1 Introduction

Digital technologies are reshaping the global economy and complicating cooperation over its governance. Novel business models 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; Srivastava, 2021). 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 and cooperation among nations.

Consider the rift between the United States and the European Union (EU) over transatlantic data flows. Transfers of European citizens' personal data to third countries are restricted under Europe's landmark 2018 General Data Protection Regulation (GDPR), a comprehensive data governance act billed by Brussels as "the toughest privacy and security law in the world."[1] To protect the data privacy of EU citizens, the GDPR requires that destination countries conform with EU privacy protections as a prerequisite to personal data transfers. Despite the fact that the United States has no national privacy law, a workaround agreement enabled businesses to transfer customer data from servers in Europe to those in the United States. In 2020, the European Court of Justice struck down this agreement as a violation of the GDPR, casting uncertainty over the future of transatlantic data flows.

Additional digital economy trade frictions include taxes targeting US tech firms, along with billions of dollars in lawsuits filed by EU regulators over what they see as anticompetitive practices by these firms. Despite deep integration in the trade of goods, different regulatory approaches to privacy, taxation, and competition in the United States and Europe – to say nothing of the differences in governance across less cooperative nations – threaten to silo national digital economies.

Why has digital globalization coincided with a decline in international economic cooperation, and what are prospects for the future integration of the digital economy? This Element argues that distinctive features of data-driven business models complicate international economic relations. A politically sustainable digital globalization requires agreements on rules governing the novel forms of economic exchange that digital technologies enable.

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

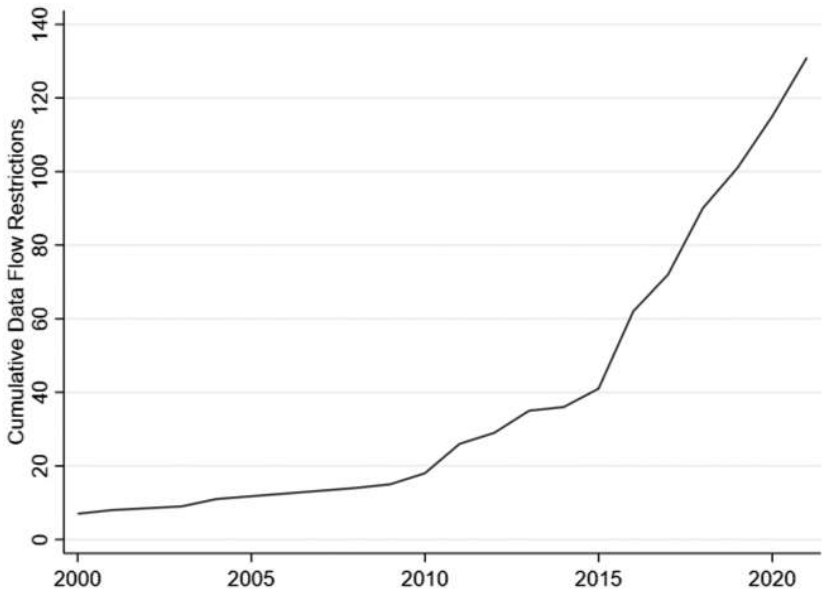

Figure 1 Global cross-border data flow restrictions. Source: Author's calculations based on original dataset (available at https://tinyurl.com/3bx4uyy7)

The argument proceeds in four steps, with a section devoted to each. Section 2 explains how unique characteristics of data, the central factor of production in the digital economy, inflame distrust over the merits of globalization. I highlight the central role of value chains built to monetize cross-border data flows – digital value chains (DVCs) – in new political conflicts and debates. Section 3 documents ways in which governments respond to digital economy concerns with policies that increase the costs of cross-border digital transactions. (As illustrated in Figure 1, impediments to digital trade are sharply increasing.) Section 4 outlines a framework for explaining political support for digital trade restrictions, and assesses the degree to which prevailing models of goods trade restrictions apply to digital services. Section 5 examines the prospects for international cooperation over digital globalization. To overcome sources of resistance and distrust, I contend that countries must coordinate to some degree on regulatory matters beyond the traditional scope of international trade policy.

