Data Regulation through Trade Agreements: Assessing the Emergence of Distinct Regulatory Regimes

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Diffusion of data rules across trade agreements potentially leads to the emergence of distinct data regulatory regimes that fragment global data governance. While China, EU, and the US are seen to have distinctive approaches towards data regulation, whether this translates into distinct regimes in global data governance is an emergent phenomenon. To examine whether global data governance is fragmenting into distinct regimes or converging towards harmonised rules and standards, this paper analyses the scope and extent of legalisation of data provisions across trade agreements since 2000. The findings show that, contrary to prevailing expectations in scholarship about fragmentation in global data governance, distinct data regulatory regimes are not emerging at the global level. Nonetheless, the agreements signed by these major actors are characterised by different priorities. While there is a common emphasis among the agreements on the issues of data protection and the free movement or transfer of data or data flows, there are differences in the relative prioritisation of these issues and how exactly these issues are governed. Further, the majority of data provisions originate in trade agreements involving the US, signalling the prominence of the US as a rule-maker in global data governance. The role of China and the EU in rule-promotion pales in comparison. The findings have implications for understanding rule-making in digital trade governance.

Introduction

The diffusion of data rules across preferential trade agreements (PTAs) precipitates the potential emergence of distinct regulatory regimes in global data governance. PTAs advance new data rules that seek to address needs resulting from a rapidly evolving digital trade environment. The United States-Mexico-Canada Agreement (USMCA), for instance, is widely regarded as the "absolute gold standard" for its cutting-edge digital trade provisions including those related to data (Reuters, 2019). Novel data rules concerning cross-border use, transfer, and protection of data have been pioneered and are increasingly adopted in PTAs in the last two decades (see Figure 1). Yet, where countries diverge on their preferences on data regulation and thus uptake of data rules in agreements, the spread of data rules could give rise to separate regimes that regulate data differently (e.g. Ferracane & van der Marel, 2021. The emergence of distinct regimes of data regulation at the global level threatens to fragment global data governance. Whether global data governance heads towards fragmentation or overcomes regulatory heterogeneity is central to countries' ability to leverage growing cross-border data flows for growth in a burgeoning digital economy. In this view, this paper examines the question: are distinct regulatory regimes emerging in global data governance?

The distinctive approaches of China, the European Union (EU), and the US towards data regulation raises the question of whether their respective data regulatory models are translating into distinct regimes at the global level. Extant scholarship emphasise the differences among the domestic legal frameworks of China, EU, and the US (e.g. Aaronson & Leblond, 2018; Gao, 2019a; Paulo & Dekker, 2021). Seen as front-runners in data governance, these major economies adopt data regulatory models which deviate in terms of their restrictiveness on cross-border data transfers and processing as well as the extent of government regulation, among other defining features (e.g. Gao, 2019b; Gao, 2021).[1] With regards to cross-border data flows, for instance, the US's model emphasises the free flow of data and limits data localisation, while the EU's and China's approaches are more restrictive (Ferracane & van der Marel, 2021).

To the extent that these major actors in the global economy export domestic rules into trade agreements, on issues including but not limited to data regulation, PTAs are a channel through which major actors are able to shape the global regulatory environment. The "Brussels effect" where the standards of the EU shape global standards as a result of the externalisation of its rules through trade agreements and other multilateral channels is one example of such regulatory influence. The EU's European Data Strategy and China's Global Data Security Initiative are suggestive of strategic goals of norm- or standard-setting in the digital domain (Paulo & Dekker, 2021). Besides, copying-and-pasting or boiler-plating in PTA formation, where PTAs replicate the content of existing

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[1]Ferracane & van der Marel, 2021 offer a taxonomy of data regulatory models and their defining features.

PTAs (Allee & Elsig, 2016; Peacock & Snidal, 2019), provide incentives to be first-movers in inking agreements in order to set the agenda on data rule-making.

Figure 1. Data provisions in PTAs over time
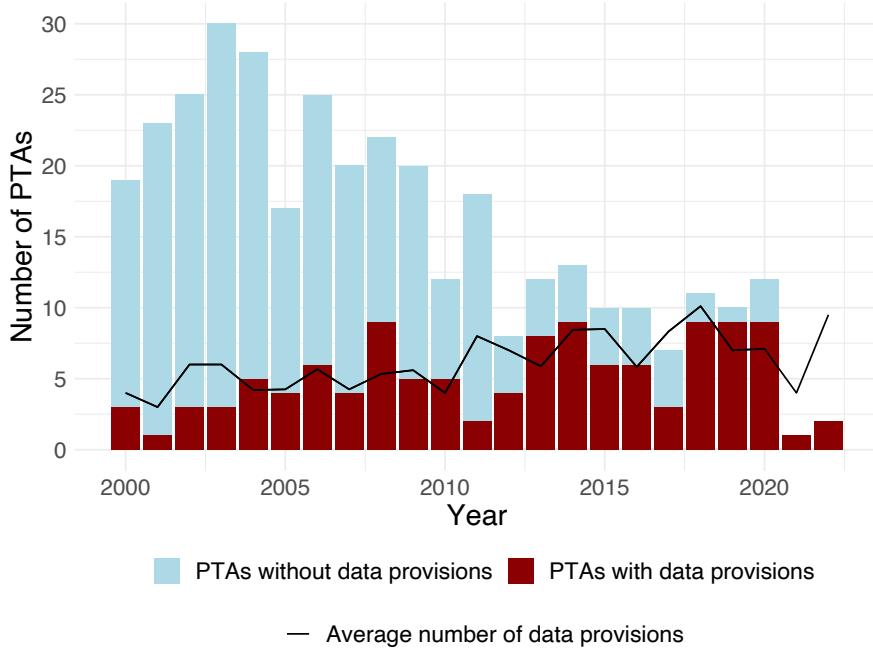
Note: This illustrates the increasing prevalence of data provisions across PTAs signed since 2000. Both the total number of PTAs that contain data provisions and average number of data provisions per PTA has increased over time. Source: TAPED dataset (Burri et al., 2022).

