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Provincializing Platform Capitalism: Digitization and Informality in Jakarta's Motorbike Taxi Industry

Author

Nowak, Samuel Laurence

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Provincializing Platform Capitalism:

Digitization and Informality in Jakarta's Motorbike Taxi Industry

A dissertation submitted in partial satisfaction of the

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by

Samuel Laurence Nowak

2022

ABSTRACT OF THE DISSERTATION

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Professor Helga M. Leitner, Co-Chair

Professor Eric Stewart Sheppard, Co-Chair

Amidst a rapid re-organization of the global economy around the extraction of big data by platform firms like Amazon, Uber, or Alibaba ("platform capitalism"), this dissertation explores shifting regimes of market formation, urban governance, and labor organizing in Jakarta, Indonesia. Drawing on twelve months of ethnographic fieldwork, I examine the digitization of the motorbike taxi (*ojek*) market by the super-app platforms Grab and Gojek. Within just seven years, these firms have become two of the largest companies in Indonesia, an integral part of the country's urban transportation system, and a major source of employment for millions. Combining ethnographic research with *ojek* drivers, qualitative interviews with government officials, transportation experts, and platform employees, and archival document analysis, I explore how these companies have worked to impose platform technologies onto the informal *ojek* industry by enclosing its labor pool, customers, and socio-economic infrastructures. In doing so, I contribute to theorizations of how

digital platforms are transforming key processes and actors of capital accumulation: marketization and the firm; regulation and the state; labor and workers. Overwhelmingly, existing platform studies scholarship on these topics remains narrowly focused on case studies in the United States and Europe, problematically assuming that concepts developed in the Euro-American core will translate to much of the formerly colonized world. Drawing on postcolonial urban theory, I argue that the particularities of Jakarta's urban form, informal livelihood practices, and cultural norms of mutual aid shape processes of platform capitalism in ways that cannot fully be explained by the existing Euro-American literature. Re-examining extant theories from the margins of the global platform economy—what I call provincializing platform capitalism—the dissertation's empirical chapters analyze the uneven outcomes of platformization for Jakarta's urban majority. I find that gig workers have autoconstructed their own online and offline mutual aid communities (*komunitas*) to improve the conditions of their work, even as their labor, subjectivities, and socio-spatial relations become increasingly enrolled into global financial circuits and state developmental interests.

The thesis of Samuel Laurence Nowak is approved.

Ching Kwan Lee

Ananya Roy

Helga M. Leitner, Committee Co-Chair

Eric Stewart Sheppard, Committee Co-Chair

University of California, Los Angeles

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ACRONYMS and GLOSSARY

Aplikasi tuyul	third-party apps that illegally modify the Grab/Gojek platform
Bajaj	autorickshaw
Basecamp (BC)	used (in English) by drivers to describe a community's resting place
Becak	three-wheeled bicycle rickshaw
Gotong-royong	"mutual assistance"
Kampung	"village," used to describe informal urban settlements in Indonesia
Kartu Tanda Penduduk	identity card
Kementerian Kominfo	Ministry of Communication and Information Technology
Kementerian Perhubungan	Ministry of Transportation
Komunitas	"community," refers to online *ojek* driver community
Kopdar	abbreviation for *kopi darat,* "ground coffee," meaning a meeting
Mata-mata	"spies"
Ojek online	online motorbike taxi
Ojek pangkalan	traditional motorbike taxi
Ojol	abbreviation for "*ojek* online," also refers to online *ojek* driver
Opang	abbreviation for "*ojek pangkalan*," also refers to traditional *ojek* driver
Ormas	abbreviation for *organisasi kemasyarakatan, "*civil society organizations"
Pangkalan (ojek)	motorbike taxi stand
Perhubungan	"transportation," literally the process of creating connections
Pengawalan	escort of the deceased to graveyard
PM	acronym for *putus mitra,* meaning termination by the application
Rupiah	Indonesian currency (abbreviated as IDR)

Single-fighter	used (in English) to describe drivers unaffiliated with a *komunitas*
Solidaritas	"solidarity"
Suspen	"suspension," from the platform applications
Undang-Undang	Indonesian Law
URC	acronym for *unit reaksi cepat*, "quick reaction unit"
zona merah	"red zone," an area perceived as dangerous

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VITA

Education

2017	M.A. Geography University of California, Los Angeles *Thesis: The Regulation of Urban Mobility Regimes: A Conjunctural Approach*
2013	B.A. Geography, honors, *summa cum laude* University of Washington, Seattle

Publications

Leitner H, **Nowak S**, and Sheppard E (online first) Everyday speculation in the remaking of peri-urban livelihoods and landscapes. *Environment and Planning A: Economy and Space* https://doi.org/10.1177/0308518X211066915

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Nowak S and Howard T (2019) Ethnography in the boundary zones: on Robert Fairbanks' How It Works. In: Leitner H, Peck J, and Sheppard E (eds) *Urban Studies Inside/Out: Theory, Method, Practice* London: Sage Publications, pp. 133-142.

Howard T, **Nowak S**, and Jahn-Verri F (2019) Ethnographic exchanges: On Philippe Bourgois' In Search of Respect." In: Leitner H, Peck J, and Sheppard E (eds) *Urban Studies Inside/Out: Theory, Method, Practice* London: Sage Publications, pp. 143-153.

Leitner H and **Nowak S** (2018) Making multi-racial counter-publics: Toward egalitarian spaces in urban politics. In: Ward K, Jonas AE, Miller B, and Wilson D (eds) *Routledge Handbook on the Spaces of Urban Politics*. New York: Routledge, pp. 451-464.

Walter A, Hankins K, and **Nowak S** (2017) The spatial solidarity of intentional neighboring. In: Oosterlynck S, Loopmans M, and Schuermans N. (eds) *Place, Diversity, Solidarity*. New York: Routledge, 109-126.

Elwood S, Lawson V, and **Nowak S** (2015) Middle-class poverty politics: Making place, making people. *Annals of the Association of American Geographers* 105 (1):123–143.

Awards and Honors

June 2022 Graduate Student Teaching Award, UCLA Geography ($500)

June 2022 Graduate Student Publication Award, UCLA Geography ($200)

April 2021 American Association of Geographers, Economic Geography Specialty Group Best Student Paper Award ($200)

April 2020 Collegiate of University Teaching Fellowship, UCLA Center for the Advancement of Teaching

February 2020 Invited Participant to the 2020 Summer Institute in Economic Geography (postponed until 2022)

June 2013 Dean's Medalist for Social Sciences (top social scientist in the University of Washington graduating class of 2013)

Grants, Fellowships, Awards

May 2022 American Association of Geographers, Economic Geography Specialty Group Travel Grant ($500)

June 2021 Indonesian Studies Small Grant, UCLA Center for Southeast Asian Studies ($1,400)

June 2021 Dissertation Year Fellowship, UCLA Graduate Division ($20,000)

February 2019 Helin Travel Grant, UCLA Department of Geography ($8,200)

April 2018 Indonesian Studies Travel Grant, UCLA Center for Southeast Asian Studies ($1,500)

April 2018 Foreign Language and Area Studies (FLAS) Summer Fellowship ($7,700)

March 2016 American Association of Geographers, Urban Geography Specialty Group Graduate Student Fellowship (Masters) ($500)

2015 - 2020 National Science Foundation Graduate Research Fellowship ($136,000)

Introduction. Platformization, Provincialization, and *Perhubungan*

Mulyono[1] has been an *ojek* (motorbike taxi) driver in Jakarta, Indonesia for around 20 years, making a living by carrying passengers through the city's traffic-clogged streets on the back of his motorbike. In that time, he has experienced considerable transformation within the industry. When he first started in the early 2000s, the country was still recovering from the 1997-98 Asian financial crisis and jobs were scarce. As an informal mode of transportation that lacks state licensure, the *ojek* industry provided Mulyono and hundreds of thousands like him a low-barrier-to-entry job in hard times. All he needed to get started was a motorbike and those were becoming more and more accessible for low-income Indonesians as the state relaxed credit requirements and granted dozens of new import licenses in an effort to re-ignite consumption after the crisis. Cheap Japanese and Chinese motorbikes flooded the market and Mulyono picked one up to begin work as an *ojek* driver, putting only 5% down for the vehicle—a new minimum. Every day, he would get up and drive to his *pangkalan* (*ojek* stand), located in South Jakarta near an upscale hotel. There, he would queue up with the rest of his *pangkalan* members, waiting in turn for walk-up passengers to approach and negotiate a fare to their destination. Over time, he developed regular customers for whom he had first right of refusal according to the self-developed regulations governing *pangkalan* operations. On an average day, he might make 150,000 rupiah, about $10 USD.

Work continued like this until 2010, when Mulyono heard about a company called Gojek that was starting to offer *ojek* services through SMS text. Out of curiosity, he dropped by the office to apply. He was interviewed by its founder, Nadiem Makarim, an Indonesian-born Harvard Business School graduate student who had recently started the company and was in the country to get it off the ground. Mulyono was offered Rp. 20,000 ($1.63 USD) as signing bonus, but this hardly offset

[1] As is common for Indonesians, Mulyono goes by one name. In accordance with his wishes, this is not a pseudonym. All other driver names are anonymized.

some of the social ramifications he faced from his fellow *pangkalan* members: "My friends in the *pangkalan* openly rejected me when I promoted this Gojek thing […b]ecause of the exorbitant cut. At that time, the company cut was Rp 4,000/Km and the driver would get 65% of the total fare, while the company will take the rest" (Interview with driver, August 24, 2019). But Mulyono appreciated the independence Gojek might offer him, figuring that "…the company looked for orders on our behalf, so instead of lining up and being idle in the *pangkalan*, I could work and make more money…" (Interview with driver, August 24, 2019). He signed up, earning a #001 on the lapel of his jacket by becoming the first independent contract driver for the company.

Twelve years later, Gojek has over 2 million registered drivers in three countries, but Mulyono still drives for the company. In the intervening years, he has seen Gojek transition from connecting customers and *ojek* drivers by SMS text into an integrated "super-app" platform that completes over 100 million daily orders across 20 services, including *ojek* and automobile ride-hailing, food and parcel delivery, shipping, medication and grocery delivery, video streaming, e-commerce, and a host of financial services: electronic payments, insurance, bill payment, micro-credit, etc. He has watched it grow from a small startup to the most highly valued company[2] in Indonesian history before its initial public offering (IPO) on the Indonesian Stock Exchange in April 2021, when it briefly became the third largest publicly traded company in the country (by market capitalization). Most of all, though, he has experienced the ways in which Gojek—alongside its major competitor Grab, another 'super-app' based in Singapore—has reshaped the *ojek* industry in Jakarta. Where once the *ojek* market was territorially organized around the *pangkalan*, it has become much more spatially dispersed as the application untethers him and his customers from that location. He has gone from operating at the edges of legality and with the constant threat of police intervention to driving for a

[2] Prior to its IPO, Gojek merged with Tokopedia merged in May 2021, forming the umbrella corporation the GoTo Group. Both companies continue to operate independently, so I will refer to 'Gojek' throughout the rest of the dissertation.

platform firm that Indonesian state actively supports—even promotes—as the future of its economy. Yet the independence Mulyono once enjoyed has become steadily more controlled as Gojek experiments with technologies of "algorithmic management" (Stark and Pais, 2020) to control his work, even as it downloads responsibility and risk onto him and other independent contract drivers who must pay for their own gas, insurance, maintenance, etc.

As the first Gojek driver, Mulyono has a unique vantage into the empirical transformation at the heart of this thesis, what I will refer to as the platformization of the *ojek*. By platformization I mean "the penetration of the infrastructures, economic processes, and governmental frameworks of platforms in different economic sectors and spheres of life" (Poell et al., 2019: 5–6; Helmond, 2015). This process often entails the imposition of platform business models onto older organizational forms, building on their existing capacity and/or working to enclose their labor forces, infrastructures, and markets into platform ecosystems. Mulyono has experienced first-hand the platformization of the *ojek* from an informal, highly localized, and spatially fragmented market into an integrated digital platform backed by global finance capital and endorsed by state interests. How did this happen, and what are its effects? Through what logics and strategies does the Indonesian state attempt to govern this transition? How has platformization affected the lives and livelihoods of drivers like Mulyono, and how do they subvert, facilitate, resist it? In short, how did the *ojek* become Gojek?

In this dissertation, I work to answer these questions and, in so doing, theorize how digital platforms are transforming key processes and actors of capital accumulation. In its simplest form, a platform is a digital infrastructure for intermediating between different user groups such as buyers, sellers, advertisers, producers, service providers, and developers (Srnicek, 2016). Platform firms connect one or more of these user groups in order to accumulate data, extract rent, and realize a profit (Sadowski, 2020b). For example, Gojek uses its proprietary data to algorithmically connect

people who want an *ojek* ride with drivers willing to provide it, charging both user-groups rent (in the form of service fees), all while collecting data about the labor process (active time, passenger ratings, time to pick up, etc.) and consumer preferences. This intermediary logic is a defining characteristic insofar as platforms facilitate social and economic interaction by working to position themselves as necessary brokers for those wanting to access the connections their network enables (Langley and Leyshon, 2017; van Dijck et al., 2018). According to proponents, these interactions create value through platform "network effects"—a phenomenon in which each additional user added to a network creates benefit for existing users, incentivizing others to join the network and generating increasing returns to scale (Rochet and Tirole, 2003). For a ride-hailing firm like Gojek, pickup times and prices fall as more drivers join the platform, incentivizing more users which, in turn, incentivizes more drivers to join because there is more opportunity to earn.

Over the last 15 years, this set of economic and technological relations has rapidly transformed globalizing capitalism. In 2007, the largest publicly traded companies in the world (by market capitalization) were in oil, pharmaceuticals, telecommunications hardware, banking, and manufacturing. Today, the largest companies in the world are nearly all technology companies utilizing a platform business model: Apple, Microsoft, Meta, Amazon, Alphabet, Tencent. Powerful political-economic actors advance this transformation. Venture capital and other private equity firms speculate on platform firms and their ability to realize network effects, bankrolling 'disruption' through ploughing massive amounts of technology investment capital[3] into platforms across the globe. Global consultancies like McKinsey and Company recommend that firms develop an 'offensive platform' business model to disrupt incumbent industries; banks and credit card

[3] I borrow this term from McNeill (2016, 508) describes this as the combined investment landscape in technology firms that includes angel investment (initial investment, usually to develop a prototype), venture capital (high-risk, private equity investment), and acquisition capital (financing for, or from, the acquisition of competitors). I will use it throughout the dissertation.

companies claim platforms will enable the financial inclusion of unbanked populations in the global economy; blockchain cryptocurrency platforms like Bitcoin or Ethereum will herald the end of fiat currency and central banking; and 'sharing economy' platforms, we are told, will radically reconfigure ownership, insurance, and the future of work. In these narratives, the platform heralds nothing less than an epochal transformation of capitalism, revolutionizing firm organization, money, property, finance, governance, and labor markets.

A growing body of literature describes this transformation as 'platform capitalism.' Coined in 2014 by the German blogger Sascha Lobo (2014) to critique overly-celebratory accounts of 'sharing' economy platforms like AirBnb, the term has grown to encapsulate a broader political economic shift towards the centrality of data production, management, and consumption to capitalist accumulation (Langley and Leyshon, 2017; Pasquale, 2017; Srnicek, 2016). Importantly, Lobo, Srnicek, and others note that it is not just technology firms that are utilizing the platform business model; industrial giants like General Electric and Siemens also increasingly rely on extracting data from their users to gain a competitive advantage. Cutting across sociology, anthropology, media studies, and geography, platform studies scholarship has theorized how data-driven accumulation is transforming all manner of capitalist relations: firm organization (Langley and Leyshon, 2017), labor markets and work (Graham and Anwar, 2019; van Doorn, 2017), nature-society relations (Büscher, 2020; Goldstein and Faxon, 2022), the state and governance (Gorwa, 2019), marketization (Çalışkan, 2020; Richardson, 2020b), and so on.

Platform capitalism has entered the lexicon since Lobo's intervention, quickly becoming the predominant critical framework for theorizing data-driven accumulation. In the rush to name and narrate this transformation, however, there lies a latent universalism. Overwhelmingly, scholarship on platform capitalism remains based on American and (to a lesser extent) European experiences. On the one hand, this should not be surprising; there is a high concentration of both platform firms

and technology investment capital in cities like Seattle, Boston, and the California Bay Area. The United States remains the indisputable core of the global platform economy, hosting the headquarters of the so-called "Big Five" tech companies (Meta, Amazon, Microsoft, Apple, and Alphabet). Yet, on the other hand, there has also been a proliferation of highly capitalized platform firms outside of the North-Atlantic region. China accounts for much of this shift (Jia and Kenney, 2021), but formerly colonized countries with large domestic markets and growing numbers of mobile-first internet users—places like India, Brazil, Nigeria, and Indonesia—are also seeing large investments, particularly in FinTech platforms (see Langley and Leyshon, 2022; Pollio and Cirolia, 2022). Leading VC firms like the Softbank Group now invest more outside United States than inside it, and even firms like Sequoia Capital—once known for investing only in Silicon Valley startups (Ferrary and Granovetter, 2009)—now hold a substantial proportion of their assets outside the US (24%: Mohammad, 2021). Furthermore, U.S.-based platform firms have increasingly established a presence in formerly colonized countries through programs like Facebook's Free Basics, which offers free access to limited internet services (including, of course, Facebook) to millions globally (Kwet, 2019). In short, platform capital is increasingly globalizing beyond the Euro-American core as it seeks new sites of investment and new subjects of data and rent extraction in the global South.

Despite this trend, existing theories of platform capitalism still overwhelmingly derive from studies in US and European contexts and/or firms. Consider the question of regulation. The entrance of platform firms in cities has sparked significant debate over their regulation, yet this literature tends to universalize the institutional and legal histories of Western liberal democracies. Concepts like "disruptive regulation"—in which platforms like Uber deliberately disregard existing regulatory regimes and then pressure the state to re-regulate according to their interest—presumes a pre-existing legal framework for the platform to 'disrupt' (Collier et al., 2018). This way of thinking has limited purchase for much of the global South, where legacies of colonization engender

widespread informal labor markets and industries like the *ojek*. Grab and Gojek do not so much seek to 'disrupt' the *ojek* market, but more so enroll it and its labor force into their platform ecosystems. This type of Eurocentric theorization is not only evident in issues of regulation; as I will discuss, it is pervasive throughout extant literature.

Thus, while the existing literature has undeniable analytical utility for theorizing the transformations described above, its core concepts and argument—that platform technologies have propelled capitalist accumulation into a new epoch centered around data—tend to universalize these transformations in ways that gloss over historical and geographical difference. Needed, then, are theoretical and methodological tools for questioning how well Euro-American theories travel to a context like Indonesia, taking seriously how the experiences of platform workers like Mulyono might shed light on the contours of platform capital accumulation in cities of the global South and beyond.

In this dissertation, I work towards this end, arguing that theoretical engagement with postcolonial (urban) theory and an empirical focus on cities of the global South can productively extend platform studies by considering historical and geographic difference: the legacies of colonialism and uneven geographical development that continue to shape cities like Jakarta. The remainder of this introduction will offer a roadmap for this argument. I begin with the over-arching arguments and conceptual framework, followed by a discussion of my case—the platformization of the *ojek*. I then move on to describing the methodology and methods utilized during 12 months of qualitative and ethnographic fieldwork in Jakarta. I reflect on the limitations of the study and consider questions of power, positionality, and reflexivity, before concluding with a roadmap for the dissertation, summarizing the individual chapters.

Provincializing platform capitalism: Thinking through Jakarta

Despite growing recognition of its geographic limits (Dattani, 2021; Graham, 2019; Hobbis and Hobbis, 2021; Milan and Treré, 2019; Pollio, 2019), existing platform studies scholarship is still often framed in terms of how local conditions mutate what remains in essence the Silicon Valley platform business model of multi-sided markets, rent extraction, network effects, labor subcontracting, and so on. Epistemologically, this has the effect of relegating social and historical difference in the global South to either a state of 'backwardness,' awaiting on technological innovations from the West, or an empirical variation with respect to the core. It is in this sense that Dipesh Chakrabarty (2007: 29 original emphasis) concludes that "[o]nly 'Europe'…is *theoretically*…knowable; all other histories are matters of empirical research that fleshes out a theoretical skeleton that is substantially 'Europe" In *Provincializing Europe*, he works to dislodge—or provincialize—this taken-for-granted, totalizing expansion of European capitalism, what he calls History 1. His aim is to problematize the Eurocentrism of understanding the Euro-American core as telos, arguing that History 1 is just one amongst many lifeworlds that live "in proximate relation to," but are not completely subsumed by, capital's logic: History 2s (Chakrabarty, 2007: 66).

In its overarching structure, this dissertation argues for provincializing platform capitalism. To paraphrase Chakrabarty (2007: 71) the increasing globalization of platform capitalism is not the same as its universalization. As platform studies scholars increasingly turn their attention to cities of the global South, it is critical to not mistake one for the other: "[n]o historical form of capital, however global in its reach, can ever be a universal…" (Chakrabarty, 2007: 70). In this sense, provincialization is a recognition that all knowledge production is situated and partial (Haraway, 1988; Longino, 2001). Knowledge claims emerge from particular spatio-temporal contexts and it is only through relations of power that some become universalized. Much of postcolonial and decolonial theory is rooted in this claim, showing how the establishment of 'modern' European categories of thought are built upon the racialized, gendered, and classed violence of colonization and imperialism (Mignolo,

2011; Quijano, 2000; Said, 1979; Spivak, 1999). From this perspective, History 1 is more than the global expansion of a provincial form of European capitalism; is an episteme that places Europe at the end of history, universalizing white, male subjects as 'modern,' while marginalizing indigenous people and ways of knowing as particular and therefore expendable.

Inspired by Chakrabarty and others in subaltern studies, geographers and critical urbanists have worked to provincialize urban theory (Lawhon et al., 2016; Leitner and Sheppard, 2016; Robinson, 2003, 2016; Roy, 2009a; Sheppard et al., 2013). Alongside the rapid growth of 'southern' urbanization (Lawhon and Truelove, 2020; Schindler, 2017), these scholars have questioned the generalizability of urban theories developed in Euro-American contexts, arguing that concepts like gentrification, accumulation by dispossession, agglomeration, neoliberal governance, or the smart city have limited purchase in postcolonial cities (Datta, 2015; Ghertner, 2014; Leitner and Sheppard, 2018; Parnell and Robinson, 2012; Roy, 2016). Pushing back on these analytics by thinking through the unique character of urbanization in cities of the global south, these scholars offer concepts such as subaltern urbanism, the near-South, or urban informality—frameworks that potentially have broad salience across all cities (Roy, 2011; Sheppard et al., 2015; Simone, 2014). Furthermore, they argue that the hegemony of Western urban theory can further marginalize cities of the global South because of unfavorable comparisons to Eurocentric norms. Such implicit comparisons to the West—what Chakrabarty (2007: 28) refers to as the "silent referent"—ignore the ways in which cities of the postcolony continue to occupy an uneven socio-spatial positionality (see Sheppard, 2002) relative to their Western counterparts due to the legacies of colonialism and uneven geographical development. Taking this seriously means moving beyond analyses that treat cities as bounded units—what Angelo and Wachsmuth (2015) call "methodological cityism"—by tracing uneven and inter-scalar connectivities that co-constitute the metropolitan (Silicon Valley) and the provincial (Jakarta) in different "power geometries" (Massey, 1991).

It is in this spirit that I work to provincialize platform capitalism by thinking through Jakarta. This means showing the provincial roots of platform capitalism, revealing how seemingly universal platform technologies, ideas, and capital are only a particular Euro-American form. Doing so allows for scrutiny of existing theoretical frameworks, questioning how well they travel to a context like Jakarta. In contrast to its widespread misinterpretation as an argument for ideographic, particularistic knowledge claims (Chibber, 2013) or a replacement of Northern theory with Southern (Scott and Storper, 2015; Smith, 2013), this is not an argument against generalization, nor simply abandonment of Western theory *pe se*. Instead, it is "the task of exploring how this [European] thought - which is now everybody's heritage and which affects us all - may be renewed from and by the margins" (Chakrabarty, 2007: 16). Provincializing platform capitalism thus means centering historical difference and uneven development in our analyses, re-approaching platform studies 'from and by the margins'. Each chapter in this thesis contributes to this project, re-examining some of the foundational concepts of platform capital accumulation through the case of Jakarta.

The platformization of the *ojek*

I prosecute this argument through the case of the platformization of the *ojek*. It is critical to note that, in contrast to mainstream narratives of technological innovation (e.g. Sundararajan, 2016), platformization is not solely a technical outcome; it is a political economic project that must be conjured into being. In Indonesia, as elsewhere, there are powerful state and private interests that work towards this end. Over the last decade, the Indonesian state has embarked on a widespread liberalization of its digital economy in a self-described effort to transform itself from "less of a regulator, and [into] more as a facilitator and accelerator" of platform startups (participant observation, April 3, 2019). The Joko Widodo (Jokowi) administration has sought to attract foreign investment in its digital economy on the conviction that it can push the country though its stalled

growth, the so-called "middle income trap" (Financial Times, 2020), offering programs to support platform startups, deregulation of "data localization" laws, and legal exemptions for workers and investors in tech, among other programs (Interview with *Kementerian Kominfo*, December 9, 2019).

Sensing opportunity in this favorable regulatory environment, Indonesia's large domestic market, and its fast-growing rate of internet users, global technology investment capital has flooded into the country since 2015. According to a market study by Google, Temasek and Bain Company (Baijal et al., 2021), the Indonesian digital economy grew from $40 billion USD in 2019 to $70 billion in 2021: a rate of 32.29 percent. Indonesia now has seven 'unicorns'—private firms valued at $1 billion US dollars or more—and the state has set goals to cultivate another 20 by 2025. Several of the first-generation platform firms have already gone public, including Gojek after a merger with the e-commerce giant Tokopedia in 2021. The rapid adoption of digital platforms in Indonesia has only accelerated since the COVID-19 pandemic. Stuck at home under lockdown, Indonesians turned to services like e-commerce and food delivery at an unprecedented rate. Between 2020 and 2021, the country saw approximately 21 million new platform users, with 99% reporting they intend to continue to use the services after the pandemic, and pre-pandemic consumers on average using 3.6 more platform services than before (Baijal et al., 2021).

Amidst such an influx of influx of capital and adoption of platform services, I examine transforming processes of market-formation, urban governance, and labor politics in Jakarta. In doing so, I join the rich literature exploring how global development initiatives, private capital investment, and local and national state programs aim to transform Jakarta into a 'world class city' (Hudalah and Firman, 2012; Kusno, 2014, 2019; Leitner and Sheppard, 2018). While I cannot do justice to all of it here, much of this scholarship explores how informal housing tenure (Leitner and Sheppard, 2018) and livelihood practices such as street trading (Simone, 2014) and protection rackets (Wilson, 2015) are imbricated in these urban development ideals, simultaneously posing

opportunities for 'modernization' through speculative projects geared towards the city's elite classes, while displacing and/or criminalizing what AbdouMaliq Simone (2013: 246) calls "the urban majority" —a term I adopt throughout the thesis. Extending this focus on housing and livelihoods, I train a lens on informal urban transport, exploring how the state attempts to stimulate capital investment, 'modernization' and 'formalization' of the city's transport (labor) markets through the platform economy. Utilizing qualitative and ethnographic methods, I center how these transformations are experienced, produced, and resisted by online *ojek* drivers (*ojol*), as they navigate new technologies and work to improve their lives and livelihoods through them.

While I do not make claims as to the representativeness of the study in any statistical sense, Jakarta is an ideal locale for such an investigation. The Greater Jakarta region is now the second largest city-region in the world and faces enormous transport challenges. Decades of rapid urbanization, cheap credit, state-developmental interests promoting automotive manufacturing, and poor transport infrastructure have made the motorbike the urban majority's favored transport mode: in DKI[4] Jakarta alone, there approximately 16,519,197 registered motorbikes and 4,111,231 registered passenger cars (Dwitjahyono, 2022). Between 2002 and 2010, the percentage of commuters using a motorbike nearly doubled, while the number of bus passengers halved, indicating that Jakartans are increasingly relying not on mass transit options, but the two-wheeled motorbike (Mead, 2016). With the recent implementation of a light rail system, a subway, and more large-scale infrastructure projects in the works (Anguelov, 2021) the city is grappling with how to reconcile the incredible popularity of motorbikes and motorbike taxis with these infrastructure projects and other state efforts to reduce traffic congestion.

The *ojek*, then, offers an analytical prism through which to examine a changing Indonesian urban

[4] DKI (*Daerah Khusus Ibukota*) Jakarta refers to the municipal boundary of Jakarta (as opposed to the Greater Jakarta region, *Jabodetabek*), which is designated as a special administrative zone because it is the capital city.

political economy. Key actors and processes are implicated in its platformization and I take these as my primary objects of inquiry: (1) capital and market formation, (2) the state and regulation, and (3) workers and labor. These three actors and processes serve as touchstones throughout the dissertation, and I will return to each of them in more depth in the chapters. To be clear, these are not intended to be all-encompassing: Reproductive labor and the home; human-environment relations and ecology, or consumption and cultural production, are all equally important foci to which I cannot do justice here. Rather, my aim is to show how the dominant categories of thought in platform capitalism—ideas like how it is transforming capital accumulation globally, how platform firms are regulated by the state, and how gig workers organize for survival—and can be re-theorized 'from and by the margins', in Chakrabarty's sense. Doing so challenges basic assumptions within the existing literature, reworking it through attending to the particularities of Jakarta's urban form, informal livelihood practices, history of colonization, and cultural norms of mutual aid.

An ethnography of *perhubungan*

I arrive at this argument through 12 months of ethnographic fieldwork in Jakarta. First arriving in January 2019, I was consumed with questions of how Grab and Gojek were transforming individual and systemic mobility in the city. I understood my object of inquiry as 'transportation' in its English etymological sense, deriving from the Latin *transportare*, combining *trans-*, meaning across or another side, and *-portare* meaning to lift or carry. At first glance, this seemed to be the most important and visible transformation associated with the rapid growth of Grab and Gojek. Outside malls and train stations, hundreds of drivers regularly lined the street—a sea of green jackets, worn by drivers of both companies.[5] One could hardly walk down even the most secluded side street

[5] Green is a color that has special significance in Islam, the dominant religion of Indonesia. It is widely speculated that both Grab and Gojek chose green to appeal to the some 200 million Muslims who live in the country.

(*gang*) without seeing a distinctive green jacket whizzing by on a motorbike with a passenger in tow. Such rapid growth in what John Stehlin et al. (2020) call "platform mobility," and specifically the online *ojek,* was radically reconfiguring the practices and politics of transportation in the city, and my proposed doctoral study was to investigate these changes ethnographically.

Yet, as all ethnographers do, I carried with me epistemological assumptions that were quickly tempered by the realities of the field. Most importantly, I came to realize that my object of inquiry was not transportation *per se,* but its Indonesian translation: *perhubungan. Perhubungan* derives from the root word *hubung* (to connect) with the addition of the conjoined affixes *per-* and *-an.* The addition of this combined prefix and suffix modifies its meaning, creating an abstract noun for the process of performing the root word's action. The resulting word—*perhubungan*—literally means the process of creating connections. As is often the case with ethnographic research, I began by thinking I was studying one thing, transportation, only to realize I was in fact studying another: *perhubungan,* the processes of constructing the networked connections that are foundational to the operations of digital platforms. In translation, there is transformation of meaning.

This became evident to me rather quickly as I began speaking with *ojek* drivers about their labor. In doing so, I realized that some of the most important and fascinating connections made through the Grab and Gojek platforms were not those that the firms sought to enclose and rent out: between people who wanted an *ojek* ride and those who could provide it (transportation). Instead, I started to recognize the ways in which Grab and Gojek—rather unintentionally—had also created an infrastructure for new social connections *between* drivers. Though initially assembled by the Grab and Gojek as a flexible labor pool, drivers exceed these interests by building networked connections of their own, for their own purposes, and with their own effects. These connections take form in what drivers call "*komunitas*" (community), which usually consist of 20 - 35 online *ojek* drivers who self-organize to support one another and improve the conditions of their work. Emerging in South

Jakarta as early as 2015, these communities have rapidly spread throughout not only Jakarta, but the entire archipelago. After speaking with community leaders, I estimate there are approximately 2,000 - 3,000 of these communities in the Greater Jakarta region alone, and many more throughout the country, each with their own unique name and logo that they proudly display on banners at community events and on pins that they exchange with other drivers (see Figures 1 and 2).

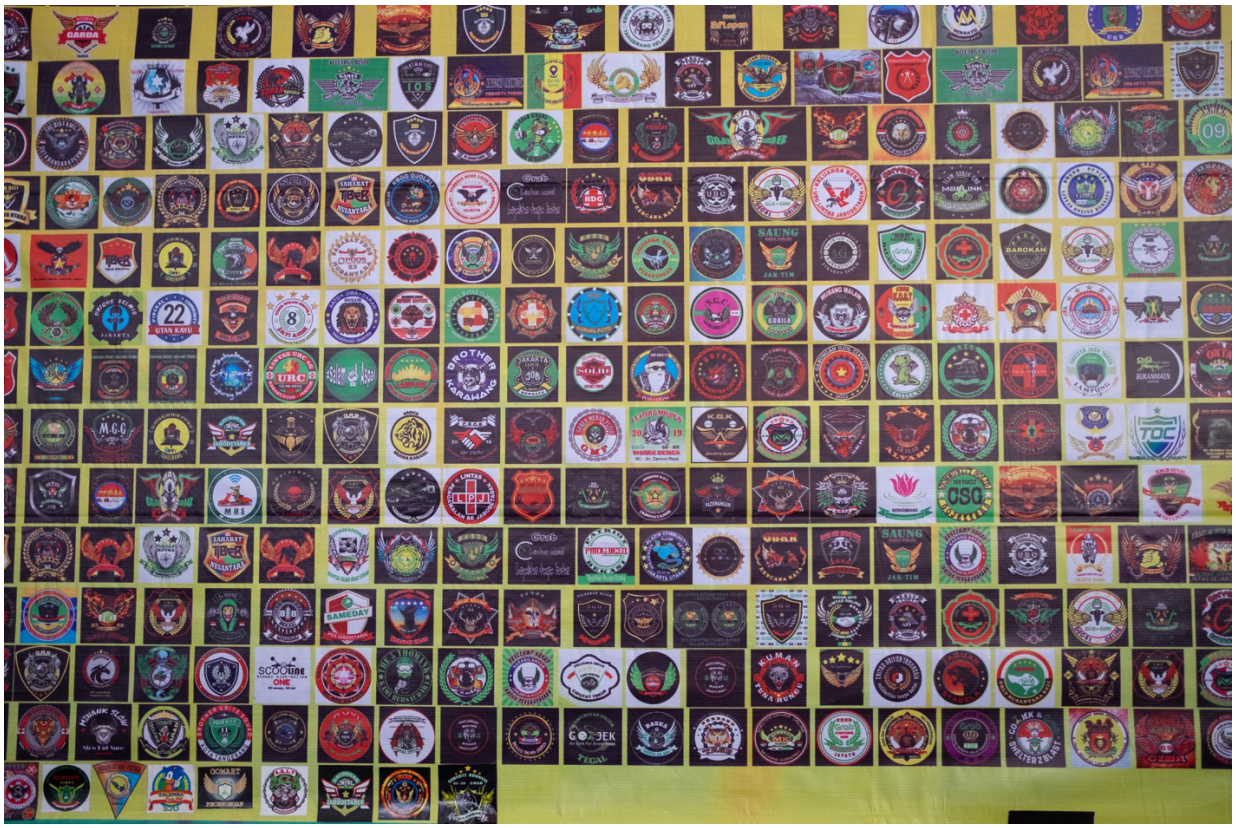

Figure 1: Komunitas logos (photo source: author)

Komunitas are remarkably networked, using sophisticated offline and online systems to coordinate their mutual aid activities. In person, most have a localized "basecamp" where they can rest and host monthly meetings, social events, and visitors from other communities (see Figure 3).

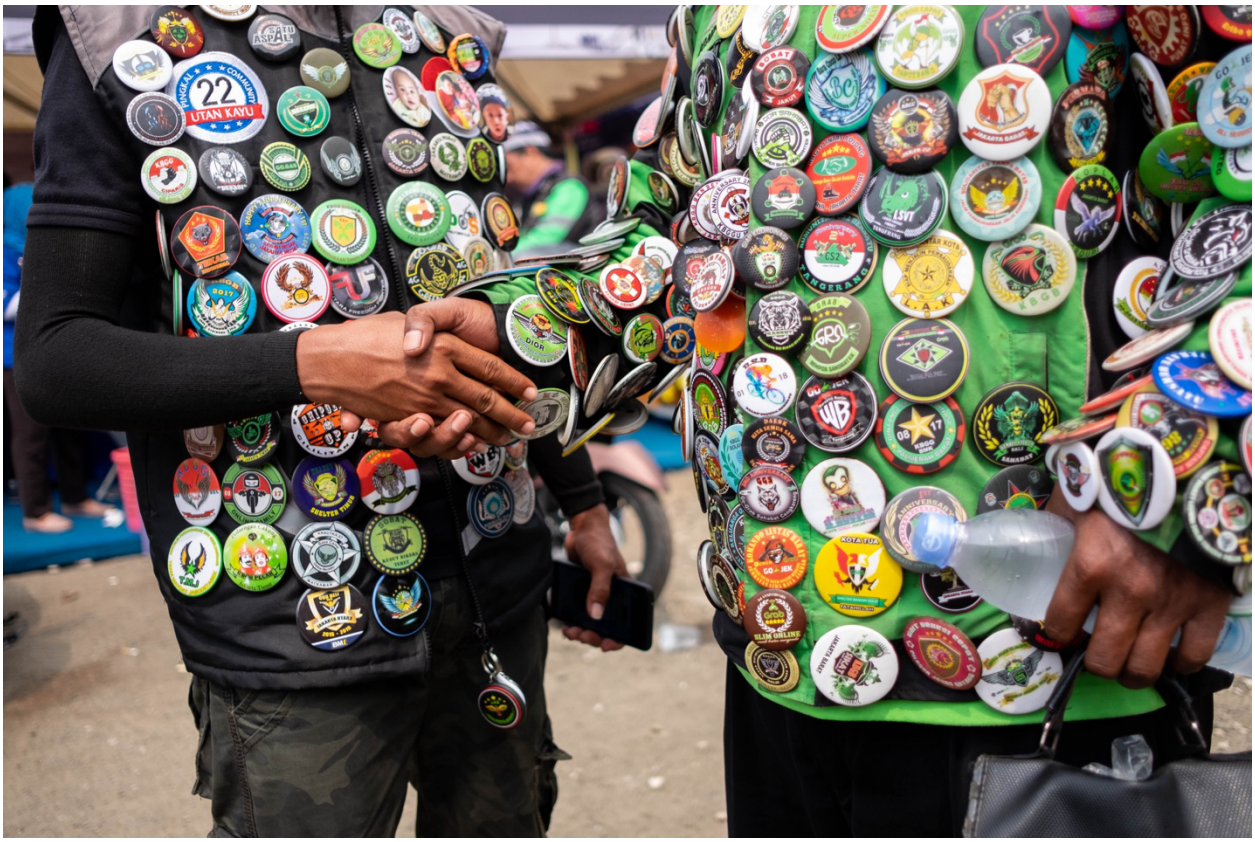

Figure 2: Komunitas pins at an anniversary party (photo source: author)

Virtually, *komunitas* make extensive use of social media, particularly WhatsApp, to build their network. Each *komunitas* has several WhatsApp groups that usually include: a primary group for members only, a 'friends of the community' group, an emergency response group, a 'jokes and memes' group, etc. Community leaders might also participate in a regional umbrella WhatsApp group (e.g. North Jakarta), used to coordinate *komunitas* activities across the area, resolve conflicts, or otherwise organize leadership activities. In my observations, drivers usually participate in as many as 30 - 100 WhatsApp groups dedicated to online *ojek* issues, sometimes receiving thousands of messages in an hour. This dense network of communities stands in stark contrast to what the Western 'platform labor' (van Doorn, 2017) literature largely conceptualizes as a highly atomized labor regime in which workers are spatially and socially dispersed with little opportunities for interaction or organization, except perhaps digitally sharing tips and suggestions (Rosenblat, 2018).

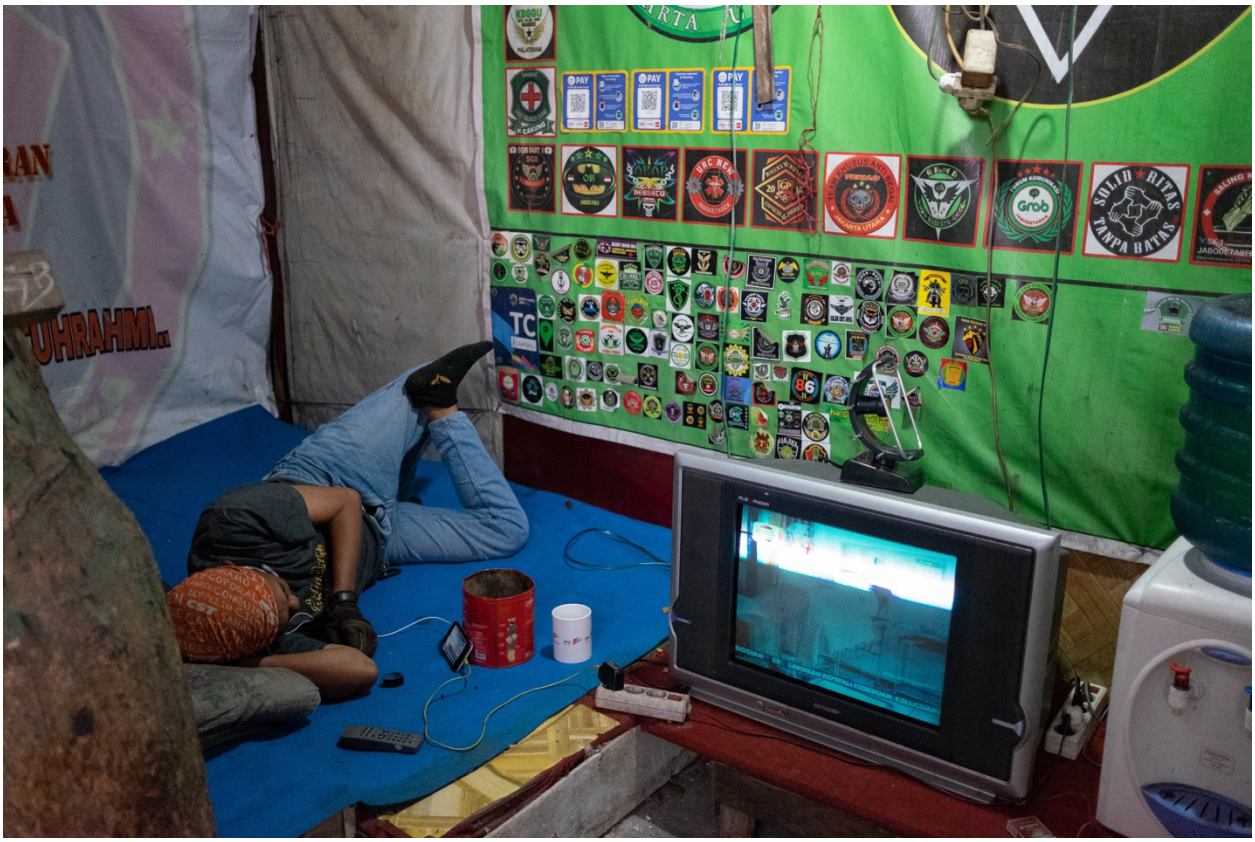

Figure 3: Komunitas basecamp (photo source: author)

I became fascinated by this seeming anomaly, my days unexpectedly consumed with tracing the network of communities. The deeper I delved, the more I realized how extensively they permeated the online *ojek* industry, providing a social infrastructure for: informal worker training for new drivers, social insurance by collecting dues that can be redistributed to members by need, emergency response teams, life insurance for the families of those who are killed on the job, amongst many other functions. Though initially a result of drivers being brought together through the Grab and Gojek platforms, these communities were clearly far exceeding platform architectures designed primarily for atomization, data extraction, and rentiership. As one driver put it to me simply: "The *ojol* [*ojek* online] connects what previously was unconnected" (Interview with driver, June 12, 2019). Put otherwise, communities taught me that platforms may provide digital infrastructures for social and economic connection, but not always in the way intended.

This is, perhaps, a banal point. But to me it rehearses an important methodological lesson for platform studies, one that I carry throughout the rest of the thesis: What we call 'the platform' is not given. It is irreducible to a single application, a set of computational operations, modality of market organization, or neutral mediator for interaction between market actors. Instead, driver communities and their dense networks are a forceful reminder to not take for granted the connections platforms purport to make, but instead approach these as sites of ethnographic inquiry. From this standpoint, platform intermediation is not simply how digital platforms connect sides of a market[6], but also a site of entanglement between different actors, institutions, ideologies, and socio-technical mechanisms with different stakes and interests in the result of those connections. The question then becomes not so much "what is a platform?" or even "what are its effects?" but also what are the social relations and practices that sustain platforms as an infrastructure of economic and social connectivity? Methodologically, this maneuver reframes platforms as contingent processes that require an ongoing process of building connections, rather than 'things' that provide a service—an ethnography of *perhubungan*, not transportation.

Learning to translate transportation to *perhubungan* by way of driver communities was an exercise in what Leitner and Sheppard (2016: 233) call "taking the field seriously— "The field is taken seriously when field experiences can create new ways of seeing that induce the researcher to question the theoretical predispositions that accompany her into the field." Tracing the driver community network helped me recognize that the Western theories I had learned—those presuming that platform labor is an atomizing labor regime—could not withstand the stress-test of traveling to Jakarta and required reformulation (see Chapter 4). The *komunitas* thus became a methodological entry point for "practicing provincialization" (Leitner and Sheppard, 2016: 233): a grounded, ethnographic view 'from the margins' that might enable retheorization of concepts that were clearly

[6] What van Djick et al. (2018) call complementors (suppliers, users, advertisers, developers, data brokers, etc.)

limited for understanding the social and geographical context of Jakarta.

Although driver communities appear most centrally in Chapter 4, I carry this methodological orientation throughout the chapters. In doing so, I contribute to an ethnographic understanding of platform capitalism. In contrast to the deductive, macro-scale political economic analysis that dominates the literature (Grabher and König, 2020; Langley and Leyshon, 2017; Pasquale, 2017; Peck and Phillips, 2021; Srnicek, 2016; van Dijck et al., 2018), I utilize the extended case method, deploying "participant observation to locate everyday life in its extralocal and historical context" (Burawoy, 1998: 4). Theory-informed and theory-generating, the extended case method probes beyond that which is immediately visible in the field, seeking to show how everyday social processes shape, and are shaped by, broader structural forces. As Burawoy (1998: 30) writes, "In highlighting the ethnographic worlds of the local, it challenges the postulated omnipotence of the global, whether it be international capital, neoliberal politics, space of flows, or mass culture." The extended case helped correct for the latent universalism of the platform capitalism literature, reworking it, extending it, and provincializing it.

