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Late Industrialisation under Platform Capitalism

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Introduction

Platform capitalism refers to the growing dominance of digital platform firms in the global economy. Digital platform firms are online firms that intermediate transactions between businesses and consumers, between peers, and between businesses, and that appropriate rent from these transactions. They do so in particular relying on big data and data analytics from which they benefit from data network economies- which often results in such firms establishing a dominant market position. A representative example is Uber, a ride-hailing digital platform that intermediate between people seeking transportation and drivers, appropriating the fee, and paying drivers a percentage thereof. Another example is Facebook, a social media platform relying on users who have free access to provide content and selling advertising to third parties. Digital platform firms have become hugely influential and are disrupting traditional businesses wherever they compete. At the time of writing, more than 10,000 digital platforms were active in Europe alone and eight of the ten most valuable firms in the world, based on market capitalisation, were digital platform firms. The COVID-19 pandemic has accelerated the dominance of these firms - the personal fortune of the founder of Amazon, Jeff Bezos, reportedly increased by US$ 72,6 billion during

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Kenney, M. & Zysman, M. (2016). The Rise of the Platform Economy. Issues in Science and Technology, Spring, 61-69.

2020, an amount exceeding the total COVID-19 fiscal rescue package of a country such as South Africa.

Market competition is increasingly taking place against digital platforms (for e.g., Apple's watch competing against the Swiss watch industry), between digital platforms (e.g., between Apple and Google), or on digital platforms (e.g., between app-developers). This transformation of the nature of market competition can perhaps be seen as a further transformation of modern capitalism, with the digital platform likely to become as defining for future industrialisation, as was the factory for the 1st Industrial Revolution, the Fordist corporation for the 20th century, and global value chains for the late 20th century. This transformation of modern capitalism into platform capitalism has important implications for late industrialisation, and for industrial policies to assist developing countries to achieve sustainable industrialisation. Perhaps the most important implication is that it is making industrialisation much harder for late industrialisers, particularly the countries in Sub-Saharan Africa.

While there have been many analyses of the type of digital industrial policies that are needed for late industrialisers to benefit from the digital revolution (often referred to as the 4th Industrial Revolution) these analyses have so far stopped short of dealing fully with the implications of platform capitalism - in particular the consequences of competing against digital platforms and the digital platform industrial strategies of advanced economies and China. The Oxford Handbook on Industrial Policy (2020) for instance contains not a single chapter devoted to the implications of big data and digitalisation for industrialisation, and only one chapter explicitly focusing on digital technologies more generally. This policy brief, based on a SARChI Working Paper, provides a first step toward addressing this lacuna, by discussing three issues that relevant industrial policies in late industrialising countries should address.

Industrialisation Is Becoming Harder

Before discussing the three issues that relevant digital industrial policies in late industrialising countries should address some preparatory background is necessary to contextualise and motivate these issues as worthy of incorporation into industrial strategies.

The first is to note the digital revolution that is the core driver of what has been termed the 4th Industrial Revolution, and that this revolution has made industrialisation for late industrialisers much harder. This is because it has increased the complexity of development along three interrelated dimensions. The first dimension is the availability of more complicated, `fused' technologies, including Cyber-Physical Systems (CPS) and Artificial Intelligence (AI). These pose substantial demands on complimentary skills, infrastructure, intangible investments, and coordination. The second dimension is that the digital revolution is despite the promising nature of its technologies, not fundamentally as `revolutionary' as previous industrial revolutions - but however subject to more hype and over-optimism. Thus, the requirements of obtaining similar productivity and jobs growth as in the past raises the bar as far as appropriate industrial policies are concerned. The third dimension in which the digital revolution has increase complexity is perhaps the most significant, namely in enabling new business models which integrates technology, markets, and data, and which gives rise to digital platform firms.

Most of the attention in the literature on industrialisation and the digital revolution or 4th industrial revolution has been on the first two dimensions but has, as was mentioned in the introduction, neglected the third dimension of increased complexity in the digital revolution - the rise of platform capitalism. Platform capitalism complicates industrialisation in several ways.

Industrialisation under Platform Capitalism

The first way in which platform capitalism complicates industrialisation is that digital platforms have showed themselves to be deadly competitors when they face off against traditional pipeline brick-and-mortar businesses. Examples are Amazon and Netflix out-competing Borders and Blockbuster. The most valuable assets of digital platforms are the intangible data and algorithms on which their business models are built, which provides them with the ability to provide superior products and services, gives them a first-mover advantage, and enable them to shape-shift, meaning they can effectively enter markets non-related to their original core-business. Examples are Apple competing against the watch industry with its Apple Watch, Google venturing into the market for autonomous vehicles and Facebook planning to launch its own currency, the Libra. As a result of this central importance of data and software to their business models, Silicon Valley investor Marc Andreessen coined the phrase "software is eating the world".