Already, recently concluded landmark agreements centered around these major actors are widely perceived to reflect their respective approaches towards data regulation. Features that impose restrictions on cross-border data flows, such as exceptions that reduce constraints on government regulation, or localisation requirements, are more prominent in the Regional Comprehensive Economic Partnership (RCEP) than in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) or other trade agreements (Hufbauer & Hogan, 2021). Just as the CPTPP, which is the successor agreement of the now defunct US-led Trans-Pacific Partnership (TPP), reflects US's sticking points with regards to digital trade, the RCEP signals China's digital trade priorities. The differences between the RCEP and CPTPP are thus seen to reflect China's more restrictive approach towards data as compared to the US. This divergence between the RCEP and CPTPP is emblematic of different data regulatory models diffusing through PTAs and potentially bifurcating the global regulatory environment.

To examine whether distinct regulatory regimes are emerging in global data governance, this paper analyses the scope and extent of legalisation of data provisions in PTAs. Descriptive network analysis is also used to examine the presence of regimes in global data governance. If distinct regimes of data regulation were developing in the

global realm, clusters of countries subscribing to similar data rules should form. Put differently, each of these clusters should be characterised by different principles of data governance which are aligned to China, EU, and the US respectively. The analysis utilises the Trade Agreements Provisions on Electronic-Commerce and Data (TAPED) dataset which covers 379 trade agreements since 2000 (Burri et al., 2022).[2] A total of 134 PTAs contain provisions on data regulation. These provisions pertain to cross-border use, transfer, and protection of data.[3]

Table 1. Summary Statistics of Agreements

Total number of agreements	379
Total number of agreements that contain data provisions	134
Total number of parties across agreements	163
Total number of parties across agreements that contain data provisions	69

Source: TAPED dataset (Burri et al., 2022)

Rules on the cross-border use, transfer, and protection of data is central not only to digital trade but also to trade in goods and other services. Data is already indispensable to global economic activities with the digitisation of assets and integration into a digital ecosystem. Global data flows are estimated to contribute up to US$11 trillion to global GDP by 2025 (International Chamber of Commerce, 2022). By addressing critical issues such as cross-border data flows, data localisation, and data privacy, data provisions in PTAs are at the forefront of shaping trade governance for the digital trade era. Understanding the current landscape of data rules offers insights into how to navigate rule-making in digital trade governance. Existing data rules reflect areas of consensus and where rules are weakly legalised or absent, this suggests areas that are difficult to negotiate or possibly sticking points for governments.

This paper is motivated by several strands of literature. First, an enduring interest in the institutional design of PTAs (e.g. Bearce, Eldredge, and Jolliff, 2016; Baccini, Dür, and Elsig, 2014) such as the scope and extent of legalisation of agreements offers a framework to examine a set of cutting-edge provisions on data regulation. Examining the design features of data rules offers a preliminary probe into the potential impact of data regulation on trade, including whether data rules facilitate trade or pose familiar behind-the-border obstacles to trade (e.g. Aaronson, 2019). This analysis also speaks to whether prevalent understandings about the design of international institutions, such as the relationship between depth and flexibility (e.g. Bearce et al., 2016; Baccini, Dür, & Haftel, 2015) extend to data rules.

Second, the literature of regime complexity raises questions about the diffusion of

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[2]This analysis uses the November 2022 version of the dataset.

[3]Following the TAPED dataset's categorisation of data-dedicated provisions, there are four categories of data provisions: data flows, data protection, access to electronic government (e-government) information, and data innovation.

rules. In a domain of multiple, overlapping PTAs, data rules emerge in a dense regulatory landscape characterised by mature rules on a plethora of other issues. Who are the rule-takers or rule-makers? How do rules diffuse and why? Which rules? Even where the design of PTAs relies on existing templates and diffusion occurs by a "template-based process" (Allee & Elsig, 2019; Allee & Lugg, 2016), PTA formation is the result of a strategic process with commitments having substantive consequences for signatories. The spread and adoption of provisions across signatories and agreements is not agnostic to the broader political economy, especially in the domain of data regulation where rule-making is nascent. This paper thus offers a preliminary probe into the direction and extent of diffusion of data provisions across PTAs. This contributes to understandings of whether regime complexity leads to conflictual or cooperative behaviour as well as fragmentation or harmonisation of rules.

This paper is organised as follows: first, the paper discusses existing theoretical and empirical expectations on the emergence of distinct regulatory regimes in global data governance. The paper then proceeds with a discussion of the overall distribution of and variation in data provisions in PTAs. This is followed by an analysis of whether distinct data regulatory regimes are emerging across agreements. The characteristics of the PTAs of China, EU, and the US are also discussed. The paper concludes with a discussion of areas for future research.

Rule-making through trade agreements

Diffusion of trade rules

Trade rules diffuse through trade agreements. Conventional wisdom about the formation of trade agreements emphasise how countries turn towards existing institutional models as templates that are then replicated or referenced (e.g. Kim and Manger, 2017; Baccini et al., 2015; Allee and Elsig, 2016). The diffusion of trade rules across trade agreements occur as states incorporate provisions from existing PTAs into their new PTAs. In terms of digital trade provisions, the Jordan-US Free Trade Agreement in 2001 introduced a vast number of digital trade provisions while subsequent agreements largely replicated these provisions and made only incremental innovation (Lee, Banh, & Tan, 2023).[4]

Trade agreements are not only a channel for the diffusion of trade rules but are also a vehicle through which countries propagate regulatory frameworks. Extant scholarship finds that governments have used PTAs as mechanisms to diffuse norms and policies across borders. For instance, the US's norms on environmental policy-making are em-

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[4]Using the categorisation of provisions by the TAPED dataset, Lee et al., 2023 finds that the Jordan-US FTA introduced 29 novel provisions related to digital trade provisions. Most of the subsequent agreements (with some exceptions) introduced only 1 to 3 new provisions.

bedded in the North American Free Trade Agreement (NAFTA), the Central American Free Trade Agreement (FTA), and the US-Peru Trade Promotion Agreement (Jinnah & Lindsay, 2016). To the extent that global data governance is a nascent domain for international rule-making, setting the rules on data regulation presents an opportunity for countries seeking to shape the global regulatory environment. Where governments "pushing their regulatory ideas and templates" (Elsig & Klotz, 2021, 1) have divergent priorities and approaches towards data regulation, this potentially undermines the harmonisation of global data rules across countries. In the broader context of fostering a coherent digital trade governance regime, differing rules on data regulation affect the interoperability of standards and systems related to digital trade.