Methods

The empirical data for this dissertation draws on fieldwork between January 2019 and December 2019, with an additional month of prepatory work in August 2018 and exploratory fieldwork during summer of 2017. My analysis draws on three primary research methods: in-depth interviews, participant observation, and content analysis of documents.

In-depth interviews

Over this time, I conducted 71 formal, semi-structed interviews with three populations: ride-hailing drivers (48); platform firm employees and founders (5); and government officials, legal

experts, NGO activists, and transportation experts/historians (18).

Interviews with drivers were primarily organized around visits to *komunitas* "basecamps"—the adopted English term that drivers use to refer to their resting and waiting locations—a setting that had a number of noteworthy consequences for research method (Elwood and Martin, 2000). First, the open and communal nature of basecamps meant that interviews were conducted almost always in a group setting with anywhere between 3 - 10 individuals. This provided the chance to probe contrasting opinions, but also limited opportunities to unpack individual experiences or uncomfortable topics. Second, because *komunitas* are quite hierarchical organizations, junior members often deflected answers to more senior community members, funneling responses towards those with more power, usually either the leader or "field coordinator." I discuss the gender dynamics of this in the following section. Interviews focused primarily on drivers' perceptions of the firms, how working as independent contractors for Grab or Gojek changed their livelihoods, home life, and politics; histories (or lack thereof) of driving the traditional motorbike taxi (*ojek pangkalan*) and, if so, how their labor had changed; how the firms attempt to discipline their work and how they respond to those disciplinary strategies, among other topics. Additionally, interviews often focused on the driver community—its history; who owned the basecamp land; individuals' motivation for participation; community rules; how they balance community activities with earning an income, etc. Interviews with drivers were most often conducted in Indonesian (and occasionally English), facilitated by a local research assistant and interpreter, Ryan Muhammad Fahd.

Interviews with government officials and legal experts primarily involved 'studying up' (Mikecz, 2012; Nader, 1972)—interviewing individuals in positions of power who govern transportation in Jakarta and Indonesia more broadly: officials in the Ministry of Transportation, the Jakarta Transportation Council; the Ministry of Information and Communication and Information Technology; Land Transportation Organization; Indonesian Consumers Foundation; the Jakarta

Department of Transportation, and so on. In general, these interviews focused on their activities in regulating (or not) the platform economy—how they viewed the *ojek* industry, and the regulatory issues related to platformization, its legality, its viability as a mode of mass transportation in Jakarta, their role in governing the ride-hailing firms, how they coordinate with other Ministries and regulators, and how they planned (or not) to situate ride-hailing into ongoing state-led transportation projects such as the massive expansion of heavy and light rail infrastructure in the city.

My interviews with platform firm founders and employees proved the most difficult to secure. I had made some progress by the end of 2019 and had planned to return to Jakarta during the summer of 2020 to follow up on initial contacts. But this plan was disrupted by the COVID-19 pandemic, so I was unable to finish this part of the research. That said, I was able to secure one interview with the Gojek head of Driver Community Relations for Jabodetabek and with the founders of two smaller Indonesian startups that have been working to carve out online *ojek* market share: Anterin and Bonceng. Interviews focused primarily on firm strategy; how the founders/employees understand the problems of, and opportunities presented by, Jakarta's transportation system, the local labor pool, regulatory landscape, competitors; their platform architecture, and relationships with and influence of financiers.

All interviews were semi-structured, with the interview scripts iteratively re-designed to accommodate new information as the study progressed (Rubin and Rubin, 2012). Interviews were audio recorded (unless consent was withheld), translated (if needed), transcribed, and iteratively coded throughout fieldwork in order to refine research questions, classify new themes for comparison between the firms, develop theoretical categories, and identify new lines of inquiry and populations for subsequent interviews (Glaser and Strauss, 1967; Lichterman, 2002). During all interviews, my research assistant and I both took hand-written fieldnotes, which we compared afterwards and collated.

All interview transcripts were imported into Nvivo software for coding, based on a combined set of theoretical codes derived from my conceptual framework, and more inductive codes that emerged out of interview transcripts, such as common experiences across drivers (Glaser and Strauss, 1967). While manual coding methods may provide more flexibility and what Gilbert (2002) describes as a "closeness" to the data, Nvivo allowed for easily managing large amounts of interview transcripts (and field notes) across two languages, and enabled the creation of complex searches as new themes and questions arose during analysis. Following Soss (2006: 136), I treated in-depth interviews not as single event, but an ongoing process constituted by a "set of simultaneous activities that support and direct one another in the field." As such, conversations with interviewees, transcription and translation, coding and memo writing, etc. informed one another. The goal of this process is to maintain links between theory and data through theoretical (Glaser and Strauss, 1967), not representative sampling.

Participant observation

Additionally, I conducted hundreds of hours of participant observation across multiple venues (described below). Distinguished from in-depth interviews, participant observation enables scrutiny of "what people do as well as what they say" and analysis of any discrepancies between them (Emerson et al., 2011; Herbert, 2000: 552). Primarily, this involved participating in and observing at driver community events such as social gatherings (e.g. community anniversary parties), monthly organizational meetings, protests, and fund-raising drives, as well as less structured time spent socializing and observing at a total of 33 driver community basecamps. These visits also enabled for impromptu participation in *komunitas* activities. On several occasions, I had arranged basecamp visits, only to be invited along to participate in a community charity event, a fundraising drive for a fellow driver who needed an operation, or a *pengawalan*—the escort of a deceased driver from his

home to the graveyard. Drivers take this last duty very seriously, with hundreds sometimes thousands of motorbikes escorting the ambulance with the body (see Figure 4).

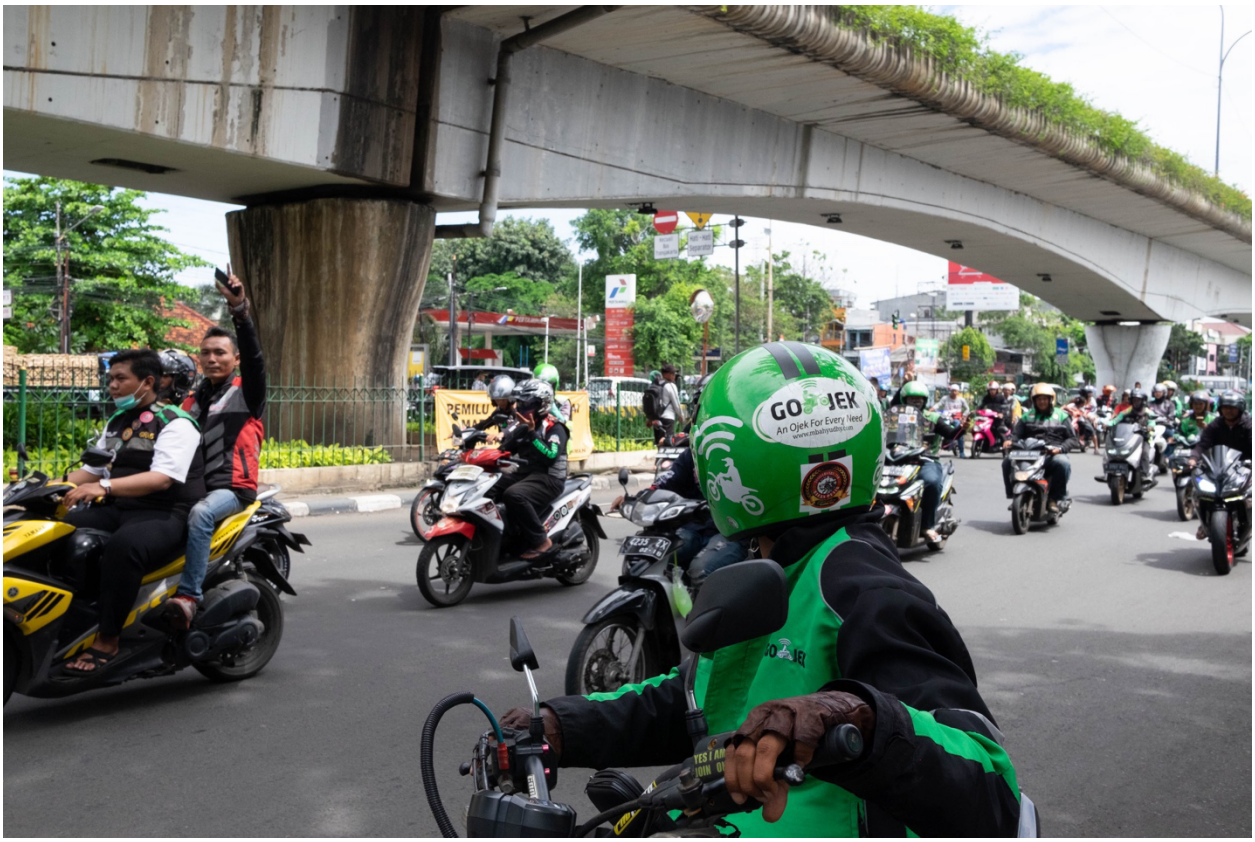

Figure 4: Pengawalan, Central Jakarta (photo source: author)

Taking cues from the mobile nature of my research subjects, I also worked to adjust myself to the "space-time coordinates of the subject position" (Burawoy, 2000: 4), logging over 300 online *ojek* trips, traveling with Go-Jek and Grab drivers as they move about the city. While primarily used as a time for interview recruitment, these trips also enabled observation of how drivers used the platform interface during the course of their work. Immersion in the daily life of Go-Jek and Grab drivers offered me insights into social relationships and interactions that I was unable to capture through in-depth interviews, or that drivers were often uncomfortable speaking about, such as the use of illegal third-party applications that modify the Grab and Gojek apps (what drivers refer to as *aplikasi tuyul*). Additionally, I also conducted observations at a variety of events relating to online *ojek* issues, such

as research presentations, public forums, and digital economy booster events. These instances illuminated the various actors involved in advancing platformization as a site of regulation and as a development strategy. In all instances, my research assistant and I would take field notes, which were collated afterwards and imported into Nvivo for analysis alongside interview transcripts.

Document analysis

To triangulate my other two methods, I compiled and analyzed publicly available primary and secondary sources relating to the *ojek* industry in Jakarta. This data was entered into a database using the qualitative data management software Devonthink, which allowed for coding by theme, and search queries across multiple media. The database includes laws related to transportation in the city (e.g. Law No. 22/2009, which governs land transportation and excludes the *ojek* from being 'public transportation'), firm documentation on strategy, investment, and data architecture (e.g. company blogs, investor reports, etc.), as well as popular media articles in Indonesian and English from prominent publications (e.g. *The Jakarta Post*, *Kompas*, *Nikkei Asian Review*). Pertinent documents and articles were photographed (if necessary), scanned using optical recognition software (if necessary), and tagged for organizational purposes.

I used this database for two analytical purposes. First, I constructed a timeline of key events for the *ojek* industry (the passage of laws, government reports, public protests, firm activities, etc.), situating the data collected by other methods within this longer historical perspective. This sheds light on the conditions of possibility for the emergence of Grab and Gojek, which supplemented by written histories of Jakarta and in-depth interviews with *ojek* drivers, forms the basis of Chapter 2. Second, I used this database to collate, organize, and analyze a range of online resources including online driver forums, WhatsApp groups, and social accounts that have been influential in the Jakarta ride-hailing landscape. For instance, I analyzed the online records for Forum Komunikasi

Pengemudi Online (online driver forum), a group that has been instrumental for organizing app-based drivers, both for information sharing and support, and for more formal legal challenges to app-based transport. Analyzing these online spaces proved critical for understanding how drivers organize to make demands and how digital interactions mediate their social interactions in the city.

Limitations: Power, positionality, and reflexivity

All methodologies have limitations and all researchers their own limits, of course. Both are considerable in this study. Practically, my own language limits were a constant challenge. While I am proficient in formal Indonesian, it is not uncommon to encounter a mix of Javanese, Betawi, and Sundanese in Jakarta, alongside local dialects and colloquialisms unfamiliar to outsiders. I quickly found that my language skills were limited for the type of research I most aspire to. I therefore hired a three research assistants and interpreters over the course of fieldwork. Ryan Muhammad Fahd deserves particular credit for his hard work, insight, dependability, and passion for the project. Ryan picked up on side conversations I could not understand and offered interpretations of more nuanced interactions, inferences, cultural references, etc. that were beyond me. These limits undoubtedly shaped the research process, and the findings reported here.

Outside of these, the extended case method and ethnography more broadly have their own well-documented methodological limitations. Burawoy (1998: 22–25) terms these the 'effects of power.' While intervention into the lifeworlds of research subjects may bring insight into the social forces intersecting with their lives, it also means intervention into a web of uneven power relations—many of which may not be immediately (or, indeed, ever) known to the researcher. To these, feminist scholarship adds a concern with the acknowledgement of positionality and self-reflexivity, both of which are rooted in the assertion that knowledge production is always situated and partial, and therefore should not be obscured behind a disembodied scientist claiming to see "everything from

nowhere" (Haraway, 1988: 581). Without tending into confessional, acknowledgement of the researchers' positionality in relation to their subjects thus means confronting how our race, class, gender, nationality, and other intersecting identities constrain the research process and product, and are imbricated in the relations of power that often marginalize those we study. Self-reflexivity about these power relations does not remove them of course (England, 1994); but to try is to be critical about our positionality and complicity within them, and to narrate how they render our ethnographic knowledge embodied and partial. This section is where I try to do so most directly.

Power and access

Gaining access to driver communities and their socio-technical networks was a protracted process, riven with the thorny politics of ethnographic research with impoverished subjects. It took months until Ryan and I had gained enough trust to be granted access to driver community WhatsApp groups, contacts, and references. In the process, I quickly learned that I was not the only one working to access driver communities. Their huge numbers, dense digital networks, and strict hierarchies generate many social and political resources that other actors seek to exploit. During fieldwork, community leaders reported that they had been approached by politicians and political parties, organized crime and protection rackets, labor unions, the Indonesian state, local businesses, and so on, all speculating on how driver networks could advance their political, social, or economic agendas. Gojek and Grab also have become increasingly aware of the driver community phenomenon, working to tap into their leadership in order to exert influence over their membership in ways exceed the disciplinary technologies of "algorithmic management" (MK Lee, 2018). Not unlike these other actors, I also sought to access and exploit driver community networks for my own purposes of knowledge production. Despite my best intentions and pursuit of questions that I perceive as being aligned with drivers' interests, this fact remains—a difference and discomfort

noted by many ethnographers (Stacey, 1988; Visweswaran, 1994).

An encounter at a basecamp in Tangerang (a peri-urban area that is part of the Greater Jakarta region) forced me to recognize how this worked two ways, however. On the way home after the interview, I received a WhatsApp message from the community leader with whom I had just been speaking. The message started as a thank you, but went on to imply that he would use his influence within driver WhatsApp groups to prevent me from securing further interviews unless I paid him a small sum directly to his bank account. The amount was relatively little, so I paid it; he deleted the incriminating WhatsApp messages and I never spoke with him again. But the encounter taught me about the operations of power in researching such densely networked communities. The same network that I sought to exploit could also be leveraged against me. As I explore in Chapter 4, this was an important lesson in how drivers use their socio-technical networks for own interests, even as actors like myself work to use them for our ends. Drivers are not passive dupes to these external overtures; they use and speculate upon them to advance their own agendas.

Positionality

Like all forms of knowledge production, ethnography is partial, constrained by the sheer temporal and geographical limits of its methodological reach and the researcher's positionality. These limits shape how one abstracts field observations into social processes, foregrounding some voices, actors, and relationships while simultaneously obscuring others.

In my case, this was shaped by my own positionality as a white man from the United States. While we cannot always know *a priori* which aspects of our positionality operate most powerfully[7],

[7] Indeed, I had little control over how my position and role were understood by drivers as stories about me and my research rapidly circulated through WhatsApp groups. On WhatsApp, I was variously a meme, an ally, an ignorant Westerner and, most commonly, a spy for the platforms. This meant that I was often greeted at basecamps as an employee of Grab, Gojek, or Uber (which had already exited Indonesia). Reflecting legacies of American imperialism in Indonesia, (see Bevins, 2020; Robinson, 2018) some drivers inquired after my connections to the CIA.

my gender is one that stands out. Ride-hailing work in Indonesia, as throughout the globe, is heavily male-dominated; it is estimated that only 10-15% of the workforce in the country is female (Fairwork, 2021). While my gender thus eased access to the masculine spaces of the industry, it also marginalized the voices of women in my study. This process was heavily shaped by my conducting interviews at basecamps. As Elwood and Martin (2000: 656) argue, "power and positionality are constituted and evident in the places where we conduct interviews [and this] is yet another way to interrogate the sociospatial relations that we seek to understand in our research." Basecamps are where the hierarchical structure of *komunitas* is most overt, pressuring more junior members to defer answers to higher-ups. This interview setting therefore funneled responses towards those with more power in the community—namely men in leadership positions. Positions like leader, field coordinator, vice-field coordinator, leader of emergency response teams (*unit reaksi cepat*, quick reaction unit), etc. were almost always occupied by men at the *komunitas* I visited (n=33), while positions like secretary and treasurer were often occupied by the few women in the community.

These power relations ultimately work to silence the voices of women in my study, skewing the analysis and reifying the male-dominance of the industry. This operates on two interlinked registers. First, there is the silencing effect of further marginalizing women's voices in an already male-dominated industry and society. There are important stories to tell about the gender dynamics in driver communities—and in the *ojek* industry more generally—that I could not access because of my gender and methodological choices. Second, studying a male-dominated industry has its own silencing effect. Recent feminist interventions have made clear that the existing literature on platform capitalism (Leszczynski, 2019)—and gig labor in particular (Dattani, 2021; Knaus et al., 2021; Reid-Musson et al., 2020; Schwiter and Steiner, 2020)—tend to privilege 'public' industries like ride-hailing, while obscuring 'private' industries like platformized domestic work. This has its own limiting effects on how we conceptualize platformization and my study does little to correct this due

to my methodological limits.

Reflexivity

Ethnographic reflexivity entails recognition of how our positionality, actions, and ideas as researchers are intertwined with our subjects and the lifeworlds we study. Ethnography has a long history of (re)producing categories and concepts that further enable the subjugation of our participants, no matter the researchers' intentions (O'Connor, 2001; Wacquant, 2002). Issues of politics and ethics of representation are numerous—particularly for researchers from the Global North studying impoverished populations in the global South and within the context of geography's imperialist disciplinary past (Griffiths, 2017; Sidaway, 1992)—but I note two here.

First, there is the very real risk of reproducing the same Eurocentrism that provincialization seeks to unsettle. In provincializing platform capitalism through the extended case method, there is the threat of re-inscribing problematic binaries between the Global North and South, and unintentionally shoring up its Eurocentrism. Central to the method is the selection of an 'anomalous' case vis-a-vis existing theory, but this maneuver can lead to normalizing that which it seeks to extend. In my case, the risk is that Jakarta is constructed as anomalous, reducing it to a mere steppingstone towards the extension of Western theory, rather than a decolonial framework that disrupts its Eurocentrism. Within the Anglophone, liberal academy it is thus difficult to divorce our theorization from the powerful isomorphic shape of 'the West.' While I offer a critique of this tendency in Chapter 1, it remains a persistent challenge in postcolonial theory—to varying degrees, we are all Eurocentric.

Second and inter-relatedly, there is the risk of reducing the complexity of research subjects' lives and narrating their experiences in ways that they may not agree with. While I have tried to depict the stories of *ojek* drivers to the best of my ability, there are undoubtably arguments made here that my

subjects will not agree with, or worse, will feel undermine their struggles for survival and thriving in the gig economy. It is for this reason that Visweswaran (1994; see also Stacey, 1988) concludes that ethnography inevitably entails a 'betrayal' in that we develop relationships with subjects only to later report on them for our own purposes and interests. I do not say this as an exercise in confession, but rather as an effort to locate myself within the matrix of power surrounding my research, what Haraway calls "accountable positioning" (Haraway, 1988; see also Visweswaran, 1994: 48).

These limitations and questions of power, positionality, and reflexivity continue to trouble me. I cannot resolve them fully here, so instead conclude as Judith Stacey (1988: 26) does her classic "Can there be a feminist ethnography?"—that is, by leaving "the dialogue open, believing that an uneasy fusion of feminist and critical ethnographic consciousness may allow us to construct cultural accounts that, however partial and idiosyncratic, can achieve the contextuality, depth, and nuance I consider to be unattainable through less dangerous, but more remote research methods."

Summary of chapters

As discussed above, this thesis makes strange—and thereby extends—the existing platform capitalism literature. Each of the chapters contributes to this provincialization, re-examining foundational, processes, and actors of (platform) capital accumulation (Chapter 1): markets and market formation (Chapter 2), the state and regulation (Chapter 3), and labor and workers (Chapter 4). The arguments and contributions of each chapter are summarized below.

Chapter 1: "Provincializing platform capitalism," reviews the existing platform capitalism literature on marketization, regulation, and labor, showing how each projects Euro-American experiences of platformization globally. Working to dislodge this Eurocentrism, I explore the possibilities of provincializing platform capitalism, re-reading these three topics through emerging scholarship from the global South that theorizes how platformization is shaped by (1) the multi-

scalar geographies of data colonialism (marketization); (2) urban informality (regulation); and (3) subaltern politics (labor). Though this emergent literature makes significant contributions, I argue that it cannot be limited to a mere inclusion of case studies from the global South. Provincializing platform capitalism must also strive for epistemological deconstruction and decolonization of Eurocentric knowledge production. Working within rather than against this literature, I therefore work to (re)incorporate postcolonial and decolonial theory into planform studies. Doing so, I suggest, opens up new lines of inquiry into the unique social and political issues presented by platforms in cities across the postcolonial global South.

Turning to Jakarta, Chapter 2: "There are no *ojek* in Paris': The prehistories of platform marketization" traces the largely unwritten history of the *ojek* in the city. While digital platforms are often depicted as innovative new technologies that revolutionize the industries they seek to 'disrupt,' I draw on written histories of Jakarta and in-depth interviews with transportation historians and *ojek* drivers to argue that Grab and Gojek's success in fact relies upon much older organizational forms, technologies, and markets of informal transportation. Examining these "prehistories of platform capitalism" (Steinberg, 2021) provides an historical and geographical critique of the claim that global capitalism has experienced an epochal transformation, entering a brave new world of accumulation based around the extraction of big data by platform intermediaries (e.g. Srnicek, 2016). Rejecting such totalizing analytics by deploying a 'conjunctural analysis,' I show how marketization by platform firms remains embedded within longstanding cultural practices and social infrastructures in the Jakartan *ojek* market. These prehistories show that platformization is not an inevitable outcome of technological development; it is a political economic project requiring incredible labor to 'disembed' the *ojek* market from its pre-existing social, institutional, and territorial relations. I show the uneven outcomes of this process for drivers, as control over their labor shifts from self-developed institutions to multi-national technology firms.

Chapter 3: "Unmapping the *ojek*: Platform governance and in/formality" explores the question of regulation, extending current theorizations "platform governance" (Gorwa, 2019) through attending to urban informality. Historically, the *ojek* has never been recognized as public transportation under Indonesian law and is popularly understood as 'informal' and 'unregulated.' Drawing on postcolonial urban theory and interviews with transportation experts, government officials, and online *ojek* drivers, I argue that, rather than being unregulated, the *ojek* industry is in fact highly regulated at the intersection of various forces including: (1) the strategically selective non-intervention of the Indonesian state; (2) biopolitical subjectification; (3) algorithmic management via the platform; and (4) institutional regulation through grassroots driver communities. From this analysis, I suggest that the existing literature on informality and platformization has become overly pre-occupied with questions of how platformization is reworking boundaries between formal and informal activities. In North Atlantic economies, this is often depicted as an 'informalization' in that platforms re-entrench just-in-time labor regimes, neoliberal deregulation, and the continued breakdown of the Standard Employment Relationship and the Keynesian welfare state (e.g. van Doorn, 2017). In the global South, the narrative is largely opposite; platformization entails a 'formalization' of previously informal spaces, institutions, and markets through digitization. This is an unproductive binary that overlooks how urban informality intersects with platform governance across both North and South and I conclude by exploring how analysis of these issues might be applied to transcend such simplistic dualisms.

Chapter 4: "The social lives of network effects: Speculation and risk in Jakarta's platform economy," published in *Environment and Planning A*, examines platform labor via the concept of network effects—the idea that the more users there are in a network the more useful and valuable it becomes. While the current platform capitalism literature understands the concept in technical and economic terms, I show how network effects are embedded in social relations created and sustained

in everyday urban life by gig workers. Foregrounding these relationships, I show how ride-hailing drivers have attempted to mitigate the risks of their work through building socio-technical networks of their own, with their own effects. Doing so shows how platform firms and venture capital are not the only actors speculating on network effects; rather, a variety of actors and institutions the city-region speculatively seek to leverage driver networks to advance their own ends. I argue that attention to these social lives of network effects reveals new forms of labor organizing that are enabling gig workers to further their own interests of collective survival in the platform economy.

Chapter 1. Provincializing Platform Capitalism

While much is still uncertain about the long-term economic impacts of the COVID-19 pandemic, what has been clear from the outset is the intensification and solidification of the global platform economy, as the lives of billions shifted online like never before. According to one estimate, global venture capital investments more than doubled between 2020 and 2021, from around 77 billion to 158 billion US dollars, a trend that led to the emergence of more unicorns (startup firms valued at more than $1 billion US dollars) than ever before in history (Mohammad, 2021). Overwhelmingly, these newly minted unicorns are platform startups located in the United States, which remains the undoubtable core of the global platform economy. By market capitalization, the "Big Five" (Amazon, Apple, Alphabet, Microsoft, and Meta) publicly traded US platform firms are among the seven largest companies in the world, and US platform startups remain the most numerous and some of the most valuable globally. Increasingly, however, highly capitalized platform firms are emerging in the rest of the world. China accounts for much of this shift (Jia and Kenney, 2021), but formerly colonized countries with large domestic markets and growing numbers of mobile-first internet users—places like India, Brazil, Nigeria, Indonesia—are also seeing large investments, particularly in FinTech platforms (CB Insights, 2021; Langley and Leyshon, 2022; Mohammad, 2021; Pollio and Cirolia, 2022). In short, the platform economy is increasingly moving outside of the Euro-American core, as global venture capital seeks new sites of investment and platform firms seek new subjects of data and rent extraction in the global South.

This trend raises a number of important questions for digital geographers, particularly the nascent sub-field of platform studies (Barns, 2019; Langley and Leyshon, 2017; Leszczynski, 2019; Srnicek, 2016). What social, economic, and technological relations are driving platform capital expansion to the global South? How can digital geographers best conceptualize these growing global

relations between venture capital investment, data extraction, and platform intermediation? But also, epistemologically, what are the limits of extant theories—primarily derived from a Euro-American context—for understanding platform capitalism in cities of the global South?

In this chapter, I make a preliminary effort to address these questions, arguing that a more robust engagement with postcolonial and decolonial theory can extend platform studies as the subfield grapples with a changing geography of platform capital. I organize this argument through a review of three topics that have garnered significant attention in the platform studies literature: marketization, regulation, and labor. In each, I find a "silent referent" (Chakrabarty, 2007: 28), an assumption that the start and end point for theories of platform capitalism is a city located in the Euro-American core. Addressing this Eurocentrism, I argue that it is crucial to destabilize these universalizing but parochial knowledge claims, "provincializing" platform capitalism (Chakrabarty, 2007; Leitner and Sheppard, 2016; Robinson, 2016; Roy, 2009a; Sheppard et al., 2013).

In the second half of the chapter, I therefore re-read marketization, regulation, and labor through emerging scholarship from the global South that explores how platformization is shaped by (1) data colonialism (marketization); (2) urban informality (regulation); and (3) subaltern politics (labor). This scholarship represents a crucial challenge to the US-dominated literature, working to recognize diverse forms of platform intermediation by shifting case studies to the global South (Graham, 2019). Yet, postcolonial theory insists that moving beyond 'the West' is more challenging that it might appear; Eurocentrism is an epistemological problem we all live with, one that cannot be undone by "corrective inclusion" and "geographical inversion" (Roy, 2017: 6; Robinson, 2003; Leitner and Sheppard, 2016). This means that provincializing platform capitalism must also strive for epistemological deconstruction and decolonization of Eurocentric knowledge production. Thus, for each topic, I also work to (re)incorporate postcolonial and decolonial theory, showing the limits of platform studies scholarship that tends towards geographical inversion, without accompanying

epistemological deconstruction.

Platform capitalism

It is now widely recognized that the global economy has undergone a marked re-organization around data and rent extraction by platform intermediaries (Bratton, 2015; Srnicek, 2016; van Dijck et al., 2018). Celebratory accounts of this "platform revolution" contend that digital platforms are drivers of economic development and innovation, enabling easier, more efficient, and more flexible market exchange (Parker et al., 2016; Sundararajan, 2016). From this perspective, platforms provide a digital infrastructure for mediating social and economic interaction between two or more individuals or groups, creating value at scale through coordinating network effects—a socio-technical phenomenon in which the more users there are in a network, the more useful and valuable that network becomes (see Chapter 4). Academic and popular accounts argue that this type of business model will not only disrupt a range of industries, but re-organize basic relationships of capitalist accumulation. In these narratives, markets will become increasingly multi-sided, decentralized, and peer-to-peer (McAfee and Brynjolfsson, 2017); the state will step away from its regulatory responsibilities as platforms innovate forms of algorithmic "self-regulation" (Cohen and Sundararajan, 2015); and laborers will have more freedom in their work, becoming 'on-demand' entrepreneurs who can work when they want, unrestricted by the traditional structure of employment relations (Parker et al., 2016). A growing critical literature questions these claims, however, highlighting platform firms' uneven socio-spatial effects: tendencies towards monopoly rentiership (Christophers, 2020; Langley and Leyshon, 2017; Peck and Phillips, 2021); creation and exploitation of uneven regulatory regimes (Collier et al., 2018); and multifarious means of worker exploitation through techniques of algorithmic management (MK Lee, 2018; Rosenblat and Stark, 2016; van Doorn, 2017).

Taken together, both mainstream and critical scholarship propose the emergence of what Langley and Leyshon (2017) and Srnicek (2016) have influentially called "platform capitalism"—the ways in which capitalist relations are increasingly oriented towards data extraction, organized through algorithms, and intermediated by rent-seeking platform firms. Throughout this chapter, and the dissertation more generally, I focus on three overlapping conceptual areas that have captured particular attention: marketization, regulation, and labor. My selection of these is not intended to be comprehensive, but to exemplify how foundational political economic actors and processes (the firm and market formation; the state and regulation; workers and labor) are reshaped alongside platformization.

Marketization

Scholars focused on marketization emphasize how technological affordances like algorithmic matching engender new modes, processes, and structures of market formation. Platform firms share a business model of connecting and intermediating between distinct user-groups (consumers, producers, advertisers, developers, etc.), bringing them together in a 'multi-sided market': "markets in which one or several platforms enable interactions between end-users and try to get the two (or multiple) sides 'on board' by appropriately charging each side" (Jean-Charles and Jean, 2006: 645; Rochet and Tirole, 2003). While the multi-sided market business model is shared by firms like MasterCard, Nintendo (Rochet and Tirole, 2003) or even a shopping mall (Christophers, 2020), digital platforms enable multi-sided market interactions on an unprecedented scale through harvesting (geolocated) data. In turn, data collection at scale refines firm algorithms, enables micro-targeted advertising, and draws more users to the platform through network effects (Langley and Leyshon, 2017). Srnicek (2016: 48) thus concludes that platforms are "the extractive apparatus for data."

Such an apparatus is not just oriented towards data, but also towards rent extraction from those who access their network (Christophers, 2020; Langley and Leyshon, 2017; Sadowski, 2020b; Stehlin, 2018). As rentiers, platform firms seek to become an intermediary for other processes of capital accumulation—production, circulation, consumption—by controlling access to their network, charging differential rent from various user groups (see Ward and Aalbers, 2016). In this context, rent most often takes the form of service fees, such as Uber's charge to both drivers and passengers, or the Apple App Store's 30% revenue cut from sales made through the platform. Platforms thus exert significant control over those who wish to utilize their network, stipulating not only coercive "terms and conditions," but also price-setting that increasingly reflects the dominant market position of firms like Apple and Google that control access to key digital marketplaces (e.g. the App Store or the Play Store).

These data and rent extractive logics result in structural pressures to retain and grow the platform user base. This is achieved through, for example, offering a variety of services in order to capture different types of data, mergers and acquisitions to expand services and capture new users, and/or platform firms positioning themselves as gatekeepers for particular activities, such as with Google's search engine (Srnicek, 2016). More users create more data, which further refine a platform's competitive advantages, bringing in even more users and more data—a cycle that has strong monopoly tendencies (Peck and Phillips, 2021). As Christophers (2020) concludes, "monopolization is a feature, not a bug" of platform capitalism. Thus, despite discursive claims to lifting up all equally (Gillespie, 2010), platforms are not neutral intermediaries merely facilitating market activity, algorithmically connecting rational-choice 'peers' through a price mechanism. Rather, they both exploit and produce uneven socio-economic relationships by curating extractive connectivities (van Dijck, 2013) and shaping markets they purport only to facilitate through monopolistic, rent-seeking behavior.

Regulation

For proponents, platform architectures enable "self-regulation" through technologies such as mutual ratings systems, users flagging unsafe content, and unpaid moderators. Cohen and Sundararajan (2015), for example, argue that, with Uber's use of GPS-enabled smartphones and driver/passenger ratings systems, there is no need for state background checks on drivers (as in the taxi industry) because the platform marketplace will correct for unsafe drivers through driver ratings. In this way, "platforms should not be viewed as entities to be regulated but rather as actors that are a key part of the regulatory framework in this arena" (Cohen and Sundararajan, 2015: 116–117). According to this perspective, platform architectures enable the state to step away from its regulatory capacities—a veritable self-regulating market.

Political economists have pushed back on these accounts, showing how platform markets are not self-regulating over space and time, but rather are necessarily embedded in institutional, state-regulatory, and legal frameworks (Grabher and König, 2020; Peck and Phillips, 2021; Polanyi, 1944). Legal scholars have shown how platforms engage in "regulatory arbitrage"—exploiting differences between the substance of an economic activity and its regulatory framework (Fleischer, 2010: 230). Platform firms put significant legal and discursive work into creating the "myth of technological exceptionalism," framing themselves as technology companies to avoid industry-specific regulations (Rosenblat, 2018: 34). Through such technological exceptionalism, ride-hailing platforms like Uber, Lyft, Grab, or Yandex strategically avoid both municipal taxi regulations and labor regulations by classifying their workers as independent contractors. This type of discursive framing (Gillespie, 2010; Lanamäki and Tuvikene, 2021; Yuana et al., 2019) enables platforms to elide existing legal regimes and regulatory frameworks, positioning themselves in a liminal space "between sectors and infrastructures, between markets and nonmarkets, between private and public interests, between a

marketplace for goods and services and a marketplace of ideas, *while adopting features of both*" (Van Dijck, 2021: 2810 original emphasis).

Platform firms not only exploit these gaps; they actively produce them. Deploying lobbyists, teams of lawyers, and PR strategists, platform firms actively pursue re-regulation according to their interests. Pollman and Berry (2017: 386) describe this process as 'regulatory entrepreneurship': platform firms are "built around and based upon a plan to change the law—and, in some instances, to simply break the law in the meantime. For these companies, political activity has become a critical part of business strategy." From the platform's perspective, regulatory regimes that limit supply in certain sectors, such as short-term rentals or taxi-cabs, become an opportunity to enter the market with lower prices, scale quickly, and garner public support to change the law (Davidson and Infranca, 2016; Pollman and Barry, 2017). Existing legal and regulatory frameworks are therefore sites of struggle to accommodate or contest data-driven accumulation regimes.

Alongside the growth of "platform urbanism" (Barns, 2019), local states become caught within such political struggles, navigating contradictory regulatory imperatives. On the one hand, city-regions must attract technology investment capital in pursuit of economic growth—a "digital growth machine" (Rosen and Alvarez León, 2022; see also Logan and Molotch, 1987). McNeill (2016), for example, has shown how angel and venture capital firms deploy legal expertise and marketing firms to reshape policy in the California Bay Area towards accommodating platform startups. Similarly, van Doorn (2019) has shown how growing proprietary control over urban data collection places platform firms in a strong political position to favorably reshape housing policy. Together, these dynamics extend growth machine aims "beyond land use intensification and industrial attraction strategies, towards commodifying, and profiting from, wide-ranging aspects of urban spaces and life via digital means" (Rosen and Alvarez León, 2022: 2261). On the other hand, however, platformization has entailed widespread social fallout over the self-proclaimed 'disruptive' effects of

platform firms on housing, transportation, logistics, and labor markets (Collier et al., 2018; Gillespie, 2018; Leszczynski, 2019; McNeill, 2016). Incumbent industries like taxicabs and hotels have taken to the streets and courtrooms to protest uneven regulatory regimes. Gig workers across the globe have pushed back on exploitative labor practices and in California, have successfully lobbied for a state law that would classify workers as employees (AB5, see Dubal, 2022).[8] Caught between competing pressures, local municipalities have experimented with various policy interventions (data-sharing agreements, taxation, bans on operations, public-private partnerships, etc.), creating a variegated policy landscape for urban platform governance.

Labor

Alongside global growth in people securing work through digital platforms (Graham and Anwar, 2019; O'Farrell and Montagnier, 2020), social scientists have sought to theorize the features, geographies, and experiences of platform labor (van Doorn, 2017), sometimes called gig work or on-demand work (De Stefano, 2015).[9] While mainstream economists are quick to argue that labor platforms increase labor market efficiencies and create more 'flexibility' for workers, critical scholars have identified numerous structural features of platform labor that advantage the firm (Graham and Anwar, 2019; Rosenblat, 2018; van Doorn, 2017). On a scale even A.J.P. Taylor could not have dreamed, platforms collect data on individual workers and the labor process in general, enabling techniques of "algorithmic management" such as automated 'nudges' or penalties to incentivize certain types of worker behavior (Jarrahi et al., 2021; MK Lee, 2018; Rosenblat and Stark, 2016;

[8] AB5 was eventually overturned by a voter referendum campaign sponsored by $203 million in funds from Uber, Lyft, Doordash, and Postmates—the most expensive in U.S. history (Dubal, 2022).

[9] On-demand work is distinguished from 'crowdwork,' or 'cloudwork' which are micro-tasks distributed via a platform firm, but are not geographically tethered. Whereas on-demand work (e.g. Uber, Gojek) usually requires worker and end-user to be co-located for all or part of the service, crowdwork platforms (e.g. Amazon Mechanical Turk) do not. I will use the term 'platform labor' because it encompasses both.

Ticona and Mateescu, 2018). The combination of fine-grained surveillance and algorithmic management offers firms significant latitude in experimenting with new (or expanding upon old) techniques of worker control: micro-targeted incentives, performance surveillance, coercive user-interface design, and so on (Lee et al., 2015; MK Lee, 2018; Rosenblat and Stark, 2016; Stark and Pais, 2020). Even as they seek to exercise more control over the minutiae of the labor process, platform firms download risk and responsibility onto workers through maintaining them as independent contractors without access to worker benefits like pension funds, collective bargaining rights, or employer-paid insurance. This is a core tension of labor platforms as they "externalize responsibility and control over economic transactions while still exercising concentrated power" (Vallas and Schor, 2020: 273). The combination of increased risk and responsibility, lack of representation, and unclear or unfair contracts has led to precarious work conditions for the millions engaged in gig work globally (Graham and Anwar, 2019; Graham and Woodcock, 2018).

Without a centralized 'shopfloor,' many have also suggested that platformization is leading to an atomization of work, with concomitant consequences for labor organizing (Collier et al., 2018; De Stefano, 2015; Lee et al., 2015). Gigs are now algorithmically distributed to a spatially dispersed workforce; workers become individual 'entrepreneurs' who no longer have opportunities to meet others in the workplace; management is increasingly coordinated through algorithms, rather than humans; and workers can complete app-based 'gigs' individually without any workplace collaboration. Furthermore, there are internal class divisions with the platform labor force, in particular between part-time and full-time workers—a continued feature of capitalist labor markets that has been exacerbated by labor platforms in that many gig workers piece together a living between different platform employers (Yao et al., 2021). Taken together, these conditions undermine the basis for collective organizing and action.

The increased precarity engendered by digital platforms is not distributed or experienced evenly

across social groups. As Neils van Doorn (2017) has argued, labor platforms re-entrench long histories of radicalized, gendered, and classed divisions of labor within service work. In contrast to optimistic predictions of digital platforms acting as social equalizers of labor markets (Drahokoupil and Jepsen, 2017), gendered and racialized inequalities persist and even grow, with a widening gulf between whiter, wealthier gig workers who can supplement existing income and their less privileged counterparts who often have no other choice (Cook et al., 2021). For this reason, some scholars have argued that these developments are leading to a deepening of a neoliberal labor regime in which temporary, 'just-in-time', precarious work is the norm (Murillo et al., 2017; van Doorn, 2017).

Provincializing platform capitalism

This scholarship has laid out foundational theorizations for how platform capitalist relations are transforming market-formation, capitalist regulation, and the labor process. Nonetheless, both mainstream and critical variants share a common limitation: the vast majority of this research remains focused on the United States and Europe, taking for granted the trappings of Western liberal democracies and their histories of Keynesian-Fordism. This Eurocentrism is perhaps most evident in Srnicek's influential, regulationist account as he traces the roots of platform capitalism to the crisis of Fordism in the North Atlantic economies during the 1970s. But it can also be seen in how various scholars have limited their claims and questions to Europe and North America (e.g. van Dijck et al., 2018; Rosenblat, 2018). The implication is that, since these areas still have the highest concentration of platform firms with the largest market capitalization, they remain the most important and authoritative places from which to theorize platform capitalism. In Latour's (1987) terms, Silicon Valley remains the "center of calculation" for the platform economy, a techno-scientific, economic, and epistemic node from which global transformations reverberate outward

and particular knowledge claims are universalized.

Critiquing such Eurocentrism, scholars have shown how current theoretical frameworks and analytics are "based almost entirely upon the experience of West Coast firms" (Graham, 2019; Hobbis and Hobbis, 2021; Jia and Kenney, 2021; Milan and Treré, 2019; Pollio, 2019; Zhang, 2020). Beyond the US and Europe, there has been an explosion of scholarship on the Chinese platform economy as WeChat and Alibaba permeate everyday social and economic interactions, creating distinct market formations (Zhang, 2020) regulatory interests (Chen and Qiu, 2019; Jia and Winseck, 2018), and labor politics (Chen, 2017; Chen and Sun, 2020) that reflect Chinese state capitalism. Thus, Zhang (2020: 115) critiques the "almost exclusive focus on North American and European societies" in the platform studies literature, showing how the Alibaba platform is embedded within both country's petty capitalist tradition and its state-led logics of surveillance. Jia and Kenny (2021) make similar observations, arguing that the siloing of services characteristic of the monopolistic Western 'Big Five' do not adequately reflect the predominance of large Chinese conglomerates, offering instead the concept of the "platform business group." Going further, Hobbis and Hobbis (2021: 8) suggest studies of China occupy a similarly hegemonic position within platform studies, calling for decentering both "Western and Eastern perspectives that have dominated the agenda of digital studies so far." In short, there is growing recognition of the current geographical limits of platform studies.

As postcolonial theorists have long argued, however, Eurocentrism is an epistemological problem as much as it is a geographical one (Mufti, 2005; Said, 1979; Spivak, 1999). Too often, this work is still framed in terms of how local social, cultural, and political conditions mutate what remains, in essence, the Silicon Valley platform business model of multi-sided markets, rent extraction, network effects, regulatory entrepreneurship, labor subcontracting, and so on. Theoretically, this has the effect of relegating social and historical difference in the global South to

either a 'backwards' state or empirical variation from the core. It is in this sense that Dipesh Chakrabarty concludes that "[o]nly 'Europe'…is theoretically…knowable; all other histories are matters of empirical research that fleshes out a theoretical skeleton that is substantially 'Europe'" (Chakrabarty, 2007: 29). In response, Chakrabarty offers a postcolonial critique to dislodge—or "provincialize"—this taken-for-granted developmental history of the West, what he calls History 1. His aim is to show the Eurocentrism of understanding the Euro-American core as telos, arguing that History 1 is just one amongst many alternatives, comprising what he calls History 2. As Sheppard and et al. (2013: 4) write, "[p]rovincialization thus is a critical strategy whereby the 'universal' is revealed to be no more than a place-holder."

In what follows, I explore the pitfalls and possibilities of provincializing platform capitalism. In this, I am inspired by Milan and Trere's (2019: 321) trenchant critique of critical data studies in which they argue for a "much needed de-Westernization" through giving "voice to distinct data practices and epistemologies emerging in the myriad of Souths, their specific challenges, and the associated demand for alternative models." Thus, in the second half of this chapter, I re-read marketization, regulation, and labor through recent scholarship that searches for such distinct data practices and epistemologies. Doing so brings to light several alternative concepts: data colonialism (marketization); urban informality (regulation); and subaltern politics (labor). Together, these represent a critical response to Eurocentric platform studies by tracing how platform intermediation intersects with distinct postcolonial histories and social practices.

And yet—following Roy (2011: 224)—I am as much interested in the limits of these "itineraries of recognition" as their potential. Simply moving case studies to the global South risks limiting provincialization to a project of recognition with little purchase for disrupting dominant relations of power and knowledge (Leitner and Sheppard, 2016; Roy, 2011). Provincializing platform capitalism therefore also must entail a broader epistemological deconstruction of universalizing Euro-American

theory. As platform capital increasingly moves into the global South, it is certainly necessary for Anglophone scholarship to shift case studies along with it, but not sufficient. Thus, in the following sections, I not only review the emerging literature from the global South on data colonialism, urban informality, and subaltern resistance, but also work to (re-)incorporate postcolonial and decolonial theory into each, seeking to demonstrate how deeper engagement with these bodies of theory can advance platform studies as the sub-field works to theorize the changing geography of platform capital.