The deadly effectiveness of digital platform firms' business models requires traditional non-platform firms to significantly adapt their corporate strategies to be able to compete more effectively - raising the doing business complexity for developing country firms significantly. Traditional firms can react in three ways. One, they can implement significant cost-saving measures; two, they can try to make their business model more flexible and customer oriented – adopting features of platforms; and three they can try to start joint businesses with digital platform firms. An example in the latter regard is the 2019 announced strategic partnership between Volkswagen and Amazon Web Services (AWS), which follows Volkswagen's partnerships with Microsoft Azure, and which created the Volkswagen Automotive Cloud.

The second way in which platform capitalism complicates industrialisation is that, even if late industrialising countries manage to establish their own digital platforms or adopt features of digital platforms, they will have to face platform-to-platform competition. Here, they are far behind in experience and lessons learned. In advanced economies and China, digital platforms competing against one another have become the norm and has been described as "Goliath vs Goliath" competition. Examples include Amazon and Google competing for advertising revenue or Apple taking legal action against alleged intellectual property appropriation by Google. It may be very difficult for new digital platforms in advanced economies or in late industrialising countries to be out-competed. One strategy that a new digital platform may to try and oust an incumbent is to try and provide a better service to attract the users of the incumbent platform to switch. The example is of Sony's PlayStation which out-competed Nintendo's Super Nintendo Entertainment System (SNES) by offering users a 32-bit processor and 3D graphics, which was better than SNES 2D-graphics and 16-bit processor. This however will put huge demands on late industrialising countries which may be impossible to meet. For instance, the new entrant platform needs to have access to significant financial and human resources to provide a superior product or service. For developing countries this, as well as the requirement to coordinate and put in place a modular architecture dependent on the inputs of many other firms present significant obstacles in competing with the large incumbent firms.

The third way in which platform capitalism complicates industrialisation is that by hosting third-party entrepreneurs on their digital infrastructure – such as app developers on the Apple Store or retailers on Amazon Web Services (AWS) – digital platforms generate

competition on their platform between third-party entrepreneurs. They moreover set the terms of that competition, for example as *Facebook* does on its buy-and-sell groups, or *Amazon* does on the Amazon' marketplace. This however often results in troublesome forms of competition, wherein the platform owner is often negatively implicated, including dirty business tactics through which the platform owner can damage or take-over the business of third-party, independent entrepreneurs doing business on its platform. For developing country entrepreneurs, this dilutes the possible advantages they can obtain from doing business on these platforms and moreover leaves the future growth of indigenous firms largely dependent on the decisions and strategies of foreign firms.

The fourth way in which platform capitalism complicates industrialisation is that local business dynamism tends to taper off in the presence of digital platforms firms. Two mechanisms at work here are first the lack of competitiveness of local firms against the more effective and customer-oriented platform model with its string network economies. A second is that the start-up of new firms (often the engine of innovation-driven growth) declines. This is to avoid the "kill zones" around digital platforms where firms are taken over by digital platforms or their intellectual property appropriated. The number of firms taken over by the USA based digital platform giants runs into the hundreds. Likewise Chinese digital platforms have taken over many firms not only in China but also in the East Asian region. A third reason why local business dynamism tends to taper off in the presence of digital platforms firms is that with digital platforms trying to stifle new competition by buying up new start-ups, many start-ups never aim to remain in the market, but aim only to catch the attention of one of the digital platform giants and be bought up even before launch an IPO, such as *Instagram*.

The fifth way in which platform capitalism complicates industrialisation is that digital platform firms have become par excellence the lobbying firms of the present generation – even outperforming the global financial firms in this regard. Google and Amazon's close relationship to the US Department of Defense had been noted and China's BAT's (*Baidu, Alibaba and Tencent*), although not government owned, have a close relationship with the Chinese communist party. Given the centrality of data and new technologies based on data to the business models of the large digital platforms, they have a strong interest in weak data and intellectual property protection, and hence engage in expansive and well-coordinated lobbying and legal efforts to influence policy making. One of the practices that digital platform firms want to protect through lobbying and legal measures, is that of digital enclosure. Digital enclosure refers to the creative use of software licenses to obtain control and gain access to users' data. For example, when a factory owner purchases a smart machine, they would typically one obtain ownership over the physical object, not the embedded software, which through the licensing agreement is leased or rented. This allows the owner of the software access to the use of the machine – even to the extent of shutting it down if they want to.