First- or early-mover advantage in rule-making in trade agreements provide incentives for leaders of institutional models of data regulation to influence the spread of their respective approaches towards data. Major economies have incentives to partake in "global regulatory races" for several reasons (Bradford et al., 2019; Solís & Katada, 2015). The significance of initial conditions in the relative diffusion of provisions where the dependence of countries' initial choice of commitments in PTAs on their later preferences (Kim & Manger, 2017) points towards the stakes of disseminating new rules for "trend-setting countries" (Solís & Katada, 2015). The impact of preceding trade rules on subsequent PTAs is illustrated in the choice of modalities in services liberalisation (Kim & Manger, 2017), environmental provisions (Morin et al., 2019), among others. Collectively, earlier agreements also generate "network pressures" (Milewicz et al., 2018) such that later agreements converge to existing standards. The potential for regulatory frameworks at the international level to be incorporated into domestic law and policy (Jinnah & Lindsay, 2016) lends further salience to rule-making in the international domain.

Global data governance: are distinct regulatory regimes emerging?

Early scholarship on data regulation argues that there are distinct regulatory approaches among the major players in the global economy. These models are centered around China, EU, and the US (Aaronson, 2019). In contrast to the US's preference for deregulation and the free flow of information, China's data regulation model favours heavier government regulation and the EU's model is characterised by a strong emphasis on privacy protection (Gao, 2019a; Gao, 2021). Central players in the network of trade agreements are potential rule-makers on data regulation who shape the diffusion of regulatory models in global data governance (Elsig & Klotz, 2021).

However, variation in the content and level of commitments on data regulation across signatories and agreements suggests that signatories may not be committed – in principle or otherwise – to particular models of data regulation but instead tailor commitments across each agreement. Put differently, even if there are distinct regulatory models

centered around leading actors in data rule-making, there may not be a systematic convergence of all other players in the global regulatory environment towards certain preferred models and thus leading to the emergence of regimes at the international level.

Whether global data governance is fragmenting into distinct regulatory regimes or converging towards coherent rules affects regulatory outcomes which has profound implications on trade and growth. On the one hand, if leading actors in data regulation supply the global regulatory environment with more stringent regulations, this may lead to an upward regulatory harmonisation. Blümer et al. (2020) finds that countries with more stringent environment regulations and stronger bargaining power vis-à-vis their trading partners may pursue stronger commitments in PTAs in order to level the playing field. These rules and standards, however, may be untenable for developing countries or countries with lower capacities for data regulation.

This has several potential implications. First, a race to the top, where data flows from countries with lower standards to those with higher ones could ensue (OECD, 2015, 16). Instead of facilitating the digital economy, this exacerbates a digital divide in the global economy. Conversely, regulatory competition could also lead to a regulatory race to the bottom, where data rules in trade agreements facilitate data protectionism as opposed to free and/or secure flow of data. Third, the challenges of implementing stringent data rules could encourage a reliance on exceptions that provide flexibility for (developing) countries but also weaken commitments. This in turn undermines regulatory harmonisation. Liu, Sengstschmid, & Ge (2023) find that despite the inroads made on data rules in mega-regional deals like the CPTPP and RCEP, there is limited progress in harmonisation of data regulations across signatories because of the prevalence of exceptions for countries like Vietnam.[5]

Data rules in trade agreements

Data protection

The most highly replicated data provisions across trade agreements are provisions related to data protection (see Table 2). Commitments on data protection were also the first issues on data regulation to be included in trade agreements (see Table 3). These were first mentioned in the Jordan-US FTA which reaffirmed the principles in the US-Jordan Joint Statement on Electronic Commerce.[6] The Joint Statement articulates a commitment to "[e]nsuring the effective protection of privacy with regard to the processing of personal data on global information networks is necessary as is the need to

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[5]Vietnam has a two-year exclusion period under the CPTPP and a five-year exclusion period under the RCEP (Liu et al., 2023).

[6]Article 7: Electronic Commerce.

continue the free flow of information".

Alongside general provisions on data protection, commitments which recognise specific key principles and international standards are also prevalent across agreements. These could take the form of direct references to specific data protection laws or regulations from certain countries or regions. One prominent example is the use of the General Data Protection Regulation (GDPR) in the EU as a benchmark for data protection practices. Such commitments could also involve an acknowledgement and recognition of key data protection principles laid out in existing international standards. These principles include consent, purpose limitation, and security.

These provisions also reference international frameworks on data protection. For instance, the US-Jordan Joint Statement on Electronic Commerce references the Organisation for Economic Co-operation and Development (OECD) Privacy Guidelines as a basis for policy development.[7] The OECD Privacy Guidelines, which is recognised as the global minimum standard for privacy and data protection, emphasises that personal data is processed in a transparent manner and that this should be retained for no longer than necessary (OECD, 2023). References to frameworks like the OECD Privacy Guidelines that reflect international consensus and provide a guidance on legislation and policy facilitate the consistency of domestic frameworks and their alignment with established best practices. This in turn promotes harmonisation of data protection standards and practices across jurisdictions.

Provisions that limit or prohibit the use of data localisation requirements as a pre-condition for doing business in a partner's jurisdiction are also prominent across trade agreements. The prohibition of data localisation requirements aims to prevent countries from imposing strict mandates that require data to be stored, processed, or managed exclusively within their national borders. For instance, the USMCA stipulates that "no Party shall require a covered person to use or locate computing facilities in that Party's territory as a condition for conducting business in that territory".[8] The inclusion of such provisions in trade agreements enable signatories to avoid unnecessary restrictions on data flows. The inclusion of such provisions in trade agreements may be driven by different motivations: signatories may seek to avoid unnecessary restriction on data flows, reduce costs for businesses, or enhance data security. By allowing data to be stored and processed outside the borders of the jurisdiction in which businesses operate in, this avoids duplication of infrastructure such as data centers which are costly to establish and maintain. Data storage in a foreign jurisdiction also increases the risks of data breaches.