Data colonialism

While political economists have focused on how platform architectures enable novel forms and practices of marketization, recent scholarship in media studies theorizes continuities between platform capitalism and the longer histories of imperialism and colonialism that established the global market economy. In particular, the concept of "data colonialism" has gained considerable traction (Couldry and Mejias, 2019a, 2019b; Kwet, 2019; Mouton and Burns, 2021; Thatcher et al., 2016; Young, 2019). For Thatcher et al. (2016), data colonialism[10] is metaphor for digital platforms' extractive activities as they abstract, quantify, aggregate, and alienate individuals' social lives into commodified data sets. Functionally, they suggest this process resonates with capitalism's colonization of previously non-commodified relations and places, amounting to accumulation by dispossession (Harvey, 2003) and the colonization of the lifeworld (Habermas, 1987). Others have examined the growing imperial power of US Big Tech in the global South, as foreign firms establish digital infrastructures of surveillance, economic and cultural domination, and data extraction in formerly colonized countries through programs like Facebook's Free Basics, which offers free access

[10] Mouton and Burns (2021) argue that "digital neo-colonialism" is more appropriate for understanding the more diffuse web of state and non-state actors implicated in domination via digital technologies. While this is a convincing argument, I will continue to use 'data colonialism' as it is the terminology most used in the literature.

to limited internet services (including, of course, Facebook) to millions globally (Coleman, 2018; Kwet, 2019; Mann and Daly, 2019; Young, 2019).

Couldry and Mejias (2019a, 2019b, 2021) go furthest in their arguments, though. In their formulation, data colonialism is no metaphor, but the material basis of contemporary capitalism insofar as the largest firms in the world now accumulate capital through uncompensated, often coercive data extraction. This process is understood as "on a par with the landgrab (the seizure of land, resources and labour) that kicked off historical colonialism," (Couldry and Mejias, 2021: 3) similarly catalyzing a new phase of accumulation based on the conversion of social life into data. Though they are at pains to point out this process is still in early stages, the telos is made clear: "this transformation will leave no discernable "outside" to capitalist production: everyday life will have become directly incorporated into the capitalist process of production" (Couldry and Mejias, 2019a: 343).

Despite the consistent claim that they seek historical continuities with the colonial era, however, their theorization of colonialism itself is quite limited, understood primarily as a mode of resource and labor extraction. They repeatedly state that they are more interested in "colonialism's *function"* rather than "making loose analogies to the content or form, let alone the physical violence" it entailed (Couldry and Mejias, 2019a: 339). In making this distinction, however, they reduce colonialism to an economic mode of extraction, thereby overlooking its discursive, ideological, and racial dimensions. As postcolonial and decolonial theorist like Fanon (1967) and Mignolo (2011) among many others have shown, colonialism's 'function' was equally one of constructing racial difference—discourses of racial inferiority essential to the enslavement and exploitation of unwaged labor and violent dispossession of land from those deemed less than efficient, less than modern, less than human. Though Couldry and Mejias might seek to distance themselves from 'loose analogies,' the fact remains that colonization is unimaginable without this racial project and the violence it

enacted, and continues to enact, against colonized peoples (Segura and Waisbord, 2019).

There are thus severe limits to understanding colonialism—data or otherwise—in absence of the legitimizing cultural, racial, ideological, and epistemological relations long highlighted by postcolonial and decolonial scholars. Ironically, despite drawing most heavily on the Latin American decolonial tradition (see Couldry and Mejias, 2021), they seem to overlook the lessons of its central contribution: what Quijano influentially called the coloniality of power (Mignolo, 2011; Quijano, 2000). Whereas formal colonialism ended with independence, coloniality is an enduring—indeed, the defining—feature of modernity: "Modernity appears when Europe affirms itself as the 'center' of *World* History that it inaugurates; the 'periphery' that surrounds this center is consequently part of its self-definition" (Dussel, 1993: 65). *Pace* Couldry and Mejias, the coloniality of power indicates more than economic relations of extraction; it is an episteme that places Europe at the end of history, universalizing white, European subjects as 'modern' (History 1) while marginalizing indigenous ways of knowing as particular and expendable (History 2).

Decolonial theory thus offers important correctives to data colonialism specifically and the platform marketization literature more generally because it centers the co-constitution of metropole and post-colony, modernity and coloniality. Geographies of the platform economy too often are understood within a "diffusionist world model" (Blaut, 1993: 17) in which Silicon Valley is the dynamic core of innovation, while the rest of the world remains fundamentally ahistorical, only ever imitating the core or passively receiving its digital development inventions such as Facebook's Free Basics program. This understanding—what Chan (2013) calls "digital universalisms"—flattens distinct digital cultures at global margins, reinforces the hegemonic position of European modernity, and ignores how technological innovation in the (post-)colonies shapes the global market economy. Technologies central to capitalist production and marketization such as labor surveillance and control, spatial organization of the plantation/factory, standardization of commodity crops, data

collection, etc. were experimented with and perfected in the colonies (Gilroy, 1993; Mintz, 1985). Central to my purposes here, data management and collection technologies such as the census (Anderson, 2006; Browne, 2015; Cohn, 1984; Hirschman, 1987) and the archive (Spivak, 1999; Stoler, 2002) were essential to colonial rule in that they helped constitute the religious, caste, and racial categories that legitimized dispossession, surveillance, and exploitation of colonized peoples. Colonialism was always data colonialism.

Tracing these continuities underscores the importance of contemporary work on how data collection by platform firms creates and exploits racial categories (Benjamin, 2019; Browne, 2015; Noble, 2018). Safiya Noble (2018), for example, argues that the Google platform reproduces anti-Black racism and patriarchal norms through their search algorithm. Rather than objective tools for processing 'big data,' she shows how Google's predictive search algorithm privileges whiteness while simultaneously reproducing anti-Black racism through, for example, positive predictive search suggestions for "white girls" while offering sexist and racist suggestions for "Black girls" (Noble, 2018). My point here is not to minimize how platform technologies transform the scope of data collection, but rather to illustrate historical continuities between data collection, the construction of socio-spatial difference, and marketization—continuities that Couldry and Mejias largely overlook. The myth of capitalist modernity originating in the West overlooks how technological advancement in the (post-)colonies reverberate globally (Mitchell, 2000).

Take, as a contemporary example, the 'super-app' phenomenon. For the majority world, the internet is accessed through a mobile phone, rather than through the personal computer: "mobile-first" internet users. Super-app platforms like WeChat (Chen et al., 2018) in China or Gojek in Indonesia (Lee, 2018, Nowak, 2021) seek to create a sort of operating system for mobile phones, a portal to internet-enabled services for mobile-first users where they can access news, streaming services, games, payments, transport and delivery, credit, insurance, messaging and social

networking, etc. all through one application. While super-apps dominate in East and Southeast Asia, they are largely absent from Europe and North America. This is for a number of reasons: higher rates of mobile-first internet users; an emphasis on siloing and specialization in Western markets in contrast to the large, diverse conglomerates that predominate in East and Southeast Asia (Jia and Kenney, 2021), but also colonial legacies of uneven and combined development that have engendered their own technological innovations. Indeed, Euro-American firms are now emulating the super-app model. Amidst growing doubts about the profitability of ride-hailing as a business model (Horan, 2017), a disastrous IPO, and the fire-sale of its autonomous vehicle unit, Uber has pivoted towards the super-app model set by firms like Grab and Gojek by acquiring the food delivery platform Postmates and offering financial services.

In seeking to describe a universal foundation of contemporary capitalism as one of data-extractivism, the data colonialism framework thus flattens diverse platform-market formations into a totalizing analytic that glosses over such historical continuities and reciprocally uneven global connections. Epistemologically, this leaves no discernable 'outside' to that which can be colonized by (presumably Western) platforms, overlooks durable racial legacies of historical colonialism, and obscures how other forms of exchange and economic integration co-exist alongside the hegemony of capitalist relations (Calzati, 2021; Hobbis and Hobbis, 2021; Milan and Treré, 2019; Polanyi, 1944). In this way, Calzati (2021: 925) argues that the data colonialism framework itself reproduces colonial logic: "in order to de-colonise datafication and data relations…we need to refrain from literally colonizing them in the first place." Postcolonial and decolonial theory are therefore a crucial for understanding these current global dynamics between data extraction and platform marketization.

Urban informality

As shown above, the regulation and governance of digital platforms has emerged as a major topic of popular and academic debate. Platform firms work to elide, rework, and exploit existing regulatory regimes while also exercising significant power to govern user values and behavior through their technological design (Gillespie, 2018; Gorwa, 2019). Theorizing these dynamics, scholars have offered concepts such as "platform governance" (Gorwa, 2019) "governing platformization" (Van Dijck, 2021), "disruptive regulation" (Collier et al., 2018), "regulatory arbitrage" (Fleischer, 2010), and "regulatory entrepreneurship" (Pollman and Barry, 2017). As is the case more generally, these conceptualizations take for granted the institutional and legal histories of Western liberal democracies, largely neglecting how digital practices are intertwined with unregulated markets and institutions. For instance, Collier et al.'s (2018) concept of "disruptive regulation"—in which platforms like Uber deliberately disregard existing regulatory regimes and then pressure the state to re-regulate according to their interest—presumes a pre-existing legal framework that the platform then subverts.

In much of the formerly colonized world, however, platformization does not entail such "disruptive regulation," but rather the selective incorporation of unregulated, informal markets into platform ecosystems. In Rio de Janeiro, Brazil, Lucque-Ayala and Neves Maia (2019) show how informal settlements are politically and spatially reconstituted through digital platforms like Google Maps, which map favela territories and thereby incorporate them into speculative development projects and state surveillance logics. In Indonesia, the super-apps Grab and Gojek have digitized the informal motorbike taxi industry, which—unlike Uber or Didi Chuxing's 'disruption' of the heavily-regulated automobile taxi industry—has never had any legal recognition at the legislative level, a regulatory void that the firms have exploited and the state has ignored to advance its own interests in attracting technology investment capital (Ford and Honan, 2019; Frey, 2020, see Chapter 3). In India, where as much as 80% of non-agricultural work is outside formal employment relations,

Dattani (2021) has shown how domestic work platforms attempt to enroll this gendered workforce into their architectures while simultaneously eliding their socially reproductive labor. In this way, platform firms seek to digitize ostensibly informal spaces, markets, and social infrastructures of the city in order to make these legible for investment by global venture capital. Such cases have led many to conclude that platformization is leading to formalization in the global South (Cieslik et al., 2021; Ford and Honan, 2019; Frey, 2020; Lanamäki and Tuvikene, 2021; Nastiti, 2017; Stehlin et al., 2020; Yuana et al., 2019).

This is not 'disruptive regulation,' but a distinct regulatory project centered on the passage between the informal and formal. Working to understand the power relations that distinguish between these categories, the postcolonial literature on urban informality offers insights this trend. In general, urban informality describes a set of economic activities and spatial arrangements that are often depicted as outside state sanction, but has grown into a major research strand in urban studies. The concept has variously been conceptualized as an outcome of legal regimes and logics of spatial planning (Roy and AlSayyad, 2004), a set of practices that navigate formal/informal divides (McFarlane, 2012), and mode of urbanization (Roy, 2005). My own understanding draws on Roy (2011: 233) who suggests that urban informality is "a heuristic device that uncovers the ever-shifting urban relationship between the legal and illegal, legitimate and illegitimate, authorized and unauthorized…that serves to deconstruct the very basis of state legitimacy and its various instruments…" Urban informality thus becomes an analytical tool for examining the regimes of power that designate such binaries, unbundling the concept from its frequent association with "territorial formations" of poverty (McFarlane, 2012: 89)—the global South, the slum, the kampung, the favela.

Understood in this way, urban informality is a productive framework to re-examine regulation under platform capitalism for three reasons. First, it offers purchase for analyzing an emergent

economic and developmental paradigm that advances platformization as a means for extracting data and rent from the "bottom of the pyramid" (Prahalad, 2006). A growing set of political-economic actors argue that platform firms can not only profit from digitizing informal market activity, but also promote social welfare by 'unlocking' the entrepreneurial potential of the poor. FinTech firms claim to offer "financial inclusion" to unbanked populations, but often on predatory terms that reproduce colonial relations (Langley and Leyshon, 2022); global development agencies push state liberalization of the digital economy to promote economic growth and tap into previously untaxable transactions (Kearney, 2018); and labor platform firms like Grab, Gojek, and many others promote self-help poverty reduction and job creation through 'formalizing' informal labor markets. Though invested in different outcomes from platformization, these actors all advance formalization through digital platforms, echoing earlier rounds of neoliberal development theory from the likes of C.K. Prahalad and Hernando de Soto.

As Andrea Pollio (2019) has argued, digital platform re-articulate de Soto's thinking through the Silicon Valley discourse of unlocking value in 'idle assets' through platformization: a spare room, a parked car, free time, etc. Inefficient informal economies with a wealth of 'dead capital' (read: idle assets) can be 'modernized' through algorithmic, platform architectures. As with de Soto, the goal is to make legible the world's informal sectors and bring them into capitalist circuits of value, though this time not through establishing private property regimes or credit opportunities, but more so through enrolling pre-existing practices of urban informality into platform architectures in order to extract the wealth from "the bottom of the data pyramid" (Arora, 2016). In this sense, the platform becomes a technology of selective formalization, transferring 'idle assets' from the informal economy into digitized, legible spheres of value (Lanamäki and Tuvikene, 2021; Pollio, 2019). Conceptually, urban informality thus helps situate informal markets in the global South within these larger global circuits of "poverty capital" and financial capital (Roy, 2010).

Second, it guards against reducing informality to an outgrowth of territorialized poverty. Existing conclusions that platformization is leading to a 'formalization' of labor conditions and market activity in the global South (e.g. Cieslik et al., 2021; Ford and Honan, 2019; Frey, 2020; Nastiti, 2017; Stehlin et al., 2020; Yuana et al., 2019) can obscure how informality is a global phenomenon and by no means limited to the marginalized (Fairbanks, 2011; Ghertner, 2015; Sheppard et al., 2020). Scholars have drawn attention to practices outside existing legal regimes that are condoned or even valorized by the state for purposes of economic growth and 'world-class city' development: elite informality (Moatasim, 2019). Similarly, platform firms regularly flout existing legal frameworks in daily operations, undertake illegal activity such as Uber's Greyball program or unsanctioned data harvesting, and incorporate changing the law into their business plan. That these activities are commonly understood as "regulatory entrepreneurship" or "disruptive regulation"—not elite informality—is telling. It marks the geographic limits to current understandings of platform regulation, which remain either inflected with Eurocentric legal and institutional norms or essentialize informality as an outgrowth of the global South.

Lastly, urban informality centers how designations between formal and informal are an expression of the state's sovereign power (Roy, 2005). The work of Lanamäki and Tuvikene (2021) illustrates how this insight translates into platform regulation. Through their analysis of Uber's entry into Estonia, they show how 'world-class' aspirations for the country's digital future legitimize Uber's extra-legal activities while simultaneously criminalize their non-digital counterparts (see also Kębłowski and Rekhviashvili, 2020):

> "the novelty of platform economies, as well as their future promises and use of digitality justifies for regulators the positive approach in the face of apparent illegality. It is a selective acceptance of informalities, wherein the digitalized "elite informality" is accepted but the nondigital forms of informal economic activities remain outside the purview of formalities and are criminalized." (Lanamäki and Tuvikene, 2021: 8)

In short, stimulating the platform economy becomes another axis around which the state designates

categories of legal and illegal, formal and informal, accepted or criminalized. Postcolonial urban theory thus provides tools for interrogating these logics of state power and their uneven consequences for urban residents across all cities. In Roy's terms, it enables asking "Third World questions of the First World" (Roy, 2003b: 466) in order to question the dominant claims of Euro-American theory and, in doing so, generate theory that transcend false dichotomies between North and South.

Subaltern (glitch) politics

Much of the existing platform labor scholarship foregrounds gig workers as subjected to new forms of precarity, alienation, and individualization (Rosenblat, 2018; Ticona et al., 2018; van Doorn, 2017). In these conceptualizations, platform capitalism is understood as a retrenchment of neoliberal labor regimes, in which platforms are "active agents in the reconstitution of labor relations and the nature of work, further institutionalizing the tenuous post-Fordist social contract…" (van Doorn, 2017: 902). As Munck (2013: 752) once argued around the emergence of the supposed global 'precariat' class, however: "While the precariat discourse exudes a nostalgia for something which has passed (the Keynesian/Fordist/welfare state), it does not speak to a South which never experienced welfare state capitalism." Similarly, the idea that platformization automatically leads to increased precarity largely presumes the prior existence of Fordist norms such as a stable middle class, the standard employment relationship, strong labor unions, and the welfare state—conditions that do not reflect the much of the global South where the 'urban majority' already pieces together a living through temporary, precarious means (Simone, 2014). In their study of crowdwork in Nigeria, Elbanna and Idowu (2021: 1) thus conclude increased precarity should not be a foregone conclusion; doing so reproduces a "Western conceptualisation [by] assuming that crowdworkers in developing countries imitate their Western counterparts, without close examination of their

experiences and responses to work conditions."

Offering such 'close examination,' scholars have increasingly documented the 'subaltern' agency of marginalized gig workers as they organize to improve their working conditions (Anwar and Graham, 2020). Coined by Gramsci in "The Southern Question," the notion of the subaltern was taken up by Subaltern Studies Collective scholars like Ranajit Guha, Sumit Sakar, Partha Chaterjee and Gayatri Chakravorty Spivak to refer to marginalized and subordinated subject positions that had been overlooked by Indian historiography. Throughout the 1980s and 1990s, the Subaltern Studies Collective expanded the concept from a condition of marginalized groups to a theory of historical change through the political agency of the marginalized—"the politics of the people" (Guha, 1988: 40). Subaltern politics refers to different strategies of challenging existing power relations "ranging from everyday forms of resistance, via rights-based campaigns on the terrain of civil society and participation in electoral democracy, to armed struggles for revolutionary transformation" (Nilsen and Roy, 2015). Scholars have increasingly sought to document and theorize the subaltern politics of gig workers as they work to subvert algorithmic governance and enact change in the platform economy.

A key finding of this scholarship is that gig workers draw on longstanding practices of subaltern resistance (Scott, 1990) and social infrastructures (Simone, 2004) developed by an urban majority that never had access to the standard employment relationship or the welfare state (Anwar and Graham, 2020; Chen, 2017; Ford and Graham, 2016; Frey, 2020; Soriano and Cabañes, 2020). Soriano and Cabañes (2020), for example, show how Filipino gig workers create online networks for information sharing, support, and solidarity to improve their working conditions but, by the same token, these networks also normalize working conditions in the gig economy, disciplining workers according to principles of flexibility and entrepreneurship. Graham and Anwar (2020)—channeling Scott (1990)—seek to document what they call the "hidden transcripts of the gig economy."

Examining Malay peasants' less visible, everyday forms of resistance such as foot-dragging, false compliance, sabotage, desertion, etc., Scott (1985: xv) argues that "subordinate classes throughout most of history have rarely been afforded the luxury of open, organized, political activity." Anwar and Graham (2020) similarly suggest that gig workers engage in small-scale 'hacks,' algorithmic subversion, and digital reworking, and that attention these reveals subaltern gig worker agency.

Taking up this call, others have highlighted individualized and collective digital practices that gig workers use to resist algorithmic exploitation and control (Anwar and Graham, 2020; Chen, 2017; Ferrari and Graham, 2021; Kellogg et al., 2020; Tassinari and Maccarrone, 2020). For example, Chen (2017) and Qadri (2020) have shown how ride-hailing drivers manipulate platform algorithms though the use of third-party applications that provide false GPS coordinates to the platform's algorithm, 'placing' them in more advantageous locations to get orders. This digital practice subverts the spatial distribution of supply and demand that is central to platform mobility markets, reworking the algorithmic basis of platform capital accumulation. At the collective level, Iazzolino (2021: 12–13) examines how coordinated logoff events by Uber drivers in Kenya "disrupt the two-pronged mechanisms of value creation both blocking the transport service and stopping the production of data."

Taken together, this scholarship offers a critical challenge to what remains a predominantly Eurocentric account of platform labor politics characterized by atomization and increased precarity. Nonetheless, postcolonial scholarship—and in particular Gayatri Chakravorty Spivak—can deepen this body of literature by attending to the representational politics of "digital subalterns" (Kent, 2008). In her essay *Can the Subaltern Speak?*, Spivak critiques interventions that seek to give voice to subaltern subjects, interrogating the extent to which the absence of the subaltern in Western historiography can be rectified through better documentation. She suggests that the urge to recover subaltern agency has its own silencing effect; the impulse to "speak for" reproduces hegemonic

colonial and patriarchal ideologies that, in turn, justify colonial and patriarchal interventions. In her words, it is an "itinerary of recognition through assimilation of the Other" (Spivak, 1999: 281). Though there have been various interpretations and refutations over the intervening decades, Spivak's critique invariably draws attention to the ethics and politics of representing subaltern subjects and agency; her answer to the essay's title is a resounding 'no'. For those seeking to document the subaltern politics of gig workers, Spivak's important question persists: can the (digital) subaltern speak? What are the epistemological and methodological limits of recovering subversive digital practices in the labor politics of platform capitalism?

One, Spivak might suggest, is privileging the implicitly male subject as the agent of historical change. Overwhelmingly, literature on gig worker resistance focuses on male-dominated industries like ride-hailing. Recent work has criticized such "techno-masculinist" conceptualizations for overlooking "feminist politics of the urban everyday" (Leszczynski, 2019). In particular, Black, feminist, and queer code studies theorization of 'the glitch' has garnered significant attention (Russell, 2020; see also Menkman, 2012). In everyday parlance, a glitch is understood as a failure, mistake, or disruption in a digital system. Turning this commonsense understanding on its head, Legacy Russell asks: under intersecting social 'operating systems' of heteronormativity, patriarchy, and white supremacy, when is a glitch not an error, but a necessary erratum? For Russell (2020: 27), the glitch is a generative space of politics, a moment of disruption that allows for recognition and reimagining of normative social orders: "through the digital, we make new worlds and dare to modify our own."

Dattani (2021) mobilizes this conceptualization, showing how attempts to "Uberize" domestic work in Delhi, India assume a universal, predominately male ride-hailing workforce, overlooking intersections of caste and gender amongst domestic workers—assumptions that lead to 'glitches' in the operations of these firms and ultimately their failure to deliver on investor speculation. Rather

than in everyday 'hacks' or 'hidden transcripts,' she locates subalternity in glitch politics. Doing so offers a different position from which to provincialize Western frameworks (Chakrabarty, 2007; Leitner and Sheppard, 2016; Sheppard et al., 2013). As she writes, "Applying the framework of the glitch in this context then, as well as highlighting the patriarchal socio-spatial relations that govern women domestic workers' lives, provides us with further questions on the emergence of platforms in cities of the global South and the need to complicate Northern-rooted platform economy narratives" (Dattani, 2021: 390). For Dattani, provincializing platform capitalism is thus also a project of decentering techno-masculinist conceptualizations of politics, recognizing already-existing, contradictory, and embodied subaltern glitch politics in the urban everyday.

This leads to a second point, namely the theoretical pitfalls of representing subalternity as a monolithic subject position or class 'in itself.' As postcolonial scholars like Spivak (1999) and Sharad Chari (2004) have argued, subaltern politics cannot be reduced to issues of class, but unfold in heterogeneous ways alongside other axes of oppression. In platform studies, this means recognizing the sometimes-contradictory politics that emerge as subaltern subjects use digital technologies for survival and thriving. Amit Rai (2015: 986) for example, draws on the South Asian tradition of *jugaad/jugaar*—"subaltern, or 'nonelite' strategies of negotiating conditions characterised by extreme poverty, discrimination, and violence"—exploring how practices like piracy, recombination, and hacking are adopted into the platform economy. Rather than celebrating these digital practices as a subaltern politics from below, he shows how *jugaad* practices and discourses are taken up by other, more powerful actors, from the state to the platform firms themselves.

Thus, while I am sympathetic to the project of documenting subaltern politics under platform labor regimes, it is also critical to not overly-romanticize 'hacking' platform capitalism through, for example, manipulating ride-hailing algorithms with fake-GPS applications, or even online and offline organizing amongst gig workers. Postcolonial critique is a reminder that, even as workers exercise

agency within these structures of exploitation and extraction, paradoxical forms of political agency emerge in ways that can expand platform and state power; cultural and material practices of 'resistance' can also deepen social structures of domination (Bourgois, 2002; Willis, 1978).

Conclusion

The emerging field of platform studies stands at an inflection point marked by two, intersecting trends. The first is geographical. Increasingly, venture capital, private equity, and US Big Tech platforms have expanded into growing 'mobile-first' markets searching for new sites of platform accumulation in the global South. Digital platforms, we are told, will promote economic development in low and middle-income countries by 'formalizing' informal economies and labor markets, which are repackaged as a wealth of untapped data in order to fuel speculative investment by global venture capital (Arora, 2016). Through platformization, the urban majority are recast as resourceful 'entrepreneurs' that can maximize their idle assets, but also as a growth market: the data at the bottom of the pyramid. The other trend is epistemological. Scholars are increasingly acknowledging the current limits of existing theoretical frameworks and analytics, which remain undeniably Eurocentric. Theories of platform capitalism—whether focused on marketization, regulation, or labor—are inflected with universalizing assumptions that do not adequately capture the distinct histories and geographies of the global South.

In this chapter, I have explored the possibilities for provincializing platform capitalism, arguing that postcolonial and decolonial theory can offer waypoints as the subfield navigates these twin shifts. I see this as an important intervention insofar as there remains an unspoken assumption that one leads to the other—that a relocation of case studies to the post-colony will necessarily entail provincialization. Postcolonial and decolonial theory reminds us that the 'West' is much more than a

geographical location, meaning that platform studies' Eurocentrism cannot be dislodged through better documenting diverse experiences of platformization in the global South. Rather, provincializing platform capitalism must outreach must "itineraries of recognition" and "corrective inclusion" by attending to Eurocentrism as an epistemological problem (Roy, 2011: 224; see also Leitner and Sheppard, 2016). Bringing this injunction to a review of recent scholarship in platform studies, I re-examined marketization, regulation, and labor through three parallel concepts: (1) data colonialism; (2) urban informality; (3) and subaltern (glitch) politics. Working within, rather than against this literature, I illustrated how postcolonial and decolonial theory can shore up these areas of inquiry, interrogating theories of platform capitalism based in Euro-American experiences and offering insight into unique social and political issues presented by platforms in cities across the global South and beyond.

Chapter 2. "There Are No *Ojek* in Paris": The Prehistories of Platform Marketization

"Markets have a history; they also have a future that cannot be reduced simply to an extrapolation of the past." (Çalışkan and Callon, 2010: 24)

"There are no *ojek* in Paris," the Indonesian writer and social critic Seno Gumira Ajidarma (2015) once reflected, referring to the informal, unregulated motorbike taxis that weave through his home country's streets. In an essay of the same name that he wrote while living in France, Ajidarma contemplates a map of Sudirman-Thamrin road, the largest thoroughfare in Jakarta and a landmark of President Sukarno's postcolonial infrastructure development program. The map plots where one might find a *pangkalan ojek* (motorbike taxi stand)—a regular location where a passenger could hail a motorbike taxi driver and negotiate a price to their destination. Going into some detail, it lists the number of taxis available at each *pangkalan* (at Karet station, 200 bikes available between the hours of 6am - 11pm), and even the phone numbers of drivers who could be contacted for hire (at Bendhill, call Nano for pickup). For Ajidarma (2015: 150, my translation) the map is remarkable because it plots "that which is seen but not noted down in Jakarta," foregrounding how the *ojek* had become a vital part of the city's transportation system during the 1990s and 2000s even as the Indonesian state persistently failed to condone it with legal recognition.

Less than decade later, the map of available *ojek* in Jakarta looks quite different. Since 2015, the platform firms Grab (based in Singapore) and Gojek, its Indonesian rival, have sought to digitize the *ojek* industry by offering a platform for urban mobility, transforming Ajidarma's map of once-stable locations into to a dynamic, real-time, digital map accessible to anyone with a smartphone. *Pangkalan ojek* are now few and far between as both customers and drivers have shifted to these online platforms, which offer door-to-door service, subsidized prices, and a sleek 'modern' look to what is widely perceived as a 'backwards' industry. Catalyzing this transformation has been a massive influx

of foreign investment into Indonesia's platform economy; Gojek and Grab have become two of the largest companies in the country and their success has sparked further financial speculation by tech companies, venture capital, and private equity firms (Baijal et al., 2021). Courting these investors, the Joko Widodo (Jokowi) Administration has embarked on a wide-scale liberalization of Indonesia's digital economy in the belief this will push the country through the so-called middle-income trap. Within less than a decade, then, the *ojek* has transformed from a highly localized, spatially fragmented market organized around the *pangkalan* into an integrated platform market backed by global finance capital and endorsed by state interests. How did this happen? How did the *ojek* go from 'that which is seen but not noted down' to a service fundamentally based on real-time, geospatial data? How did the *ojek* become Gojek?

In this chapter, I examine the conditions of possibility and 'marketization' processes (Çalışkan and Callon, 2009, 2010) that enabled such a transformation. In doing so, I push against existing conceptualizations of platform marketization, which remain inflected by totalizing, teleological claims. The core thesis of the platform capitalism literature is an epochal assertion: as with Fordism or post-Fordism after it, capitalism has entered a new regime of accumulation based around the extraction of big data by platform intermediaries (Langley and Leyshon, 2017; Pasquale, 2017; Srnicek, 2016). In its most extreme form, platformization is depicted as a colonizing force that will incorporate all aspects of social life into capital circuits through ubiquitous data extraction (Couldry and Mejias, 2019b). Rejecting these totalizing analytics, I argue for and employ a 'conjunctural analysis' that foregrounds the interplay of macro-structural forces and their concrete instantiations in varying social and geographic contexts (Goldman and Narayan, 2021; Gramsci, 1971; Hall et al., 1978; Hart, 2016; Leitner and Sheppard, 2020; Peck, 2017). Doing so reveals how Grab and Gojek have reworked—but not entirely disembedded—long-established market formations, cultural practices, and social infrastructures in the Jakartan *ojek* market (Simone, 2014)—what Steinberg

(2021) calls the "prehistories of platform capitalism."

Conjunctural thinking offers new meaning to Ajidarma's seemingly banal remark. To say that there are no *ojek* in Paris is, on the one hand, a call to understand the *ojek* as an outgrowth of historical and geographical differences distinct to Jakarta and many cities of the global South—legacies of colonial planning, predominance of informal labor markets, uneven geographical development, rapid urbanization, and so on. But on the other, it is also a call to theorize the global connectivities that place Jakarta and Paris in relationship with one another. In the rest of the essay, Ajidarma rejects Western ideals of walkable cities, deconstructing the assumed modernity of Paris's transport infrastructure and arguing that the *ojek* persists in Jakarta because people need it; "the *ojek* is testament to creativity in the struggle for survival by the lower classes" (Ajidarma, 2015: 150, my translation). Inspired by Ajidarma's dual provocation, I structure my conjunctural analysis accordingly, using theories and concepts from the 'marketization' literature (Çalışkan and Callon, 2010). First, I draw on written histories, in-depth interviews with *ojek* drivers and transportation experts, and political-economic analysis of the motorbike manufacturing industry in Indonesia in order to analyze the conditions of possibility for Grab and Gojek, tracing the largely unwritten history of the *ojek* in Jakarta. Second, I locate these prehistories within global circuits of venture capital and "poverty capital" (Roy, 2010), showing how various 'marketizing agencies' have sought to revalue the world's informal sectors as the "bottom of the data pyramid" (Arora, 2016). Third, I detail how these global forces intersect with the *ojek* market in Jakarta, and the 'pacification' labor necessary to disembed the online *ojek* market from its pre-existing social, institutional, and territorial relations. Finally, I analyze the how this process has transformed the dominant socio-spatialities of the market, questioning the epochal claims of the platform capitalism thesis.

Platform marketization

Following the 2007-8 financial crisis and the subsequent rise of digital platforms like Uber, Airbnb and TaskRabbit, scholars have sought to theorize how algorithms, platform architectures, and big data are reconfiguring market formation (Langley and Leyshon, 2017; Srnicek, 2016; van Dijck et al., 2018). As intermediaries in multi-sided markets (Rochet and Tirole, 2003), digital platforms connect different user groups while simultaneously collecting data and rent from those who interact on their platform. Gojek, for example, connects end-users who want an *ojek* with 'driver-partners' who provide it, collecting service fees and data (location, time, ratings, etc.) from both groups as the intermediary. Amongst economists and in tech discourse, platforms are thus often depicted as a neutral, digital marketplace that algorithmically connects supply and demand through a price structure that incentives participation from different 'sides' of the multi-sided market (Parker et al., 2016; Sundararajan, 2016).

A growing number of scholars employ a 'marketization' approach to critique this conceptualization, showing how platform market formation is a social, technical, cultural, and political process rather than an idealized equilibrium reached by individual market actors (Çalışkan, 2020; Callon, 2016; Langley and Leyshon, 2017; Richardson, 2020b; Williamson, 2021). Though there are multiple theoretical traditions within the sociology of markets, studies in geography have tended towards the 'performative school of thought' (Çalışkan and Callon, 2009; Callon, 1998b; Cohen, 2018; Fligstein and Dauter, 2007). Heavily influenced by science and technology studies, and in particular Bruno Latour and Michel Callon, this framework suggests that markets are the precarious result of a wide range of actors and technologies 'performing' them—they actively construct that which they purport to only describe (Callon, 1998c; Mackenzie, 2008). The initial claim that economics performs and shapes the economy rather than just observing it (Callon, 1998c) has grown into a robust research agenda that explores the increasing role of market-making and market-rule "as radical translation processes, which ensure that economic and social realities are

brought into line with the laboratory conditions of economic modeling – allowing the radical project of neoclassical economics to realize itself" (Berndt and Boeckler, 2012: 199). From this perspective, the constellation of actors constructing a market cannot be known *a priori*, requiring the study of individual *agencements*—assemblages that bring together knowledge, calculative technologies like algorithms, material resources, institutions like unions and banks, academic theories, etc.

Influentially, Çalışkan and Callon (2010) expand upon this core insight by identifying five critical sites of inquiry. In their view, marketization entails (1) the 'pacification of goods' and services into commodified, standardized property; (2) the definition and valuation of goods by 'marketizing agencies,' understood as people and institutions, but also algorithms, law, and other more-than-human technologies; (3) 'market encounters' between goods and the agencies that value them; (4) struggles between different agencies over value as expressed by 'price-setting', and; (5) the 'design and maintenance' of markets such that they reproduce market-rule. This framework has been mobilized to examine a wide range of markets including housing (Fields, 2018), agriculture and livestock (Berndt and Boeckler, 2012; Ouma, 2016) and education (Williamson, 2021). Fields (2018), for example, analyzes the construction of single-family rental housing as an asset class in the wake of the 2007-8 financial crisis, showing the pacification work necessary to reframe single-family homes away from their crisis associations and once again into a profitable investment. Beyond cataloguing the actors and marketization processes involved, this scholarship teases out how market-making is always incomplete, and therefore always subject to potential glitches, breakdowns, and antagonisms: "Revealing markets as provisional assemblages reminds us markets, and market rule, can also be disrupted" (Fields, 2018: 122). This presents markets as sites of uneven power struggles, demanding investigation for both academic and political reasons (Burawoy, 2003; Cohen, 2018; Garcia-Parpet, 2007; Polanyi, 1944).

A persistent critique of this literature has been that it fails to account for how micro-scale

marketization processes (e.g. pacification) are situated in, and articulate with, broader political economic structures (Braun, 2016; Christophers, 2014; Fine, 2005). Critics contend that performative approaches focus too narrowly on cataloguing and describing the arrangement of calculative technologies and agents, overlooking macro-economic systems, power asymmetries, and history (Fine, 2005). Christophers (2014) argues, however, that these differences are often over-stated. Indeed, a number of geographers have demonstrated how performative approaches can be productively interwoven with Gramscian and Polanyian political economy in order to examine the geographies of marketization (Çalışkan, 2020; Christophers, 2014; Cohen, 2018; Fields, 2018; Ouma, 2016). For example, in his study of linkages between farmland and finance, Ouma (2016) extends Callon and Mezzadra and Neilson (2015), proposing an 'operations of capital' perspective to meld these literatures and historicize financialization within particular historical conjunctures, rather than a universal condition of the modern economy. Cohen (2018) similarly argues that attention to Gramsci and Polanyi can extend the marketization literature by highlighting how cultural and spatial relations shape the construction of market hegemony: the places, networks, territories, and scales of market rule. This raises the methodological challenge of unraveling "how market devices, market structures and forms of capitalism are interwoven – that is, to establish both micro–meso and meso–macro connections' (Braun, 2016: 258). Following these authors, I suggest that Gramscian 'conjunctural analysis' can extend studies of platform marketization for reasons I detail below.

Conjunctural analysis

While the notion of an historical conjuncture has become increasingly popular in recent years (Hart, 2016; Leitner and Sheppard, 2020; Peck, 2017; Sheppard, 2018; Sheppard et al., 2015), its roots lie in Marxian political economy, and in particular the writings of Lenin, Althusser, and

Gramsci. My own understanding draws most centrally on Stuart Hall's reading of Gramsci (Hall, 1986, 1987, 1996) conceptualizing a conjuncture as "a period during which the different social, political, economic and ideological contradictions that are at work in society come together to give it a specific and distinctive shape" (Hall and Massey, 2010). Conjunctural analysis seeks to unravel the specific relations between these general, structural conditions in a society and particular, 'conjunctural' forces within concrete historical periods. This involves "looking at the social, political, economic and cultural contradictions in any particular period of political settlement, and trying to understand how they are articulated to produce that settlement"(Rutherford and Davison, 2012: 5–6). Stuart Hall and colleagues (1978) laid out a methodological foundation for this approach in *Policing the Crisis*, a collaborative conjunctural analysis of how the growing crisis of Fordism in the British economy was articulated through racialized concerns over 'mugging'—a perceived cultural crisis that legitimized the rollout of a law-and-order state that presaged Thatcherism. Critically, *Policing the Crisis* centers cultural, political, and racial 'relations of force' rather than ceding primacy to economic relations, insisting that conjunctural analysis demands parsing complex articulations between economic and extra-economic, general and particular.

Though Gramsci (1971: 397) in *The Prison Notebooks* cryptically notes that conjunctural analysis involves examining "the various levels of the relations of force," the geographical underpinnings of such an approach remain largely underdeveloped. Seeking to address this lacuna, geographers have sought to spatialize conjunctural analysis (Hart, 2016; Leitner and Sheppard, 2020; Peck, 2017; Sheppard, 2018; Sheppard et al., 2015). For Gillian Hart (2016: 3) a spatialized conjunctural analysis deepens postcolonial Marxism by bringing metropole and post-colony "into the same frame of analysis, as connected yet distinctively different nodes in globally interconnected historical geographies – and as sites in the production of global processes in specific spatio-historical conjunctures, rather than as just recipients of them." Thinking through Jakarta, Sheppard (2018)

similarly employs what he calls a 'positional' conjunctural analysis, arguing that marginalized spaces are not merely sites of empirical variation or passive recipients of Western capitalist development, but are systematically caught up in global relations of uneven geographical development (Massey, 2005). Theorizing from such marginalized spaces where globalizing capitalism has failed to deliver prosperity for all—what he calls its 'raggedy edges'—thus becomes critical for challenging and reworking Euro-American theory. In this vein, Leitner and Sheppard (2020: 495) suggest that adding a geographical dimension to conjunctural analysis means stretching "explanatory frameworks not just backwards in time, but also outwards in space (identifying how local events are shaped by distant processes), and upwards and downwards in terms of geographical scale…"

Following Sheppard and Leitner, I argue that a spatialized conjunctural analysis can extend micro-processes of platform marketization 'outwards in space' and 'backwards in time.' Spatially, platformization is still often conceptualized through a "diffusionist world model" (Blaut, 1993), in which Silicon Valley ideas, technologies, and capital travel outwards unchanged—a new "data colonialism" that will leave "no discernable 'outside' to capitalist production: everyday life will have become directly incorporated into the capitalist process of production" through the conversion of social life into data (Couldry and Mejias, 2019a: 343). Hobbis and Hobbis (2021) critique such totalizing analytics for failing to consider other forms of exchange that co-exist with platform capitalist relations (c.f. Polanyi, 1944). Drawing on ethnographic fieldwork in the Solomon Islands, they show how residents utilize Facebook Buy and Sell groups for exchange that prioritizes social relationality and interdependence over individual wealth accumulation. They conclude that the current platform capitalism literature is thus "unable to think beyond capitalist presences, ignoring contemporary, longstanding other economic systems of production, distribution and consumption" (Hobbis and Hobbis, 2021: 2). Temporally, the existing literature remains caught up in regulationist narratives of epochal transition within capitalism (Aglietta, 1979; Langley and Leyshon, 2017). As

Steinberg (2021) points out, this conceptualization rings of technological determinism: new technologies do not necessarily entail new social and organizational forms. He argues that the 'platform' as an organizational technology does not emerge out of the post 2007-8 financial crisis, as it is often depicted (Srnicek, 2016); rather, it originates in Toyotist 'just-in-time' automobile manufacturing during the 1980s and 1990s. In this way, "Toyotism contains the forgotten prehistory of platform capitalism" (Steinberg, 2021: 6). In short, "epochal and geographically totalizing iterations of the platform capitalism concept remain dominant" (Steinberg, 2021: 5).

In the remainder of this chapter, I reject these totalizing and teleological spaces and times of platform marketization, instead employing a conjunctural analysis to analyze the socio-technical work of producing a platform market, in my case the online *ojek* in Jakarta.

The prehistories of platform marketization

Recognizing markets as provisional and conjunctural outcomes highlights the historical dimensions of platform market formation (Callon, 2007; Fields, 2018). As Callon (2007: 335) writes, "markets are the temporary and fluctuating result of conflicts and the constantly changeable expression of power struggles. The history of these struggles is incorporated into markets…" Following this line, I trace the prehistories of platform marketization in Jakarta. Drawing on written histories of city, in-depth interviews with transportation historians and *ojek* drivers, and political-economic analysis of motorbike manufacturing in Indonesia, I piece together how the *ojek* became "that which is seen but not written down in Jakarta" (Ajidarma, 2015: 150).

Jakarta's informal transport markets 1945 - 1997

The history of the *ojek* is, at once, that of the *becak* (thee-wheeled cycle rickshaw). During the post-independence era and into the early 1970s, *becak* were the "king of the streets' in Jakarta, an

indispensable means of door-to-door transportation in its densely populated *kampungs* (Jellinek, 1991: 184). Whereas elite areas of the city that once housed colonial officials (Menteng, Kebayoran Baru, etc.) have wider streets and sidewalks that allow for easy biking or walking, *becak* were essential for navigating within and between the *kampungs* that had historically been neglected by the colonial administration. "Out of necessity," Cervero (2000: 114) writes, "Jakarta's informal transport and housing sectors are co-dependent." In her study of the Central Jakartan neighborhood of Kebon Kacang, Jellinek (1991: 60) describes the *becak*'s multiple functions within the *kampung*:

> The rich used *becak* drivers to chaperone their children to and from school. Traders used *becak* to transport their raw ingredients to and from the market. Housewives used *becak* to ferry them to and from the market each day. Office workers used because to take them to work. Beds, tables and all types of furniture were taken across the city by these vehicles. Even the ill were carted to and from [the] hospital by them. Often it was the only type of vehicle apart from a bicycle or motorcycle which could enter the narrow pathways of the kampung.

Reminiscent of Gojek's claim decades later to offer "an *ojek* for every need," becak drivers were thus critical infrastructure and labor force in city, providing not only passenger transport to a variety of social classes, but also 'on-demand' labor, freight transport and courier services, and even emergency response. At the height of *becak* usage in 1966, an estimated 15% of Jakarta's total workforce drove a becak (Azuma, 2001), and considering those who manufactured and repaired becak, an estimated 18 - 25% of the city's workforce was engaged in the industry (Cervero, 2000).

In the political and social tumult resulting from the 1965-66 massacres that gave rise to the New Order regime (Robinson, 2018), Jakarta's Governorship passed to Ali Sadikin (1966 - 1977) who invested heavily in 'modernizing' the city's transport infrastructure. Central to this project was a slate of policies directed at eliminating the *becak,*[11] which he saw as 'backwards' and representative of Indonesia's lack of economic development (Azuma, 2003; Jellinek, 1991). Perhaps most importantly,

[11] These included a ban on *becak* manufacturing (1970), the implementation of Becak Free Zones (*Daerah Bebas Becak*, 1971), restrictions on permits to operate (1971), and eventually a total ban on human-powered transport in the city (1972) (see Azuma, 2003).

he declared Jakarta a 'closed city' in 1970, mandating possession of a KTP (*Kartu Tanda Penduduk*) Jakarta card in order to legally reside and work in the city (Azuma, 2003). The policy was directly targeted at disincentivizing Central Javanese circular migrants who constituted the majority of the *becak* labor force (Abeyasekere, 1987). Sadikin's stated intention was "to show newcomers that life in Jakarta isn't pleasant. It's like hell" (qtd. in Abeyasekere, 1987: 230). Over this period, the police dispossessed some 200,000 drivers of their *becak* without compensation—for many, not only their means of income but also where they slept at night (Azuma, 2003). With a brief respite during the Tjokropranolo Governorship (1977 – 1982), Sadikin's term set the general policy approach to the *becak* since, and the dominant state attitude towards informal transport more generally. Throughout the Governorships of Suprapto (1982 - 1987) and Wiyogo Atmodarminto (1987 – 1992), the *becak* was nearly eradicated from the city, culminating in Suprapto's confiscation of approximately 40,000 *becak* that were then dumped into the bottom of Jakarta Bay (Cervero, 2000). Locals refer to this period as the *garukan* of the *becak* (literally: raking out from a crevice, referring to their prominence in *kampung* alleys).

As Replogle (1989, n.p.) noted at the time, however, "getting rid of pedicabs, becaks and bicycles is like knocking down slums to solve the housing problem." The metaphor is apt. Though the *garukan* largely eliminated the *becak* from the city[12] the same cannot be said for the workforce, or the difficult conditions under which Jakarta's transport workers operate; "the same economic necessity which produced them in the first place, produces them in the next place also" (Engels, 1872). *En masse*, dispossessed *becak* drivers migrated to another informal mode of transport with low barriers to entry: the emerging *ojek* market.[13] Though bicycle taxis (*ojek sepeda*) had operated in the city since

[12] A number of organizations, including the Legal Aid Foundation and the Jakarta Becak Union, have continued to fight for the right for *becak* drivers to operate in the city, an effort that recently gained traction with current Governor Anies Baswedan, whose campaign platform included ending the ban on *becak* in some areas of the city.

[13] Many also migrated to driving *bajaj* (three-wheeled auto rickshaws), which began being imported from India in 1975 in

approximately 1970, a changing political economy under the New Order regime would soon transform this human-powered industry into a motorized one. Emboldened by an influx of petro-dollars from the OPEC oil shocks, Suharto embarked on import-substitution industrialization during the 1970s (Winters, 1996) which would unintentionally set the stage for the emergence of the *ojek* market as it is known today.

