fosters inclusivity and diversity. It provides opportunities to interested workers regardless of gender and race. Furthermore, it does not discriminate based on disabilities or lack of formal educational background.

In practice, securing a job on platforms may not be easy for everyone. This is true for platforms involved in high value-adding jobs. These require niche skills and accredited certifications like the Cambridge English Advanced (CAE) and International English Language Testing System (IELTS) English Proficiency Exam. Despite successful registration and validation, new workers do not easily land a job unless they are willing to spend on some services sold by platforms. For example, Upwork implemented in 2020 the "connects" system, where applications to jobs require several "connects". This signals the worker's intention to apply for a job. There are around 50 free connects upon registration, and workers need to buy from Upwork if they wish to apply for more jobs.

Crowdwork may not work for everybody. There are challenges to crowdwork, including the lack of infrastructures that provide good connectivity. The 2021 PIDS-DICT Online Survey of Market and Non-Market work indicates that slow connection is a key issue in the Philippines. Access to devices and equipment can also be an issue since some tasks can be better done using a desktop or a laptop. Despite the shared facilities (e.g. Tech4ED) in most local government units that aim to equip marginalised sectors like the poor and people with disabilities, people in remote areas still need to travel and incur travel costs. While microtasks that involve clicking images can be done using smartphones, these still require a good internet connection.

8. Good Practices in Platform Work in ASEAN and EU

8.1. ASEAN

Government: *Investing in skills and human capital*

Cognizant of the importance of skills in harnessing opportunities brought about by the ICT sector, some state-led programmes help the workforce adapt to the evolving needs of the labour market. In Singapore, the Ministry of Communications and Information/Infocom Media Development Authority works with industry partners to scale the Continuing Education and Training (CET) efforts under the TechSkills Accelerator (TeSA). The Industry Preparation for Pre-graduate Programme (iPREP) offers school-to-work transition opportunities such as internships and mentoring. The programme also provides scholarships to support information and communication areas of study and Science and Technology, Engineering, and Mathematics courses.

Concerning crowdwork, the Malaysia Digital Economy Corporation spearheads the eRezeki, which means e-sustenance, and the Global Online Workforce (GLOW) programmes. The eRezeki programme matches Malaysians, especially those from low-income groups, to jobs on digital platforms. Participants are profiled and matched to tasks on 130 platforms verified by the MDEC and the Ministry of Multimedia Malaysia via the Crowdsourcing Committee. The GLOW programme aims to develop competitive digital freelancers who secure projects from international platforms like Upwork and Freelancer. The programme is open to Malaysians with programming, coding, and graphic design skills who are not formally employed, unemployed, or underemployed. Participants of the programmes receive a 3-day intensive training in techniques on job search, onboarding clients, project management, money management, and investments for continuous improvements. In addition, as part of the government's intervention to help workers during the pandemic, a special GLOW programme was introduced in 2020. It helps qualified participants access some of the premium features on platforms that enable them to compete effectively with other freelancers.

In the Philippines, the DICT spearheads the DigitalJobsPH programme that provides training to equip Filipinos with ICT-related skills. Its first phase in 2017 provided training on digital campaign strategies for micro, small, and medium enterprises. Its second phase, in partnership with the local government units nationwide, offers courses in virtual assistance, digital marketing, social media marketing, content writing, web development, and graphic design. The programme also helps participants set goals, create an online presence, build portfolios, secure jobs, and grow clients. From 2017-2022, the programme has already provided 413 training. Out of the 7887 graduates, 28% have online jobs. In addition, 24 agencies engaged in online work were established in the first half of 2022, 54% of which are registered in the Department of Trade and Industry or the Securities and Exchange Commission.

Businesses: *Leveraging the platform's business model*

The disruptions in the transport industry resulting from the presence of platforms are not necessarily perceived negatively by the incumbent leaders. For example, Blue Bird, a major player in the traditional taxi industry in Indonesia, has formed strategic partnerships with Gojek and Shopee. While Blue Bird has integrated itself into the platforms' business model, employer-employee relations remain. Thus, Blue Bird's workers continue to receive security benefits and entitlements.

Leveraging its advantage in financial technology, Robinhood, a homegrown food delivery platform in Thailand, was created by the Siam Commercial Bank (SCB) during the pandemic as part of the SCB's corporate social responsibility. After one year of operation, it has 2.3 million registered users, 164000

merchants, and 20000 riders[93]. It has plans to grow its users to 4 million, expand into travel, shopping, and courier services, and become a regional super app[94]. Given its relative infancy in the platform business, the stellar performance of Robinhood can be attributed to the readily available funds from the SCB and its existing customer base. In addition, the business model of Robinhood differs from other platforms since it does not charge subscription and Gross Profit fees. Instead, it monetises the data it collects from user transaction histories. By mining the data, Robinhood develops and offers customised financial products and digital loan services. Robinhood also provides free accident insurance to riders in the first six months and charges THB20 each month afterwards.

In the Philippines, MyKuya is an on-demand application that aims to create one million jobs for Filipinos. MyKuya acts as a digital storefront, providing enterprises with tools to connect partners with demand. Unlike typical on-demand platforms, MyKuya service providers are not independent contractors but employees of enterprise partners such as companies or organisations with a fleet of riders, driver cooperatives, and manpower agencies. Thus, workers have employer-employee relations, which assure them of security entitlements.

Rights groups: *Leveraging technology to promote the flow of information*

To help job seekers in Cambodia and Myanmar, Golden Dreams 2.0 provides labour market information and facilitates discussion, which helps prevent job seekers from becoming victims of illegal recruitment and exploitative work arrangements. Taking off from its collaboration with various interest groups in Cambodia and Myanmar, Golden Dreams 2.0 now includes a Job Recruitment Marketplace where job seekers can find legitimate employment opportunities. While the platform does not explicitly deal with platform workers, it is an example of leveraging technologies to empower workers and amplify their voices.

Cooperatives and social enterprises: *Providing support to grow online businesses and freelancing careers*

Cooperatives are democratic organisations that foster equal rights and sharing responsibilities. Besides financial services and employment opportunities, cooperatives provide a shared experience that enhances the spirit of cooperation and community-based growth. In the Philippines, the Filipino Online Professional Service Cooperative (FOPSCo) is a community of online freelancers, trainers, online business owners, and DigitalJobsPH graduates that offers support to online professionals through training and coaching/mentoring. It also aims to upskill Filipino online professionals to higher value-adding tasks. FOPSCo has leadership training programmes for online professionals who wish to establish manpower agencies. In addition, the cooperative provides virtual co-working spaces and support groups. In Singapore, Istoria Co-operative Singapore Limited is a social enterprise that targets freelancers in the creative industries. It provides workshops and training in photography and videography.

Social enterprises are enterprises that address social issues in the community. A social enterprise that aims to empower Filipino mothers, FHMoms started as a Facebook group in 2017, with its founder providing a basic introduction to online work, including online courses for marketing, virtual assistants, and accounting and strategies to secure jobs. In 2020, it became a sole proprietorship that provides a platform for learning and job opportunities to home-based moms. Some notable programmes include rent-to-own computers, which enable mothers to get computers and devices at staggered payments, and the Wifi *para kay Nanay* (Wifi for Mothers). In 2021, FHMoms established its digital services agency. The agency brings jobs to the community of mothers by leveraging the business networks and corporate linkages the FHMoms' proprietor has developed since the enterprise started operation.

Workers: *Developing entrepreneurial mindsets*

Some crowdworkers leverage their soft skills to build good relationships with clients. Once trust is established, workers transact with clients outside the platforms, which is beneficial since firms and workers no longer pay the platforms' commission fees. Some crowdworkers with strong credentials became entrepreneurs and built their manpower agencies. In the Philippines, the manpower agencies are registered and are legally required to pay taxes and provide workers' entitlements and benefits.

93- https://www.bangkokpost.com/business/2204687/robinhood-sets-out-plans-to-be-a-super-app, Accessed on May 8, 2022
94- https://www.scb.co.th/en/personal-banking/stories/business-maker/robinhood.html, Accessed on May 7, 2022

8.2. EU

Eurofound: *Implementing initiatives to enhance information flow*

Recognising that platform work is heterogeneous, the European Foundation for the Improvement of Living and Working Conditions puts up a repository of the European member states' initiatives on the platform economy. The Platform Economy Initiatives compile information and provide a credible source of information on the European member states' policies, programmes, and action plans (see Table A20 in the Annex). Stakeholders can learn about the tools, resources, and data related to the platform economy. They can also learn about the member states' legislations, rules, and guidelines. Thus, these can help researchers and policymakers to look into the best practices of economies with advanced regulatory and governance frameworks.

Legislators: *Crafting rules in support of labour platform workers*

In recent years, various European bodies have acknowledged the growing importance of regulation in labour platform work by implementing rules that the European member states can adopt according to their contexts.

These include the 2017 European Court of Justice ruling that Uber is a transport service provider, not an e-commerce company, which gives the member states room to regulate the platform based on their transportation laws (Future of Work Institute, 2021). In the same year, the European Parliament adopted a text that proposes regulating work on labour platforms, including modernising the existing labour market and social protection regulations[95]. In 2019, the European Parliament approved new rules to protect workers on atypical contracts and non-standard jobs[96]. These rules have been used by member states like France, Spain, and the United Kingdom for Uber to formalise a subordination relationship and for drivers to be classified as employees, and member states like Switzerland for Uber Eats to register as a carrier and to hire drivers as employees (Future of Work Institute, 2021). In 2021, the European Commission adopted a proposal for a Directive on improving working conditions in platform work[97]. The new rules should guarantee that people working through platforms enjoy the labour and social rights to which they are entitled. At the same time, they will gain access to new rights that ensure transparency and accountability of algorithmic management systems.

The labour laws have also evolved in member states to integrate non-standard work arrangements. For example, the Bill on Transport Mobility in France provides for the workers' rights to data, vocational training, and collective representation[98]. The Real law decree No. 9/2021 in Spain recognises that platform food delivery riders are employees, not independent contractors[99]. The Rider Law in Spain also establishes the presumption of employment on platforms, which applies to the distribution of products when the employer exercises its direction, organisation, and control through algorithmic management[100]. Transport laws also ruled that platforms offering ride-hailing services are transport companies, such as the Greek Law No. 4530/2018 and Spain's Rider Law.

However, platforms have demonstrated resistance to these laws. In Spain, for example, Deliveroo bowed out of the market partly because of the Rider Law. At the same time, Glovo changed its business model to go around the provisions establishing the presumption of employment in the Rider Law. In its revised system, riders have more autonomy since they can freely log in without selecting time slots, refuse deliveries, and subcontract to other workers[101]. Despite this, the Supreme Court ruled that notwithstanding these adjustments, subordination remains since Glovo owns the software and the platform.

95- European Parliament calls for guidelines for digital platforms -Fair Crowd Work, Accessed May 18, 2022
96- https://www.bbc.com/news/world-europe-47947220, Accessed May 16, 2022
97- https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2021%3A762%3AFIN
98- https://www.eurofound.europa.eu/data/platform-economy/initiatives/revision-of-the-legal-framework-for-platform-workers, Accessed on May 19, 2022
99- https://www.eurofound.europa.eu/data/platform-economy/initiatives/riders-law, Accessed on May 19, 2022
100- https://www.eurofound.europa.eu/nl/data/platform-economy/initiatives/riders-law, Accessed on May 20, 2022
101- https://socialeurope.eu/platforms-put-a-spoke-in-the-wheels-of-spains-riders-law, Accessed on May 20, 2022

Various actors: *Setting standards through research and rating system*

Rating systems provide a benchmark that stakeholders can use to assess platform labour practices. In addition, it can set standards that international, regional, and local communities can adopt. There are several initiatives towards this end. The Fairwork project is based at the Oxford Internet Institute and the Wissenschaftszentrum Berlin für Sozialforschung (WZB) Berlin Social Science Centre. It evaluates the working conditions on digital platforms based on the five principles of fair work: fair pay, fair conditions, fair contracts, fair management, and fair representation. The project is being implemented in 25 countries across five continents. It highlights the best and worst labour practices on labour platforms. The FairCrowdwork, a joint project of IG Metall (German Metalworkers' Union), the Austrian Chamber of Labour (Austrian Trade Union Confederation), and the Swedish Unionen, is an online rating system for web and app-based platforms and provides insights on the reputation of platforms. The initiative, however, depends on the voluntary contributions of workers.

Unions and workers' organisation: *Establishing a code of conduct in crowdwork and establishing a body to enforce such*

A UK and eight German crowdsourcing platforms signed the Crowdsourcing Code of Conduct, an agreement among platforms operating in Germany to abide by the minimum working standards. In line with this, the crowdsourcing platforms, the German Crowdsourcing Association, and IG Metall established a joint Ombuds Office, which will resolve disputes among actors on the platforms and oversee the enforcement of the Code. Convinced that platform actors will abide by the Code, crowdworkers are urged first to settle disputes with platforms. The Ombuds Office will step in only when conflicts are not resolved.

Unions: *Empowering platform workers to take action*

Unions, especially those driven by the logic of influence, have supported workers on labour platforms in Europe. For example, in Austria, Foodora bike couriers, aiming to negotiate for good working conditions, established Works Council with the help of the Austrian Transport Services Union Vida[102]. As provided for by the legal framework in Austria, the Council has rights to information and consultation on major business decisions. Besides its role in the Crowdsourcing Code of Conduct in Germany, the IG Metall may also defray the legal cost of up to EUR 100000 in workers' legal disputes with clients[103]. In Germany, the workers' protest and the involvement of unions and workers' councils have paved the way for Flink and Lieferando to move to a permanent contract model[104].

Workers: *Taking control through platform cooperatives*

Driven by the logic of membership (e.g. serving the needs of members), platform cooperatives with workers as co-owners are gaining traction as alternatives to venture capital-financed platforms. Platform cooperatives adopt a shared ownership approach and democratic governance and use technology to sell goods or services.

France has the highest number of platform cooperatives among the European member states. This can be credited to its cooperative-friendly national legal framework, including the precise legal definitions of various cooperatives, clear rules to safeguard cooperative principles, and clear guidelines to address financial and investment shortages[105]. For example, the Coursiers Nancéiens (Couriers from Nancy), a platform cooperative in Nance, France, provides an ecological-friendly, ethical, and sustainable way of doing business. It operates mainly through cargo bikes, providing social protection and insurance to bikers and promoting local developments through partnerships with local merchants[106].

102- Foodora couriers found works council -Fair Crowd Work, Accessed May 18, 2002
103- Unions for Platform Workers -Fair Crowd Work, Accessed May 18, 2002
104- https://www.bbc.com/worklife/article/20220308-why-gig-work-is-so-hard-to-regulate, Accessed May 20, 2002
105- https://www.eurofound.europa.eu/publications/blog/platform-cooperatives-ensure-caring-in-the-sharing-economy, Accessed on May 16, 2022.
106- https://www.eurofound.europa.eu/data/platform-economy/initiatives/les-coursiers-nanceiens-cooperative, Accessed on May 17, 2022.

Eva[107], also in France, is a platform cooperative for riders that achieved network effects after launching its app in 2019. The app leverages blockchain technology in which every actor has records of transactions. This fosters transparency, decentralises data management, and solves the skewed information accumulating in favour of platforms.

CoopCycle Federation is an International Federation of bike delivery cooperatives from 12 European countries. It offers a platform software that manages deliveries and supports developing business ideas. In addition, member cooperatives are creating alliances with merchants who share their sustainable and ecologically friendly approach to business. Their members, including the Mensakas Cooperative[108] in Spain and the Les Coursiers Montpelliérains[109] in France, are successful examples.

107- https://eva.coop/#/, Accessed on May 18, 2022.
108- https://www.mensakas.com/es/, Accessed May 18, 2022
109- https://coursiers-montpellier.fr/, Accessed May 18, 2022

9. Recommendations

The Outlook has 1) investigated the economic conditions that led to the rise of labour platforms in ASEAN and examined their consequences, 2) analysed the institutional and regulatory challenges that should be addressed to ensure decent work in platform work in the AMS, 3) analysed good practices from the EU and identified emerging business models that have potential in fostering decent work, 4) identified policies and initiatives that each AMS could pursue to ensure that the human capital development and social protection systems adapt to the changing nature of work, and 5) highlighted the importance of ASEAN cooperation on the platform economy by identifying programmes and initiatives in which the AMS could collaborate to ensure decent work in platform work. Based on quantitative and qualitative data, the Outlook recommends policies and initiatives for platform work.

9.1. Summary of findings and recommendations: Quantitative data analysis

The Outlook finds a continued high unemployment rate in ASEAN labour markets based on the data collected. Thus, there is a need for both industry and serves to provide work options, especially for women and youth. The crucial role of services in the structural transformation of ASEAN economies, the importance of an internet-based, data-intensive, and technology-dependent future, and the acceleration of digitisation resulting from the pandemic are all relevant to the rise of platform work. Many workers are engaged in OLPs, amounting to 63 million in online freelancing activities and roughly 40 million in on-demand digital activities. There is observed increased participation in on-demand labour platforms, especially during the pandemic, although there is diminishing access to this work as the market becomes saturated. The rise in crowdwork is associated with the decreased GDP shares of the service and agricultural sectors.

Other specific findings are as follows:

- The association of the rise in crowdwork engagement in OLPs with decreased shares of the service and agricultural sectors to GDP suggests that crowdwork demand is affected by the country's structural transformation.
- A positive correlation exists between increased gross domestic capital formation and crowdwork worker shares, denoting the need for ICT infrastructure.
- The correspondence between women's labour force participation and increased engagement in crowdwork, especially in countries with lower HDI.
- There is a positive correlation between crowdworker share and unemployment. There is a negative correlation between these variables if crowdworker share is interacted with increased domestic capital formation.
- Workers participating in OLPs mostly wish to engage in secondary jobs. Thus, their impact on job generation and reducing unemployment is limited.
- There is a significant size of informal workers relative to the total workforce.
- Women and the less educated are being drawn to the informal sector.
- Social protection remains a constraint in achieving decent working conditions, even for self-employed workers.

- Given government support, the possibility of transitioning from the informal sector to the formal sector through OLPs as these work arrangements offer the same flexibility and greater training opportunities than the informal sector.

- There are barriers to the transition from informal to OLPs, including the uncertainty of engaging in the global labour market, the lack of face-to-face interaction with employers, the possible discrimination of certain groups of workers, especially women, due to monopsony power of employers.

Based on these findings, the following recommendations are made around the five conceptual issues identified in Section 3.1.

Issue 1: *The transformation of jobs into their digital equivalence*

The first issue is the disruption that the online platforms may be causing. The question is whether this will replace some jobs and thus cause more unemployment. From the results, it was not the case. OLPs became an option for people looking for secondary and complementary work. Unlike automation, which was destroying jobs, OLPs seem to attract the unemployed.

Unfortunately, not all of them were absorbed by the OLP because of its competitive nature and the lack of skills. The changes in unemployment were conditional on Gross Capital Formation, and engagement in the informal sector remains substantial. The recommendation then is that, apart from improving the digital infrastructure, national governments should be able to provide subsidies to workers who wish to gain access to online digital platforms by improving skills and social protection. In other words, these OLPs can create employment opportunities, and governments should be open to these alternative work venues.

Issue 2: *The sustainability of digital platforms*

The second issue deals with the sustainability of these OLPs. These pertain to the viability of using OLPs as another option for creating jobs. The observed deindustrialisation and the rise of the service sector as an engine of growth provide some fertile ground for OLPs to survive. Nevertheless, the data indicate that in countries with substantial capital formation, OLPs were successful in decreasing unemployment. This means that the returns from OLPs in creating new jobs may not be the same for all AMS. Because of this, its sustainability in developing countries may be in question. Encouraging locally-grown OLPs that adapt to the local resources, including the needs of the local and regional industries, can be explored. The goal is for local economies to take advantage of this technology.

Issue 3: *The Impact on Women*

This issue deals with gender disparities that affect labour market outcomes. The data we have shown that the share of crowdworkers is associated with women's labour force participation rate, and more importantly, this correlation significantly increases in countries with lower Human Development Index. The fact that women workers seem to be using these platforms, which in turn, is related to increasing their labour force participation, indicates that OLPs can decrease gender employment disparity. However, wage disparities may not be addressed since women's engagements in OLPs are found in lower-income countries. The recommendation is to enforce decent work conditions and provide social protection targeted to women.

