Digital Globalization

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Chapter 1

Introduction

Digital technologies are reshaping the global economy and complicating cooperation over its governance. Novel business models deploy digital tools to profit from international transfers of data, services, and knowledge (Agrawal et al., 2018a; Baldwin, 2019; Brynjolfsson and McAfee, 2014; Chander, 2013; Cowhey and Aronson, 2017; Manyika et al., 2016). These innovations in technology and business propel a new, digitally driven, phase of globalization defined by the expansion of cross-border information flows that is provoking political conflict and policy discord—the era of digital globalization. Individual countries have pursued different approaches to regulating digital technologies and cross-border data flows. The resulting fragmented digital governance is upending economic integration between adversaries and cooperative nations alike.

Consider the digital rift between the US and the European Union (EU) that has left the future of transatlantic data transfers in doubt. In 2020, the European Court of Justice (ECJ) struck down an agreement known as Privacy Shield, which previously enabled businesses to transfer personal information from servers in Europe to those in the US. Since 2018, cross-border data transfers of European citizen data are restricted by Europe's landmark General Data Protection Regulation (GDPR), a comprehensive data governance act billed by Brussels as "the toughest privacy and security law in the world"[1] The EU's highest court ruled that Privacy Shield, the workaround agreement that had allowed US firms to self-certify the adequacy of their privacy protections, violated the principles of the GDPR, which requires destination countries to conform with its own privacy protections. Transatlantic data transfers have slowed since the ECJ's decision, and courts in Belgium and France have ruled that popular applications like Google Analytics, a web traffic monitor, are illegal. Additional frictions result from the passage of digital services taxes targeting US tech firms, and EU regulators suing US tech giants for billions of dollars over what they see

[1] https://gdpr.eu/what-is-gdpr/

as anti-competitive practices. Despite deep integration in the trade of goods, different regulatory approaches to privacy, taxation, and competition policy in the US and Europe—to say nothing of the differences in governance across less cooperative nations—threaten to silo national digital economies.

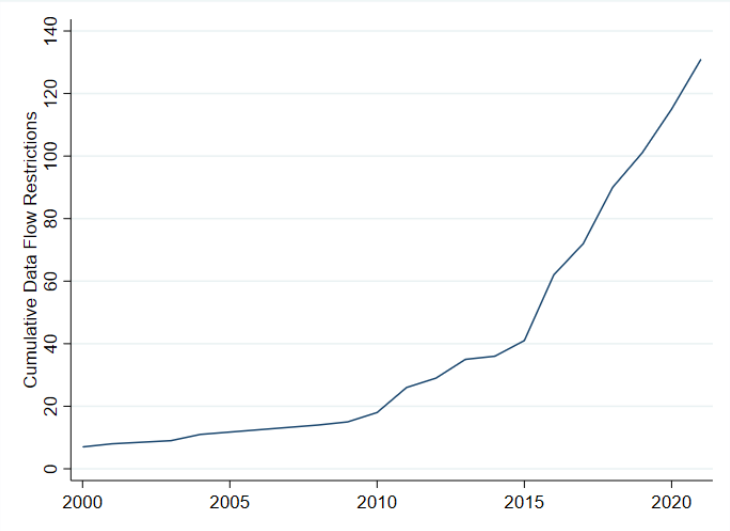

Figure 1.1: Global Cross-Border Data Flow Restrictions. Source: Author's calculations based on original dataset (available here).

Why has international economic cooperation broken down in the digital era? In the previous phase of globalization, characterized by global value chains for goods production, governments cooperated to liberalize tariffs on goods for nearly 75 years (Goldstein et al., 2007; Subramanian and Wei, 2007; Baldwin, 2016). Yet unique characteristics of data, the central factor of production in the digital economy, generate new political divisions. Value chains built on the monetization of data—digital value chains (DVCs)—are central to these new political conflicts. Policy impediments to digital flows are now on the rise, and norms of digital openness are increasingly contested, even in liberal democracies (Farrell and Newman, 2021). Figure 1.1 depicts the rise in restrictions on digital flows implemented by national governments around the world since 2000. There are currently 133 restrictions on cross-border data flows in 104 countries. As I detail in this monograph, political considerations drive governments to pursue these data flow impediments in the absence of policy coordination to address the underlying concerns emanating from data-driven business models.

How can these new trade frictions be rolled back to more fully integrate the global digital economy? Building consensus around rules for digital globalization will be difficult, since the political motivations for these restrictions vary significantly—from privacy protection to surveillance to industrial policy and beyond. Fundamental differences in governance objectives and philosophies

confound international cooperation in the digital era. To build political support for the global integration of the digital economy, countries will need to align on regulatory matters outside of traditional trade policies.

To assuage political concerns and alleviate sources of popular resistance, countries will need to coordinate around three policy issues that the rules-based multilateral trade regime currently overlooks: privacy, competition, and taxation (see Figure 1.2). First, the collection of personal information raises privacy and other human rights concerns. Second, giant tech companies' market dominance leads to questions about competition and undue political influence. Third, the increase in digitally enabled international services transactions strains an antiquated global tax system based on the production and sale of physical goods. Absent global coordination in these three policy areas, governments will continue to construct barriers to digital integration, which imperils international economic cooperation.

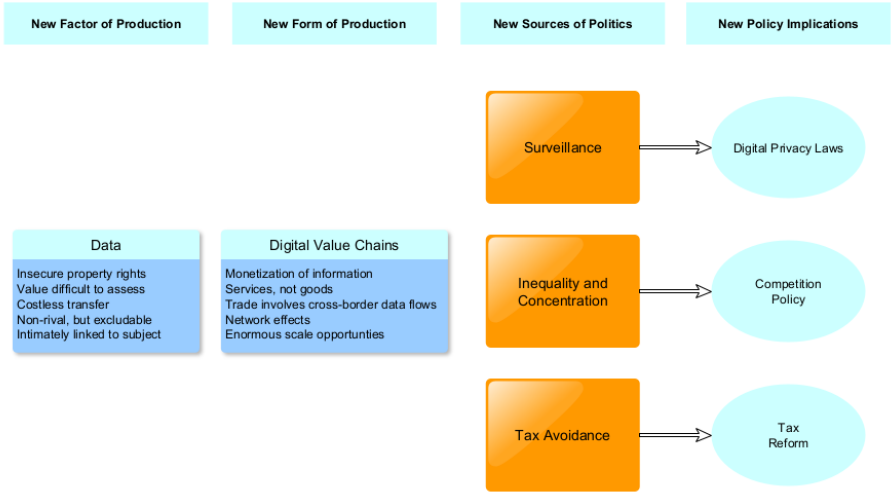

Figure 1.2: Digital Globalization: Data, DVCs, and the Politics of Regulation.

Herein lies the digital globalization paradox: for digital globalization to thrive, some DVC activities will need to be restrained. Unlike previous stages of globalization, which were characterized by trade in physical goods, the integration of digital economies is not primarily about policy *liberalization*. To build political support for digital globalization, countries will instead need to create a new set of institutional foundations to facilitate the *regulation* of privacy, competition, and taxation.

Creating the regulatory foundations for digital globalization will not be easy. International harmonization across such a wide domain of policies—privacy, competition, and taxation—has never been achieved, so there is no template for cooperation. Policymakers operate in a rules-based system built for trade

in goods, which is ill equipped to manage conflicts related to trade in digital products and services (Slaughter and McCormick, 2021). Developing a cooperative framework for the global digital economy will require building a consensus around a new set of rules that will challenge the most powerful firms; the tech giants will not give up their dominance without a fight. The outcomes of conflicts over rules governing the digital economy will define international economic relations for the rest of this century.

The challenge for DVCs is also immense. To be successful in the digital market, firms must expand: economies of scale and scope drive growth. Yet, gaining these size advantages requires extracting and collecting vast amounts of data. DVCs therefore benefit from a permissive regulatory environment that does not define property rights over data. Simply put, weak institutions enable digital firms to grow. When they get too big, their size and power inspires political demands for new regulations to constrain them. The tension emanates from a business model that relies on a central input—data—for which global rules have yet to be written. Politics will ultimately determine those rules, and so digital firms need to be active political actors, monitoring and resisting policies that threaten their growth.

The challenge for scholars and analysts is similarly complex. Introducing a data dimension to globalization challenges existing scholarship. The DVC generates novel political conflicts over policies that were previously considered distinct from international trade (UNCTAD, 2019, 2021). Consumer data privacy is a new fault line that falls outside of standard political economy frameworks. Privacy considerations arise alongside the technological capability to track individuals' every move, and to predict consumers' future behavior. These capabilities were virtually nonexistent when political economy models of trade were developed to explain trade in goods. Existing political explanations for trade policy focus on narrow economic interests (Frieden and Rogowski, 1996; Grossman and Helpman, 1994; Kim, 2017; Kim and Osgood, 2019; Owen, 2017; Baccini et al., 2019), but digital trade generates political demands and divisions that are sometimes motivated by non-economic considerations, such as personal privacy.

At least three other political fault lines unique to the digital era emerge from the market consequences of DVCs. The first concerns the wealth and economic concentration generated by the economies of scale and network externalities unique to the data-driven economy. The second fault line is multinationals' tax avoidance strategies. While not new to the digital economy, these strategies are made more effective by the ability to generate profits in digital intangibles like intellectual property, user data, and software (Eden et al., 2019; Aslam and Shah, 2021). Finally, digital automation raises concerns over layoffs and the future of work. I argue that digital globalization provokes new policy demands and reshuffles political coalitions in ways that workhorse models fail to explain. These novel political fault lines force us to reassess the ways in which technology and business strategy shape international economic relations.

This monograph does just that. It charts new directions for future research on the global politics of the digital economy and has three objectives: 1) to explain digital globalization and the new sources of political friction it creates; 2) to demonstrate the rise of policy barriers to international information flows and present a framework to explain policy variation across countries; and 3) to assess the prospects for international cooperation on digital governance.

It proceeds in four subsequent chapters.

Chapter 2 introduces the analytical framework from first principles: technology, the DVCs, and the political controversies surrounding digital globalization. I demonstrate how new technologies facilitate the creation of data-driven business models centered on digital trade that can erode individual privacy, shift tax burdens, and cement monopoly positions. I argue that DVCs differ from goods value chains, and explain how these differences complicate the politics of globalization in the digital era.

Chapter 3 describes how governments have responded to the politics by developing policies to constrain digital globalization, including by restricting data flows, enacting privacy laws, and introducing digital services taxes. I introduce a novel dataset that captures digital trade barriers around the world.

Chapter 4 develops a theoretical framework to explain how politics can account for variation in countries' divergent policy approaches. Charting a course for international cooperation and interoperability in the digital economy requires understanding how politics affects the digital trade policies that individual countries pursue. My theoretical approach does not privilege any single variable in explaining policy variation. Instead, it highlights a multitude of factors including the influence of powerful firms and coalitions, social norms and values, and political institutions.

Chapter 5 discusses the implications of countries' divergent approaches to digital governance. Unencumbered by rules, these policy differences threaten international economic cooperation. To overcome political resistance, digital globalization requires redesigning global regulatory institutions—a monumental task given the political divisions described here. This chapter lays out the prerequisites for global cooperation in the digital era.

Chapter 2

The Global Digital Economy

Digital globalization describes the integration of national digital economies. Data, software, and information and communication technologies (ICT) are changing the nature of goods and services that firms produce, and how firms interact with customers around the world. This monograph centers digital globalization in the cross-border economic activities of data-driven firms.

Data-driven firms deploy digital technologies—the representation of information in bits (Goldfarb and Tucker, 2019)—to generate value in what are known as digital value chains (DVCs). The international expansion of DVCs is therefore a central driver of digital globalization. That expansion entails cross-border data and information flows, enabled by the internet. One measure of cross-border data flows, international bandwidth—the load of global internet traffic—increased 360% between 2015 and 2020.

This chapter argues that key features of the digital economy create novel political divisions—both within and across nations. After briefly introducing the concept of digital trade, my argument proceeds in three steps. First, I demonstrate how data differs from other economic inputs such as capital or labor. The distinguishing features of data help explain the second step of the argument: the digital economy is dominated by a small number of very large firms (the "digital giants"), which obtain and maintain their economic dominance by gathering information about individual consumers, and monetizing this knowledge through machine learning algorithms and the sale of digital services.

These novel forms of data-driven value creation ignite the politics of digital globalization. In the third step of the argument, I show that DVCs inflame political debates over key governance issues: the protection of personal privacy, the obsolescence of the global tax regime, economic inequality and concentration, and

automation's impact on the future of work.

These novel political pressures threaten the integration of national digital economies—digital globalization—because they create incentives for governments to restrict certain aspects of digital trade. Governments around the world increasingly restrict data flows across borders in response to political pressures from their citizens, as detailed in the next chapter. But before examining these policy restrictions and their political motivations, I introduce some conceptual building blocks.

The Organisation for Economic Co-operation and Development (OECD) defines *digital trade* as international transactions in goods and services that are digitally ordered or delivered (OECD, 2019). This definition includes e-commerce and the related platforms that enable retailers and service providers to reach consumers anywhere in the world. When combined with cloud computing, data generated in one country can be instantly stored and processed in another, to feed algorithms to more effectively target consumers. There is also a large business-to-business component of digital trade. For instance, multinationals digitally trade *intangibles*—including intellectual property, software, and data—to firms in other countries (Branstetter et al., 2019).[1] Trade in *data* is the fastest-growing aspect of globalization (Manyika et al., 2016).

Digital globalization includes trade in digitally enabled services, facilitated by the internet. Digital platforms enable buyers and sellers to overcome an obstacle to services trade known as the *proximity burden*. Unlike the trade in goods, services transactions often require the consumer and the producer of the service to be in the same physical location. While it remains difficult to provide many personal services from a distance (e.g., haircuts), technology is alleviating the proximity burden of many services transactions (Jensen, 2011; Baldwin, 2019). Digital platforms, and technologies such as blockchain, a digital ledger of transactions, facilitate contractual relationships for services exchanged over the internet.

Figure 2.1 illustrates the share of digital services in total services exports among the world's largest economies. It demonstrates that digitally deliverable services account for 64% of total services exports, which represents an increase of nearly 20% since 2005. The figure also shows a rapid increase in digital services exports from China. The global uptick in 2020 reflects how the COVID-19 pandemic accelerated the digital delivery of services (Sarah, 2021; Borchert and Winters, 2021).

Other international data transfers are unrelated to trade in the traditional sense. Valuable data often flows across borders and does not change ownership. New technologies allow cross-border data flows to expand. For instance, additive manufacturing relies on the digital transfer of information to create new products using 3-D printers. In addition, internet-of-things (IoT) consumer prod-

[1] According to one estimate, intangibles represent 84% of the value of the S&P 500, up from 17% in 1975 (source: https://tinyurl.com/tarqpbm).