During this period, large domestic Chinese-Indonesian conglomerates like the Liem and Astra groups leveraged personal, informal connections with Suharto to secure valuable import licensing contracts for automotive assembly and small parts production (Cowherd, 2005; Doner, 1991; Winters, 1996).[14] In motorbike manufacturing, PT Astra International exemplifies this trend. As Robison (1986) documents, the founder and CEO of Astra International, William Soejadjaja, had close personal connections with the Suharto family and allies within the Department of Industry that controlled licensing permits, leveraging this political backing to become the sole agency for assembling and distributing Honda motorbikes. Astra's wholly-owned subsidiary, PT Federal Motor, began assembly and small parts manufacturing for motorbike production in 1971 in a joint venture with Honda, a first for the country. Through these patron-client relations, the motorbike manufacturing industry developed a deeply oligopolistic structure, with the Suharto regime offering political protection and economic privilege to Chinese-Indonesian owned conglomerates that successfully crowded out other domestic firms. These histories have had a lasting effect on Indonesian motorbike and automobile manufacturing: Japanese manufacturers still dominate the

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an effort to discourage *becak* usage. Indeed, alongside the becak, there are many modes of paratransit that were introduced during this era including the *helicak* (three-wheeled), *microlet* (four-wheeled), and mini-buses (see Cervero, 2000 for an overview).

[14] Cowherd (2005) dubs this as the Cendana-Cukong Alliance, referring to the Suharto family's residence on Jl. Cendana in Menteng and the Indonesian term for wealthy Chinese-Indonesian capitalists (*cukong*). In automotive manufacturing, the value of these informal connections was reinforced by a series of localization policies implemented during the 1970s, intended to spur domestic industrialization, but also to concentrate the political-economic power of Suharto allies (Doner 1991: 130).

market with Honda/Astra holding approximately 76% of the market share alone (Saenprasarn et al., 2021). As such, Astra wields significant political-economic power in the country, recently leveraged to support growth in the digital economy with a $150 million investment in Gojek (The Jakarta Post, 2018).

On Jakarta's streets, these macro transformations translated into a convenient and more affordable form of transportation for a huge swath of the population that could not afford an automobile. Middle-income households, including civil servants, soldiers, factory workers, and police officers purchased these low-powered (less than 90ccs) Honda, Suzuki, and Yamaha motorbikes, starting to supplement their income by offering rides at a negotiated price. Combined with the influx of dispossessed *becak* drivers, these populations established the primary labor force for the *ojek* industry (Interview with transportation expert, October 4, 2019). By the 1980s, as the oil boom turned to bust and the New Order regime embraced neoliberal thinking under guidance from the World Bank, the country ended localization policies that mandated foreign manufacturers to source components domestically, liberalized tariff and non-tariff barriers, and lifted import bans on completely built-up vehicles (Robison, 1986; Winters, 1996). This re-regulatory project created a much more favorable climate for foreign direct investment into the 1990s, sparking significant growth in the motorbike manufacturing industry and further lowering prices for consumers (see Figure 5). Motorbike sales increased 26% annually between 1990 and 1997 (Kawakami and Sturgeon, 2011), and the *ojek* industry expanded as more of the city's population could supplement their income or pay off the motorbike through driving part-time in their kampung (Interview with transportation expert, October 4, 2019). Though the 1997-1998 Asian financial crisis—dubbed as *krismon* (*krisis moneter*, monetary crisis) in Indonesia—would briefly depress this growth in manufacturing, it also led to widespread unemployment that would further catalyze the *ojek* industry.

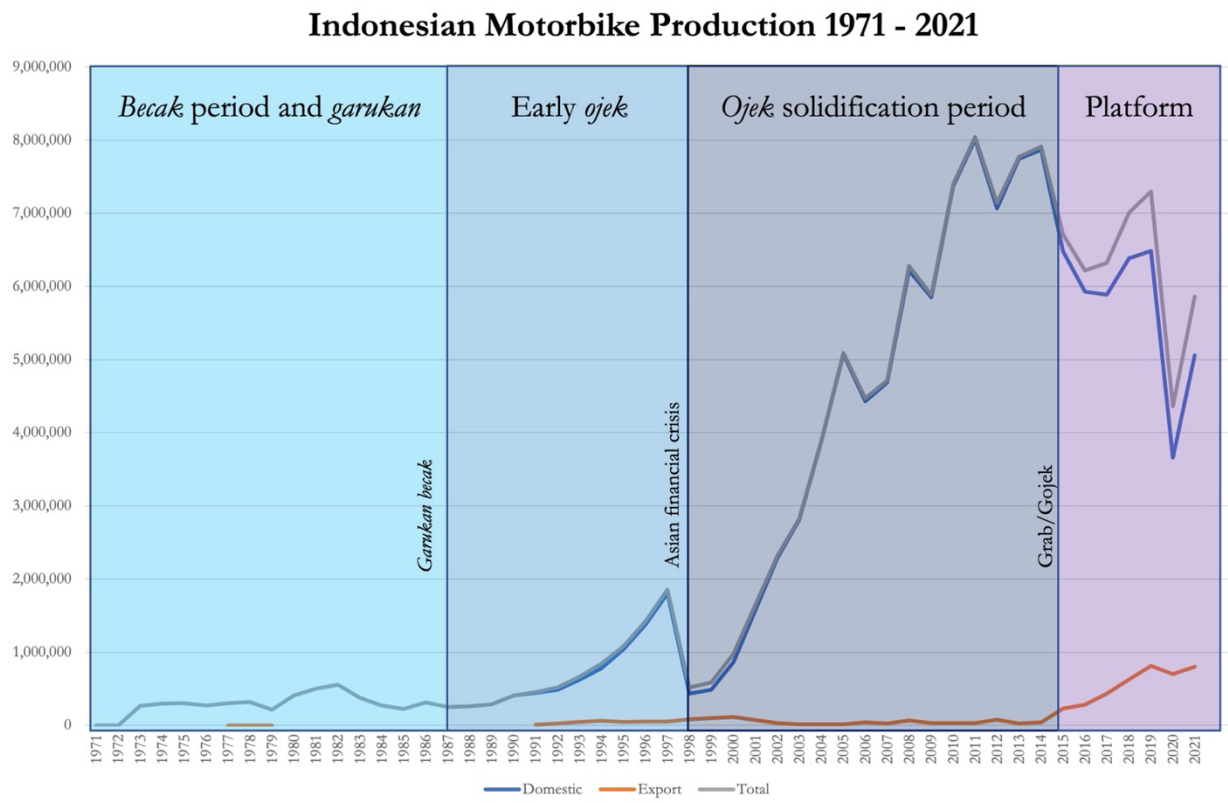

Figure 5: Indonesian Motorbike Production 1971 – 2021
(data sources: Asosiasi Industi Sepeda Motor Indonesia, Mishima, 2004)

Solidification of the pangkalan system: 1998 - 2015

Krismon precipitated the end of the New Order regime, ushering in an era of widespread economic, political, and social crisis. Economic growth ground to a halt, inflation skyrocketed, and there were widespread bankruptcies and layoffs as the massive devaluation of the rupiah threatened indebted private firms (Firman, 1999). With high unemployment and no job prospects in the formal sector, unemployed Jakartans increasingly turned to the *ojek* industry. According to one transportation historian, many "laid-off workers invested their severance pay in buying a motorbike to *ngojek* [*ojek*-ing]. *Ngojek* became the first choice at that time because there were no industries opening new jobs" (Interview with transportation expert, October 4, 2019). Though Governor Sutiyoso briefly allowed *becak* back into the city to absorb unemployment between 1997 and 1999, the growing affordability of motorbikes leading up to the crisis and the *ojek*'s higher earning

potential (Cervero, 2000) meant that much of the *becak* labor force had already migrated to the *ojek* industry.

Following the crisis, Indonesia's economic recovery hinged upon reigniting middle-class consumption (Firman, 1999; Herlambang et al., 2019) and, in the eyes of the state, the motorbike played a crucial role as a staple household commodity. In 2001, the Ministry of Industry granted import licenses to 87 new motorbike brands, 65.5% of which were from Chinese manufacturers that offered significantly lower prices, forcing Japanese competitors to offer their own low-cost models (Alexander, 2008; Kawakami and Sturgeon, 2011). Additionally, Bank Indonesia and state regulatory bodies relaxed credit requirements for motorbike loans, lowering interest rates and minimum down payments required for both credit and cash sales. Up to 2013, one could walk away with a brand new motorbike with only 5% down (Forbes Indonesia, 2012); for low-end models, this might be as little as 750,000 IDR (~$132 inflation-adjusted USD). These developments quickly pushed motorbike manufacturing back up to pre-crisis levels (see Figure 5). By the end of 2001, the average Indonesian household owned 1.3 motorbikes while only one in five owned a car (Cervero, 2000). The percentage of Jakartan commuters using a motorbike nearly doubled between 2002 and 2010, while the number of bus passengers halved (Mead, 2016).

The increasing accessibility and dominance of motorbikes in post-New Order Indonesia led to the solidification of the *ojek* industry as Ajidarma describes it in *Tiada Ojek di Paris* with a *pangkalan* (*ojek* stand) found outside nearly every train station, bus depot, housing complex, shopping mall, and major intersection. Yet, *pangkalan* are much more than simply the place where passenger demand meets driver supply. They are institutions that govern, regulate, and enforce the *ojek* market—a structure that Vacano (2021: 219) refers to as 'the *pangkalan* system,' a "vast web of coexisting *pangkalan*, each of which constitutes a location-bound driver cooperative…interconnected by a shared business code." While the *ojek* market is often depicted as 'unregulated' because it has never

had any type of formal licensure or recognition under Indonesian Law (*Undang-Undang*), the *pangkalan* system operates as an interlocking set of institutional, social, and territorial rules and norms. As with Jakarta's other informal markets (Simone, 2014), these rules are largely oriented around improvisational survival and redistribution crafted by those excluded from formal capitalist markets. For example, to ensure that incomes are sufficient for all, *pangkalan* often develop quota systems to limit supply, issuing their own permits (*kartu ojek*) for which incoming members would have to pay an entry fee according to the earning potential of the *pangkalan* (Interview with driver, August 24, 2019). This fee could be as much as $1,000 for high-demand areas such as central stations, or as little as $50 for less busy areas (Panimbang, 2021). Upon retirement, permit rights could be handed down to another family member, resulting in strong generational, kinship networks within the labor force (Vacano, 2021). Many *pangkalan* also incorporated redistributive principles, such as charging *kampung* residents on a sliding scale according to class status (Vacano, 2021), and utilizing a rotating queue system to ensure that members had equal opportunity to earn (Interview with transportation expert, October 4, 2019). Queue systems only apply to walk-up passengers, however; all *ojek* drivers had their own regulars and it is considered a grievous offense to serve another's regulars (Interview with driver, June 14, 2019).

The *pangkalan* system is underpinned by a set of spatial relations. Highly territorial, each *pangkalan* controls market supply within a given geography, which may be as small as a single intersection or as large as a small neighborhood. The enforcement of this spatial arrangement—essential to territorialization (Sack, 1986)—is carried out by either *pangkalan* members or local protection rackets known as *ormas* (*organisasi kemasyarakatan*, civil society organizations). An institutional relic of Suharto's New Order, *ormas* are legally recognized, para-military organizations. Once key to the apparatus of state control, they have evolved into a complex set of ethnic, religious, and nationalist groups that frequently use violence and protection rackets as a means to solidify

political power (Wilson, 2015). As Wilson (2015) documents, these organizations began to consolidate control over Jakarta's informal sectors during the post-New Order era, including the *ojek*. *Ormas* like *Forum Betawi Rempug* (FBR)*,* and *Pemuda Pancasila* (PP) recruited *ojek* drivers by offering 'protection,' the threat of violence against those who violated their territory, and financial backing for *pangkalan* operations (Interview with driver, August 24, 2019). In return, *ormas* receive a cut of a *pangkalan*'s profits, as well as a space (the *pangkalan*) to house their operations, recruitment efforts, and neighborhood surveillance. FBR, for example, targeted a broad "spectrum of the unemployed and those scraping a living in the informal street economy, in particular *ojek* motorcycle taxi drivers," even providing interest-free loans to those who could not afford a down payment for a motorbike (Wilson, 2011: 251, 2015). This is especially true in East Jakarta, where FBR's power has grown considerably since its founding in 2001 and *pangkalan ojek* continue to hang FBR banners on their walls (Fieldnotes, September 11, 2019).

In sum, the *ojek* market in the post-New Order era was tightly embedded within a socially redistributive, kinship-based *pangkalan* system, the spatial organization of which was territorially enforced through *ormas*. This socio-spatial organization of the market was soon upended by Grab and Gojek.

The marketization of the *ojek online*

Gojek had been operating as a call center in Jakarta since 2010, but did not launch its mobile app until 2015, when it received an injection of venture capital from NSI Ventures (now Openspace), an affiliate of the Singaporean private equity firm The Northstar Group. Grab entered Indonesia shortly thereafter, launching GrabTaxi in 2014 and GrabBike in 2015. For both companies, success hinged upon disembedding the *ojek* from its existing social, political, and spatial basis—the *pangkalan* system—and re-embedding it into a multi-sided platform market. In the following sections, I analyze

this process, mobilizing concepts from the marketization literature.

Çalışkan and Callon (2010: 5) write, "Markets are not possible without generating and then reproducing a stark distinction between the 'things' to be valued and the 'agencies' capable of valuing them." Using this distinction as my basic structure, I first detail the actors and 'marketizing agencies' that increasingly define and value the informal economy and world's urban poor as an untapped market for data and rent extraction through platformization. Second, I document how this intersects with the pre-existing *ojek* market in Jakarta, as Grab and Gojek work to disentangle the *ojek pangkalan* from its embedded social, institutional, and territorial relations, a process Callon and Çalışkan describe as the 'pacification' of goods.

Marketizing agencies: Poverty capital at the bottom of the data pyramid

The online *ojek* market in Jakarta sits at the intersection of a global constellation of socio-technical agencies advancing a re-valuation of informal economic activity. Amongst development organizations, platform companies, academics, nation states, private equity and venture capital firms, and labor organizations, there is a growing consensus that platformization offers a means to formalize—and thereby profit from—informal market activity. Global consulting firms like A.T. Kearney promote digital payment platforms for financial inclusion of the global poor (Schneider, 2021). Development agencies like the Center for Global Development argue that digital platforms provide a "progressive onramp to formalization" that can ease transitions into the formal capitalist economy for small and medium enterprises operating outside of state recognition (Ng'weno and Porteous, 2018: 3). Bureaucrats see opportunity in the enumerative powers of platform firms which, as licensed firms, are open to taxation. Though ultimately seeking different ends, these actors share an understanding of platforms as a technology of enumeration that can tap into informal markets as sites value creation under platform capitalism (Arora, 2016).

Drawing on Callon and Çalışkan, I understand these diverse forces as 'marketizing agencies' in that they seek to (re)valorize informal market activity through platform technologies. This understanding channels earlier rounds of "poverty capital" (Roy, 2009a: 31) in that it is also a project of knowledge production about—and valuation of—poverty: "it is here that the poor are classified and categorized; and it is here that more generally the business of poverty comes to be 'financialized.'" As Pollio (2019) has argued, platform firms operating in the global South re-articulate the Silicon Valley concept of 'idle assets' through the language of neoliberal development theorist Hernando de Soto. In the same way that platform technologies can supposedly maximize the value of an 'idle' spare room, parked car, or free time, firms like Grab and Gojek claim to 'unlock' informal economies with a wealth of what de Soto calls 'dead capital.'

For the founders of Grab (Hooi Ling Tan and Anthony Tan, no relation) and Gojek (Nadiem Makarim, along with Kevin Aluwi and Michelangelo Moran), these ideas calcified in a university classroom at Harvard Business School (HBS), where Tan, Tan, and Makarim were classmates between 2008 - 2011. There, the three founders were inspired by the writings of C.K. Prahalad during a class they took together called "Business at the Base of the Pyramid" (Chandler, 2019). Taught by the prominent micro-finance business scholar Michael Chu, the class takes its name from Prahalad's argument that world's poorest populations should not be thought of as need of international aid, but rather as a growth market—the so-called "fortune at the bottom of the pyramid." Though often overlooked (see Elyachar, 2012 for exception), Prahalad's writings also stress the capacity for social connectivity and collectivity amongst the global poor which, he argues, can be harnessed through networked digital technologies to create "an infrastructure for engaging people in collective innovation" (Prahalad 2010: 5, qtd. in Elyachar, 2012). Makarim narrates his moment of realization of this latent potential

> oh, actually the bottom of the pyramid can be deeply productive. A deeply productive sector. And they are also, at the same time, the most under-looked sector in Indonesia and I

> think in a lot of different countries. And that's what got me digging. You know Peter Theil's book *Zero to One*, he has this thing—there is this term about "all great companies began with a secret" right? And I always felt that the secret that we had in Gojek was the belief in the productivity of these drivers in the informal sector. And no one else believed that." (Gojek, 2019a, n.p.)

Uber had swept through the United States in 2009 and Anthony Tan and Makarim became close over their shared ambitions of similarly 'disrupting' urban mobility in their home countries. According to Makarim "He [Anthony Tan] was one of my closest friends. We were always consulting each other on our businesses. I was going to take over [motor]bikes and he was going to take over cabs" (Cosseboom, 2015).

In Jakarta, the companies did not seek so much a 'disruption' of the highly regulated taxi industry, as with Uber[15] and other Western counterparts (although that was certainly part of the goal). Rather, they set about the wholesale adoption of the informal, unregulated *ojek* market into their platform ecosystem. This vision is not lost on investors. At a 2011 ASEAN Regional Entrepreneurship Summit in Indonesia, Eric Schmidt then-Google CEO (which later invested in Gojek) described the company in these terms: "Gojek has been about scheduling and organizing what has been an informal service economy" (Arias, 2021: n.p.). In Grab and Gojek, Tan, Tan, and Makarim thus combine the neoliberal development theories of C.K Prahalad, Silicon Valley "winner-take-all" ambitions, Harvard Business School ideologies, and newly emerging platform technologies platform technologies, aspiring to unlock the "fortune at the bottom of the pyramid" through digitizing Southeast Asia's informal sectors.

Pangkalan politics: 'Pacifying' the ojek

The translation of this global project to Jakarta was riven 'friction' (Tsing, 2005). Grab and

[15] Uber was a brief presence in Indonesia, launching automobile taxi services in 2014, followed by UberMOTO (*ojek*) in 2015. Facing competition from Grab and Gojek, the company sold its Southeast Asian assets to Grab in 2019, in exchange for a reported 27.5 percent stake in the company.

Gojek's early years between 2015 - 2016 were characterized by frequent clashes between *ojek pangkalan* drivers (*opang*) and online *ojek* drivers (*ojol*), as *ojol* infringed upon the unmapped territory and unwritten rules of the *pangkalan* system. High-conflict areas came to be known by early *ojol* as "red zones" (*zona merah*). East Jakarta is exemplary; as the heart of FBR territory with *pangkalan ojek* tightly controlled by the *ormas*, it was especially resistant to the incursion of platform firms (Interviews with drivers, August 24, 27, 2019). The consequences of these violent conflicts were manifold; they discouraged more drivers from joining the platform, prompted delays and cancelled orders originating in red zones, created dangerous conditions for drivers and passengers, and generated bad press for Grab and Gojek. This created a localized barrier to growth, preventing the coordination of network effects that are essential to platform firms' economic viability and legitimacy as an object of financial speculation (Langley and Leyshon, 2017, see also Chapter 4). For consumers, it created an uncertain, unreliable, and even dangerous product. Marketizing the online *ojek* in Jakarta thus has depended upon transforming *ojek pangkalan* drivers and territory into a space conducive to "platform mobility," (Stehlin et al., 2020) rather than hostile towards it.

It follows that the *ojek pangkalan* must be disembedded from its social, institutional, and territorial basis, and re-embedded in a different socio-technical constellation oriented towards platform mobility, a process Çalışkan and Callon describe as the "pacification" of goods. Pacification entails significant discursive and material labor (Fields, 2018; Li, 2014) and, in keeping with the platform business model, this labor (and risk) was often downloaded onto gig workers (van Doorn, 2017). In order to ease the violent conflicts that impeded growth, Grab and Gojek encouraged *ojol* to recruit *opang* to their platforms, offering incentives like large bonuses to recruiters and new drivers, venture-capital-subsidized wage rates, and waiving on-boarding requirements (e.g. a valid driver's license). Echoing Çalışkan and Callon's language, Gojek and Grab drivers describe this process as "pacification" (*menenangkan*) or sometimes "greening red zones" (*hijauin zona merah*),

referring to the bright green color that both Grab and Gojek drivers wear (Interview with driver, August 23, 2019). Regardless of the analogy, drivers use language that evokes a struggle over space. One driver described it as "guerilla-style [recruitment] from *pangkalan* to *pangkalan*" (Interview with driver, August 23, 2019); another analogized it to agriculture: "those years were the years of 'clearing.' We have to clear the trees and bushes before we could till the land" (Interview with driver, August 29, 2019).

If tilling the land for platform mobility is the end result, the means—the "clearing"—was achieved through recruiting opang. A story from an early Gojek driver—worth quoting in its entirety—illustrates the struggle over the space central to platform marketization.

> Four people from the office came to pacify [a location in Central Jakarta], which is FBR's turf, but the reception wasn't great. The opang there openly rejected the management…Looking back, I think I was too brave for my own good, I risked my own safety and didn't think twice about it. So, one day, I just casually entered the prohibited area. I was in full-gear and I wore my Gojek jacket [*atribut*]. I asked the opang who was in charge in this area, and I stated my case that I was there to help anyone sign up at Gojek. In the middle of a heated exchange, someone poked me, and hit me in the face. That guy who hit me was the field coordinator [*korlap*] for FBR in the area. After he hit me, the korlap said "Gojek is a liar, they've come here four times, but not one of my boys has been able to join Gojek." I replied "Okay, I'll coordinate with my boss, first. How many members do you have?" He replied "Fifty." I immediately phoned someone from the office, and I said that we needed to recruit the opang of [a location in Central Jakarta]. I instructed him to allocate fifty new drivers posts and ready a team for recruitment […] Only forty showed up, but the office accepted all of them. At that time, the company was quite tough on orderly paperwork—especially the STNK [vehicle registration]. Everything must be valid. Some of the opang hadn't renewed their STNK, but the company still accepted them […] (Interview with driver, August 24, 2019)

While Gojek requires drivers to be literate, own a smartphone, and have an up-to-date driver's license and vehicle registration, these requirements were waived for those deemed essential to pacification. The driver continues, "Doesn't have a SIM [driver's license]? Illiterate? That won't be a problem, the company will turn a blind eye […] they will assure that all of the [opang] leaders will be accepted unconditionally, VIP track, no hassle. That is what happened in those days" (Interview with driver, August 24, 2019). This story illustrates how pacification of Jakarta's *ojek* market is also a

spatial practice. Certainly, Grab and Gojek targeted opang because they were a pre-existing workforce with skills that matched their labor needs, but perhaps more importantly because it was a means to disembed the *ojek* market from the social relations that maintained the territorial *pangkalan* system. Thus, platform marketization does not arrive automatically through technological advances, but must be constructed through on-the-ground labor that reterritorializes the spaces of the city to accommodate platform mobility.

In sum, global 'marketizing agencies' increasingly advance a (re)valuation of informal economies via platformization and this market-making project articulates with the *pangkalan* system in ways that require pacification. As Richardson (2020b: 3) argues platforms do not only de-territorialize markets into an online environment; they reconfigure urban processes, industries, spaces, and networks "not through new physical infrastructures, but instead through novel technologies of coordination that can reterritorialize those already existing." In short, pacification has entailed re-territorializing the *ojek* market away from the *pangkalan* system and towards platform mobility controlled by multi-national firms.

Reterritorializing the *ojek* market

This re-territorialization has reorganized the socio-spatial relations of the industry. Socially, the redistributive principles of the *pangkalan* system—queue systems, dynamic pricing for more wealthy residents, kinship relations—have largely been replaced by a price system and regulatory structure determined by black-boxed algorithms oriented towards labor discipline and data/rent extraction. *Ojek* drivers once had some measure of control over how resources and profits were distributed; now those mechanisms are almost completely opaque to them. What little certainty they have suggests that their performance metrics impact future earnings—an incentive structure that further enrolls them as a flexible 'on-demand' labor force (Gregory and Sadowski, 2021; Rosenblat, 2018).

As Bang Bagus told me: "The opang and the ojol have a different system. As an opang, it is more of a waiting game; whoever waits longer will earn more. As an ojol it is an endurance test; whoever endures more orders will earn more" (Interview with driver, June 14, 2019). For Bang Bagus, his choice of waiting for orders at the *pangkalan* has been replaced by no choice at all, simply 'enduring' the foregone conclusion of working all hours of the day.

These social transformations are dialectically intertwined with a corresponding spatial reorganization. The *pangkalan* system requires buyers and sellers to be co-located, but Grab and Gojek's platform technologies untether the moment of exchange from the *ojek* stand, thereby eroding the patchwork, territorial organization of the market. Where once each *pangkalan* controlled labor market access, supply, and distribution of profits within their turf—enforced through institutions like FBR—this territorial formation was deliberately undercut by the platform's pacification efforts. This means that the territorial *pangkalan* system has largely been replaced by a network-based system that connects buyers and sellers through algorithmic matching technology coordinated by the platform.

This new market geography has uneven outcomes. For the firms, spatial dispersal of supply (in contrast to the high concentration of the *pangkalan* system) means increased geographic coverage and therefore the lower wait times that help coordinate network effects and improve their service. For drivers, spatial dispersal ostensibly means they can take orders from anywhere, but in practice incentivizes waiting in high-demand areas. It also means more time on the road, as they must deadhead to busy locations and passenger pick-up locations, as well as drive longer distances to destinations. Whereas Cervero (2000) estimates the average distance for *ojek pangkalan* trips as 2.1 - 5.2km, *ojek online* trips can be up to 30k for Gojek and even longer for Grab. One Grab driver I spoke with told me he once drove a passenger to Bandung, 150km away (Interview with driver, August 23, 2019). Increased time on the road compounds the physical risks of their work;

approximately 73% of all motor vehicle fatalities in the country involve a motorbike and deaths of *ojek* drivers are not infrequent (World Health Organization, 2018, Interview with driver, August 29, 2019).

To the casual observer, these social and spatial transformations might appear to substantiate the epochal claims implied by the platform capitalism thesis—namely that, in teleological fashion, platform technologies have precipitated a new accumulation regime that wholly subsumes the *ojek* market. And yet, attunement to marketization reveals how market-making is never complete (Callon, 1998b; Fields, 2018). At the 'raggedy edges' (Sheppard, 2018) of this political-economic project, the *ojek pangkalan* endures in Jakarta, if not always in obvious ways. Many online drivers I spoke with retained regular customers from their *pangkalan* days, prioritizing these relationships over orders from the platform (Interview with driver, June 18, 2019). Others reported that, if they were suspended, they would temporarily revert to working at the *pangkalan* (Interview with driver, September 12, 2019). Though frowned upon by *ojol* and *opang* alike, it is also not uncommon for *ojol* to abandon the application altogether and independently negotiate a fare with a walk-up passenger (Fieldnotes, April 5, 2019). As for *opang*, many actually possess a Grab or Gojek account (or, more commonly, both), but prefer the shorter hours and distances of the *pangkalan*, even if it means a pay cut (Interview with driver, June 14, 2019). In short, there is no unidirectional, frictionless, or teleological transition from *ojek* to Gojek, despite popular and academic narratives.

Nor are drivers completely pacified into rational market actors, independently interacting with customers through the platform and rarely with each other, as the mainstream literature might suggest (Collier et al., 2018). Even as they are enrolled into platform ecosystems, *opang* carry with them social, cultural, and institutional norms and practices from the *pangkalan* system. This can be seen most evidently in what online drivers call '*komunitas*', which are locally based, mutual-aid worker communities developed by and for *ojol*. *Komunitas* usually consist of around 20-30 drivers who

originally band together to establish a "basecamp" to rest, but they have grown into a vast network of communities coordinated through WhatsApp, numbering approximately 2,000 – 3,000 in the Jakarta city region (Ford and Honan, 2019; Frey, 2020; Panimbang, 2021; Qadri, 2020 see also Chapter 4).

Through the *komunitas*, drivers re-embed principles and practices from the *pangkalan* system within the platform-mediated market. For example, even though redistribution is more difficult within the algorithmically-determined market, *komunitas* retain mutual aid principles (*gotong-royong,* mutual assistance) by collecting dues from members that can be redistributed according to need. As one driver explained it simply: "We have *gotong-royong* culture that runs deep in our blood" (Interview with driver, September 3, 2019). *Komunitas* also adopt their institutional structure from the *pangkalan* system. Communities have a common hierarchical structure with positions for leader, field coordinators, human relations, treasurer, emergency response, etc. These positions and the hierarchical structure are "a carbon copy of the existing *ormas*…." which influenced the *pangkalan* structure (Interview with driver, August 24, 2019). Or, as another former *opang* driver put it: "The *komunitas* wouldn't be possible without the existence of the *pangkalan*. How we organize ourselves now is pretty similar to how we organized back when we were *opang*. The two—the *opang* and the *ojol*—have the same '*kekeluargaan* [family-like] spirit" (Interview with driver, September 11, 2019).

Ormas have similarly had to adapt, as Grab and Gojek undercut their territorial control over the market and depress profits from *pangkalan* protection payments. Some, like FBR, have managed to extract protection money from *komunitas*: "FBR only provides backing if it profits them, but it's not always a question of money. For instance, if the ojol can assist 'securing a place,' FBR will back them" (Interview with driver, August 27, 2019). Others recognize opportunity in the new socio-spatial arrangement of the market. Take, for example, TEKAB (*Tim Khusus Anti-Begal*, or Anti-Robbery Special Teams). TEKAB is a nation-wide paramilitary group that does legal advocacy and

self-described "community policing" for online *ojek* drivers (Interview with TEKAB leader, March 27, 2019). The organization is funded and led by prominent members of another para-military *ormas* called *Forum Komunikasi Putra-Putri Purnawirawan Dan Putra-Putri TNI Polri* (FKPPI, Communication Forum for Sons and Daughters of Retired and Active Military). TEKAB and its and its legal arm GARDA (*Gabungan Aksi Roda Dua*, Combined Action for Two Wheelers) have been involved in organizing major driver demonstrations and legal suits against the platform companies. But, according to the majority of drivers I spoke with: "they claim to be an *ojol* organization but they aren't" (Interview with driver, September 9, 2019). Instead, most (though not all) drivers refer to the organization as an *ormas* that "wants to take advantage of ojol" (Interview with driver, September 10, 2019). Through its connections with the media, TEKAB has shrewdly positioned it and its leadership as the primary source for local media coverage of ojol issues, securing it a seat at the table during negotiations with the Ministry of Transportation over proposed regulations for online drivers during January 2019. The organization's 3,000 members are deployed for local "community policing" patrols, and contracted out for private security work (Interview with TEKAB member, March 27, 2019; fieldnotes March 29, April 14, 2019).

Conclusion

In this chapter, I have combined performative approaches to marketization and a spatialized conjunctural analysis to examine the conditions of possibility and processes of market-formation that shape the platformization of the Jakartan *ojek* industry. Conjunctural analysis reveals how platformization is a particular outcome of global ideologies and capital circuits that must be brought into being through significant pacification labor. It is, in other words, contingent and open to deconstruction. As Gramsci (2000: 201–202), and later Hall, emphasized this is the importance of conjunctural analysis—not historiography, but politics "when it is not the reconstruction of past

history but the construction of present and future history which is at stake." Conjunctural analysis seeks to identify the relations of force at a given moment—not just to catalogue, but to recognize opportunities for change. If, as Cohen (2018) suggests, markets are critical sites of political-economic and spatial struggle, then platform marketization is a pressing political question in the current conjuncture. Indeed, as I have shown, drivers push back on platform marketization by holding onto a small measure of control over structure and conditions of the market, even as it unfolds with uneven consequences for their lives and livelihoods.

Today, a walker along Sudirman-Thamrin road might still find a handful of the *pangkalan ojek* plotted on Seno Gumira Ajidarma's map. Now engulfed by a roving sea of green Grab and Gojek jackets, they persist. Moreover, closer examination reveals remnants of the *pangkalan* system within the online *ojek* market; kinship relationships, redistributive market formations, institutional structures, and cultural values of *gotong-royong*—the prehistories of platform capitalism—carry over. Though Grab and Gojek have made a targeted and deliberate effort to disembedded the *ojek pangkalan* from its social, institutional, and spatial relationships, 'pacification' is never perfect. Marketized goods and services sit within social relations that always exceed an economistic frame. Under significant structural inequalities, drivers push back on their subjectification as independent, rational market actors by incorporating socially redistributive principles of the *pangkalan* system into the platform market that they perform. In short, platform capitalism's prehistories are not 'pre' at all, but leave continuing legacies that shape the operations and accumulation strategies of platform firms.

Taking these findings seriously, I argue, offers a more nuanced story of platform marketization than totalizing narratives of teleological transformation 'leaving no discernable outside' to platform capitalist relations (Couldry and Mejias, 2019a). In Jakarta, platformization is clearly not unidirectional, epochal, or total, but coexists with its prehistories, however unevenly. In short, there

may be no *ojek* in Paris, but—in more ways than one—they endure in Jakarta and theorizations of platform marketization must be able to accommodate this type of simultaneity, rather than obscuring it behind narratives of universal, unidirectional transformation.

Chapter 3. Unmapping the *Ojek:* Platform Governance and In/formality

On December 17th, 2015, the Indonesian Minister of Transportation, Ignasius Jonan, banned the use of online motorbike taxi (*ojek online*) services throughout the country. Issued as Notification Letter Number UM.3012/1/21/Phb/2015, the ban was a response to the massive growth of the ride-hailing platforms Grab and Gojek, which over the last year had worked to digitize the country's pre-existing, informal *ojek* industry by enrolling traditional *ojek* drivers into their platform with large bonuses, and offering steep subsidies for consumers. Able to cut through traffic and the narrow *kampung* streets (*gang*) characteristic of the Jakarta's urban form, the *ojek* has long been a popular mode of transportation in the capital city—a niche that expanded rapidly with the introduction of "platform mobility" (Stehlin et al., 2020) in the city-region earlier in 2015.

As such, the Ministerial ban caused immediate backlash on social media, particularly Twitter where #SaveGojek became the number one trending topic across all Southeast Asia. Nadiem Makarim, founder and then-CEO of Gojek, narrates his experience of the day: "I thought 'that's it.' It was gone…I invited everyone into my house, and we opened a war room…everyone was calling important people in government, our investors, etc. and asking everyone" (Gojek, 2019a). A reversal of the ban eventually came directly from President Joko Widodo (Jokowi), who has been a personal advocate of the company as a success story of Indonesia's digital economy. Publicly rebuking Jonan via Twitter, Jokowi wrote: "I will call the Minister immediately. The *ojek* is needed by the people (*rakyat*). Don't let regulations make people's lives more difficult. We need to manage it better."[16] Within less than 12 hours after being issued, Minister Jonan had reversed the ban, and within less than 12 months he was terminated by the President as part of a cabinet reshuffle.

Minister Jonan is only one casualty to a longstanding regulatory contradiction in Indonesia. On

[16] See: https://twitter.com/jokowi/status/677695066920587264?lang=en (accessed December 3, 2022, my translation)

the one hand, the *ojek* has never had any type of legal recognition at the legislative level (*Undang-Undang*). Under Law 22 of 2009 governing land transportation throughout the archipelago nation, two-wheeled motorbikes cannot be legally recognized as public transportation in the same way as conventional taxis, *bajaj* (three wheeled auto rickshaws), or even four-wheeled ride-hailing vehicles.[17] The industry therefore operates in a legal grey area; in popular understanding it is informal. On the other hand, the *ojek* provides important functions in Jakarta and throughout the country. Emerging in the 1980s at the confluence of widespread unemployment and absence of state regulation, the *ojek* industry is not only a vital first-mile-last-mile transportation mode but—like the *becak* before it—a means of poverty alleviation. With no legal licensure, the industry has served for over 50 years as a low-barrier-to-entry livelihood strategy for the country's urban poor. At once, then, the *ojek* is legally unrecognized but widely acknowledged as an infrastructural, social, economic, and political necessity at the highest levels of government.

In this chapter, I explore how the local and national state governs this seeming contradiction within the context of platformization. In doing so, I extend the existing scholarship on "platform governance" (Gorwa, 2019), which largely presumes that the state governs digital platforms through legalistic means. This explanatory framework offers little insight into President Jokowi's intervention—which neither granted legal status to the *ojek*, nor upheld the existing law—revealing that platform governance operates not only through law in Indonesia, but also through the suspension of it. Drawing on postcolonial urban theory, I argue that 'informality' thus operates as a mode of regulating the online *ojek* industry, offering the state considerable leeway to advance its interests in political legitimacy and capital accumulation.

I structure this argument in four parts. First, I review the existing literature on platform governance, highlighting how current approaches are influenced by (1) theories of capitalist

[17] This is also true of its predecessor, Law 14 of 1992

regulation (Aglietta, 1979; Jessop, 1990) and (2) Foucauldian governmentality frameworks (Foucault, 2003; Miller and Rose, 2008). Second, I show how these frameworks—though useful—do not fully capture the Indonesian state's ambivalent response to motorbike ride-hailing operations. Instead, I interpret its actions through postcolonial urban theory, which suggests that informality is not an absence of state regulation but a mode of regulation. Third, I turn to my case, showing how this unfolds within the (online) *ojek* industry as the Indonesian state cultivates the *ojek*'s informal status in order to secure its interests. Fourth, I combine insights from state-regulatory, governmentality, and postcolonial scholarship to analyze the consequences this mode of regulation has for drivers, documenting how the state's regulatory ambiguity engenders other forces that govern their lives and livelihoods: (1) biopolitical subjectification; (2) algorithmic management via the platform; and (3) institutional regulation through grassroots worker communities.

In a concluding section, I suggest that these findings extend current understandings of the relationship between informality and platformization, which have become overly pre-occupied with questions of how platformization is reworking boundaries between formal and informal. Postcolonial theory offers a means for deconstructing this binary, asking instead: How does urban informality as a mode of regulation help secure data-driven accumulation, and what can this tell us about the regulation and governance of platform capitalism more generally? Before addressing this question, however, I first review the extant literature on platform governance.

Platform governance

Alongside mounting public concerns over data privacy, anti-competitive behavior, misinformation, and public relation scandals, the governance of platform firms has become a major topic of public and scholarly debate (Collier et al., 2018; Gillespie, 2018; Gorwa, 2019; Seidl, 2022; Van Dijck, 2021). In the Anglophone literature, these debates have tended to fall into two primary

conceptualizations: governance *of* platforms and governance *by* platforms (Gillespie, 2018). Gorwa (2019) describes this dual framework as "platform governance," a term I adopt here. This framework recognizes that:

> platforms are fundamentally political actors that make important political decisions while engineering what has become the global infrastructure of free expression; but […] are themselves subject to governance on all fronts, and that their conduct of governance is directly informed by local, national, and supranational mechanisms of governance. (Gorwa, 2019: 857)

Put otherwise, platform governance entails both multi-scalar economic regulation to facilitate data-driven accumulation (Jessop, 1990), and also the ways in which platforms govern user values, rationalities, behaviors, and actions through algorithms, terms and conditions, and other platform technologies (Rose and Miller, 1992). Here, I situate this dual framework in two influential theoretical traditions for understanding governance—namely regulation theory and governmentality—before turning to how postcolonial scholarship can extend them.

Governance of platforms and regulation theory

The platform capitalism thesis argues that platform technologies have so thoroughly transformed production, circulation, and consumption that capitalism has entered a new phase of accumulation (Kenney and Zysman, 2016; Langley and Leyshon, 2017; Pasquale, 2017; Srnicek, 2016). In doing so, many platform capitalism scholars explicitly or implicitly draw on 'regulation theory', which seeks to explain how capitalism reproduces itself through periodic crisis and re-organization (Aglietta, 1979; Jessop, 1990; Lipietz, 1993). Srnicek's *Platform Capitalism* is perhaps most representative of this trend, as he traces the emergence of platform capitalism to the crisis of Fordism in the North Atlantic economies and the subsequent turn to flexible accumulation with its attendant regulatory structure of neoliberal liberalization, workfare, and devolution (Brenner et al., 2010; see also Kenney and Zysman, 2016). Regulation theory centers the Polanyian maxim that the

economy is 'embedded' within social relations and institutions that facilitate accumulation and manage contradictory tendencies towards crisis (Peck, 2013; Polanyi, 1944). In the classic regulationist model, these relations—the capitalist state, institutions, law and regulatory frameworks, etc.—form a 'mode of social regulation' (MSR) that articulates with a 'regime of accumulation.' While adherence to this model is now relatively uncommon (Peck, 2011), regulation theory remains influential within geographical political economy because it centers how markets are not self-regulating but articulate with the capitalist state and other social institutions, even as the material basis of capital transforms over space and time. If, as Srnicek argues, capitalism has entered a new epoch, then a regulationist approach suggests the need to theorize how modes of regulation transform alongside data-driven accumulation regimes—the particular social tensions and crisis tendencies that must be smoothed over for platform capital to circulate.

Much of the existing literature on regulating the platform economy explores how national-scale legal frameworks facilitate platform capital accumulation: how the classification of gig workers as independent contractors re-entrenches flexible, neoliberal labor regimes (van Doorn, 2017); data and privacy protections under 'surveillance capitalism' (Zuboff, 2018); monopoly tendencies, competition law, and anti-trust regulations (Peck and Phillips, 2021), and the legal apparatus that sustains platforms as intermediaries (Gillespie, 2018). In the United States, for example, Gillespie (2019) and Napoli (2020) analyze Section 230 of the 1996 Telecommunications Act (the "Safe Harbor" provision), which exempts online intermediaries from copyright liability, treating them not as publishers of content they are responsible for, but as network hosts that provide access. These authors argue that Section 230 buttresses the discourses of neutrality that are essential to the economic success of social media platforms like YouTube and Facebook. Because many of the largest platform firms operate globally, however, national-scale regulatory efforts intersect with varying scales of governance at the provincial, municipal, and supra-national levels (Bloch-Wehba,

2019; Bratton, 2015; Tabascio and Brail, 2021). Content-moderation and privacy laws in the United States or European Union have become increasingly extraterritorial, as national governments or supra-national bodies attempt to enforce, for example, the removal of illegal content that can be accessed globally (Bloch-Wehba, 2019). These national and supra-national regulatory efforts are further complicated at the municipal level.

For cities, the entry of platform firms such as Airbnb or Uber has engendered urban restructuring and "worlding" practices (Roy and Ong, 2011) aimed at accommodating platform capital (McNeill, 2016; Pollio, 2020; Rosen and Alvarez León, 2022). Building upon the 'smart cities' literature (Datta, 2015; Shelton et al., 2015), platform studies has interrogated the ways in which digital platforms are reshaping the subjects, spatial strategies, and technologies of urban governance (Barns, 2019; Leszczynski, 2019; Sadowski, 2020a). Urban growth coalitions at the nexus of finance capital, the local state, and technology boosters increasingly shape urban governance strategies, encouraging not just land-use intensification, but also the digitization and commodification of various urban services (Rosen and Alvarez León, 2022). Furthermore, urban data collection is now dominated by private platform forms, endowing them with significant political and technocratic power over planning and policy issues (van Doorn, 2019).

These governance strategies have uneven socio-spatial consequences, driving gentrification and displacement (Wachsmuth and Weisler, 2018), differential access to transport (Stehlin et al., 2020), and economic inequality in sectors like domestic work (Dattani, 2021; Ticona and Mateescu, 2018) and food delivery (Richardson, 2020b). Residents push back on these outcomes—upheaval that must be managed by the local state (Chen, 2017; Dubal, 2022). Local states are thus caught in between "digital growth machine" imperatives and securing political legitimacy (Offe, 1976). Experiments in resolving this tension create a variegated global policy landscape, with municipalities employing various governance strategies to manage social and political fallout from platform

'disruption.' For instance, a number of municipalities in the United States have experimented with public-private partnerships between transit agencies and ride-hailing platforms on in hopes of attracting ridership, adding flexibility to paratransit services, and addressing the first-last mile problem, and fill in service gaps more efficiently than public transport provision (APTA 2016). Others have threatened to suspend ride-hailing platforms all together, with Austin, Texas and Vancouver, British Columba even temporarily banned planforms like Uber from operating within their city-limits (Leszczynski, 2019).

Across scales, then, state regulatory bodies and other institutions work through legalistic means to govern the platform economy, balancing imperatives of legitimacy and accumulation. As Gillespie argues, however, this is only half the story; platforms themselves govern.

Governance by platforms and subjectification

It has been over fifteen years since Lessig (1999: 6) observed that 'code is law,' but his analysis of how software code acts as a regulatory force is even more relevant today: "In cyberspace we must understand how a different "code" regulates— how the software and hardware (i.e., the "code" of cyberspace) that make cyberspace what it is also regulate cyberspace as it is." Drawing on Lessig and other foundational work that examines how code structures social and spatial relationships (Kitchin and Dodge, 2011), scholars have examined how platforms govern user behavior through their architectures of enumerative power. This includes technologies of algorithmic management, content moderation and flagging systems, mutual review systems, and coercive, invasive, and technocratic terms and services agreements (MK Lee, 2018; Obar and Oeldorf-Hirsch, 2018).[18] To elaborate on only this last point, Grabher & König (2020, qtd. in Kenney et al., 2021: 231) argue that platforms, through the "terms and conditions to which users must agree to for access […] have become, in

[18] Obar and Oeldor-Hirch (2018), for instance, found that users would unwittingly sign over their first-born child by accepting the terms and conditions of use without reading them.

essence, private regulators. In part, they created private worlds where their regulations minimize the purview of the State…" Strong monopoly tendencies mean that these regulatory functions are increasingly made by relatively few firms, leaving billions of users globally with less-and-less choice but to submit to their terms and conditions if they want to access the infrastructure of global connection (Christophers, 2020; Peck and Phillips, 2021; Plantin and Punathambekar, 2019). This is obviously the case for large social media platforms like YouTube (Alphabet), Facebook (Meta) that enable or constrain social connection, democratic politics, and expression according to their interests, but also for the other "Big Five" that function as the infrastructural backbone for a range of ostensibly non-platform industries, such as Amazon Web Services (Plantin et al., 2018).