Issue 4: *The Market Power of Platforms*

This issue relates to the market power inherent in online labour platforms because of their associated direct and indirect network effects. The data, however, reveal that while only a few major platforms are found in the market, their revenue shares are contestable and can be challenged by potential local entrants. Nevertheless, despite this limited control of platforms in the global market, the issue is the presence of monopsony or the ability of platforms to markdown earnings below the actual contribution of the workers to their firms' revenues, given the heterogeneous nature of labour being exchanged and lack of uniform earning structures in these markets. Workers are unlikely to complain about the remuneration offered, especially if they have limited options to engage in these other non-digital or digital work alternatives.

The solution to this problem is not to regulate the platforms, fix remuneration or impose conditions on the platforms. These can ultimately destroy the sustainability of the platforms indicated in issue no. 2. Instead, the proper recommendation is to strengthen workers' bargaining power by giving them more options, providing social protection, including unemployment insurance, and defining their rights to decent work conditions. The goal is to provide workers the ability to negotiate their demands better and be paid equally according to their productivity.

Issue 5: *Transition from informal to formal activities*

This issue deals specifically with the problem of a huge informal sector in AMS. The characteristics of platforms, specifically the degree of flexibility offered to the workers, are similar to the informal sector. The data indicate that OLPs had hardly made a dent in the size of the informal sector. A significant part of the problem is the lack of qualifications since platform engagements require a specific set of skills and education to be accepted. Hence, highly skilled workers in the informal sector are more likely to be hired in OLPs. However, the percentage of these workers did not seem to change significantly. This means beyond the skill set of workers, there are other barriers to the potential transition of workers from informal to formal activities. The issue is likely the inherent uncertainty that comes along with dealing with platforms where face-to-face transactions are limited.

This issue is similar to the fourth one in that the recommendation is again to provide programs that can strengthen workers' bargaining power to demand the conditions for decent work and tasks that will provide them with some security.

9.2. Summary of findings and recommendations: Qualitative data analysis

The qualitative data indicate that new business models bring to light regulatory deficits, including Labour Codes that have yet to cover work in non-standard work arrangements, and infrastructure deficiencies, including slow Internet connectivity and inadequate hard and soft skills. There is a lack of social protection, although agencies in charge of the social security system in some AMS have implemented initiatives and collaborated with on-demand platforms to increase the coverage of platform workers. Associations and groups foster belongingness and solidarity among both types of platform workers. However, riders have more advanced support from unions. Some regional on-demand platforms support their partners' upskilling and personal development, while crowdworking platforms do not. Concerning inclusivity, there is still no specific state-led policy targeting different vulnerable populations, although big on-demand platforms have gender-sensitive policies. Despite that, attention is skewed towards riders and drivers, leaving policies on other on-demand services wanting. Concerning crowdwork, strategies that encourage the formalisation of crowdworkers are useful. Crowdworkers that cannot be formalised should not be precluded from obtaining state-led support, however.

Innovations in the world of work have outpaced regulations. Regulatory deficits have implications for attaining decent work. However, excessive regulations can stifle innovations. Thus, governments in the AMS should strengthen the overall ecosystem of the platform economy, with platforms growing responsibly. To do this, it is imperative to understand the nature of platform work and its issues. Are these issues new or just variants of existing problems in non-platform work? How can policies address these challenges? How can these policies promote platforms' responsible growth and innovations? How can nations achieve a sustainable ecosystem where innovation and decent work coexist? How can platform work take a human development orientation? Given the business models using platforms, combining traditional and innovative approaches to craft nuanced policies and initiatives is also useful. Based on the qualitative data analysis, the subsequent sections recommend some policies and initiatives that can be pursued at the national and ASEAN levels.

9.2.1. Policies and initiatives to explore for platform work

Aim for the sustainability of the worker

- The skills needed in platform work are not substantially different from those in non-platform work. For example, the hard and soft skills required in crowdwork are also relevant in traditional work arrangements. Thus, the AMS must assess the current workforce competencies and how these can be adjusted to the existing and emerging needs of labour markets. Putting up a training and skills development system will guide platform workers to make informed choices on training pathways should they wish to shift to a traditional work arrangement. The system is also useful to workers who wish to pursue platform work, especially those involved in platforms that require certifications.

- Some AMS are transitioning into an aging society. Thus, initiatives to upskill and retool are key to enhancing the participation of older people in opportunities that technology and innovations bring. Special training programmes for older people can be developed given that older people remain productive even after retirement.

- PWD can benefit from opportunities in crowdwork. Thus, skills and training programmes that cater to PWD will foster inclusivity in platform work

- Some AMS are ahead on this front. Singapore, for example, launched the national SkillsFuture movement in 2015 to provide Singaporeans with opportunities to develop to their fullest potential throughout life through skills mastery and lifelong learning. To encourage individuals to take greater ownership of their skills development, Singaporeans aged 25 and above are given a SkillsFuture Credit account with an opening credit of SG$500, which does not expire. In October 2020, a top-up of SG$500 was provided, with a 5-year expiry, unlike the opening credit, to nudge individuals to take timely action to upskill and reskill. Singaporeans aged 40 to 60 also received an additional SkillsFuture Credit (Mid-Career Support) of SG$500, to enable them to access reskilling and upskilling opportunities. With such provisions, reskilling and career transition programmes are also being scaled up to help Singaporeans, particularly mid-career workers, remain employable and pivot to new job roles.

- Meanwhile, Malaysia has established the Human Resource Development Corporation Corp. (HRD Corp), implementing training programmes for employers, individuals, and training providers. Upskill Malaysia, under the HRD Corp, is an integrated platform for government-funded skills programmes that provide an efficient way for individuals to search and apply for training or skills development programmes. It currently offers training courses in 35 skill areas.

- Other AMS can learn from the experiences of these skills systems and investigate its best practices that can be customised into the AMS' specific context. Inspired by the SkillsFuture Initiative, the Philippines has crafted the Philippine Skills Framework (PSF) Initiative, an inter-agency effort to guide the workforce in building its skills/competencies and employers in designing human resource management and talent development plans. Thus, the PSF Initiative allows workers to chart their career and skills development.

Target promotion and protection

- Expand social protection programmes by exploring the combination of protection and promotion systems. While some comprehensive skills development systems are in place in some AMS, these are currently stand-alone systems. It would be useful to explore how the social protection system can be linked with the training/skills development system. For example, depending on the context, governments can provide subsidies like SkillsFuture Singapore or design unemployment insurance with upskilling/retooling provisions. This can be helpful, especially for people who have plans to shift work or pursue different career paths.

- Social protection systems should be portable to support the workers' movement from one mode of job to another and flexible to accommodate varying capacities to pay. For example, some crowdworkers and

on-demand workers have indicated that their platform work is temporary, and they save for a business or wait for the right opportunities to join the traditional work arrangement. In addition, workers do not voluntarily subscribe to any social protection programme due to inadequate or unsteady income streams and the desire for higher take-home pay. Thus, systems that allow the customisation of payment schedules and structures are imperative. Further, delays in the contribution payment should not result in the deactivation of membership since reactivations entail paperwork.

- Agencies in charge of social security and the provident fund should intensify their social protection and saving literacy campaign programmes. Some workers view the payment of premiums as a tax. Thus, including a module on social protection in state-led training initiatives for platform workers is useful in informing workers of enrolment, payment, and claims processes. In addition, emphasizing the benefits and the government's counterparts (if any) to the workers' social security and provident fund contribution could encourage higher uptake.

- Agencies in charge of social security should consider designing a special programme for platform workers. This further highlights the need for systems that allow the customisation of payment schedules and structures.

9.2.2. Policies and initiatives to explore specific to on-demand work

Amend labour laws to become more responsive to workers' needs in the digital economy

- *Amend labour codes to clarify the employment classification of on-demand workers and implement other initiatives while legislative and consultative processes are ongoing.* Despite nuances in work on different platforms, decent work remains an overarching issue to be addressed. Labour codes have yet to integrate non-standard work arrangements, which results in regulatory deficits that allow new business models to operate in the context of no-employment relations. Changes in the classification and definitions may take some time due to the legislative and consultative processes. Consultations will ensure that amendments will capture the unique aspects of platform work. While these processes are ongoing, it is useful to implement other initiatives, including partnerships with platforms on social protection and savings and conducting consultations regarding the applicable minimum standards.

- *Promote workers' voice and representation;* Adjust rules and regulations on collective bargaining to give voice and representation to workers in non-standard work arrangements. Currently, only those with employment relations can organise and negotiate. The lack of voice and representation in collective bargaining originate from the limitations in the workers' employment status. While adjustments in the labour code are being made, it is prudent to encourage associations and unions to push for issues in platform work in social dialogues and legislative hearings. Finding legislators who will champion the cause of decent work in platform work is also crucial.

Explore partnerships with on-demand platforms to enhance the provision of workers' social protection

Some AMS have made significant progress on this front. The Malaysian government, for example, has a memorandum of understanding with major platforms, resulting in one platform's inclusion of an auto-deduct feature that simplifies its workers' savings efforts, while another has agreed to pay a portion of the EPF contributions of their high-performing partners. These collaborations demonstrate how platforms value their partners, which can attract more loyal partners. These can potentially result in other platforms to follow, setting the norms for participating in their partners' savings fund and social protection. Indeed, some platforms recognise the role of partner riders/drivers in their business models, and they express willingness to forge stronger collaborations with the State.

Acquire an in-depth understanding of on-demand work before formulating regulatory frameworks

- Robust consultations with different platforms and workers are essential in understanding working conditions and minimum standards in pay and security. Consultations will clarify obligations and set minimum applicable standards approved by all stakeholders, making regulations likely to be successful.

These will also help define "active" work on platforms, which can facilitate the scope and nature of social protection or insurance provided to platform workers.

- Experiences in the EU and the AMS demonstrate that platforms adapt their systems to circumvent attempts at regulation. Thus, it is crucial that platforms and workers are represented in committees and technical working groups.

- Different platforms have distinct management policies and foster diverse working conditions, which result in varying issues and challenges. For example, the risk of road accidents is higher for workers in two-wheeled than in four-wheeled ride-hailing services. Responsibilities are bigger for workers who move people than parcels/goods. Personal service providers like cleaners, nannies, and massage therapists work in environments with less autonomy and independence. Thus, establishing technical working groups for major sectors can lead to more nuanced policies.

- National governments can explore an experimental regulatory sandbox. A sandbox is a controlled and time-bound environment that allows for live testing of technologies, services, and business models, with appropriate supervision and safeguards[110]. Sandboxes are historically used in the financial sector, although these are now applied in energy, transport, and the digital economy. These can be valuable tools to determine the workers' employment classification and explore approaches that can enhance institutional capacities and address gaps in social protection. Experiments that establish new employment classifications and determine platform workers' modes of social protection can be valuable exercises.

Improve data collection initiatives to aid evidence-based policies and programmes

Evidence is important to ensure that policies address issues and challenges. In the case of platforms, the lack of data limits researchers from shedding light on various issues. Platforms are the best sources of data. However, their unwillingness to share their trove of information limits stakeholders from gaining an in-depth understanding of the unique aspects of work. This presents a challenge, although the government can use innovative approaches like exploring how the Application Programming Interface and data crawling can extract information from various web sources. Governments can also forge collaborations with platforms through data-sharing agreements.

In addition, statistics authorities should explore the collection of nationally representative data on non-standard work arrangements. In this exercise, careful considerations should be made to strike a balance between survey costs and the quality of the data collection. On the one hand, it would be cost-effective if the data collection is a rider to Labour Force Surveys. On the other hand, rider questions may not fully capture the scope of these work arrangements. There is also a need for a clear definition and taxonomy of platform work, which will guide the nature of questions that will be asked and the types of indicators that will be collected.

Create sustainable and fair environments for all stakeholders involved

Few players in the market can result in practices that are inimical to the interest of workers. This is more so in the case of platforms when innovations are occurring faster than the development of regulatory frameworks. Moreover, the presence of many platforms can benefit workers as platforms compete through better work policies. Thus, the government must establish free and fair competition, allowing new businesses to enter and thrive in the market.

Applying the applicable minimum standards to all platforms is just as important as preventing market monopolies. Some platforms expressed willingness to abide by the regulations provided these arise from in-depth consultations and are applied by the State without exceptions. This means that the same regulations and standards should govern platforms offering similar services.

110- https://www.un.org/development/desa/dpad/publication/un-desa-policy-brief-123-sandboxing-and-experimenting-digital-technologies-for-sustainable-development/, Accessed on June 10, 2022

Explore the viability of platform cooperatives

Platform cooperatives offer alternatives to venture capital-financed platforms. These adopt the platform technology to facilitate the conduct of businesses, and as cooperatives, foster shared ownership and democratic governance. This means that platform workers are part of the platform's decision processes and are more likely to get decent and fair working conditions. Platform cooperatives are gaining traction in Europe (e.g. Coursiers Nancéiens, Les Coursiers Montpelliérains, Eva in France, and Mensakas Cooperative in Spain). Coursiers Nancéiens provides social protection and insurance to bikers. Eva fosters transparency through decentralised data management, which solves information asymmetry.

However, setting up platform cooperatives has challenges. Financing for platform cooperatives is a key issue since platforms require investments in software and physical and human capital infrastructures. The development of platform cooperatives also requires looking into the suitability of existing regulatory frameworks for cooperatives. Cooperatives also have existing regulations and structures, which may or may not be conducive to the development of platform cooperatives. In the Philippines, for example, the Cooperative Development Authority acts as a developer and regulator, while in Indonesia, directions mostly come from the national government following a top-down approach. Reducing regulatory barriers to establishing cooperative platforms and enhancing independence in development and innovation can be explored. The AMS can investigate the successful platform cooperatives in France, Germany, Italy, and Switzerland and analyse how the principles can be adopted into the AMS context.

9.2.3. Policies and initiatives to explore specific to crowdwork

Encourage crowdworkers to become formal entrepreneurs

- Streamline legal and regulatory requirements in licensing and registration and simplify tax administration, reporting system, and payment structures.
- Simplify the registration and payments to social protection programmes by establishing an online portal that will serve as a one-stop payment system for workers' insurance and social security funds and linking this system to various online and offline payment channels.
- Provide incentives and supports to formal entrepreneurs and conduct dissemination exercises to educate the entrepreneurial community on the advantages of joining the formal sector.

Recognise that not all crowdworkers can be formalised; Ensure equal access to state-led programmes

The few legislative efforts on crowdwork are focused on registered crowdworkers. However, crowdwork is heterogeneous in scope, duration, and complexity. Depending on their motivations and skills, workers will secure jobs continuously or intermittently. Attempts at formalising the latter are challenging since the transaction and administrative costs of compliance with regulatory requirements may outweigh the perceived benefits of formalisation. Thus, ensuring that informal workers can benefit from state-led programmes and initiatives is important, especially in skills and training development. Doing so enhances the workers' chance to secure higher value-adding and less intermittent jobs, paving the way for potential formalisation.

Recognise the importance of social enterprises, cooperatives, and associations of crowdworkers, Empower these entities

Enterprises, cooperatives, and associations enhance the visibility of crowdworkers. They should be recognised as vital links to the communities of crowdworkers. They should be engaged in consultations when crafting programmes for the crowdworkers' promotion and protection. Partnerships with these entities are useful in cascading information on government policies and initiatives and in determining sectoral needs and challenges. They also have programmes that assist their members in owning devices and enhancing access to the Internet. Thus, governments can tap into these entities to better understand how successful programmes can be replicated or upscaled.

9.3. ASEAN

ASEAN region is rich in human resources and is the frontrunner in harnessing opportunities brought about by innovations in the ICT sector. Various crowdworking platforms recruit workers from specific member states, while some on-demand platforms operate in several member states. However, member states have varied institutional capabilities, manifested in some nations being more advanced in digital indicators and existing programmes and initiatives for platform workers. Thus, as an economic community aiming for a competitive, innovative and dynamic ASEAN, and resilient, inclusive, and people-oriented region (as articulated in ASEAN Economic Community Blueprint 2025), it is crucial among member states to learn from each other's experiences, strengthen existing connections, and forge new pathways to promote and protect platform workers and improve decent work.

To improve decent work on platforms, collaboration among stakeholders, including platforms, platform workers is key. The wealth of information each member states possess is a resource and tool that, when pooled together, can help ASEAN community gain better policy insights. Thus, member states' collaboration in information management and participation in fora and dialogue are key. Crafting regional guidelines for on-demand platforms and a code of conduct for crowdworkers can also be useful. Without formal standards for platform work, the former can be useful in forwarding minimum standards for decent on-demand work. The latter can help mitigate the adverse effects of worker oversupply and competition on platforms. These guidelines should be crafted with key stakeholders to foster co-ownerships and encourage buy-ins.

9.3.1. Initiatives to explore for platform work

Spearhead the management of information on platform work and the platform economy in the region

Information on platforms in the AMS can be a valuable tool and resource for policymakers, researchers, platforms, and platform workers. A one-stop repository of information in ASEAN on regulations, laws, minimum standards, and platform ratings will inform stakeholders and governments of good practices and reasonable approaches to address regulatory deficits. To this end, the ICT bureau in each AMS can leverage its management information systems to collect pertinent information that can be customised should consistency in the format at ASEAN level be prescribed. In addition, the one-stop repository initiative of the Eurofound can be looked into to determine what other information, tools, and resources can be shared and harmonised.

Facilitate regional dialogue and forum

Various on-demand platforms operate in the AMS. Most take a hyper-local approach to ensure a quick response to changes in local markets. Meanwhile, new entrants and small, local platforms adopt the practices of leading platforms. Thus, workers in the region face similar issues, such as the platforms' substantial control, workers' employment status and its implications for security, lack of representation, and decreasing incentives and incomes. The AMS should spearhead regional dialogues and fora to set standards and guidelines for platforms and workers and to strengthen cooperation to achieve decent work in the region. These dialogues and fora, not only provide avenues for stakeholders to share worst scenarios and best practices, but also facilitate stakeholders to forge and/or strengthen connections in the ecosystem.

9.3.2. Initiatives to explore specific to on-demand work

Explore crafting regional guidelines for platforms

Big platforms operating in the region can have different policies depending on regulations in specific AMS and the initiatives pursued by agencies in charge of social protection. Thus, disparities can be observed within and among member states. Regional guidelines are, thus, useful, especially in the absence of standards from the Labour Codes. Unlike the Labour Code that mandates standards, regional guidelines crafted in collaboration with key stakeholders can effectively attain decent work on platforms. Government

representatives from the AMS, platform representatives, workers, and tripartite partners can agree on the minimum acceptable standards. Having regional guidelines can be beneficial to key stakeholders. It can reduce platforms' vulnerability to disruptions arising from workers' protests and sudden regulations. It can also send positive signals to the labour market. Thus, platforms can attract and retain workers vital to the platforms' operation.

9.3.3. Initiative to explore specific to crowdwork

Facilitate the crafting of a Code of Conduct for crowdworkers and for platforms

Crowdworkers are mostly coming from the Global South. Workers in the AMS can have strong bargaining power if they put up a unified front and avoid practices of cutthroat competition among workers. To do this, associations and groups play key roles. Associations and groups representing the interests of crowdworkers in the AMS can come together through a forum/meeting organised by ASEAN secretariat and explore the possibility of crafting guidelines in ASEAN crowdworkers' conduct on platforms. In the short run, a code of conduct targeting platform workers and their groups and associations is easier since these stakeholders will actively participate in consultations given the correct motivations and incentives.

Crowdworkers' adherence to the code of conduct is key. Unity in following the crowdworkers' code sends a strong signal to clients and platforms that crowdworkers in the region mean business. This can compel platforms to participate in future efforts to craft a crowdworking platforms' code of conduct. It is also important for platforms to realize that their adherence to such code can demonstrate their goodwill and attract better workers in the process.