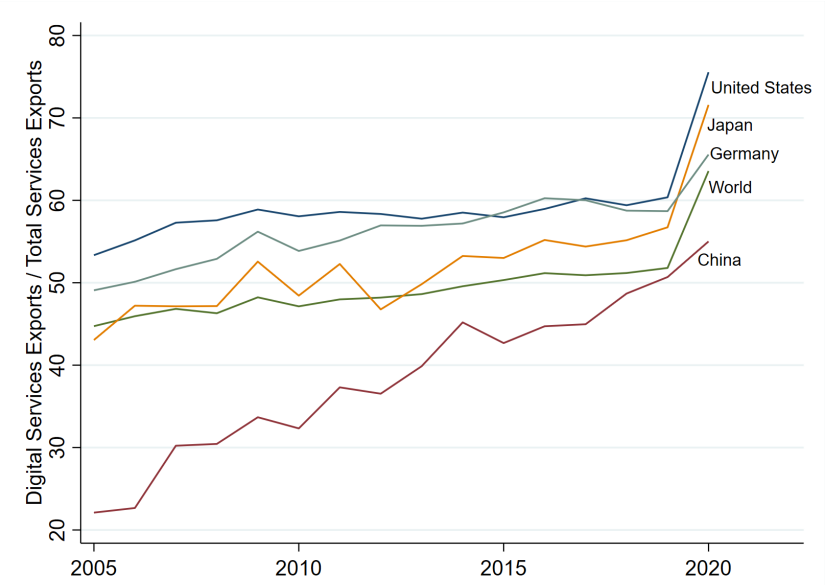

Figure 2.1: Digital Services Exports. Data from https://unctadstat.unctad.org/.

ucts that embed digital services capabilities into goods are generating massive increases in data flows (Chander, 2019). The raw data generated by these products is potentially valuable, but their value is difficult to measure, and would not be included in trade statistics (Nguyen and Paczos, 2020). While the concept of digital trade does not include flows of raw data if they are unrelated to the specific exchange of a good or service (UNCTAD, 2021), such data flows are valuable to firms that can convert them into digital intelligence.

2.1 Data Fuels the Digital Economy

Data—information in digital form—is the central input in the digital economy. It fuels machine learning and other forms of artificial intelligence (AI) and automation that digitally oriented businesses use to optimize decisions and maximize profits. In this section, I discuss salient features of data and how it is used to create value. Like capital, labor and land, data has become an important economic resource (UNCTAD, 2021; Liu, 2021). Yet it is unlike all other inputs in several ways.

First, property rights over data have been difficult to establish and value. A central complication involves assigning ownership when both the data collector and the data subject can legitimately claim rightful ownership (World Bank, 2021; Koutroumpis et al., 2020). Another impediment is that the value of data can be

difficult to assess before it is compiled in (typically) large volumes, processed, and analyzed in ways that provide new insights (Arrow, 1962).

The second way in which data is a unique input is that it is considered an intangible asset (a non-physical resource that helps firms create value). Other examples of intangibles include licensing agreements, proprietary business processes and know-how, and other forms of intellectual property. Digitalization has led firms to place greater emphasis on monetizing intangibles; investment in intangibles now exceeds investment in physical capital in many advanced economies (Haskel and Westlake, 2018).

To illustrate its centrality and value to the information economy, data is often compared to oil. But the two differ in at least four relevant economic features (Scholz, 2018).

First, individual data is not inherently valuable. Individuals generally cannot create value with their personal data alone. To create value, data from many different economic or social transactions needs to be compiled and processed in ways that generate new insights that allow individuals, organizations, and businesses to make better decisions. For individuals to derive value from their data, at a minimum, individual property rights over data would need to be established and enforced.

Second, though its use can be excludable, data is generally considered to be non-rival in nature, in the sense that multiple entities can monetize the same dataset at the same time. This is because it is nearly costless to make a copy of an existing database. This feature of data—costless replicability—distinguishes it from commodities like oil and final goods like autos. Yet this does not prevent potential users from being legally or technically excluded: data can remain proprietary, usage can be restricted, and users can be excluded. Data are not a pure public good.

Third, data are non-fungible, meaning that one dataset is not interchangeable with another. Data used to automate specific tasks, or make predictions about certain outcomes, generally relies on related data that has measured similar outcomes in the past. If a business is interested in predicting future revenue in the US, for example, a dataset of past revenue cannot be replaced with one containing unrelated information.

Finally, the most *politically* relevant feature of data is that it can be intimately linked to its subject, and transmitted at zero cost. Data on individuals can be collected, transferred, and analyzed to reveal deeply personal attributes, behaviors, and preferences in ways that can make it an ideal input into businesses' digital marketing strategies.

The deep insights into human behavior that AI can generate may motivate businesses and governments to exploit, surveil, and discriminate against individuals and groups. Along with private characteristics such as physical and mental health, data can be used to track where a person goes—and who they know.

It can reveal individuals' economic and social standing, and record and predict their political behavior. Since data can capture increasingly specific and comprehensive details of individuals' thoughts, beliefs, actions, and preferences, personal data is the digital blueprint of one's *identity*.

Personal information can lead to discriminatory business practices. For example, firms rely on AI to decide which products and services align best with specific customers. The underlying data used to develop the predictive statistical models often does not adequately reflect the diversity of the population to which they are applied. In such cases, the training dataset is said to exhibit bias, which means that inferences are not reliable for underrepresented groups (DeBrusk, 2018). Left unaddressed, biased datasets can lead to discrimination in areas such as lending (Dobbie et al., 2018), hiring (Raghavan et al., 2020), and marketing (Lambrecht and Tucker, 2019).

I demonstrate that these distinguishing features of data give rise to a new form of globalization. Like earlier expansions of economic exchange, the global digital economy engenders political divisions and conflicts. However, the current digital politics involve a much broader set of issues than those linked to the traditional trade in goods—including privacy regulation, taxation, and antitrust. Before we can understand these new issues of political contestation, however, we must first consider DVCs, the economic engines driving digital globalization.

2.2 Digital Value Chains

Value chain analysis divides the process used to produce a good or service into discrete activities (Porter, 1985). The value chain concept was created to describe the sequential process that firms use to convert inputs into outputs in the production of manufactured goods (OECD, 2018). These sequential activities create new value by either generating differentiated products or reducing costs. Technology plays a central role in the global expansion of value chains. For instance, the internet enabled firms to fragment their production processes across multiple countries to add value in what came to be called a global (manufacturing) value chain (GVC) (Hummels et al., 2001; Baldwin, 2016; Gereffi and Fernandez-Stark, 2011).

GVCs mainly produce goods through a fragmented process that incorporates resources and creates value in multiple countries. They essentially create an international factory, in which firms produce and source parts, components, and service inputs in different countries to exploit differences in input costs (such as labor). Value is added in each link of the production chain.[2]

Technology is transforming trade in goods, services, and intangibles, and enabling a new form of value creation for businesses—the DVC. DVCs do not produce goods. They instead represent the process firms use to collect, store,

[2] https://www.worldbank.org/en/topic/global-value-chains

analyze, and ultimately generate value by monetizing data—transforming digital information to produce new insights, known as digital intelligence (Nguyen and Paczos, 2020; UNCTAD, 2019). DVCs generate cross-border data flows whenever companies or consumers transfer data from servers in one country to those in another. Data is primarily an intermediate good in DVCs, which is often combined with other data and then transformed into valuable information, products, or services (Koutroumpis et al., 2020).[3]

DVCs generate value in multiple stages. Early stages involve collecting data. As an example, consider how some firms collect individual consumer data comes from tracking clickstreams (or click paths). A clickstream is a digital record of a user's internet activity, including site visits and purchases, time spent on a webpage, email and social media content, and contact information that a user sends or receives. Internet service providers collect clickstream data, and individual websites and platforms can record user information in text files called cookies. Data can be used to build a profile of individuals based on records of their digital activities.

In later stages, the DVC harnesses the value of data by storing, processing, and analyzing it (Li et al., 2019; Nguyen and Paczos, 2020). Machine-learning algorithms typically transform the data into digital intelligence, which may include predictions about individual and/or market demand (Agrawal et al., 2018b; Brynjolfsson and McAfee, 2014; McAfee and Brynjolfsson, 2017).[4] This information about demand can be monetized through a variety of services, including targeted advertising. For instance, digitally native companies like Google and Meta/Facebook provide data-targeting services such as targeted online advertising and demand forecasting; they also license the information to third parties (Li et al., 2019). Digital adopters such as Walmart use data to optimize logistics and predict consumer demand. Firms strategically form DVCs to generate value when they monetize data to provide services, which in turn help them make better decisions, innovate, and reach new customers.

The following logic drives the success of DVCs: the more data, the better the predictions; the better the predictions, the more valuable the digital intelligence and the more data a business can obtain. Because popular platform companies collect so much information about individual users of their platforms and services, these companies can promise higher click conversions to advertisers, resulting in higher sales. Since data is non-rivalrous, or inexhaustible, value can be extracted repeatedly, even for different products or services (World Bank, 2021).

[3]Some studies have reconceptualized the value chain framework as a network to explain the fragmentation of digital services production (Stabell and Fjeldstad, 1998). For instance, Stabell and Fjeldstad (1998) explain how digital service providers rely on mediating technologies, such as online platforms, to link producers and consumers in what they refer to as their value networks approach.

[4]Businesses generally either perform in-house data analytics or license data for use by other firms.

Figure 2.2 illustrates a stylized DVC. Data collection can occur in multiple countries, and the process of converting it into digital intelligence often involves cross-border data transfers. Digital services are then sold to consumers in other countries, which entails additional cross-border data flows.

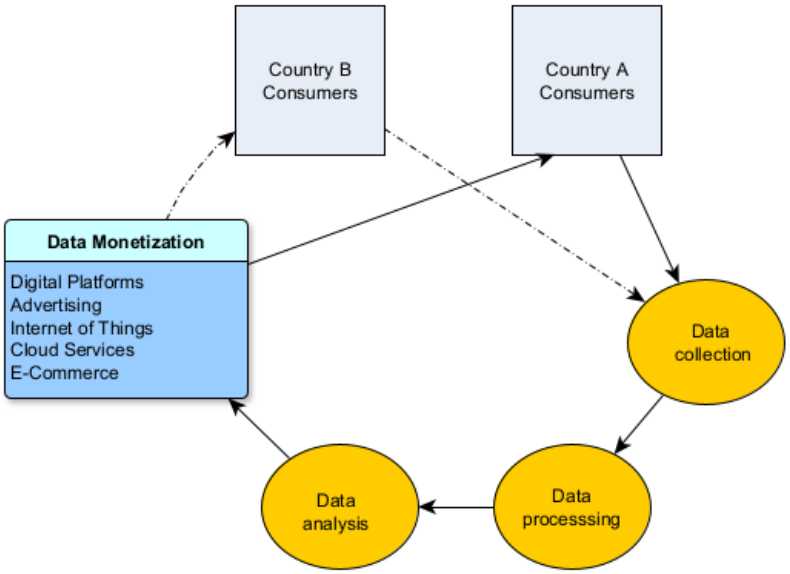

Figure 2.2: Digital Value Chains. Dashed lines represent cross-border data transfers. Adapted from UNCTAD (2021).

Three main scientific advances have driven the rise of DVCs. The first is the exponential growth in computer processing speeds, without which algorithms would be unable to convert data into real-time digital intelligence (Brynjolfsson et al., 2019; Baldwin, 2019). The second innovation is the development of AI and machine learning—algorithms that convert data into intelligence. The third advance is the ability to collect and store large quantities of data, which machine-learning algorithms need in order to make the accurate predictions that are necessary to create value.

Platform businesses play a central role in the digital economy by facilitating commercial and social interactions between users. Following the OECD, I define an *online platform* as "a digital service that facilitates interactions between two or more distinct but interdependent sets of users (whether firms or individuals) who interact through the service via the Internet" (OECD, 2019). Platforms enable exchanges of goods, services, and information between users.

Online platforms can represent DVCs embedded in single firms. Platforms often conduct key stages of the data monetization process (data collection, storage, and analytics) in-house. The largest tech platforms invest in all stages of the

DVC, including data collection; data transfer infrastructure such as submarine cables and satellites; data storage; and analysis and intelligence, such as AI (UNCTAD, 2021).

Online platforms can collect and analyze data about the interactions of all of their users—and monetize this data by selling it to third parties, or using it as an input for value-generating algorithms. Data monetization gives platforms a key source of growth. For instance, Amazon analyzes clickstream, customer locations, purchases, and review data to generate demand forecasts, which they sell to third parties as logistics consulting services (Li et al., 2019)[5] Apple charges app developers 30% commissions for access to its consumer data, which has generated over $40 billion in less than a decade (Frier, 2018). Apple also earns enormous revenue by charging Google for the right to be the default search engine on Apple's Safari web browser.

While the digital economy is often associated with leading platform firms, businesses across all sectors increasingly rely on digital business models. For instance, the internet enables firms and individuals to remotely deliver a range of services such as software development and management consulting—which has expanded the offshoring of the service sector (Baldwin, 2019). Services delivered remotely over ICT networks are known as digitally deliverable (or ICT-enabled) services (UNCTAD, 2019).[6] Consumer goods are now also firmly integrated into DVCs. For instance, IoT devices such as smart thermostats allow firms to collect and analyze untold amounts of consumer data that can be monetized as digital intelligence (Chander, 2019).

This integration of digital services and physical goods challenges the norms of the global trading system. Within the World Trade Organization (WTO), the distinction between goods and services is fundamental to specifying the extent to which trade is liberalized or restricted (Azmeh et al., 2020; Sen, 2018). For example, a hardbound book is a good and is potentially subject to customs duties, whereas an electronic version of the same book is considered a service, subject to General Agreement on Trade in Services rules, which currently include a moratorium on e-commerce customs duties (Sen, 2018). Yet the WTO does not clearly distinguish goods from services, and many innovative electronic products exhibit features of both. Trade in goods is subject to clear rules and tariff schedules. But the IoT, which confer substantial added value to the product, are data-dependent services, and are not subject to the same trade rules (Azmeh et al., 2020; Sen, 2018).

The following section explores the second salient political feature of digital markets: a small set of extraordinarily large digital firms dominates them. I explain

[5] Amazon can charge $100,000 per year for this service alone. https://www.ft.com/content/c82ce968-bc8a-11e8-94b2-17176fbf93f5

[6] UNCTAD categorizes digital-deliverable services as "insurance and pension services, financial services, charges for the use of intellectual property, telecommunications, computer and information services, other business services and audiovisual and related services" (see https://unctadstat.unctad.org/wds/TableViewer/summary.aspx?ReportId=158358).

how data has facilitated the rise of these digital giants, and why the concentration of digital markets is politically sensitive.

2.3 The Global Digital Giants

Digital markets exhibit high degrees of concentration: a small number of firms account for a disproportionately high share of production and sales. Market concentration tends to be a global, rather than domestic, phenomenon. Digital technologies blur geographic boundaries, which enables a small number of firms to dominate global markets. The internet facilitates instantaneous digital economic exchange with global scope, particularly for digital services. In traditional markets, frictions related to distance (like transportation costs) still impede trade (Hummels and Schaur, 2013; Disdier and Head, 2008). In goods markets, transportation costs constrain the economies of scale linked to physical production, meaning that concentration is often localized at the regional or national scale. Digital markets lack these traditional geographic constraints, since data can—at least in principle and absent policy restrictions—flow costlessly around the planet.

Market concentration within countries is high, but the *geographic* concentration of digital power in the US and China is truly extraordinary. Figure 2.3 illustrates the enormous size of some US and Chinese firms in terms of market capitalization relative to technology companies in other countries. Around 90% of internet searches are made through Google; Amazon makes up nearly 40% of online retail; and Amazon Web Services accounts for nearly 30% of the rapidly growing cloud computing market.[7] Facebook is the top social media platform in more than 90% of countries. Alibaba accounts for 60% of China's e-commerce, and Alipay (owned by Alibaba) dominates the mobile payments market (UNCTAD, 2019).