Such infrastructural capacity and scale mean that questions of platform governance should extend beyond the platform-user relationship to consider broader interactions between corporate, state, and civil society actors brought together in "the platform society"—although not, of course, equally (van Dijck et al., 2018). Platformization and its attendant governance challenges intersect with existing social structures of oppression and marginalization. This can be illustrated through the case of Alphabet and its platform firms, Google and YouTube. Safiya Noble (2018) has shown how the Google platform both reflects and reproduces anti-Black racism and patriarchal norms through predictive search suggestions that privilege whiteness. Caplan and Gillespie (2020) have explored how YouTube creates a "tiered governance" structure that offers different rights, rules and resources to different types of users (e.g. legacy media corporations vs. amateur creators), especially when user content is demonetized, a process in which the platform excludes non-"advertiser-friendly" videos from advertisement revenue-sharing agreements with users. Southerton et al. (2021) argue that demonetization policies systematically marginalize LGBTQ+ content-creators by embedding heterosexual norms within content flagging algorithms that might, for example, demonetize a video referencing queer sexuality but not one referencing heteronormative sexuality.

In this way, platforms not only shape user behavior, but also encourage users to adopt particular norms, values, motivations, and goals. Platforms code such value systems into their digital architectures, using socio-technical systems of surveillance and algorithmic power to privilege certain behaviors and bodies over others. This is governance in the Foucauldian sense (Foucault et al., 1991), transcending the state to recognize the range of actors involved in regulating how lives are lived—"the conduct of conduct." Drawing on Foucault's theory of governmentally, scholars have examined how platforms also govern through such biopolitical power, subjectifying individual users into a manageable population through calculative interventions and value systems. For instance, in their study of the Deliveroo food delivery platform in the Edinburgh, Scotland, Gregory and Sadowski (2021) show how its gig workers internalize ideas of flexibility, vitality, and legibility into their work and their bodies. They conclude Deliveroo can thus be conceptualized as a "biopolitical platform" that "governs human life by coordinating the performance of, and extracting the value from, its vital productive energy. The platform pulls the body into its algorithmic practices, simultaneously measuring its development, managing its processes, and feeding off its data outputs" (Gregory and Sadowski, 2021: 663–664). Similarly, Pennell (2021) and Roelofsin and Minca (2018) consider how Airbnb interpellates users as 'super-hosts' who effectively commodify and market themselves, their homes, and their neighborhoods as 'hospitable' according to platform metrics. Both of these examples show how platforms are more than simply an object of economic regulation or even a novel technology for disciplining user behavior; rather, they are also offer an algorithmic means of governing a population of users and instilling in them particular market-oriented values.

Urban informality as a mode of regulation

While both regulation theory and governmentality frameworks offer important insights into platform governance, both also presume that state governs through enumeration of—and

knowledge over—its territory and population. Governmental and regulatory technologies like zoning, law, cadastral systems, and the census function because of the state's calculative intervention. As Alan Smart (2001: 31) suggests, however, "we need to pay more attention to areas in which [state] control seems to be conspicuously absent, where neglect is more apparent than surveillance, where practices blatant in opposition to law and policy are ubiquitous." In the remainder of this chapter, I show how the case of the online *ojek* is one such area and, as such, necessitates theorization in addition to state-regulatory or governmentality frameworks. In a blatant contradiction of existing law, President Jokowi's public intervention maintained Grab and Gojek operations, revealing that the *ojek* is not informal because of the absence of state. Rather, its informal status is the product of purposive state action to place it outside the law—neither conferring legal or illegal status to the industry—in the 'public interest.' Or, as President Jokowi put it on Twitter, "the people need the *ojek*."

Scholars in postcolonial urban studies provide a useful framework for interpreting this seemingly ambivalent regulatory response. Influentially, Ananya Roy (2005) theorizes urban informality as an expression of state sovereignty, in that the state alone retains the power "to determine what is informal and what is not, and to determine which forms of informality will thrive and which will disappear." In Roy's (2003a) earlier work examining peri-urbanization in Calcutta, she shows how the state does not merely accrue certain benefits from non-intervention as in Smart's (2001) concept of 'managed persistence' (e.g. bribes, voting blocks, etc.), or in Aiwha Ong's (2006) 'zones of exception.' Rather, she shows how a context of regulatory ambiguities around the ownership and status of land holdings "allows the state and political parties tremendous flexibility in controlling the poor" (Roy, 2003a: 138). Resident's practices of informal squatting combined with a lack of centralized, accurate land records and survey maps mean that state does not govern through its usual enumerative technologies but through the 'unmapping' of the city—"a mode of regulation in and

through which the regime takes hold and takes form" (Roy, 2003a: 159). In this conceptualization, urban informality thus is not the absence of state regulation; counter-intuitively, it is a modality of regulation that that is core to the state's sovereign power and authority, helping to secure legitimacy and generate value through land development in peri-urban Calcutta. Though echoing the language of the French regulationist school, Roy also extends beyond its focus on formal regulatory structures (e.g. the wage relation, corporate organization, social welfare rights, credit systems, trade regimes, etc.), centering instead how extralegal spaces and livelihood strategies (squatting, patronage politics, ambiguous land rights, etc.) also govern at the sub-national level (in contrast to the more 'methodologically nationalist' regulation theory, see Agnew, 1994; Jones, 1997; Lauria, 1996). As such, her conceptualization highlights the continuities between formal and informal regulatory structures, revealing how "the state itself is a deeply informalized entity, one that actively utilize[s] informality as an instrument of both accumulation and authority" (Roy, 2009b: 81).

Fairbanks (2009) takes up this provocation in his study of the Philadelphia 'recovery house movement'—an ostensibly 'unregulated' industry in which homeless addicts convert abandoned row homes into 'recovery houses' through pooling their General Assistance welfare stipends for self-help addiction recovery. Though the houses have no formal licensure, they have managed proliferate in the city because their ambiguous legal status enables the extension of other regulatory logics, structures, and relationships into the lives of poor addicts. Rather than 'unregulated,' then, Fairbanks theorizes recovery houses as dense sites of regulation for multiple forces: biopolitical self-regulation through the recovery concept, state workfare programs, and 'poverty management' through the formal addiction treatment sector. Incorporating state-regulatory, governmentality, and postcolonial theorizations of regulation, he shows how these informal recovery houses discipline recovering addicts into 'entrepreneurial' subjects who take individual responsibility for their own poverty, addiction, and homelessness—a subject position that articulates with the state-regulatory project of

neoliberal welfare retrenchment in Philadelphia.

In this chapter, I adopt this conceptualization of urban informality as a modality of regulation, in that the *ojek*'s cultivated informality—its "unmapping" (Roy, 2003a)—furthers state interests in securing political legitimacy through poverty alleviation and capital investment in the Indonesian platform economy. As Roy and Fairbanks suggest, however, this is an entry point, not a conclusion. An ethnographic concept of platform governance demands inquiry into how such regulatory ambiguity engenders other forces that govern the *ojek* market and its labor force in their daily lives. In the following sections, I detail these forces, showing how online *ojek* drivers are governed by a set of intersecting biopolitical, algorithmic, and institutional regulatory force, as their lives become increasingly intermediated by platform ecosystems. These findings show the ways in which platform governance operates in concert with—but not exclusively through—state regulation and algorithmic management. Though the existing literature has stressed a trend towards technocratic, corporate governance by platform firms, my findings show that these are only one locus of power in Jakarta. Equally important, I argue, are practices of 'unmapping' that cultivate informality as a mode of regulation and governance.

Unmapping the ojek

From a legal perspective, the *ojek* industry is prohibited at the legislative level by Law Number 22 of 2009, Concerning Road Traffic and Transportation (UU 22/2009). Under UU 22/2009 motor vehicles are split into either "public" transportation or "private" transportation, with tax-paying public vehicles (even when privately operated) issued a yellow license plate and private vehicles issued a black license plate.[19] Public transportation vehicles are required to adhere to certain

[19] There are other classifications, such as red license plates issued to government vehicles, but red and yellow places are the most common.

standards of safety, security, comfort, affordability and so on (UU 22/2009, article 141, paragraph 1). Historically, these standards have prevented two-wheeled transportation from being legally recognized as "public." According to my informants, safety is chief among these; approximately 73% of all road fatalities in the country involve a motorbike—a frequently invoked statistic in discussions of the *ojek* (World Health Organization, 2018). One stakeholder from ORGANDA (*Organisasi Angkutan Darat,* Land Transportation Organization) who was involved in drafting UU/2009 told me: "I participated in some of discussion [for UU 22/2009]. When someone said "motorbike," nearly all parties agreed that motorbikes are unsafe and therefore shouldn't be included. Means of public transportation should, at least, possess three wheels like the *bajaj*" (Interview with transportation expert, October 16, 2019). Because drivers and passengers alike are more exposed to the elements, and more at risk of road fatalities than if that same trip were carried out by a different mode, the government cannot guarantee safety of passengers and therefore cannot designate the *ojek* as 'public,' despite its ubiquity. At the legislative level, all motorbike trips are considered private.

This legal framework was complicated in 2019, when the Ministry of Transportation granted the first national recognition of two-wheeled transportation with Ministerial Regulation 12 of 2019, Protection and Safety for Motorbikes Users in the Public Interest (PM 12/2019), which established minimum safety measures for the *ojek* industry (e.g. that drivers wear shoes, rather than sandals). This Ministerial Regulation (PM) was extremely contentious and remains in questionable legal standing. Informants repeatedly stated that the PM would likely be struck down at the Supreme Court level due to the legal inconsistencies between the Ministerial Regulation (*Peraturan Mentri*) and Indonesian Law (*Undang-Undang*), which takes legal precedent. In direct conflict with the more legally binding UU 22/2009, PM 12/2019 treats the *ojek* as public transportation "in the public interest."

Issued just one month before the 2019 General Election, the PM was widely interpreted by my informants as a political move to secure Jokowi votes from online *ojek* drivers who had voiced concerns about a lack of legal recognition through public protests throughout 2017 and 2018 (Interviews with drivers and transportation experts, February 2, September 9, September 24, 2019). With several million throughout the archipelago, online *ojek* drivers are a significant voting block and throughout 2019 had become a major site of patronage politics by various political parties working to secure votes amongst the urban poor. In the words of one informant, "The PM is a compromise between public pressure and the government's reluctance…It's public pressure—pressure from drivers, users, and our own president" (Interview with transportation historian, October 4, 2019). Legal experts Gusti et al. (2021: 732) put it in stark terms: "the Ministry of Transportation of the Republic of Indonesia has used excessive discretion as a public official to issue several regulations on online motorcycle transportation without having a legal basis so that is [sic] can be called as the abuse of power and authority." Thus, while PM 12/2019 established unprecedented legal recognition at the national level, it is not exactly historically remarkable; it maintains intact longstanding regulatory ambiguities in the *ojek* industry. The *ojek* may be "used for the public interest" (*digunakan untuk kepentingan masyarakat*), to use the language of PM 12/2019, or "needed by the people" (*ojek dibutuhkan rakyat),* to use President Jokowi's, but still cannot be formally legalized at the legislative (*Undang-Undang*) level.

This seeming contradiction reflects a more general state-regulatory response to the *ojek* that is reflective of its postcolonial development ideals. Though Gojek might be discussed as the future of Indonesia, for many of the most influential transport bureaucrats in the country, the *ojek* is relegated to constant state of backwardness, an "anomaly" that will disappear alongside the 'modernization' of the transport system (Interview with transportation historian, October 4, 2019). One of the original authors of UU 22/2009, a former head of Jabodetabek's Transport Management Agency (BPTJ),

discussed PM 12/2019 in these terms: "I don't agree with it [the *ojek*] as public transportation because of safety. And also[…]it is not civilized to me" (Interview with transportation official, November 14, 2019). In this influential view, the *ojek* is representative Indonesia's lack of economic development, public transport investment, and "chaotic" roads. "That's why I call this [*ojek*] phenomenon an anomaly" one expert who was involved in writing PM 12/2019 told me, "We will no longer need the *ojek* when we have better public transportation" (Interview with transportation historian, October 4, 2019).

At once, then, the *ojek* is legally and discursively anomalous—needed by the people, but considered neither safe nor modern; recognized by the Ministry of Transport, but not by Indonesian Law; illegal to some in the state apparatus, but politically and economically necessary to others. Drawing on Roy and Fairbanks, I suggest that the *ojek*'s regulatory ambiguity affords the state significant flexibility in not only governing these contradictions and navigating between imperatives of securing political legitimacy and economic development.

Politically, the state has long relied on the *ojek* as a crucial source of income for the urban majority in the face of widespread unemployment. Though this is true for informal transportation services dating back to the colonial era (Azuma, 2003; Jellinek, 1991), it is even more applicable for the *ojek*, which boasts a lower passenger to driver ratio than other modes (normally, 1:1), making it very effective at absorbing surplus labor. The same trip taken by a *bemo* (autorickshaw), *angkot* (minibus), or *bajaj* (autorickshaw) could employ 3-10 times as many *ojek* drivers. At minimum, recognizing the *ojek* as public transportation at the legislative level would require setting entry standards to become a driver (e.g. proof of driver's license, Jakarta residency card, driver training, etc.) and, at the municipal level, would likely include territorial quotas for the number of drivers that can operate in a given area of the city in the same way many other modes are regulated (e.g. *bajaj* and *becak*). In any case, legal recognition would create higher barriers to entry for the urban poor, a

politically untenable proposition. It is for this reason that the same official who called the *ojek* "uncivilized" told me in their very next breath, "but, of course, we need jobs" (Interview with transportation official, November 14, 2019). Thus, the *ojek*'s regulatory ambiguity affords the state flexibility in managing both poverty and transport in the city-region since it is able to adapt its regulatory responses to the political-economic conditions of different historical conjunctures. At times, this has meant crack downs, such as in 1994 when the Jakarta government was still trying to disincentivize Central Javanese *becak* drivers from migrating back to the city, many of whom had taken up the *ojek* after being dispossessed of the *becak* (see Chapter 2). At other times, it has meant tacit acceptance, such as in the wake of the 1997-8 financial crisis (*krismon*), when unemployment was extremely high and the *ojek* served as an important pressure release valve for the reserve labor force.

In addition to these legitimation functions, the *ojek*'s regulatory ambiguity benefits state interests in facilitating capital accumulation via foreign investment in the platform economy. President Jokowi's reversal of the *ojek* ban was only one intervention taken by the Indonesian state to promote its digital economy as a site of speculative investment. The country now has seven domestic platform 'unicorns' and the Indonesian state has set goals of cultivating another 20 by 2025, offering support for this through its "1001 Digital Startup Movement" and the "NextICorn" program in a self-described effort to become "less of a regulator, and more as a facilitator and accelerator" of digital startups (participant observation, April 3, 2019). The Jokowi administration has sought to court global venture capital investment through a wide-ranging liberalization of the digital economy including: exempting tech startups in Special Economic Zones from minimum foreign investment standards; foregoing government approval for expatriate workers in tech (Rahman, 2021), and deregulation of "data localization" laws that required all electronic systems operators to store their data in Indonesia data centers (Interview with Kementerian Kominfo, December 9, 2019). Indeed,

according to Tom Lembong, the Head of Indonesia's Investment Coordinating Board, "without the inflow to e-commerce and digital [sectors], FDI in the last five years would have been down rather than up" (Kawase, 2019). As the symbol of Indonesia's digital economy, the humble motorbike taxi has thus become the lynchpin of the state's economic development goals, with Gojek and Grab driving investment in the country. Even as they have expanded beyond *ojek* services, both platforms remain deeply reliant on the *ojek*'s labor pool to offer "an *ojek* for every need" and its immense popularity to cross-subsidize their more profitable services.

In short, the *ojek*'s supposed informality is not a lack of state intervention, but a strategic 'unmapping' that serves other state interests in poverty management, securing political legitimacy, and facilitating capital accumulation in the platform economy. This is not to say the industry is unregulated, however. As I will show in the following sections, the *ojek*'s legal grey area engenders other regulatory practices, institutions, and knowledge that govern the *ojek online* in ways that articulate with national-scale efforts to accommodate globalizing platform capital.

Biopolitics and the making of platform subjects

For drivers, the *ojek*'s ambiguous legal status translates into a pervasive sense of uncertainty. It not only leaves them open to arbitrary state intervention by the police while they are waiting for orders (*mangkal*), but also to opaque algorithms that determine their livelihoods in ways and for reasons that are frequently unclear to them. As one driver put it to me, "We're 'partners' but the partnership is still grey, it's unclear (*tidak jelas*)" (Fieldnotes, September 25, 2019). At midnight public forums and daytime *kopdar* (*kopi darat*, meeting, literally: ground coffee), on street corners and outside busy malls, and always over instant coffee and cigarettes, drivers swap theories on the inner workings of the algorithmic black box. They speculate on how to increase their income by making themselves more legible to the algorithmic system that distributes orders, how their actions may or

may not lead to suspensions or terminations from the platform, and how the company exploits them through deliberate, algorithmic "trickery," and unintentional, but nonetheless harmful, "glitches" (Interview with driver, April 24, 2019). Amongst such legal and material uncertainty, drivers do the best they can within the rules of the system that are clear to them, particularly by managing their performance metrics. Both Grab and Gojek collect data on drivers' performance metrics such as acceptance and completion rates, time between acceptance and pickup, GPS location, trip duration, "on-bid" (actively taking orders) hours, customer reviews and complaints, and so on. As is common in platform labor control (Rosenblat, 2018), many of these metrics are fed back to drivers so that they self-discipline in line with various incentives and disincentives: receiving bonuses, qualifying for special promotions or programs, suspension (*suspen*), or even termination from the application (*putus mitra*).

In this way, Grab and Gojek surveil their 'partners' not as individuals, but as a population—a dataset about the general labor process that can be sorted, categorized, managed, and governed (Foucault, 2009; Rose and Miller, 1992). This entails not only external forms of worker control via algorithmic management (discussed in the next section), but also the cultivation of internalized behaviors, value systems, and subject positions according to platform interests in data collection and rent extraction—the power to shape the 'conduct of conduct' of bodies and populations. As scholars like Gregory and Sadowski (2021) show, platforms deploy biopolitical power to govern workers as flexible, legible, entrepreneurial subjects.

In Jakarta, there is more to biopolitical platform governance than this, however. For Grab and Gojek, it is not only about the cultivation of better workers, but a broader project of inculcating platform subjects whose lives intersect with their platforms in ways that feed their larger ecosystem. For the 'super-apps' Grab and Gojek, drivers represent not only a labor pool, but also users for their other (more profitable) services. Both companies have developed a number of trainings, programs,

and incentives that seek to discipline drivers into platform subjects whose behavior and values align with their economic interests in downloading risk and responsibility for social reproduction onto workers, growing their ecosystem, and expanding their reach into the daily lives of Indonesians.

Gojek's early history helps illuminate this point. Before he joined Gojek as the CEO of GoPay (Gojek's financial technology or FinTech arm), Aldi Haryopratomo was the founder of Mapan, a FinTech platform that digitized traditional, female-led communal savings groups called *arisan*. In November 2016, he was approached by an *arisan* leader who was saving well but had very little income—a situation she hoped change by becoming a Gojek driver. At the time, she was unable to join the platform because of a cap on drivers, so Haryopratomo contacted his Harvard Business School classmate Nadiem Makarim to ask for an exception. When it was granted, the woman's *arisan* thrived, so the two founders agreed to run a pilot program in Yogyakarta, Java (Mulia, 2021). The idea was to merge the *arisan* and the *ojek* into a single platform ecosystem, sutured together through the (heteronormative) family structure. As Haryopratomo explains, "we said, 'Hey, we should do a pilot project where Mapan's women leaders can recruit their husbands to Gojek…Nadiem [Makarim] was super excited about it because he always had a big vision to have one app for everything. Fintech was an important part of that vision" (Mulia, 2021). For Makarim, the pilot program was "the point where I realized, like, this is a powerful combination" (Gojek, 2019a). The Yogyakarta project inspired Makarim and Gojek to develop several programs that are not so much worker training as "human capital" development for drivers and their families (Becker, 2009; Foucault et al., 1991). Ostensibly, these programs are intended to contribute to company's mission of 'social impact' by providing drivers with skills-development, but they also imbue values that align with the regulatory project of platform capitalism: individual entrepreneurialism, risk-absorption, and self-subsistence for social reproduction.

Take, for example, the *Bengkel Belajar Mitra* (BBM, Partner Learning Workshops) program.

Beginning in 2018, the company started offering workshops for drivers in five cities, including the Jabodetabek region. Workshop materials are split into two topics: (1) "Self-capability development" (*pengembangan kemampuan diri*), which includes workshops on entrepreneurialism and financial management; and (2) "Excellent service development" (*pengembangan layanan prima*), which includes first aid training, motorbike repair training, and English language skills (Gojek, 2019b). I spoke Bang Basuki, who had attended several of both but particularly enjoyed one "in which we were taught how to start our own business, like starting a *warung* [small, corner shop] for which we can apply for a GoPay partnership. They also told us on how to sign up for GoPay" (Interview with driver, September 3, 2019). When I responded that it seemed paradoxical to me—that is, a company encouraging its contractors to start businesses that could take them off the road—Bang Basuki corrected me:

> For me, it isn't a paradox. The program will accelerate drivers' side-business and they can then focus on taking orders. I mean, his wife or her husband can take care of the *warung* with less effort because they are now a GoFood and GoPay partner. It's in line with Gojek mission… (Interview with driver, September 3, 2019)

Bang Basuki's correction illuminates the ways in which the BBM program is about more than disciplining workers. It extends the platform well beyond working hours, deeper into the economic lives of drivers and their families. Drivers must not only be self-reliant enough to repair their motorbike and independent enough to conduct first aid for their passengers or fellow ojol, but they should also be entrepreneurial enough to open a GoFood *warung* with their spouse, financially literate enough to save their earnings in their GoPay account, and digitally-savvy enough to use that account to pay their bills, or access credit opportunities another Gojek program called Swadaya (self-help, literally: self-subsistent).

The Swadaya program provides driver partners with access to social welfare programs, promotions and discounts, and financial services. These range from the very mundane (e.g. promotions for cheap rice and cooking oil) to life-altering (e.g. access to mortgage credit). According

to the drivers I spoke with, however, the qualifying criteria for accessing Swadaya programs were unclear to them, though most suspected it was tied to performance metrics.[20] Though the Swadaya program promotes "financial inclusion," the terms of that inclusion are dependent upon becoming diligent workers and proper platform subjects. The Swadaya mortgage loan program is an extreme example. In partnership with the largest state-owned mortgage lender, Bank Tabungan Negara (BTN), Gojek offers eligible drivers a low-rate (5%) mortgage loan for up to a 20-year tenor, automatically paid daily in the amount of 42,000 IDR (~$3 USD) through the driver's GoPay account (Diela, 2017). I spoke with a driver who was a part of the first cohort offered these loans, Bang Farrel, who was excited by the prospect of owning his own home, but also concerned about being terminated by the application, at which point he would be forced to renegotiate his loan to monthly payments and a higher interest rate. I asked if this incentivized him to work harder than he did before taking out the loan: "Yes, but I am relaxed—not burdened—if I work longer hours. What else can we do? How else are we going to get a home?" (Interview with driver, September 21, 2019). Though Bang Farrel works longer hours now and diligently keeps enough credit in his GoPay account for the transfer, he admitted that "…sometimes Gojek is late in transferring the money to the bank […] The other day, the bank phoned and texted me, saying that I am down Rp 3,000,000 [~$197 USD]. I never miss my payments! Where did the money go?!" (Interview with driver, September 21, 2019). For every missed payment, BTN extends his loan period an additional day past his original 16-year tenor, during which he plans to remain as a Gojek driver. If he is terminated by the Gojek, he plans to start driving for Grab.

Through programs like Bengkel Belajar Mitra and Swadaya, Gojek instills values of "self-help"

[20] When confronted by a driver who had been rejected for credit to buy a smartphone, one Gojek Assistant Kopdar Partner (*Pembantu Kopdar Mitra*) responded: "Probably you are just ineligible. To be eligible for the Swadaya loan, there are certain requirements, such as maximum age, completion rate, performance rating, etc. There are a lot, I can't recall all of it" (Fieldnotes, August 31, 2019)

and "self-capability," modeling to drivers how to take responsibility for their own risk, both financial and physical. Financially, drivers are interpellated as risk-bearing subjects who take advantage of Swadaya credit programs for everything from cell phones, houses, and small business loans. This not only disciplines them as entrepreneurial, diligent workers according to platform metrics, but also enrolls them further into the Gojek platform through GoPay. Physically, drivers must become willing to take on the physical risks of injury and death presented by driving around Jakarta for sometimes 12-14 hours a day. Moreover, should they encounter an accident, they must also be 'self-capable' enough to repair their own vehicles and provide first aid to their customers and one another on the road. This analytical distinction means little to Bang Farrel; for him, financial and physical fuse in mutually reinforcing ways. Working longer hours to make his daily house payments means more hours on the road, more exposed to the threat premature death in the industry—the very same risk that supposedly prevents the state from regulating the *ojek* as public transportation in the first place, a lack of safety under UU 22/2009. This circular logic reveals where state interests lie, not in protecting the safety of *ojek* drivers and passengers, but in facilitating capital investment in Indonesia's platform economy.

Algorithmic management

On an afternoon in June 2019, I visited the "basecamp" of a Central Jakartan online driver community (*komunitas*) located at a busy intersection near the National Monument (Monas). Around rush hour, the six or seven phones haphazardly lying around the basecamp floor started lighting up with order alerts, each setting off a 12-second countdown during which the driver must decide to accept or not. After quickly scrutinizing the details of the order, anyone is free to accept or decline on their friends' behalf. Everyone seems to know what they are looking for. The rejection rate appears high, so I ask about how it will affect their performance ratings. One of the community

members, Bang Teguh, explains that there are major road blockages around Monas today due to constitutional court proceedings, so Gojek has temporary suspended the minimum acceptance rate necessary to claim the daily bonus, usually set at 65%. "In a typical day," he explains, "there's no such thing as choosing. If we ignore an order, we have to bear the consequence of a decreased performance rating. This is a special occasion; the rules don't apply" (Interview with driver, June 14, 2019). During normal rush hours, drivers are incentivized to take orders through the bonus scheme and surge pricing, but in absence of these mechanisms, the industry functions quite differently. Drivers quickly reject orders that will take them around Monas, of course, but also ones in the opposite direction that do not have much earning potential. Bang Teguh shows me the screen on his Gojek app that tracks his acceptance rate: 28 of 269 possible orders or 10.4% (Fieldnotes, September 12, 2019).

A time when 'rules don't apply' reveals the regulatory function of what Lee et al. (2015: 1603, my emphasis) call "algorithmic management"—"software algorithms that assume managerial functions *and surrounding institutional devices that support algorithms in practice*…allow[ing] companies to oversee myriads of workers in an optimized manner at a large scale." Techniques of algorithmic management include surge pricing, automatic enforcement of platform policies (e.g. suspension), supply-demand matching, and nudges, bonuses, or penalties that incentives certain types of behavior. Though incentive structures have long played a role in labor control, platforms like Grab and Gojek track data on the labor process at an unprecedented scale, using these as inputs for the automated, algorithmic systems upon which labor platforms depend (Jarrahi et al., 2021). For a largely 'disaggregated' industry like ride-hailing, algorithmic management is therefore a key mechanism of coordination, regulation, and governance in the platform economy.

While the existing literature focuses almost exclusively on the platform-worker relationship, I am also interested in Lee et al.'s emphasis on "surrounding institutional devices that support algorithms

in practice." Jakarta's regulatory and institutional context—as throughout much of the world—is one riven through with informal housing tenures, institutions and livelihood strategies (Kusno, 2019; Leitner and Sheppard, 2018; Sheppard, 2018; Simone, 2014). Taking this seriously means interrogating how algorithmic management operates in and through such these social relationships insofar as they 'support algorithms in practice.' In this section, I do so by attending to the lived experiences and outcomes of algorithmic management, showing how Grab and Gojek's disciplinary mechanisms create uncertain working conditions for drivers, which, in turn, stimulate informal survival strategies that lead to further regulatory encounters.

Overwhelmingly, the most important form of algorithmic management my informants experienced was suspensions and/or terminations (*putus mitra, PM*). At public forums, protests, kopdar, and many other venues, I heard countless drivers express their frustration over "unclear" (*tidak jelas*) and "unfair" (*tidak adil*) suspensions. At one late-night public forum held in Central Jakarta, a driver shared a story about his sister's suspension and subsequent termination:

> My sister is a very diligent driver, she did not use *aplikasi tuyul*, she never cancels any orders. But on one occasion, she got suspended. I told her to appeal and accompanied her to the Pasar Raya [Gojek] office. The minute after we met the complaint officer, my sister got terminated. Bastards! How can they do that?! All they said was: "it is 'by system,' Pak[21], there is nothing we can do." Liar! I was unsatisfied, so I press them harder. It turned out it [the original suspension] was all because a [sexist] comment from customer. (Fieldnotes, September 25, 2019)

At another *kopdar* I attended, a representative from the Gojek Driver Engagement team tried to quell driver frustration over 'by system' suspensions (or PM), explaining how they work through a comparison to manual suspensions. Manual suspensions or PM, he told a group of about 35 drivers, "are for the visible mistakes"—not wearing the proper jacket or footwear, using someone else's account or motorbike, sexual harassment, driving under the influence, or engaging in demonstrations (Fieldnotes, August 27, 2019). These offenses are reported directly to the company

[21] Pak is an honorific in the Indonesian language, used when speaking to an older male.

by customers or what drivers call "*mata-mata*" (spies, literally: eyes). Though drivers are acutely aware of the ways in which they are surveilled through the platform's performance metrics, they also contend with surveillance from within. According to the drivers I spoke to, both companies offered bounties ranging from 750,000 to 15,000,000 IDR (~$50 - $1,044 USD) for reports on code of conduct violations, such as wearing sandals, the use of *aplikasi tuyul* or creating fictitious orders (Interview with driver, September 10, 2019). Though I was unable to confirm this, the truth of the accusation—or the extent to which it is practiced, if true—is somewhat besides the point; drivers believed it and modified their behavior accordingly (Foucault, 2003). "By-system" suspensions, he continued, are for "invisible mistakes" when the platform detects a red flag and suspends the account automatically, such as a one-star review, repeatedly taking orders from the same customer in the same day, or other detections of fraudulent orders (Fieldnotes, August 31, 2019).

Because driving for the applications has become so central to the lives of many Jakartans, a week-long suspension or, worse, a *putus mitra* (PM) can be a serious economic burden for an individual or household. This has led many drivers to seek out extralegal, illegal, and/or informal survival strategies. These might include reverting to driving as a traditional *ojek* driver; borrowing a friend's account or that of a fellow community member; purchasing or renting another driver's account through the underground market for accounts; or commissioning a counterfeit residential identity card (*Kartu Tanda Penduduk*, KTP). Bang Joyo explained this last strategy to me as he handed me three different KTP cards, all with his photo on them: "if you look closely, the ID number is different, I can use that to 're-register' if my original account gets terminated or suspended. The employee, the compliance department, not even the IT department can tell whether I present a genuine KTP or not. My stance is clear, drivers will do this as long as the company is unfair to us" (Fieldnotes, September 25, 2019). Hearing this, another driver chimed in: "We are at war, technology against technology. As far as I can tell, we're always ahead of them [laughs]." Thus, under conditions

of algorithmic uncertainty and constant threat of suspension or termination—sometimes due to as little as a 1-star review or a sexist comment from a customer—drivers have developed intricate systems for safety and survival in the platform economy.

These activities have not gone unnoticed by the companies. Drivers describe a constant "*kucing-kucingan*" (cat-and-mouse game) between their innovative survival strategies and the algorithmic technologies that curtail them (Interview with driver, August 24, 2019). For example, in response to the underground market for buying and selling accounts (often used by drivers who have been suspended/terminated by one or both of the platforms), Grab implemented a feature in June 2019 that required drivers to verify their identity through facial recognition before accepting orders. This did not immediately curb the market, however, as sellers could list an un-updated version of the app in the brief window before Grab mandated an update: "That's risky, though. Because when the algorithm notices that you are using an old app and [if you] still ignore the warning [to update], you will get yourself suspended" (Interview with driver, June 19, 2019). As this example suggests, suspensions and PM ironically force drivers into a precarious situation in which they further violate platform code of conduct. Punitive forms of algorithmic management then lead to further regulatory encounters with *mata-mata*, platform algorithms or, in the case of illegal activities such as use of *aplikasi tuyul*, the police. While Western scholars have highlighted how the threat of suspension by algorithm increases worker precarity and self-discipline, my work shows that suspensions funnel drivers into other informal practices and regulatory structures, including the *komunitas* structure detailed below.

Driver community regulation

As I sill show in Chapter 4, drivers have responded to the uncertainties of their job by building grassroots mutual aid communities, auto-constructing their own socio-technical infrastructure to

mitigate risk and speculate on a better life. Numbering around 2,000 - 3,000 in Jabodetabek alone, these driver communities (*komunitas*) have become central to online *ojek* operations, offering informal worker training for new drivers, back channels for suspension resolution, enforcement of company code of conduct (i.e. community rules and enforcement mechanisms that mirror company policies), and a host of other functions such as emergency response, grassroots life insurance programs for the families of those who are killed on the job, and collective savings that can pay for sick leave or motorbike maintenance (Ford and Honan, 2019; Frey, 2020; Panimbang, 2021; Qadri, 2020 see also Chapter 4). In addition to these social reproductive functions, *komunitas* also provide an institutional structure for regulating and governing the online *ojek* industry in the absence of state mechanisms. As documented in Chapter 2, prior to Grab and Gojek, *ojek* drivers self-developed regulatory mechanisms to manage this informal industry (e.g. quota systems to cap supply, territorial organization of the industry, etc.), organized around the institution of the *pangkalan* (*ojek* stand). *Komunitas* perform similar functions for the online *ojek* industry, not only regulating the behavior of individual members, but offering an institutional and political structure for managing the industry in negotiation with other actors and institutions, such as *pangkalan*, the state, and the firms. In this section, I document these regulatory functions, both internal and external to the *komunitas*.

Internally, the many benefits of *komunitas* membership discipline drivers into to following community rules and values or face ejection. *Komunitas* exert strong pressures on members to conform to social and cultural values including mutual aid (*gotong-royong*), Islamic piety (*halal*), and solidarity with fellow drivers (*solidaritas).* Common community rules include prohibitions on drinking alcohol on and off the job (considered *haram* in Islam), and use of discriminatory language about "*SARA*" (ethnicity, religion, race, and other social divisions). Violation of "these things would ruin our good reputation. That's why we are very, very selective for any aspiring member" (Interview with driver, April 5, 2019). For most communities, there is a trial period for aspiring members

during which they are expected to follow all rules and be "active"—responding to emergency situations, participating in all *kopdar*, and visiting other communities to build *silaturhami* (an Islamic virtue of creating familial bonds). While providing mutual accountability within the *komunitas*, these norms and rules also govern driver behavior in ways that benefit the platforms. To use just one example, nearly every community I visited prohibited the use of *aplikasi tuyul* by its members, which is widely (though not exclusively) perceived as theft: "Using *aplikasi tuyul* is like stealing from someone…We want our members to be an honest person" (Interview with driver, April 5, 2019). The hierarchical nature of the *komunitas* provides a disciplinary function for those who violate such prohibitions; higher-ups can probate or outright eject drivers from a community for a major offense, and members who fail to be "active" are socially stigmatized, creating strong incentives to adhere to these rules.

Externally, driver communities also provide an institutional structure for regulating where and when online *ojek* can operate in the city relative to traditional *ojek*. As described in Chapter 2, online *ojek* operations violated longstanding industry regulations developed in the absence of legal recognition: queue systems, quotas on the number of drivers, payments to local protection rackets, self-developed permits for operation, and so on. As *ojol* encroached on *opang* regulations and territorial control throughout 2015 and 2016, violent encounters became frequent, with online drivers often physically threatened picking up passengers in *opang* territory. As one driver told me: "The streets (*lapangan*) were crazy. Back in those days, wearing a Gojek jacket was a dangerous thing" (Interview with driver, August 24, 2019). These conflicts presented a serious problem for Gojek and Grab operations by discouraging drivers and customers alike from joining the platform. Resolution was found in a patchwork of locally negotiated agreements between traditional *ojek* stands (*pangkalan*) and *komunitas*. These agreements vary in specifics but, for example, might prohibit *ojol* from picking up passengers in front of a busy Central Jakartan train station from the hours of

6am - 8pm (Fieldnotes, June 14, 2019). The result is spatial and temporal division of the *ojek* industry between *opang* and *ojol*, negotiated, regulated, and enforced by *komunitas* with little intervention from the state or the platform. Thus, in contrast to the common depiction of atomized, dispersed workers governed either through biopolitical, legal, or algorithmic forces, my findings show how regulation of the industry remains mediated by informal institutions like driver communities.

"Single-fighters"—the adopted English term used to describe drivers who are not associated with any *komunitas*—illustrate this point in the negative. In conversations with community members, single fighters were almost universally depicted as "problematic" in that they were unaware of *komunitas* rules: "In my experience, when a single-fighter makes trouble it is because he doesn't know the rules…[For example, the customer] is in a prohibited place, but he still picks her up there. He doesn't know because he doesn't have a proper channel for information" (Interview with driver, September 3, 2019). Since the details of *komunitas-pangkalan* agreements are known only to members, communicated at *kopdar*, and circulated through WhatsApp groups, single-fighters often unwittingly violate their terms. For this reason and many others, Grab and Gojek have increasingly encouraged new drivers and existing single-fighters to join a *komunitas* through methods such as push notifications, making suggestions of local communities to new drivers at recruitment events (informed through locational data they collect on communities), and even promotional T-shirts encouraging drivers to join a *komunitas* (Interview with driver, August 28, 2019, see Figure 6). As one Gojek driver explained it to me: "Gojek recommends single-fighters to join a *komunitas*…[because] the more [who join] *komunitas*, the easier it will be for the management to share information. Single-fighters are harder to reach" (Interview with driver, September 9, 2019). Yet, the 'problem' presented by single-fighters is not really one of information sharing; the application constantly pushes notifications and messages to drivers. The problem is uptake. *Komunitas* provide a social incentives and institutional structures for this uptake, encouraging new drivers to abide by the code

of conduct, refrain from using *aplikasi tuyul*, enforcing *komunitas-pangkalan* agreements, and socializing changes to the everyday workings of the application.

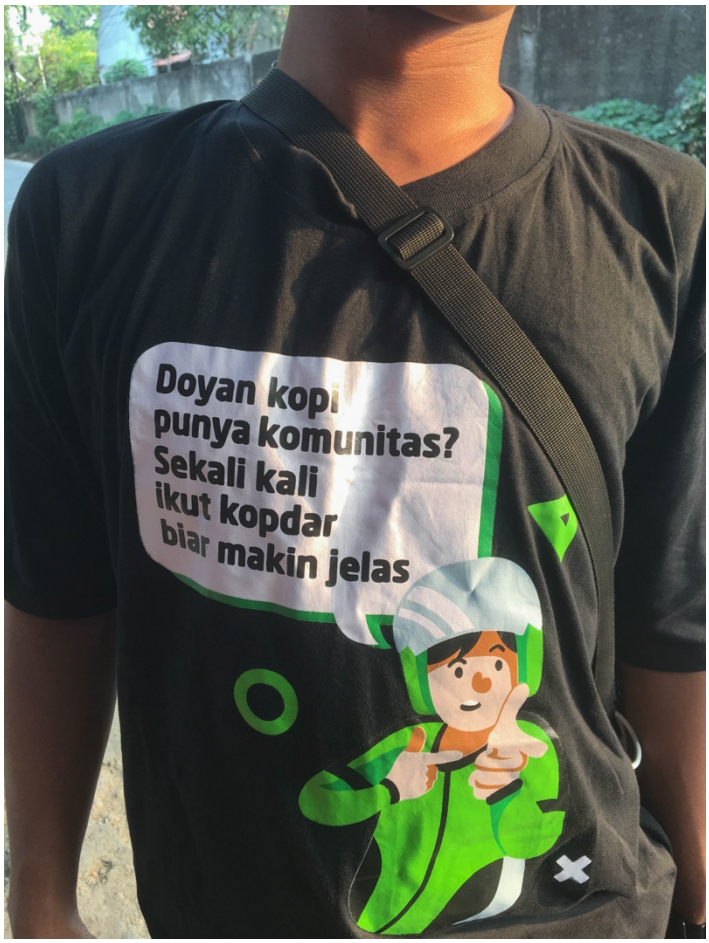

Figure 6: "Coffee lovers, do you have a community? Once in a while, join a kopdar to make it clearer" (photo source: author)

That Grab and Gojek would explicitly encourage their independent contractors to join grassroots worker organizations that have been involved in direct action against them reveals the complexities of platform governance in Jakarta. Though platform governance is often depicted as increasing the technocratic power of market-based, international technology firms, driver communities evidence the regulation and governance of the *ojek* market remains deeply reliant upon urban informality. One driver explained it to me in this way: "the management is aware of our existence...they recognize us, but they don't adopt us formally into the company. The driver is the

driver, the management is the management, both are separate. But the two of us can cooperate…" (Interview with driver, July 29, 2019). *Komunitas* act the buffer between supposedly 'independent' contractors and the firm, allowing the company to retreat from social reproduction, but still govern behavior when algorithmic means are not enough.

Platformization and informality, North and South

Ojol are thus caught up in biopolitical, algorithmic, and institutional regulatory pressures that extend into their bodies, subjectivities, families, and homes, if not the industry as such. Biopolitically, the platform's self-help programs transform workers into 'platform subjects' whose economic lives are increasingly intermediated by the platform. Moreover, these programs work to instill them with values that articulate with platform capital accumulation: individual entrepreneurialism, risk-absorption, and self-subsistence for social reproduction. For drivers like Bang Farrel who have taken on loans through Gojek's Swadaya program, this means compounded financial and physical risk, spending more time on Jakarta's dangerous streets. Algorithmically, platform technologies discipline the online *ojek* labor force through techniques such as 'by system' suspensions and terminations. Combined with widespread poverty, punitive forms of 'algorithmic management' lead drivers to adopt 'informal,' extra-legal survival mechanisms to remain in the industry that they have come to depend upon. In turn, these strategies—illicit trading of driver accounts, using counterfeit ID cards, borrowing a friend's account, and so on—lead to further regulatory encounters with platform algorithms, *mata-mata*, the police, or driver communities. Institutionally, grassroots driver communities offer substantial support to drivers, but also govern their behavior in ways that support the operations of platform firms, such as banning the use of *aplikasi tuyul* and negotiating territorial agreements between online *ojek* and traditional *ojek* drivers.

Certainly, these regulatory forces can be partially explained by existing conceptualizations of

platform governance drawn from regulationist and Foucauldian frameworks. But not completely, I argue. The case of the *ojek online* reveals how practices of urban informality are deeply intertwined with 'governance of' and 'governance by' platforms alike. On the one hand, I have shown how the Indonesian state is, in Roy's (2009b) terms, a "deeply informalized entity" that cultivates the *ojek*'s informality to both secure political legitimacy and attract capital accumulation in its digital economy. On the other, I have examined how informal livelihood practices are both a cause and outcome of regulatory technologies like algorithmic management. Urban informality thus deepens the political economic project of platform capitalism in Jakarta, an unplanned but interlocking modality of regulation that, however incompletely, expands the technocratic power of digital platforms to govern the behavior, values, and subject positions of Jakartans enrolled into their ecosystems.

In conclusion, I want to suggest that this framework pushes the current literature on platformization and informality, which has tended towards analyzing how digital platforms rework boundaries between formal and informal (Frey, 2020; Rekhviashvili and Sgibnev, 2018; Sopranzetti, 2021; Zhao, 2019). In North Atlantic economies, this is often depicted as an 'informalization' or 'Uberization" (Ticona and Mateescu, 2018; though see Dattani, 2021) in that platforms re-entrench deregulation and the continued breakdown of the Standard Employment Relationship and the Keynesian welfare state (Collier et al., 2018; Wells et al., 2020). In the global South, the narrative is opposite; platformization entails a 'formalization' of previously informal practices, institutions, and markets through digitization and data collection (Frey, 2020; Nastiti, 2017; Sopranzetti, 2021). Representative of this broader trend, Stehlin et al. (2020: 6) argue "platformization of mobility tends toward both the increasing informalization of infrastructure, particularly but not exclusively in global North cities, and the increasing formalization of more ad hoc mobility infrastructures in the global South."

Together, postcolonial urban theory and the case of the *ojek* would suggest that the question

should not be: how and where is platformization reworking boundaries between formal and informal?—such lines were always up for grabs. Instead, it offers a deconstruction of this geographical binary, asking: How does urban informality as a modality of regulation help secure data-driven accumulation? In contrast to current "territorial formations" (McFarlane, 2012: 89) of platform informality, this is a question that has broad salience across all cities, North and South. Platform firms around the globe routinely flout existing legal frameworks, undertaking illegal activity such as Facebook and Google's history of unsanctioned data harvesting or Uber's Greyball program. Recently leaked reports from Uber show a consistent history circumventing local regulations, obstructing police investigation, and entering into personal, backroom deals with local politicians in places like France, Germany, and the United States (Davies et al., 2022). Local and national states often condone and enable such extra-legal practices in the hope of promoting "digital futures" and 'world class city' development—what postcolonial urban theorists have called elite informality (Moatasim, 2019; Roy, 2005; Sheppard, 2018). Within a context of rapidly expanding platform services in cities across the globe, postcolonial urban theory thus offers a more nuanced theorization of the relations between informality and platformization across the Global North and South, speaking to important policy issues surrounding the regulation and governance of platform firms.

Chapter 4. The Social Lives of Network Effects: Speculation and Risk in Jakarta's Platform Economy

The last decade has heralded a global re-organization of relationships between digital technologies, networked infrastructures, data collection, and the urban environment. On the heels of municipal and private "smart city" interventions (Datta, 2015; Shelton et al., 2015), cities around the world are now grappling with the social and economic implications of platform firms like Airbnb, Amazon, Uber, Deliveroo, OYO, WeWork, and Bird. In particular, ride-hailing platforms such as Uber, Didi Chuxing, Ola, and Grab have upended existing systems of urban mobility. Leveraging proprietary geo-located data, ride-hailing companies algorithmically match real-time passenger demand with a supply of roving contract drivers to provide a market-based digital platform for urban mobility. Within a relatively short span of time, this business model has attracted historically unprecedented amounts of venture capital, the injection of which has engendered new urban mobility regimes, experimental public-private partnerships, and new patterns of transportation across the globe (Jin et al., 2018; Stehlin et al., 2020; Transportation Research Board, 2016). In turn, this has raised popular and academic concerns over how these companies are impacting congestion, carbon emissions, urban governance, public transportation use, and labor conditions for gig workers (Chen, 2017; Henao and Marshall, 2018; Mazumdar, 2020; Rosenblat, 2018).