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11. Annex

11.1. Supplementary Tables

Table A1. List of interviewees

Labour Ministries	Country	Mode of Participation	Date
	Brunei Darussalam	Written response	April 23, 2022
	Cambodia	Written response	March 16, 2022
	Indonesia	Written response	March 11, 2022
	Lao PDR	Written response	April 18, 2022
	Malaysia*		
	Myanmar	Written response	March 10, 2022
	The Philippines	Written response	June 2, 2022
	Singapore	Virtual interview	April 12, 2022
	Thailand	Written response	March 15, 2022
	Viet Nam	Written response	May 11, 2022
ICT Ministries			
	Brunei Darussalam	Virtual interview	March 4, 2022
	Cambodia	Written response	March 11, 2022
	Indonesia+		
	Lao PDR**		
	Malaysia	Written response	April 1, 2022
	Myanmar	Written response	March 11, 2022
	The Philippines***		
	Singapore	Written response	May 4, 2022
	Thailand	Written response	March 21, 2022
	Viet Nam	Written response	March 16, 2022
Social Security Organisations			
BPJS Ketenagakerjaan	Indonesia***		
Employees Provident Fund (EPF/ KWSP)	Malaysia	Virtual interview	June 23, 2022
Social Security System (SSS)	The Philippines	Virtual interview	May 30, 2022
Central Provident Fund	Singapore^		
Social Security Office (SSO)	Thailand	Written response	July 6, 2022

Labour Ministries	Country	Mode of Participation	Date
MSMEs			
	Indonesia	Written response	March 18, 2022
	Malaysia	Written response	March 29, 2022
	The Philippines***		
	Singapore^^		
	Thailand^^^		
	Viet Nam	Written response	March 30, 2022
Chamber of Commerce			
	Thailand	Written response	March 31, 2022
Platform representatives			
Foodpanda (Regional)		Written response	June 3, 2022
GoJek (Regional)		Written response	March 17, 2022
Grab (Regional)		Written response	August 24, 2022
LineMan Wongnai Thailand		Written response	March 28, 2022
MyKuya the Philippines		Virtual interview	April 7, 2022
Robinhood Thailand		Virtual interview	May 4, 2022
Workana Malaysia		Written response	April 12, 2022
Platform Workers (requested not to be identified)			
Male crowdworker	The Philippines	Virtual interview	March 2, 2022
Male rider	The Philippines	Written response	March 2, 2022
Female crowdworker, agency owner	The Philippines	Virtual interview	March 4, 2022
Female crowdworker, agency owner, trainer	The Philippines	Virtual interview	March 2, 2022
Male rider	The Philippines	Virtual interview	March 9, 2022
Male rider	Thailand	Written response	April 20, 2022
Groups/Associations			
DKI Jakarta Serikat Pengemudi Gojek SPDT-FSPM (DKI Jakarta Gojek Driver Union)	Indonesia	Virtual and Written interview	April 5/6, 2022
FH Moms	The Philippines	Written response	March 30, 2022
Kagulong (Kapatiran sa Dalawang Gulong)	The Philippines	Virtual interview	March 30, 2022
Freedom Union Rider	Thailand	Written response	April 20, 2022
Just Economy and Labor Institute (JELI)	Thailand	Virtual interview	April 12, 2022

Labour Ministries	Country	Mode of Participation	Date
Subject matter experts			
Victoria Fanggidae (PRAKARSA Institute)	Indonesia	Virtual interview	March 16, 2023
Diatyka Widyad (Universitas Indonesia)	Indonesia	Virtual interview	March 29, 2022
Zhai Gen Tan (Asia School of Business)	Malaysia	Virtual interview	March 21, 2022
Cheryll Soriano (Fairwork the Philippines/ De La Salle University (DLSU)	The Philippines	Virtual interview	March 9, 2022
Mitzie Conchada (DLSU)	The Philippines	Written response	March 15, 2022
Jack Qiu (National University of Singapore)	Singapore	Virtual interview	May 17, 2022
Thanee Chaiwat (Chulalongkorn University)	Thailand	Written response	April 13, 2022
Thorn Pitidol (Thammasat University)	Thailand	Virtual interview	April 1, 2022
Trisorn Thirachiwanon (Thailand Development Research Institute)	Thailand	Virtual interview	April 5, 2022
Nguyễn Đức Lộc (Social Life Research Institute)	Viet Nam	Written response	July 26, 2022
Pham Thanh Nga (Hanoi International Arbitration Centre)	Viet Nam	Virtual interview	May 11, 2022

\+ Replied on 3.11.2, deferred response to the Ministry of Labor

* Replied that referred person might answer on their behalf, namely Mr. Tan Zai Gen and Ms. Rachel Gong on 3.7.22

** Replied on 3.11.22, deferred response to the Ministry of Labor on 3.11.22

***No response

^ Replied on 5.25.22, deferred response to the Ministry of Labor

^^ Replied on 3.10.22, deferred response to the Ministry of Labor

^^^ Replied that the Ministry of Labor should respond

Table A2. Composition of employment by economic activity by gender and economic activity, 2011-2019

Panel A. 2011-2015						
	Female			Male		
	Agriculture	Industry	Services	Agriculture	Industry	Services
Lower-income countries						
Cambodia	24.97	9.91	14.15	24.54	10.56	15.87
Myanmar	20.93	6.22	14.57	31.41	10.37	16.50
Middle-income countries						
Lao PDR	34.71	3.84	11.01	33.12	6.18	11.14
The Philippines	7.98	3.97	27.37	23.09	11.69	25.91
Viet Nam	23.22	8.35	16.28	23.32	13.24	15.60
Indonesia	13.04	5.91	19.02	22.01	15.20	24.82
Higher-income countries						
Thailand	16.55	8.55	20.82	21.62	12.77	19.69
Malaysia	2.92	7.30	26.61	9.66	20.53	32.98
Brunei Darussalam	0.20	4.40	36.72	0.43	14.22	44.04
Singapore	0.02	5.55	35.30	0.08	13.68	45.37
Panel B. 2016-2019						
	Female			Male		
	Agriculture	Industry	Services	Agriculture	Industry	Services
Lower-income countries						
Cambodia	18.98	12.31	17.53	17.68	14.24	19.26
Myanmar	18.13	6.53	15.98	31.57	10.10	17.69
Middle-income countries						
Lao PDR	32.00	4.42	12.69	31.00	7.81	12.08
The Philippines	5.87	3.82	29.14	18.96	14.61	27.59
Viet Nam	19.52	10.59	17.77	19.95	15.57	16.60
Indonesia	11.00	6.49	21.62	19.14	15.61	26.14
Higher-income countries						
Thailand	13.04	9.14	23.44	18.50	13.91	21.97
Malaysia	2.43	7.75	28.10	8.44	19.56	33.72
Brunei Darussalam	0.23	3.89	37.55	1.13	14.56	42.64
Singapore	0.01	4.76	36.85	0.04	11.45	46.89

Source: ILO (2022)

Table A3. Average unemployment rates by sex and age, 2011-2022

Panel A. All Ages									
	2011-2015			2016-2019			2020-2022		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Lower-income countries									
Cambodia	0.53	0.52	0.52	0.34	0.23	0.29	0.59	0.43	0.51
Myanmar	0.89	0.67	0.76	1.29	0.84	1.03	2.11	1.68	1.85
Middle-income countries									
Lao PDR	0.70	0.80	0.75	0.77	0.86	0.82	1.13	1.23	1.18
The Philippines	3.66	3.32	3.45	2.69	2.31	2.46	2.67	2.27	2.42
Viet Nam	1.16	1.41	1.29	1.61	1.84	1.73	2.39	2.16	2.27
Indonesia	4.59	4.45	4.50	3.75	4.24	4.05	3.89	4.65	4.35
Higher-income countries									
Thailand	0.52	0.54	0.53	0.76	0.75	0.75	1.15	1.17	1.16
Malaysia	3.33	2.90	3.06	3.70	3.14	3.35	4.66	4.30	4.44
Brunei Darussalam	8.07	6.41	7.10	9.37	7.58	8.33	9.09	6.53	7.58
Singapore	4.21	3.51	3.80	4.03	3.56	3.76	4.22	3.66	3.89
Panel B. 15-24 years									
	2011-2015			2016-2019			2020-2022		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Lower-income countries									
Cambodia	0.73	0.79	0.76	0.67	0.50	0.58	1.63	1.26	1.43
Myanmar	1.80	1.45	1.61	2.95	2.20	2.52	5.17	5.22	5.20
Middle-income countries									
Lao PDR	1.72	1.93	1.82	2.05	2.25	2.15	2.98	3.20	3.09
The Philippines	11.42	8.17	9.40	8.70	6.28	7.18	8.81	6.17	7.16
Viet Nam	4.44	4.46	4.45	6.21	6.31	6.27	7.95	6.90	7.37
Indonesia	17.02	16.29	16.58	14.84	14.99	14.93	15.08	15.76	15.49
Higher-income countries									
Thailand	3.37	2.24	2.69	5.13	3.47	4.14	6.85	5.44	6.01
Malaysia	11.45	9.58	10.31	12.57	10.48	11.32	16.65	13.36	14.67
Brunei Darussalam	25.84	22.52	23.93	29.15	26.39	27.51	27.12	20.54	23.13
Singapore	12.11	6.73	9.10	11.71	6.50	8.77	12.66	7.55	9.84

Panel C: For 25 + years									
	2011-2015			2016-2019			2020-2022		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Lower-income countries									
Cambodia	0.46	0.41	0.43	0.24	0.14	0.19	0.31	0.19	0.25
Myanmar	0.58	0.43	0.49	0.83	0.51	0.64	1.36	0.97	1.12
Middle-income countries									
Lao PDR	0.31	0.42	0.37	0.37	0.49	0.43	0.61	0.76	0.69
The Philippines	1.85	2.07	1.98	1.52	1.45	1.48	1.66	1.55	1.60
Viet Nam	0.50	0.73	0.61	0.86	1.04	0.96	1.64	1.45	1.54
Indonesia	2.03	2.15	2.10	1.57	2.17	1.94	1.74	2.57	2.24
Upper income countries									
Thailand	0.22	0.31	0.27	0.34	0.41	0.37	0.65	0.70	0.67
Malaysia	1.51	1.56	1.54	1.95	1.82	1.87	2.47	2.77	2.65
Brunei Darussalam	4.78	3.58	4.07	6.39	4.70	5.41	6.70	4.53	5.42
Singapore	3.35	3.21	3.27	3.28	3.29	3.29	3.52	3.38	3.44

Source: ILO (2022)

Table A4. Legal framework on labour and employment and information on social security in the AMS

	Framework setting the terms and conditions of labour and employment	Some amendments	Social Security
Brunei Darussalam	Employment Order 2009, Workmen's Compensation Act 1957, Workplace, Safety, and Health Order 2009, Employment Agencies Order 2004, and Employment Information Act 1974 Covers all persons who are employed under a contract of service http://www.labour.gov.bn/SitePages/Legislation.aspx		Employers and employees contribute to the Employers' Trust Fund (Tabung Amanah Pekerja), which covers old age, housing, disability, and death http://www.tap.com.bn/Pages/EN/About-TAP.aspx
Cambodia	Labour Law, 1997 https://www.ilo.org/dyn/travail/docs/701/labour	Royal Kram No. NS/RKM/1021/011: amends several articles of the Labour Law related to work shifts and labour dispute resolution https://www.aseanbriefing.com/news/cambodia-makes-amendments-to-the-labour-law/	Employers with one or more employees must register themselves and their employees with the National Social Security Fund (NSSF), which covers Social Security Schemes on Occupational Risk, Health Care, and Pension https://www.nssf.gov.kh/language/en/
Indonesia	Labour Law Number 13 of 2003 https://www.ilo.org/dyn/travail/docs/760/Indonesian+Labour+Law+-+Act+13+of+2003.pdf	Omnibus Law Government Regulation No. 35 of 2021 (GR 35/2021), amendments on fixed-term employment contracts, outsourcing, hours of work, and the procedure for the termination of employment. https://www.aseanbriefing.com/news/indonesias-omnibus-law-significant-changes-for-contract-workers/	Employers register their employees with the Badan Penyelenggara Jaminan Sosial (BPJS) to provide work accident insurance, life insurance benefit, and old age benefit
Lao PDR	Labour Law, 2006 https://www.ilo.org/dyn/natlex/docs/MONOGRAPH/78249/83512/F619261308/LAO78249.pdf	Labour Law, 2013, amendments on the quota of foreign employees, employment contract duration, working hours/shift work/overtime, severance payment, employees' representatives, collective bargaining https://www.dfdl.com/resources/legal-and-tax-updates/lao-pdr-labour-law-important-update/	Employers and employees contribute to the Lao Social Security Organisation that covers old age, healthcare, disability, and death https://www.asean-ssa.org/member-institutions/lao
Malaysia	Employment Act, 1955 https://www.ilo.org/dyn/natlex/docs/WEBTEXT/48055/66265/E55mys01.htm	Under review to introduce multiple other measures, including amendments on pregnancy/maternity protection, working hours, flexible working arrangements, employment discrimination disputes, fines on sexual harassment, and forced labour https://www.aseanbriefing.com/news/proposed-amendments-to-malaysias-employment-act/	Employers and employees contribute to the Employees' Provident Fund (EPF) and the Social Security Organisation (SOCSO), which cover retirement, disability, survivor's benefits, and medical payments. Per Budget 2020, the Malaysian government has also increased the scope for Employee Provident Fund (EPF) Coverage. All employees hired on a contractual basis are now eligible for EPF. Currently voluntary service but expected to become an obligation in the future. https://www.globalpeoplestrategist.com/malaysia-labour-law-changes/

	Framework setting the terms and conditions of labour and employment	Some amendments	Social Security
Myanmar	Labour law, https://www.ilo.org/dyn/natlex/natlex4.detail?p_lang=en&p_isn=96369		Employers and employees contribute to the Social Security Board that covers healthcare, employers' compensation, and death http://www.mol.gov.mm/
The Philippines	Labour Code, Presidential Decree 442, 1974		Employers and employees contribute to the Social Security System (SSS), National Health Insurance Program, and the Home Development Mutual Fund that cover sickness, maternity, disability, retirement, deaths and funerals, health insurance, and housing loans. http://www.sss.gov.ph/
Singapore	Employment Act of Singapore	Amended the core human resource and payroll compliance termination procedures, leave allowances for employers, and employees' rights in the workplace. https://www.aseanbriefing.com/news/singapores-employment-act-the-top-6-amendments/	Employees and employers contribute to the Central Provident Fund (CPF), which covers its workforce's healthcare, retirement, and housing needs. It is funded by contributions from both employers and employees. cpf.gov.sg
Thailand	1975 Labour Relations Act (right to organise and collectively bargain Thai Labour Protection Act B.E.2541 (LPA) and the Thai Civil and Commercial Code (TCCC) https://www.aseanbriefing.com/news/thai-labour-contracts-what-you-need-to-know/		Employers and employees are required to contribute to the Social Security Fund that covers disability, maternity; and death benefits, child and old-age benefits; unemployment benefits; total social security tax http://www.sso.go.th/
Viet Nam	Labour Code, regulate the employment relationship between the wage-earning worker and the employer, and the social relationships directly connected to this employment relationship. https://www.ilo.org/dyn/natlex/docs/WEBTEXT/38229/64933/e94vnm01.htm#c1	*New Labour Code took effect in January 2021*, offers greater protection for employees, rules on w*orking hours, termination, independent trade unions* (*rather than state-run*) viewed as better aligned with international best practices. https://www.vietnam-briefing.com/news/vietnam-approves-labour-code-2021.html/	Employers and employees contribute to the Viet Nam Social Security that covers retirement, healthcare, workers' compensation, and death https://vss.gov.vn/english/Pages/default.aspx

Source: Authors' compilation.

Table A5. Platforms at the global level

Platform	Services	Founded date	Headquarter	Markets	Number of partners/users
99designs by Vistaprint (under Cimpress PLC)	Marketplace Platform for freelance (graphic) design-related jobs and services such as logo branding, website design, marketing products, etc.	2008 (Founded Year)	USA	Worldwide, including all ASEAN Member States with focused on businesses from the United States of America, Canada, United Kingdom, France, Germany, Italy, Spain, the Netherlands, Switzerland, Austria, Belgium, and Australia.	150,000 talented freelance designers brought more than 1 million creative projects to life,
Amazon Mechanical Turk	Crowdsourcing platforms for jobs and services that require Human Intelligence Tasks may include surveys, experiments, coding tasks, or any other work	2005	USA	Worldwide, including all ASEAN Member States	250,810 MTurk workers worldwide
Content	Marketplace Platform for freelance writing-related jobs and services (academic, marketing, entertainment, etc.)	2015	USA	Worldwide, including all ASEAN Member States	
Crossover (for Work)	Online recruitment platform for remote, freelance, and flexible jobs that include Engineering, Product Management, Support, Finance, Marketing, Sales, and Operations	2014 (as Crossover)	USA	Worldwide, including all ASEAN Member States	70+ companies
CrowdSPRING (crowdSPRING, LLC)	Marketplace platform for freelance/ crowdsourced design-related digital services such as logo, website, print, and graphic design	2008 (Launch Year)	USA	Worldwide, including all ASEAN Member States	60,000+ businesses, agencies as clients, 220,000+ designers
DesignCrowd (DesignCrowd Pty Ltd)	Marketplace platform for freelance design-related digital services such as logo, website, print, and graphic design	2007	Australia	Worldwide, including all ASEAN Member States	1 million graphic freelancers, 400,000 completed projects
Envato Studio (Part of Envato Pty Ltd.)	Marketplace Platform for freelance design-related jobs and services such as logo design, digital marketing, copywriting, web/app design & development, video production	2013 (as Microlancer); 2014 (as Envato Studio)	Australia	Worldwide, including all ASEAN Member States	3 million users
Fiverr (Fiverr International Ltd.)	Freelance marketplace platform for various digital services with 550 categories, ranging from programming to 3D design, digital marketing to content creation, from video animation to architecture.	2010	Israel	Worldwide, including all ASEAN Member States	4 million customers worldwide, 50 million transactions, three million+ freelancers from 160 countries

Platform	Services	Founded date	Headquarter	Markets	Number of partners/users
FlexJobs (FlexJobs Corporation)	Online recruitment platform for remote, freelance, and flexible jobs	2007	USA	Worldwide, including all ASEAN Member States	100 million users
Freelancer.com (Freelancer Limited)	Freelancing and crowdsourcing marketplace for digital services such as software development, writing, data entry design, engineering, the sciences, sales and marketing, accounting, and legal services.	2009	Australia	Worldwide, including all ASEAN Member States	59 million employers and freelancers, 21 million jobs posted
Freelancewritinggigs.com (purchased by Splashpress Media Ltd.)	Marketplace Platform for freelance writing-related jobs and services (academic, marketing, entertainment, etc.)	2005 (Founded Year); 2010 (Sold to Splashpress Media)	United Kingdom	Worldwide, including all ASEAN Member States	
Guru.com	Marketplace for digital freelance services such as software development, writing, data entry, design, engineering, education/training, sales and marketing, finance, and legal services.	1998 (before 2003, known as Emoonlighter)	USA	Worldwide, including all ASEAN Member States	800,000 client-employers, 3 million users
Microworkers.com	Crowdsourcing platform that connects employers with workers focused on data collection and analysis, moderation and/or extraction of data, annotation, categorisation, image or video tagging, translation and transcription, product testing, research, survey jobs, and more.	2009 (Started Year)	USA	Worldwide, including all ASEAN Member States	
Nexxt (Nexxt, Inc.)	Online full-service recruitment marketing platform/marketplace	1998 (previously known as beyond.com)	USA	Worldwide, including all ASEAN Member States	100 million members, 29+million resumes/ applications of job seekers
Peopleperhour (People Per Hour Limited)	Marketplace Platform for freelance jobs and services targeting businesses such as Technology & Programming, Writing & Translation, Design, Digital Marketing, Video & Photo & Image, Business, Music & Audio, Marketing, Branding & Sales, social media	2007	United Kingdom	Worldwide, including all ASEAN Member States	1.2 million clients, two million freelance workers
PixelClerks (under Ionicware Inc.)	Online freelance marketplace for graphic design services	2012	USA	Worldwide, including all ASEAN Member States	
SEO Clerk (under Ionicware Inc.)	Online marketplace for search engine optimisation (SEO) and other digital marketing services like a virtual assistant, content writing, programming, and art & design	2011	USA	Worldwide, including all ASEAN Member States	100,000 freelancers, 150,000 professional service

Platform	Services	Founded date	Headquarter	Markets	Number of partners/users
Skyword (Skyword Inc.)	Online Digital Marketing Services for Businesses (Content Creation, Editorial, Training, Data & Insights)	2004	USA	22 countries, including all ASEAN Member States	300+ of the world's best brands, 4,600 vetted freelance writers, videographers, and photographers; and its strategic and editorial services
Toptal (Toptal LLC)	Marketplace Platform for freelance skill tech-related occupations such as engineers, software developers, designers, finance experts, and product managers	2010	USA	Worldwide, including all ASEAN Member States	1.2 million freelancer applications received; 16,000 clients served in the year 2021 with 2,000 company-clients
Truelancer (Truelancer Internet Pvt. Ltd.)	An online marketplace that provides services such as developers, designers, content writers, virtual assistants, growth hackers, and social media experts.	2014	India	Worldwide, including all ASEAN Member States	600,000 freelancers, with a listing of 5000+ services/gigs
Upwork (Upwork Inc.)	Freelance marketplace platform for various digital services such as sales and marketing, customer service, data science and analytics, design and creative, web, mobile, and software development.	1998 (as Elance), 2003 (as oDesk), 2013 (as Elance-oDesk), 2015 (as Upwork)	USA	Worldwide, including all ASEAN Member States	12 million freelancers, 5 million registered clients with more than three million jobs
We Work Remotely	Online recruitment platform for remote and freelance jobs	2013	Canada	Worldwide, including all ASEAN Member States	3 million visitors
WordClerks (under Ionicware Inc.)	Online freelance marketplace for content professionals	2016	USA	Worldwide, including all ASEAN Member States	
Working Nomads	Online recruitment platform for remote, freelance, and flexible jobs that include Design, Education, Writing, Customer Success, Healthcare, Legal, Engineering, Support, Finance, Marketing, Sales, and System Administration	2014		Worldwide, including all ASEAN Member States	

Source: Authors' compilation. Accessed on May 2022

Table A6. Comparison of a global platform and a platform hiring in a specific local labour market

Characteristics	Upwork	OnlineJobsPh
Registration	• Build profile by adding education, work experience, key words for skills, bio (can detail how you work) • Set wage rate. • Add photo and location	• Build profile by adding preferred jobs and skills. • Provide name, mobile number, and other details like skills for profile page. • Verify ID to get a verification score. It's over 100 "ID Proof" points.
	Will get 50 number of "connects" upon registration	
	Can copy other freelancers' profile/ keywords (like hashtag) or the job listing industry specifically to appeal to certain type of clients.	Can copy other freelancers' profile/ keywords (like hashtag) or the job listing industry specifically to appeal to the client.
	Can add certifications to boost profile page. Upwork has partnered with Credly to get digital credentials, but workers can certifications manually. Certifications are more digitally-related like graphic designs certifications from Google, shopping ads certification, IELTS for virtual assistants.	The platform offers free simple English tests/ IQ score to add to your profile. This may boost profile page.
Job search	Needs "connects" to apply for a job listing. Each job listing has a certain number of "connects" to apply. A freelancer account gets free 10 "connects" monthly. If not used, it gets rolled over as long as the total number does not go over 200 "connects". Additional payment is needed if you lack the needed number of "connects" to apply for a job listing.	Can apply for a job listing as long as the freelancer's "ID proof" points pass the minimum required by the listing. Ways to increase points in case the minimum points are not met: a. Government ID verification is worth 30 points. The verification requires a selfie with the ID. b. Mobile number verification is another 20 points. c. Address verification is 30 points. d. Facebook account increases "ID Proof" points. Same goes for profile picture.
	Can see the if the clients' mode of payment is verified or not. If verified, it means they have a credit card linked to their account signaling they may not be bogus clients.	