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[7]US-Jordan Joint Statement on Electronic Commerce, Section 2: Policy Issues.
[8]USMCA, Article 19.12: Location of Computing Facilities.

Table 2. Data Provisions in PTAs

Provision	Total	Soft	Hard
Provisions on data protection	120	94	26
Reference to the transfer of data or data flows in the financial services chapter/provisions	85	0	85
Provision on the free movement of data outside the dedicated e-commerce/digital trade chapter	81	6	75
Reference to the transfer of data or data flows in the telecommunications chapter/provisions	76	3	73
Provisions on data protection with no qualifications	69	63	6
Provisions on data protection according to domestic law	61	18	43
Provisions on data protection as a least restrictive measure	61	6	55
Provisions on data protection recognising certain international standards	53	20	33
E-commerce/digital trade chapter include a provision on the free movement of data	45	23	22
Reference to the transfer of data or data flows in audiovisual chapter/provisions	44	11	33
Provisions on e-government	40	37	3
E-commerce/digital trade chapter contain a provision banning or limiting data localisation requirements	27	2	25
Provisions on data protection recognising certain key principles	24	16	8
Reference to the transfer of data or data flows in computer and related services (CRS) chapter/provisions	24	0	24
Provision on open government data or open data	12	12	0
E-commerce/digital trade chapter contain a mechanism to address barriers to data flows	11	5	6
Provision banning or limiting data localisation requirements outside the dedicated e- commerce/digital trade chapter	9	0	9
Mechanism to address barriers to data flows outside the dedicated e-commerce/digital trade chapter	5	2	3
Provision on a future discussion/provisions or agreement on the free flow of data	3	1	2
Provision on a future discussion/provisions or agreement on the free flow of data outside the dedicated e- commerce/digital trade chapter	0	0	0
Provisions on e-government	0	0	0
Provision referring to data innovation, allowing data to be shared and reused	0	0	0

Notes: 'Soft' provisions are non-binding or weakly legalised obligations and 'hard' provisions are legally binding obligations. Source: TAPED dataset (Burri et al., 2022).

Table 3. Origins of Novel Data Provisions

Agreement	Year	Provision
Jordan US FTA	2000	Provisions on data protection with no qualifications
		Provisions on data protection recognising certain key principles
		Provisions on data protection recognising certain international standards
		Provisions on data protection as a least restrictive measure
		Provisions on e-government
New Zealand Singapore CEPA	2000	Provision on the free movement of data outside the dedicated e-commerce/digital trade chapter
		Reference to the transfer of data or data flows in computer and related services (CRS) chapter/provisions
		Reference to the transfer of data or data flows in audiovisual chapter/provisions
		Reference to the transfer of data or data flows in the financial services chapter/provisions
Japan Singapore FTA	2002	Transfer of data or data flows in the telecommunications chapter/provisions
Australia Singapore FTA	2003	Provisions on data protection according to domestic law
Nicaragua Taiwan FTA	2006	Provision on the free movement of data
Colombia Peru Ecuador EU FTA	2012	Mechanism to address barriers to data flows
		Mechanism to address barriers to data flows outside the dedicated e-commerce/digital trade chapter
PAAP	2014	Provision banning or limiting data localisation requirements
Japan Mongolia FTA	2015	Provision banning or limiting data localisation requirements outside the dedicated e-commerce/digital trade chapter
USMCA	2018	Provision on open government data or open data
Australia Hong Kong FTA	2019	Provision referring to data innovation, allowing data to be shared and reused
RCEP	2020	Provision on a future discussion/provisions or agreement on the free flow of data

Note: Year indicates year signed. CEPA: Comprehensive Economic Partnership Agreement, EU: European Union, FTA: Free Trade Agreements, PAAP: Pacific Alliance Additional Protocol, RCEP: Regional Comprehensive Economic Partnership. Source: TAPED dataset (Burri et al., 2022).

Cross-border data flows

Provisions related to cross-border data flows are the second most prevalent set of provisions, following data protection provisions. These provisions primarily concern commitments to the free movement or transfer of data or data flows. References to the transfer of data or data flows in financial services chapters are the most common instances of cross-border data flows-related provisions. Related clauses or paragraphs specify that financial data or information are included in the definition of banking and other financial services referred to in commitments in the financial services chapter.

The first of such a provision was introduced in the New Zealand-Singapore Closer Economic Partnership (CEPA). Annex 2 of the CEPA states, the "provision and transfer of financial information, and financial data processing and related software by suppliers of other financial services" are forms of financial services also considered in commitments.[9] These definitions apply the relevant commitments in financial services to said financial data or information but also limits commitments in the cross-border mode of supply for banking and other financial services to these specific kinds of data.[10] These provisions also enable financial institutions to transmit data to head offices and sister branches, and allows the local central bank and financial regulatory authority on-site access to the data or information at the place where the data or information is processed.[11] Further, the provision of financial data processing services to banks and merchant banks is subject to domestic laws on protection of confidentiality of information of customers of banks and merchant banks.

Aside from references to the transfer of data or data flows in financial services chapters, references made in the telecommunications chapters, audiovisual chapters as well as other chapters outside the dedicated digital trade chapter are also highly common. Within digital trade chapters, provisions on the free movement of data provide more explicit guarantees on free cross-border data flows. A prominent example of such a clause is in the digital trade chapter of the USMCA which states that "no Party shall prohibit or restrict the cross-border transfer of information, including personal information, by electronic means".[12]

Having considered the overall landscape of data provisions and their prevalence, the analysis turns now to examine who the rule-makers in global data governance are.

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[9]CEPA, Annex 2: Services Commitments.