Finally, platform capitalism complicates industrialisation as there are many new downsides to an economy in which data is becoming increasingly valuable, and platforms compete for user attention and data. These include data privacy violations, data harvesting practices, click bait, misinformation and disinformation, and the rise of the surveillance state, surveillance capitalism and new vulnerabilities to cybercrime. Very few African countries have signed up to the African Union's

Malebo Convention on Cyber Security, and more and more are resorting to utilise new digital technologies to spy on their citizens. This creates uncertainty, distrust, and vulnerabilities which will limit the absorption and use of new digital technologies for domestic industrialisation.

Implications for Industrial Policy

Very deliberate strategies and policies are needed by late industrialising countries to deal with digital platform firms. Industrial policy should not only be concerned with the nature and implications of new digital technologies as it has tended to do so far, but also with the business models that they give rise to - which underpin digital platform capitalism. These should address at least three issues.

1. Avoid being marginalised or captured by other countries' digital platform strategies

The first issue to be addressed by digitally relevant industrial policies in late industrialising countries is to respond appropriately to the industrial policies of advanced manufacturing countries such as the USA, EU and China, wherein digital platforms are increasingly taking center stage. In the West, the USA is essentially developing smart manufacturing to re-shore jobs that were outsourced to China and other Asian countries during the latter's rise and doing this by attempting to incorporate global manufacturing as a subset of its giant software and digital platform economy. Germany, with its Industrie 4.0 strategy is aiming at the full-scale digitisation of its manufacturing sector, including promoting new business models for manufacturing that would likewise re-shore jobs and shorten value chains.

Perhaps more consequential for late industrialising countries such as those in Africa will be China's new digital industrialisation ambitions, as these more explicitly than perhaps the strategies of the West are targeting Africa. China's vision for industrial dominance is based on a comprehensive digitisation strategy to attain digital sovereignty and digital dominance. The establishment and promotion of digital platform giants and their spread into emerging markets in Africa is a central plank of this strategy. China's industrial policies follows from the Made in China 2025 strategy which has the ambition to position China as the world's leading high-tech manufacturing hub. Made in China 2025 (MiC2025) has several components and elaborations that will have important implications for African industrialisation such as the Belt and Road Initiative (BRI) with its digital dimension, the Digital Silk Road (DSR), the Internet Plus policy, and the China Standards 2035 plan.

Since 2017 Alibaba has expanded its global reach into Africa, aiming to create what has been termed a "pan-African eco-system based on the Alibaba model" and consisting of several interlinked initiatives to gain rapid market share across the continent. These include the rolling out in Africa of the Electronic World Trade Platform (eWTP) to link African consumers and firms to those in China (it is part of the Digital Silk Road), the Africa Netpreneur Prize (ANPI) essentially to identify promising new businesses for Alibaba to invest in, and the cultivation of close ties to African political leaders. The Alipay mobile payment platform has entered into collaboration agreements with virtually all of Africa's main payment infrastructures and services, including M-Pesa, Vodacom, Ecobank's RapidTransfer, Flutterwave and Vodacom.

Whereas Western digital industrial strategies are likely to leave African countries more excluded or marginalised through the withdrawal of manufacturing activity through re-shoring and automation in the west, and through the restrictions imposed by the GDPR

and other privacy-oriented legislative response, China's industrial strategy is aiming to dominate African economies by locking their economies into China's technology hardware, standards, and cyber governance systems.

2. Appropriately regulate digital platforms

A second issue to be addressed by digitally relevant industrial policies in late industrialising countries is to regulate global digital platforms so that developing countries could benefit from their presence but avoid many of the dangers. Global digital platforms do not only pose dangers - they also have many potential benefits - for instance most effectively illustrated in the resilience which they gave to many economies during the COVID-19 pandemic.

Building foundational capabilities, 21st century skills and upgrading developing countries' digital infrastructure would all help in empowering local agents to leverage the advantages of digital platforms. Improving digital entrepreneurship would facilitate a shift away from supply / pipeline -driven approaches of traditional manufacturing towards the more customer-oriented and demand-side focus of digital platforms.