In this section I explain the causes of digital market concentration: network effects, Big Tech's aggressive acquisition strategies, and economies of scale and scope. Although some of these features are present in traditional (non-digital) markets, their combination and ubiquity across the digital economy is unique (Furman et al., 2019). I then briefly highlight some of the market consequences of concentration, and then detail how digital markets spur political conflict.

Several features of digital markets help explain their concentration, but consumer data are central to most explanations (Furman et al., 2019; Lancieri and Sakowski, 2021). Firms obtain data through the market interactions of their users, and network effects (i.e., the more users who join a platform, the more valuable it becomes for everyone) help create first-mover advantages and winner-takes-all competition (Borchert and Winters, 2021). More users and more data allow first movers to outperform potential upstarts—further cementing their market dominance (UNCTAD, 2019) and "tipping" markets in favor

[7] https://www.parkmycloud.com/blog/aws-vs-azure-vs-google-cloud-market-share/

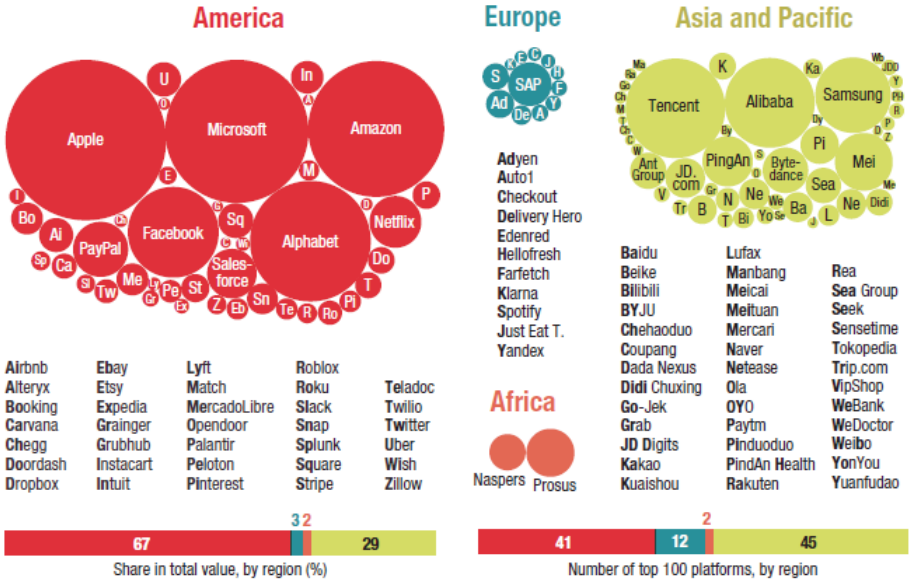

Figure 2.3: Source: UNCTAD (2021). Data as of May 2021.

of the dominant provider.

Leading firms obtain more data because they attract more users, and the data tends to be of higher quality—i.e., it covers market interactions with greater granularity and frequency. And better data allows the algorithms powering digital firms to create more accurate inferences about consumer preferences and behavior. Higher-quality data also helps firms provide new and better services (such as better search functions, more accurate directed marketing, and other personalized services), which strengthens the competitive positions of dominant firms.

Digital giants' acquisition strategies, driven by competitive threats and the need to collect vast amounts of data, also generate high levels of market concentration. In what are known as pre-emptive mergers, major tech players purchase potential competitors offering similar or complementary services before the companies can become a competitive threat—and before the acquisition risks rejection by regulators for reducing competition (Stiglitz, 2019). Sometimes the promise of acquiring troves of proprietary customer data motivates digital giants to purchase smaller companies. Microsoft purchased professional social network LinkedIn for $26 billion—more than $60 per registered user—in part to access data on its hundreds of millions of members. Combined with the information it has about individual customers, Microsoft could use the LinkedIn data to fuel machine-learning tools to boost advertising and marketing sales.[8] In another

[8] https://www.marketingweek.com/microsofts-linkedin-acquisition-is-a-data-and-

example, Amazon famously absorbed losses of $200 million per month to undercut the prices on Diapers.com to weaken the rival (Lancieri and Sakowski, 2021) so Amazon could acquire it.[9] This practice is known as predatory pricing—lowering prices to drive out or potentially absorb rivals. The consolidation of data resources among the major digital platforms and technology firms helps establish their market dominance and increases their concentration (UNCTAD, 2019).

Data also helps generate economies of scale and scope in digital markets, which further contributes to concentrated markets dominated by a handful of firms (Furman et al., 2019; Lancieri and Sakowski, 2021; Moore and Tambini, 2018). For businesses, costs depend on how much firms produce. The cost structure of digital markets entails high initial (fixed) costs for software development and investments in digital infrastructure. However, once the infrastructure and software are in place, the marginal costs of reaching new customers are next to nothing. Network effects further increase these large returns to scale. Firms with expertise in data analytics can use their software and data resources to develop new products and services at lower costs. If the combination of multiple datasets yields insights that are unavailable using a single type of data, economies of scope can expand further (World Bank, 2021). Their data resources allow firms to enjoy economies of scope by creating a range of new products using existing resources.

Data-driven economies of scale and scope can catapult business growth and competitiveness into a positive feedback loop, in which more (and better) data leads to new products and services that facilitate the collection of still more data (Iansiti and Lakhani, 2020). AI applications enable firms to translate that data into increasingly accurate inferences about the tastes of their own consumers—and into predictions of market demand, including among consumers not in their databases. When data is a key asset that is inaccessible to competitors, it can bestow a nearly unassailable advantage on incumbents, creating a barrier to entry for potential new rivals and reducing competition (Furman et al., 2019; Iansiti and Lakhani, 2020).

Without a data property rights regime that lets individuals own their own data, the companies capable of collecting and analyzing data are the ones that control (and extract value from) it (Aslam and Shah, 2021). The digital companies and platforms with the most users therefore enjoy enormous economic advantages.

The concentration of digital markets risks undermining competition, defined as the process rival firms use to obtain and maintain customers. Consumers benefit from competition among multiple businesses offering similar products, since rivalry creates incentives to respond to consumer preferences, create new products, and maintain high quality and low prices. Market competition tends

advertising-play/

[9] https://www.bloomberg.com/news/articles/2020-07-29/amazon-emails-show-effort-to-weaken-diapers-com-before-buying-it

to increase productivity as well, since it induces firms to optimize the use of their resources by learning how to create more outputs with fewer inputs (Furman et al., 2019). However, when a market contains high levels of concentration and few rivals, firms may raise prices above levels that would prevail in competitive markets, without causing consumers to purchase from rival firms.

Digital markets may enable businesses to deploy *market power* to their strategic advantage. A business has market power if it can independently influence the market price of its products. For instance, market power enables platforms to boost their own-brand sales without losing market share to rivals selling on their platform; platforms' access to data on third-party transactions allows them to optimize this approach.

Market power is politically controversial, especially if firms from other countries are allowed to dominate domestic markets through means that are deemed unfair or predatory. For example, the EU competition authorities are cracking down on what they view as unfair practices stemming from Amazon's market power. Its platform enables market transactions between buyers and sellers. For some products, Amazon is also a seller. The platform uses digital intelligence derived from sales on its platform to price its own products for strategic advantage, sometimes undercutting its competitors. This practice violates European competition policy, and the EU authorities have initiated legal action against Amazon in response.

This example illustrates how structural features of the digital economy give rise to novel policy considerations. Industrial concentration and alleged anticompetitive practices link digital globalization directly to competition policy—the rules governing market competition and responses to monopolistic behavior, which vary significantly by country (Weymouth, 2016). Competition authorities are not subject to harmonized rules, since there is no multilateral competition policy agreement. As I demonstrate in the next section, the contentious politics of digital globalization follow disparate approaches to its governance.

2.4 Politically Contentious Features of the Digital Economy

Consumers benefit from the digital economy in many ways, including greater product variety, more efficient matching to producers, and vast amounts of information available at just a click away. Many of these benefits are available at zero monetary cost; consumers instead exchange their personal data for free services such as search engines, e-commerce, social media, and maps. These services are estimated to be worth several thousand dollars a year to the typical user (Brynjolfsson et al., 2019). The global reach and popularity of online platforms is perhaps the greatest testament to their benefits, and suggests large consumer welfare benefits from the digital economy (Furman et al., 2019). These benefits, however, mask deep political divides.

The digital economy ignites political backlash around a host of issues, particularly personal privacy, tax fairness, inequality, and automation. I argue in this section that politically contentious features of the era of digital globalization stem from key features of the DVC. Without coordinated regulation to constrain the more politically contentious outcomes identified here, digital globalization will create political strife within and among countries.

2.4.1 Erosion of Individual Privacy and Agency

Privacy is the state of being free from observation by others. It is unrelated to economic constructs such as employment or income, which anchor many explanations of individual trade policy preferences. Individual privacy concerns therefore fall outside traditional political economy frameworks, which focus on economic distributional issues.

Growth in the digital economy is at odds with personal privacy. As businesses increasingly rely on digital technologies to collect granular user data, individual insularity and freedom from participation in the digital economy disintegrates. The DVC relies on surveillance of all forms of behavior, recorded through clicks, sensors, and GPS. Businesses are constantly seeking more granular information about consumers.

Companies can profit from users' personal information because property rights do not exist for most types of personal data. Since individual users do not own their own data, companies can collect, store, analyze, and monetize personal information to create targeted marketing strategies and new services. The more the data reveals about consumers, the more valuable it is. Privacy-related considerations also include data breaches and coercive tactics fueled by data-driven algorithms.

Digital markets expose consumers and businesses to the risk of various forms of data loss. Data breach refers to the intentional or inadvertent exposure of confidential information to unauthorized parties (Cheng et al., 2017). Breaches can endanger personal information, such as social security and driver's license numbers, as well as employment, health, and financial information. Businesses also risk losing intellectual property to online hackers. Cybercrime is estimated to cost businesses trillions of dollars each year, driven in part by increases in regulatory fines and lawsuits in response to data losses.[10]

Many traditional goods and services now have the capacity for digital connectivity and data extraction. For instance, billions of physical IoT devices are embedded with data-gathering sensors and software and linked to wireless networks. These connected devices—from refrigerators to home security systems—constantly collect, store, and share detailed personal information. For the systems to function optimally, consumers are usually unable to opt out. For

[10] https://www.juniperresearch.com/press/press-releases/business-losses-cybercrime-data-breaches

businesses to fully maximize the value of the technology, IoT requires the ability to transfer data across borders, combine it with other data sources, and analyze the combined data, often in the headquarters country (Chander, 2019; Meltzer, 2019).

Many digital products are principally designed and implemented to allow companies to access personal data from as many sources as possible. Shoshana Zuboff describes the constant monitoring of individual behavior in the digital economy as a system of "surveillance capitalism" centered on the commodification and monetization of personal data (Zuboff, 2019). Along with the loss of individual privacy, surveillance capitalism can threaten liberty and wellbeing.

AI applications' ability to nudge consumer behavior implies an evolution of marketing and sales tactics that may move beyond persuasion and towards a form of *coercion*. One metric of successful commercial machine learning is the ability to correctly predict individual preferences and consumer demand. However, the most profitable digital firms use personal data not just to predict consumer behavior, but also to *influence* it. Businesses have always used marketing tactics to persuade customers to purchase their products, but these were never as personalized, or nearly as effective, as those made possible through machine learning. And personalized advertising is just the beginning.

The current frontier of commercial AI effectively "unlocks" consumer demand: it works to *affect* consumer behavior (Mele et al., 2021). Zuboff (2019) quotes the chief data scientist of a large US corporation as saying: "You can make people do things with this technology. Even if it's just five percent of people, you've made five percent of people do an action they otherwise wouldn't have done, so to some extent there is an element of the user's loss of self-control" (Zuboff, 2019, p. 19). Another data scientist boasted, "we can engineer the context around a particular behavior and force change that way. We are learning how to write the music, and then we let the music make them dance" (Zuboff (2019), p. 295). While the disintegration of privacy in the digital economy threatens consumer welfare, it may only represent the means to a more troubling erosion of individual agency.

Individuals are increasingly concerned about privacy and how technology erodes it. In a recent global CIGI-Ipsos survey, 78% of respondents expressed concern about their online privacy.[11] In another survey conducted by Pew in the US, 81% of respondents indicated that the potential risks of companies collecting data about them outweighed the benefits.[12] Roughly three-quarters (76%) think there should be more government regulation of what companies can do with their customers' personal data. And unlike most issues in the US, there is strikingly little partisan division over personal data regulation: 81% of Democrats and 70% of Republicans would like increased government regulation of personal data privacy.

[11] http://www.cigionline.org/internet-survey-2019

[12] https://www.pewresearch.org/internet/2019/11/15/americans-and-privacy-concerned-confused-and-feeling-lack-of-control-over-their-personal-information/

Privacy is a particularly thorny obstacle to building a cooperative framework for the global digital economy. The value that individuals place on their privacy differs across countries, and is continuously evolving (Farrell and Newman, 2019a). For instance, the notion that privacy represents a human right is not universally accepted even across democracies, to say nothing of rampant surveillance and privacy abuses under many authoritarian regimes (Dragu and Lupu, 2021). A further complication is that the politics of privacy evolve in response to changes in technology and the associated norms (Newman, 2008a,b; Farrell and Newman, 2019a). Technologies that feed personal information into algorithms designed to manipulate consumer behavior are becoming increasingly controversial as consumers recognize the invasiveness and scope of digital surveillance (MacKinnon, 2012; Zuboff, 2019; Véliz, 2020; Kröger et al., 2021).

Individual privacy concerns—not citizen preferences derived from group identities or the economic distributional effects of trade—may be the essential impediment to global cooperation on digital globalization. Building consumers' trust in the security of personal information will be a central challenge to commercial cooperation in the digital era (Cowhey and Aronson, 2017). To garner the necessary political support for digital globalization, major economies will therefore need to coordinate on a baseline level of consumer privacy protections.

2.4.2 The Obsolescing Global Taxation Regime

A country's tax base from corporate income refers to its right to tax the net profits of corporations. Yet technology enables new business models that generate income in a country without contributing to its tax base (Eden et al., 2019). For instance, digitalization enables tax avoidance by multinational corporations (MNCs) by allowing firms to achieve international "scale without mass" (OECD, 2018): physical and territorial boundaries need not limit the exchange of goods and services. This means that businesses can become powerful actors within national economies without having a significant physical presence in those countries. The digital economy thus challenges the international framework on corporate income taxation.

Digital technologies also facilitate tax evasion and related profiteering through at least two types of creative electronic transactions that exploit gaps and mismatches in tax rules across nations. First, firms can use a strategy known as *transfer pricing* to attribute charges for digital intangibles like patents and software to affiliates in low- or zero-tax countries, which often employ few workers and undertake no production or sales activities (Zucman, 2015; Aslam and Shah, 2021). Second, firms engage in *profit shifting*: an estimated 40% of multinationals' global profits are artificially shifted to low-tax countries, which benefits their shareholders rather than workers—thereby increasing inequality (Tørsløv et al., 2018).

As public awareness of multinational tax avoidance grows, demands that firms contribute their fair share are increasing (Sandbu, 2019). EU officials invoke

transfer pricing and the absence of local hiring by US tech companies to justify their digital tax proposals, which would mainly affect large US firms. A patchwork of new digital services taxes (DSTs) is emerging as countries pursue ad hoc approaches to broaden their tax revenues.