[10]CEPA, Annex 2: Services Commitments.

[11]CEPA, Annex 2: Services Commitments.

[12]USMCA, Chapter 19: Digital Trade, Article 19.11: Cross-Border Transfer of Information by Electronic Means.

Assessing the emergence of distinct regulatory regimes

Rule-makers, or leading actors who promote their own rules, in global data governance influence the content and diffusion of data provisions in trade agreements. Elsig & Klotz (2021) find that several countries are central to the PTA network based on the number of PTA partners they have and the number of data provisions in their agreements. These central actors in the PTA network potentially influence the diffusion of certain regulatory models on e-commerce and data flows (Elsig & Klotz, 2021, 8). In the context of global data governance, rule-promotion is reflected in the extent of innovation and diffusion of data rules across agreements. Signatories that are a part of agreements that introduce novel data provisions play a role in shaping both the scope and depth of commitments on data regulation.

Yet, while the initiation of new data provisions indicates the leadership of signatories in advancing data rules, whether these commitments are similarly undertaken by other signatories is a stronger signal of an actor's rule-making role. Widespread adoption of rules suggests a consensus among multiple signatories on the priorities, principles, and standards on issues of data regulation. Where signatories undertake similar commitments and implement relevant policies, this facilitates the emergence of regimes where there is a convergence of approaches towards data regulation and a harmonisation of data rules. This section probes both who the rule-makers are in global data governance and whether distinct regulatory models are emerging.

Who are the rule-makers?

To examine whether the distinct regulatory approaches of China, EU, and the US are diffusing into the global realm through data rules in trade agreements and shaping distinct regimes of data regulation, a network of novel data provisions is constructed. Should distinct regimes of data regulation be emerging in the global realm, clusters of countries that share similar commitments should be observed in the network. More specifically, clusters should develop based on the spread of data rules that originate in agreements involving China, EU, and the US respectively. The origin of novel provisions is identified based on the date of signature of the PTAs to which they belong.[13]

Descriptive network analysis finds that there is no clustering in the network of data provisions. Figure 2 highlights the spread of provisions that originate in agreements signed by the China, EU, and the US. Not only are there no observable clusters of

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[13]The date of signature indicates agreement among the signatories on the agreement text, the language of which could then already shape concurrent or subsequent negotiations on other agreements; the date of signature is thus a clearer indication of where provisions are first introduced instead of the date of entry into force which is a function of the domestic ratification process.

Figure 2. Network of novel data provisions
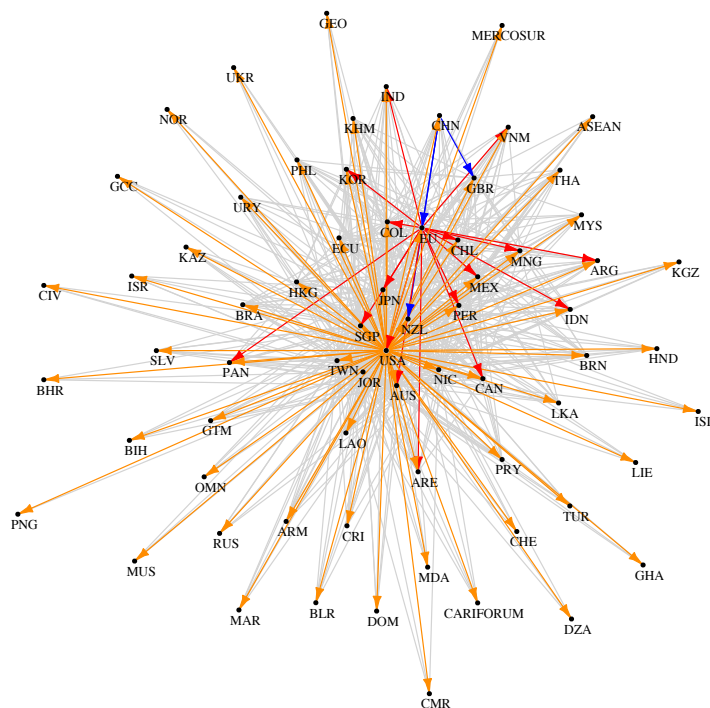
Note: This illustrates the spread of novel data provisions across signatories. Novel provisions refer to provisions that are first introduced in agreements based on the date of signature of PTAs. Novel data provisions originating from agreements signed by China, EU, and the US are highlighted. The network graph does not reveal clusters of signatories which would be suggestive of the formation of regimes in global data governance. Majority of novel data provisions that are taken up by signatories also originate in US's agreements. This suggests that US's predominance as a rule-maker. In comparison, the EU and US has lesser impact on rule-promotion with few novel data provisions introduced in their agreements and which are also taken up by other signatories. ARE: United Arab Emirates, ARG: Argentina, ARM: Armenia, ASEAN: Association of Southeast Asian Nations, AUS: Australia, BHR: Bahrain, BIH: Bosnia Herzegovina, BLR: Belarus, BRA: Brazil, BRN: Brunei, CAN: Canada, CARIFORUM: Caribbean Forum, CHE: Switzerland, CHL: Chile, CHN: China, CIV: Côte d'Ivoire, CMR: Cameroon, COL: Colombia, CRI: Costa Rica, DOM: Dominican Republic, DZA: Algeria, ECU: Ecuador, EU: European Union, GBR: United Kingdom, GCC: Gulf Cooperation Council, GEO: Georgia, GHA: Ghana, GTM: Guatemala, HKG: Hong Kong SAR China, HND: Honduras, IDN: Indonesia, IND: India, ISL: Iceland, ISR: Israel, JOR: Jordan, JPN: Japan, KAZ: Kazakhstan, KGZ: Kyrgyzstan, KHM: Cambodia, KOR: South Korea, LAO: Laos, LIE: Liechtenstein, LKA: Sri Lanka, MAR: Morocco, MDA: Moldova, MERCOSUR: Southern Common Market, MEX: Mexico, MNG: Mongolia, MUS: Mauritius, MYS: Malaysia, NIC: Nicaragua, NOR: Norway, NZL: New Zealand, OMN: Oman, PAN: Panama, PER: Peru, PHL: Philippines, PNG: Papua New Guinea, PRY: Paraguay, RUS: Russia, SGP: Singapore, SLV: El Salvador, THA: Thailand, TUR: Turkey, TWN: Taiwan, UKR: Ukraine, URY: Uruguay, USA: United States, VNM: Vietnam. Source: TAPED dataset (Burri et al., 2022).