A central theme of the Element is that digital globalization represents a paradigm shift in international economic governance. In the previous phase of globalization, characterized by goods production and trade, governments lowered trade barriers in order to integrate their economies into global production

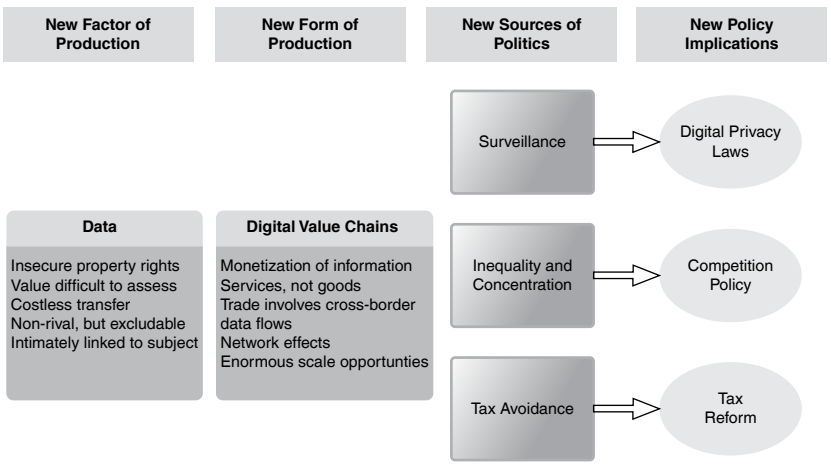

Figure 2 Data, digital value chains, and the new politics of globalization

networks (Baldwin, 2016; Goldstein et al., 2007; Subramanian and Wei, 2007). Integration mainly required coordinated *liberalization* – of tariffs primarily, but also of barriers to international investment. In the current era, 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.

Regulation is necessary because digital globalization raises a novel set of political conflicts and concerns emanating from DVC activities. First, the collection of personal information, a central input in digital services, raises privacy and other human rights concerns. Second, giant tech companies' market dominance leads to questions about competition and undue corporate 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. Political conflicts arise because the global digital economy is missing institutional guardrails – the rules have not kept up with technology.

To alleviate sources of popular resistance to DVC activities, countries will need to coordinate around at least three main policy issues that the rules-based multilateral trade regime currently overlooks: privacy, competition, and taxation (see Figure 2). Absent global coordination in these areas, governments will continue to construct barriers to digital integration, further imperiling international economic cooperation.

This regulatory convergence requirement represents what I call the digital globalization paradox. For digital economies to integrate without political backlash, countries must build a common set of institutional foundations that constrain the activities of the most dominant digital firms. For digital

globalization to achieve sustainable public support, it will require some convergence on policies for which cooperation has no precedent. Paradoxically, for digital globalization to flourish, the multinationals that currently dominate digital markets must first be restrained.

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 (Bacchus, 2022; 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 constrain some of the activities of powerful firms. The outcome of conflicts over rules governing the digital economy will define international economic relations for the rest of this century.

The challenge for DVC firms is also immense. To succeed in the digital economy, firms must expand: economies of scale and scope drive growth. Gaining these size advantages often requires collecting and processing vast amounts of data. As I will show, political tension emanates from a business model that relies on a central input – data – for which global rules have yet to be written. Digital value chains have benefited from a permissive regulatory environment with undefined property rights over data. Weak institutions advantage first movers and incumbent DVC firms. When DVC firms get too big, their size and power inspire political demands for new regulations to constrain them. Politics will ultimately determine the rules for digital trade, and so digital firms will remain active political actors, monitoring and resisting policies that threaten their growth.

The task ahead for globalization scholars is complex. The data dimension in globalization challenges existing frameworks. I argue that digital globalization provokes new policy demands and reshuffles political coalitions in ways that workhorse models fail to explain. I introduce a new framework to explain the digital trade preferences of firms and individuals, and the digital governance strategies that countries pursue.

Crucially, the DVC generates political conflicts over policies that were previously considered distinct from international trade. Consumer data privacy is a new fault line that falls outside of standard political economy frameworks. Concerns about the erosion of human rights such as privacy arise alongside the technological capability to track, predict, and even influence individuals' behavior (Susskind, 2022; Véliz, 2020; Zuboff, 2019). These capabilities were virtually nonexistent when political economy models were developed to explain trade in goods. Existing political explanations for trade policy focus

on narrow economic interests (Baccini et al., 2019; Frieden and Rogowski, 1996; Grossman and Helpman, 1994; Kim, 2017; Kim and Milner, 2019; Owen, 2017), but digital trade generates political demands and divisions that are sometimes motivated by noneconomic 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 (UNCTAD, 2019, 2021). 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 shift profits in digital intangibles like intellectual property, user data, and software (Aslam and Shah, 2021; Eden et al., 2019; UNCTAD, 2019). Finally, digital automation raises concerns over layoffs and the future of work, especially in the context of high industry concentration and wealth inequality. These novel political divisions force us to reassess the ways in which technology and business strategy shape international economic relations.

This Element does just that. It charts new directions for future research on the global politics of the digital economy and has four objectives: (1) to explain digital globalization and the new sources of political friction it creates; (2) to document the rise of policy barriers to international information flows; (3) to present a framework to explain digital trade restrictions across countries; and (4) to assess the prospects for international cooperation on digital governance.

This Element proceeds in four subsequent sections. Section 2 introduces the analytical framework from first principles: technology, the DVC, 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.