The digital economy exerts new pressure on antiquated international tax rules. The current global tax framework originated in the 1920s, when firms and production were largely immobile. This framework consists of domestic tax law, tax treaties, and other instruments of international law (OECD, 2018). These rules were built upon assumptions regarding the residence of the corporation and the source of its income that do not apply today. The first assumption is that business activity occurs within clear jurisdictional boundaries; that firms reach customers by locating within these specified boundaries; and that income is allocated between countries where sales occur. The second assumption is that businesses sell to customers from physical locations.

In what is known as the nexus rule, the country in which income-producing *physical* activity occurs has the primary right to tax. The profit allocation rule then determines the share of profits subject to taxation. That is, once the nexus threshold establishes a country's right to tax based on the business activities that occur within its jurisdiction, domestic tax law determines the share of profits that is to be taxed (OECD, 2018).

These rules do not capture the activities of DVCs, since businesses can generate enormous profits in a country without having a physical presence there. Tax frameworks based on physical presence are therefore outdated. DVC reliance on intangible assets such as data, software, patents, and other intellectual property further complicates taxation since the value and location of these assets can be opaque. Digitalization also raises additional questions, such as how should governments allocate taxing rights on income generated from cross-border activities? How should they attribute value created in DVCs?

Absent a multilateral agreement, countries have pursued a variety of DSTs in an attempt to shore up their tax bases. The next chapter examines these new digital taxes and introduces a new dataset capturing developments in DSTs around the world.

The threat of DSTs has led to calls to reform the global tax system. In June 2021, the OECD developed a new framework for the taxation of MNCs, which 136 nations signed onto. The deal bans DSTs for 2 years, after which a 15 per cent minimum corporate tax rate would come into effect, as well as new rules that would force MNCs to declare profits and pay more taxes in countries where they do business. National governments must pass the measure for it to be implemented. However, opposition by the US Chamber of Commerce may derail its passage.[13] If Congress fails to implement the deal, countries may impose or reinstate DSTs.

[13] https://www.bloomberg.com/news/articles/2022-02-15/u-s-chamber-s-bradley-raises-concern-over-global-tax-deal

2.4.3 Economic Concentration, Inequality, and Digital Imperialism

A third area of contention involves the economic dominance and political influence of the global digital giants. Certain features of the DVC, including the propensity for network effects and the rapid accrual of economies of scale and scope, enable a small number of firms to dominate their markets, meaning that fewer firms account for a larger share of profits.

Yet market concentration impedes entry by potential competitors, which stifles competition and further entrenches market and political power at the expense of consumer welfare. Economic power can translate into political influence if entrenched incumbent firms can capture regulators through campaign contributions, lobbying, or other tactics (Weymouth, 2012). DVCs may therefore not only concentrate *economic* might; they may also establish and foment domestic and international political power in the hands of a small number of corporations.

The rising concentration of digital industries coincides with a marked increase in economic inequality. Corporate concentration and inequality could be linked through at least four channels (Furman and Orszag, 2018). First, market power allows firms to charge higher prices than they could if there were more firms competing in the market. The resulting decline in *consumer surplus*—the difference between what they would be willing to pay for a product and what they pay in a competitive market—represents a transfer of wealth from consumers to businesses and their shareholders. Moreover, digital businesses' ability to accurately predict how much any consumer is willing to pay allows them to price discriminate—to charge different prices to different consumers.

In a second possible channel, just as market power allows firms to raise prices, concentration and market power in labor markets enables them to pay lower wages than they would otherwise (Stiglitz, 2019). This fact, along with the decline in union participation in recent decades, has led to lower labor shares of national income (Dorn et al., 2017).

A third channel through which the digital economy could increase inequality is automation and job displacement, which I discuss in more detail below. If automation is labor displacing, this reduces the demand for labor, and wages must fall to restore full employment. If automation is more likely to displace lower-skilled workers then wages will fall, or grow more slowly, for workers at the lower end of the income distribution, causing inequality to rise (Korinek and Stiglitz, 2019; Stiglitz, 2019).

The fourth, and perhaps most pernicious, consequence of market power operates through the political system. Market power bestows outsized political influence on the largest firms (Teachout and Khan, 2014; Khan, 2018), leading to lower corporate tax rates and other regulatory liberalizations that benefit them at the expense of the broader public, sometimes perpetuating inequality. Technological advances, such as those driving digital globalization, may tilt the balance of

power away from the state toward the largest firms (Strange, 1997).

How does economic power translate into political influence? The obvious mechanism is that successful firms have more resources to spend on lobbying policymakers. Firms may lobby to shape or forestall new regulations, such as digital privacy laws, or to maintain favorable tax policies. Multinationals are more likely than domestic firms to lobby (Kim and Milner, 2019), and political contributions have been found to result in lower effective tax rates for those that engage in lobbying (Richter et al., 2009). However, businesses usually spend only a small fraction of their sales on lobbying—so little that some scholars find the *lack* of money in politics puzzling (Ansolabehere et al., 2003). For instance, although Alphabet's lobbying expenditure in the US was just 0.005% of its total revenue in 2020,[14] it actively participates in politics and exerts substantial political influence (Bank et al., 2021). But lobbying spending and campaign contributions are not the only way that corporate titans can achieve their policy objectives.

Powerful companies can also pursue at least three types of alternative strategies to influence policy (Zingales, 2017). First, they can operate through the legal system, filing lawsuits against unfavorable regulatory actions. Second, they can avoid regulation by directly lobbying the regulators who enforce the requirements. Third, firms can hide crucial information to avoid costly enforcement and oversight. Political power is on display when businesses secure favorable treatment or avoid costly regulation, regardless of how much they spend on formally registered lobbying activities.

Size and market concentration enhance the effectiveness of all sorts of firms' policy influence strategies. In general, political influence increases with market concentration (Olson, 1965), which makes large corporations more powerful relative to consumers (Zingales, 2017; Weymouth, 2016). To the extent that consumer interests differ from the regulatory ambitions of the digital giants, concentration is generally assumed to give businesses a political advantage. As the size and market shares of businesses increase, there are fewer firms in the industry with conflicting interests (Jensen et al., 2015), which helps unify the lobbying effort (Macher and Mayo, 2015; Weymouth, 2012; Baccini et al., 2019).

Yet the digital economy can reshuffle political alliances. Consumer interests do not always conflict with those of dominant firms. The prevalence of free products and network externalities common to DVCs complicates standard frameworks of regulatory politics (Culpepper and Thelen, 2020). The prevailing approach pits consumer interests against producers with pricing power (Peltzman, 1976; Rogowski and Kayser, 2002). But in the digital economy, the free services that digital platforms provide may lead consumers to side with the tech giants in opposition to some forms of regulation. This 'tacit allegiance' of consumers provides a formidable source of opposition to regulations that threaten the dig-

[14] Open Secrets reports Alphabet's lobbying expenditure was $8,850,000 and its total revenue was $182B.

ital giants (Culpepper and Thelen, 2020).

For example, a dispute between Facebook and the Australian government arose over a proposed law requiring platforms to pay news organizations for posted stories. Facebook expressed its opposition to the law by blocking user access to Australian news, including some Australian government communications content.[15] The company bet that its millions of loyal users in the country would side with it. The pressure worked, and the Australian government agreed to amend the law. Facebook's political power was heightened by the alliance with its users. The spat signaled that the company could successfully deploy hardball tactics with user support if faced with similar regulatory stances by governments in other countries.

Digital giants' ability to coerce governments and extract data resources has led some analysts and activists to decry the dangers of undue corporate influence. Some have warned that digital globalization is ushering in a new era of colonialism and imperialism, in which US and Chinese firms collect, extract, and monetize data from other countries, which cements their monopoly positions and restricts entry and competition from smaller upstarts (Wasik, 2015; Kwet, 2019; Avila Pinto, 2018). The central concern is that developing countries will become mere subordinate providers of raw data for the global digital giants, which control (and thus capture the vast majority of the value from) this data (UNCTAD, 2021).

This fear has led to new calls for countries to exert their *digital sovereignty* by restricting data extraction and creating shared infrastructures to allow domestic firms to share data resources. Digital sovereignty describes "a state's sovereign power to regulate not only cross-border flow of data through uses of internet filtering technologies and data localization mandates, but also speech activities (e.g., combating fake news) and access to technologies" (Chander and Sun, 2021, p.10). In many countries, it seeks to thwart the digital dominance of US businesses, which have amassed substantial market shares across a range of digital activities over the past couple of decades. Former German Chancellor Angela Merkel and other leaders from Europe to India have called for digital sovereignty, seeking to wrest control of domestic user data back from Silicon Valley, and to develop cloud technologies to collect and store it (Chazan, 2019).

2.4.4 Digital Automation, Layoffs, and the Future of Work

Data-centered business models involve cost-cutting automation—replacing humans with machines to perform routine tasks (Brynjolfsson and McAfee, 2014). Whether AI and automation more generally lead to the elimination of millions of jobs remains unknown, but many analysts are deeply concerned (Frey and Osborne, 2017; Frey, 2019; Baldwin, 2019). The trend toward digital automation risks a future of high unemployment as more companies rely on AI and

[15] https://apnews.com/article/google-facebook-australia-explained-55ce7a524855c2cdabdf8ca82ad2c8cd

robotics. Frey and Osborne (2017) estimates that computerized automation will put nearly half (47%) of US jobs at risk of elimination over the next two decades.

Other analysts argue that AI and other forms of automation generate beneficial productivity effects that can offset the impact of job losses (Agrawal et al., 2019; Acemoglu and Restrepo, 2019; David, 2015) in two ways (Acemoglu and Restrepo, 2019). First, automation reduces costs and leads to lower prices for goods and services that are automated, increasing real household incomes, and expanding demand across the economy. Second, the introduction of new labor-intensive tasks that AI is (currently) unable to do will create new jobs. Thus, the magnitude of job losses will depend on the extent to which the displacing effects of automation are offset by higher productivity and the increased demand for workers in new, labor-intensive tasks.

Digital globalization also introduces *international* competition for jobs that technology has yet to automate. As Baldwin (2019) explains, online platforms linking employers and workers, coupled with instant translation and video conferencing, make previously non-tradeable services fully contestable by workers in other countries. Baldwin contends that the offshoring of white-collar jobs will ignite a backlash among professional services workers in high-wage countries.

Governments have strong incentives to closely monitor and implement policies to address the labor market effects of digital automation and services offshoring, since labor market shocks expose worker vulnerabilities in ways that influence political behavior (Gallego and Kurer, 2022). Previous research has illustrated that economic shocks caused by globalization have initiated a voter backlash against incumbents and mainstream candidates (Ahlquist et al., 2020; Baccini and Weymouth, 2021; Ballard-Rosa et al., 2021; Jensen et al., 2017; Dorn et al., 2020; Colantone and Stanig, 2018b; Rickard, 2021), which has pushed the US and other nations to rethink their commitment to a liberal international order (Broz et al., 2021; Mansfield et al., 2021; Milner, 2021; Owen and Walter, 2017; Colantone and Stanig, 2018a; Walter, 2021). The possibility of an automation-induced labor market upheaval could similarly upend politics.

There is evidence that anxieties around the future of work are already altering political behavior and elections. Exposure to automation increases worker anxiety in ways similar to trade and outsourcing, and recent evidence finds strong political reactions among affected voters through three channels. First, technological changes may weaken trust in democracy (Boix, 2019; Gilardi, 2022) and globalization (Iversen and Soskice, 2019; Wu, 2021; Mansfield and Rudra, 2021). Second, middle-class employment anxieties associated with automation may inspire political conflict and support for populist candidates (Frey et al., 2018; Frey, 2019; Kurer, 2020; Gidron and Hall, 2017; Gingrich, 2019; Im et al., 2019). For instance, voters may find right-wing populist messages appealing if susceptibility to automation makes them anxious about their social status and position in the social hierarchy (Jardina, 2019; Kurer, 2020; Baccini and Weymouth, 2021; Gidron and Hall, 2017). Third, workers at risk of losing their jobs

to automation could favor policies to slow down technological change, including the regulation and taxation of worker-displacing innovations such as robotics (Gallego et al., 2021; Thewissen and Rueda, 2019). Workers who are vulnerable to the vicissitudes of the digital economy may also favor digital trade barriers like those discussed in the next chapter.

In summary, this new era of digital globalization is driven by the DVC, in which data is the central input. Yet property rights over data are not well established. Technology converts data into computational intelligence, prediction, and automation, which gives firms enormous power to forecast market demand, cut production costs, and monitor and coerce consumers. DVCs create unique industrial structures characterized by extremely high industrial and geographic concentration. These firms dominate global markets, yet their sales often go untaxed. There is not yet a global, rules-based system governing the digital economy, and political tensions are on the rise due in no small part to digital firms' exorbitant economic and political power.

These policy tensions and governance incongruities place digital globalization at a crossroads; politics will determine its outcome. Surveillance capitalism, economic concentration, and tax avoidance are inducing a popular backlash. In response to political pressures from their citizens, governments around the world are enacting new laws and regulations that impede data flows across borders. These digital trade impediments reflect a host of political pressures and concerns unique to the digital era. For governments wishing to exert control over data and information flows—in other words, to establish *digital sovereignty*—one lever is to impede data extraction by restricting cross-border data flows.

The next chapter surveys these policy responses. I document the digital trade impediments governments are devising in an attempt to constrain the most politically contentious features of digital globalization. I then discuss the domestic and international politics of digital globalization. Chapter 4 develops a framework to explain variation in policy impediments to digital flows. Chapter 5 defines the paradox of digital globalization and the prospects for international cooperation on the governance of the digital economy.

Chapter 3

Policy Impediments to Digital Globalization

Governments around the world are governing digital value chains (DVCs) with a new policy activism, which I document in this chapter. Since the World Trade Organization and other multilateral institutions generally do not proscribe policy obstacles to digital trade, countries are relatively unconstrained in their policy choices. The absence of an agreement on standards and rules for cross-border data flows permits significant digital trade policy discretion.

Governments have implemented various policies that restrict certain aspects of digital trade and data transfers in order to ensure a desired degree of protection, oversight, or surveillance (Casalini et al., 2021). There is no single policy mechanism, akin to a tariff in good trade, to achieve governments' varying objectives. Instead, governments often pursue a patchwork of policies and rules restricting cross-border data flows, which increase the costs of firms' global activities (Casalini et al., 2021). The result has been a proliferation of barriers to cross-border data flows, including data localization requirements. Casalini et al. (2021) calculates that 82% of policies affecting digitally enabled services around the world between 2014 and 2019 were trade *restricting*, while only 18% were trade *liberalizing*. These new digital trade barriers—which include data privacy laws, cybersecurity laws, digital taxes, and various regulatory impediments to digital services and e-commerce—have increased markedly in recent years (Ferracane and Lee-Makiyama, 2018; Casalini and González, 2019; Aaronson, 2021).[1]

Some refer to these restrictions on data flows as 'digital protectionism,' although there is no consensus on a definition among scholars or policymakers (Aaron-

[1] An even more expansive view of barriers includes policies to limit disinformation, censorship, cybersecurity laws, and internet shutdowns (Aaronson, 2021).

son and Leblond, 2018). In the context of international trade, protectionism refers to policy measures that reduce the supply and/or raise the cost of imports (Aaronson and Leblond, 2018). I avoid the term 'protectionism' when discussing digital trade policies because it implies a desire to shield, or protect, domestic firms from foreign competition. Yet some restrictions on data flows may seek to protect individual privacy, for instance, rather than advantage domestic companies; this is not a protectionist motive. Moreover, unlike the general acceptance of the benefits of tariff liberalization, there is currently no consensus on best practices for digital trade policy, which are likely to depend on specific industry structures and other economic and political contexts (Borchert and Winters, 2021). I use the term *digital trade restrictions* to describe the set of policies that impede, or raise the costs of, digital trade.