The biggest challenge remains however in regulating digital platforms through regulation of the core basis of their business models – data and artificial intelligence models. Consideration of for instance the EU's grappling with this challenge indicates the complexity of the matter – and it is instructive to keep in mind that the EU, like late industrialising countries in Africa – is essentially marginalised in terms of the global digital platforms, which are largely from the USA and China: Europe has no comparable digital platforms to compete with. Thus, Europe's industrial strategy approach rest on regulating (US and Chinese) platforms in Europe. The EU for instance has in recent years in addition to the GDPR adopted its EU Platform-to-Business (P2B) Regulation (2019) as well as proposals for a Digital Markets Act (DMA) and a Digital Services Act (DSA) in December 2020.

For late industrialising countries this, as well as China's substantial efforts to impose its own standards and governance systems on the global economy, signals that industrial policy in the age of digital platforms will ultimately be policy and standards about data - about its ownership, sharing, exchange, and privacy protection. This raised the question: how can data best be governed from an industrial policy point of view?

The fact that data is non-rival in consumption or usage, and non-material (digital), complicates simple policies that may try to close local or national data from being harvested by foreign firms, as perhaps an analogue policy to protect domestic firms. The problem with such an analogy, is that in many cases the nature of data will result in cross-border spillovers in data analysis. What this mean is that because consumers may be roughly similar in their make-up and psychology across jurisdictions, data from consumers in another country may be useful in the protected jurisdiction, thus giving an advantage to digital platforms operating in many countries. Thus, for example, Chinese-based digital platform firms may, based on data harvested in Kenya, design products and sell data to businesses targeting South African consumers, without having to have access to data of South African origin. Moreover, because of the social dimension or externality value of data from one consumer for understanding another consumer, if data platforms compensate the individual owner of the data, i.e. respect their data ownership rights as many are advocating they should do, the social value of data will exceed the private value of data and hence the cost to the

platform of acquiring the private data will be much less than the value of the data to the platform.

While this complexity of regulating data given its nature remains an obstacle to late industrialisation and an open challenge for digital industrial policy, there is however also an upside, namely that there is sat the time of writing still policy space for novel digital industrial policies relating to data regulation and governance. This creates scope - and urgency - for strategic digital industrial policy in late industrialising countries.

3. Create a supportive environment for homegrown digital platforms

A third issue to be addressed by digitally relevant industrial policies in late industrialising countries should be to help create a supportive environment for the emergence and growth of homegrown digital platforms. This will require a focus on digital entrepreneurship and the combination of skills, infrastructure and finance in digital entrepreneurial ecosystems wherein new ventures can be grown based on business models wherein data, digital ecosystems and consumer orientation is more centrally embedded than in traditional models. Such a focus will require more research on the current state, drivers, and obstacles of the emerging digital platform landscape in developing regions.

While the global digital platform economy is dominated by the USA and China – countries also leading the development of artificial intelligence, there has been significant growth in Africa in terms of the number of local (homegrown) digital platform firms. A recent study examining 365 digital platforms across eight African countries found they had an average of 92,000 users per month and that their average user base has been growing by 18% per annum in recent years. Around 82% of African platforms are "homegrown" although the 20% of foreign platforms were capturing an increasing size of the market - as our discussion above would make one expect. Moreover, the study mentioned also found that African homegrown platforms tend to focus largely on the local market – few are expanding into other African countries, and that the number of platforms is growing faster than the user base, with a lot of platforms also exiting the market. This all suggest that homegrown digital platforms are still fragmented. These preliminary findings on African digital platforms suggest that support industrial policies can possibly improve their efficiency and sustainability. More research is needed to understand the competitive landscape, pressures, strategies, and resources of these homegrown digital platforms in Africa and how to best strengthen the local digital entrepreneurship ecosystem to allow them to reap the benefits of the digital revolution.

Conclusion

With the rise of digital platform capitalism, industrial policy is becoming a battle for technological supremacy and control over fundamental digital assets – both tangible and intangible. Regulations, standards, intellectual property, legislative measures are becoming more than ever key industrial policy tools. In this, the policy and political processes in late industrialisers cannot remain behind. According to Kenney and Zysman (2016:69) digital platform capitalism can, as was the case during earlier forms of capitalism, lead to social and political upheaval. As they put it, "The reality is that the winners and losers in markets depend on who can participate and on what terms. There are no markets, and no market platforms, without rules, but what happens to the politics if important market rules are made unchallenged by the platform owners? Many political struggles will be waged over these

rules, and those fights will be part of defining the market and society in a platform era." Digital industrial policy in developing countries would be a start to ensure that these countries get a say in the establishment and policing of the market rules for platform capitalism.

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