countries, which is indicative of the formation of regimes in global data governance, but there is also significant difference in the centrality of each of these major actors in the network. The US emerges as the prominent rule-maker in global data governance with novel data rules that originate in its agreements being taken up by a vast number of other countries. The centrality of the US to the network of data provisions is further suggestive of its role and influence in shaping global data rules. In contrast, China and EU are both authors of fewer number of novel data rules and of which that have diffused across other countries (see Table A1 which shows the total number of novel data provisions that have been introduced in agreements by countries). 7 unique data provisions have been introduced in the US's agreements, whereas there are only 2 novel provisions in EU's agreements and 1 novel provision in China's agreements.[14]

The authorship of novel data rules and the spread of these rules across other countries and agreements reflect the extent of the rule-making impact of these actors in global data governance. The variation in the extent of rule-making impact of these major actors suggests that even if each of these actors have categorically different models of data regulation, their influence on data rules in the global realm and the potential of each of these models to shape the global regulatory environment differs substantially.

Diverging priorities on salient issues

Global data governance does not appear to be fragmenting into distinct regimes of data regulation where countries are systematically subscribing to particular models of data regulation. However, this does not preclude agreements among these major actors taking on particular forms. Table 4 shows the most prevalent provisions across the agreements signed by China, EU, and the US respectively. Agreements signed by these actors emphasise data protection and the free transfer of data although the prioritisation of these issues differ across each of their agreements. The level of legalisation of each of these provisions and the specific obligations within also vary across each set of agreements.

Varieties of data protection

Data protection is a priority across the agreements signed by China, EU, and the US. These provisions typically pertain to protection of personal data or personal information, or any form of data privacy. While data protection-related provisions are mostly legally binding obligations in China's agreements, majority of these are weakly legalised in the EU's and US's agreements. In its weakly legalised form, the provision indicates only 'best efforts' to ensure protection of personal data or makes reference to some form of data protection but is vague about specific obligations which make the obligation

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[14]The analysis notes that Singapore also introduces 7 novel data provisions, which is on par with the US, and other countries also achieve more novel provisions than China or EU. Given the theoretical motivation of this paper, the analysis focuses on only the impact of China, EU, and the US.

Table 4. Most Prevalent Provisions in the PTAs of China, EU, and US

Rule-maker	Total No. of Agrmts	Most Prevalent Provisions	Total	Soft	Hard
China	12	Provisions on data protection	11	3	8
		Provisions on data protection according to domestic law	6	0	6
		Reference to the transfer of data or data flows in the financial services chapter/provisions	5	0	5
		Provisions on data protection recognising certain international standards	5	1	4
		Provision on the free movement of data in the e-commerce/digital trade chapter	4	4	0
EU	23	Provisions on data protection	20	17	3
		Provisions on data protection as a least restrictive measure	18	0	18
		Provision on the free movement of data outside the dedicated e-commerce/digital trade chapter	18	2	16
		Reference to the transfer of data or data flows in the financial services chapter/provisions	16	0	16
		Reference to the transfer of data or data flows in the telecommunications chapter/provisions	14	1	13
		Reference to the transfer of data or data flows in computer and related services (CRS) chapter/provisions	14	1	13
US	15	Provisions on data protection	15	13	2
		Reference to the transfer of data or data flows in the telecommunications chapter/provisions	12	0	12
		Reference to the transfer of data or data flows in the financial services chapter/provisions	12	0	12
		Provision on the free movement of data outside the dedicated e-commerce/digital trade chapter	10	0	10
		Provisions on data protection with no qualifications	10	10	0

Notes: Most prevalent provisions refer to the provisions that are included the most often across all agreements signed by China, EU, and teh US respectively. 'Soft' provisions are non-binding or weakly legalised obligations and 'hard' provisions are legally binding obligations. Source: TAPED dataset (Burri et al., 2022).

non-binding. The provision for protection of consumer personal data in the EU-Japan FTA, for instance, states only that "The Parties *recognise the importance* of adopting or maintaining measures, in accordance with their respective laws and regulations, to protect the personal data of electronic commerce users" (italics mine).[15] This is as compared to clauses that explicitly state an obligation that signatories are required to fulfil. An example is Article 11.6 of the China-Eurasian Economic Union FTA which states, "Recognizing the importance of protecting personal information in e-commerce, the Parties *shall take measures* to grant the full-fledged personal information protection in accordance with their laws and regulations" (italics mine).[16] Although the way this data is protected could vary considerably and different legal approaches could be taken, in instances such as this, domestic law serves as the reference for the adoption and maintenance of a legal framework for protection of personal information.

Where these data protection provisions are included in China's PTAs, these tend to reference domestic law or international standards. These references could be explicit (i.e. specifies which international standards) or simply state that the protection of personal information of the users of digital trade should follow existing international standards. The Australia-China FTA, for instance, states in Article 12.8, "In the development of data protection standards, each Party shall, to the extent possible, take into account international standards and the criteria of relevant international organisations."[17] This, however, does not specify which international standard should guide the development of the legal framework for data protection. Alternatively, agreements could specify existing international organisations or bodies whose principles guide the development of a legal framework by signatories. For instance, the USMCA mentions that in maintaining a legal framework for data protection, "each Party should take into account principles and guidelines of relevant international bodies, such as the APEC Privacy Framework and the OECD Recommendation of the Council concerning Guidelines governing the Protection of Privacy and Transborder Flows of Personal Data (2013)."[18]