This chapter evaluates the three main types of digital trade restrictions employed by governments around the world: 1) data flow restrictions, 2) data localization requirements, and 3) digital services taxes (DSTs). It analyzes a novel digital trade restrictions database I created for this study, which records digital flow restrictions and digital taxes.[2] I also draw on three additional databases. The first is Ferracane and Lee-Makiyama (2018)'s Digital Trade Restrictiveness Index, which represents one of the first attempts to measure regulatory policies related to data. The second is the Organisation for Economic Co-operation and Development's Digital Services Trade Restrictiveness Index, which quantifies cross-cutting barriers that affect digital services trade in 44 countries (Ferencz, 2019). Third, Chander and Schwartz (2022) document national privacy laws with General Data Protection Regulation (GDPR)-adjacent adequacy-type standards for data exports.

3.1 Data Flow Restrictions

Data flow restrictions are policies that impede the movement of data across borders. Some restrictions apply to all types of information, whereas others are targeted to certain types of data or particular sectors of the economy. Among the most common restrictions are those applied to personal data, or information about an identifiable person. Governments also restrict the international transfer of other types of information such as business records, financial data, and government data. Since DVCs primarily monetize personal data, I focus on data flow restrictions pertaining to this type of information.

Data flow restrictions, like other trade impediments, raise the costs of global business. Costs increase when companies are forced to store data in a particular country, or when firms must comply with additional hurdles before transferring data abroad (Ferracane, 2017, Mattoo and Meltzer (2018)). There is substantial

[2]The sources for data flow restrictions include USTR, Comforte, the ECIPE DTRI (Ferracane and Lee-Makiyama, 2018), DLA Piper, Chen (2021), and Cory and Dascoli (2021). Data on DSTs comes from KPMG and Alavara. The database will be updated regularly to reflect changes in these policies around the world.

variation in the overall restrictiveness of data flow regulations around the world. As of 2022, my database records 133 data flow restriction laws either passed or proposed in 104 countries. Some require local storage and strictly prohibit the transfer of personal information outside of the home country. Two types of regulations are increasingly common: cross-border flow restrictions (usually as part of data privacy regulation), and local storage requirements (Casalini and González, 2019). Some data flow restrictions are conditional—i.e., the cross-border transfer of personal data is allowed if certain conditions are met. Figure 3.1 illustrates varieties of data transfer restrictions.

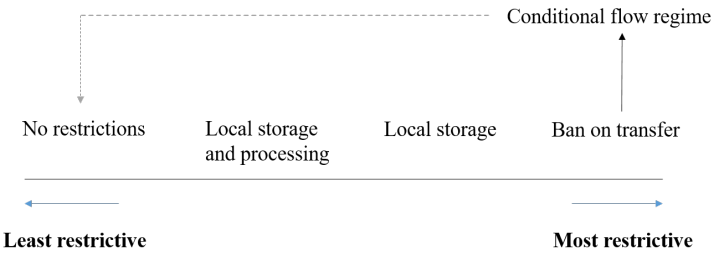

Figure 3.1: Types of Cross-Border Data Transfer Restrictions. Adapted from Ferracane (2017).

A prominent example of a conditional flow regime is the EU's GDPR. The 2018 law reinforces and expands individuals' rights with respect to their personal data, including: access to their own data, erasure, portability, and the right to be excluded from automated decision-making (Casalini and González, 2019). The GDPR applies to domestic firms as well as foreign companies that offer goods and services to consumers in the EU. Transfers of data on EU individuals to outside of the EU are conditional on recipient country adequacy—meaning the European Data Protection Board determines that the recipient country adequately protects individual data privacy. Absent the adequacy distinction, other safeguards must be in place in the form of binding corporate rules between multinationals and their affiliates, or through the use of standard contractual clauses, which are legal agreements between foreign firms and the EU data protection authorities.

Without a national privacy law, the US fails to meet the adequacy requirement. But EU and US officials reached a workaround solution to allow data transfers. The US–EU Privacy Shield of 2016 allowed US firms to self-certify the adequacy of their privacy safeguards. However, in an example of how the misalignment of national privacy regulations can introduce substantial uncertainty in the legality of cross-border personal data transfers under the GDPR, the European Court of Justice invalidated the agreement in 2020 as a legal mechanism for EU data transfers to the US. In March 2022, the European Commission and the Biden Administration announced a new framework agreement for transatlantic data transfers, but the specific details of the arrangement have not been determined.

3.2 Data Localization

Data localization laws (sometimes called local storage requirements) require data to be stored on servers located within national borders. While localization is viewed as a separate type of data policy from transfer restrictions, transfer bans amount to de facto local storage and processing (Casalini et al., 2021).

Data localization requirements increase the costs of digital business transactions, since they force firms to establish data centers or contract with cloud computing providers in all countries that have introduced them. When coupled with bans on cross-border data transfers, they impede DVC monetization of data by restricting access to data inputs for analysis. Data localization thus represents one of the most important trade barriers and operating constraints for digital businesses (Hodson, 2019).

Some countries require internet businesses to establish a local presence, a more onerous requirement than local server mandates. For instance, Turkey's 2020 law[3] and Russia's 2021 Law[4] require foreign internet companies to establish a local presence, such as a branch or subsidiary.

3.3 Digital Services Taxes

As touched on in Chapter 2, digitalization allows firms to avoid paying taxes. Aslam and Shah (2021) identify three ways in which the digital economy challenges the existing tax system. First, the internet facilitates cross-border sales without the need for a physical presence. Second, intangible assets, such as intellectual property, are very easy to transfer across borders but are difficult to value and tax. Third, user data is a significant source of firm value, but user participation is not considered a taxable source of value under the existing international tax system.

There is a lack of international cooperation and consensus on corporate taxes for businesses that sell to markets without a physical presence. Under the current international tax system, multinationals pay corporate income taxes where production occurs. Thus digital services are often untaxed. Several governments have recently passed new taxes out of a growing frustration with the outsized profits accrued by the tech giants in countries where they have no physical presence. Digital services taxes (DSTs) are designed to capture additional tax proceeds not covered by the current global tax system. DSTs are taxes on revenues from the sale of digital services or the digital sale of goods; they apply to residents and foreign suppliers of customers in the country implementing the tax. DSTs are *not* an income (profits) tax or an online sales tax; nor are they a value-added tax. Rather, they are taxes on gross revenues not captured by

[3]Amendment of the Law on the Regulation of Publications on the Internet and Suppression of Crimes Committed by Means of such Publications

[4]Federal Law No. 236-FZ on the Internet Activities of Foreign Entities in the Russian Federation

any treaties. DSTs can cover online sales, digital advertising, e-commerce, data, and streaming.[5]

As of 2022, 29 countries have implemented a DST with rates of 1–15% (mean: 7%). The accompanying database lists the countries, DST rate, and additional details about the variety of DSTs around the world. Some governments may impose DSTs in response to declining export competitiveness. Schulze and van der Marel (2021) demonstrate that the early adopters of DSTs in Europe—Italy, Austria, France, UK, and Spain—have experienced a drop in digital services exports over the past 15 years. The results suggest that the taxes were at least partly motivated by protectionism, in response to rising US imports of digital services.

In 2021, 136 nations agreed to an outline for new global tax rules, and to suspend DSTs for 2 years, during which time the signatories are required to ratify the agreement; as discussed in Chapter 2, there is considerable uncertainty at the time of writing regarding whether it will be enacted. The proposal consists of two pillars. Pillar 1 relates to where firms are taxed. It seeks to reallocate the profits of the most profitable digital firms to the countries in which customers and users reside. Under this pillar, 25% of profits above a 10% profitability margin (defined in excess of revenue) may be taxed in the country in which sales occur. Pillar 2 specifies a global minimum corporate tax rate of 15%.[6] The pillar excludes firms in extractive industries and financial services.

The following chapter presents a political economy framework to explain the variation in digital trade restrictions observed around the world. It argues that the political coalitions around digital trade are likely to differ from traditional coalitions around trade in manufactured goods in multiple ways.

[5] https://www.pwc.com/us/en/services/tax/library/digital-service-taxes.html

[6] https://www.oecd.org/tax/beps/statement-on-a-two-pillar-solution-to-address-the-tax-challenges-arising-from-the-digitalisation-of-the-economy-october-2021.htm

Chapter 4

Digital Trade Politics

The previous chapter demonstrated that countries regulate digital trade in very different ways. The US and Australia have among the loosest cross-border data flow restrictions, while China, Russia, and Vietnam have some of the most stringent restrictions, including the requirement to store personal data in domestic servers. Other countries fall in between these extreme cases. European Union (EU) members states make cross-border personal data transfers conditional on data privacy protections in the destination country.

Digital trade policies reflect the ways in which countries allocate control rights over data—to firms, to individuals, or to the government. Policy impediments to digital globalization tend to be higher where individuals or governments are the primary arbiters of information, and lower where companies have more control over data. The data governance approaches of the US, the EU, and China exemplify three sharply divergent models, and each of these economic powers advocates in favor of its own approach (UNCTAD, 2021; Young, 2022). The US allocates substantial control over data to private firms, while the EU favors individual rights. The Chinese model asserts government control over data and information flows.

This chapter develops a framework to explain variation in data governance through a political economy lens. I build on political economy explanations for trade (and other) policies, which specify the actors that have a stake in the issue, their preferences, and how political institutions shape policymakers' incentives. My theoretical approach does not privilege any single variable in explaining policy variation. Instead, it highlights a multitude of factors that contribute to variation in digital flow restrictions—the influence of firms, workers, and consumers; social norms and values; and political institutions.

Existing models of trade coalitions mainly focus on actors' preferences regarding tariff and non-tariff barriers on trade in goods. Some coalitions favor liberalization, while others advocate policy barriers that shield them from global com-

petition. These contending coalitions pressure governments to enact policies that are consistent with their preferences for trade openness or protection (Rogowski, 1987; Frieden and Rogowski, 1996; Hiscox, 2001; Osgood, 2018; Kim, 2017; Kim and Osgood, 2019; Milner and Kubota, 2005). Policymakers will respond to these interest group pressures in different ways, depending on the relative political and economic importance of the interest groups, and the incentives generated by political institutions such as elections (Milner and Kubota, 2005; Owen, 2017; Fang and Owen, 2011).

The policy objectives and political influence of businesses anchor most analyses of trade policy coalitions, and they are central to my approach as well. Scholars expect firms to be involved and highly influential in the development of trade policy because it affects the amount of foreign competition in the domestic economy—as well as foreign markets' openness to exports. The potential economic impact of reduced barriers at home and abroad influences firms' support for trade openness. For instance, businesses that import from other countries may benefit from lower trade barriers in their home country, as domestic trade liberalization reduces the costs of imports (Milner, 1988; Osgood et al., 2017). And some firms will benefit from a reduction in barriers abroad that enable export expansion and revenue growth (Baccini et al., 2017). Yet less competitive firms may oppose trade openness because it introduces import competition. As discussed in the previous chapter, impediments to cross-border digital flows affect businesses' ability to reach new markets, monetize data, and expand abroad. Thus, the framework will focus on examining businesses' likely digital trade policy preferences.

The chapter explores how the political interests related to digital trade policies line up. To determine who favors digital trade barriers and who opposes them, I consider the social actors that have a strong interest in digital trade policies, their possible policy objectives, and their ability to achieve those objectives by engaging in the political process. Along the way, I assess the ability of prominent theoretical approaches in the political economy of trade to explain the anomalies of digital globalization, especially network advantages and geographic concentration.

Section 4.1 investigates business interests, and includes theoretical discussions of country-level comparative advantage vs. firm-level heterogeneity. In Section 4.2 I consider the interests of workers and consumers, whose attitudes toward the privacy aspects of digital trade will influence governments' digital trade policies. In Section 4.3 I examine the stances of civil society actors such as activist groups and non-governmental organizations (NGOs)—groups that tend to advocate consumer privacy, tax fairness, and economic equity. Since digital globalization ignites concerns linked to all of these issues, it is important to clarify who has a stake and who engages in the political process in an attempt to shape the digital trade policy landscape.

After analyzing the digital trade preferences of various social actors and the possible trade coalitions of actors with shared preferences, in Section 4.4 I ex-

amine how different political institutions influence how governments balance the interests of firms and citizens in the development of digital trade policies. Section 4.5 concludes by evaluating the varieties of digital governance.

This chapter constructs a theoretical framework for examining the political economy of digital globalization. Data limitations and space constraints preclude a detailed examination of the empirical validity of the propositions developed here. The goal is to provide conceptual building blocks and an agenda for future research on digital globalization politics.

4.1 Business Interests

Firms' digital trade interests will depend on their ability to monetize global data flows. Users' inability to own their data (i.e., the lack of property rights over data) means the business that collects the data is able to control, process, and monetize it. Firms in digital value chains (DVCs) will seek to extract data from users anywhere they can, and thus will oppose costly impediments such as data localization. Data flow restrictions such as localization increase compliance costs and introduce legal uncertainty around data transfers. The global digital giants thus anchor the digital trade openness coalition, since these firms are best positioned to monetize data (UNCTAD, 2019).

As a result, the largest digital firms will favor data governance that enables their DVCs to expand to as many countries as possible, without restrictions. The economic gains associated with digital globalization will encourage digital giants to oppose restrictions on their ability to access new users, and to collect and transfer data. The objectives of the major tech companies are thus quite clear: they strongly oppose tighter controls on the movement of data across borders. Digital giants will lobby against new impediments to digital trade, such as local storage requirements or data flow restrictions.

Given their market dominance, the largest tech firms have enormous resources to dedicate to their lobbying efforts, which makes them formidable political actors. The tech giants are currently working to embed their favored rules in international agreements so that they can obtain data and users, and forestall domestic efforts at future regulation (Stiglitz, 2019). According to Bank et al. (2021), the tech sector employs 1,452 lobbyists and spends over €97 million (~$115M USD) per year lobbying in Europe—more than any other sector (Bank et al., 2021).

Public statements regarding Europe's efforts to exert digital sovereignty, including data localization and flow restrictions, illustrate the tech giants' policy interests. Chris Padilla, IBM's vice president for government and regulatory affairs, stated: "There are some who argue…that data sovereignty is more important than ever. I think what we've seen is that's simply not true. The fact that we've been able to maintain the global economy across borders, with data stored wherever it makes the most sense to store it, shows that data-localization

mandates are not the way to go."

Google has expressed similar concerns about restrictions on the use of its software based on privacy considerations stemming from General Data Protection Regulation (GDPR). When Austria's data protection authorities declared that Google Analytics did not provide an adequate level of consumer data protection from US national security agencies, Kent Walker, president of global affairs and chief legal officer at Alphabet, wrote: "But Google has offered Analytics-related services to global businesses for more than 15 years and in all that time has never once received the type of demand the Data Protection Authority speculated about. And we don't expect to receive one because such a demand would be unlikely to fall within the narrow scope of the relevant law."[1] From Google's perspective, European regulators overstate a key privacy objection to transatlantic data flows—the risks of surveillance by US authorities.