Notwithstanding these considerable impacts, most ride-hailing platforms remain unprofitable and face increasing scrutiny about their long-term financial sustainability (Horan, 2017). Just a month before its proposed initial public offering (IPO) in May of 2019, Uber Technologies Incorporated disclosed in its mandatory Securities and Exchange Commission (SEC) S-1 filing that it had lost $1.8 billion dollars in 2018 (Uber Technologies Inc., 2019). Though it made big headlines, this in itself was not surprising. Deploying its venture capital war chest liberally, the company has sustained heavy yearly losses since its launch in 2009. What *was* truly surprising about the report,

however, were its frank statements about the company's potential profitability, given Uber's enormous valuation at the time: "We have incurred significant losses since inception, including in the United States and other major markets. We expect our operating expenses to increase significantly in the foreseeable future, and *we may not achieve profitability*" (Uber Technologies Inc., 2019: 29, my emphasis). The report goes on to state that their ongoing losses are the result of large price subsidies for consumers and cash incentives for divers, designed to pull more of both user-groups into their network and that, if they are unsuccessful in growing and maintaining this network, the company will eventually fail.

That Uber—once valued at $82 billion—would fold is not such an unimaginable prospect. Tech IPOs throughout 2019 revealed the fragility of platform firms propped up by enormous sums of venture capital but that had yet to turn a profit. In March of 2019, Lyft (Uber's major competitor in North America) had its own IPO, quickly followed by Uber itself in May. Both were sobering failures. Share prices slid below initial valuations immediately after opening, and have underperformed since amidst legal controversies and uncertainty around the impact of the COVID-19 pandemic. Combined with the implosion of WeWork after its own IPO announcement, these developments sent shockwaves through the tech and venture capital industries. There is now something of a reckoning in Silicon Valley about the long-term sustainability of 'growth-before-profit' platform startups, with investors concerned about another bubble as the share of unprofitable startups headed to IPO grows once again to dot.com bust levels (Ritter, 2020).

Uber's recent history helpfully illuminates the contours of an historical conjuncture in which venture capital speculation on platform firms and the data they collect has become increasingly influential for urban transformations across the globe. Urbanists have shown how financial speculation on land and real estate has ushered in a "speculative urbanism" premised on rendering urban space an object of global investment through neoliberal governance, transnational policy

norms advanced by global consulting networks, and new subjectivities (Fields, 2018; Goldman, 2021; Humphrey, 2020). The case of Uber, however, forces a consideration of different speculative processes, the object of which is not land, but digital sequences of 1s and 0s. Over the last decade, venture capital firms have bankrolled a global transformation of urban transportation systems, working to reorient residents' mobility towards data-capture by transnational, private platform firms (Stehlin et al., 2020). Realizing this transformation requires enormous capital outlays, leveraged to attract riders and drivers to the platform, scale quickly, collect more data than their competitors, and thereby solidify monopoly position and collect even more data. As Masayoshi Son—CEO of the Softbank Group and architect of its deep, global investments in ride-hailing through the Vision Fund—is fond of saying, "whoever controls data controls the world" (Pfluger, 2019). Yet, as Uber's recent history shows, the limits and risk-exposure endemic to this speculative city-making project have never been more apparent. Profitability in ride-hailing remains elusive.

Bringing attention to these underexamined facets of speculative urbanism, I ask: If ride-hailing platforms are not yet creating a return on investment, how are the networked connections they create in the meantime repurposed by everyday urban residents? And what might this tell us about speculative city-making in the current historical conjuncture of platform capitalism? Drawing on 12 months of ethnographic fieldwork with ride-hailing drivers in Greater Jakarta, Indonesia, I engage with these questions, showing how three different actors—venture capital funds, platform firms, and gig workers—are all brought together through speculation upon "network effects," a socio-technical phenomenon in which the more users there are in a networked system, the more useful and valuable that network becomes.

I proceed in three parts. First, I review the existing literature on digital platforms in geography and media studies, narrowing in on what Sarah Barns (2020) calls "platform urbanism." In particular, I highlight recent interventions arguing that this literature has been preoccupied with macro political

economic analyses, overlooking the "technological everyday" (Amin, 2007: 109; Barns, 2019; Leszczynski, 2019; Richardson, 2020b). In the second part, I review the history of network effects, arguing that while the platform studies literature identifies network effects as essential to the operations and capitalization of platform firms (Langley and Leyshon, 2017; Parker et al., 2016; Srnicek, 2016; Sundararajan, 2016) current understandings remain narrowly focused on the economic benefits that accrue to platform firms. This conceptualization problematically conforms to platform firms' interests in 'framing' (Callon, 1998a) network effects as a technical economic externality that can attract venture capital investment, rather than an embodied product of social relationships created and sustained in everyday urban life.

Third, I show the limits of this conceptualization through focusing on how platform architectures—including network effects—are embedded within a constellation of already-existing social relations in the technological everyday: the social lives of network effects. Drivers in the Greater Jakarta region have repurposed connections derived from a shared platform employer to 'autoconstruct' a network of their own, for their own purposes, with its own effects (Holston, 1991; Prouse, 2018). Much like venture capital and platform firms, ride-hailing drivers engage in their own speculations upon the value of these networks and seek to mitigate risk through them, though they are positioned very differently in their ability to accumulate from these efforts. Taking inspiration from AbdouMaliq Simone's (2008: 197) emphasis on the "pervasiveness of speculation as an urban practice engaged in by all kinds of urban actors", I foreground these everyday speculations and practices of collective risk management amongst platform workers. In conclusion, I suggest that attending to such practices opens up space to reframe platform urbanism beyond its current preoccupation with macro political economic analyses, while also establishing new lines of inquiry for theories of speculative urbanism beyond a focus on land and real estate.

Platform studies and the urban

Over the last decade, social scientists have sought to understand how digital platforms are reshaping social, economic, spatial, political, and cultural relations (Barns, 2019; Bratton, 2015; Fields and Rogers, 2019; Langley and Leyshon, 2017; Leszczynski, 2019; Maso et al., 2019; Rosenblat, 2018; Srnicek, 2016). Through the provision of a software program, application programming interface (API) or web interface, platform companies facilitate connections between different user groups, usually buyers and sellers, in order to capture data with the intention of realizing a profit. These connections enable social and economic exchange and the circulation of goods and services, with the platform firm acting as an intermediary and rentier. Uber, for example, uses its proprietary data to algorithmically connect people who want a ride with people willing to provide it, charging both user-groups rent (in the form of service fees) while simultaneously harvesting their data.

The data produced through platform intermediation—about consumption, about mobility patterns, viewing habits, worker efficiency, etc.—has become essential to contemporary capital accumulation: "platform capitalism". For Nick Srnicek (2016: 6), the 2007-8 financial crisis precipitated a new regime of accumulation in which "capitalism has turned to data as one way to maintain economic growth and vitality in the face of a sluggish production sector." Such a regime incentivizes all kinds of firms to maximize the data they can extract from users/consumers, which can then be analyzed, inter alia, to enhance firm algorithms, refine production processes, micro-target advertising, coordinate resource distribution, etc. Scholars across media studies, sociology, and geography have outlined how such data-extractive and intermediary platform logics are reshaping labor markets and work (van Doorn, 2017; Wells et al., 2020), surveillance and privacy (Zuboff, 2018), economic regulation (Ferreri and Sanyal, 2018), and cultural production (Maso et al., 2019).

Nowhere are these transformations more pronounced than in cities. Platform firms rely on

concentrations of users and workers, exploiting the spillovers of urban agglomeration to scale quickly and link assets and people in new socio-technical arrangements of urban space (Davidson and Infranca, 2016; Richardson, 2020b). Critical scholarship has called for a better understanding of these transforming relationships, a research program Sarah Barns (2015, 2020) coined "platform urbanism." As an analytical lens, platform urbanism centers "emergent, irreducible, co-generative dynamics between platforms and the urban" (Rodgers and Moore, 2018) through tracing the processes of intermediation that link "physical and digital layers of people, networks and urban infrastructures resulting from real-time ubiquitous technology and platforms" (Barns, 2015: n.p.).

For Stehlin (2018) and Sadowski (2020a, 2020b) these co-generative dynamics are the product of rentiership under capitalist urbanism. In the same way that locational advantage shapes the extraction of ground rent in physical urban space (c.f. Alonso, 1964), platforms seek to become the central, monopolistic intermediary for interactions in digital space (Langley and Leyshon, 2017), their business dependent "on the platform becoming a (necessary) intermediary in the production, circulation, or consumption process" (Sadowski, 2020b: 568). In turn, "platform rentiership" (Christophers, 2020) relations shape the city through, for instance, the conversion of housing into short-term rentals for listing on Airbnb (Wachsmuth and Weisler, 2018) or the reorganization of transportation systems via privatization or public-private partnerships between ride-hailing companies and transportation authorities (Stehlin et al., 2020; Transportation Research Board, 2016). Van Doorn (2019) emphasizes that this increasing proprietary control over urban data production has created a new institutional context in which platforms like Airbnb wield significant influence over housing policies and spatial planning in cities across the globe, creating a variegated regulatory landscape of policies for taxation, data-sharing, safety and security, and so on.

These and other scholars (see also Davidson and Infranca, 2016) make important contributions linking urban political economy with critical platform studies. Recent interventions drawing on

feminist and cultural geography argue, however, that platform urbanism cannot be limited to such political economic analyses (Barns, 2019; Leszczynski, 2019; Richardson, 2020a). These scholars emphasize that it is equally important to begin with the complex and geographically diverse entanglements of people and platforms in everyday life, taking up the range of epistemologies advanced by digital geographers in recent decades (see Elwood, 2020). Richardson (2020a: 458) suggests that platforms are not merely a business model; they should be understood as "flexible spatial arrangements" that hold potential for novel socio-technical organization of cities, even more equitable and ecologically sustainable ones (c.f. Gibson-Graham, 2006). Thus Leszczynski (2019: 13) calls for a "minor platform urbanism" (c.f. Katz, 1996), looking beyond the "totalizing analytics" of rentiership, class formation, worker control etc. to recognize platform urbanism as a contingent phenomenon, "open to opportunities for, tactical maneuvers rooted in everyday digital praxes that remake, unmake, and make differently platform/city interfaces." Encapsulating this shift, Sarah Barns (2019: 7, 2020) argues for an analytical focus on the "technological everyday" to navigate beyond macro political economy in platform studies (Amin, 2007).

Taken together, these scholars advocate for a theorization of platform urbanism rooted in "everyday life" wherein the quotidian practices of residents make and remake socio-spatial relations in the city (de Certeau, 1984; Lefebvre, 1991). This perspective centers the new, often-mundane connections made possible through digital platforms, recognizing already-existing practices of platform intermediation not solely determined by data-extractive or rentier logics. Attention to such practices—of mutual aid, communing, collective survival, etc.—offers insight into how urban residents reconfigure both platforms and the city in ways counter-hegemonic to platform capitalism (Leszczynski, 2019; see also Gibson-Graham, 2006). In Barns' (2018) terms, this is "platform urbanism as a mode of 'everyday' urban intervention, a site of urban spatial practice, disrupting smartphone media ecologies through collaborative, site-specific media interventions in the everyday

spaces of the city, calling into question the valorisation of urban data as a way of knowing the city." In this chapter, taking up these recent calls, I examine how Jakartans tactically repurpose platform intermediation for their own ends by building networks of mutual aid, remaking their lives, relations, and city in the process. I do so through the lens of an especially powerful organizing concept in platform studies: network effects. First, however, a brief history of the concept is needed.

Network effects, venture capital speculation, and risk

While the idea that a network's size is positively related to its value stretches back to early telecommunications systems (Vail, 1909), the modern understanding of network effects emerged out of personal computing. In the mid-1980s, Robert Metcalfe, one of the inventors of Ethernet, developed what he called a "high-concept Ethernet sales tool" (Metcalfe, 2013: 26) for new computer networking hardware that enabled the first Local Area Network (LAN) between personal computers. That sales tool—now called Metcalfe's Law—proposed that the cost of a network is directly proportional to the number of networked devices (N), but that the value of the network was proportional to the square of the number of networked devices (N^2). Values only exceed costs once a critical mass of networked devices (or users) is reached. Metcalfe and his sales team used this simple but powerful idea to convince early IBM PC owners to purchase Ethernet adapters so that critical mass could be reached. Metcalfe's Law, still debated empirically in the academic literature (Odlyzko and Tilly, 2005; Zhang et al., 2015), popularized the core proposition of network effects taken up within the tech and venture capital industries: as a network grows so too does its value.

Throughout the late 1980s and 1990s, economists and business scholars distinguished two primary types (Katz and Shapiro, 1985; Liebowitz and Margolis, 1994). *Direct network effects* result from a network with a single type of user-group, where the addition of a new user benefits existing users equally. For example, a single telephone is useless but more utility is gained with each new

connection, creating increasing returns to scale. *Indirect network effects*, typical of digital platforms, accrue when there is more than one type of user group in the network, with the addition of a new user in one group (e.g. buyers) increasing utility for users in another (e.g. sellers). A platform company like Uber intermediates a "multi-sided market" in which more drivers attract more users because of lower wait times and cheaper prices, and more users attract more drivers because there is more demand and more opportunity to earn (Parker et al., 2016).

All markets, of course, have two sides, but what distinguishes multi-sided platform markets is how the intermediary company develops a price structure to incentivize the participation of each 'side' (Rochet and Tirole, 2003). This is referred to as the 'chicken-and-egg problem.' To attract buyers, a platform should have a large, already-existing base of sellers, but sellers will only join a platform with a large, already-existing base of buyers (Caillaud and Jullien, 2003). How a company solves this conundrum depends on its strategy for attracting different user groups. Google, for instance, offers a suite of "free" services to draw in users and, in turn, this large user base attracts advertisers, its major source of revenue. As Srnicek has identified, this type of cross-subsidization is an essential characteristic of platform companies. Platform firms and investors will accept losses on one side (or, temporarily, even both), betting that they can grow the user base through coordinating network effects to attract the other side, to achieve profitability at scale (Srnicek, 2016).

For early-stage platform companies, then, access to capital is essential to reaching Metcalfe's hypothetical point where the value of the network exceeds cost. Yet the majority of banks and private equity firms see platform companies as simply too risky an investment since most have no physical assets or demonstrable path to profitability in early stages. Venture capital, by contrast, is defined by its exceptionally high risk-tolerance. It is estimated that over half of all venture capital deals lose money, around 20% recoup their investment, with just 6% of all deals producing around 60% of returns in the industry (Dixon, 2015). As such, even more so than other forms of private

equity, venture capital is riven through with speculation and risk. Over time, the industry has developed particular institutional and cultural practices designed to mitigate that risk burden across its portfolio of companies, especially since the 1980s when financial deregulation triggered an influx of capital from new sources such as pension funds (Nicholas, 2019; Zook, 2005). From the perspective of the VC firm, these interventions are not geared towards the long-term sustainability of a portfolio company, but rather towards growing it very rapidly so the VC fund can exit its investment profitably through an acquisition or IPO. After this point, whether the portfolio company fails is of no consequence.

This systemic prioritization of rapid growth makes venture capital a volatile and highly speculative industry. Failure is the norm and valuations can be radically out of proportion to a startup's existing revenue and assets, or even path to profitably. While these characteristics stretch back to venture capital's origins (Nicholas, 2019), platform capitalism has accelerated the industry's speculative tendencies. As the case of Uber demonstrates, platform firms losing billions of dollars a year still can attract venture capital firms betting that the platform will coordinate network effects to scale quickly, capture more data than their competitors and monopolize more of the market, which then creates more value and draws in even more users—a virtuous circle that culminates in monopoly rents (Parker et al., 2016).

From this light, it becomes clear that network effects are part and parcel of what Anna Tsing (2005: 55) calls the "economy of appearances." As she writes, "In speculative enterprises, profit must be imagined before it can be extracted; the possibility of economic performance must be conjured like a spirit to draw an audience of potential investors" (Tsing, 2005: 57). For this reason, Langley and Leyshon (2017: 14–15) conclude that it is through network effects that platform firms become "a legitimate object of capitalisation," their shares constructed as asset class that can generate returns on investment. While all financial investment is speculative in that a return is never

guaranteed, network effects legitimize speculation on platform firms, computationally and discursively constructing them as a viable business model and object of investment. Despite this importance, however, the concept remains underexamined in the platform urbanism literature, particularly from the perspective of the technological everyday—a lacuna I seek to remedy in the remainder of this chapter.

The social lives of network effects

The above political economic analysis of network effects is a limited conceptualization that should be expanded by attending to its social "overflows" (Callon, 1998a). Any attempt to "frame" a phenomenon in purely economic terms results in inevitable social seepages that require material and discursive work to manage (Appel, 2012; Polanyi, 1944). In economics, the framing process of modeling economic interactions results in constant attempts to identify and price externalities—viewed as anomalies that reflect the failure to adequately frame the phenomenon in the first place. From this perspective, network effects are such an externality; users gain consumption benefits each time another new user joins the network that may not be reflected in their price of entry. Indeed, much of the platform economics literature seeks to internalize network externalities into the price structure of a platform so as to avoid market failure (e.g. Katz and Shapiro, 1985). Epistemologically, the assumption is that network effects created by the platform can be enclosed and measured, enabling an appropriate price to be placed on their value.

Michel Callon reminds us, however, that this distinction between what is internal to the network and what is external is only ever a temporary achievement. Technologies and people are already situated within dense social relations that "overflow" any framing that attempts to delineate boundaries of interaction (Callon, 1998a; Latour, 2005). As he puts it: "[A]ll framing thus represents a violent effort to extricate the agents concerned from this network of interactions and push them

onto a clearly demarcated 'stage' which has been specially prepared and fitted out" (Callon, 1998a: 253). Platform firms frame network effects as an object of speculative investment, seeking to extricate the phenomenon from its social basis. In this performative process, platform workers are reduced to data points, atomized into market-actors, severed from collective norms and existing social relations, transformed into data trails that represent growth-potential, and stripped of their agency to build networks of their own. Even the critical platform studies literature tends to conform to this narrow economistic understanding by remaining preoccupied with macro political economic analyses of how network effects reinforce platform power: network effects enable the accumulation of more users and data (Srnicek, 2016), legitimize capitalization (Langley and Leyshon, 2017), and create strong monopoly tendencies (Christophers, 2020; Sadowski, 2020b).

Ultimately, though, network effects are a *socio*-technical phenomenon that—despite the aligned interests of venture capital and platform firms to disembed, enclose, and commodify—creates new relationships between people in the technological everyday.[22] There are always social "overflows" to the framing of network effects as purely an object of speculative investment and future rent-extraction. Digital platforms not only rely upon pre-existing social relations between urban residents, but also engender new networks of interaction that are not fully captured by within their architectures. Drawing on Callon and responding to recent calls by Barns and others, I seek to advance platform urbanism by attending to the social lives of network effects—how platform architectures fundamentally depend on the socio-spatial relationality of those situated at the intersection of multiple forces: cultural arrangements, institutional pressures, racial hierarchies, religious beliefs, knowledge systems, gender norms, political economies, etc. (Barns, 2019; Hecht et al., 2014). In Greater Jakarta, ride-hailing drivers have drawn on their social relations to repurpose

[22] For space and analytical purposes, I do not address the literature on social network formation in this chapter. Given the large body of theory on networks in geography and beyond, I have kept my focus more narrowly on the network effects of digital platforms, as they are conceptualized in the platform studies literature.

platform intermediation, autoconstructing their own networks derived from those developed via a shared platform employer.

The autoconstructed driver network in Greater Jakarta

Since 2015, the digital platforms Grab (based in Singapore) and its domestic Indonesian rival Gojek have disrupted urban transportation systems throughout Indonesia. Unlike ride-hailing platforms in Europe or North America, Grab and Gojek's success relies primarily on motorbike taxis, known locally as *ojek*, which are significantly faster in Jakarta's congested streets because they can cut through automobile traffic. Drawing on this pool of online motorbike taxi drivers (or *ojol*, derived from *ojek online*), both companies offer not only rides but also an extensive array of delivery services (Grab Food/Express and GoFood/GoSend, respectively), supplemented by their now-ubiquitous mobile payment systems (OVO and GoPay).[23] These companies have grown at incredible rates: Gojek expanded from completing around 5,000 orders per day in 2015 to over 3 million by 2018, roughly 35 orders per second (Noormega, 2018).

This rapid expansion has been enabled by a parallel growth of global investment in Indonesia's digital economy, quadrupling to $40 billion between 2015 and 2019 (Davis et al., 2019). As two of the largest tech companies in the country, Grab and Gojek lead in attracting investment from prominent venture capitalists such as the SoftBank Group, tech companies like Google, and even other ride-hailing companies like Didi Chuxing and Uber (which sold its Southeast Asian assets to Grab in 2018 for a 27.5% equity stake). At time of writing, Gojek has raised approximately $5 billion dollars, and Grab has nearly $12 billion dollars[24], with significantly higher valuations for each.

[23] Given the diversity and popularity of their other services such as food deliver and digital payments, both Grab and Gojek now prefer to call themselves "super-apps". I will refer to them as ride-hailing companies due to my focus on motorbike taxi drivers.

[24] Estimates from Techcrunch.com (accessed March 11, 2021)

Nevertheless, like Uber and Lyft, neither company currently operates at a profit in ride-hailing. Nadiem Makarim, founder and former CEO of Gojek, has openly admitted that "we built the business with the assumption that ride hailing is only at a break even," speculating that the popularity of motorbike ride-hailing will cross-subsize their more profitable food delivery and digital payments services (Suzuki, 2019). In the eyes of both venture capital investors and the platform firms, drawing in and maintaining a large pool of drivers is thus essential to coordinating speculative network effects in the Indonesian market. This has led to mass recruitment events, bonuses, and promotions to draw in more drivers: Gojek alone claims to have over 2 million across the country (Samboh, 2021).

Despite these numbers, ojol drivers face substantial legal, material, and economic risks and uncertainties. First, the *ojek*—online or otherwise—is not a legally recognized form of transportation. Under Indonesian Law 22 of 2009, governing road transportation throughout the archipelago nation, the motorbike taxi cannot be considered public transportation in the same way as taxis (online or conventional), and thus never has been regulated at the national or municipal level in Jakarta. Ojol drivers therefore operate in what one prominent NGO activist calls a "legal grey zone" that leaves them open to arbitrary state intervention: "If the law remains grey, the life of the ojol will also be grey" (Fieldnotes, October 23, 2019). Second, ojol confront opaque algorithms and platform rules that govern their everyday lives and wages. Following the playbook deployed by ride-hailing platforms across the globe, drivers were initially drawn into the Grab and Gojek platforms through relatively high wage rates and large bonuses, incentives that have steadily been cut back in recent years as more users join the network. Drivers can be suspended or terminated from the application at any time with little recourse, and they report that the company's rationale for doing so is often unclear to them. Lastly, while the motorbike is extremely popular it is also deadly; the vast majority of all traffic accidents in the country involve a motorbike. Ride-hailing drivers therefore put

themselves at significant physical risk to deliver passengers, food, and packages for others.

To manage these uncertainties and risks, drivers have built grassroots communities of mutual aid. Ojol driver communities (*komunitas*) usually consist of around 20-30 drivers who band together and establish a "basecamp" or "shelter" where they can rest between orders. Most start with a handful of drivers who wait for orders in the same area (*mangkal*), but these groups frequently grow into sophisticated organizations with their own internal structure, strict hierarchies, operating procedures, and elected or appointed positions: leader, field coordinator, secretary, treasurer, first responders, public relations, etc. Emerging in South Jakarta by 2015, driver communities have mushroomed and evolved to take on significant responsibility for the social reproduction of drivers, informal worker training, and the regulation of the ride-hailing industry in the city-region. Based on my conversations with leaders in these communities, I estimate that there are approximately 2,000 - 3,000 online *ojek* communities throughout Greater Jakarta, each with their own unique name and logo that drivers proudly represent as they move throughout the city-region.

Driver communities themselves are remarkably networked, regularly gathering in-person with other communities, but also online in local, district-wide, city-wide, and even nation-wide online communities via social media, particularly WhatsApp. Individual driver communities coordinate internally via WhatsApp groups, while also splitting off to form new, online organizations (*wadah*, or "container", and *lintas,* "crossing") dedicated to a shared purpose (e.g. emergency response, discussed below), shared territory (e.g. East Jakarta), or even a shared make and model of motorbike. WhatsApp allows for easy forwarding of messages simultaneously to many groups, rapidly spreading information about road accidents, protests, the latest app update, etc. amongst communities. Most drivers are a part of at least 20 such WhatsApp groups and it is not uncommon for drivers, especially community leaders tapped into more online groups, to receive hundreds—sometimes thousands—of WhatsApp messages in an hour (Fieldnotes, April 14, 2019).

In this way, drivers engage in what Carolyn Prouse (2018) calls digital autoconstruction, expanding upon Holston's (1991) analysis of self-built housing in peripheral Brazilian cities. Prouse shows how everyday residents and journalists in Complexo do Alemão, Brazil, create online spaces and collectives through social media applications, actively stepping into material and discursive vacancies left by the state and reshaping racialized state violence in the process. The prefix "auto" conveys a conceptual lineage: lacking state support, residents may come together to autoconstruct their own infrastructure, but Holston and Prouse emphasize that the consequences of this process are socially, spatially, and politically complex. Autoconstruction can engender new political subjectivities and possibilities, but also can re-entrench hegemonic relationships and norms.

In Greater Jakarta, as throughout Indonesia, Gojek and Grab have compiled an enormous pool of laborers—most already engaged in piecemeal work—with a low-barrier-to-entry job, and an extremely popular and affordable form of transportation (the *ojek*) to coordinate platform network effects, successfully packaging this business model for global investors. Yet there are unintended social overflows in bringing drivers together as a flexible labor pool. Online *ojek* drivers step into gaps left by platform firms and the state, autoconstructing socio-technical networks of their own to mitigate risks associated with their lack of legal status, economic and physical uncertainties, and the responsibility for social reproduction shouldered upon them. Though they are initially brought together by Grab and Gojek under a shared identity, drivers exceed platform architectures of data-capture and rent-extraction by building grassroots networks via the messaging platform WhatsApp.

This autoconstructed driver network provides value for its participants, which grows with the number of drivers. Each new driver added to this ecosystem of online and offline communities benefits those already connected: more resources for collective social insurance, improved response times for first responders, faster information dissemination, improved access to potential patrons or customers, and more protection against violence from conventional transportation drivers. I argue

that these too are network effects, whose social lives are excluded from existing conceptualizations in platform studies because they are coordinated, maintained, used, and speculated upon by gig workers, not by platform firms or venture capital.

While still taking seriously the mutual imbrication of speculation and network effects highlighted above, I shift attention to the social lives of network effects in the technological everyday. As I will show in the following sections, drivers—and indeed a whole range of actors throughout Greater Jakarta—speculate on these autoconstructed driver network effects and seek to mitigate risk through them, although not all are equally able to do so. Speculation always exists in relation with risk, and the following sections explore this relationship. First, I examine the economic and physical risks downloaded to drivers by platform firms, and how drivers have cultivated socio-technical structures and practices of mutual aid in order to collectively manage those uncertainties. Second, I explore how various groups and institutions—including drivers, firms, civil society groups, political parties, and the Indonesian state—seek to tap into grassroots driver networks, speculating that they can advance their political, social, or economic interests by so doing.

Mutual aid and collective risk management

The platform business model relies on the ability to externalize costs, risks, and responsibility for social reproduction onto workers (van Doorn, 2017). This is primarily achieved through the legal, political, and discursive work these firms put into positioning themselves as merely passive intermediaries connecting different users, despite the significant control they maintain over conditions of work (Gillespie, 2010; Rosenblat, 2018). Ride-hailing firms classify drivers as independent contractors, or "*mitra*" (partners) in Indonesian labor law, making them ineligible for employer-paid insurance, pension funds, collective bargaining, and other employee benefits. Furthermore, drivers must pay for their own gas, insurance, vehicle maintenance, etc., forcing

"workers to shoulder the risks and responsibilities of social reproduction" (van Doorn, 2017: 902). This downward redistribution is itself tied to the valuations of platform firms, and venture capital speculations upon them, positioning them as a 'lean' business with low overhead (Srnicek, 2016).

The risks displaced onto the hundreds of thousands of ojol drivers in Greater Jakarta are significant. Drivers are regularly on the road for 12 – 14 hours a day, and deaths of Grab and Gojek drivers are a common occurrence in Jabodetabek according to my informants, especially in the industrial areas of North Jakarta where a driver can easily be crushed by a lorry. Even a minor accident with no injury can mean devastating lost wages for the driver if their motorbike is damaged beyond immediate repair. Falling wage rates and bonuses in recent years compound risk: drivers must spend even more hours on the road, exposing themselves to not just more accidents but also Jakarta's extreme temperatures and chronic air pollution, regularly among the worst in the world.

Drivers' autoconstructed networks and systems are designed to collectively manage such hazards. One primary means is the collection and redistribution of dues.[25] Nearly all of the *komunitas* that I visited during my fieldwork require members to pay community dues, which averaged around 20,000 rupiah per month, per person ($1.46 USD). Dues "are collective in nature, their purpose is to further collective interests" (Interview with driver, August 27, 2019). These funds, managed by the community treasurer, are distributed based on need: helping to pay for motorbike repairs, parental leave after the arrival of a new baby, a stipend if a driver cannot work due to illness, and so on. In effect, community dues function as a mode of social insurance in Jakarta's platform economy, filling in responsibilities for social reproduction of the platform labor force.

Dues can also be redistributed to the larger population of ojol beyond the *komunitas*. Many

[25] Though driver communities collect dues like a labor union, the majority of community leaders I spoke with did not consider their organizing to be part of a labor movement and were, in fact, quite skeptical of unionization. With some notable exceptions, drivers largely discussed their practices in terms of mutual aid (*gotong royong*) and solidarity (*solidaritas)*, rather than labor organizing.

communities that I encountered donated a monthly percentage to emergent social and religious organizations dedicated to improving ojol drivers' lives. One such organization is GAS (*Garasi Amal Sholeh*, or "Good Deeds Garage"), which provides a sort of life insurance for the children and families of deceased ojol. GAS supports several hundred orphans throughout Jabodetabek, around 70 percent of whom had parents who were ojol before they passed away (Fieldnotes, April 16, 2019). At a weekly distribution of donations to orphans in North Jakarta, one leader shared with me that the organization has actually been around for 19 years, but was recently reinvigorated by participation and contributions from ojol communities (Fieldnotes, April 16, 2019). The increased number of children orphaned because their parents were killed while driving for the platform companies has meant that there is more need, he somberly explained.

Driver communities have also formed grassroots emergency response networks. All driver communities have an internal "*unit reaksi cepat*" (URC) or "quick reaction unit" that is responsible for responding to emergency situations and other types of "trouble," the adopted English term used by drivers to refer to problems such as mechanical failures, flat tires, conflict with conventional *ojek* drivers, or other emergencies. The leaders of these community-level URC teams participate in larger-scale regional umbrella organizations (e.g. URC South Jakarta, URC Bekasi), facilitating scalar coordination and information-sharing in the event of an incident. URCs make extensive use of WhatsApp features, especially voice messages, group chats, and the live location sharing feature that drivers use to track one another in real time to monitor safety. These techniques, developed and shared throughout the URC communities, have created a sophisticated lattice network of coordinated emergency response throughout the city-region.

A vignette from my fieldwork illustrates this point. On an especially muggy afternoon in April 2019, I visited a community basecamp in the North Jakarta region of Tanjung Priok. In the middle of our conversation there was a sudden flurry of activity as drivers started rapidly listening to and

sending audio messages through the URC North Jakarta WhatsApp group, reporting that there had been an accident about 10 km away in which a motorbike driver had been hit by a Grab Car driver. The "field coordinator" (*korlap*, *kordinator lapangan*) of this basecamp dispatched a URC member to the accident, the exact location of which was shared by the Grab Car driver via WhatsApp. The injured man eventually was taken to a nearby hospital, while URC members tracked progress on the road through the live location feature. Once he arrived, a URC member sent a selfie to the URC WhatsApp group to confirm that the patient has been successfully admitted, and that the hospital would accept his state-provided insurance and had the proper equipment to handle his injuries. In the end, it turned out the victim was not even an ojol driver.

Across the city-region (indeed, the country), URC units respond to these types of events hundreds of times daily, rivaling existing social services and far outstripping the companies' efforts to protect their "partners" (*mitra*). Under pressure from driver protests, in 2019 Gojek provided three ambulances for the entire Jabodetabek region. According to the URC members I talked to, however, it can take up to three or four hours for an ambulance to arrive. "By that time" one member told me, "the driver will already be dead" (Interview with driver, June 18, 2019). In contrast, URC response times are within minutes because of their wide dispersal throughout the city, ever-growing numbers, and innovative standards and practices.

URC's ubiquitous presence helps keep drivers on the road when their motorbike breaks down, gets a flat tire, or other "trouble." Delays or incomplete orders can trigger negative ratings from customers that can lead to suspensions or terminations, putting strong structural pressures on drivers to take matters into their own hands. In effect, this relieves pressure from the platform companies for handling these types of issues, further downloading responsibility onto driver communities and networks. As one field coordinator put it to me, "It's the risk we take as drivers. The office doesn't wanna know about it. Their attitude is that they're just here to sort us out with

orders, how we fulfill them isn't their business" (Interview with driver, April 16, 2019, translation by Hannah Ekin).

While significant scholarship shows how platform intermediaries retreat from social reproduction claiming that they merely link users, my findings reveal that gig workers in Greater Jakarta step into these gaps themselves to reshape the material conditions of their work. For platform firms, a downward redistribution of risk and responsibility reduces operations costs, performs their 'lean' overhead to VC firms, and allows them to redirect capital towards coordinating network effects at scale rather than towards labor costs. For drivers, on the other hand, it motivates digital autoconstruction of their own networks in order to collectively manage that risk, scaling as more and more drivers become connected. These are not merely different instantiations of physical or financial risk; rather "profitable risk and exploitative risk are mutually dependent" and relationally constructed in the platform economy (Appel, 2012: 703). And yet drivers in Greater Jakarta have found creative ways to collectively manage that risk through their online and offline networks, keeping them on the road to feed their families and insure themselves in case of injury or death.

Speculative network effects in the technological everyday

While speculation is often relegated to the realms of financial markets, geographers and economic anthropologists have shown how speculation is a social practice through which all kinds of actors and groups attempt to deal with uncertainty, improve their life chances, and plan for the future (Bear, 2020; Gidwani and Upadhya, 2022; Humphrey, 2020; Leitner et al., 2022; Simone, 2008). Throughout his work on African and Asian cities, including Jakarta, AbdouMaliq Simone articulates the ways in which urban residents engage in speculation through investing time, energy, and money in new ventures and social relationships that may bring unforeseen prospects, patrons, new access to housing or credit, or other opportunities. For Simone, this is a modality of speculation

that allows Jakarta's urban majority to manage the risks associated with urban life, where one's access to housing, work, water, etc. may only be temporary. Such uncertainty provokes "doing something out of the ordinary" (Simone, 2008: 60)—a side hustle, a new relationship that might pay off at a later date, money down on an acquaintance's nascent business, a bribe with an uncertain payoff, participation in a multi-level marketing scheme, a move to a more advantageous location. These "everyday speculations" may or may not be financial (Leitner et al., 2022), but nonetheless are geared towards improving urban residents' lives and livelihoods, even if that outcome is uncertain or ventured at great risk.

Adopting this lens shows how many different actors in Greater Jakarta speculate upon socio-technical driver networks, if not always with the same power to accumulate from them. For drivers, everyday speculation could mean simply utilizing driver networks to advance their other economic ventures. At driver community meetings, on WhatsApp groups, through other social media, and even while on the road, drivers market individual side-businesses—selling Lebaran cakes from the back of their motorbike, offering a promotion for their auto-repair shop, bakery, or clothing business. Indeed, whole new cottage industries have cropped up to cater to online drivers and their communities. Whenever I attended social gatherings for drivers I would run into Joko, who sells customized pins, buttons, and stickers representing the logos of different driver communities. Driving part time for Gojek, he spends weekends selling his wares at driver community "anniversaries," large celebrations that can draw hundreds of ojol but also entrepreneurs like himself and others catering to the ojol market, such as telecoms companies, motor oil companies, or motorbike manufacturers. Joko spends most of his Gojek earnings on making his pins and other wares, betting that he can sell them for more than he can earn from Gojek.

Others speculate that access to driver networks might offer social capital or patronage relations.

During my fieldwork, I regularly visited the basecamp of a driver community called Go-Venture[26], whose leader explained to me that he expected his members to drive only part time for Grab or Gojek so that they could focus on their other entrepreneurial activities. But he also emphasized that the two could be mutually beneficial:

> "We don't support entrepreneurship financially, but we can help by marketing the goods. We can also help by registering the [member's] business with GoFood. We have contacts with the [Gojek] office, those guys can cover us." (Interview with driver, August 28, 2019)

As this leader suggests, higher-ups in driver communities often have privileged access to Grab and Gojek employees through dedicated driver-management WhatsApp groups or personal connections. These informal online and offline spaces enable drivers to receive other benefits from associating with a well-connected community: getting their side-business registered with GoFood, sorting out a technical problem with the app, and especially help with being re-instated if temporarily suspended for an offence (such as a 1-star review, fieldnotes September 21, 2019, interviews with drivers, September 12, 24, 2019). As Ari puts it, "The management befriends us because there's something that we can give to them, and of course it's the same for us. There's always give and take […] so, if our friends have trouble with their account, we can just ask for help from the management" (Interview with driver, August 29, 2019). Notably, these company patronage relations exist outside of formal channels for re-instating drivers, a motivating factor for drivers to join a *komunitas* under the speculation of this privileged access to management.

As Ari hints, the platform firms themselves speculate on autoconstructed network effects, though not just in the purely economistic sense described above. With the growth of *komunitas* in Jabodetabek, Grab and Gojek have sought to tap into their leadership because their WhatsApp groups give them access to—and influence over—large numbers of drivers outside of the more rigid architecture of the application. The bigger the driver community, the more pressure there is for

[26] Community names have been changed to protect anonymity

Grab and Gojek management to engage. According to the Gojek VP for Operations for Jabodetabek, "This [driver] engagement really helps us do many things in our process…it helps the scalability…Even if we do on-boarding [registration], what do we do? We just tell the community leader…" (Interview with Gojek employee, December 11, 2019). Management's access is never guaranteed, however; the risk of being cut off is always present. While some drivers describe these efforts as "symbiotic," many saw them simply as worker control: "The company needs the *komunitas* because they want a good relationship with drivers…amicable communication ensures drivers will strike less because they have a channel to voice their opinion" (Interview with driver, September 3, 2019). Regardless of a driver's individual position, the autoconstructed driver network and its scaling effects becomes an object of speculation that cannot be reduced to data alone, but is suffused with social relations of patronage, trust, risk, and control.

Everyday speculation on these networks is not limited to drivers or the companies, however: "The more the movement of the ojol as a group [grows], the more irresponsible people take advantage of our solidarity, our social spirit" (Interview with driver, August 23, 2019). The number of driver communities, their networks, and the depth of their organizing have led to political power that, in turn, has garnered overtures by all manner of actors well-removed from the ojol lifeworld. Throughout my fieldwork, my informants reported that their communities were approached by local officials (RT or RW), political parties or individual candidates, civil society organizations (*ormas*), labor unions, and the Indonesian state. All speculate that connection to the driver network can advance their political agenda, whether that be conscripting neighborhood "eyes on the street," patronage politics, or worker solidarity and dues collection. These actors sometimes even become ojol themselves, sparking frequent rumors and suspicion of spies amongst communities: "They [join] because of…another motivation, not an economic interest to make a living, no…I mean political power, mobilizing the ojol for political interests" (Interview with driver, September 12, 2019). These

concerns were especially prominent during my fieldwork, as the 2019 general election unfolded, and various political parties and groups approached communities due to their large numbers and dense networks.

In short, the autoconstructed driver network has engendered practices of financial and non-financial speculation by a diverse range of actors in Greater Jakarta. Following Simone, I understand these practices as speculative in that Jakartans—under uncertain conditions—invest their time and energy into networked social relationships that may or may not realize other opportunities. From this vantage, it is clear that venture capitalists and the platform firms are not the only ones who speculate on network effects.

Conclusion

For those whose lives have been reshaped by Grab and Gojek in Greater Jakarta, there is deep-seated uncertainty about online *ojek*'s future. Drivers are wary after watching many ride-hailing competitors rise and fall over the last five years; even the apparent global titan Uber was only a short-lived opportunity here. Investors and platform executives alike eye consolidation, and rumors of Grab/Gojek mergers are always on the winds. The regulatory landscape itself lacks solid foundation, as regulators consider designating gig workers employees and revising Law 22 of 2009 to recognize the *ojek* as public transit, both of which would have profound but unclear consequences. In the meantime, the COVID-19 pandemic has laid bare the underlying, day-to-day precarity in which drivers operate. Despite its near ubiquity, the industry dwells in the ambiguity of long-term viability, even if the short-term is flooded with venture capital.

Amidst this uncertainty, ojol drivers speculate while they can on the opportunities, cottage industries, and social networks engendered by platformization. Drivers have reforged their connections to one another to manage risk, deal with uncertainty, and piece together a living. In

doing so, they have autoconstructed networks that now permeate ride-hailing operations in the city-region, with sophisticated systems of mutual aid, insurance, emergency response, and social reproduction filling in gaps left by the retreat of platform firms and the state. And yet, Prouse reminds us that the outcomes of digital autoconstruction are never straightforward. Even as the driver network is a response to platform firms downloading risk and responsibility, it also paradoxically re-entrenches downward redistribution by allowing the firms to withdraw further. Moreover, driver network effects stimulate practices of speculation by a range of actors who seek to exploit driver networks for the own political economic interests.

Such an analysis offers a more multifaceted view of network effects than the current platform studies literature might suggest. On the one hand, the mainstream platform economics literature understands network effects as a technical externality, to be internalized into a platform's price structure if correctly measured and modeled. On the other, the critical literature largely assumes that network effects reinforce the economic value and power of the platform firm. Notwithstanding significant epistemological differences, the analytical focus and shared assumptions are the same: it is platforms that create and harness network effects. Taking up calls by Barns and others arguing for a more expansive theorization of platform urbanism, I have sought to refocus attention on urban residents and the complex socio-technical constellations of which they are a part, showing how other actors repurpose, recreate, and re-coordinate platform network effects in the technological everyday. As recent interventions have argued, attention to these types of tactics illuminates already-existing, counter-hegemonic modes of platform intermediation beyond those determined solely by data-extractive or rentier logics. Conceptually, this allows space for retheorizing platform urbanism as contingent, overdetermined, and always, already open to reformulation.

These findings suggest unrealized overlaps between platform studies and speculative urbanism. Currently, the literature engaging with this concept focuses almost exclusively on land and real

estate. Yet, given the extent to which the urban transformations caused by digital platforms are materialized primarily through speculative risk capital, there are productive intersections between these two literatures. As I have shown, network effects link different practices of speculation and risk management at multiple spatial scales, intermediating how differently positioned actors shape, and are themselves shaped by, digital platforms. From the desk of a venture capitalist, network effects are an object of speculation, an abstract, calculated risk inherent to the cost of doing business. From the seat of a motorbike in Jakarta's streets, however, network effects are a lived reality, a critical—but never guaranteed—resource to mitigate risk, secure a living, and speculate on a better one. This is not to say these are simply different experiences of speculation and risk, although that is true. The point is their relationality. Tying them together are co-constitutive, inter-scalar relationships of speculation and risk exposure that, if paid attention to, highlight the ways in which urban mobility is increasingly underpinned by speculative city-making in the historical conjuncture of platform capitalism. In unearthing these relations, however, it is critical to not lose sight of how everyday users inevitably overflow the economic interests in bringing them together—to, in other words, keep in view the social lives of platform architectures and their network effects.

Conclusion. Platform Capitalism from the Back of a Motorbike

Set against a rapid influx of technology investment capital into Indonesia, this dissertation has explored shifting regimes of market formation, urban governance, and labor politics in Jakarta. Taking the *ojek* as my case, I investigated the efforts of the platform firms Grab and Gojek to digitize urban mobility in the city, thereby making legible pre-existing informal transport and labor markets to global capital. Across the three empirical chapters (2, 3, and 4), I explored the processes and outcomes of this platformization, as Grab and Gojek attempt to disembed the *ojek*'s labor pool, customers, and infrastructures from their prior socio-spatial relations and re-embed them within platform architectures oriented towards data and rent-extraction by multi-national corporations. Through my use of ethnographic methods and the extended case method, I have centered how this transformation is experienced, produced, and resisted by Jakarta's urban majority.

While at first glance the *ojek* may appear to be a niche case, the transformations analyzed here speak to issues of broader significance. The motorbike taxi specifically, and informal paratransit services more generally, are critical features of contemporary 'southern' urbanization (see Lawhon and Truelove, 2020). Rapid population growth, infrastructure financing gaps, and legacies of colonial planning together have created enormous transport demands in many cities of the global South, rarely fulfilled by formal, fixed-route public transportation (Cervero, 1991, 2000; Evans et al., 2018). With or without state licensure, paratransit modes like bicycle rickshaws, three-wheeled auto rickshaws, minibuses, and motorbike taxis fill important mobility needs for huge numbers of urban residents across the globe—a need increasingly recognized by platform capital. In Bangkok, Gojek Thailand (purchased in 2021 by AirAsia in its own bid to become a super-app), GrabBike, and Uber have worked to platformize the city's motorbike taxis, which are essential for navigating the small alleys (*soi*) that characterize Bangkok's built form (Sopranzetti, 2021). In Kampala, SafeBoda and

uberBoda similarly work to digitize the *boda-boda* (motorbike taxi) industry, which employs an estimated one in five working Kampalans (Doherty, 2017). In New Delhi, the auto rickshaw industry similarly faces 'disruption' from Uber and Ola—the largest ride-hailing platform in South Asia—which have eliminated some of the industry's pre-existing social infrastructures while exploiting others, such kinship networks used to recruit drivers (Mazumdar, 2020). Within a relatively short amount of time, these platforms have re-signified such transport modes being represented as 'backwards' by elites into a powerful symbol of technological innovation, economic development, and 'smart' urbanization.