The most significant difference between the sets of agreements is where the data protection-related provisions in the EU's agreements emphasise data protection as a least restrictive measure. This implies that the agreement maintains the importance of compliance with data protection measures and ensures that any restrictions on cross-border flows of personal information are "necessary and proportionate to the risks presented" (Burri et al., 2022). These provisions tend to take the form of exceptions which state that "nothing in this [chapter or agreement] shall be construed to prevent the adoption or enforcement by either Party of measures: [...] necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this [chapter or agreement] including those relating to: [...] the protection of the privacy

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[15]EU-Japan FTA, Article 8.78: Consumer Protection.
[16]China-Eurasian Economic Union FTA, Article 11.6: Personal Information Protection.
[17]Australia-China FTA, Article 12.8: Online Data Protection.
[18]USMCA, Chapter 19: Digital Trade.

of individuals in relation to the processing and dissemination of personal data and the protection of confidentiality of individual records and accounts".[19] Provisions of this form allow signatories to deviate from obligations in pursuit of other legitimate objectives including but not limited, to national security, public health, or law enforcement. Despite these carve-outs that permit restrictions on cross-border flows of personal data, a least restrictive measure approach nonetheless requires that such measures are proven necessary and the least restrictive among other measures available to countries. These clauses provide a mechanism for countries to balance its trade commitments with other national or social interests. This is also consistent with the principles of the EU's GDPR, seen as the "toughest privacy and security law in the world" (Council of the EU and the European Council, 2022), which views data protection as a fundamental right.

Different priorities in the free movement or transfer of data or data flows

The agreements differ in their prioritisation of commitments on the movement or transfer of data or data flows. These provisions are less prevalent in China's agreements where only a third of which include provisions on data transfer. In contrast, almost all the agreements signed by the EU and the US contain data flows-related provisions of some form. The agreements further differ on the specific kinds of data that are covered in these commitments, depending on which chapter or provision these commitments are included in the agreement. Where these commitments on the free movement or transfer of data are included in the financial services chapters or provisions, which is common across all three sets of agreements, these pertain to permitting the financial service supplier of the other signatory to "transfer information in electronic or other form, into and out of its territory, for data processing where such processing is required in the ordinary course of business of such financial service supplier".[20] In this regard, data that are permitted to be transferred into and out of the territory could include financial information, financial data processing, or related software.

Convergence on emphasis on salient issues, divergence in priorities and content

While these agreements converge on their similar emphasis on data protection and the free movement or transfer of data or data flows, the agreements of each of these major actors are characterised by different kinds of provisions on these same issues. The differences in the content of these provisions across these agreements suggest that outcomes on data regulation in the global realm are characterised by a common recognition of salient issues but differing prioritisation of these issues and how exactly these issues should be governed.

The prioritisation of data protection alongside the free movement or transfer of data

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[19]EU-MERCOSUR Association Agreement, Article 54: General Exceptions.

[20]This is a common clause in financial services chapters or provisions, included in, for instance, Chile-EC Association Agreement (Article 122: Data Processing in the Financial Services Sector) or the EU-Armenia Comprehensive and Enhanced Partnership Agreement (Article 185: Data Processing).

is reflective of the balancing act that countries need to achieve between securing and also enabling seamless flow of cross-border data flows. Even as countries increasingly forge digital economy agreements dedicated to digital trade rules, including data rules, countries seek to both to "support cross border data flows and safeguard personal data and consumer rights" (Ministry of Trade and Industry Singapore, 2023), achieving the "free flow of trusted data" and also "guaranteed protections for personal data and intellectual property" (UK Government Digital Service, 2022). Even with common interests in safeguarding personal data, countries may deviate in how they prefer to do so: these may be binding obligations as in most of the data protection provisions in China's agreements or weakly binding as in the EU's and US's agreements. The development of domestic legal framework for data protection may also abide by the principles, guidelines, and criteria of domestic law or international standards. The constraints of countries in ceding autonomy over data regulation is also reflected in the exceptions included in a vast number of agreements.

Finally, the preceding analysis also suggests that the implementation of data rules remains prudent. The use of exceptions in trade agreements that carve-out areas in which restrictions on data flows, and also restrictions on data protection, may be permitted in spite of obligations otherwise. Exceptions provide flexibility for countries, and also allows countries to preserve policy autonomy, which may encourage participation in these agreements (von Stein, 2008). While data rule-making may seem incremental with the use of and reliance on exceptions, these mechanisms when well-defined could enhance transparency by specifying unambiguously the conditions under which deviations from data rules are permitted.

Conclusion

The proliferation of data and data flows in a rapidly evolving digital trade environment increases the need for clear and coherent data rules. Significant progress has been made by PTAs in advancing the scope and depth of data rules. Yet, the creation and diffusion of data rules across agreements and signatories precipitates the potential emergence of distinct regimes of data regulation that fragment the digital trade governance regime. By examining data provisions across PTAs, this paper probed whether the different data regulatory approaches of China, EU, and the US — major actors in the global economy and also leading actors in data governance — translate into distinct regimes in global data governance. The findings show that, contrary to prevailing expectations in the scholarship about fragmentation of global data governance, global data governance is not fragmenting into distinct regimes of data regulation where countries are systematically subscribing to particular models of data regulation.

While not amounting to distinct regimes in the global realm, the agreements signed

by China, EU, and the US respectively are characterised by different priorities. While the agreements share a common emphasis on both data protection and the free movement or transfer of data or data flows, the specific contents of these provisions differ across each set of agreements. China's agreements have a stronger emphasis on the protection of personal data and information in accordance to both domestic law and international standards. The EU's and US's agreements contain more provisions on the free transfer or movement of data, including data or data flows in financial services or telecommunications.

Notwithstanding the prevalent juxtaposition of China, EU, and the US as leading actors in data regulation given their distinct data regulatory models, the US prevails as a major rule-maker in global data governance. The role of China and EU in rule-promotion in global data governance pales in comparison to the US. Novel data provisions that originate in the US's trade agreements have diffused to a larger extent across countries, than have the novel data rules in China's or EU's trade agreements.