The EU Court of Justice's invalidation of the Privacy Shield Framework for transatlantic data flows in 2020 introduced regulatory uncertainty and ignited substantial backlash among firms and trade associations. The inability of US and EU regulators to agree on a replacement framework led to intense lobbying efforts by businesses on both sides of the Atlantic. In 2021, a letter to US Commerce Secretary Raimondo jointly signed by 24 US and EU trade associations stated that "thousands of EU and U.S. companies continue to be impacted by the resulting legal uncertainty for transatlantic data transfers, restrictive interpretations of the ruling risk triggering additional compliance and operational challenges…We urge the U.S. and the EU to swiftly ensure an agreement for secure transatlantic data flows that in turn will strengthen trade, investment, technological cooperation, and reinvigorate the transatlantic partnership."[2] These efforts underscore the costs of policy uncertainty on economic activity and the importance of trade and regulatory agreements to reduce it (Handley and Limão, 2015, 2017).

The Chinese approach to controlling information and data has also ignited the opposition of large US businesses operating there. In a recent American Chamber of Commerce survey, managers called data restrictions the most important obstacle to doing business in China: 76% of US firms operating in China reported being concerned about Beijing's policies on data flows and technology security.[3] IBM's Padilla says "the Chinese model is a very different model that is basically built on walling off the internet and creating different national internets. If we abandon the field, the Chinese are going to push their vision and I don't think that's a vision that is great for the digital economy."[4]

The policy objectives of firms *competing* with the digital giants are mixed. Looking beyond the dominant US and Chinese firms, there are differences in opinion

[1] t.ly/gfqQ9
[2] t.ly/WFLA
[3] https://tinyurl.com/vkd54a3
[4] https://www.politico.com/newsletters/weekly-trade/2020/09/14/ibms-new-mantra-resist-data-sovereignty-790378

about digital trade governance. Deducing the objectives of small and medium-sized enterprises (SMEs), for instance, is complicated because their interests may diverge. Theoretically, smaller firms could benefit from digital globalization because digital technologies and platforms should enable even the smallest firms to trade goods and services (WTO, 2016). Firms generally need to overcome a certain productivity threshold to afford the fixed costs of selling to foreign markets (Melitz, 2003). The digital economy has lowered these costs, which reduces the productivity threshold for engaging in international trade. For some firms, then, the promise of reaching new markets with a novel app or service, and monetizing new data from outside the country, induces opposition to digital trade restrictions. For other businesses, concerns about the dominance of the digital giants (and smaller firms' ability to compete) lead to demands for new digital trade barriers.

For example, businesses in India have organized in favor of data localization requirements as well as digital taxation for foreign competitors. Both measures would increase the costs of market entry for offshore firms. When data localization emerged as a hot button issue in India, many domestic businesses—large and small—supported a legal requirement that foreign firms keep customer data on servers in India. Mukesh Ambani, one of India's wealthiest individuals, couched the debate in anti-colonization terms, arguing: "For India to succeed in this data-driven revolution, necessary steps will have to be taken to migrate the control and ownership of Indian data back to India—in other words, Indian wealth back to India. Data colonisation is as bad as the previous forms of colonisation."[5] Ambani and other business leaders favor localization laws that prevent foreign companies from repatriating and monetizing Indian consumers' data. In response, the Indian government passed the Equalisation Levy—a 5% tax on the Indian revenue of foreign firms with no permanent establishments in the country (commonly called the Google Tax).[6]

Yet some SMEs may oppose digital trade restrictions because they raise the costs of participating in the global economy. Data localization measures, data flow restrictions, and digital services taxes (DSTs) raise compliance costs, and are particularly onerous for SMEs with limited resources (Meltzer, 2019; Sinha and Basu, 2019; Burman and Sharma, 2021; Chen et al., 2022). Chen et al. (2022) studied how GDPR has affected firm-level performance in 61 countries, and found that the negative impact of enhanced data protection on profits was twice as large for small tech companies compared to the full sample. As SMEs seek to enter new jurisdictions abroad, localization mandates may prohibitively raise the costs of entry as well as the costs of transferring data out of the country.[7] The promise of reaching new global customers at low costs through

[5] https://economictimes.indiatimes.com/news/company/corporate-trends/mukesh-ambani-says-data-colonisation-as-bad-as-physical-colonisation/articleshow/67164810.cms

[6] https://www.businesstoday.in/current/economy-politics/india-collected-rs-4000-crore-google-tax-since-2016-rs-1100-crore-in-fy20/story/410545.html

[7] Sinha and Basu (2019) documents the policy stances of Indian stakeholders on the issue of data localization.

digital channels gives some SMEs economic incentives to join the digital giants in supporting liberalized cross-border digital flows.

For other SMEs, the variation in their policy stances may not be easily simplified in terms of openness or protectionism. They may support some restrictions but oppose others. For instance, DSTs uniformly applied to foreign and domestic firms may be less desirable than local server requirements, since the latter tends to raise costs mainly for foreign firms.

To determine whether standard political economy frameworks explain the apparent variation in firms' digital trade policy interests, in the following two subsections I review two prominent approaches to trade politics to assess whether their insights inform the policy interests of firms in the digital economy—those based on *comparative advantage* and those based on *firm-level heterogeneity* in productivity and engagement in international trade.

4.1.1 Factor-Based Comparative Advantage

The economic logic of comparative advantage has traditionally provided powerful insights into trade politics because it explains both the *patterns* of (goods) trade and the distributional *gains* from trade (Hiscox, 2001). The distributional patterns have historically guided our understanding of who would win and who would lose from trade openness, which in turn led to straightforward predictions about trade coalitions. According to Stolper-Samuelson's model, trade liberalization increases the returns for the owners of the relatively abundant factor, whereas incomes fall for the owners of the relatively scarce factor. So in labor-abundant countries like Bangladesh, labor incomes should rise from trade openness, and returns to capital should fall. By contrast, in capital-abundant countries like the United States, capital should gain from trade liberalization whereas labor will lose out (Rogowski, 1987; Frieden and Rogowski, 1996; Kim and Osgood, 2019; Milner and Kubota, 2005). Models built around factor-based comparative advantage predict class-based divisions over (goods) trade (Rogowski, 1987). Investigations of their applicability to services are nascent.

Recent research maps the distributional consequences of services trade on firms' policy preferences and lobbying activities (Jensen, 2011; Weymouth, 2017; Baccini et al., 2019). This work anticipates and documents a comparative advantage for the US in services exports. One implication of these findings is that US services firms will be relatively united in support of services liberalization in the US and abroad (Baccini et al., 2019). Yet these studies do not consider: 1) how network effects contribute to geographic concentration and market dominance; 2) how data collection imperatives drive preferences for open data flows among the tech giants; or 3) how the extreme market power of a handful of firms in two countries creates defensive, protectionist interests among competing firms in all other countries, including those with factor endowments and technology similar to the US.

What are the implications of comparative advantage for the trade in digital

products and services? As with manufactured goods, the costs of production should depend on the prices of factors of production and technology. For example, for a platform like Amazon, the costs of the platform service amount to the costs of establishing the website and attracting users; the costs of a marginal transaction on the platform are near zero. That is, the costs of Amazon exporting its platform service consist uniquely of the labor and capital deployed to establish and operate the website in the US (Deardorff, 2017). We might expect comparative advantage to explain this type of trade just as it would trade in goods (Deardorff, 2017). Capital-intensive tradable services firms in capital-abundant countries like the US should strongly support the liberalization of services (Baccini et al., 2019), including digital services.

However, two distinguishing features of the digital economy weaken the standard intuition of comparative advantage. The first is *network effects*, which Deardorff (2017) notes:

> Depend less on such factors of production, or even on technology, than on the timing of a firm's entry and on the size of the market that they are able initially to serve. I suspect that it is no coincidence that the largest platforms on the internet today are located in the two largest countries, the United States and China, where network effects could provide the greatest benefit. And that might well have been true even if some other country—Finland, say, or South Korea—had superior factors and technology (p. 10).

If network effects are more important than factors of production in explaining the gains from digital trade, then comparative advantage cannot fully account for the distributional consequences of digital globalization. Instead, the main beneficiaries are understood to be first-mover firms that are able to accrue network advantages. Country-level factors of production matter less.

A second complication associated with applying comparative advantage to digital trade is that the *data imperative* for DVCs shifts the main motivations for global expansion. Manufacturing firms locate (and source from) abroad to save lower costs. By contrast, digital firms' primary motivation for international expansion is to capture and extract data from, and sell data-enhanced services to, new users. Digital firms are not primarily interested in cheap labor: they want new consumers and their data because network effects drive performance and growth. As such, the existing frameworks built around country endowments of traditional factors of production like labor and capital are insufficient to explain the variation in digital trade policy stances of firms around the world.

4.1.2 Firm-level Heterogeneity

In this section I assess how models anchored in firm-level heterogeneity might explain variation in digital trade policy stances. These models are grounded in the observable differences in participation in international trade among firms, as previous empirical studies have revealed that only a small share of businesses

actually engage in trade (Bernard and Jensen, 1999). Trade is generally conducted, and by volume dominated, by the largest, most productive firms. These superstar businesses are best able to cover the fixed costs associated with entering global markets (Bernard et al., 2007; Melitz, 2003; Osgood et al., 2017). Theoretical approaches based on firm-level differences provide some insights into digital trade preferences, yet there are notable gaps.

These insights led scholars to predict *intra-industry* variation in firms' trade policy stances. That is, differences in levels of support for trade are expected even among firms in the same industry. The largest, most productive businesses in an industry—those most likely to export—will favor trade openness (Bailey et al., 1997; Osgood, 2021). Smaller, less productive firms will oppose it and seek trade protection in the form of tariffs and non-tariff barriers (Osgood et al., 2017; Kim and Osgood, 2019; Kim, 2017; Jensen et al., 2015). Firms in global production networks also favor trade liberalization because it lowers the costs of importing intermediate goods (Jensen et al., 2015; Osgood, 2018). Pro-trade coalitions of exporters and importers lobby and offer campaign contributions designed to influence policymakers to support free trade (Osgood, 2018; Baccini et al., 2019; Osgood, 2021).

At first blush, these firm-level approaches appear to predict the digital trade policy stances of some of the largest digital economy firms quite well. The digital giants are opposed to restrictions on digital trade such as local server requirements and restrictions on data transfers. However, they have expressed support for a US national data privacy law. This is perhaps unsurprising, given that privacy regulations are relatively easy for the largest tech firms to follow, but they can raise fixed costs and exclude smaller potential competitors from the market.[8]

Outside of China and the US, where the biggest players are based, the policy stances of even the largest and most productive firms are more varied. As illustrated by the India example discussed above, even some large firms support digital trade barriers, which contradicts the predictions of heterogeneous firm explanations of trade policy preferences. This trend is probably best understood as defensive posturing for fear that first-mover advantages and network effects have already generated enormous advantages for the digital giants domiciled in the US and China. The global economic concentration and market dominance of a small number of firms from a small number of countries is unique to the digital era.

4.2 Worker and Consumer Interests

The distributional effects of trade can also explain variation in individuals' trade policy preferences. Workers who might expect their wages to grow with trade

[8]See Gulotty (2020) on the theory of regulatory protectionism.

liberalization should support it, while those in jobs and firms vulnerable to import competition should oppose it.

Factor-based comparative advantage helps explain the distributional expectations of trade (Rogowski, 1987; Mayda and Rodrik, 2005; Scheve and Slaughter, 2001). This framework suggests that education should be correlated with individual support for trade openness, especially in wealthy countries, where lower-skilled workers are at higher risk of displacement through foreign competition. Indeed, trade openness is more popular among higher-skilled individuals (Scheve and Slaughter, 2001; Mayda and Rodrik, 2005; Walter, 2017). Salaries for highly educated workers should increase in the US as exports in skill-intensive services grow (Jensen, 2011; Jensen et al., 2017; Weymouth, 2017; Baccini et al., 2019).

Other work contends that globalization attitudes will differ even among workers within the same industry. Some workers, such as those whose employment involves tasks that can be easily automated or performed in other countries, are at higher risk of job displacement or reduced wages (Blinder and Krueger, 2013; Owen, 2017).[9] In this task-based framework, workers who can be displaced by automation and offshoring are unlikely to support liberalization.

For some people, new products and consumption opportunities are more salient to their globalization attitudes than are employment considerations. Individuals who consume imports and import-competing goods are less likely to support trade protectionism (Baker, 2005), especially if their jobs are less contestable to foreign imports and workers. Yet several features of the digital economy call into question whether traditional economic considerations readily extend to individual attitudes towards digital trade.

For example, the digital economy is not especially labor intensive, and low-skilled labor is not an important input in DVCs. Moreover, artificial intelligence and robotics have successfully automated many lower-skilled jobs, especially in manufacturing—employment that had expanded in labor-abundant countries during the global value chain era (Baldwin, 2016; Mansfield and Rudra, 2021). Displacement through digital automation is a risk for workers, but much of this automation occurs locally; thus from a policy perspective, it is largely unrelated to trade openness. In capital-rich *industrialized economies*, workers express anxiety over automation and robotization. Yet backlash against digital flows may not be the most natural political expression of this anxiety.

Similarly, open digital markets are unlikely to increase employment opportuni-

[9]Businesses can find workers all over the world without establishing production facilities in each location they choose to hire. Factor costs explain where firms offshore production, but rather than move their entire business abroad, firms might outsource certain stages of production, or even certain tasks, to workers abroad (Grossman and Rossi-Hansberg, 2008). Thus, scholars have scrutinized features of workers' specific occupations—their task compositions and the offshoreability of those tasks—to determine whether those workers stand to gain from a globalized economy. This implies that workers in a common industry or skill level—or even those within the same firm—can have very different stances on international trade (Owen, 2017).

ties in *labor-abundant* countries. Unlike the increases in employment and wages that many developing countries experienced following the liberalization of goods trade, digital trade openness is unlikely to meaningfully raise worker incomes in labor abundant countries like Bangladesh since tech platforms are unlikely to recruit from there.[10] Thus, there is little reason why lower-skilled workers in poorer countries would support the liberalization of digital trade based on expected wage and employment considerations alone. To the extent that they *do* favor digital openness, it is likely due to their interests as consumers rather than workers.

Most consumer-based accounts of trade politics related to goods tend to highlight that trade liberalization decreases prices and increases product variety. Yet in the digital economy, a focus on prices may be inadequate since many digital services are free. I contend that two alternative, non-economic factors will shape peoples' views about digital globalization governance: concerns about (1) privacy and (2) fear of economic or cultural hegemony imparted by the tech giants. Either of these factors could override employment or consumption considerations to explain individuals' support of digital trade, especially if the distributional consequences are not well understood (Rho and Tomz, 2017), or offset each other (e.g., stagnant wages, but free services!). In this section I consider both alternative explanations in turn and highlight avenues for future research.