Characteristics	Upwork	OnlineJobsPh
Job application	To apply, submit cover letter and resume. Some jobs ask for a sample work at the Upwork facility. It is the norm to apply at the platform since ALL modes of communications are available in the platform such as email, chat, video call via Microsoft Team meeting, etc. Both clients and freelancers are given all tools possible to communicate inside the platform to lessen the chance of bringing the work outside the platform.	While the platform has a chat/email/ message feature, a lot of job listings would encourage the freelancer to either email the client personally or go to an external Google form/website to apply. OnlinejobsPH makes clients pay a subscription fee to be able to hire workers on the platform. On the upside, the platform does not charge freelancers commission fees. However, with applications done outside the platform, first time freelancers might be unprotected due to the exposure of personal data in unknown external sites.
		Clients use their own way of applying like via Skype, Google form, or their own site. • Some clients may have alarming Google form/external site questions such as birthdates. This may be a way to age discriminate. • Some clients just ask for internet connection speed, province, and resume. Then after emailing/filling up the forms, the client would contact workers for interview. Each client again has their own way of interviewing.
	Application is competitive. Upwork offers freelancers to "upgrade" their free account to be able to access certain data on application like the bidding range on job listings.	Application is competitive.
	Applying is a risk. Some clients ask for trial run or trial outputs and don't pay for the time spent on the trial period. For example, clients can ask the freelancer to watch training videos or produce short outputs prior to job commencement without pay.	Applying is a risk. Some clients ask for trial run or trial outputs and don't pay for the time spent on the trial period.
Setting Up Rate	Upwork guarantee freelancers to earn at the minimum of US$3 per hour, which puts a floor on hourly rate. To make sure both freelancers and clients are aware of this price floor, the system does not let workers indicate less than US$3 as a desired wage. There is also a commission fee being charged to freelancers. There are three ways to work for Upwork: • DIY- bid at posting made by client via Talent Marketplace • "All-in Project" Service- bid yourself per project project with timeline via Project Catalog • Ask Upwork to be a recruiter to direct freelancers to a client via Talent Scout	No protection of US$3 of hourly rate. Most jobs offer more than US$3 of hourly rate. Allows freelancers to set their own fee and everything is up to negotiation with the clients.
Accepting a Job	Job offers are done thru the Upwork system, which allows freelancers to see the final rate, Upwork's commission fees, and expected net pay once the job is done. There is also an offer date expiry which is 7 days.	Depends per job listing. There are jobs being applied outside the system, notifications can be done via the platform or outside. If done inside the platform, freelancers can handle offers via message board.

Characteristics	Upwork	OnlineJobsPh
Tracker	Upwork Time Tracker (external application to be downloaded)	Timeproof (external application to be downloaded)
	Freelancers cannot start working without this. The accepted job offer is already embedded on this external application upon logging on the app. Randomly, the tracker would take screenshots of what the freealancers are doing during the logged hours. Clients have access to these screenshots.	New tracker of OnlinejobsPH. Some clients uses this based on their indicated suggestion on job listings, some do not.
Invoicing	Fast invoicing, timely payment	Depends on the agreement with clients (e.g, monthly, bi-weekly)
	The Upwork Service/Commission Fee is 20% when the freelancer is relatively new to the platform. For billing over US$500, Upwork charge a lower fee of 10% and can get even lower with higher amounts of billing over time.	
Payment	Freelancers will receive payment that is net of the commission fee. They can withdraw via Paypal/ direct bank transfer with additional withdrawal fees.	Depends on negotiation. Normally PayPal. No commission fees or withdrawal fees.
Feedback	Once the job is finished and paid, freelancers and clients can review each other. Reviews are now part of their profiles.	No review system detected

Source: Authors' compilation

Table A7. Platforms at the regional level

Platform	Services	Founded date	Headquarter	Markets	Number of partners/ users
Logistics/Courier services					
Borzo	On-Demand Delivery (Parcels via Motorcycle)	2012 (Banabikurye in Turkey, formerly known as Dostavista or Mr. Speedy, as Click Entregas in Brazil, as Quickers in South Korea, as NOW/Wefast in India)	Netherlands	Indonesia, Malaysia, the Philippines, Viet Nam, and other international countries such as Mexico, South Korea, Russia, Brazil, India, and Turkey	2 million users, 2.5 million couriers
FlashExpress (Flash Express Co. Ltd. is under Flash Group)	Online Logistics Platform that provides door-to-door pickup and delivery service	2017	Thailand	Thailand, the Philippines, Malaysia, and Lao PDR	10,000 employees, 2,500 delivery points
Lalamove	On-Demand Logistics Delivery Service (All Types of Vehicles: Walker, Motorcycle, Car (Sedan), Van, 5.5- and 9-Ton Trucks)	2013	Hong Kong	Indonesia, Malaysia, the Philippines, Singapore, Thailand, Viet Nam, and other international countries such as Hong Kong, Taiwan, Brazil, and Mexico	8 million Users; 700,000 Drivers
Ninja Xpress/ Ninja Van (Ninja Logistics Pte. Ltd)	3rd party logistics service provider with a focus on e-commerce firms, merchants, or businesses as customers	2014	Singapore	Singapore, Malaysia, the Philippines, Indonesia, Thailand, Myanmar, and Viet Nam	110,000,000+ Southeast Asians served, 600,000 shippers/ users
ZTO Express (ZTO Express Cayman Inc)	Logistics Express delivery services which include shipping and freight international deliveries	2002	China	Cambodia, Thailand, Lao PDR, Viet Nam, Singapore, and China	19,009 people/ employees

Platform	Services	Founded date	Headquarter	Markets	Number of partners/users
Food-delivery services					
AirAsia Food	AirAsia Food- On-Demand Deliveries (Food); AirAsia- Travel (Airline/Flight, Hotels), Ecommerce (Shopping Platform)	2020 (as subsidiary: AirAsia Food); 1993 (for AirAsia)	Malaysia	AirAsia Food- Malaysia, Thailand, and Indonesia	
Deliveroo (Roofoods Ltd)	On-Demand Deliveries (Food, Grocery)	2013 (Roofoods Ltd)	Singapore	Singapore, and in other international countries such as the United Kingdom, Ireland, Netherlands, France, Belgium, Italy, Australia, Kuwait, Hong Kong, United Arab Emirates	8 million Active Users, 180,000 Drivers Globally, 160,000 Partner-Restaurants
Easy Eat AI (Easy Eat Pte Ltd)	Food Technology Service (Includes food delivery with emphasis on digitalizing existing restaurants from inventory and customer orders to delivery and gaining AI-based data analytics to improve revenue.)	2019	Singapore	Malaysia, (soon on Singapore, Indonesia, and India)	1000+ Malaysian Restaurants users
Foodpanda (under Delivery Hero- German company)	On-Demand Delivery Platform for Deliveries (Food and Groceries/Mart)	2012	Singapore (Foodpanda), Germany (Parent Company)	Singapore, Thailand, Malaysia, the Philippines, Cambodia, Lao PDR, Myanmar, and other international countries such as Taiwan, Bangladesh, Pakistan, Hong Kong, Slovakia, Hungary, and Germany	
Oodle Eats (The Oddle Company)	On-Demand Deliveries (Food) with logistics partners such as Lalamove and Zeek	2014	Singapore	Singapore, Malaysia, and other international countries like Taiwan and Hong Kong	1,000+ food maker-partners in Singapore, 5,000+ food makers-partners regionally
Pop Meals (Farm to Fork Sdn Bhd)	On-Demand Food Manufacturer and Delivery Service (Automated Food Production and Logistics) With Dine-In/ Takeaway Option via 30 Outlet Stores	2015 (formerly known as Dah Makan)	Malaysia	Malaysia and Thailand (online only in THA)	The database has 2000 dish options
Zeek (Established by Kin Shun Information Technology Ltd.)	On-Demand Logistics Service Platform (Motorbike, Bicycle, Ebike, Van, and Truck) that focuses on merchants and food delivery industry players as clients	2017	Hong Kong	Singapore, Thailand, Malaysia, Viet Nam, and other international countries like Taiwan Hong Kong	10,000 delivery couriers

Platform	Services	Founded date	Headquarter	Markets	Number of partners/ users
Ride-hailing services					
ComfortDelGro (ComfortDelGro Corporation Limited)	Offline/Online Ride-Hailing and Transport Services (bus, taxi, rail, car rental and leasing, automotive engineering services, inspection, and testing services, driving centres, non-emergency patient transport services, insurance broking services, and outdoor advertising)	2003	Singapore	Singapore, Malaysia, and other international countries such as Australia, Ireland, China, New Zealand, and the United Kingdom	35,000 vehicles, 12,605 employees
Deliveree Group (known as Transportify, Inc. in the Philippines)	On-Demand Transportation, Moving, and Logistics Services (Trucks, Vans, and Car Economy Vehicles)	2014 (Launch Year)	Thailand	Thailand, the Philippines, and Indonesia	66,000+ active vehicles, 2.7 million downloads/ installations, 11 million cargo deliveries
FastGo (FASTGO Viet Nam Joint Stock Company)	On-Demand Ride-Hailing App (private car, luxurious car service, and taxi service)	2018	Viet Nam	Viet Nam, Myanmar, and Singapore	60,000 driver-partners
GOGOX (formerly known as GOGOVan)	On-Demand Transportation, Moving, and Logistics Services (Trucks, Vans, and Motorcycle Vehicles)	2013	Hong Kong	Viet Nam, Singapore, and other international countries such as Hong Kong, China, Taiwan, South Korea, and India	4.5 million registered drivers
Gojo (Gojo Global, licensed by Asian Famous Tours & Travel Sdn Bhd. in Malaysia, licensed by Hirna Mobility Solutions Inc. in the Philippines, known as OGIS Digital Service & Trading Company Ltd in Viet Nam, licensed by Bangkok Taxi Co., Ltd in Thailand)	On-Demand Ride-Hailing Service (Car)	2020 (for GOJO Asia)	Malaysia (for GOJO Asia)	Malaysia, Viet Nam, Thailand, the Philippines (alpha testing stage in Davao City as Hirna), and in other international countries such as France, Norway, USA, Scotland, Jordan, and India	4 million global travelers
InDriver (inDriver Inc.)	On-Demand Ride-Hailing (car service), courier service, and truck moving service	2013	USA	Indonesia, Malaysia, Thailand, Viet Nam, Lao PDR, and other international countries	100 million users, 1 billion rides

Platform	Services	Founded date	Headquarter	Markets	Number of partners/ users
Maxim (Taxi Maxim is under OOO Mobil TeleCom)	On-Demand Ride-Hailing (car service), Courier Service	2003	Russian Federation	Indonesia, Malaysia, Viet Nam, the Philippines (testing service stage), and in other 11 international countries	
Moovby (Urban Mobility Asia Sdn Bhd)	On-Demand Car-Sharing Platform/ Application (includes trucks and 7-seater premium vehicles)	2017	Malaysia	Malaysia and Indonesia	
TADA (TADA Mobility Pte. Ltd)- powered by MVL Labs	On-Demand Ride-Hailing App (private car and tuktuk service) with limited grocery services	2017	Singapore	Singapore, Viet Nam, and Cambodia	100,000 drivers, 890,000 users
Zoomcar (ZoomCar, Inc.)	On-Demand Car-Sharing Platform/ Application (includes 7-seater premium vehicles)	2013 (Launch Year)	India	The Philippines, Viet Nam, Indonesia, and other international countries such as India and Egypt	20,000 car owner-partners
Multi-services					
GoTo (GoTo Group)	On-Demand Deliveries (Food, Shopping, Courier Express), Financial Services (Payment), Other Services (Massage, etc.)	2010 (as Gojek), 2021 (as GoTo due to merger with Tokopedia)	Indonesia	Indonesia, Viet Nam, Singapore, and Malaysia	Two million+ Partner-Drivers (with 1.7 million in Indonesia alone); 900 000+ GoFood Merchants; 36.3 million Active Users as of 2019
Grab (Grab Holdings Inc.)	On-Demand Deliveries (Food, Shopping, and Courier Express), Ride Mobility Services, Financial Services (Payment, Insurance, and Investment), and Others (Hotel Booking; Giftcards)	2012	Singapore	Singapore, Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Thailand, and Viet Nam,	2.8 million Active Partner-Drivers; 2 million Merchants; 122 million Unique Users (as of 2019)
KiwiGO (KiwiPay Pte. Ltd, merged with Meal Temple Group Pty Ltd.)	On-Demand Deliveries and Ride-Hailing Services (courier, private car, tuktuk, food, and grocery services), Curated Content, E-commerce Marketplace, Logistics, Financial Services as a payment method	2013 (as Meal Temple Group)	Singapore (formerly in Cambodia as Meal Temple Group)	Cambodia (as KiwiGO due to merger), Lao PDR (as MyDelivery), Myanmar (as Myanmore, as an investor in FreshGora), and in other 17 international countries	

Platform	Services	Founded date	Headquarter	Markets	Number of partners/ users
Other services					
Ayasan Service (known as Care2Clean in Lao PDR, GoMaidAgency in Indonesia)	Online Professional Cleaning (Home Cleaning and Ironing), Nanny Care, Elderly Care, Personal Driver, and Office Cleaning Services	2013	Thailand	Thailand, Lao PDR, Indonesia, and Viet Nam	40,000 registered candidates/cleaners/ nannies/drivers, 30,000+ users, 20,000+ family clients, 100+ company clients, 20+ embassy clients
bTaskee (bTaskee Company Limited)	On-Demand Home-related service application (Home cleaning, Air-conditioning, Cooking, Laundry, and Grocery Assistant)	2016	Viet Nam	Viet Nam (9 major cities and provinces: Hanoi, Hai Phong, Da Nang, Nha Trang, Da Lat, Binh Duong, Bien Hoa, HCMC, and Can Tho), and Thailand	7,000 cleaners/taskers (Viet Nam), 200,000 customers,
Fresh Cleaning (Fresh Cleaning Pte Ltd)	Online Professional Cleaning Services (Full Service Residential and Commercial Cleaning, Post Construction, Disinfection, Moving In and Out, Carpet Cleaning, and others)	2017	Singapore	Singapore and Viet Nam	
Doctor Anywhere (Doctor Anywhere Pte Ltd)	Online Telehealth Platform with home care services, wellness marketplace, and physical clinics	2017	Singapore	Singapore, Viet Nam, Malaysia, the Philippines, and Thailand	3,000 medical professionals across Southeast Asia, 2.5million users, 500+ team members
Hello Health (Hello Health Group Pte. Ltd., known as Hello Bacsi & MarryBaby (in Viet Nam), Hello Sehat (in Indonesia), Hello Sayarwon (in Myanmar), Hello Khunmor (in Thailand), Hello Krupet (in Cambodia), and Hello Doctor (in the Philippines)	Online Health & Wellness information platform that includes healthcare content	2015	Singapore	Singapore, Viet Nam, Indonesia, Myanmar, Malaysia, Thailand, Cambodia, the Philippines, and other international countries such as India and Taiwan	35 million unique monthly users, 300 people in the team
Kaodim (Cease Operation from July 2022)- known as Gawin.ph (The Philippines), Beres (Indonesia)	Online Labour Service Marketplace (plumbers, electricians, salon services, fitness instructors, and movers to photographers)	2014	Malaysia	Malaysia, Indonesia, the Philippines, and Singapore	

Platform	Services	Founded date	Headquarter	Markets	Number of partners/ users
ServisHero (ServisHero Group)	On-Demand Home-Related Professionals (Cleaners, plumbers, electricians, handyman, disinfection technicians, and more)	2015	Malaysia	Malaysia, Singapore, and Thailand	
PasarPolis (PT Pasarpolis Insurance)	Online platform for digitech insurance products that include ride-hailing drivers, online drivers, and merchants	2015	Indonesia	Indonesia, Viet Nam, Thailand, and India	35 million customers, 10,000 agents, 30 insurance providers
Qoala (PT Archor Technology Digital)	Online platform for digitech insurance (life, car, health, travel, motorcycle, tropical disease, smartphone policies) products that partners with big unicorn companies	2018	Indonesia	Indonesia, Malaysia, Viet Nam, and Thailand	50,000 insurance marketers
Ruangguru (PT Ruang Raya Indonesia, as Kien Guru in Viet Nam, as StartDee in Thailand)	Online Marketplace for private tutors with its learning management system (LMS), dubbed as "Uber for tutoring service"	2014 (Launch Year)	Indonesia	Indonesia, Viet Nam, Thailand, and Singapore	17 million users, 15,000 students, 300,000 teachers, 4,000 employees, 100+ subject areas
Snapask (Snapask Inc)	On-Demand and Online Educational Platform that provides "Snap Questions" tutoring services, online video, interactive tutoring services in various subject matters.	2015 (Launch Year)	Hong Kong	Singapore, Thailand, Indonesia, Malaysia, Viet Nam, and other international countries such as Hong Kong, Australia, New Zealand, and Taiwan	100,000 students, 5,000 qualified tutors
Tutor Hunt International	Online Educational Platform that provides tutoring services in various subject matters, whether mathematics, language lessons, or music tuition	2005	United Kingdom	The Philippines, Singapore, and other 22 international countries	
Crowdwork					
FastWork (Fastwork Technologies Co., Ltd.)	Online Freelance Marketplace that provides digital services such as software development, design and illustration, content marketing, and video editing	2015	Thailand	Thailand and Indonesia	700,000 users