Eager for such symbols, postcolonial states have latched onto platformization to advance both short-term accumulation and long-term developmental goals. In the short-term, digital platforms have bolstered economies in places like Indonesia, Brazil, India, Nigeria through fresh rounds of capital investment, jobs creation, and tax revenue. In the longer-term, states are leveraging platformization to advance postcolonial development goals. By providing a means to enumerate and tax previously unrecorded market activity, platform firms have become attractive partner for 'modernization' efforts. For example, in Indonesia, the state has partnered with Gojek to advance its '100 Smart City' program, offer tax payments through their platform, and provide digital literacy programs to Gojek customers. With respect to transportation, governments across the global South have partnered with digital platforms for electrification. Gojek recently entered into a partnership with state-owned Wika Industri Manufaktur and state-owned Pertamina (an oil and gas company) to start manufacturing electric bikes and roll out public charging stations in large cities, pledging to convert to 100% electric trips by 2030 (Shibata, 2022). Similarly, Ola has recently started manufacturing electric motorbikes and batteries in the push for electrification in India, backed by subsidies from the Indian state (Schmall et al., 2022).

Thus, far from niche, the platformization of informal transport sits at the intersection of critical

urban problems: unemployment, inequality, and economic development; traffic congestion, transport planning, and human mobility; carbon emissions, sustainability, and urban resilience. While I have focused on some of these more than others, it is my hope that the dissertation contributes a set of analytics that shed light on platformization more generally, speaking to other cases, issues, and geographies. Indeed, this type of analysis is urgently needed given current conjuncture of speculative risk capital increasingly searching for new sources of data and rent extraction in the global South. Through a grounded empirical analysis into these developments, I make four primary contributions to the literatures on digital geographies, platform studies, and postcolonial urban geography.

Contributions of the dissertation

Platformization and its prehistories. First, I analyze how platformization has (and has not) transformed the *ojek* market in Jakarta. For nearly 50 years, the *ojek* has served as a reliable first-mile-last-mile transport solution for consumers and a critical source of income for hundreds of thousands of low-income residents. Chapter 2 explores the development of this transport market, showing how Grab and Gojek's "platform revolution" (Parker et al., 2016) is premised upon not just enrolling the *ojek*'s labor force into their platform ecosystems, but also selectively untethering the *ojek* from its pre-existing socio-spatial relations: the *pangkalan* system. Grab and Gojek actively targeted *pangkalan* operations for recruitment, turning a blind eye to their own hiring standards in order to 'pacify' the territorial system that had regulated *ojek* supply in the city. This suggests that platform marketization is not the inevitable outcome of technological advancement; it is a perpetually incomplete process that requires significant labor to reconfigure social and spatial relations to bring them under platform control.

I show this incompleteness throughout the three empirical chapters. While at first glance it may appear as though Grab and Gojek have converted the *ojek* into their platform ecosystems *tout court*,

the *ojek pangkalan* endures in Jakarta, and my research shows how many of its regulatory structures and social practices carry over into platform operations. As explored in Chapter 3, online *ojek komunitas* often must negotiate with nearby *pangkalan ojek* to regulate where and when online drivers can pick up their passengers, reshaping the geography of supply and demand that drives platform algorithms. Despite popular understandings that depict platformization as unidirectional, my analysis in Chapter 2 shows that many *ojek* drivers switch back and forth between *ojol* and *opang*, *komunitas* and *pangkalan*. In these ways and more, the *ojek pangkalan* continues to shape platform firm operations in significant ways.

These findings are important for both theoretical and political reasons. Theoretically, it follows that we must take such prehistories and geographies seriously as a constitutive feature of platform capitalism—a point often overlooked by mainstream and critical literatures alike in the rush to identify new features of contemporary capital accumulation (see Mazumdar, 2020; Steinberg, 2021; Vacano, 2021 for exceptions). Continuity is as important as transformation, historical evolution as much epochal shift, and uneven development as much as universal transformation. From Silicon Valley to Jakarta, from the superblock to the *kampung*, it is critical to understand these uneven geographies of platformization, and, in Chapter 2, I argue that a spatialized conjunctural analysis is one means to do so. This is also important politically because it reveals the socio-spatial limits of platformization, highlighting how it is always subject to breakdowns, glitches, fissures, and moments of friction. While these moments may appear small, they are nonetheless critical reminders of how platformization itself can be disrupted.

Platformization and informality. Second, the dissertation contributes to scholarship in digital geography and postcolonial urban studies by theorizing how urban informality intersects with platform capitalism. Across Chapters 1, 2 and 3, I explore a growing economic and developmental paradigm aimed at 'formalizing' informal market activity via platformization. Increasingly, private

consultancies, global development agencies, bureaucrats, venture capitalists, platform firms, and even labor unions advance platform firms as a means to 'formalize' informal market activity. In Nigeria (Langley and Leyshon, 2022), India (Athique and Parthasarathi, 2020), South Africa (Pollio, 2019, 2020) and elsewhere, postcolonial states promote platform firms as an economic development strategy, offering them political support, government subsidies, and favorable regulatory conditions for platform firms. Exploring these state-platform relations in Chapter 3, I show how the Indonesian state has leveraged the *ojek*'s informal legal status to advance its own accumulation and legitimation interests. President Joko Widodo has been a strong supporter of Gojek, directly intervening to maintain its operations that contradict existing Indonesian law because, in his view, the digital economy is the means by which the country will push through the so-called "middle-income trap."

This analysis extends existing theorizations of "platform governance" (Gorwa, 2019), which largely overlook how digital platforms shape, and are shaped by, informal livelihood strategies and institutions. Drawing on postcolonial urban theory, I showed how popular conceptions of the *ojek* as 'informal' obscure the ways in which the industry—rather than being unregulated—is in fact highly regulated through various intersecting forces: (1) biopolitical subjectification; (2) algorithmic management via the platform; and (3) institutional regulation through grassroots worker communities. Pushing against the current literature's preoccupation with how platformization is reworking boundaries between formal and informal, postcolonial urban theory offers a means to deconstruct this binary to show how urban informality operates as a mode of regulation that helps secure data-driven accumulation across a variety of contexts.

Furthermore, I show how—despite powerful interests in formalization via platformization—the *ojek* market remains riven through with informal institutions, livelihood strategies, and regulatory structures. Auto-constructed, informal institutions—what drivers call *komunitas*—shape the daily

operations of platform firms in significant ways, providing: worker training for new drivers, emergency response teams, life insurance for the families of those killed on the job, amongst many other functions (Chapter 4). Informal and extra-legal livelihood strategies (such as the illicit trading of accounts discussed in Chapter 3) offer options for suspended drivers to still earn an income through the platforms. From a regulatory standpoint, Indonesian law still does not consider the *ojek* to be public transportation (despite the recent Ministerial decree, PM 12/2019). In Chapter 3, I show how this informal status operates as a powerful governing force in the industry, meaning that platform architectures remain inexorably tied to everyday social practices of urban informality in Jakarta. This underscores how urban informality in Jakarta is not merely matter of empirical variation on the basic Silicon Valley platform business model. Rather, speaks to the ways in which capitalism—platform or otherwise—both produces and exploits geographical difference, in this case urban informalities that have grown out of long histories of marginalization and colonization.

Platformization and labor. Third, I show how *ojek* drivers in Jakarta have worked to create their own communities (*komunitas*) and networks of mutual aid (*gotong-royong*) and solidarity (*solidaritas*). Brought together as a flexible labor pool, drivers ultimately exceed this economic framing by auto-constructing online and offline networks that improve the conditions of their work, collectively manage risk in Jakarta's dangerous platform economy, and speculate on ways to make a better life. To be sure, these communities also benefit the platforms in fundamental ways, offering uncompensated socially reproductive labor that further downloads risk and responsibility to platform workers—a hallmark of the platform business model. Yet they also create a networked infrastructure that threatens the firms; both Grab and Gojek now invest in *komunitas* relations to monitor, pacify, and control their activities through operations teams like Gojek's Driver Community Relations. Though *komunitas* networks are harnessed mostly for mutual aid and everyday survival, they have been mobilized for more visible political action when collective gains are

threatened, such as protests in 2018 pushing against falling wage rates and more recently in the wake of the COVID-19 pandemic and rising gas prices.

While it may be tempting to reduce driver communities to either co-option or resistance, hegemonic or counter-hegemonic, my aim is not to make this type either/or conclusion in the final instance. To do so would problematically homogenize an enormously complex set of actors and interests. Rather, my point is that driver communities evidence forms of labor organizing and politics that rest uneasily against Western narratives of platform labor that have tended to characterize platformization as a deepening of a highly atomized, post-Fordist labor regime. Such an understanding cannot account for online *ojek* drivers and their strong organizing, sense of shared identity, and community solidarity. Even other research exploring this type of platform labor organizing tends to project a Western normative ideal of unionization, claiming that such mutual aid communities have "little, if any, impact on the structures of the [ride-hailing] industry" (Ford and Honan, 2019: 18).[27] My analysis in Chapter 4 reveals the opposite, however; *komunitas* are integral to the industry, whether as a labor movement that threatens it or as a lubricant for a downward redistribution of risk and responsibility. Driver communities represent a contradictory socio-technical platform infrastructure, simultaneously an integral part of platform operations and a critical resource for the urban poor use to assert their right to reside and survive in the city.

These findings demonstrate the importance of ethnographic attention to platform architectures. Evidently, platforms are more than a set of algorithmic practices, a business model, modality of market formation, or a means of coordinating network effects. My analysis in Chapter 4 reveals platform architectures as ultimately *socio*-technical, with consequential social lives that merit investigation beyond their macro political economic significance for contemporary regimes of capital accumulation. Both 'platform' and 'capitalism' should be approached as sites of ethnographic

[27] This point is indebted to collective thinking with Rida Qadri

inquiry, reframing platforms not as static technologies but as an ongoing processes of building connections: what Indonesians call *perhubungan*.

Provincializing platform capitalism. Taken together, these conclusions form the basis of my critique and extension of the platform capitalism literature, which remains dominated by scholarship based on Euro-American experiences. The field's current Eurocentrism overlooks significant shifts in the geography of platform capital investment, glossing over historical difference. Existing theories of marketization, regulation, and labor remain inadequate for understanding the Jakartan case. In Chapter 1, I worked to address this by integrating postcolonial theory into platform studies, provincializing platform capitalism. This entails (1) showing how seemingly universal platform technologies, ideas, and capital are in fact a provincial, Euro-American form; (2) scrutinizing theories and concepts developed in and for the Euro-American core, questioning how well they travel to different contexts; and (3) and centering historical and geographical difference in the uneven expansion the global platform economy—approaching Euro-American theory from a critical vantage through which it might be extended (Chakrabarty, 2007; Leitner and Sheppard, 2016). Working within rather than against this literature, I conclude that provincialization cannot be limited to a mere inclusion of case studies from the global South; it must also strive for epistemological deconstruction of Eurocentric knowledge production and extension of existing theory—an argument unpacked empirically throughout Chapters 2, 3, and 4.

Future directions

There are numerous directions for extending this research, but two stand out. First, my study was limited to examining the platform from without. Platform firms operate behind many layers of what Latour (1999: 304) calls "black-boxing"—the process through which technical operations are

"made invisible through their own success." For users and researchers alike, platform technologies are obscured behind not only technical expertise, but also intellectual property rights, vast legal teams, coercive and illegible user agreements, and corporate secrecy—particularly for startups that have not yet gone public. Access to firms and firm data is rare, leaving researchers with little option but to study the logics and imperatives of platform capitalism 'from below.' The extended case method is one way to do so, accessing the socio-technical forces of "algorithmic governance" or "network effects" through their enactment in participants' lifeworlds. But doing so also risks objectifying platforms and obscuring their internal firm dynamics. For example, many argue that platforms are driven by dual imperatives of data collection (Srnicek, 2016) and rent-seeking (Sadowski, 2020b) working to expand their users and user data in order to secure more of the market than their competitors, establishing monopoly position and extracting monopoly rents. This can be theoretically deduced, but without access to the firms it is difficult to know how these imperatives are counterbalanced with other interests (e.g. corporate social responsibility, worker control, etc.), running the danger of ascribing more power to data/rent extraction than it actually possesses.

One direction for future research would be to investigate the dynamics of platform marketization from the firm's perspective—their logics, perceived revenue streams, product strategy, etc. This line of inquiry could also be expanded through further investigation into the relationships between venture capital and platform capitalism. As Zook (2005) notes in his foundational study of the industry, VC firms play an active advisory role for portfolio firms, often sitting on the board of directors, facilitating mergers, acquisitions, or other industry connections, brokering partnerships with more established companies, and providing general strategic advice based on their accumulated institutional knowledge. In this way, venture capitalists are "knowledge brokers" (Zook, 2005: 520)) who are active in shaping the markets they invest in. Indeed, VC firms themselves act as a sort of

'platform' connecting investors looking for profitable returns with portfolio companies in need of capital. Investigation into these relationships could help strengthen, for example, claims made in Chapter 4 regarding speculative urbanism and platform capital. Following Langley and Leyshon (2017), we might ask: in what ways do platform firms 'perform' the VC market structure, and with what consequences? How do venture capital investment and firm strategy shape platform architectures and the connections they make? With Chinese, American, and Japanese VC entering more 'mobile-first' markets, this would prove a fruitful line of inquiry to better understand the politics of formalization via platformization.

Second, my focus on the *ojek* has largely put aside the question of Gojek and Grab's growth into self-styled "super-apps," following the precedent set by WeChat in China (see Chen et al., 2018). With profitability in ride-hailing remaining uncertain, both firms have leveraged the *ojek*'s popularity to cross-subsidize more profitable products, such as financial technology (FinTech) services. Deploying discourses of connecting the "bottom billion" to both digital technologies and credit, Grab and Gojek claim to offer 'financial inclusion' to marginalized populations in Indonesia through app-based microfinance, insurance, and mortgage lending. While I briefly discussed Gojek's mortgage financing activities in Chapter 3, this trend deserves further scrutiny, and could be investigated through the concepts developed here. Further research might explore how FinTech services are re-configuring informal economies in Jakarta, which have long been coordinated through social infrastructures developed for survival and safety by those excluded from formal capitalist credit markets, such as traditional, female-led communal savings groups (*arisan*). How are digital technologies reshaping these informal economies as they become increasingly enrolled in global financial circuits, state interests in data collection and surveillance, and 'smart city' planning? And, in turn, how might social practices of communal savings reciprocally 'disrupt' the growing FinTech sector in Indonesia?

Concluding thoughts

Despite the rapid pace of transformation in the industry and the significant changes since 2019 when I conducted fieldwork, the *ojek* remains a site of speculative investment and labor organizing. In March of 2022, the GoTo Group made its initial public offering (IPO) on the Indonesian Stock Exchange, raising over 1.1 billion US dollars. On opening day, shares closed at 382 rupiah ($0.026 US dollars), up 13% from the list price of 338. This marked a successful exit for Gojek and Tokopedia's major investors, including the SoftBank Vision Fund, Sequoia Capital, and Alibaba, all of which had absorbed significant losses from other disastrous tech IPOs throughout 2020 and 2021. Indeed, the GoTo IPO flew in the face the US IPO market—where most of the largest global tech companies are listed—which has underperformed in recent years. At time of writing, US IPO investments are down 92% from 2021, and European IPO investments are down 84% over the same period (Singer, 2022). Grab itself fell fate to this downturn, going public on the US NASDAQ in December 2021 by way of a special-purpose acquisition company[28] (SPAC), launched by Altimeter Capital for the purpose of merging with Grab to make it public. Grab's SPAC deal was the largest US listing by a Southeast Asian company and the largest of its type ever recorded. Nonetheless, share prices slid by 20% on opening, falling further to 70% of opening price by August 2022. Despite contrasting IPO outcomes, both companies have failed to achieve profitability and continue to hemorrhage cash. In its first mandatory public earnings report, GoTo disclosed that it had lost $1.43 billion in 2021 and, in the first quarter of 2022, more than triple of what it had lost in the same period of 2021. Grab also lost $435 million in the first quarter of 2022 (Cher, 2022). In short, while the speculative transformation of Jakarta's *ojek* industry may have had a payout for a

[28] This is an increasingly popular method by which the private company merges with a shell company that has already been listed on the desired market.

select few Gojek investors, the overall sustainability of *ojek* ride-hailing remains uncertain, even doubtful.

Meanwhile, in Jakarta, drivers bear the brunt of these market uncertainties; incomes are down, working hours longer, and orders fewer and further between. In a push for profitability leading up to their IPOs, both platforms reduced driver bonuses to appease potential shareholders or, failing that, at least reduce reported losses. At the same time, newcomer ride-hailing platforms like Anterin, Bonceng, Maxim, and AnterAja have increased competition for orders with drivers increasingly splitting their time between these platforms in order piece together a living—increasing the difficulty of earning bonuses secured by accumulating orders with one company. Exacerbated by the COVID-19 pandemic, these developments have radically disrupted the lives of those now relying on the platforms for their livelihoods; one small study found that drivers have lost approximately 67% of their income since the pandemic (Wulansari et al., 2021). Facing these hardships, drivers have continued to draw on their dense networks of communities for mutual aid and direct action. During the worst of the pandemic, *komunitas* networks offered emotional and material support, a means for secure personal protective equipment, temporary loans, and other necessities (Qadri, 2021). These networks also provided a platform for direct action, helping to organize simmering discontent into a series of protests, strikes, and 'off-bid' actions in Jakarta and across the archipelago. Researchers at Gadjah Mada University estimate that protests in just the first three months of 2022 were double what they were for all of 2020 and 2021 (Wulansari et al., 2021).

In short, the *ojek* remains a site of both risk, speculation, and accumulation in global markets, as well as daily exploitation, mutual aid, and labor organizing. This dissertation has sought to bring together these scales of analysis by theorizing platform capitalism not from a boardroom in Silicon Valley, or from the floor of the Singapore Exchange, but from the back of a motorbike in Jakarta. Socially and spatially, this is a view "from and by the margins" of the global platform economy

(Chakrabarty, 2007: 16)—a vantage from which I extended theories of platform capitalism by taking seriously historical and geographic difference in postcolonial cities. Attention to such differences is critical as venture capital and US Big Tech platforms increasingly expand into growing mobile-first markets like Indonesia, but only insofar as it centers how these macro-scale forces both shape, and are shaped by, everyday residents as they navigate the promises and perils of digital technologies for urban life.

BIBLIOGRAPHY

Abeyasekere S (1987) *Jakarta: A History*. Oxford, England: Oxford University Press.

Aglietta M (1979) *A Theory of Capitalist Regulation: The US Experience*. New York: Verso.

Agnew J (1994) The Territorial Trap: The Geographical Assumptions of International Relations Theory. *Review of International Political Economy* 1(1): 53–80.

Ajidarma SG (2015) *Tiada Ojek Di Paris: Obrolan Urban*. Jakarta, Indonesia: Mizan.

Alexander JW (2008) *Japan's Motorcycle Wars: An Industry History*. Vancouver: UBC Press.

Alonso W (1964) *Location and Land Use: Toward a General Theory of Land Rent*. Cambridge: Harvard University Press.

Amin A (2007) Re-thinking the urban social. *City* 11(1). Routledge: 100–114. DOI: 10.1080/13604810701200961.

Anderson B (2006) *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. New York: Verso.

Angelo H and Wachsmuth D (2015) Urbanizing Urban Political Ecology: A Critique of Methodological Cityism. *International Journal of Urban and Regional Research* 39(1): 16–27. DOI: 10.1111/1468-2427.12105.

Anguelov D (2021) *The Geopolitical-economy of Infrastructure Development and Financing: Contesting Developmental Futures in Indonesia*. Doctoral Dissertation. UCLA, Los Angeles. Available at: https://escholarship.org/uc/item/27b122p9 (accessed 29 September 2022).

Anwar MA and Graham M (2020) Hidden transcripts of the gig economy: labour agency and the new art of resistance among African gig workers. *Environment and Planning A: Economy and Space* 52(7). SAGE Publications Ltd: 1269–1291. DOI: 10.1177/0308518X19894584.

Appel HC (2012) Walls and white elephants: Oil extraction, responsibility, and infrastructural violence in Equatorial Guinea. *Ethnography* 13(4): 439–465. DOI: 10.1177/1466138111435741.

APTA (2016) *Shared Mobility and the Transformation of Public Transit*. March. Washington DC: American Public Transportation Association.

Arias J (2021) How Gojek hustled its way to the top. Available at: https://sketchnote.co/blog/from-a-call-center-to-a-superapp-how-gojek-hustled-its-way-to-the-top-2/ (accessed 30 September 2022).

Arora P (2016) The Bottom of the Data Pyramid: Big Data and the Global South. *International Journal of Communication* 10: 1681–1699.

Athique A and Parthasarathi V (eds) (2020) *Platform Capitalism in India*. Global Transformations in Media and Communication Research - A Palgrave and IAMCR Series. Cham: Springer International Publishing. DOI: 10.1007/978-3-030-44563-8.

Azuma Y (2003) *Urban Peasants: Beca Drivers in Jakarta*. Jakarta: PT Pustaka Sinar Harapan.

Baijal A, Cannarsi A, Hoppe F, et al. (2021) *e-Conomy SEA 2021: Roaring 20s: The SEA Digital Decade*. Singapore: Google, Temasek, and Bain and Company. Available at: https://www.bain.com/insights/e-conomy-sea-2021/ (accessed 27 September 2022).

Barns S (2015) Platform Urbanism: The Politics and Practicies of Data-Driven Cities. University of Glasgow. Available at: https://www.slideshare.net/sarahbarns/platform-urbanism-the-politics-and-practices-of-datadriven-cities.

Barns S (2018) We Are All Platform Urbanists Now. *Mediapolis: A Journal of Cities and Culture* 3(4).

Barns S (2019) Negotiating the platform pivot: From participatory digital ecosystems to infrastructures of everyday life. *Geography Compass* 13(9): 1–13. DOI: 10.1111/gec3.12464.

Barns S (2020) *Platform Urbanism: Negotiating Platform Ecosystems in Connected Cities*. Singapore: Springer Singapore. DOI: 10.1007/978-981-32-9725-8.

Bear L (2020) Speculation: a political economy of technologies of imagination. *Economy and Society* 49(1): 1–15. DOI: 10.1080/03085147.2020.1715604.

Becker GS (2009) *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. Chicago: University of Chicago Press.

Benjamin R (2019) *Race After Technology: Abolitionist Tools for the New Jim Code*. John Wiley & Sons.

Berndt C and Boeckler M (2012) Geographies of Marketization. In: Barnes TJ, Peck J, and Sheppard E (eds) *The Wiley-Blackwell Companion to Economic Geography*. Chichester, UK: John Wiley & Sons, Ltd, pp. 199–212. DOI: 10.1002/9781118384497.ch12.

Bevins V (2020) *The Jakarta Method: Washington's Anticommunist Crusade and the Mass Murder Program That Shaped Our World*. New York, NY: PublicAffairs.

Blaut JM (1993) *The Colonizer's Model of the World: Geographical Diffusionism and Eurocentric History*. New York: Guilford Press.

Bloch-Wehba H (2019) Global Platform Governance: Private Power in the Shadow of the State. *SMU Law Review* 72(1): 27–80.

Bourgois P (2002) *In Search of Respect: Selling Crack in El Barrio*. Cambridge: Cambridge University Press. DOI: 10.1017/CBO9780511808562.

Bratton BH (2015) *The Stack: On Software and Sovereignty*. Boston: MIT Press.

Braun B (2016) From performativity to political economy: index investing, ETFs and asset manager capitalism. *New Political Economy* 21(3). Routledge: 257–273. DOI: 10.1080/13563467.2016.1094045.

Brenner N, Peck J and Theodore N (2010) Variegated neoliberalization: geographies, modalities, pathways. *Global Networks* 10(2): 182–222. DOI: 10.1111/j.1471-0374.2009.00277.x.

Browne S (2015) *Dark Matters: On the Surveillance of Blackness*. Durham, NC: Duke University Press.

Burawoy M (1998) The Extended Case Method. *Sociological Theory* 16(1): 4–33.

Burawoy M (2000) Introduction: Reaching for the Global. In: *Global Ethnography: Forces, Connections, and Imaginations in the Postmodern World*. Berkeley: University of California Press, pp. 74–104.

Burawoy M (2003) For a Sociological Marxism: The Complementary Convergence of Antonio Gramsci and Karl Polanyi. *Politics & Society* 31(2). SAGE Publications Inc: 193–261. DOI: 10.1177/0032329203252270.

Büscher B (2020) *The Truth about Nature: Environmentalism in the Era of Post-Truth Politics and Platform Capitalism*. Berkeley: University of California Press.

Caillaud B and Jullien B (2003) Chicken & Egg: Competition among Intermediation Service Providers. *The RAND Journal of Economics* 34(2): 309. DOI: 10.2307/1593720.

Çalışkan K (2020) Platform Works as Stack Economization: Cryptocurrency Markets and Exchanges in Perspective. *Sociologica* 14(3). 3: 115–142. DOI: 10.6092/issn.1971-8853/11746.

Çalışkan K and Callon M (2009) Economization, part 1: shifting attention from the economy towards processes of economization. *Economy and Society* 38(3): 369–398. DOI: 10.1080/03085140903020580.

Çalışkan K and Callon M (2010) Economization, part 2: a research programme for the study of markets. *Economy and Society* 39(1): 1–32. DOI: 10.1080/03085140903424519.

Callon M (1998a) An Essay on Framing and Overflowing: Economic Externalities Revisited by Sociology: *The Sociological Review* 46(1): 244–269.

Callon M (1998b) Introduction: the embeddedness of economic markets in economics. *The Sociological Review* 46(1): 1–57. DOI: 10.1111/j.1467-954X.1998.tb03468.x.

Callon M (ed.) (1998c) *Laws of the Markets*. Oxford: Wiley-Blackwell.

Callon M (2007) What does it mean to say that economics is performative? In: MacKenzie DA, Muniesa F, and Siu L (eds) *Do Economists Make Markets? On the Performativity of Economics*. Princeton: Princeton University Press.

Callon M (2016) Revisiting marketization: from interface-markets to market-agencements. *Consumption Markets & Culture* 19(1). Routledge: 17–37. DOI: 10.1080/10253866.2015.1067002.

Calzati S (2021) Decolonising "Data Colonialism" Propositions for Investigating the Realpolitik of Today's Networked Ecology. *Television & New Media* 22(8): 914–929. DOI: 10.1177/1527476420957267.

Caplan R and Gillespie T (2020) Tiered Governance and Demonetization: The Shifting Terms of Labor and Compensation in the Platform Economy. *Social Media + Society* 6(2). SAGE Publications Ltd: 2056305120936636. DOI: 10.1177/2056305120936636.

CB Insights (2021) Unicorn Investors: Who's Backed The Most Billion-Dollar Companies — And Who Got In Early. *CB Insights Research*. c. Available at: https://www.cbinsights.com/reports/CB-Insights_Unicorn-Investors.pdf?utm_campaign=marketing_unicorn-hunters_2021-04&utm_medium=email&_hsmi=123727268&_hsenc=p2ANqtz-9Nc9oqfwzLP1n97aYIt9Locyz7IJd6VV2Os4Cwuuyb5YIIoP5v0Meq-UfttOlEFyrgf-N79GXTrwcJ2KiAEIxspJtanw&utm_content=123727268&utm_source=hs_automation (accessed 22 September 2022).

Cervero R (1991) PARATRANSIT IN SOUTHEAST ASIA: A Market Response to Poor Roads?*. *Review of Urban & Regional Development Studies* 3(1): 3–27. DOI: 10.1111/j.1467-940X.1991.tb00076.x.

Cervero R (2000) Informal Transport in the Developing World. *United Nations Centre for Human Settlements*: 186.

Chakrabarty D (2007) *Provincializing Europe: Postcolonial Thought and Historical Difference*. 2nd Edition. Princeton, N.J.: Princeton University Press.

Chan AS (2013) *Networking Peripheries: Technological Futures and the Myth of Digital Universalism*. Boston, MA: MIT Press.

Chandler C (2019) Grab vs. Go-Jek: Inside Asia's Battle of the 'Super Apps'. *Fortune*, 20 March. Available at: https://fortune.com/longform/grab-gojek-super-apps/ (accessed 4 December 2022).

Chari S (2004) *Fraternal Capital: Peasant-Workers, Self-Made Men, and Globalization in Provincial India*. Redwood City: Stanford University Press.

Chen JY (2017) Thrown under the bus and outrunning it! The logic of Didi and taxi drivers' labour and activism in the on-demand economy. *New Media & Society*: 1461444817729149. DOI: 10.1177/1461444817729149.

Chen JY and Qiu JL (2019) Digital utility: Datafication, regulation, labor, and DiDi's platformization of urban transport in China. *Chinese Journal of Communication* 12(3): 274–289. DOI: 10.1080/17544750.2019.1614964.

Chen JY and Sun P (2020) Temporal arbitrage, fragmented rush, and opportunistic behaviors: The labor politics of time in the platform economy. *New Media & Society* 22(9). SAGE Publications: 1561–1579. DOI: 10.1177/1461444820913567.

Chen Y, Mao Z and Qiu JL (2018) *Super-Sticky Wechat and Chinese Society*. Bingley, UK: Emerald Publishing Limited. DOI: 10.1108/9781787430914.

Cher B (2022) Grab narrows losses for Q1 FY2022, driven by mobility, food and grocery verticals. Available at: https://www.businesstimes.com.sg/startups-tech/startups/grab-narrows-losses-q1-fy2022-driven-mobility-food-and-grocery-verticals (accessed 4 December 2022).

Chibber V (2013) *Postcolonial Theory and the Specter of Capital*. London: Verso.

Christophers B (2014) From Marx to market and back again: Performing the economy. *Geoforum* 57: 12–20. DOI: 10.1016/j.geoforum.2014.08.007.

Christophers B (2020) *Rentier Capitalism: Who Owns the Economy, and Who Pays for It?* London: Verso Books.

Cieslik K, Banya R and Vira B (2021) Offline contexts of online jobs: Platform drivers, decent work and informality in Lagos, Nigeria. *Development Policy Review* 40(4): 1–19. DOI: 10.1111/dpr.12595.

Cohen D (2018) Between perfection and damnation: The emerging geography of markets. *Progress in Human Geography* 42(6). SAGE Publications Ltd: 898–915. DOI: 10.1177/0309132517729769.

Cohen M and Sundararajan A (2015) Self-Regulation and Innovation in the Peer-to-Peer Sharing Economy. *University of Chicago Law Review Online* 82(1): 116–33.

Cohn BS (1984) *The Census, Social Structure and Objectification in South Asia*. Soertryk.

Coleman D (2018) Digital Colonialism: The 21st Century Scramble for Africa through the Extraction and Control of User Data and the Limitations of Data Protection Laws Note. *Michigan Journal of Race & Law* 24(2): 417–440.

Collier RB, Dubal VB and Carter CL (2018) Disrupting Regulation, Regulating Disruption: The Politics of Uber in the United States. *Perspectives on Politics* 16(4). Cambridge University Press: 919–937. DOI: 10.1017/S1537592718001093.

Cook C, Diamond R, Hall JV, et al. (2021) The Gender Earnings Gap in the Gig Economy: Evidence from over a Million Rideshare Drivers. *The Review of Economic Studies* 88(5): 2210–2238. DOI: 10.1093/restud/rdaa081.

Cosseboom L (2015) This guy turned Go-Jek from a zombie into Indonesia's hottest startup. *Tech in Asia*, 27 August. Available at: https://www.techinasia.com/indonesia-go-jek-nadiem-makarim-profile (accessed 30 September 2022).

Couldry N and Mejias UA (2019a) Data Colonialism: Rethinking Big Data's Relation to the Contemporary Subject. *Television & New Media* 20(4): 336–349. DOI: 10.1177/1527476418796632.

Couldry N and Mejias UA (2019b) *The Costs of Connection: How Data Is Colonizing Human Life and Appropriating It for Capitalism*. Stanford: Stanford University Press.

Couldry N and Mejias UA (2021) The decolonial turn in data and technology research: what is at stake and where is it heading? *Information, Communication & Society*. Routledge: 1–17. DOI: 10.1080/1369118X.2021.1986102.

Cowherd R (2005) Does Planning Culture Matter? Dutch and American Models in Indonesian Urban Transformations. In: *Comparative Planning Cultures*. London: Routledge.

Datta A (2015) New urban utopias of postcolonial India: 'Entrepreneurial urbanization' in Dholera smart city, Gujarat. *Dialogues in Human Geography* 5(1): 3–22. DOI: 10.1177/2043820614565748.

Dattani K (2021) Platform 'glitch as surprise': The on-demand domestic work sector in Delhi's National Capital Region. *City* 25(3–4): 376–395. DOI: 10.1080/13604813.2021.1935786.

Davidson NM and Infranca J (2016) *The Sharing Economy as an Urban Phenomenon*. ID 2802907, SSRN Scholarly Paper, 30 June. Rochester, NY: Social Science Research Network. Available at: https://papers.ssrn.com/abstract=2802907 (accessed 25 May 2017).

Davies H, Goodley S, Lawrence F, et al. (2022) Uber broke laws, duped police and secretly lobbied governments, leak reveals. *The Guardian*, 11 July. London. Available at: https://www.theguardian.com/news/2022/jul/10/uber-files-leak-reveals-global-lobbying-campaign (accessed 29 September 2022).

Davis S, Saini S, Sipahimalani R, et al. (2019) *e-Conomy SEA 2019: Swipe up and to the right: Southeast Asia's $100 billion internet economy*. Google and Temasek. Available at: https://www.thinkwithgoogle.com/intl/en-apac/tools-resources/research-studies/e-conomy-sea-2019-swipe-up-and-to-the-right-southeast-asias-100-billion-internet-economy/.

de Certeau M (1984) *The Practice of Everyday Life*. Berkeley: University of California Press.

De Stefano V (2015) The Rise of the 'Just-in-Time Workforce': On-Demand Work, Crowd Work and Labour Protection in the 'Gig-Economy'. *International Labor Organization*. Inclusive Labour Markets, Labour Relations and Working Conditions Branch. DOI: 10.2139/ssrn.2682602.

Diela T (2017) Go-Jek Signs Deal to Give Drivers Access to Mortgages, Hajj Savings Plans. *Jakarta Globe*, 10 May. Jakarta, Indonesia. Available at: https://jakartaglobe.id/business/go-jek-signs-deal-to-give-drivers-access-to-mortgages-hajj-savings-plans (accessed 4 December 2022).

Dixon C (2015) Performance Data and the 'Babe Ruth' Effect in Venture Capital. Available at: https://a16z.com/2015/06/08/performance-data-and-the-babe-ruth-effect-in-venture-capital/ (accessed 10 March 2021).

Doherty J (2017) Life (and limb) in the fast-lane: disposable people as infrastructure in Kampala's boda boda industry. *Critical African Studies* 9(2): 192–209. DOI: 10.1080/21681392.2017.1317457.

Doner RF (1991) *Driving a Bargain: Automobile Industrialization and Japanese Firms in Southeast Asia*. Berkeley, CA: University of California Press. DOI: 10.1525/9780520325043.

Drahokoupil J and Jepsen M (2017) The digital economy and its implications for labour. 1. The platform economy. *Transfer: European Review of Labour and Research* 23(2): 103–107. DOI: 10.1177/1024258917701380.

Dubal VB (2022) Economic security & the regulation of gig work in California: From AB5 to Proposition 22. *European Labour Law Journal* 13(1). SAGE Publications: 51–65. DOI: 10.1177/20319525211063111.

Dussel E (1993) Eurocentrism and Modernity (Introduction to the Frankfurt Lectures). *boundary 2* 20(3). Duke University Press: 65–76. DOI: 10.2307/303341.

Dwitjahyono A (2022) *Provinci Jakarta DKI Dalam Angka 2022*. 31000.2203. Jakarta, Indonesia: Badan Pusat Statistik. Available at: https://jakarta.bps.go.id/publication/download.html?nrbvfeve=NTk3OTYwMDI0Nzg2N2Q4NjFhMWYzMzRj&xzmn=aHR0cHM6Ly9qYWthcnRhLmJwcy5nby5pZC9wdWJsaWNhdGlvbi8yMDIyLzAyLzI1LzU5Nzk2MDAyNDc4NjdkODYxYTFmMzM0Yy9wcm92aW5zaS1ka2ktamFrYXJ0YS1kYWxhbS1hbmdrYS0yMDIyLmh0bWw%3D&twoadfnoarfeauf=MjAyMi0xMi0wNCAwNTozOTo0OA%3D%3D (accessed 3 December 2022).

Elbanna A and Idowu A (2021) Crowdwork, digital liminality and the enactment of culturally recognised alternatives to Western precarity: beyond epistemological *terra nullius*. *European Journal of Information Systems*: 1–17. DOI: 10.1080/0960085X.2021.1981779.

Elwood S (2020) Digital geographies, feminist relationality, Black and queer code studies: Thriving otherwise. *Progress in Human Geography* 45(2). SAGE Publications Ltd: 209–228. DOI: 10.1177/0309132519899733.

Elwood SA and Martin DG (2000) "Placing" Interviews: Location and Scales of Power in Qualitative Research. *The Professional Geographer* 52(4): 649–657. DOI: 10.1111/0033-0124.00253.

Elyachar J (2012) Next Practices: Knowledge, Infrastructure, and Public Goods at the Bottom of the Pyramid. *Public Culture* 24(1): 109–129. DOI: 10.1215/08992363-1443583.

Emerson RM, Fretz RI and Shaw LL (2011) *Writing Ethnographic Fieldnotes, Second Edition*. Chicago: University of Chicago Press.

Engels F (1872) *The Housing Question*. Co-operative Publishing Society of Foreign Workers.

England KVL (1994) Getting Personal: Reflexivity, Positionality, and Feminist Research*. *The Professional Geographer* 46(1): 80–89. DOI: 10.1111/j.0033-0124.1994.00080.x.

Evans J, O'Brien J and Ch Ng B (2018) Towards a geography of informal transport: Mobility, infrastructure and urban sustainability from the back of a motorbike. *Transactions of the Institute of British Geographers*. DOI: 10.1111/tran.12239.

Fairbanks RP (2009) *How It Works: Recovering Citizens in Post-Welfare Philadelphia*. Chicago: University of Chicago Press.

Fairbanks RP (2011) The Politics of Urban Informality in Philadelphia's Recovery House Movement. *Urban Studies* 48(12): 2555–2570. DOI: 10.1177/0042098011411943.

Fairwork (2021) *Fairwork Indonesia Ratings 2021: Labour Standards in the Gig Economy*. Yogyakarta, Indonesia, Oxford, United Kingdom: Fairwork Foundation.

Fanon F (1967) *Black Skin, White Masks*. New York: Grove Press Inc.

Ferrari F and Graham M (2021) Fissures in algorithmic power: platforms, code, and contestation. *Cultural Studies* 35(4–5). Routledge: 814–832. DOI: 10.1080/09502386.2021.1895250.

Ferrary M and Granovetter M (2009) The role of venture capital firms in Silicon Valley's complex innovation network. *Economy and Society* 38(2): 326–359. DOI: 10.1080/03085140902786827.

Ferreri M and Sanyal R (2018) Platform economies and urban planning: Airbnb and regulated deregulation in London. *Urban Studies* 55(15): 3353–3368. DOI: 10.1177/0042098017751982.

Fields D (2018) Constructing a New Asset Class: Property-led Financial Accumulation after the Crisis. *Economic Geography* 94(2): 118–140. DOI: 10.1080/00130095.2017.1397492.

Fields D and Rogers D (2019) Towards a Critical Housing Studies Research Agenda on Platform Real Estate. *Housing, Theory and Society* 38(1). Routledge: 72–94. DOI: 10.1080/14036096.2019.1670724.

Financial Times (2020) Pandemic stalls Indonesia's push to escape middle-income trap. *Financial Times*, 22 December.

Fine B (2005) From Actor-Network Theory to Political Economy. *Capitalism Nature Socialism* 16(4). Routledge: 91–108. DOI: 10.1080/10455750500376057.

Firman T (1999) Indonesian cities under the "Krismon". *Cities* 16(2): 69–82. DOI: 10.1016/S0264-2751(99)00002-5.

Fleischer V (2010) Regulatory Arbitrage. *Texas Law Review* 89(2): 227–290.

Fligstein N and Dauter L (2007) The Sociology of Markets. *Annual Review of Sociology* 33(1): 105–128. DOI: 10.1146/annurev.soc.33.040406.131736.

Forbes Indonesia (2012) Indonesia's Standout. Available at: https://www.forbes.com/global/2012/0604/companies-people-prijono-sugiarto-astra-indonesia-standout.html?sh=5bb17d482b21 (accessed 30 September 2022).

Ford H and Graham M (2016) Provenance, power and place: Linked data and opaque digital geographies. *Environment and Planning D: Society and Space* 34(6): 957–970. DOI: 10.1177/0263775816668857.

Ford M and Honan V (2019) The limits of mutual aid: Emerging forms of collectivity among app-based transport workers in Indonesia. *Journal of Industrial Relations* 61(4): 528–548. DOI: 10.1177/0022185619839428.

Foucault M (2003) *'Society Must Be Defended': Lectures at the Collège de France, 1975-76* (tran. D Macey). New York: Picador.

Foucault M (2009) *Security, Territory, Population: Lectures at the Collège de France 1977--1978*. London: Palgrave Macmillan.

Foucault M, Burchell G, Gordon C, et al. (1991) *The Foucault Effect: Studies in Governmentality*. Chicago: University of Chicago Press.

Frey B (2020) Platform Labor and In/Formality: Organization among Motorcycle Taxi Drivers in Bandung, Indonesia. *Anthropology of Work Review* 41(1): 36–49. DOI: 10.1111/awr.12187.

Garcia-Parpet M-F (2007) The Social Construction of a Perfect Market. In: MacKenzie DA, Muniesa F, and Siu L (eds) *Do Economists Make Markets? : On the Performativity of Economics / Edited by Donald MacKenzie, Fabian Muniesa, and Lucia Siu*. Princeton, N.J: Princeton University Press.

Ghertner DA (2014) India's Urban Revolution: Geographies of Displacement beyond Gentrification. *Environment and Planning A* 46(7): 1554–1571. DOI: 10.1068/a46288.

Ghertner DA (2015) *Rule by Aesthetics: World-Class City Making in Delhi*. Oxford: Oxford University Press.

Gibson-Graham JK (2006) *A Postcapitalist Politics*. Minneapolis: University Of Minnesota Press.

Gidwani V and Upadhya C (2022) Articulation work: Value chains of land assembly and real estate development on a peri-urban frontier. *Environment and Planning A: Economy and Space*: 1–21. DOI: 10.1177/0308518X221107016.

Gilbert LS (2002) Going the distance: 'Closeness' in qualitative data analysis software. *International Journal of Social Research Methodology* 5(3). Routledge: 215–228. DOI: 10.1080/13645570210146276.

Gillespie T (2010) The politics of 'platforms'. *New Media & Society* 12(3): 347–364. DOI: 10.1177/1461444809342738.

Gillespie T (2018) Regulation of and by Platforms. In: *The SAGE Handbook of Social Media*. London: SAGE Publications Ltd, pp. 254–278. DOI: 10.4135/9781473984066.n15.

Gilroy P (1993) *The Black Atlantic: Modernity and Double Consciousness*. New York: Verso.

Glaser B and Strauss A (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New Jersey: Transaction Publishers.

Gojek (2019a) Episode 11: How 3 Founders Met In Business School And Joined Forces. Available at: https://gofigure.gojek.com/transcript/episode-11-how-3-founders-met-in-business-school-and-joined-forces (accessed 4 December 2022).

Gojek (2019b) Sekarang Bengkel Belajar Mitra Hadir di 5 Kota Besar Indonesia! | Gojek. Available at: https://www.gojek.com/blog/gojek/bengkel-belajar-mitra-hadir-di-5-kota/ (accessed 4 December 2022).

Goldman M (2021) Speculative urbanism and the urban-financial conjuncture: Interrogating the afterlives of the financial crisis. *Environment and Planning A: Economy and Space*: 1–21. DOI: 10.1177/0308518X211016003.

Goldman M and Narayan D (2021) Through the Optics of Finance: Speculative Urbanism and the Transformation of Markets. *International Journal of Urban and Regional Research* 45(2): 209–231. DOI: 10.1111/1468-2427.13012.

Goldstein JE and Faxon HO (2022) New data infrastructures for environmental monitoring in Myanmar: Is digital transparency good for governance? *Environment and Planning E: Nature and Space* 5(1): 39–59. DOI: 10.1177/2514848620943892.

Gorwa R (2019) What is platform governance? *Information, Communication & Society* 22(6): 854–871.

Grabher G and König J (2020) Disruption, Embedded. A Polanyian Framing of the Platform Economy. *Sociologica* 14(1): 95–118. DOI: 10.6092/ISSN.1971-8853/10443.

Graham M (ed.) (2019) *Digital Economies at Global Margins*. Cambridge, MA: MIT Press.

Graham M and Anwar MA (2019) The global gig economy: Towards a planetary labour market? *First Monday* 24(4). DOI: 10.5210/fm.v24i4.9913.

Graham M and Woodcock J (2018) Towards a fairer platform economy: introducing the Fairwork Foundation. *Alternate Routes* 29. Available at: https://ora.ox.ac.uk/objects/uuid:aad1e17a-e743-422b-97de-b50d880f3cb9 (accessed 19 September 2019).

Gramsci A (1971) *Selections from the Prison Notebooks of Antonio Gramsci* (eds Q Hoare and G Nowell-Smith). New York: International Publishers.

Gramsci A (2000) *The Gramsci Reader: Selected Writings, 1916-1935*. New York, NY: NYU Press.

Gregory K and Sadowski J (2021) Biopolitical platforms: the perverse virtues of digital labour. *Journal of Cultural Economy* 14(6): 662–674. DOI: 10.1080/17530350.2021.1901766.

Griffiths M (2017) From heterogeneous worlds: western privilege, class and positionality in the South. *Area* 49(1): 2–8. DOI: 10.1111/area.12277.

Guha R (1988) On Some Aspects of the Historiography of Colonial India. In: *Selected Subaltern Studies*. Oxford: Oxford University Press.

Gusti DP, Supriyono B, Wardhono H, et al. (2021) Public Policy: Inconsistency of Online and Conventional Land Transportation Regulations in Indonesia on Social Conflict Implications. *International Journal of Criminology and Sociology* 10: 729–744. DOI: 10.6000/1929-4409.2021.10.87.

Habermas J (1987) *The Theory of Communicative Action, Volume 2: Lifeworld and System: A Critique of Functionalist Reason* (tran. T McCarthy). Boston: Beacon Press.

Hall S (1986) Gramsci's Relevance for the Study of Race and Ethnicity. *Journal of Communication Inquiry* 10(2): 5–27. DOI: 10.1177/019685998601000202.

Hall S (1987) Gramsci and Us. *Marxism Today* (June): 16–21.

Hall S (1996) Race, Articulation, and Societies Structured in Dominance. In: Baker HA and Diawara M (eds) *Black British Cultural Studies: A Reader*. Chicago, IL: University of Chicago Press.

Hall S and Massey D (2010) Interpreting the crisis. *Soundings* 44(1): 57–71. DOI: 10.3898/136266210791036791.