First, the concerns related to *privacy* are straightforward. DVCs transcend the economic sphere by surveilling individuals and extracting information about them. While digital trade openness increases the variety of services available to consumers, it incurs a (largely non-economic) cost: unlike goods trade liberalization, which is unambiguously welfare enhancing in the aggregate, digital trade openness entails the erosion of personal privacy. For some, the erosion of personal privacy may offset the welfare gains from openness—such as lower prices and greater product variety—and lead them to oppose certain aspects of digital globalization. However, there appears to be a *privacy paradox*: while individuals express concerns about privacy, their digital behavior does not seem to reflect those concerns. As people learn more about the extent to which businesses surveil them, the privacy paradox appears to be disappearing.[11]

Second, prior studies have found that individuals' cultural and racial identities, and their perceptions of other groups and nations, influence their attitudes toward the trade in goods (Hainmueller and Hiscox, 2006; Mansfield and Mutz, 2009; Lü et al., 2012; Mutz and Kim, 2017; Mutz and Lee, 2020; Mutz, 2021). To the extent that these factors also inform consumer preferences about privacy and data security, they might help explain individual views on digital trade openness as well (Girard, 2022). With the global digital giants centered in the two largest economies, attitudes toward digital globalization may further reflect

[10] An exception might emerge for certain platforms, like Upwork, that enable the combination of factor inputs for services (Baldwin, 2019).

[11] For a discussion of the 'myth' of the privacy paradox, see Solove (2021).

individual perceptions of the United States and China. A promising area for new research is to investigate how identity and out-group anxieties affect preferences regarding data privacy, digital surveillance, and cross-border information flows. For example, future studies could investigate questions such as: To what extent are individuals concerned about the national origins of popular apps like TikTok, and what explains this variation? How do nationalism and out-group anxieties shape individuals' views on geographic concentration in digital markets (Brutger and Pond, 2022b)?[12] And how does the concentration and inequality inherent in the digital economy affect individual perceptions of digital openness?

4.3 Civil Society

Civil society organizations and other non-state actors play an instrumental role in international policymaking. Transnational civil society can shape digital economy governance through "issue networks" consisting of like-minded actors, which inform policymakers of the preferences of various groups (Price, 1998). Norms are central in the promotion of political and policy change (Finnemore and Sikkink, 1998), and transnational networks of activists have played a central role in diffusing these norms (Keck and Sikkink, 2014). Globally networked activists and civil society organizations have demonstrated marked success in initiating legislative action on human rights issues (Risse and Sikkink, 1999; Risse et al., 1999; Price, 2003). That advocacy now extends to digital governance (Bennett, 2011; Lehoucq and Tarrow, 2020), including the promotion of new norms related to digital privacy and data governance (Farrell and Newman, 2019a; Dowd, 2022).

NGOs are key civil society actors: they operate independently of business or government, but have the power to influence policy and firms' behavior. NGOs engage in public debates over digital privacy, regulation, and cross-border data flows in an effort to shape the policy contours of digital globalization. Many of these groups push for stronger public policy protections of consumer rights. NGOs advocating on digital governance often target the economic and political power of Big Tech. A common critique is that tech firms, especially the US giants, exert undue influence over policymakers, which weakens or impedes privacy and other consumer protections.

A letter addressed to the World Trade Organization that was signed by 315 international, regional, and national civil society organizations (CSOs) laid out their principal objections to liberalized digital markets.[13] The letter contends that a small number of enormous tech companies have too much power: "nearly all digital trade is dominated by a few global players from the United States and China in ways that are not simply disrupting and re-organizing economic activity but leading to digital domination" (p. 2). It continues by arguing that

[12] On individual attitudes about antitrust policy more generally, see Brutger and Pond (2022a)

[13] CSO Letter Against E-Commerce Rules in the WTO.

DVCs are exploitative in their extraction and control of data; that Big Tech's monopoly power constrains the development of local economies; and that digital firms avoid contributing their fair share of taxes.

One objection by CSOs involves the threat of digital imperialism. Groups like Public Citizen, a consumer rights NGO, contend that Big Tech promotes cross-border data flows as a precondition for development in other countries, while in practice, data monetization mainly increases the profits of the largest firms. According to Public Citizen: "Quasi monopolistic companies in Europe and America are rushing to connect the next billion people to the internet. But if all the world's data flows in one direction, without restrictions or taxes, this will further reinforce their monopolies over the world's data, widening the privacy gap, and leaving developing countries as consumers or data points, rather than participants in the digital economy" (Kilic and Avila, 2020). The group's proposed solution to these concerns is "a global standard of privacy and data protection norms" with regulatory measures reflecting those norms: uniform privacy protections and effective enforcement mechanisms (Kilic and Avila, 2020).

Some organizations monitor firms' privacy practices due to what they see as governments' failure to effectively protect consumer privacy. Their goal is to create new norms, standards, and incentives for companies to protect users' rights. One such group, Ranking Digital Rights (RDR), argues that companies are obligated to "be transparent and accountable about how their digital platforms, services, and devices affect users' human rights, especially privacy and expression."[14] It has devised a measure, the RDR Corporate Accountability Index, to quantify companies' disclosed privacy commitments and policies, based on international human rights standards.

4.4 Domestic Political Institutions

Governments face complicated questions about how to govern and regulate the digital economy. Digital trade policies reflect the interests of policymakers and the governance institutions in place. Policymakers face tradeoffs between building consumer trust and protecting individual data privacy, while also facilitating a competitive digital economy. They must decide how to assign ownership over data, and whether to limit or restrict cross-border data flows.

The privacy–innovation tradeoff confounds attempts to define an optimal privacy protection regime. There is clearly a tension between protecting personal privacy and encouraging technological innovations that may emerge from the use of data. DVC innovations can increase consumer welfare and economic productivity, providing new services at lower prices. Overly strict privacy regulations may make economies of scale difficult to achieve, which will hamper innovation and may slow productivity and reduce product quality.

[14] https://rankingdigitalrights.org/about/

The nature of governments' policy responses to cross-border data flows reflects the constraints that the domestic political system imposes on policymakers. Where democratic institutions such as competitive elections and independent courts constrain leaders, digital trade policies tend to reflect business and voter concerns about the economic and social consequences of the digital economy, which include data privacy, rising economic consolidation and inequality, and citizens' aversion to multinational tax avoidance strategies.

Citizen concerns about digital globalization raise questions about its political sustainability in the absence of international coordination and cooperation. This is because unfettered cross-national information and data flows, the defining feature of digital globalization, are incompatible with key tenets of capitalist democracies: digital globalization erodes individual rights (including property rights, anti-discrimination, and privacy) and fosters concentrated markets dominated by monopolies. These incompatibilities have led to government policy responses designed to restrain data and information flows.

Thus far I have highlighted sources of political division over digital trade policies among voters and businesses—electoral pressures to which democratic governments tend to respond.

Autocratic governments have different political motivations for digital governance. Because they are not held accountable in competitive elections or constrained by independent judiciaries, autocrats are shielded to some degree from citizen backlash to market concentration or tax avoidance; citizens have few mechanisms with which to sanction policymakers for anticompetitive market outcomes. In general, such regimes place less emphasis on individual liberty. Digital surveillance can provide intelligence that enables more targeted forms of repression; and restrictions on internet accessibility make it harder for opposition factions to organize (Gohdes, 2014, 2020). Autocrats are more likely to restrict destabilizing information flows and to adopt surveillance technologies to identify potential dissidents (King et al., 2013; Deibert and Rohozinski, 2010; Roberts, 2018; Dragu and Lupu, 2021). For example, authoritarian regimes employ digital tools like facial recognition to identify and suppress dissidents (e.g., through social media activity) (Dragu and Lupu, 2021). China's ability to produce and deploy inexpensive surveillance technology has promoted their use in other authoritarian countries (Andersen, 2020; Weiss, 2019).

Autocrats' efforts to control and monitor information flows often include policies like data flow restrictions and data localization requirements. Saudi Arabia's National Data Governance Interim Regulations of 2020 require storage and local processing within Saudi Arabia "in order to ensure preservation of the digital national sovereignty over such data."[15] Russia's 2021 Federal Law No. 236-FZ on the Internet Activities of Foreign Entities requires establishment of a local presence for foreign Internet companies for activities focused on Russian users.

[15] https://www.albrightstonebridge.com/news/asg-analysis-saudi-arabia-publishes-national-data-governance-interim-regulations

Algeria's NR 18-07 law requires that e-commerce platforms host websites from data centers located in Algeria. The Chinese government demands access to consumer data, and companies are required to comply. China's Cybersecurity Law of 2017 compels private businesses to share consumer data with government security services. The law also allows Chinese authorities to access data from foreign firms operating in China. According to the European Centre for International Political Economy, China and Russia have the most restrictive digital trade policies in the world (Ferracane and Lee-Makiyama, 2018).

Autocrats are also adept at forcing foreign firms to transfer technology or enter joint ventures in exchange for market access. To access the Chinese market, US corporations are engaged in joint ventures and legally nebulous maneuvers. For instance, to avoid legal repercussions in the US and to appease the Chinese authorities, Apple ceded ownership of its Chinese user data to a Chinese government-owned company (Liu, 2021). Apple also blocks apps that it believes will upset Chinese officials.[16] In general, China's restrictive approach to digital governance requires a difficult adjustment for foreign firms operating there (Gao, 2018).

But this variation in digital governance cannot be attributed solely to a simplistic democracy versus authoritarian dichotomy. Autocrats attempt to harness the economic benefits of the digital economy, and they work to shield themselves from political pressures stemming from DVC activities. China aggressively promoted the growth of its tech sector, in part to 'outsource' the development of market-promoting institutions such as contracting rights in the absence of an independent judiciary (Liu, 2022). The Chinese government recently initiated a strong regulatory pushback against some of the major players in its tech sector, including the Personal Information Protection Law (PIPL) of 2021. The PIPL requires that firms collecting personal information obtain the express consent of the individual. Such consent "must be informed, freely given, demonstrated by a clear action of the individual, and may later be withdrawn."[17] The PIPL also requires that entities processing personal data store that information locally. These developments demonstrate a responsiveness to societal and political pressures related to private sector digital surveillance, rising inequality, and the economic power of the technology juggernauts. Authoritarian governments are not immune to the social externalities of digital globalization discussed here.

4.5 Varieties of Digital Governance

There is a general consensus that three main digital governance models have emerged around the world, exemplified by the differing approaches of the EU, China, and the United States (Ferracane and van der Marel, 2021; World Bank, 2021; UNCTAD, 2021; Chander and Schwartz, 2022; Aaronson and Leblond,

[16] https://tinyurl.com/3bdxuf28
[17] https://tinyurl.com/2p9xstxs

2018; Young, 2022). They differ based on who has control over personal data: individuals, the government, or business.

The EU, an archetype of what I call the *activist* approach, views personal data privacy as a fundamental right and privileges individual control over their information. The EU passed the GDPR to confront the erosion of digital privacy. This law sets out a conditional data transfer approach: international transfers of citizen data are only allowed if the EU data protection authorities have determined in advance that the receiving country or firm offers adequate data privacy protections (World Bank, 2021). Regulators enforce the adequacy requirement through binding corporate rules, standard contractual clauses, data subject consent, and other codes of conduct (Ferracane and van der Marel, 2021). The emphasis on personal data protection is partly motivated by the belief that protection will build trust between consumers and companies (Aaronson and Leblond, 2018). The activist model is diffusing as other countries seek to meet the EU's adequacy requirement. The European Commission has recognized Andorra, Argentina, Canada, Israel, Japan, New Zealand, the Republic of Korea, Switzerland, the United Kingdom, and Uruguay as providing adequate protection.[18]

In addition to data privacy, the EU competition authority has taken an activist stance against the digital giants' anticompetitive practices. The EU has lead on pursuing an agreement on multinational corporation (MNC) taxation, and threats to enact digital taxes targeting US tech companies encouraged the US to cooperate on a G7 framework agreement for MNC taxation.

In what I term a *restrictionist* approach, some governments make the state the most powerful arbiter of data. As discussed in this chapter and in Chapter 3, countries such as China, Nigeria, Russia, and Vietnam restrict domestic market access by placing high barriers on digital services. Some also severely restrict cross-border data transfers, and require copies of certain types of personal data to be stored domestically (World Bank, 2021). Some countries, like China, Congo, and Egypt also restrict domestic information flows, for example by imposing extensive government access to or control over data (Aaronson and Leblond, 2018; Ferracane and van der Marel, 2021), and by shutting down the internet to all or certain parts of the country.[19] This model sometimes incorporates personal data privacy protections, but allows government authorities to override individuals' rights (Ferracane and van der Marel, 2021).

The restrictionist model often pursues several governance objectives. These measures are designed to buffer local firms from the digital giants in order to build national champions. Sometimes the objective is digital sovereignty. Other regimes seek to control information to keep the ruling party in power, often

[18] See the European Commission Adequacy Decisions.

[19] Government have shut down portions of the internet recently in Bangladesh, Democratic Republic of Congo, Egypt, Indonesia, Iran, Iraq, Sudan, Myanmar, and Zimbabwe. Even democratic India shut down the internet for a short period in 2020 (Source: https://www.hrw.org/world-report/2020/country-chapters/global-5#).

framed as protecting national security and public order.

A third path, the *laissez-faire* approach, allows businesses to control and monetize personal data with few restrictions. Countries like the US permit open cross-border flows of data with limited government restrictions (World Bank, 2021; Aaronson and Leblond, 2018). Under this approach, countries use trade agreements to ban data localization and restrictions on cross-border data flows. The motive is to develop economies of scale and scope to reap the benefits of comparative advantage in digital services (Aaronson and Leblond, 2018). Ultimately, the objectives of this approach are innovation and growth of the tech sector, with the benefits of consumer choice, lower prices, and greater product variety.

The political sustainability of the laissez-faire approach is highly uncertain. The hope may be that the market will prevent firms from overstepping privacy norms, and that companies will self-regulate.[20] Countries following the laissez-faire model have done little to address the erosion of civil liberties or the weakening of market competition that digital globalization entails. Rising industry concentration and tech privacy overreach draw criticism and heightened scrutiny (Stoller, 2019; Wu, 2020; Zuboff, 2019). Yet policymakers have thus far bet that consumers prefer the services that digital globalization offers more than they oppose the downsides.

[20] On the political logic of self-regulation, see Malhotra et al. (2019).

Chapter 5

Digital Globalization

The preceding chapters have explored the political implications of a new form of global economic production. Digital value chains (DVCs) use data as a central input in their production process. Yet unlike other inputs, there are no global rules defining property rights over data. Without institutional foundations and constraints, the global digital economy has rapidly concentrated, allowing a small number of firms to amass enormous economic power. Privacy is imperiled, market dominance erodes competition, and multinational corporation (MNC) tax avoidance facilitated by intangibles transactions is widespread. These exigencies have ignited a political backlash against Big Tech overreach, and governments have pursued ad hoc policy impediments to cross-border digital commerce. The global digital economy is becoming siloed.

This chapter examines the global politics of the digital economy. I consider the policy prerequisites for digital market integration, and argue that global economic cooperation in the digital era will require building consensus around data privacy, market competition, and taxation. Before coordinated liberalization, a politically sustainable digital globalization requires coordinated *regulation*.

5.1 Digital Globalization Paradox

The politics of digital globalization are rooted in the lack of property rights over its central input, data. Controversies arise because the global digital economy lacks governance institutions to mediate exchanges in data and data-driven services. This has led DVCs to gain enormous power and influence by extracting and monetizing data, and using intangibles to evade taxes. Here I briefly review the three main ways in which digital globalization threatens individual rights and the functioning of competitive markets, the hallmarks of capitalist democracies. I then describe the digital globalization paradox.

Individual privacy. Individuals' digital footprints include all the data re-

vealing the most intimate aspects of their lives. The DVC, the engine behind digital globalization, requires the intensive use of personal data as an input to the production of new products and services, which entail constant transfers of data across national borders.