Source: Authors' compilation. Accessed on May and June 2022

Table A8. Platforms in Brunei Darussalam

Platform	Services	Founded date	Markets	Number of partners/users
Ride-hailing and courier services				
Dart Brunei (Dart Logistics Sdn Bhd)	Ride-Hailing/Sharing Mobility Services and Deliveries (Food and Courier Express via Runners-coming soon)	2017 (Launch Year)	Brunei Darussalam (Brunei-Muara, Kuala Belait, and Tutong)	150 drivers, 140 rides within 24 hours,
GoRush and GoRush Pharmacy Delivery (under Globex Global Logistics Sdn Bhd)	On-Demand Express Courier and Medicine Delivery	2019 (Launch Year for Pharmacy Delivery), 2017 (Launch for GoRush), 2008 (for Globex Global Logistics)	Brunei Darussalam (Nationwide)	
JiFEE (JiFEE Technologies Sdn Bhd partnered with Chinese firm- SF Express Co., Ltd.)	Courier Delivery Service (Technology-based Logistics supply chain)	2015	beauty products,	
E-commerce				
Agrome Market	Online Fresh Produce Marketplace (Connecting Local Farmers to Customers)- Delivery has in-house runners and outsourced freelance runners	2020 (Online Launch Year)	Brunei Darussalam (Brunei-Muara, Kuala Belait, Tutong, and Temburong)	100 orders a day, 40 local farmers-partners
Babakimpo (Babakimpo Sdn. Bhd)	Online Shopping Merchandise/ Department Store (food, sports gear, gadgets, household supplies, etc.) Delivery mode was not indicated if in-house of 3rd party.	2017	Brunei Darussalam and Shipping to Overseas	50,000 Products
BruEcom	Online Marketplace (Online Cube Store-Animation, Electronics, Supplies)	2021 (Online Launch Year); 2020 (Established Year)	Brunei Darussalam (Brunei-Muara, Kuala Belait, Tutong, and Temburong)	
Community for Brunei (under Bank Islam Brunei Darussalam)	Online Marketplace for Food, Merchandise, and NGO Service (Focus on Small Businesses and NGO Donations). Delivery with 3rd party logistics	2020 (Launch Year)	Brunei Darussalam (All Districts)	43 MSMEs in food and beverage, handcrafted products and services,
Go Mamam (Go Mamam and Co.)	On-Demand Food Marketplace (includes delivery)	2020	Brunei Darussalam (Brunei-Muara, Kuala Belait, and Tutong)	80 drivers, 200 daily orders, 25+ restaurants,

Platform	Services	Founded date	Markets	Number of partners/users
HealthBeauty365 (BWorld365 Sdn Bhd)	Online Health and Beauty Store- Delivery with 3rd party logistics	2020 (Online Launch Year)	Brunei Darussalam (All Districts except Kg. Ayer / Offshore stations)	
Hey Domo (under DXM Sdn Bhd)	On-Demand Online Marketplace (Food, Apothecary, Merchandise, Technology like Printing, Design)- includes delivery	2019	Brunei Darussalam	9,000 active users, 200 vendors, and 100 daily deliveries
Kadai Runcit (under Techbru Solutions (B) Sdn Bhd)	On-Demand Grocery Delivery	2017 (Launch Year)	Brunei Darussalam (Brunei-Muara, Kuala Belait, and Tutong)	20 or 30 orders in a day,
LetsBuy (under DSTIncomm)	Online Marketplace for New and Pre-Loved Items with a focus on MSMEs	2020 (Launch Year)	Brunei Darussalam (Brunei-Muara, Kuala Belait, Tutong and Temburong)	50 vendors during launch
Naindah.com (under Techbru Solutions (B) Sdn Bhd)	Online Shopping Merchandise (fashion, sports gear, gadgets, groceries, books & stationaries) Delivery with in-house and 3rd party logistics	2017 (Launch Year)	Brunei Darussalam (Brunei-Muara, Kuala Belait, and Tutong)	
Pasarpbg.com (operated by Beep Digital Solutions)- under maintenance	Digitalised Night Marketplace called "Pasar Pelbagai Barangan Gadong" with 3rd Party logistics	2020 (Launch Year)	Brunei Darussalam (Brunei-Muara)	12 vendors
Randomities (under H&F Enterprise)	Online Marketplace for Lifestyle Products-with 3rd party logistics delivery	2018	Brunei Darussalam (Brunei-Muara, Kuala Belait, Tutong and Temburong)	
Shopifull (Shopifull Company)	Online Shopping Merchandise (groceries, sports gear, gadgets, household supplies, etc.) Delivery with in-house logistics		Brunei Darussalam (Brunei-Muara, Kuala Belait, Tutong and Temburong)	
Smartbitbn.com (under Mydigitalbn Enterprise)	Online Platform for Gadget, Electronics, and IT Accessories- delivery via runners or 3rd party logistics	2020 (Launch Year)	Brunei Darussalam (Brunei-Muara, Kuala Belait, Tutong and Temburong)	
Ta-Pow! (Ta-Pow and Co.)	On-Demand Food, Groceries, and Homebase Marketplace (includes delivery)	2020	Brunei Darussalam (Brunei-Muara)	38+ vendors, 30 drivers
Weelago	Online Shopping Merchandise/ Department Store (groceries, sports gear, gadgets, household supplies, etc.) Delivery with 3rd party logistics	2018 (Online Launch Year)	Brunei Darussalam and Shipping to Overseas	over 2,000 items for sale

Source: Authors' compilation. Accessed on May 2022

Table A9. Platforms in Cambodia

Platform	Services	Founded date	Markets	Number of partners/users
Logistics and courier services				
Joonaak (Joonaak Enterprise Solutions Co., Ltd)	Logistics that include courier and delivery services that target both businesses, organisations, schools, and direct consumers	2015 (Launch Year)	Cambodia	300,000 in sale transactions,
Larryta Express	Online platform for bus and car service (includes inter-provincial routes)	2017	Cambodia	
Virak Buntham (Virak Buntham Express Tour & Travel/ VET)	Online platform for bus and premium car service (includes inter-provincial and cross-country routes)	2004	Cambodia	
Food delivery services				
E-GetS (E-GetS Technology Co.)	On-Demand Deliveries (Food, Mall/Shopping, Courier Express)	2018	Cambodia	3,500 business partners, 2,500 daily orders
Muuve (Muuve Tech Co Ltd)- Temporarily No Operation Due to Acquisition on May 2022	On-Demand Deliveries (Food)	2018	Cambodia (Phnom Penh and Siem Riep province)	100,000 users
Nham24 (GO24 Cambodia Co., Ltd)	On-Demand Deliveries (Food, Flowers, Groceries, Courier Express)	2016 (Launch Year)	Cambodia	350 employees, 2,000 restaurants, and supermarkets partners
Ride-hailing services				
PassApp (PassApp Technologies)	On-Demand Ride-Hailing Service (private car, rickshaw, and tuktuk/3 wheeler bike service)	2016 (Launch Year)	Cambodia (Phnom Penh, Siem Reap, Sihanouk Ville, Battambang, Kampong Cham, and Kampot)	10,000 drivers,
WeGO (G.O WeGo Co. Ltd)	On-Demand Ride-Hailing Service (private car, SUV, and tuktuk/3 wheeler bike service)	2017	Cambodia	7,000 drivers
Zelo Taxi Cambodia (website down, no update on socmed)	On-Demand Ride-Hailing Service (private car and tuktuk/ 3-wheeler bike service)		Cambodia	

Platform	Services	Founded date	Markets	Number of partners/users
Other on-demand services				
Agribuddy (Agribuddy Ltd.)	Online platform that provides agricultural-related knowledge services to remote farmers via rural entrepreneurs or "buddies". Other services include knowledge of the value chain, microcredit, and capacity building.	2015	Cambodia and India	600 rural entrepreneurs (Buddies) to provide technical agricultural-related assistance, 30,000+ farmer/households, 20,000+ users
SokhaKrorm (Codingate)	An online platform that helps patients navigate nearest doctors, medical institutions, gyms, and pharmacies	2017 (Release Year)	Cambodia	3,000 users
Crowdwork				
FreelanceCambodia.com	Freelance marketplace platform for various digital services such as sales and marketing, design and creative, writing, and technology.	2014	Worldwide, including all ASEAN Member States with a focus on the Cambodian labour market	
Khmerlancer (CIJD Co.,Ltd)	Freelance marketplace platform for various digital services such as programming & IT, design & photo, business & marketing, online study, video & audio, writing & translation, and lifestyle.	2021 (Release Date as an app)	Worldwide, including all ASEAN Member States with a focus on the Cambodian labour market	
TovBan (TovBan Co. Ltd)	Freelance marketplace platform for various digital services such as sales and marketing, design and creative, accounting, legal, writing, and technology.	2020	Worldwide, including all ASEAN Member States with a focus on the Cambodian labour market	1,926 freelancers, 78 projects

Source: Authors' compilation. Accessed on June 2022

Table A10. Platforms in Indonesia

Platform	Services	Founded date	Markets	Number of partners/users
Courier and delivery services				
AnterAja (PT Tri Adi Bersama is under PT Adi Sarana Armada Tbk/ASSA)	Logistics that include courier and delivery services	2019 (Launched Operational Year)	Indonesia	15,000 couriers, 700,000+ packages every day
BlueBird Group (PT Blue Bird Tbk)	Logistics and Offline/Online Ride-Hailing (taxi, car, charter bus, and limousine service via their brands Bluebird, Pusaka, Silverbird, Goldenbird, Bigbird), courier service (Birdkirim), and truck moving service	1972	Indonesia (Jakarta, Surabaya, Bandung, Bali, Lombok, Semarang, Medan, Pekanbaru, Palembang, Bangka Belitung, Batam, Banten, Manado, Makassar, Yogyakarta)	23,000-vehicle fleet
JNE Express (PT Tiki Jalur Nugraha Ekakurir)	Logistics that include postal service, courier, same-day delivery services, and large quantities via trucking	1990	Indonesia	5,000 outlets, 40,000 employees
Paxel (PT Paxel Algorita Unggul)	Logistics that include courier and same-day delivery services	2018	Indonesia	2,000,000+ users, 15,000,000+ packages
Other on-demand services				
Halodoc (PT Media Dokter Investama)	An online platform that connects patients with doctors (telemedicine), labs, and pharmacies	2016	Indonesia (180 cities)	600,000 users, 20,000 doctors, and 4,000 pharmacies in its partner network
Alodokter (PT Sumo Teknologi Solusi)	An online platform that connects patients with doctors (telemedicine), insurance services, and digital healthcare content	2014	Indonesia	27 million monthly active users, 30,000 doctors, and 1500 hospitals and clinics
Clean Inc (PT Cahaya Lentera Esa Abdi Nusantara under PT Bina Kasih Indonesia)	Online cleaning services (general cleaning or deep cleaning) such as houses, apartments, buildings, factories, and others.		Indonesia	
Kliknklin (PT KliknKlin Digital Nusantara)	On-Demand laundry service	2016	Indonesia (Jakarta, and 35 cities)	140 LaundryKlin branches

Platform	Services	Founded date	Markets	Number of partners/users
Cakap by Squline (PT Cerdas Digital Nusantara)	Online platform for foreign language learning programs	2014	Indonesia	1.5 million students, 1,000 global and local teachers of various educational and professional backgrounds
HarukaEDU (PT. Haruka Evolusi Digital Utama)	An online educational platform that provides online courses and degree programs with local and international universities, with vocational training online via Pintaria.com	2013	Indonesia	50,000 users, partners with more than 30 universities
Seekmi (PT Seekmi Global Services)	An online platform that provides laundry, cleaning, air-conditioning, electronic, daily task worker, plumbing, and disinfecting services.	2015 (Launch Year)	Indonesia (greater Jakarta and Bandung)	5,000 technicians/partners/ service professionals
Zenius (PT Zona Edukasi Nusantara)	An online educational platform that provides comprehensive self-learning materials for local K-12 students includes tutoring services via Primagama acquisition	2007	Indonesia	11.8 million users
Crowdwork				
Gobann	Freelance Marketplace Platform for digital micro-job services as low as Rp.50,000 with a unique feature of being able to see if clients/freelancers have any friends in common on social media platforms to serve as a sort of a referral-based employment	2012	Worldwide, including all ASEAN Member States with a focus on the Indonesian labour market	
Projects.co.id (PT Panonpoe Media)	Freelancing and crowdsourcing marketplace for digital services such as software development, writing, data entry, and design right through to accounting and consultancy services.	2014	Worldwide, including all ASEAN Member States with a focus on the Indonesian labour market	4,300 users + as of 2014 with a projection of 870,000 users
SribuLancer (PT. Sribu Digital Kreatif)	Marketplace Platform for freelancers with a focus on design-related jobs and services such as logo design, copywriting, digital marketing, web/app design & development, video production, translation	2014	Worldwide, including all ASEAN Member States with a focus on the Indonesian labour and consumer market	232,000+ freelance designers, 14,700+ SMEs and corporate clients worldwide

Platform	Services	Founded date	Markets	Number of partners/users
E-commerce				
Alfacart (under PT Sumber Alfalria Trijaya or Alfamart, formerly Alfamart Online)	Online convenience store version of Alfamart, which sells groceries and various daily necessities.	2013	Indonesia	10,000 stores network,
Dinomarket (PT DinoMarket)	Online marketplace for gadgets and electronics	2008	Indonesia	
Klik-Eat (PT Klik Eat Indonesia)	On-Demand catering delivery service with a healthy and delicious food culture that includes corporate F&B ordering platform via foodspot.co.id	2012	Indonesia	
MAPCLUB.com (PT GCommerce Digital Asia under PT Mitra Adiperkasa Tbk)	Online fashion & lifestyle shopping platform (renamed from MAPEMALL.com)	2016 (Launch Year)	Indonesia	150 globally renowned brands with 20,000 SKUs
Matahari Mall (PT Matahari Department Store Tbk)	Online version of a physical shopping/department mall that sells a variety of products	1958	Indonesia (77 cities)	40,000 employees
Shopdeca.com (PT Shopdeca Global under migme Ltd.)	Online curated fashion and lifestyle store that sells apparel, footwear, accessories, jewellery, home living, and travel accessories	2013 (Launch Year)	Indonesia	
Transmart Carrefour (Trans Retail Indonesia is under CT Corporation)	Online version of physical hypermarket shopping (grocery and other items)	2012 (Acquisition of CT Corporation)	Indonesia	112 Carrefour hypermarkets and supermarkets

Source: Authors' compilation. Accessed on June 2022

Table A11. Platforms in Lao PDR

Platform	Services	Founded date	Markets	Number of partners/users
LOCA (LOCA Co. Ltd.)	On-Demand Ride-Hailing Service (private car and taxi service)	2018	Lao PDR (Vientiane, Luang Prabang and Pakse)	600 cars, 60,000 users
GOTEDDY (GOTEDDY Co., Ltd.)	On-Demand Deliveries (Food, Groceries, and Courier Express)	2019	Lao PDR	1,200-2,000 orders per day, 20,000 downloads

Source: Authors' compilation. Accessed on June 2022

Table A12. Platforms in Malaysia

Platform	Services	Founded date	Markets	Number of partners/users
Food/grocery delivery services				
Beep/ Beepit/ Beep Delivery/ Beep by Storehub	Online Food Delivery (Lalamove, GoGet, and ZeptoExpress as logistic partners)	2020	Kuala Lumpur, Selangor, Klang Valley, including the Federal Territories of Cyberjaya and Putrajaya and Other Major Areas	1000+ Restaurants-Partners
Delivery Eat (soon to be AirAsia)	Online Food Delivery	2012	Penang and Kuala Lumpur; Northern Malaysia	1500-2000 Restaurants-Partners
DD Express (authorised by South Pacific Logistic Sdn Bhd)	On-Demand Pick-Up and Delivery Service (includes Cold Chain Delivery)	2016	Malaysia (Johor, Kedah, Kelantan, Kuala Lumpur, Melaka, Negeri Sembilan, Pahang, Penang, Perak, Perlis, Putrajaya, Selangor, and Terengganu)	
EASI MY (under HungryPanda Ltd.)	On-Demand Deliveries (Food, Groceries, Courier Express); Other On-Demand Services (merchandises like flowers, cleaning, and even laundry services)	2014 (EASI); 2017 (HungryPanda)	Malaysia (Klang Valley, Penang, Perak, Johor, Pahang, Melaka, Negeri Sembilan, Sabah & Sarawak), Australia, New Zealand, Japan	25,000 restaurants across different countries
Eat Cake Today (Eat Cake Today Sdn Bhd)	On-Demand Cake Delivery (emphasis on cake vendors with 4-hour cake delivery service)	2017	Malaysia (Kuala Lumpur, Petaling Jaya, Klang Valley and Selangor)	80 vendors offering 2,000 products
FoodPack (MY) Sdn. Bhd	Online Food Delivery- emphasis on HALAL food	2016	Malaysia (operating mainly in Klang Valley and Selangor)	
HeyHo MY (HEYHO Sdn Bhd)	On-Demand Home Cooked Food Delivery (emphasis on home chef- partners with Lalamove as third-party logistics partner)	2021	Malaysia (Klang Valley)	
Hometaste (Hometaste Tech Sdn. Bhd.)	On-Demand Food Manufacturer and Delivery Service (emphasis on automation and sharing home-cooked/ home recipes food) With Offline Store	2017	Malaysia (Whole Klang Valley)	Created 100 profitable food businesses, 15,000 customer base, delivering over 18,000 home orders every month5 drivers, 16 people in the kitchen team

Platform	Services	Founded date	Markets	Number of partners/users
Lolol (Lolol Sdn Bhd)	On-Demand Deliveries (Food- From Food Truck, Home Cooked, Stall to Shop/ Restaurant; Groceries; Merchandise/ Mall), Financial Service (Prepaid Reload, Postpaid Bill Payment, Bus Ticket Purchasing as well as Game Points and Gift Card reloads)	2018	Malaysia (Melaka, Johor, Selangor, Kuala Lumpur, Penang and Negeri Sembilan)	
Neybrfood (Neybrfood Sdn. Bhd.)	Food Meals, Drinks, and Baked Goods Delivery (emphasis on home chef- partners with lead time flexibility)	2020	Malaysia (Kuala Lumpur, Selangor, Klang Valley)	53 vendors
Packed (under My Packed Technologies Sdn Bhd)	Online Food Delivery- emphasis on Street Food Vendor (Mr. Speedy/Borzo and Bungkusit as logistic partners)	2019 (Launch Year)	Malaysia	120 vendors as of the year 2020
QuikEats	On-Demand Deliveries (Food, Groceries, Parcel)		Malaysia (Selangor and other areas)	
Quick Sent (under Quinton Group)	Online Food and Groceries Delivery- emphasis on Street Food Vendors	2018 (for Quinton Group)	Malaysia (40 cities)	28,000 merchants (as Quinton Group); 300,000+ customers and 1.1 million orders (as QuickSent)
Quin Pavilion (under Quinton Group)	Online Shopping and Delivery	2018 (for Quinton Group)	Malaysia	28,000 merchants and 800,000 users (as Quinton Group)
Selangor Digital E-Supply Chain/ SELDEC (under Selangor Industrial Corporation Sdn Bhd (SIC))	Online Grocery (Fresh Produce) Express, Same Day, and Next Day Delivery.	2020 (Launch Year)	Malaysia (covers 36 areas in Shah Alam, Klang, and Rawang)	50 delivery partners
Yummi Hero (Yummi Hero Sdn Bhd)	Home Made Cake Delivery and Packaging, E-commerce Platform, and Cake Baking	2019	Malaysia	
Ride-hailing services				
Dego (formerly known as Myinteractivelab Sdn Bhd)	On-Demand Delivery - Transport	2009	Malaysia	Users: 100000+; Employees: 11-50
Dropit. my (DropIt Ventures Sdn. Bhd.)	On-Demand Delivery Services (Same Day or Next Day)	2015	Malaysia (Klang Valley, Penang, and Johor)	

Platform	Services	Founded date	Markets	Number of partners/users
EzCab (EzCab Sdn. Bhd.)	On-Demand Ride-Hailing App (private car, luxurious car service, and taxi service)	2017 (Launch Year)	Malaysia (mainly in Penang, Perak, Klang Valley, Seremban, Johor, Labuan and Sabah	2,000 registered taxi drivers
GemSpot (GEM Live Sdn Bhd.)	On-Demand Concierge Service, Gift & Food Delivery (emphasis on event/ party planning)	2017	Malaysia (Klang Valley)	
Ihantar (iHantar Sdn. Bhd.)	On-Demand Delivery (Taxi, Moto, and Fly Rides), On-Demand Services	Founded- 2013; multi-service platform launch- 2020	Malaysia (mainly Kajang, MY)	Users: 1000+; Employees: 2-10
Kumpool (Handal Indah Sdn Bhd/ under Handal Group of Companies)	E-hailing bus booking service, On-demand delivery,	2021	Johor Bahru, Klang Valley, Petaling Jaya	Users: 10000+; Employees: 2-10
mat despatch	Same Day Next Day, and On-Demand Delivery, Rider Or Driver For Hire, Mover, Courier Agent, Mailbox Drop, Fleet Services, Vehicle Shipping, Customs Clearance, Food Delivery Platform	2016	Johor, Selangor, Kuala Lumpur, Pahang, Penang	Users: 10000+; Employees: 11-50 Riders: 3000+
MyCar (under Platform Apps Sdn Bhd)	On-Demand Deliveries (Food, Groceries, Courier Express); Task Runners; All in 60 minutes	2018	Malaysia (13 major cities)	1 million passengers a month, 100,000 drivers, 2 million passengers, 3,557,612+ completed trips
RidingPink (Riding Pink Sdn Bhd)	On-Demand Ride-Hailing App (private car) for women and children	2016 (Launch Year)	Malaysia	
Zepto Express (ZeptoLab Sdn.Bhd.)	On-Demand Delivery Services (3 Hours Delivery-Guarantee), New Service: Warehousing Solution that includes storage, packing, and delivery	2016	Malaysia (Kuala Lumpur, Selangor, Penang & Johor Bahru)	4,900 approved drivers with about 4% to 5% that are active daily
Logistics and courier services				
Bungkusit (HRZ Creations 53 Sdn Bhd)	On-Demand Deliveries (Food, Groceries, Courier Express); Task Runners; All in 60 minutes	2017	Kuala Lumpur, Selangor, Penang, Johor, Negeri Sembilan,Pulau Pinang, Perak,Terengganu, Pahang, Klang Valley area	27,000 riders, 3,000 merchants, and 700,000 registered customers
collectco (CollectCo Services Sdn. Bhd.)	Transportation, Logistics and Storage; Parcel Self-Collect, Parcel Return, Sending Parcel, and E-commerce	2016	Malaysia	Users: 10000+; Employees: 51-100; Partner companies: 9