Hall S, Critcher C, Jefferson T, et al. (1978) *Policing the Crisis: Mugging, the State, and Law and Order*. London: Macmillan.

Haraway D (1988) Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective. *Feminist Studies* 14(3): 575. DOI: 10.2307/3178066.

Hart G (2016) Relational comparison revisited: Marxist postcolonial geographies in practice*. *Progress in Human Geography* 42(3): 371–394. DOI: 10.1177/0309132516681388.

Harvey D (2003) *The New Imperialism*. Oxford: Oxford University Press.

Hecht SB, Morrison KD and Padoch C (2014) *The Social Lives of Forests: Past, Present, and Future of Woodland Resurgence*. Chicago: University of Chicago Press.

Helmond A (2015) The Platformization of the Web: Making Web Data Platform Ready. *Social Media + Society* 1(2). SAGE Publications Ltd: 2056305115603080. DOI: 10.1177/2056305115603080.

Henao A and Marshall WE (2018) The impact of ride-hailing on vehicle miles traveled. *Transportation* 46: 2173–2194. DOI: 10.1007/s11116-018-9923-2.

Herbert S (2000) For ethnography. *Progress in Human Geography* 24(4): 550–568. DOI: 10.1191/030913200100189102.

Herlambang S, Leitner H, Tjung LJ, et al. (2019) Jakarta's great land transformation: Hybrid neoliberalisation and informality. *Urban Studies* 56(4). SAGE Publications Ltd: 627–648. DOI: 10.1177/0042098018756556.

Hirschman C (1987) The Meaning and Measurement of Ethnicity in Malaysia: An Analysis of Census Classifications. *The Journal of Asian Studies* 46(3). [Cambridge University Press, Association for Asian Studies]: 555–582. DOI: 10.2307/2056899.

Hobbis G and Hobbis SK (2021) Beyond platform capitalism: critical perspectives on Facebook markets from Melanesia. *Media, Culture & Society* 44(1). SAGE Publications Ltd: 121–140. DOI: 10.1177/01634437211022714.

Holston J (1991) Autoconstruction in Working-Class Brazil. *Cultural Anthropology* 6(4): 447–465. DOI: 10.1525/can.1991.6.4.02a00020.

Horan H (2017) *Will the Growth of Uber Increase Economic Welfare?* ID 2933177, SSRN Scholarly Paper, 14 September. Rochester, NY: Social Science Research Network. Available at: https://papers.ssrn.com/abstract=2933177 (accessed 20 March 2018).

Hudalah D and Firman T (2012) Beyond property: Industrial estates and post-suburban transformation in Jakarta. *Cities* 29(1): 40–48.

Humphrey C (2020) Real estate speculation: volatile social forms at a global frontier of capital. *Economy and Society* 49(1): 116–140. DOI: 10.1080/03085147.2019.1690256.

Iazzolino G (2021) 'Going Karura': colliding subjectivities and labour struggle in Nairobi's gig economy. *Environment and Planning A: Economy and Space*. SAGE Publications Ltd: 0308518X211031916. DOI: 10.1177/0308518X211031916.

Jarrahi MH, Newlands G, Lee MK, et al. (2021) Algorithmic management in a work context. *Big Data & Society* 8(2). SAGE Publications Ltd: 20539517211020332. DOI: 10.1177/20539517211020332.

Jean-Charles R and Jean T (2006) Two-sided markets: a progress report. *The RAND Journal of Economics* 37(3): 645–667. DOI: 10.1111/j.1756-2171.2006.tb00036.x.

Jellinek L (1991) *The Wheel of Fortune: The History of a Poor Community in Jakarta*. Honolulu: University of Hawaii Press.

Jessop B (1990) Regulation theories in retrospect and prospect. *Economy and Society* 19(2): 153–216. DOI: 10.1080/03085149000000006.

Jia K and Kenney M (2021) The Chinese platform business group: an alternative to the Silicon Valley model? *Journal of Chinese Governance* 7. Routledge: 58–80. DOI: 10.1080/23812346.2021.1877446.

Jia L and Winseck D (2018) The political economy of Chinese internet companies: Financialization, concentration, and capitalization. *International Communication Gazette* 80(1): 30–59. DOI: 10.1177/1748048517742783.

Jin ST, Kong H, Wu R, et al. (2018) Ridesourcing, the sharing economy, and the future of cities. *Cities* 76: 96–104. DOI: 10.1016/j.cities.2018.01.012.

Jones MR (1997) Spatial Selectivity of the State? The Regulationist Enigma and Local Struggles over Economic Governance. *Environment and Planning A* 29(5): 831–864. DOI: 10.1068/a290831.

Katz C (1996) Towards Minor Theory. *Environment and Planning D: Society and Space* 14(4). SAGE Publications Ltd STM: 487–499. DOI: 10.1068/d140487.

Katz ML and Shapiro C (1985) Network Externalities, Competition, and Compatibility. *The American Economic Review* 75(3). American Economic Association: 424–440.

Kawakami M and Sturgeon TJ (2011) *The Dynamics of Local Learning in Global Value Chains: Experiences from East Asia*. Springer.

Kawase K (2019) Indonesia wants 20 more unicorns like Go-Jek and Tokopedia by 2025. *Nikkei Asia*, 24 January. Tokyo, Japan. Available at: https://asia.nikkei.com/Editor-s-Picks/Interview/Indonesia-wants-20-more-unicorns-like-Go-Jek-and-Tokopedia-by-2025 (accessed 30 September 2022).

Kearney (2018) Digital Payments and the Global Informal Economy. Available at: https://www.kearney.com/financial-services/article/-/insights/digital-payments-and-the-global-informal-economy (accessed 29 September 2022).

Kębłowski W and Rekhviashvili L (2020) Moving in informal circles in the global North: An inquiry into the navettes in Brussels. *Geoforum* 136: 251–261. DOI: 10.1016/j.geoforum.2020.08.014.

Kellogg KC, Valentine MA and Christin A (2020) Algorithms at Work: The New Contested Terrain of Control. *Academy of Management Annals* 14(1): 366–410. DOI: 10.5465/annals.2018.0174.

Kenney M and Zysman J (2016) The Rise of the Platform Economy. *Issues in Science and Technology; Washington* 32(3): 61–69.

Kenney M, Zysman J and Bearson D (2021) Transformation or Structural Change? What Polanyi Can Teach Us about the Platform Economy. *Sociologica*: 227–240. DOI: 10.6092/ISSN.1971-8853/11475.

Kent M (2008) Digital Divide 2.0 and the Digital Subaltern. *Nebula* 5(4): 14.

Kitchin R and Dodge M (2011) *Code/Space: Software and Everyday Life*. Cambridge, Mass.: The MIT Press.

Knaus K, Margies N and Schilling H (2021) Thinking the city through work. *City* 25(3–4). Routledge: 303–314. DOI: 10.1080/13604813.2021.1939966.

Kusno A (2014) *After the New Order: Space, Politics and Jakarta*. Honolulu: University of Hawai'i Press.

Kusno A (2019) Middling urbanism: the megacity and the kampung. *Urban Geography* 41(7): 954–970. DOI: 10.1080/02723638.2019.1688535.

Kwet M (2019) Digital colonialism: US empire and the new imperialism in the Global South. *Race & Class* 60(4). SAGE Publications Ltd: 3–26. DOI: 10.1177/0306396818823172.

Lanamäki A and Tuvikene T (2021) Framing digital future: Selective formalization and legitimation of ridehailing platforms in Estonia. *Geoforum* 136: 283–292. DOI: 10.1016/j.geoforum.2021.01.016.

Langley P and Leyshon A (2017) Platform capitalism: the intermediation and capitalisation of digital economic circulation. *Finance and society*. 3(1): 11–31.

Langley P and Leyshon A (2022) Neo-colonial credit: FinTech platforms in Africa. *Journal of Cultural Economy* 15(4). Routledge: 401–415. DOI: 10.1080/17530350.2022.2028652.

Latour B (1987) *Science in Action: How to Follow Scientists and Engineers Through Society*. Cambridge, MA: Harvard University Press.

Latour B (1999) *Pandora's Hope: Essays on the Reality of Science Studies*. Boston, MA: Harvard University Press.

Latour B (2005) *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.

Lauria M (ed.) (1996) *Reconstructing Urban Regime Theory: Regulating Urban Politics in a Global Economy*. Thousand Oaks, CA: SAGE Publications.

Lawhon M and Truelove Y (2020) Disambiguating the southern urban critique: Propositions, pathways and possibilities for a more global urban studies. *Urban Studies* 57(1): 3–20. DOI: 10.1177/0042098019829412.

Lawhon M, Silver J, Ernstson H, et al. (2016) Unlearning (Un)Located Ideas in the Provincialization of Urban Theory. *Regional Studies* 50(9): 1611–1622. DOI: 10.1080/00343404.2016.1162288.

Lee D (2018) How Ojek Became Go-Jek: Disruptive Technologies and the Infrastructure of Urban Citizenship in Indonesia. *International Journal of Urban and Regional Research*.

Lee MK (2018) Understanding perception of algorithmic decisions: Fairness, trust, and emotion in response to algorithmic management. *Big Data & Society* 5(1): 205395171875668. DOI: 10.1177/2053951718756684.

Lee MK, Kusbit D, Metsky E, et al. (2015) Working with Machines: The Impact of Algorithmic and Data-Driven Management on Human Workers. In: *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems - CHI '15*, Seoul, Republic of Korea, 2015, pp. 1603–1612. ACM Press. DOI: 10.1145/2702123.2702548.

Lefebvre H (1991) *Critique of Everyday Life: Foundations for a Sociology of the Everyday*. New York: Verso.

Leitner H and Sheppard E (2016) Provincializing Critical Urban Theory: Extending the Ecosystem of Possibilities. *International Journal of Urban and Regional Research* 40(1): 228–235. DOI: 10.1111/1468-2427.12277.

Leitner H and Sheppard E (2018) From Kampungs to Condos? Contested accumulations through displacement in Jakarta. *Environment and Planning A: Economy and Space* 50(2): 437–456. DOI: 10.1177/0308518X17709279.

Leitner H and Sheppard E (2020) Towards an epistemology for conjunctural inter-urban comparison. *Cambridge Journal of Regions, Economy and Society* 13(3): 491–508. DOI: 10.1093/cjres/rsaa025.

Leitner H, Nowak S and Sheppard E (2022) Everyday speculation in the remaking of peri-urban livelihoods and landscapes. *Environment and Planning A: Economy and Space*. SAGE Publications Ltd: 0308518X211066915. DOI: 10.1177/0308518X211066915.

Lessig L (1999) *Code: And Other Laws of Cyberspace*. New York: Basic Books.

Leszczynski A (2019) Glitchy vignettes of platform urbanism. *Environment and Planning D: Society and Space* 38(2): 189–208. DOI: 10.1177/0263775819878721.

Li TM (2014) What is land? Assembling a resource for global investment. *Transactions of the Institute of British Geographers* 39(4): 589–602. DOI: 10.1111/tran.12065.

Lichterman P (2002) Seeing structure happen: Theory-driven participant observation. In: Klandermans B and Staggenborg S (eds) *Methods of Social Movement Research*. Minneapolis, MN: University Of Minnesota Press, pp. 118–145.

Liebowitz SJ and Margolis SE (1994) Network Externality: An Uncommon Tragedy. *Journal of Economic Perspectives* 8(2): 133–150. DOI: 10.1257/jep.8.2.133.

Lipietz A (1993) *Towards a new economic order: Postfordism, ecology, and democracy*. Cambridge, UK: Polity Press.

Lobo S (2014) Sascha Lobo: Sharing Economy wie bei Uber ist Plattform-Kapitalismus. *Der Spiegel*, 3 September. Hamburg, Germany. Available at: https://www.spiegel.de/netzwelt/netzpolitik/sascha-lobo-sharing-economy-wie-bei-uber-ist-plattform-kapitalismus-a-989584.html (accessed 5 December 2022).

Logan J and Molotch H (1987) *Urban Fortunes: The Political Economy of Place*. Berkeley, CA: University of California Press.

Longino HE (2001) *The Fate of Knowledge*. Princeton, NJ: Princeton University Press.

Luque-Ayala A and Neves Maia F (2019) Digital territories: Google maps as a political technique in the re-making of urban informality. *Environment and Planning D: Society and Space* 37(3). SAGE Publications Ltd STM: 449–467. DOI: 10.1177/0263775818766069.

Mackenzie D (2008) *An Engine, Not a Camera: How Financial Models Shape Markets*. Cambridge, Mass.: The MIT Press.

Mann M and Daly A (2019) (Big) Data and the North-in-South: Australia's Informational Imperialism and Digital Colonialism. *Television & New Media* 20(4). SAGE Publications: 379–395. DOI: 10.1177/1527476418806091.

Maso GD, Robertson S and Rogers D (2019) Cultural platform capitalism: extracting value from cultural asymmetries in RealTech. *Social & Cultural Geography* 22(4). Routledge: 565–580. DOI: 10.1080/14649365.2019.1601246.

Massey D (1991) A global sense of place. *Marxism today* 35(6): 24–29.

Massey D (2005) *For Space*. London: SAGE.

Mazumdar A (2020) Between algorithims and the streets: The everyday politics of ride-hailing taxis in India. In: Hodson M, Kasmire J, McMeekin A, et al. (eds) *Urban Platforms and the Future City: Transformations in Infrastructure, Governance, Knowledge and Everyday Life*. London ; New York: Routledge, pp. 235–247.

McAfee A and Brynjolfsson E (2017) *Machine, Platform, Crowd: Harnessing Our Digital Future*. W. W. Norton & Company.

McFarlane C (2012) Rethinking Informality: Politics, Crisis, and the City. *Planning Theory & Practice* 13(1). Routledge: 89–108. DOI: 10.1080/14649357.2012.649951.

McNeill D (2016) Governing a city of unicorns: technology capital and the urban politics of San Francisco. *Urban Geography* 37(4): 494–513. DOI: 10.1080/02723638.2016.1139868.

Mead NV (2016) The world's worst traffic: can Jakarta find an alternative to the car? *The Guardian*, 23 November. Available at: http://www.theguardian.com/cities/2016/nov/23/world-worst-traffic-jakarta-alternative (accessed 17 August 2017).

Menkman R (2012) *The Glitch Moment(Um)*. Network Notebook 3. Amsterdam: Institute of Network Cultures.

Metcalfe B (2013) Metcalfe's Law after 40 Years of Ethernet. *Computer* 46(12): 26–31. DOI: 10.1109/MC.2013.374.

Mezzadra S and Neilson B (2015) Operations of Capital. *South Atlantic Quarterly* 114(1): 1–9. DOI: 10.1215/00382876-2831246.

Mignolo W (2011) *The Darker Side of Western Modernity: Global Futures, Decolonial Options*. Durham: Duke University Press.

Mikecz R (2012) Interviewing Elites: Addressing Methodological Issues. *Qualitative Inquiry* 18(6): 482–493. DOI: 10.1177/1077800412442818.

Milan S and Treré E (2019) Big Data from the South(s): Beyond Data Universalism. *Television & New Media* 20(4): 319–335. DOI: 10.1177/1527476419837739.

Miller P and Rose N (2008) *Governing The Present: Administering Economic, Social and Personal Life*. Cambridge: Polity Press.

Mintz SW (1985) *Sweetness and Power: The Place of Sugar in Modern History*. New York: Penguin.

Mishima K (2004) The Supplier System of the Motorcycle Industry in Vietnam, Thailand and Indonesia. In: *Vietnam Development Forum*, Hanoi, Vietnam, 9 September 2004, p. 20.

Mitchell T (ed.) (2000) *Questions of Modernity*. Minneapolis: University Of Minnesota Press.

Moatasim F (2019) Entitled urbanism: Elite informality and the reimagining of a planned modern city. *Urban Studies* 56(5). SAGE Publications Ltd: 1009–1025. DOI: 10.1177/0042098018767011.

Mohammad M (2021) *State of Venture Capital 2021*. CB Insights. Available at: https://www.cbinsights.com/research/report/venture-trends-2021/ (accessed 29 September 2022).

Mouton M and Burns R (2021) (Digital) neo-colonialism in the smart city. *Regional Studies* 55(12). Routledge: 1890–1901. DOI: 10.1080/00343404.2021.1915974.

Mufti AR (2005) Global Comparativism. *Critical Inquiry* 31(2): 472–489. DOI: 10.1086/430976.

Mulia K (2021) Aldi Haryopratomo, former GoPay CEO, on the importance of taking a sabbatical to be a better father, mentor and investor - Oasis | KrASIA. *KrAsia*, 22 June. Singapore. Available at: https://oasis.kr-asia.com/aldi-haryopratomo-gopay (accessed 4 December 2022).

Munck R (2013) The Precariat: a view from the South. *Third World Quarterly* 34(5). Taylor & Francis, Ltd.: 747–762.

Murillo D, Buckland H and Val E (2017) When the sharing economy becomes neoliberalism on steroids: Unravelling the controversies. *Technological Forecasting and Social Change* 125: 66–76. DOI: 10.1016/j.techfore.2017.05.024.

Nader L (1972) Up the Anthropologist: Perspectives Gained From Studying Up. In: Hymes D (ed.) *Reinventing Anthropology*. New York: Pantheon Books, pp. 285–311. Available at: https://eric.ed.gov/?id=ED065375 (accessed 1 June 2017).

Napoli PM (2020) Connecting Journalism and Public Policy: New Concerns and Continuing Challenges. *Digital Journalism* 8(6). Routledge: 691–703. DOI: 10.1080/21670811.2020.1775104.

Nastiti A (2017) Worker Unrest and Contentious Labor Practice of Ride-Hailing Services in Indonesia. North Western University. Available at: https://www.edgs.northwestern.edu/documents/2017-nastiti---arryman-paper,-evanston-symposium,-may-13.pdf (accessed 6 December 2022).

Ng'weno A and Porteous D (2018) *Let's Be Real: The Informal Sector and the Gig Economy are the Future, and the Present, of Work in Africa*. Washington D.C.: Center for GLobal Development. Available at: https://www.cgdev.org/publication/lets-be-real-informal-sector-and-gig-economy-are-future-and-present-work-africa (accessed 30 September 2022).

Nicholas T (2019) *VC: An American History*. Cambridge: Harvard University Press.

Nilsen AG and Roy S (eds) (2015) *New Subaltern Politics: Reconceptualizing Hegemony and Resistance in Contemporary India*. Oxford, New York: Oxford University Press.

Noble SU (2018) *Algorithms of Oppression*. New York: New York University Press.

Noormega R (2018) From 5,000 Orders to 3M Orders Per Day. Available at: https://medium.com/life-at-go-jek/from-5-000-orders-to-3m-orders-per-day-65c65b52041a (accessed 17 February 2020).

Obar JA and Oeldorf-Hirsch A (2018) The Clickwrap: A Political Economic Mechanism for Manufacturing Consent on Social Media. *Social Media + Society* 4(3). SAGE Publications Ltd: 2056305118784770. DOI: 10.1177/2056305118784770.

O'Connor A (2001) *Poverty Knowledge: Social Science, Social Policy, and the Poor in Twentieth-Century U.S. History*. Princeton, N.J.: Princeton University Press.

Odlyzko A and Tilly B (2005) *A refutation of Metcalfe's Law and a better estimate for the value of networks and network interconnections*. Minneapolis: University of Minnesota.

O'Farrell R and Montagnier P (2020) Measuring digital platform-mediated workers. *New Technology, Work and Employment* 35(1): 130–144. DOI: 10.1111/ntwe.12155.

Offe C (1976) "Crisis of Crisis Management: Elements of a Political Crisis Theory. *International Journal of Politics* 6(3): 29–67.

Ong A (2006) *Neoliberalism as Exception: Mutations in Citizenship and Sovereignty*. Duke University Press.

Ouma S (2016) From financialization to operations of capital: Historicizing and disentangling the finance–farmland-nexus. *Geoforum* 72: 82–93. DOI: 10.1016/j.geoforum.2016.02.003.

Panimbang F (2021) Solidarity across boundaries: a new practice of collectivity among workers in the app-based transport sector in Indonesia. *Globalizations* 18(8): 1377–1391. DOI: 10.1080/14747731.2021.1884789.

Parker GG, Alstyne MWV and Choudary SP (2016) *Platform Revolution: How Networked Markets Are Transforming the Economy and How to Make Them Work for You*. New York: W. W. Norton & Company.

Parnell S and Robinson J (2012) (Re)theorizing Cities from the Global South: Looking Beyond Neoliberalism. *Urban Geography* 33(4). Routledge: 593–617. DOI: 10.2747/0272-3638.33.4.593.

Pasquale FA (2017) *Two Narratives of Platform Capitalism*. ID 3002529, SSRN Scholarly Paper, 14 July. Rochester, NY: Social Science Research Network. Available at: https://papers.ssrn.com/abstract=3002529 (accessed 25 February 2018).

Peck J (2011) Regulation Theory. In: Gregory D, Johnston R, Pratt G, et al. (eds) *The Dictionary of Human Geography*. Hoboken, NJ: John Wiley & Sons, pp. 640–641.

Peck J (2013) For Polanyian Economic Geographies. *Environment and Planning A* 45(7): 1545–1568. DOI: 10.1068/a45236.

Peck J (2017) Transatlantic city, part 1: Conjunctural urbanism. *Urban Studies* 54(1): 4–30. DOI: 10.1177/0042098016679355.

Peck J and Phillips R (2021) The Platform Conjuncture. *Sociologica*: 73–99. DOI: 10.6092/ISSN.1971-8853/11613.

Pennell S (2021) Airbnb and the paradox of the body: The biopolitical management of hosts in four tourist towns in New Zealand. *Journal of Sociology* 58(4). SAGE Publications Ltd: 445–461. DOI: 10.1177/14407833211000122.

Pfluger R (2019) How SoftBank ate the world. *Wired*, 2 May. Available at: https://www.wired.co.uk/article/softbank-vision-fund (accessed 20 September 2021).

Plantin J-C and Punathambekar A (2019) Digital media infrastructures: pipes, platforms, and politics. *Media, Culture & Society* 41(2): 163–174. DOI: 10.1177/0163443718818376.

Plantin J-C, Lagoze C, Edwards PN, et al. (2018) Infrastructure studies meet platform studies in the age of Google and Facebook. *New Media & Society* 20(1): 293–310. DOI: 10.1177/1461444816661553.

Poell T, Nieborg D and van Dijck J (2019) Platformisation. *Internet Policy Review* 8(4). DOI: 10.14763/2019.4.1425.

Polanyi K (1944) *The Great Transformation: The Political and Economic Origins of Our Time*. Boston, MA: Beacon Press.

Pollio A (2019) Forefronts of the Sharing Economy: Uber in Cape Town. *International Journal of Urban and Regional Research* 43(4): 760–775. DOI: 10.1111/1468-2427.12788.

Pollio A (2020) Architectures of millennial development: Entrepreneurship and spatial justice at the bottom of the pyramid in Cape Town. *Environment and Planning A: Economy and Space* 52(3). SAGE Publications Ltd: 573–592. DOI: 10.1177/0308518X19876939.

Pollio A and Cirolia LR (2022) Fintech urbanism in the startup capital of Africa. *Journal of Cultural Economy* 15(4). Routledge: 508–523. DOI: 10.1080/17530350.2022.2058058.

Pollman E and Barry J (2017) Regulatory Entrepreneurship. *Southern California Law Review*. Available at: https://scholarship.law.upenn.edu/faculty_scholarship/2556.

Prahalad CK (2006) *The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits*. Upper Saddle River, NJ: Pearson Education.

Prouse C (2018) Autoconstruction 2.0: Social Media Contestations of Racialized Violence in Complexo do Alemão. *Antipode* 50(3): 621–640. DOI: 10.1111/anti.12370.

Qadri R (2020) Algorithmized but not Atomized? How Digital Platforms Engender New Forms of Worker Solidarity in Jakarta. In: *Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society*, New York, NY, USA, 7 February 2020, p. 144. AIES '20. Association for Computing Machinery. DOI: 10.1145/3375627.3375816.

Qadri R (2021) What's in a Network? Infrastructures of Mutual Aid for Digital Platform Workers during COVID-19. *Proceedings of the ACM on Human-Computer Interaction* 5(CSCW2): 419:1-419:20. DOI: 10.1145/3479563.

Quijano A (2000) Coloniality of Power, Eurocentrism, and Latin America. *Nepantla: Views from South* 1(3). Duke University Press: 533–580.

Rahman DR (2021) Indonesia to relax foreign investment rules for local start-ups. Available at: https://www.thejakartapost.com/news/2021/01/19/govt-eyes-foreign-investment-in-indonesian-start-ups-sez-through-new-draft-rules.html (accessed 30 September 2022).

Rai AS (2015) The affect of Jugaad: Frugal innovation and postcolonial practice in India's mobile phone ecology. *Environment and Planning D: Society and Space* 33(6): 985–1002. DOI: 10.1177/0263775815598155.

Reid-Musson E, Cockayne D, Frederiksen L, et al. (2020) Feminist economic geography and the future of work. *Environment and Planning A: Economy and Space* 52(7). SAGE Publications Ltd: 1457–1468. DOI: 10.1177/0308518X20947101.

Rekhviashvili L and Sgibnev W (2018) Uber, Marshrutkas and socially (dis-)embedded mobilities. *The Journal of Transport History* 39(1): 72–91. DOI: 10.1177/0022526618757203.

Replogle M (1989) Let Them Drive Cars. *New Internationalist*, 5 May. Available at: https://newint.org/features/1989/05/05/drive (accessed 23 March 2022).

Richardson L (2020a) Coordinating the city: platforms as flexible spatial arrangements. *Urban Geography* 41(3): 458–461. DOI: 10.1080/02723638.2020.1717027.

Richardson L (2020b) Platforms, Markets, and Contingent Calculation: The Flexible Arrangement of the Delivered Meal. *Antipode* 52(3): 619–636. DOI: 10.1111/anti.12546.

Ritter JR (2020) *Initial Public Offerings: Technology Stock IPOs*. 28 December. Gainesville: University of Florida. Available at: https://site.warrington.ufl.edu/ritter/files/IPOs-Tech.pdf (accessed 4 February 2021).

Robinson GB (2018) *The Killing Season: A History of the Indonesian Massacres, 1965-66*. Princeton: Princeton University Press.

Robinson J (2003) Postcolonialising Geography: Tactics and Pitfalls. *Singapore Journal of Tropical Geography* 24(3): 273–289. DOI: 10.1111/1467-9493.00159.

Robinson J (2016) Thinking cities through elsewhere: Comparative tactics for a more global urban studies. *Progress in Human Geography* 40(1): 3–29. DOI: 10.1177/0309132515598025.

Robison R (1986) *Indonesia: The Rise of Capital*. Singapore: Equinox Publishing.

Rochet J-C and Tirole J (2003) Platform Competition in Two-sided Markets. *Journal of the European Economic Association* 1(4). Oxford University Press: 990–1029.

Rodgers S and Moore S (2018) Platform Urbanism: An Introduction. *Mediapolis: A Journal of Cities and Culture* 3(4).

Roelofsen M and Minca C (2018) The Superhost. Biopolitics, home and community in the Airbnb dream-world of global hospitality. *Geoforum* 91: 170–181. DOI: 10.1016/j.geoforum.2018.02.021.

Rose N and Miller P (1992) Political Power beyond the State: Problematics of Government. *The British Journal of Sociology* 43(2). [Wiley, London School of Economics and Political Science, London School of Economics]: 173–205. DOI: 10.2307/591464.

Rosen J and Alvarez León LF (2022) The Digital Growth Machine: Urban Change and the Ideology of Technology. *Annals of the American Association of Geographers* 112(8). Taylor & Francis: 2248–2265. DOI: 10.1080/24694452.2022.2052008.

Rosenblat A (2018) *Uberland: How Algorithms Are Rewriting the Rules of Work*. Berkeley, CA: University of California Press.

Rosenblat A and Stark L (2016) Algorithmic Labor and Information Asymmetries: A Case Study of Uber's Drivers. *International Journal of Communication* 10(0): 27.

Roy A (2003a) *City Requiem, Calcutta: Gender and the Politics of Poverty*. Minneapolis: University of Minnesota Press.

Roy A (2003b) Paradigms Of Propertied Citizenship: Transnational Techniques of Analysis. *Urban Affairs Review* 38(4): 463–491. DOI: 10.1177/1078087402250356.

Roy A (2005) Urban Informality: Toward an Epistemology of Planning. *Journal of the American Planning Association* 71(2): 147–158. DOI: 10.1080/01944360508976689.

Roy A (2009a) The 21st-Century Metropolis: New Geographies of Theory. *Regional Studies* 43(6): 819–830. DOI: 10.1080/00343400701809665.

Roy A (2009b) Why India Cannot Plan Its Cities: Informality, Insurgence and the Idiom of Urbanization. *Planning Theory* 8(1). SAGE Publications: 76–87. DOI: 10.1177/1473095208099299.

Roy A (2010) *Poverty Capital: Microfinance and the Making of Development*. New York: Routledge.

Roy A (2011) Slumdog Cities: Rethinking Subaltern Urbanism. *International Journal of Urban and Regional Research* 35(2): 223–238. DOI: 10.1111/j.1468-2427.2011.01051.x.

Roy A (2016) Who's Afraid of Postcolonial Theory? *International Journal of Urban and Regional Research* 40(1): 200–2009. DOI: 10.1111/1468-2427.12274.

Roy A (2017) Urban Studies and the Postcolonial Encounter. In: *The SAGE Handbook of the 21st Century City*. New York: SAGE Publications Ltd, pp. 32–46. DOI: 10.4135/9781526402059.

Roy A and AlSayyad N (2004) *Urban Informality: Transnational Perspectives from the Middle East, Latin America, and South Asia*. Berkeley: Lexington Books.

Roy A and Ong A (eds) (2011) *Worlding Cities: Asian Experiments and the Art of Being Global*. Studies in urban and social change. Chichester, West Sussex ; Malden, MA: Wiley-Blackwell.

Rubin HJ and Rubin IS (2012) *Qualitative Interviewing: The Art of Hearing Data*. London: SAGE Publications.

Russell L (2020) *Glitch Feminism: A Manifesto*. New York: Verso Books.

Rutherford J and Davison S (eds) (2012) *The Neoliberal Crisis*. Soundings. London: Lawrence and Wilshart.

Sack RD (1986) *Human Territoriality: Its Theory and History*. Cambridge: Cambridge University Press.

Sadowski J (2020a) Cyberspace and cityscapes: on the emergence of platform urbanism. *Urban Geography* 41(3): 448–452. DOI: 10.1080/02723638.2020.1721055.

Sadowski J (2020b) The Internet of Landlords: Digital Platforms and New Mechanisms of Rentier Capitalism. *Antipode* 52(2): 562–580. DOI: https://doi.org/10.1111/anti.12595.

Saenprasarn L, Ruiz JV and Vivathirun T (2021) *ASEAN Motorcycle Markets and their impact on Car Markets*. Tokyo, Japan: ABeam Consulting. Available at: https://www.abeam.com/th/sites/default/files/field/field_pdf_files/ABeam%20FY22%20-%20Vol.%2004%20-%20Motorcycle%20ASEAN_v1.pdf (accessed 4 December 2022).

Said EW (1979) *Orientalism*. New York: Vintage Books.

Samboh E (2021) Gojek bosses give up 25% of annual salary for drivers, partners as COVID-19 deals blow. Available at: https://www.thejakartapost.com/news/2020/03/24/gojek-bosses-give-up-25-of-annual-salary-for-drivers-partners-as-covid-19-deals-blow.html (accessed 5 February 2021).

Schindler S (2017) Towards a paradigm of Southern urbanism. *City* 21(1). Routledge: 47–64. DOI: 10.1080/13604813.2016.1263494.

Schmall E, Ewing J and Loke A (2022) India's Electric Vehicle Push Is Riding on Mopeds and Rickshaws. *The New York Times*, 4 September. Available at:

https://www.nytimes.com/2022/09/04/business/energy-environment/india-electric-vehicles-moped-rickshaw.html (accessed 4 December 2022).

Schneider F (2021) *Digital Payments and the Global Informal Economy*. Chicago, IL: AT Kearney, Visa. Available at: https://images.globalclient.visa.com/Web/InovantElqVisaCheckout/%7B430a0ce5-fbaf-4ee3-95fe-af5a7c88de2c%7D_global-informal-economy-report.pdf (accessed 4 December 2022).

Schwiter K and Steiner J (2020) Geographies of care work: The commodification of care, digital care futures and alternative caring visions. *Geography Compass* 14(12): e12546. DOI: 10.1111/gec3.12546.

Scott AJ and Storper M (2015) The Nature of Cities: The Scope and Limits of Urban Theory. *International Journal of Urban and Regional Research* 39(1): 1–15. DOI: 10.1111/1468-2427.12134.

Scott JC (1985) *Weapons of the Weak: Everyday Forms of Peasant Resistance*. New Haven, Connecticut: Yale University Press.

Scott JC (1990) *Domination and the Arts of Resistance: Hidden Transcripts*. New Haven, Connecticut: Yale University Press.

Segura MS and Waisbord S (2019) Between Data Capitalism and Data Citizenship. *Television & New Media* 20(4). SAGE Publications: 412–419. DOI: 10.1177/1527476419834519.

Seidl T (2022) The politics of platform capitalism: A case study on the regulation of Uber in New York. *Regulation & Governance* 16(2): 357–374. DOI: 10.1111/rego.12353.

Shelton T, Zook M and Wiig A (2015) The 'actually existing smart city'. *Cambridge Journal of Regions, Economy and Society* 8(1): 13–25. DOI: 10.1093/cjres/rsu026.

Sheppard E (2002) The Spaces and Times of Globalization: Place, Scale, Networks, and Positionality*. *Economic Geography* 78(3): 307–330.

Sheppard E (2018) Globalizing capitalism's raggedy fringes: thinking through Jakarta. *Area Development and Policy* 4(1): 1–27. DOI: 10.1080/23792949.2018.1523682.

Sheppard E, Leitner H and Maringanti A (2013) Provincializing Global Urbanism: A Manifesto. *Urban Geography* 34(7). Routledge: 893–900. DOI: 10.1080/02723638.2013.807977.

Sheppard E, Gidwani V, Goldman M, et al. (2015) Introduction: Urban revolutions in the age of global urbanism. *Urban Studies* 52(11): 1947–1961. DOI: 10.1177/0042098015590050.

Sheppard E, Sparks T and Leitner H (2020) World Class Aspirations, Urban Informality, and Poverty Politics: A North–South Comparison. *Antipode* 52(2): 393–407. DOI: 10.1111/anti.12601.

Shibata N (2022) Gojek-backed JV plans to deliver 2m e-motorbikes in Indonesia. Available at: https://asia.nikkei.com/Business/Technology/Gojek-backed-JV-plans-to-deliver-2m-e-motorbikes-in-Indonesia (accessed 4 December 2022).

Sidaway JD (1992) In Other Worlds: On the Politics of Research by 'First World' Geographers in the 'Third World'. *Area* 24(4). [Royal Geographical Society (with the Institute of British Geographers), Wiley]: 403–408.

Simone A (2004) People as Infrastructure: Intersecting Fragments in Johannesburg. *Public Culture* 16(3): 407–429. DOI: 10.1215/08992363-16-3-407.

Simone A (2008) The politics of the possible: Making urban life in Phnom Penh. *Singapore Journal of Tropical Geography* 29(2): 186–204. DOI: 10.1111/j.1467-9493.2008.00328.x.

Simone A (2013) Cities of Uncertainty: Jakarta, the Urban Majority, and Inventive Political Technologies. *Theory, Culture & Society* 30(7–8): 243–263. DOI: 10.1177/0263276413501872.

Simone AM (2014) *Jakarta, Drawing the City Near*. Minneapolis, MN: University of Minnesota Press.

Singer D (2022) U.S. IPO Drought Deepens in Biggest Slump Since Financial Crisis. *Bloomberg*, 8 March. New York, NY. Available at: https://www.bloomberg.com/news/articles/2022-03-08/u-s-ipo-drought-deepens-in-biggest-slump-since-financial-crisis (accessed 4 December 2022).

Smart A (2001) Unruly Places: Urban Governance and the Persistence of Illegality in Hong Kong's Urban Squatter Areas. *American Anthropologist* 103(1): 30–44. DOI: 10.1525/aa.2001.103.1.30.

Smith RG (2013) The Ordinary City Trap. *Environment and Planning A: Economy and Space* 45(10): 2290–2304. DOI: 10.1068/a45516.

Sopranzetti C (2021) Shifting informalities: Motorcycle taxis, ride-hailing apps, and urban mobility in Bangkok. *Geoforum*. DOI: 10.1016/j.geoforum.2021.04.007.

Soriano CRR and Cabañes JVA (2020) Entrepreneurial Solidarities: Social Media Collectives and Filipino Digital Platform Workers. *Social Media + Society* 6(2): 205630512092648. DOI: 10.1177/2056305120926484.

Soss J (2006) Talking Our Way to Meaningful Explanations: A Practical Approach to In-Depth Interviews for Interpretive Research. In: Yanow D and Schwartz-Shea P (eds) *Interpretation and Method*. New York: M.E. Sharpe, pp. 127–149.

Southerton C, Marshall D, Aggleton P, et al. (2021) Restricted modes: Social media, content classification and LGBTQ sexual citizenship. *New Media & Society* 23(5). SAGE Publications: 920–938. DOI: 10.1177/1461444820904362.

Spivak GC (1999) *A Critique of Postcolonial Reason: Toward a History of the Vanishing Present*. Cambridge, MA: Harvard University Press.

Srnicek N (2016) *Platform Capitalism*. Cambridge, UK ; Malden, MA: Polity.

Stacey J (1988) Can there be a feminist ethnography? *Women's Studies International Forum* 11(1): 21–27. DOI: 10.1016/0277-5395(88)90004-0.

Stark D and Pais I (2020) Algorithmic Management in the Platform Economy. *Sociologica* 14(3). 3: 47–72. DOI: 10.6092/issn.1971-8853/12221.

Stehlin J (2018) Urban Platforms, Rent, and the Digital Built Environment. *Mediapolis: A Journal of Cities and Culture* 3(4).

Stehlin J, Hodson M and McMeekin A (2020) Platform mobilities and the production of urban space: Toward a typology of platformization trajectories. *Environment and Planning A: Economy and Space* 52(7): 1250–1268. DOI: 10.1177/0308518X19896801.

Steinberg M (2021) From Automobile Capitalism to Platform Capitalism: Toyotism as a prehistory of digital platforms. *Organization Studies* 43(7). SAGE Publications Ltd: 1069–1090. DOI: 10.1177/01708406211030681.

Stoler AL (2002) Colonial archives and the arts of governance. *Archival Science* 2(1–2): 87–109. DOI: 10.1007/BF02435632.

Sundararajan A (2016) *The Sharing Economy: The End of Employment and the Rise of Crowd-Based Capitalism*. Boston: MIT Press.

Suzuki W (2019) After Uber flop, Go-Jek says it doesn't need ride-hailing to profit. Available at: https://asia.nikkei.com/Editor-s-Picks/Interview/After-Uber-flop-Go-Jek-says-it-doesn-t-need-ride-hailing-to-profit (accessed 5 February 2021).

Tabascio A and Brail S (2021) Governance matters: Regulating ride hailing platforms in Canada's largest city-regions. *The Canadian Geographer / Le Géographe canadien* 66(2): 278–292. DOI: 10.1111/cag.12705.

Tassinari A and Maccarrone V (2020) Riders on the Storm: Workplace Solidarity among Gig Economy Couriers in Italy and the UK. *Work, Employment and Society* 34(1). SAGE Publications Ltd: 35–54. DOI: 10.1177/0950017019862954.

Thatcher J, O'Sullivan D and Mahmoudi D (2016) Data colonialism through accumulation by dispossession: New metaphors for daily data. *Environment and Planning D: Society and Space* 34(6): 990–1006. DOI: 10.1177/0263775816633195.

The Jakarta Post (2018) Astra invests US$150 million in ride-hailing app Go-Jek. Available at: https://www.thejakartapost.com/news/2018/02/12/astra-invests-us150-million-in-ride-hailing-app-go-jek.html (accessed 30 September 2022).

Ticona J and Mateescu A (2018) Trusted strangers: Carework platforms' cultural entrepreneurship in the on-demand economy. *New Media & Society* 20(11): 4384–4404. DOI: 10.1177/1461444818773727.

Ticona J, Alexandra M and Rosenblat A (2018) *Beyond Disruption How Tech Shapes Labor Across Domestic Work & Ridehailing*. New York: Data and Society.

Transportation Research Board (2016) *Special Report 319: Between Public and Private Mobility: Examining the Rise of Technology-Enabled Transportation Services*. Washington D.C.: The National Academies Press.

Tsing AL (2005) *Friction: An Ethnography of Global Connection*. Princeton, N.J.: Princeton University Press.

Uber Technologies Inc. (2019) *United States Securities and Exchange Commission, Forms S-1 Registration Statement*. 11 April. Washington D.C.: US SEC. Available at: https://www.sec.gov/Archives/edgar/data/1543151/000119312519103850/d647752ds1.htm (accessed 9 March 2021).

Vacano M von (2021) *Going Gojek, or Staying Ojek? Competing Visions of Work and Economy in Jakarta's Motorbike Taxi Industry*. Bristol: Bristol University Press. Available at: https://bristoluniversitypressdigital.com/view/book/9781529208948/ch009.xml (accessed 30 September 2022).

Vail T (1909) *Annual Report: American Telephone and Telegraph Company*. Annual Shareholder Report, Volume 88. San Francisco: The Commercial and Financial Chronicle. Available at: https://www.google.com/books/edition/The_Commercial_and_Financial_Chronicle/BUU9AQAAMAAJ?hl=en&gbpv=0 (accessed 3 March 2021).

Vallas S and Schor JB (2020) What Do Platforms Do? Understanding the Gig Economy. *Annual Review of Sociology* 46(1): annurev-soc-121919-054857. DOI: 10.1146/annurev-soc-121919-054857.

van Dijck J (2013) *The Culture of Connectivity: A Critical History of Social Media*. Oxford, New York: Oxford University Press.

Van Dijck J (2021) Seeing the forest for the trees: Visualizing platformization and its governance. *New Media & Society* 23(9). SAGE Publications: 2801–2819. DOI: 10.1177/1461444820940293.

van Dijck J, Poell T and Waal M de (2018) *The Platform Society: Public Values in a Connective World*. Oxford: Oxford University Press.

van Doorn N (2017) Platform labor: on the gendered and racialized exploitation of low-income service work in the 'on-demand' economy. *Information, Communication & Society* 20(6): 898–914. DOI: 10.1080/1369118X.2017.1294194.

van Doorn N (2019) A new institution on the block: On platform urbanism and Airbnb citizenship: *New Media & Society* 22(10): 1808–1826. DOI: 10.1177/1461444819884377.

Visweswaran K (1994) *Fictions of Feminist Ethnography*. Minneapolis: University of Minnesota Press.

Wachsmuth D and Weisler A (2018) Airbnb and the rent gap: Gentrification through the sharing economy. *Environment and Planning A: Economy and Space* 50(6): 1147–1170. DOI: 10.1177/0308518X18778038.

Wacquant L (2002) Review Symposium - Scrutinizing the Street: Poverty, Morality, and the Pitfalls of Urban Ethnography. *The American journal of sociology*. 107(6): 1468–1528.

Ward C and Aalbers MB (2016) "The shitty rent business: What's the point of land rent theory? *Urban Studies* 53(9): 1760–1783. DOI: 10.1177/0042098016638975.

Wells KJ, Attoh K and Cullen D (2020) "Just-in-Place" labor: Driver organizing in the Uber workplace. *Environment and Planning A: Economy and Space* 53(2): 315–331. DOI: 10.1177/0308518X20949266.

Williamson B (2021) Making markets through digital platforms: Pearson, edu-business, and the (e)valuation of higher education. *Critical Studies in Education* 62(1). Routledge: 50–66. DOI: 10.1080/17508487.2020.1737556.

Willis P (1978) *Learning to Labour: How Working Class Kids Get Working Class Jobs*. London: Saxon House Teakfield Limited.

Wilson I (2011) Reconfiguring rackets: Racket regimes, protection and the state in post-New Order Jakarta. In: *The State and Illegality in Indonesia*. Brill, pp. 239–259. DOI: 10.1163/9789004253681_013.

Wilson ID (2015) *The Politics of Protection Rackets in Post-New Order Indonesia: Coercive Capital, Authority and Street Politics*. Abingdon: Routledge.

Winters JA (1996) *Power in Motion: Capital Mobility and the Indonesian State*. 1st edition. Ithaca, NY: Cornell University Press.

World Health Organization (2018) *Global Status Report on Road Safety*. Geneva: World Health Organization. Available at: https://www.who.int/publications/i/item/9789241565684 (accessed 4 December 2022).

Wulansari AD, Novianto A and Keban YT (2021) Mengapa Gojek, Grab, hingga Maxim perlu memberikan jaminan pendapatan dasar bagi para ojol. *The Conversation*, 4 June. Available at: https://theconversation.com/amp/mengapa-gojek-grab-hingga-maxim-perlu-memberikan-jaminan-pendapatan-dasar-bagi-para-ojol-161984?__twitter_impression=true (accessed 4 December 2022).

Yao Z, Weden S, Emerlyn L, et al. (2021) Together But Alone: Atomization and Peer Support among Gig Workers. *Proceedings of the ACM on Human-Computer Interaction* 5(CSCW2): 1–29. DOI: 10.1145/3479535.

Young JC (2019) The new knowledge politics of digital colonialism. *Environment and Planning A: Economy and Space* 51(7). SAGE Publications Ltd: 1424–1441. DOI: 10.1177/0308518X19858998.

Yuana SL, Sengers F, Boon W, et al. (2019) Framing the sharing economy: A media analysis of ridesharing platforms in Indonesia and the Philippines. *Journal of Cleaner Production* 212: 1154–1165. DOI: 10.1016/j.jclepro.2018.12.073.

Zhang L (2020) When Platform Capitalism Meets Petty Capitalism in China: Alibaba and an Integrated Approach to Platformization. *International Journal of Communication* 14. 0: 114–134.

Zhang X-Z, Liu J-J and Xu Z-W (2015) Tencent and Facebook Data Validate Metcalfe's Law. *Journal of Computer Science and Technology* 30(2): 246–251. DOI: 10.1007/s11390-015-1518-1.

Zhao EJ (2019) *Digital China's Informal Circuits: Platforms, Labour and Governance*. London ; New York: Routledge. DOI: 10.4324/9781315173795.

Zook M (2005) *The Geography of the Internet Industry: Venture Capital, Dot-Coms, and Local Knowledge*. Malden, MA: Blackwell Publishing.

Zuboff S (2018) *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. New York: Public Affairs.