Concentration and monopoly. As discussed in Chapter 2, economies of scale and scope, first-mover advantages, and tax avoidance lead to monopoly positions, anti-competitive practices, and market concentration. Digital platforms facilitate anti-competitive practices, such as the abuse of dominance and predatory pricing.

Tax avoidance. Digital technologies facilitate tax avoidance via profit shifting. They also facilitate sales of digital services, many of which are untaxed because the antiquated global corporate tax system based on the location of production. MNC tax avoidance strategies shift the tax burden from capital to labor (Zucman, 2015; Rodrik, 2011).

The politically contentious features of digital globalization force states to confront tradeoffs. Open digital markets unleash valuable digital services to consumers, often at zero monetary cost. Yet the DVCs that produce digital services surveil consumers, extract data resources, and often pay little in taxes. The leading firms dominate their markets, and their market power engenders undue political influence (Callander et al., 2021). There is therefore a strong tension between digital globalization on the one hand, and individual rights and market competition on the other.

The tradeoffs point governments toward different approaches to digital trade governance. One strategy is to ignore the consequences of digital globalization for individual rights and competitive markets. This strategy can facilitate the development of the tech sector, but it risks a backlash among citizens, as well as policy conflict with other nations. Another strategy is to restrict digital globalization through ad hoc measures such as data transfer restrictions and data localization measures. These policy instruments may enhance citizens' digital privacy. But if pursued in an uncoordinated manner, such ad hoc arrangements will lead to the stratification and splintering of digital markets.

Consider how these tradeoffs manifest in the real world. The EU privileges consumer data privacy and attempts to control data from flowing out of the EU—meaning it aspires to digital sovereignty and consumer rights. But Europe's tech sector lags behind that of the US and China. The US is home to a dominant tech sector and open data flows: it does not pursue digital sovereignty. But it is unable to commit to consumer data privacy. China's tech sector is competitive and growing extremely fast, and its government famously restricts data and other information flows, but Chinese consumers are constantly surveilled by businesses and the state. In China's quest for tech dominance and control over information flows, personal privacy is largely unaddressed, as the government is the ultimate arbiter of data rights.

Divergent governance models threaten digital globalization. The politically con-

tentious exigencies of digital globalization create incentives for governments to control data flows and restrict digital transactions. This impetus will continue as long as the central issues remain unaddressed. Under the most dire scenarios, global digital markets could splinter entirely. What can be done to avoid this outcome?

To generate the domestic political buy-in needed for digital globalization, countries will first need to agree to a common set of rules. Achieving integration while maintaining the right to privacy requires countries to agree on a baseline level of consumer data privacy protection. Without regulatory cooperation on privacy, for instance, governments with strong domestic privacy laws and norms are likely to restrict data exports and require some data to be localized (Meltzer, 2019). Domestic regulators need to be confident that their domestic regulatory goals will not be violated once data leaves their jurisdiction; this can only be achieved if countries harmonize their approaches to privacy regulation. Domestic political buy-in for digital globalization also requires some semblance of market competition and tax fairness. Given the network advantages and tax avoidance opportunities inherent in digital services, combating the tech giants' dominance will require agreements on competition policy and taxation.

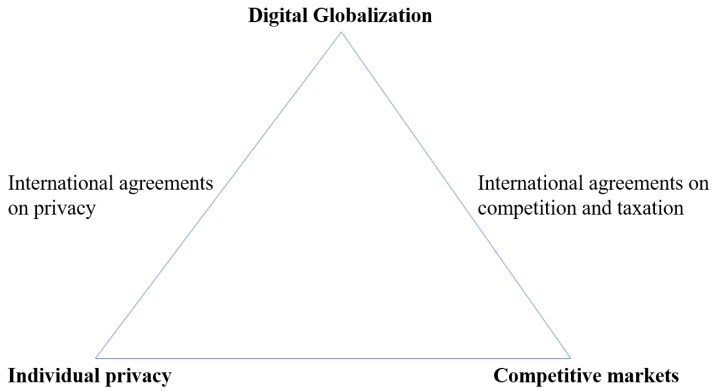

Figure 5.1: Digital Globalization Paradox.

The political logic produces a digital globalization paradox. For digital economies to integrate without political backlash, countries must agree to a baseline set of institutional foundations. In the previous era of globalization, market integration mainly required coordinated *liberalization*—of tariffs primarily, but also of barriers to international investment. In the current era of digital globalization, coordinated liberalization will not suffice. To build the political and policy foundations for digital economies to expand and integrate, DVCs must first be constrained through coordinated *regulation* across countries. This is a new globalization paradigm, arising from the unique features of data and the activities of DVCs. For digital globalization to achieve sustainable public support, it will require a degree of convergence on policies

on which countries have not previously needed to cooperate. It is likely that for digital globalization to flourish, the multinationals that currently dominate digital markets must first be restrained.

In short, digital globalization requires countries to align on regulatory matters that fall outside of traditional trade policies. Digital globalization is politically unsustainable without new institutions to protect individual rights and preserve market competition. Agreements on privacy, antitrust, and taxation are needed. Individual governments cannot overcome the incompatibilities alone: digital globalization requires policy coordination. Building issue linkages has been shown to overcome domestic political opposition (Davis, 2004), but the task becomes much more complex with the range of regulatory incongruities, political institutions, and domestic policy interests at play. My framework points to at least three possible scenarios for the global digital economy.

First, the status quo could continue. Under this scenario, no new multilateral policy foundations for the digital economy are constructed. Rather, countries continue to pursue versions of digital sovereignty, and control of information flows across borders. Without a multilateral agreement on taxation, countries pursue ad hoc digital services taxes. Barriers to data and information, bans of foreign platform firms, and data flow restrictions will continue to increase. Digital globalization will stall, and firms will be forced to navigate a web of compliance requirements to sell digital services abroad.

In another possible scenario, democratic politics forces leaders of democratic nations to coordinate on two sets of rules for digital globalization. The first is privacy policy, since regulatory divergence will become untenable because national governments' promises to protect citizen data are meaningless if they are unable to ensure that other countries will follow suit. The second set of rules pertains to competition policy. The continuation of economic dominance by the largest tech platforms is politically untenable. Competition policy can help ensure that value created in DVCs is more equitably shared between businesses and consumers.

Third, a global agreement on taxation is possible. It is politically damaging for states to allow MNCs to avoid taxation in jurisdictions in which they sell and amass large market shares. Digital exchanges of services and intangibles facilitate these tax avoidance strategies. Citizens are increasingly perturbed by MNC tax avoidance; thus leaders may be forced to develop a solution.

5.2 Implications for Global Economic Cooperation

What body should spearhead agreements on digital trade, taxes, competition, and privacy? International institutions mediate economic relations between states, but there is no international body currently setting the global rules for

digital commerce. The World Trade Organization (WTO) was initially established to set and enforce rules for trade in *goods*, not services. Most restrictions on digital trade are regulatory measures affecting market access, services, and data flows, rather than tariffs.

The WTO covers some regulatory policies that underpin services trade (Casalini et al., 2021), but past agreements have not been updated to address new forms of digital trade (Wu, 2017). For instance, the General Agreement on Trade in Services (GATS) is relevant to some aspects of digital services transactions, but the agreement was concluded decades ago, when digital trade in services was nascent. The GATS categorizes services using an antiquated system that cannot account for the types of digitally delivered services that exist today. For instance, data flows over the internet enable additive manufacturing, which has no classification under the GATS W/120 scheme (Azmeh et al., 2020). There is thus a pressing need to update WTO rules and norms to govern digital trade, but the challenge is stark given the lack of US leadership (Bowen and Broz, 2021) and the challenges posed by China's unique economic system (Wu, 2016, 2019).

It is unclear whether existing WTO rules proscribe specific policy impediments to digital trade—such as data flow restrictions or localization measures. Some GATS disciplines may bar measures that explicitly discriminate against foreign suppliers or restrict market access in sectors for which countries have made commitments under the GATS. Yet to date, no WTO panel has explicitly considered the legality of data localization measures under the GATS. The lack of explicit rules or prior rulings generates significant uncertainty about how disputes would be resolved (Hodson, 2019).

Previous rulings provide some guidance on how GATS commitments might be interpreted in the context of technological advances in services delivery. The WTO Appellate Body ruling *DS285 US-Gambling*[1] established that the manner of service delivery was technologically neutral, meaning that a commitment to liberalize cross-border trade in services applies to any technological means of delivery of that service. In other words, services commitments under the GATS may apply to services supplied through digital means (Hodson, 2019).

Yet there are disagreements over whether GATS commitments cover *new* digital services such as cloud computing or 3D printing (Meltzer, 2019). The WTO has not established whether technological neutrality of delivery means that these new services can simply be mapped to arcane industry classifications, which were developed in the early days of the internet. Advances in digital technologies that were not contemplated at the time, or captured in older industry classifications, reveal a host of ambiguities concerning what is covered and what is not.[2]

The general consensus is that international rules for digital trade need to be

[1] https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds285_e.htm

[2] Most WTO members' GATS commitments followed UN Provisional Central Product Classification codes, which were finalized in 1991.

established, and that the WTO is late to the game. Recently, a group of 86 WTO members began discussions under a Joint Statement Initiative on trade-related aspects of electronic commerce. The discussions include a broad set of issues, including privacy and transparency (Casalini et al., 2021). A further concern is that the WTO is not presently able to govern the regulatory aspects of digital trade, let alone complicated 'non-trade' issues like privacy, competition policy, and taxation. The rules need updating, but a rewriting requires coordination on complicated regulatory issues; trade forums might be inadequate (Cowhey and Aronson, 2017; Meltzer, 2019; Ahmed, 2019).

In the absence of multilateral arrangements, countries have used preferential trade agreements (PTAs) to develop rules for new products and to engender political support (Davis, 2009; Baccini and Dür, 2012; Wu, 2017). The digital issues most commonly covered in preferential agreements relate to e-commerce (Burri and Polanco, 2020). PTAs differ in their level of commitment to provisions protecting personal data privacy and taxes on digital transactions (Casalini et al., 2021). Since 2008, 29 trade agreements among 72 countries have included provisions on data flows (Casalini et al., 2021). As of 2020, 19 jurisdictions explicitly bar requirements to locate servers within the trade partner country (Nemoto and Lopez Gonzalez, 2021).

Privacy agreements may emerge through coordination within some sets of plurilateral trade pacts, as well as through agreements on regulatory principles, rather than fully fledged trade accords. Private regulatory arrangements are one possible avenue (Büthe and Mattli, 2011). Another involves "hybrid institutions," in which states create frameworks of rules that are implemented by firms (Farrell, 2003). The (now defunct) Safe Harbor and Privacy Shield agreements, and efforts related to their replacement, are examples of efforts to piece together transatlantic coordination through hybrid institutions. In principle, hybrids can bridge incongruous domestic regulations in different states, but only if the agreed framework conforms with domestic law.

Collaboration among like-minded domestic regulatory authorities may contribute to international cooperation on digital governance. Examining Europe's privacy frameworks prior to the General Data Protection Regulation, Newman (2008a) and Newman (2008b) highlight the role of transgovernmental policy entrepreneurs—national data privacy authorities that collaborated to define the supranational privacy agenda that led to Europe's 1995 data privacy directive. This directive required member states to enact similar provisions on the governance of personal information, and mandated the creation of data privacy enforcement authorities.

Ultimately, democratic governments share incentives to coordinate on a common set of rules. There is widespread agreement among Western democracies on the need to resist a more authoritarian approach. Europe has been a vocal advocate of shared rules. Jeppe Kofod, Denmark's foreign minister, commented, "We need to build alliances with like-minded countries. Societies that are concerned about protecting democratic principles. Right now, we don't have a clear

external policy."[3] US Senator Mark Warner called for greater cooperation between the US and the EU on digital governance, saying, "This is the defining economic issue of our time. There needs to be a sense of urgency…that's what's needed to speed up the West's response to China."[4] The devil is in the details, of course. A central debate concerns how to regulate and tax Big Tech. "Tech giants need to meet their societal obligations," added Kofod, signaling continued divisions emanating from the dominance of US tech giants.

Though this monograph has focused on the economic aspects of digital globalization, geopolitical and national security considerations related to digital technologies will also hinder further cooperation. The US–China relationship is central, of course (Young, 2022). China's ambitious plans for technological superiority threaten US interests. Bipartisan warnings by US policymakers about China's potential use of 5G for espionage or sabotage demonstrated deep discord emanating from competing economic models, mutual distrust, and competitiveness concerns.[5] They also reveal broader fears that China's technological rise threatens US security and alters the balance of power.

Economic and security considerations are increasingly intertwined. States can leverage economic networks to coerce other states by imposing costs on others if they have political authority over the international networked structures through which information travels (Farrell and Newman, 2019b). Since the digital giants are concentrated in the US and China, the potential for coercion by these countries cannot be overlooked. As Farrell and Newman (2019b) explain, coercion can be applied to gather information and compel policy change. In such an environment, agreement on new rules for digital trade may require a coordinated approach among smaller states to act as a bulwark against larger, more powerful actors like the US and China. In some instances, privacy laws may partially defang the most powerful actors by limiting the types and amount of data that can be collected.

5.3 Future Research

This monograph has developed an analytic framework for studying the politics of digital globalization. I analyzed the new sources of political friction that digital globalization represents, and examined the new types of policy barriers to international information flows that governments have introduced. I then presented a theoretical framework for explaining policy variation across countries. This final chapter has argued that international cooperation on digital governance requires a set of regulatory foundations upon which countries will need to coordinate. These contributions represent a starting point; much work

[3] https://www.politico.eu/newsletter/digital-bridge/digital-geopolitics-frances-haugen-climate-misinformation/

[4] https://www.politico.eu/article/mark-warner-digital-bridge-tech-china/

[5] https://www.theverge.com/2019/3/17/18264283/huawei-security-threat-experts-china-spying-5g

remains. In conclusion, I highlight four topics and issues for future research.

First, the lack of property rights over data is central to the politics of digital globalization. Consumer data privacy concerns stem from consumers' inability to control their data. Political battles over the control of personal information are just beginning. Future work should assess consumer attitudes to personal data: to what extent do individuals value privacy, and what explains variation in individual preferences for privacy around the world?

Second, a small number of very large firms dominates the digital economy. Their rise coincides with widening inequalities of income and wealth in many countries. Yet some of the largest and most powerful companies provide many services at no monetary cost: they barter services for user data. How politically sustainable is this exchange? Do large corporations face a political backlash? Do attitudes toward the tech giants drive a new antitrust activism? Voters' attitudes will ultimately influence policy, so understanding the mass politics of industry concentration and inequality will be important.

Third, governments are imposing new types of policies barriers to digital trade and information flows across borders. Linking trade barriers to political interests has been a fruitful line of research in international relations. We know a lot about the political pressures that lead governments to pursue barriers to trade in goods, but much less about the political motivations behind services and digital trade restrictions (Weymouth, 2017). It will also be important to study the effects of digital trade restrictions on economic activity: who are the main winners and losers from these policies?

Finally, I have argued here that international cooperation on privacy, competition, and taxation are prerequisites—the policy foundations—for a politically sustainable digital globalization. We do not yet understand what types of institutions would be required to successfully achieve international cooperation on these issues. Future theoretical work should examine the political incentives and institutional structures that would facilitate cooperation on digital governance and its underlying prerequisites. The integration of the global digital economy is a political process. The success or failure of that process will determine the nature of international economic relations for the rest of the century.

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