Platform	Services	Founded date	Markets	Number of partners/users
goLog (GoBuilders Netsoft Sdn Bhd)	Smart logistics, Same day delivery, order management system, payment management system, technology, software application, progressive web application, and sharing economy	2017	Malaysia	Users: 10000+; Employees: 11-50; Partner companies: 15 Riders: 2190+
Just Lorry Malaysia (Just Supply Chain Sdn. Bhd.)	On-Demand Moving Service (Professional house, office, piano, apartment, safebox, safebox moving and disposal service, Warehousing and Cold Storage Function for Corporate)	2016	Malaysia with International Service to Singapore and Thailand	The combined fleet of 800 registered vendors
Meow Meow (Yunda Express Pte Ltd/ Yunda O2O Sdn Bhd)	On-Demand Borderless Food Delivery (with logistic sister company Yunda Express and emphasis on same-day food delivery anywhere around Malaysia and Singapore)	2021 (Launch Year)	Malaysia (anywhere); Singapore (soon)	50+ vendors across peninsular Malaysia; 100 cold storage warehouses in Malaysia
Parcel365 (Parcel365 Sdn Bhd)	Parcel Delivery, Locker, Drop-off, and Collection	2018	Malaysia (Kuala Lumpur, Penang, Pahang, Skudai)	Partnered with 12 major delivery services like FedEx, Ninjavan, and J&T express
POS Laju Rider (Pos Malaysia Berhad)	Dynamic mail and parcel services, financial services, delivery and packaging, and supply chain solutions	1992	Malaysia	registered users to over 86,000 and delivered more than 3.3 million parcels
Other on-demand services				
Maideasy (Maideasy Sdn Bhd)	Online Professional Cleaning Services (Full Service Residential & Commercial Cleaning including moving in/out, spring cleaning)	2015	Malaysia (Kuala Lumpur, Selangor, and Putrajaya)	
Maid4U (AJS Maju Services Sdn Bhd.)	Online Professional Cleaning Services	2014	Malaysia (Cyberjaya and Putrajaya area)	250 experience workers
Crowdwork				
Collateam	Online Platform that provides social recruitment services/crowdsourcing	2021	Malaysia	5,000+ talents, 10,000+ job openings, and RM1,000,000 Worth of job matched
Cidekick (Cidekick Sdn Bhd)	On-Demand work platform for event and gig jobs	2016	Malaysia	
Favser.com	Freelance Marketplace	2016	Malaysia	
Freelancing Malaysia	Freelance Marketplace		Malaysia	

Platform	Services	Founded date	Markets	Number of partners/users
GoGet (GoGet.my)	On-Demand work platform (performing errands or temp work like deliveries, moving large items, catering at events, data entry, and office administration)	2014	Malaysia	360,000 Users, 31,000 Verified Part-Timers, 20,000 gig workers, 5,000 business-partners
Startasker	Online service marketplace such as homestay cleaning, promoter, event-model, handyman, moving help, photographer, etc.	2016	Malaysia	
Workana (Workana LLC)	Freelance and Remote Work Platform	2012	Physical Offices are in Argentina, Brazil, Malaysia, United States of America, but with the remote platform, transactions can be worldwide	600,000 entrepreneurs/ companies/customers; 3 million freelance workers

Source: Authors' compilation. Accessed on May and June 2022

Table A13. Platforms in Myanmar

Platform	Services	Founded date	Markets	Number of partners/users
Food/Grocery delivery services				
E-go Delivery Service	On-Demand (via mobile, Facebook) Platform for Deliveries (Food)		Myanmar (Mandalay)	
FreshGora (Meal Temple Group is an investor)	Online Platform for Deliveries (Food and Groceries/Mart)	2017	Myanmar	100 restaurants-partners, 100 deliveries a day in Yangon,
Fresco (ValleVerde Co.Ltd)	Online Platform for Deliveries (Vegetables and Herbs)	2007	Myanmar (Yangon to Mandalay and Bagan)	
Food2U- website, and app not working	On-Demand Platform for Deliveries (Food)	2015	Myanmar (Yangon)	5,000 deliveries per month
Oway Fresh (under Oway Travel & Tours Co. Ltd.)	Online Platform for Deliveries (Groceries/Mart)	2020 (Launch Year)	Myanmar	80,000 registered users
Yangon Door2Door/ YangonD2D	On-Demand Platform for Deliveries (Food and Groceries/ Mart)	2013	Myanmar (Yangon)	50 restaurants-partners, 4,000 deliveries per month
Ride-hailing services				
Get Ride (Get All Private Ltd.)- *not updated in-app since 2019*	On-Demand Ride-Hailing Service (bike, 3-wheeler bike/ tuktuk, and private car service) with call centre service	2017	Myanmar (Yangon and Monywa)	10,000 vehicles registered
Karzo (Karzo Co., Ltd.)	Online Logistics Platform truck delivery services for both consumers and businesses (connecting truck drivers, fleet owners, and third-party logistics firms (3PLs))	2016 (Launch Year)	Myanmar and Singapore	5,000 drivers
KoneSi (KoneSi Freight Co.)	Online Logistics Platform truck delivery services for both consumers and businesses (connecting truck drivers, fleet owners, and shippers/businesses)	2017	Myanmar (Yangon and Mandalay)	100+ business shippers, 300 fleet operator-partners, and 2,000+ trucker-partners
Oway Ride (under Oway Travel & Tours Co. Ltd.)	On-Demand Ride-Hailing Service (bike/motorcycle, private car, premium car, and charter bus service) with call centre service	2016 (Launch Year)	Myanmar (Mandalay, Yangon, Bagan, Pwin O Lwin, and Mawlaymine)	80,000 registered users

Platform	Services	Founded date	Markets	Number of partners/users
Other on-demand services				
ConceptX (ConceptX Co. Ltd.)	Online Educational Platform provides video courses for Grade 11 (Burmese) students in Math, Chemistry, and other subjects.	2017	Myanmar	3,000+ students, 30 courses, 600+ videos, with international and local online instructors
DedaaBox	Online Educational Platform that provides video courses and tutorial services for foreign languages. leadership, business, marketing, project management, graphic designs, communication skills, security awareness, and more	2017	Myanmar (all Myanmar Cities)	
MyanLearn (operated by PyinnyarTech Co. Ltd.)	Online Educational Platform that provides online courses, certification, and tutorial services for foreign languages and other subject matters	2018	Myanmar	600 private education providers/partners; 6,000 class schedules
Sayar (powered by MMRD)	Online Educational Platform that provides tutorial services for domains such as academics, art, digital design, fitness, language learning, music, and programming	2016	Myanmar	
SAYA (operated by BinaryLab Ltd.)	Online Educational Platform that provides online courses and interactive practice sessions in the English language.	2019	Myanmar	with international and local online instructors
FlyMya (Flymya Tech Co., Ltd.)	Online Travel Agency Platform for flight ticket, express, bus, car rental, hotel, and hot balloon booking.	2015	Myanmar	
Wishbox Delivery (Wishbox Co. Ltd.)	Online Platform for Deliveries (Food, Parcels, and Gift/ Flowers)	2017	Myanmar	
Crowdwork				
Chatesat.com (Chate Sat Yar Co Ltd.)	Freelance marketplace platform for various digital services such as programming & IT, design, accounting, business, video & audio, writing & translation, business, and Legal.	2016 (Launch Year)	Worldwide, including all ASEAN Member States with a focus on the Burmese labour market	27,000 professionals/ freelancers
MMFreelancer (A BH Edtech Co Ltd)	Freelance marketplace platform for various digital services such as programming & IT, design, accounting, business, video & audio, writing & translation, business, and consultation.		Worldwide, including all ASEAN Member States with a focus on the Burmese labour market	

Platform	Services	Founded date	Markets	Number of partners/users
Well Done	Freelance marketplace platform for various digital services such as programming & IT, design, accounting, business, video & audio, writing & translation, business, and consultation.	2019 (Oldest Post on Website)	Worldwide, including all ASEAN Member States with a focus on the Burmese labour market	4,130 users, 420 services created
E-commerce				
City Mall Online (City Mart Holding Co. Ltd)	Online Platform for Deliveries (Groceries and Department Store)	1996	Myanmar (Mandalay, Yangon, Nay Pyi Taw, Pyin Oo Lwin, Shan, Bago, Mon, Ayeyarwady, and Sagaing)	20,000+ Products
ICT.com.mm/ Myanmar ICT journal	Online Retail Platform for Tech and Gadget	2013, 2018 (Launch Year)	Myanmar	

Source: Authors' compilation. Accessed on June 2022

Table A14. Platforms in the Philippines

Platform	Services	Founded date	Markets	Number of partners/ users
Food delivery services				
Pick A Roo (invested by Agile Digital Ventures, Inc, under Megaworld Corp.)	On-Demand Deliveries (Food, Groceries, Retail, Medicine)	2020 (Launch Year)	The Philippines (Metro Manila, Antipolo, Bacoor, and Cainta)	300 local and international merchant-partners
RiderKo (Market Innovation Internationale, Inc.)	On-Demand Deliveries (Food, Parcels, Groceries)	2021 (Copyrighted)	The Philippines (Metro Manila and surrounding areas of Rizal, Cavite, Laguna, and Bulacan)	
Ride-hailing services				
Angkas PH (DBDOYC Inc.)	On-Demand Ride-Hailing Mobility Service (Motorcycle), Deliveries (Parcels, Grocery Pickup)	2016	The Philippines (Metro Manila, Metro Cebu)	27,000 biker-partners, 4 million app downloads
ePickMeUp (E-Pick Me Up Inc.)	On-Demand Ride-Hailing Mobility Service (Motorcycle and Taxi), Deliveries (Parcels, Food, and Grocery Pickup)	2018 (Approval Year from Land Transportation Franchising and Regulatory Board); 2019 (App Launch Year)	The Philippines (Metro Manila and nearby cities)	
GoLag (GOLAG Inc.)	On-Demand Ride-Hailing Platform (Car)	2018	The Philippines (primary Laguna, with other areas such as Bulacan, Cavite, Rizal, and Metro Manila)	60,000 app users,
Hype (Hype Transport Systems, Inc.)	On-Demand Ride-Hailing Platform (Taxi, Car, SUV, and AUV), Deliveries (Parcels, Food, and Grocery Pickup)	2018	The Philippines	
JoyRide PH (We Move People and Things the Philippines, Inc.)	On-Demand Ride-Hailing Mobility Services (Motorcycle, Tricycle, and Car), Deliveries (Courier, Food, Groceries, and Parcel)	2019 (Launch Year)	The Philippines (Metro Manila, Rizal, Bulacan, Cavite, Laguna, Baguio, and Metro Cebu)	1 million user base, 20,000 driver-partners, 5,000 merchant partners
MiDriver (Micab Systems Corp.)- no website, no update on app	On-Demand Ride-Hailing Platform (Taxi)	2012 (known as MiCab til 2019)	The Philippines (Cebu, Bacolod, Baguio, Iloilo and Metro Manila)	6,500 taxi-drivers
Move It the Philippines (Operated by We-Load Transcargo Corp.)	On-Demand Ride-Hailing Mobility Services (Motorcycle), Deliveries (4-wheel courier, Food, Shopping Mall Groceries, and Parcel Express)	2018 (Social Media Presence Year)	The Philippines	

Platform	Services	Founded date	Markets	Number of partners/ users
OWTO the Philippines (operated by iPARA Technologies and Solutions, Inc.)	On-Demand Ride-Hailing Platform (Car, SUV, and High-End)	2018	The Philippines (Metro Manila and parts of Bulacan, Cavite, Laguna, and Rizal)	1,000 drivers
snappy/ Snappy Cab (Aztech Solution International Corp.)	On-Demand Ride-Hailing Platform (Car, SUV, and High-End)	2018 (Approval Year from Land Transportation Franchising and Regulatory Board)	The Philippines	
TokTok PH (Cloud Panda PH Inc.)	On-Demand Deliveries (Parcel, Food, Shopping, Grocery Pickup, Logistics via car, van, and trucks)	2020 (Launch Year)	The Philippines (Metro Manila, Cavite, Laguna, Batangas, Rizal, Quezon Province)	80 merchant-partners, 1 million downloads, 20,000+ driver-partners, 100+ driver operators
U-Hop (U-Hop Transport Network Vehicle System Inc.)	On-Demand Ride-Hailing Platform (Taxi, Car, and Van)	2015	The Philippines (Metro Manila, Cebu, Davao, Iloilo, Cagayan de Oro, Bacolod, General Santos, Baguio, Zamboanga, Boracay, Angeles City, Subic, San Fernando, Cavite, Lucena, and Bicol)	1,000 active drivers
Other on-demand services				
51Talk PH (51Talk English International, Inc.)	Online Educational Platform that provides online courses and interactive practice sessions in the English language to the Chinese students	2011	Chinese-consumer market with a focus on Filipino teachers	20,000 Filipino English-speakers, 350,000+ Students, 100,000+ Lessons per Day
AcadSoc (AcadSoc Inc.)	Online Educational Platform that provides online courses and interactive practice sessions in the English language to the Chinese students	2011	Chinese-consumer market with a focus on Filipino teachers	10,000 English-speaking tutors around the globe, 40 million students in China
Bibo Global Opportunity (Bibo Global Opportunity, Inc. is under Digital Media Mart Corporation Japan)- also known as Engoo in other countries	Online Educational Platform that provides online courses and interactive practice sessions in the English language.	2013	Worldwide, including all ASEAN Member States like Thailand with a focus mostly on Filipino teachers	2,000 tutors (national and foreign)
Bizmates (Bizmates the Philippines Inc.)	Online Educational Platform that provides online courses and interactive sessions in Business English language to Japanese professionals.	2012	Japanese professionals-consumer market with a focus on Filipino instructors	1,000 Filipino instructors

Platform	Services	Founded date	Markets	Number of partners/ users
KOMum (KOMum Online Tutors PH)	On-Demand Educational 1-1 tutoring services in various subject matters such as Lesson & Homework Assistance, Math, English and Filipino Enrichment Programs, Reading & Creative Writing, Foreign Languages, Programming, Art & Music Lessons	2020 (Social Media Presence Year)	The Philippines and other ASEAN and international countries such as the USA, Australia, Indonesia, Thailand, and counting	full-time and part-time remote tutors who are Math, Science, Computer science, and Business and Economics experts, linguists, pianists, and artists
Rarejob PH (Rarejob, Inc.)	Online Educational Platform that provides online courses and interactive practice sessions in the English language to Japanese students	2007	Japanese-consumer market with a focus on Filipino instructors	15,000 Filipino tutors, 15 million lessons
Busy Bee Cleaning (Busy Bee Cleaning Co.)	Online Professional Cleaning Services (Home, Deep Cleaning, and Disinfection)	2016	The Philippines	600+ projects
Cleanhome	On-Demand Professional Cleaning Services (Full Service Residential & Commercial Cleaning)	2015 (Social Media Presence Year)	The Philippines (Metro Manila specifically San Juan City, Alabang, Paranaque City, Las Pinas City, Manila City, Pasay City, Pasig City, Taguig, Quezon City, Mandaluyong, Makati City	
Captain Cleaners (2485 Janitorial Services)	Online Professional Cleaning Services (Full Service Residential and Commercial Cleaning, Upholstery Shampoo, Post Construction, Disinfection, Ironing Services, and others)	2015 (Social Media Presence Year)	The Philippines (Metro Manila)	
Clean Zone PH	Online Professional Cleaning Services (disinfection, cleaning & sanitation services: carpet, upholstery & mattress cleaning, office deep cleaning, home cleaning, grease trap cleaning)	2016	The Philippines	
Cleaning Lady (Lila Linis Inc.)	Online Professional Cleaning Services (Home/ Condominium, Deep Cleaning, Disinfection, and Post- Construction)	2016	The Philippines (Metro Manila specifically Las Pinas, Makati, Mandaluyong, Manila, Muntinlupa, Paranaque, Pasay, Pasig, Pateros, Quezon City, San Juan and Taguig)	
CleanSource Solutions the Philippines Inc.	Online Professional Cleaning Services (Full Service Residential and Commercial Cleaning, Disinfection, Post-Construction, Airconditioning service, Moving In and Out, and others)	2020	The Philippines (Metro Manila specifically Eastwood, Ortigas, Makati, BGC & the rest of Quezon City)	

Platform	Services	Founded date	Markets	Number of partners/ users
CMDA Cleaning Services (CMDA Condo & Office Cleaning Services)	Online Professional Cleaning Services (Full Service Residential & Commercial Cleaning)	2013	The Philippines (Metro Manila and all of Luzon)	3,821 homes, 4,021 offices, and 211 restaurants cleaned
Dash Cleaning Services	Online Professional Cleaning Services (Full Service Residential and Commercial Cleaning, Grease Trap Cleaning, Disinfection, Upholstery Cleaning, Post Construction), Car Wash, and Air Conditioner Services	2020 (Social Media Presence)	The Philippines (Metro Manila)	
Delmont Cleaning Services	Online Professional Cleaning Services (Home, Deep Cleaning, Carpet Cleaning, Disinfection, and Post-Construction)	2015	The Philippines	
Dust and Bin Cleaning Services Inc.	Online Professional Cleaning Services (disinfection, cleaning & sanitation services: carpet, upholstery & mattress cleaning, office deep cleaning, home cleaning)	2017 (Social Media Presence)	The Philippines (Metro Manila and nearby provinces)	
EZY Lifestyle (known as Rainbow Cleaners)	Online Professional Cleaning Services (Japanese Standard- General Cleaning, Office Cleaning, Housekeeping, Post Construction, and Upholstery Shampoo)	2012	The Philippines	100,000 clients
Happy Helpers	Online Professional Cleaning Services (Home, Post Construction, Moving In/ Out, Disinfection, Office, Warehouse, Retail Store)	2014	The Philippines (Metro Manila specifically Taguig, Makati and some areas in Pasig, Mandaluyong, San Juan, Greenhills, Quezon City, Bicutan, Sucat/Paranaque, Alabang and Muntinlupa)	target of 1,000 helpers
Housemaids.ph	Online and Traditional Household Helper Agency (contractual basis full-time helpers)		The Philippines	
Jiffy Cleaners Manila	Online Professional Cleaning Services (Full Service Residential and Commercial Cleaning, Upholstery Shampoo, Post Construction)	2019 (Social Media Presence)	The Philippines (Metro Manila)	
Lemon Cleaners (JBC General Housekeeping Services)	Online Professional Cleaning Services (Full Service Residential and Commercial Cleaning, Post Construction, Moving In and Out, and Upholstery Shampoo)	2014	The Philippines (Metro Manila, Rizal, and nearby provinces)	