This paper contributes to the research agenda on rule-making in global data governance. First, the preceding analysis focuses on rule innovation and diffusion based on a relatively broad categorisation of data provisions and their extent of legalisation. The content and depth of provisions are often more complex than is captured by a dichotomous measure of the extent of legalisation. Further examining the language of these provisions will shed light on what exactly these provisions entail and where they converge or diverge. A closer examination of exceptions will also enhance understandings of countries' commitments to data regulation. Second, the relative influence of these leading actors in data regulation or "rule-makers" on the diffusion of data rules suggest that the adoption of provisions in trade agreements is not agnostic to the broader political economy. Future research would benefit from examining the drivers of rule diffusion across agreements and countries. Third, besides the diffusion of data rules in the global realm itself, examining the export of data rules from domestic legal frameworks to trade agreements will shed light on the interest groups driving the design of data rules in trade agreements. This in turn informs understandings about the potential for harmonisation of data rules.

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21

Appendix

Table A1. Signatories with Highest Number of Data Provisions in Trade Agreements

Signatories	Total	Soft	Hard	No. of Novel Provisions	No. of Agrmts. with Novel Provisions
Singapore	174	57	117	7	4
Australia	162	56	106	3	3
European Union	151	47	104	2	1
Chile	119	48	71	1	1
Korea	101	38	63	1	1
USA	100	38	62	7	2
Japan	98	37	61	3	3
UK	91	29	62	0	0
Peru	87	36	51	3	2
Canada	85	37	48	1	1
New Zealand	82	29	53	5	2
Mexico	79	28	51	2	2
Colombia	76	35	41	3	2
Panama	68	34	34	0	0
Vietnam	60	23	37	1	1
Costa Rica	54	34	20	0	0
Honduras	50	30	20	0	0
China	47	13	34	1	1
Nicaragua	44	26	18	1	1
Guatemala	42	26	16	0	0

Notes: Novel provisions refer to provisions that are first introduced in agreements based on the date of signature of PTAs. 'Soft' provisions are non-binding or weakly legalised obligations and 'hard' provisions are legally binding obligations. Source: TAPED dataset (Burri et al., 2022).

Table A2. Provisions across China's PTAs

Provision	Total	Soft	Hard
Provisions on data protection	11	3	8
Provisions on data protection according to domestic law	6	0	6
Reference to the transfer of data or data flows in the financial services chapter/provisions	5	0	5
Provisions on data protection recognising certain international standards	5	1	4
Provision on the free movement of data outside the dedicated e-commerce/digital trade chapter	4	0	4
Provision on the free movement of data in the e-commerce/digital trade chapter	4	4	0
Provisions on data protection as a least restrictive measure	3	0	3
Provisions on data protection with no qualifications	3	3	0
Reference to the transfer of data or data flows in audiovisual chapter/provisions	2	1	1
Provisions on data protection recognising certain key principles	1	0	1
Provision banning or limiting data localisation requirements	1	0	1
Provision on a future discussion/provisions or agreement on the free flow of data	1	1	0
Provision banning or limiting data localisation requirements outside the dedicated e- commerce/digital trade chapter	1	0	1
Reference to the transfer of data or data flows in the telecommunications chapter/provisions	1	0	1

Notes: 'Soft' provisions are non-binding or weakly legalised obligations and 'hard' provisions are legally binding obligations. Source: TAPED dataset (Burri et al., 2022).

Table A3. Provisions across EU's PTAs

Provision	Total	Soft	Hard
Provisions on data protection	20	17	3
Provisions on data protection as a least restrictive measure	18	0	18
Provision on the free movement of data outside the dedicated e-commerce/digital trade chapter	18	2	16
Reference to the transfer of data or data flows in the financial services chapter/provisions	16	0	16
Reference to the transfer of data or data flows in the telecommunications chapter/provisions	14	1	13
Provisions on data protection recognising certain international standards	12	3	9
Reference to the transfer of data or data flows in computer and related services (CRS) chapter/provisions	12	0	12
Provisions on data protection with no qualifications	8	6	2
Provisions on data protection according to domestic law	8	4	4
Reference to the transfer of data or data flows in audiovisual chapter/provisions	8	5	3
Provision on the free movement of data	6	4	2
Provisions on data protection recognising certain key principles	3	1	2
Mechanism to address barriers to data flows	3	2	1
Provision on a future discussion/provisions or agreement on the free flow of data	3	1	2
Provision banning or limiting data localisation requirements in the dedicated e- commerce/digital trade chapter	2	0	2
Mechanism to address barriers to data flows outside the dedicated e-commerce/digital trade chapter	1	1	0
Provisions on e-government	1	0	1
Provision on open government data or open data	1	1	0

Notes: 'Soft' provisions are non-binding or weakly legalised obligations and 'hard' provisions are legally binding obligations. Source: TAPED dataset (Burri et al., 2022).

Table A4. Provisions across US's PTAs

Provision	Total	Soft	Hard
Provisions on data protection	15	13	2
Reference to the transfer of data or data flows in the telecommunications chapter/provisions	12	0	12
Reference to the transfer of data or data flows in the financial services chapter/provisions	12	0	12
Provisions on data protection with no qualifications	10	10	0
Provision on the free movement of data outside the dedicated e-commerce/digital trade chapter	10	0	10
Provisions on data protection as a least restrictive measure	9	1	8
Provisions on data protection according to domestic law	7	1	6
Provision on the free movement of data	4	1	3
Provisions on e-government	4	4	0
Provisions on data protection recognising certain key principles	3	3	0
Provisions on data protection recognising certain international standards	3	3	0
Provision banning or limiting data localisation requirements	3	0	3
Provision on open government data or open data	3	2	1
Provision banning or limiting data localisation requirements outside the dedicated e- commerce/digital trade chapter	2	0	2
Reference to the transfer of data or data flows in audiovisual chapter/provisions	2	0	2
Mechanism to address barriers to data flows	1	0	1
Mechanism to address barriers to data flows outside the dedicated e-commerce/digital trade chapter	1	0	1

Notes: 'Soft' provisions are non-binding or weakly legalised obligations and 'hard' provisions are legally binding obligations. Source: TAPED dataset (Burri et al., 2022).