Section 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 (DSTs). I introduce a novel dataset that captures digital trade impediments around the world.

Section 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 shaping digital trade restrictions, including the influence of powerful firms and coalitions, social norms and values, and political institutions.

Section 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 section lays out the institutional prerequisites for global cooperation in the digital era. It concludes with a discussion of topics for future research.

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. The international expansion of digital business models involves cross-border data and information flows, enabled by the Internet. This Element centers digital globalization in the cross-border economic activities of data-driven firms.

The driving force behind digital globalization is an economic structure called the DVC. A DVC transforms digital information into value. Digital information, or data, includes anything that can be encoded as bits (Goldfarb and Tucker, 2019; Shapiro et al., 1999). Through the collection, storage, and analysis of data, DVCs monetize information by converting it into services for sale either directly to consumers (business-to-consumers, B2C) or to other businesses (business-to-business (B2B)). These services include, among other things, a host of "digitally native" activities such as personalized advertising, market forecasting, e-commerce platform operations, and cloud services (UNCTAD, 2019). They also include traditional business services such as consulting, health care, and software services that are digitally delivered.

This section argues that the global expansion of DVCs creates novel political pressures – both within and across nations. My argument proceeds in three steps. First, I demonstrate how data, the central input into DVCs, 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 achieve and maintain their economic dominance by gathering personal information about individual consumers.

The novel forms of data-driven value creation ignite the politics of digital globalization. In the third step of the argument, I show that DVC activities reveal key institutional deficiencies related to the protection of personal privacy, the fairness of the global tax regime, economic inequality and concentration, and automation's impact on the future of work. These deficiencies threaten the integration of national digital economies – digital globalization – because they create incentives for governments to restrict data flows across borders in response to political pressures from their citizens. But before examining these policy restrictions and their political motivations, I introduce some conceptual foundations.

The Organization 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 B2B component of digital trade. For example, businesses digitally trade *intangibles* – including intellectual property, software, and data – with firms in other countries (Branstetter et al., 2019).[2] 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 trade in goods, some services transactions require the consumer and the producer of the service to be in the same physical location (e.g., haircuts). Yet digital platforms, and technologies such as blockchain, a digital ledger of transactions, facilitate contractual relationships for services exchanged over the Internet. In this way, technology is alleviating the proximity burden of many services transactions (Baldwin, 2019; Jensen, 2011).

Figure 3 illustrates the share of digital services in total services exports among the world's largest economies.[3] It demonstrates that worldwide digitally deliverable services accounted for 63 percent of total services exports in

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

[3] The data are from UNCTAD, and digitally deliverable services are "an aggregation of 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." These are UNCTAD calculations, based on UNCTAD and WTO datasets on international trade in services. See https://unctadstat.unctad.org/ for additional details.

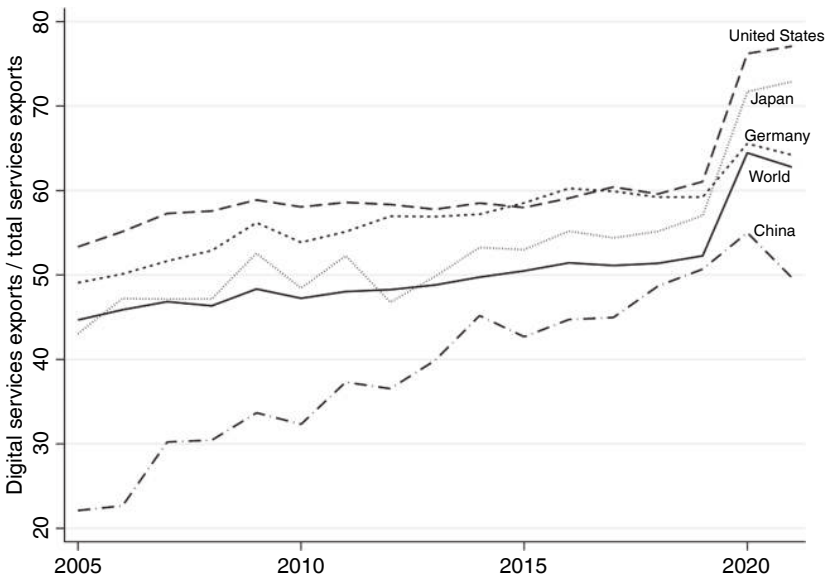

Figure 3 Digital services exports. Data from https://unctadstat.unctad.org/

2021, an increase of 40 percent since 2005. The figure also shows a massive 127 percent increase in China's digital services share since 2005. Also notable is the global uptick in 2020, which reflects how the COVID-19 pandemic accelerated the digital delivery of services (Borchert and Winters, 2021; Sarah, 2021).

Other international data transfers are not considered 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 3D printers. In addition, Internet-of-Things (IoT) – consumer products 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)