Platform	Services	Founded date	Markets	Number of partners/ users
Manila Maid	Online Professional Cleaning Services (Full Service Residential & Office Cleaning)		The Philippines (Metro Manila specifically Makati, Manila, Mandaluyong, Fort Bonifacio (BGC) Taguig, Pasay, Pasig / Ortigas, Pasay, QC & more)	
MyKuya (MKPH Technologies Pte. Ltd.)	On-Demand Personal/Professional Shopper and Delivery (all in one)	2017	The Philippines (Metro Manila)	40 mall establishment-partners
Ninja Made PH (Ninja Made Services Co)	Online Professional Cleaning Services (Full Service Residential & Commercial Cleaning including air conditioner services)	2017 (Social Media Presence Year)	The Philippines (Metro Manila and nearby provinces such as Bulacan, Pampanga, Subic, Rizal, Antipolo, Laguna, Batangas, and Cavite)	
Prestige Housekeeping (Prestige Kampfstark the Philippines, Inc.)	Online and On-call Professional Cleaning Services (Full Service Residential, Commercial and Warehouse Cleaning, Disinfection, Upholstery Shampoo, Moving In and Out, and others)	2012	The Philippines (Metro Manila)	
Sweep Inspirations	Online Professional Cleaning Services (Full Service Residential, Office Cleaning, Post Construction, and Upholstery Shampoo)	2008	The Philippines	
The Cleaning Tribe PH	Online Professional Cleaning Services (Full Service Residential & Commercial Cleaning), Car Interior Detailing. Aircon Cleaning and Minor repair, Grease Trap Cleaning, Painting and Minor Repair works, and Hauling and Moving Service	2021 (Social Media Presence)	The Philippines (Metro Manila and nearby provinces)	6,000 Serviced Homes & Offices
Crowdwork (some are the Philippines-based and some are not but all heavily tap Filipino workers)				
199Jobs	Freelance marketplace platform for various simple digital services as low as 199 the Philippines Pesos.	2013	Worldwide, including all ASEAN Member States with a focus on the Philippines labour market	
Mr. Outsource	Online Virtual Assistant/Professional (VA) Platform that provides VA essential tasks such as documentation, general administration, accounting, real estate, transaction coordination, researchers, web developers and client support.	2013	Worldwide with a focus on the Philippines in-house VA professionals in Davao City, The Philippines	

Platform	Services	Founded date	Markets	Number of partners/ users
MyOutDesk PH	Online Virtual Assistant/Professional (VA) Platform that provides VA essential tasks such as documentation, general administration, accounting, real estate, transaction coordination, and client support.	2007	US and Canadian-consumer market with a focus on the Philippines VA professionals	7,500+ Clients Served, 2,000 virtual assistants
OnlineJobs PH	Freelance marketplace platform for various digital services such as programming & IT, graphic design, bookkeeping, video & audio, writing & translation, and business.	2009	Worldwide, including all ASEAN Member States with a focus on the Philippines labour market	200,000 Filipino freelance profiles
Remote Staff PH	Freelance marketplace platform for various digital services such as programming & IT, graphic design, bookkeeping, video & audio, writing & translation, and business.	2007	Australian and New-Zealand-consumer market with a focus on the Philippines labour market and a physical office in Pasig City, the Philippines	8,000 Philippine remote staff/professionals/ freelancers, 2,000 international employers/ clients, 90 Filipino in-house employees
VirtualAssistantTalent.com (Virtual Assistant Talent, LLC)	Online Virtual Assistant/Professional (VA) Platform that provides VA essential tasks such as documentation, general administration, accounting, real estate, transaction coordination, web design, graphic designer, and client support.	2009	American-consumer market (small business or professional) with a focus on the Philippines labour market with flexible clients from USA, UK, and other parts of the world	
Virtual Coworker (Virtual Coworker Inc.)	Online Virtual Staff Platform that provides tasks such as general administration, accounting, digital marketers, social media, virtual assistance, and web developers services,	2011	American and Australian-consumer market (small business or professional) with a focus on the Philippine labour market with flexible clients from USA, UK, AUS, NZ, Canada, and other parts of the world	1,500+ Filipino “staff” place, 1,000+ clients

Source: Authors’ compilation. Accessed on June and September 2022

Table A15. Platforms in Singapore

Platform	Services	Founded date	Markets	Number of partners/users
Ride-hailing/Car-sharing				
Shariot (AutoBahn Rent A Car Pte. Ltd.)	On-Demand Car-Sharing and Car-Rental Platform (Cars and SUV)	2020 (Launch Year)	Singapore	300 cars
Tribecar (Tribecar Pte. Ltd.)- acquired former CarClub Company	On-Demand Car-Sharing Platform (Cars, Vans, Lorries, and Motorcycles)	2016	Singapore	1,400 vehicles,
Other on-demand services				
Auntie Cleaner (Auntie Cleaner (Singapore) Pte Ltd)	Online Professional Home-Related Services (Full Service Residential and Office Cleaning with other services such as Part-Time Maid, Disinfection, and Carpet Cleaning services)	2015, 2012 (Social Media Presence Year)	Singapore	
Clean On Demand	Online Professional Cleaning Services (Full Service Residential & Commercial Cleaning including disinfection and air conditioner services)	2018	Singapore	
Comfy Homes	Online and Offline Professional Home-Related Services (Full Service Residential with other services such as Laundry and Ironing services)	2002	Singapore	
Helpling (Helpling Singapore Pte. Ltd.)- with the acquisition of another cleaning company named Spickify	Online Professional Home-Related Services (Full Service Residential and Office Cleaning with other services such as Disinfection, Handyman, Post Renovation, Gardening, and Upholstery Cleaning services)	2014 (Launch Year)	Singapore and other international countries such as Australia, Canada, and several European countries	350,124 homes cleaned,
House Cleaner Singapore	Online Professional Home-Related Services (Full Service Residential Cleaning with other services such as Part-Time Maid, Disinfection, Carpet services)	2005 (Web Site Presence)	Singapore	
KMAC International Pte Ltd	Online Professional Cleaning Services (Full Service Residential & Commercial Cleaning with other services such as Upholstery Shampooing, and air conditioner services)	2010	Singapore	2,000 services done, 200+ professional cleaners
Lumens (Lumens Auto Pte Ltd)	Online Platform for Car Rental with other services catering to Private Hire Vehicle (PHV) drivers	2014	Singapore	

Platform	Services	Founded date	Markets	Number of partners/users
Singapore House Cleaning	Online Professional Home-Related Services (Full Service Residential and Office Cleaning with other services such as Part-Time Maid, Post Renovation, and Ironing services)		Singapore	
Whissh (1 Plus Private Limited)	Online Professional Home-Related Services (Cleaning Residential & Commercial with other services such as laundry, plumbing, and air conditioner services)	2016	Singapore and United Kingdom	100,000 jobs/households, offices/ buildings serviced
XSEED Singapore (XSEED Education Pte Ltd)	Online Educational Platform that provides online courses, resources, and interactive sessions to K-8 students and even provides tools for teachers	2014	Worldwide	1 million+ children, 10,000+ hours of instruction, curriculum, assessment, and professional development resources
Crowdwork				
FastGig (Fastco Pte Ltd.)	Online Freelance Marketplace that provides offline and digital services such as Video Editing, Service Crew, Warehouse assistants, Retail Staff, and others	2021 (Launch Year)	Focus on the Singaporean labour and consumer market	10,000 registered workers and 2,000 who have taken up a job
FreelanceZone.sg (Dovalise Pte Ltd.)	Online Freelance Marketplace that provides offline and digital services such as Graphic Designer, Airport Handler, Warehouse assistants, Retail Staff, and others	2009 (Social Media Presence Year)	Worldwide, including all ASEAN Member States with a focus on the Singaporean labour market	77,000 part-time jobs & freelance jobs, 41,120 + registered hirers/clients, 133,000 freelancers & part-timers registered
Wantedly, Inc.	Online Platform that provides social recruitment services/crowdsourcing	2010	Singapore, and other international countries such as Japan and Hong Kong	2.4-million monthly active users, 40,000 companies/ clients in Japan
E-commerce				
RedMart via Lazada app (under the Lazada Group)	Online Grocery/ Supermarket Platform	2011	Singapore	1,000 local sellers

Source: Authors' compilation. Accessed on June 2022

Table A16. Platforms in Thailand

Platform	Services	Founded date	Markets	Number of partners/users
Ride-hailing services				
Bolt (Bolt Technology)	On-Demand Ride-Hailing Service (private car)	2013	Thailand and other 44 international countries across the globe	30 million global users, 2,000 Thai drivers
Taxi OK (developed by King Mongkut's Institute of Technology Ladkrabang with DLT)	On-Demand Ride-Hailing (Taxi)	2018	Thailand	12,893 taxis
Food/Mart delivery				
Ginja (Ginja Co., Ltd)	On-Demand Deliveries (Food)	2015	Thailand (Bangkok)	
GoBike (GoBike Co Ltd)	On-Demand Ride-Hailing and Express Delivery Service (Motorcycle)	2015	Thailand (Bangkok)	15,000 riders, 500,000+ bookings
LINE (LINE Man Wongnai in Thailand)	LINE Man-On-Demand Delivery (Food, Grocery, and Parcel); Ride Mobility (Taxi Hailing); Messaging Application Wongnai- Restaurant Review and Discovery Platform	2016 (as on-demand delivery in Thailand); 2012 (as a messenger application in Thailand); 2000 (as a messenger application in Japan)	Thailand (LINE Man Wongnai); Worldwide with popularity in Japan, South Korea, Indonesia, Taiwan (LINE Messaging Application)	LINE Man (5.9 million Active Users with 16 million downloads); Wongnai (400,000 restaurants and 10 million users); LINE (167 million Users in Japan, Thailand, Taiwan, and Indonesia)
Robinhood (operated by Purple Ventures Co., Ltd., under Siam Commercial Bank)	On-Demand Deliveries (Food), *soon to expand into online travel agent, grocery, and parcel express deliveries*	2020 (Launch Year)	Thailand (Bangkok, Chiang Mai, Chonburi, Nonthaburi)	2.8 million registered users, 30,000 rider-partners, 225,000 merchant-partners
TrueFood via TrueID app (True Corporation is under Charoen Pokphand Group/ CP Group)	On-Demand Deliveries (Food)	2021 (Launch Year)	Thailand (Bangkok)	
Courier services				
SKOOTAR (Skootar Co., Ltd)	On-Demand Express Delivery Service (Parcels, Food, via Motorcycle, Car, and Trucks)	2014	Thailand (Bangkok)	10,000 + drivers, 100,000+ customers

Platform	Services	Founded date	Markets	Number of partners/users
Other on-demand services				
Beneat (BeNeat Co., Ltd.)	Online Professional Cleaning (Home Cleaning and Ironing) and Massage Therapy Services	2016	Thailand (Bangkok and surrounding areas)	400,000 orders serviced
Borigarn (Borigarn Bangkok Service Specialist)	Online Professional Home-Related Services (Cleaning, Airconditioning, Moving, Pet-Sitters, Pool Cleaner, Painter, Electrician, Plumber, Locksmith, Pest Control)	2018 (Social Media Presence Year)	Thailand (Bangkok)	
Cleaning24 (Cleaning24 Services Co. Ltd)	Online Professional Cleaning Services (Full Service Residential, Office& Commercial Cleaning, Upholstery Shampooing)	2009	Thailand	
Ever Healthcare (Ever Inc.)	Online Medical & Aesthetic booking platform with a local and international medical network, also promotes medical tourism within Thailand	2019 (Social Media Presence Year)	Worldwide, including all ASEAN Member States with a market of Thai nationals and expatriates	3,000+ Internationally certified doctors, 200+ Internationally accredited hospitals
Fixzy (Fixzy Co., Ltd)	Online Professional Home-Related and Maintenance Services (Cleaning, Moving In and Out, Plumbing, Electrical, Structural Repair, Washing Machine Cleaning, Car Repair Service)	2014	Thailand (Bangkok and its outskirts)	4,500 technicians, 150,000 downloads, 70,000 active users
LING Live (Simya Labs Co. Ltd.)	Online Educational Platform that provides online courses and interactive sessions the Thai and other less-spoken languages such as Serbian, Lithuanian, Bengali, or Albanian.	2017	Worldwide, including all ASEAN Member States like Thailand, with a focus mostly on Thai and international teachers	50+ teachers, 100+ students, 1000+ app download
Maid Delivery (Maid Delivery & Laundry Service)	Online Professional Cleaning Services (Full Service Residential, Cleaning, Moving In and Out, and Mattress/Sofa Laundry Services)	2010	Thailand (primarily the Eastern part of Bangkok)	500 customers a month
Millennium Maid Service (Millennium Maid Service Ltd.)	Online Professional Cleaning Services (Full Service Residential, Office& Commercial Cleaning, Moving In and Out, and Disinfection)	2013	Thailand (Bangkok)	

Platform	Services	Founded date	Markets	Number of partners/users
Ms Claire (MS CLAIRE - Professional Service Cleaners)	Online Professional Home-Related and Maintenance Services using premium chemicals (Cleaning, Moving In and Out, Pest control service, Laundry service, Lawn mowing service)	2015	Thailand (Bangkok and Chonburi)	
Or'ease (Dumoroc Trading Co., Ltd)	Online Massage and Wellness Delivery Platform (Massage, Spa, Webinars on Thai massage, and others)	2017 (Social Media Presence Year)	Thailand (Bangkok, Phuket, Chiangmai)	42,355 bookings
Seekster (Seekster Co., Ltd.)	Online Professional Cleaning and Maintenance Services (Full Service Residential, Office& Commercial Cleaning, Disinfectant, Laundry, Repair, and Maintenance)	2015	Thailand (Bangkok. Chiang Mai, Chiang Rai, Pattaya City)	
Varie Cleaning Service	Online Professional Cleaning and Maintenance Services (Full Service Residential, Cleaning, Moving In and Out, Laundry, and Renovation / Painting / Plumbing Services)	2013 (Social Media Presence Year)	Thailand (Bangkok)	
E-commerce				
Kaidee (acquired by EMPG Group)	Online Marketplace Platform for second-hand products to choose from and sell with 30 various categories with a focus on auto, electronics, and real estate.	2011	Thailand	650,000 users

Source: Authors' compilation. Accessed on June 2022

Table A17. Platforms in Viet Nam

Platform	Services	Founded date	Markets	Number of partners/users
Food delivery services				
Ahamove (under GiaoHangNhanh/ GHN Company)	On-demand deliveries (Food, Shopping/Groceries, and Courier Express), Moving Service with large vehicles such as trucks	2015	11 cities in Viet Nam	700,000+ business and household usage
Baedal Minjok/ BAEMIN (under Woowa Brothers Viet Nam Co. Ltd)	On-Demand Deliveries (Food, Groceries/Mart), Creative Merchandise (BaeMin Studios)	2010 (in South Korea); 2019 (in Viet Nam)	Viet Nam (21 major cities such as HCMC, Hanoi, Da Nang, Bac Ninh, Phan Thiet, and Thai Nguyen) and South Korea	20.74 million users in South Korea; 5 million Users in Viet Nam
Ride-hailing/Courier services				
Be (Be Group Joint Stock Company)	On-Demand Deliveries (Courier Express), Ride-Hailing Mobility Services (Bike and Car), Car Rent Services, Flight Booking Services (via BeFlight), Digital Banking (with VPBank)	2018	Viet Nam	300,000 drivers who work in nearly 30 cities and provinces: 10 million customers,
Chungxe (Chung Xe., JSC)	Online Motorbike/Motorcycle and Car Rental/ Sharing Application	2017	Viet Nam (Hanoi, Ho Chi Minh City, Da Nang, Nha Trang, Phu Quoc, Vung Tau, Hai Phong, Quy Nhon, Ninh Binh, Sapa, and expected. coverage in major tourist spots and cities nationwide)	
MyGo (Viettel Logistics Co., Ltd)	On-Demand Deliveries (Courier Express), Ride-Hailing Mobility Services (Bike and Car)	2019 (Launch Year)	Viet Nam (63 provinces and cities)	71,000 drivers
Mioto (Mioto Viet Nam Co., Ltd)	Online Car Rental/ Car Sharing Application (4-7 seaters)	2017; 2018 (Launch Year)	Viet Nam (Ho Chi Minh City, Hanoi, Da Nang, Da Lat, Binh Duong, Nha Trang, and several provinces nationwide)	More than 100 car models; 500 registered vehicles, and 10,000 tenants
TripX (founded by Luster Engineering & Construction Joint Stock Company)	Online Car Rental/ Car Sharing Application (4-7 seaters)	2019	Viet Nam	
Vato (Electronic Trading Joint Stock Company)- formerly car booking app Vivu/ FaceCar	On-Demand Deliveries (Food and Courier Express), Ride-Hailing Mobility Services (Bike, Car, and Taxi), Bus Booking Services	2018 (Rebranded Year)	Viet Nam (Hanoi and Ho Chi Minh City)	5,000 drivers,

Platform	Services	Founded date	Markets	Number of partners/users
Logistics				
LOGIVAN (LOGIVAN Technologies Pte)	Logistics services that connect shippers and a network of empty returned truck	2017	Viet Nam	40,000 truck owners/ suppliers
Other on-demand services				
Ai Health (Ai Health Technology Joint Stock Company)	Online medical services in finding personal doctors, buying medication online, home care services, and managing lifetime electronic health records	2020	Viet Nam (53 provinces and cities)	1,437 doctors, 438 nurses, and 672 hospitals, clinics, pharmacies, and testing centres,
eDoctor (eDoctor Joint Stock Company)	Online Health Service (health advice, look up drugs & clinics)	2014	Viet Nam	Partners-500 nurses and over 400 doctors as well as 80 hospitals and clinics across the country; over 100,000 transactions
Jio Health (Jio Healthy Clinic Co. Ltd.)	Online telemedicine, e-prescriptions, and pharmacy with physical smart clinics and over 300 Jio-branded neighbourhood pharmacies	2014 (Launch Year)	Viet Nam	150 multi-specialty care providers on its platform
Kho Chia Sẻ	Warehousing services with delivery and collection service	2016 (Licensed Year)	Viet Nam	
Drobebox	Online Fashion/Clothes Rental Application	2019	Viet Nam	600 subscriptions;
HOCMAI (HOCMAI Education Inc. is under Galaxy Media and Entertainment)	Online educational platform in Viet Nam, offering high-quality common core and soft skills modules for students, including K-12 courses.	2007	Viet Nam	4 million subscribers, 1,000 courses, 200 teachers
Kyna.vn (Viet Resource Training Co., Ltd (NLV Training))	Online platform to learn courses in soft and professional skills like IT, foreign language, graphic design, and more	2013	Viet Nam	200,000 unique users, 350 experts/ instructors
Unica.vn (Unica Online Training Joint Stock Company)	An online training platform that connects lecturers/experts with students	2016	Viet Nam	500,000+ students, 1,000+ lecturers, 80,000+ affiliates
MyParking (App developed by city's transport department and Viettel Telecom)	An online collection of automobiles parking fees and booking of parking spaces	2018 (Launch Year)	Viet Nam (Ho Chi Minh City)	

Platform	Services	Founded date	Markets	Number of partners/users
Rada (Rada Joint Stock Company)	On-Demand Home Service Application (Home Repair/Service includes auto, motorbike, air conditioner, refrigerator, laundry washer, TV, housekeeping, maid)	2016	Viet Nam (mainly in Hanoi and Ho Chi Minh City)	50,000 active users per month, 2,500 service providers
The Gioi Tho (inactive app and website link since 2022)	On-Demand Home Service Application (Driver, Home / Office Transporter, Unclog drain, Refrigeration Electrician, General Labourer, Locksmith, Vehicle Rescue, Household Electrician, Plumber water, Furniture, Computer repairman, Maid)		Viet Nam	
Crowdwork (not Viet Nam-based but heavily tap Vietnamese workers)				
Freelancerviet.vn (along with Getdone Holdings)	Marketplace Platform for freelance digital services such as sales and marketing, healthcare, manufacturing, education, design, programming, hospitality/tourism, construction, IT, accounting/ finance.	2010 (Started Year)	Worldwide, including all ASEAN Member States with a focus on the Vietnamese labour market	600,000 members, 300,000 jobs generated
Vlance (Owned by Magenweb Viet Nam Joint Stock Company)	Marketplace Platform for freelance digital services such as software development, graphic design - website, online marketing, accounting - tax.	2013	Worldwide, including all ASEAN Member States with a focus on the Vietnamese labour market	250,000 active freelancers with a total of 1,116,629 freelancers, 51,000+ jobs posted

Source: Authors' compilation. Accessed on June 2022

Table A18. Partial list of unions that support on-demand workers and associations/communities of on-demand workers in the AMS

	Name	Classification	Initiatives
Regional	Homenet Southeast Asia - network of national (country) networks of home-based workers	Association/ Network	- Building sustainable knowledge and action networks through information and communication technologies (ICT) media, subregional workshops, etc. Through this, the network creates advocacy and policy dialogues. - Promoting social protection schemes - Strengthening social enterprises and facilitating marketing through fair trade practices.
Cambodia 	Cambodian Food and Service Workers Federation (CFSWF)	Union	- Publicly acknowledged the opacity in the ride-hailing and food delivery sector
	Independent Democracy of Informal Economy Association (IDEA)	Association	- Publicly articulated that companies must be responsible for all drivers, not only paying service fees.
Indonesia 	Aerospace and Transportation Workers division of the Federation of Indonesian Metal Workers' Union (SPDT-FSPMI)	Union	- Initiated several protests and work stoppages between 2016 to 2019
	Confederation of Indonesian Trade Unions/ Konfederasi Serikat Pekerja Indonesia (KSPI-CITU)	Union	- Spearheaded a social dialogue with the government and the employer companies on employment relationships, social protection, and the judicial review of Act No. 22/2009 (Road Traffic and Transportation (LLAJ) to legalise the two-wheeled vehicles as passenger transportation - Established an Online Transportation Action Committee (KATO) - Advocated for the reform of labour law to recognise riders as dependent workers - Called out Gojek for its termination of 430 employees for its absence of layoff negotiations
	National Welfare Driver Union/ Serikat Pengemudi Kesejahteraan (SIKAP)	Union	- Subpoenaed PT Grab Indonesia, PT Karya Anak Bangsa, and PT Indonesian Freight Forwarding to sit down and discuss the driver protection/ accident/insurance plan. The subpoena was made possible with the help of the Advocacy Team of the Indonesian Legal Aid and Human Rights Association (PBHI) Jakarta.
	Online Courier Work Union (Sejaring)	Association	- Protested the lower service fees, which means lower daily income.
	Asosiasi Driver Online (ADO)	Association	- Registered as an association with the Ministry of Law and Human Rights in March 2017 - Focused on the representation of online car drivers
	Online Drivers' Communication Forum (Forum Komunikasi Pengemudi Online (FKPO)).		Established in 2015 by online drivers who felt unsafe in the face of demonstrations by conventional drivers and wanted greater legal protection from the government for app-based transport workers. FKPO formed the All-Indonesia Organisation of Special Rental Vehicles (Organisasi Angkutan Sewa Khusus Seluruh Indonesia), to create a more formal organisation to achieve a seat at the negotiating table with the government and the app-based transport companies.

	Name	Classification	Initiatives
	ASPEK Indonesia (Association of Indonesian Workers)	Association	- Established KATO
	Front Driver Online Tolak Aplikator Nakal/ Online Drivers Rejecting Naughty Applicators (FRONTAL)	Association	- Had a social dialogue of FRONTAL- East Java which includes the Directorate of Intelligence and Security for the East Java Police and Director General of Hubdat. - Asked the government to revise the Ministry of Transportation Regulation No. 12 of 2019, specifically the calculation of service fees in East Java
	Front Indonesia/ Front Independent Driver Online Indonesia (FI)	Association	- Opened a dialogue to ask for unconditional suspension of payments of vehicle loans in collaboration with Dewan Perwakilan Rakyat Daerah Daerah Istimewa Yogyakarta (DPRD- DIY), a regional people's representative institution.
	GrabExpress Sameday Sejabodetabek Association	Association	- Protested low service fees, which affected their low daily income.
	Two-Wheel Action Association/ Gabungan Aksi Roda Dua (GARDA)	Association	- Supported the Rancangan Peraturan Menteri Perhubungan /Draft Regulation of Ministry of Transportation (RPM) on the Protection of Application-Based Motorcycle Users' Safety. - Publicly rejected DKI Jakarta Provincial Government's policy of requiring online motorcycle taxi drivers and online taxis to have an Employee Registration Certificate (STRP) during the implementation of Emergency PPKM.
	Lalamove Partners Gathering Forum	Community	- Protested Lalamove's management decision not to release payment within the same day.
	Online Drivers' Union/ Serikat Ojol Indonesia (Seroja)	Community	- Organised hundreds of drivers to protest at Gojek's office in Solo (Central Java province) about the reduction in GoFood's minimum delivery fees. - Supported the social dialogue of FRONTAL- East Java with the Directorate of Intelligence and Security for the East Java Police and Directorate General of Land Transportation (Ditjen Hubdat).
Malaysia 	Grab Drivers Malaysia Association	Association	- Publicly asked the government officials for more time for e-hailing drivers to obtain the public service vehicle (PSV) license. - Publicly defended Grab Malaysia's move to charge users a higher fee for canceling. - Publicly asked Grab Malaysia to compensate drivers for lost income due to Grab's system disruption across the region.
	Persatuan Penghantar P-Hailing Malaysia (Penghantar)	Association	- Joined discourse seminar (with Malaysian Trades Union Congress) to urge the government to create rules and regulatory bodies to help solve all technical problems that may relate to the welfare of e-hailing and p-hailing drivers.
	Persatuan Pemandu Perkhidmatan E-Hailing Malaysia/ Malaysia eHailing Drivers Association (MeHDA)	Registered Association/ Non-governmental organisation (NGO)	- Publicly urged authorities to act against companies like InDriver that operate without permission from the Land Public Transport Agency (APAD). - Alerted the public of InDriver's illegal operation in Penang without a business mediation license. - Publicly urged the Transport Ministry to take immediate action against Grab Malaysia after it failed to repay the excess commission within the stipulated period. - Publicly appealed to the government to consider including part-time drivers in its benefit of 'one-off' National Caring Assistance (BPN) worth RM500 to all e-hailing drivers with a public vehicle license (PSV).

	Name	Classification	Initiatives
The Philippines 	Trade Union Congress Party	Political Party List	- Filed resolution 1974 asking the House Committee on Labour and Employment to probe the working conditions of food and grocery delivery riders.
	Kapatiran sa Dalawang Gulong (KAGULONG)	Umbrella Association of riders	- Publicly supported the passage in the House of Representatives and pushed for its fast approval in the Senate of a bill aimed at regulating motorcycles for hire called the Motorcycles-for-Hire Act. - Publicly asked for social dialogue with the government for the provision of fuel subsidies considering Russian sanctions - Pushed for the Riders' Agenda, which includes the call for an end to any forms of discrimination against delivery riders and the junking of the Doble Plaka Law or The Motorcycle Crime Prevention Act of 2019. - Publicly disagreed with DOLE over Labour Advisory No. 14, which states riders (if freelancers) are governed by their contracts with a digital platform company, called for DOLE to issue more binding guidelines to protect the welfare of delivery riders. - Publicly asked DOLE to issue out department order over termination worker process rather than labour advisories to have it more binding and enforceable. - Had its Foodpanda Division join a 'unity ride' to the Department of Labour and Employment Office (DOLE) to voice concerns on Foodpanda PH's new payment scheme and an unclear freelancing system, which resulted in lower earnings. - Held a "Unity Ride for Rights" to the Department of Transportation to allow a pilot run for motorcycle taxis amid the COVID-19 pandemic. - Requested government agencies to remove the plastic barriers on motorcycle taxis.
	Bulacan Motorcycle Riders Confederation	Confederation	- Publicly disagreed with the Doble Plaka Law or The Motorcycle Crime Prevention Act of 2019 due to enormous penalties.
	United Delivery RIDERS of the Philippines (RIDERS)	Union	- A newly formed union in August 2022 that publicly disagreed with the widespread exploitation and abuse by their members' supposed employers who consider them freelance workers instead of employees.
	Davao United Delivery Riders Association Inc. (DUDRAI)	Association	- Publicly released the news of Davao-based drivers receiving a 10-year suspension when Foodpanda PH learned of a planned protest against its earnings policy
Singapore 	National Trade Union Congress (NTUC)- Main affiliates include National Delivery Champions Association (NDCA), National Private Hire Vehicles Association (NPHVA), and National Taxi Association (NTA). Other related affiliates are Visual, Audio, Creative Content Professionals Association, and National Instructors and Coaches Association.	National Confederation of Trade Unions as well as a network of professional associations and partners across all sectors in Singapore.	- Partner in the Tripartite Workgroup Committee (TWG) that focuses on lower-wage workers and self-employed persons. The TWG is involved in expanding the Tripartite Standard on Flexible Work Arrangements and other initiatives such as developing a Tripartite Standard for engaging Self-Employed Persons' services. The TWG recommended partners to work with insurers to make Self-Employed Person-related insurance products and adopt a "contribute-as-you-earn" model. - Member of the Advisory Committee on Platform Workers, which was formed to strengthen protections for self-employed persons who work for online platforms, specifically delivery persons, private-hire car drivers, and taxi drivers. - Members enjoyed a one-off payment of up to Sdo200 if they tested positive for COVID-19.

	Name	Classification	Initiatives
	Singapore National Employers Federation	Union	- Partner in the TWG - Member of the Advisory Committee on Platform Workers
	National Private Hire Vehicles Association (NPHVA)	Association	- Signed an official partnership with Grab through a Memorandum-of-Understanding (MOU). The MOU includes Grab's support for independent high-performing full-time drivers interested in becoming members of NPHVA, for six months. The NPHVA will serve as the voice of Grab drivers and will facilitate a two-way flow of feedback between Grab and its drivers. - Members enjoyed a one-off payment of up to SG$200 if they tested positive for COVID-19.
Thailand 	Freedom Rider Union	Online community	- Coordinated the gathering of LineMan Riders from Ayutthaya, Ang Thong, and Singburi provinces to protest at the headquarters of LineMan-Wongnai and then went to the Labour Ministry office to voice out the opposition to base payment cut. - Launched an online campaign to raise awareness on rider safety & demand mandatory accident insurance in partnership with the Solidarity Centre.
	Chiang Mai Riders Union	Online community	- Planned a protest over wage issues
	Grab Driver BKK Thailand	Online Community	- Provided support networks for drivers to plan social events, raise donations for drivers injured or killed on the job, discuss grievances and eventually organise labour actions
	Motorbike Taxi Association of Thailand	Association	- Publicly protested and demanded the removal of Grab's GrabBike feature, which the group say is operating illegally. Grab provided unfair competition with other competitors like "Win" drivers.
	Massage Therapist Group Thailand	Online Community	- Requested, via HomeNet Thailand, dry food and survival bags to alleviate the distress of massage therapists - Helped organise a workshop on making natural products and chemical-free farming

Source: Authors' compilation

Table A19. Partial associations/communities of crowdworkers in the AMS

	Name	Classification	Initiatives
Regional	Women Who Code (WWCode) *- Global (20+ countries) including the Philippines*	Association	- Provides a digital inclusion for women through a combination of advanced skills training and online coding courses - Encourages local leadership to foster local events and grow the local network
Indonesia 	Freelance Community of Indonesia	Online Community	- Provides an online venue to share business or job vacancies throughout Indonesia
	Freelancer Indonesia	Online Community	- Provides an online venue to share business or job vacancies throughout Indonesia
Malaysia 	Malaysian Allied Freelancer Association (MAFA)	Association	- Participated in the development of the Social Synergy Programme, a safety net for full-time freelancers in collaborations with authorities, agencies, and private sectors
	Malaysia Online Workers Network/ Jaringan Pekerja Online Malaysia (MYOWN)	Association	- Publicly provides a voice in Malaysia's crowdsourcing and online freelancing ecosystem, though not very active
	Malaysian Freelancer	Online Community	- Provides an online network venue to share information among Malaysian freelancers to improve their craft and share job postings, stories, and scam alerts.
	Freelancer Malaysia	Online Community	- Provides an online network venue to share information among Malaysian freelancers to share job postings, and scam alerts
The Philippines 	Connected Women	Association	- Empowers women through entrepreneurship, freelancing, and remote work
	Digital Career Advocates of the Philippines (DCAP)	Association	- Advocates for the welfare of online workers in the Philippines by promoting digital work and career
	Filipina Home-based Moms (FHMoms)	Association	- Delivers accessible upskilling courses and linkage to strong community ties that include training for work-from-home jobs like platform work
	Filipino Online Professionals Service Cooperative (FOPSCo)	Association/ Cooperative	- Provides support through continuous education, marketing, mentoring, and leadership equipping of its member in their online freelance work
	Filipino Virtual Assistance at FVA Consultancy	Online Community	- Offers online jobs courses, virtual assistance services, and franchising opportunities
	Negros Online Workers	Online Community	- Offers a platform where Bacolod-based (a city on the Negros Island) individuals aspiring to start working from home can join.
	Online Bicolano Workers	Online Community	- Offers a platform where Bicol-based online workers like bloggers, graphics artists, virtual secretaries, sellers, etc. can share job experiences, job openings, tips, and online opportunities
	Online Filipino Freelancers	Online Community	- Creates a dynamic and fun community for online Filipino workers, where they can freely speak their minds, share insights, help each other out and grow as freelancers
	PayPal PH Freelancers	Online Community	- Provides a place to share insights and tips on everything related to freelancing

	Name	Classification	Initiatives
	The Freelance Movement | Freelancing Community	Online Community	- Provides an online venue built specifically for both Filipino freelancers and those aspiring to be one
Singapore 	Visual, Audio, Creative Content Professionals Association (VICPA)	Association	- Advocates for freelancers and self-employed professionals in visual/ audio/ creative content through work-related advisory, resources, industry-wide collaborations, and community. Its members enjoyed a one-off payment of up to SG$200 if they tested positive for COVID-19
	Singapore Association of Motion Picture Professionals (SAMPP)	Association	- Provides a platform for discussion & engagement for all members who belong in the Film, TV, and new Broadcast Media industry, including freelancers - Launched an SG$40,000 SAMPP COVID-19 Relief Fund to support motion picture freelancers - Facilitated the distribution of free Antigen Rapid Testing (ART) Kits to film production companies specifically for unmasked screen talents
	STAR Association	Association	- Represents the welfare of freelancers from the events and entertainment industry - Proposed a tiered relief scheme for its members to benefit from a lower-level form of assistance as part of the government's Self-Employed Person (SEP) Income Relief Scheme
	SG Freelance Jobs	Online Community/ Association	-Provides an online network venue to share information on job postings
Viet Nam 	Viet Nam Freelance Developer	Online Community/ Association	- Provides an online network venue to share information among Vietnamese freelance developers

Source: Authors' compilation

Table A20. Information in the Eurofound's platform economy initiatives

	Information compiled
Advice and exchange	Tools, educational documentation/resources on certain platforms, forum, and projects supporting platform cooperatives
Awareness campaign/ information provision	Actions and campaigns of associations, unions, new platforms, worker-led collaboration of platform workers/researchers, institutes working on platforms, and available datasets
Code of conduct and standards	Memorandum on tax, code of good practice, collective agreement, bike platforms, and declaration of principles related to the platform economy,
Industrial action	Union resolutions on fair working conditions, issues raised over platform workers' rights, strikes, and data on worker resistance
Arbitration	Rulings/judgments, decrees
Legislation	Ratification of decrees, regulation in the transport sector, amendments to road transport legislation, update of code of practice, tax reforms to include digital platform businesses, strategies on sharing economy, laws for riders, and definition of electronic platforms,
Taxation	Taxation rules
Negotiation of working conditions	Resolutions on fair working conditions, protests, platforms' pledge to set new social standards, collective agreements between platforms and trade unions, assembly of workers that organise protests, organisation that mobilises workers, and councils that negotiate agreements
Organising/representing platforms	Associations of platforms, business associations that promote digitisation, knowledge, and networking platforms for stakeholders in the sharing economy
Organising/representing workers	Unions, societies, associations, cooperatives, a federation of cooperatives, and international cooperation
Provision of insurance and social protection	Unions dedicated to fighting for dignified working conditions, and platform cooperatives
Training	Platforms, skills required, and training provided
Ratings and reputation system	Projects of various stakeholders to rate platforms, rules of behaviour, and user guidelines,

Source: Authors' summary based on https://www.eurofound.europa.eu/data/platform-economy/initiatives, Accessed May 17, 2022

Table A21. Examples of digital sites used by ASEAN to the COVID-19 crisis

Brunei Darussalam	BruHealth (self-reporting)
Cambodia	Go.Data (support for decision-making)
Indonesia	Pikobar (communication)
	Siap Tanggap (support for decision-making)
	Ur-scape (support for decision-making)
	PeduliLindungi
Malaysia	E-bazaar Melaka (economic recovery)
	Gerak Malaysia (contact tracing)
	Kita2Kita (aid distribution)
	MySejahtera (contact tracing)
	MyTrace (contact tracing)
	PGCare (contact tracing)
	SabahTrace (contact tracing)
	SeLangkah (contact tracing)
The Philippines	Smart Infocast (communication)
Singapore	COVID-19 WhatsApp GOV.SG (communication)
	Safe Distance @ Parks (behavior change)
	Safe Entry (contact tracing)
	Space Out (behavior change)
	TraceTogether (contact tracing)
Thailand	SydeKick (self-reporting)
Viet Nam	COMOKIT (support for decision-making)
	BlueZone (contact tracing)

Source: Clavier and Ghesquiere (2021)

11.2. Linking platform use to structural transformation to employment

The Online Labour Index (OLI) provides a tracking of the workers who are active in major online labour platforms across different countries around the world, thus allowing the exploration of the various types of labour supply across the world. In gathering the database, the number of major OLPs has been changing from time to time as well as the number of countries that have increased their share of transactions within the labour platforms. The share of workers engaged in OLP in each country has been calculated from varying samples of platforms, allowing for the estimation of the growing or declining participation of AMS in online labour platforms. The worker shares seem to be a more appropriate measure, instead of the number of workers in OLP, since the online labour market is not limited to the local economy but to the expanding global market. In this case, the prospect of obtaining a platform job is also taken into account.

To investigate link between platform traffic and structural and labour transformation, we consider the following equation:

$$Platform\_share_{ct} = \beta x_{ct} + \theta_t + \delta_c + \varepsilon_{ct} \qquad \text{(A.1)}$$

where $Platform\_share_{ct}$ is the share in use of the platform of the country, *c*, at year, *t*. The variable, x_{ct}, is the vector of determinants of platform for a given country, including the shares of economic shares to total GDP, the share of women participating in the labour force, the gross capital formation and human development index. All these factors are expected to be associated with the use of the platform economy especially because workers assess these factors which affect the region's wage distribution. Furthermore, given the limited number of observations, the model is restricted to only a few determinants.

Because of various unobserved cross-country shocks, such as news of international outbreaks or scientific knowledge of the virus, yearly fixed-effects, θ_t, and for time-invariant unobserved characteristics of areas and countries, like existing levels of income, health care, or infrastructure, with country fixed effects, δ_c are included in the model. The latter are important, as many of these characteristics are likely to be correlated with platform use across countries. Further confounders that may vary at the country-year level, such as increased broadband infrastructure, are difficult to control since data are usually unavailable. Furthermore, country-year fixed effects will not permit the estimate the coefficient for the specific policy variables (as these would be correlated with the other included variables). However, most of these omitted drivers tend to evolve slowly, thus minimizing the effect of these confounding factors. Finally, ε_{ct} is the error term. Considering that a lot of these factors are unobserved, the model will be estimated using the fixed effects model, with standard errors adjusted for country level clustering to account for heterogeneity within each country.

Because unemployment and platform use are both affected by the same unobserved variables affecting workers, there is a need to estimate the effect of platform use on unemployment by using an instrumental variable for platform use that is purged of the error terms. Using estimates in (A.1), platform worker shares can be predicted using the observed factors. This becomes an instrumental variable that takes on the same variance as the actual platform despite eliminating the effects of unobserved factors. Using this two-stage approach, the following specific model can be estimated.

$$Unemp_{ct} = \alpha_1 \widehat{Platformshare}_{ct} + \alpha_2 GDCF_{ct} + \alpha_3 \left(\widehat{Platformshare} \cdot GDCF\right)_{ct} + \alpha_4 x_{ct} + \theta_t + \delta_c + \varepsilon_{ct} \qquad \text{(A.2)}$$

where $\widehat{Platformshare}$ is the predicted value of platform share using (A.1). The rest of the variables are used to control for other key factors that will affect the unemployment, over and above their impact on platform use.

In this specification, an interactive term for platform share and gross domestic capital formation (GDCF) is included. The primary value of this analysis is that, conditional on validating the parallel trends assumption between these variables by estimating period-by-period dynamic difference-indifference coefficients, it enables the assessment of the dynamics of changes in unemployment rates caused by platforms following the increases in platform infrastructure as captured in the GDCF. Given that effectiveness of platform usage is highly correlated with the quality of infrastructure in the country across time, there is a need to separate the impact of these variables from each other. By controlling the time-varying effects of GDCF and its interaction with platform usage, the coefficient α_3 reflects the changes in the unemployment that can be attributed to platform shares of the country. This coefficient is thus interpreted as the change in unemployment due to platform shares conditional on the provision of physical infrastructure,

A similar interactive term is also introduced in (A.1) where women labour force participation is interacted by HDI to measure the parallel trends between labour participation and human capital investment. Countries with higher women labour force participation is expected to also have high HDI. In order to disentangle the effect of women labour force engagement on the use of labour online traffic, the variable needs to be measured conditional on HDI.

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