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Targeted Trade Deals As a New Form of Global Value Chain Governance¹

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8.1 Introduction

The world economy has been exposed to major structural shifts that require a continuous adaptation of its institutional framework. As highlighted in the *GVC Development Report 2021* (Asian Development Bank et al., 2021) and the *GVC Development Report 2023* (University of International Business and Economics Beijing et al., 2023), climate change, digitalization and geopolitics are reshaping the trading system. For instance, climate change requires new goods and services to be traded and causes industrial reconfigurations with significant repercussions for the trading system. The rise of services and digitalization has weakened the role of tariffs for trade costs and shifted the focus towards non-tariff measures (NTMs) in sectors that are less regulated by multilateral or regional trade agreements. The COVID-19 pandemic and current geopolitical tensions have put a spotlight on patterns of concentration in trade flows as the focus of policymakers has shifted from efficiency gains to resilience and security.

However, further international integration and an adaptation of the rules-based system have become increasingly difficult. Political support for international trade has weakened amidst a backlash against globalization. Climate change, digitalization

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and geopolitical tensions have not only resulted in the need to adapt the trading system, but they have also led some to question the benefits of an open rules-based multilateral system. In line with this, policy measures aimed at strengthening economic independence increasingly replace measures supporting interdependence (WTO, 2023). Moreover, a growing and more diverse membership in international institutions can make it more complex to find common ground in negotiations and more challenging to reach compromises. As a result, new multilateral agreements have become scarce and the speed at which new regional trade agreements (RTAs) are formed has slowed down.

Against this background, governments rely increasingly on different complementary forms of trade governance. For example, at the World Trade Organization (WTO), subsets of members negotiate within joint statement initiatives, or plurilaterals, on issues where current rules are limited. This includes agreements on the domestic services regulation, e-commerce or investment facilitation. At the unilateral level, some economies attempt to regulate carbon emissions embodied in trade flows through border adjustments. Relatedly, Chapter 5 of this report discusses the re-emergence of industrial policy to shape trade flows linked to the green transition, new technologies or critical raw material sectors.

In this chapter, we assess one such emerging form of trade governance: targeted trade deals (TTDs). We refer to TTDs as agreements that are typically sectoral or otherwise limited in scope and coverage, reflecting a targeted objective. In addition, they tend to focus on addressing regulatory barriers to trade through soft law provisions rather than formal binding agreements, which is why we consider the term deal appropriate. These instruments are also referred to in the literature as “mini deals”, “trade executive agreements” or “trade-related agreements”. Despite their often-limited formality, the trade-regulating nature of TTDs warrants closer examination to understand how governments are leveraging them to shape trade policy, and what their broader economic and strategic impacts might be. Exploring this novel dimension of trade policy can provide valuable insights into evolving global trade and value chain dynamics, as well as into the strategies WTO members employ to navigate contemporary economic and geopolitical challenges. This is particularly relevant for global value chains (GVCs), as they rely on more border crossings for their complex production networks than traditional trade.

Our analysis provides five key insights. First, TTDs are not a new phenomenon as such, but they have seen a sharp rise in the past five years. As they are subject to a relatively light implementation process, they can provide policymakers with a simple tool to address newly emerging challenges through a cooperative approach. In this regard, they can be an integral part of reglobalization, the theme of this report. For instance, TTDs can provide a regulatory structure in less regulated areas such as digital trade, or they can facilitate diversification of trade in concentrated sectors such as critical raw minerals. TTDs promote trade in a variety of sectors, or even horizontally, but we focus our analysis on digital trade and critical raw material (CRM) TTDs, as these areas

have been the primary target of the recent TTD expansion. We find that the number of country pairs, or dyads, connected through digital TTDs has increased by a factor of 35 since 2019.² Similarly, 80% of CRM TTDs have been signed between 2022 and 2024.

Second, our analysis shows that these agreements come in a variety of flavours, including formal agreements, exchanges of letters, joint statements, declarations, memoranda of understanding (MoUs), side letters and work plans. Unlike RTAs, these agreements tend to be narrowly tailored to address specific regulatory barriers or supply chain vulnerabilities. Their flexibility allows for targeted problem solving, rapid negotiation and implementation. However, they largely operate “under the radar” compared to RTAs, attracting less public scrutiny, oversight and academic analysis. For instance, TTDs are not notified to the WTO, and reporting often contains little information.

Third, TTD formation is driven by a limited set of factors clearly linked to their specific objective. Looking at both digital and critical mineral TTDs enables us to highlight the heterogeneity of TTD formation stemming from the underlying objectives of the different agreements. We find, for instance, that digital TTDs are primarily signed by governments with existing RTAs and a well-developed digital infrastructure and institutions. In contrast, CRM TTDs depend on the presence of resources in at least one party to the agreement, and institutional quality is not a determining factor. Importantly, and in contrast to many RTAs that are signed to advance regional integration, the physical proximity between two TTD signatories appears to be of less importance.

Fourth, we find support for TTDs increasing trade between the signatories in the regulated areas. The strongest evidence of TTDs having a systematic effect on trade is found for CRM TTDs, whereas for digital TTDs it is likely too early to be able to detect a similar impact. We also conduct a first analysis on the language of the legal texts of digital TTDs where we find suggestive evidence that those with binding language provisions are associated with a statistically significant increase in digitally deliverable services trade.

Fifth, we discuss how TTDs interact with the existing trade governance framework from both a multilateral and a national perspective. In light of their potentially trade-creating effects, we highlight how different provisions in existing WTO agreements relate to TTDs. We also examine their relationship to bilateral investment treaties given that CRM TTDs, in particular, are likely to stimulate not only trade, but also foreign direct investment. Finally, we point out that, while the less comprehensive negotiation and implementation process involved in TTDs offers certain advantages in addressing emerging challenges, it also raises questions as to the transparency and accountability with domestic stakeholders.

² A dyad refers to a pair of economies (e.g., France-Japan) used as the unit of analysis in studies of bilateral relations or agreements.

Our chapter builds upon and expands a small but growing literature on TTDs. The concept of TTDs was brought to the fore through Claussen's (2022) comprehensive analysis of the use of trade executive agreements (TEAs) in United States' (US) trade policy. She found that their use had substantially increased since the late 1990s and identified more than 1,200 TEAs with 130 trade partners, coinciding with the expansion of non-tariff measures (NTMs) in the trade policy toolkit. These TEAs have been predominantly used to address specific and narrowly defined trade issues, although more comprehensive TEAs have become more common since the mid-2010s. Notably, Claussen highlights that most TEAs are found to be negotiated solely by the executive branch and do not require congressional approval. While this makes them swift and targeted instruments for addressing urgent trade issues, it also raises constitutional concerns, particularly regarding the balance of power between the executive and legislative branches. Relatedly, the US Congressional Research Service published a report on congressional and executive authority over foreign trade agreements (Zirpoli, 2024) that mirrors many of the arguments made by Claussen (2022).

The signing of sectoral deals is not a development that is unique to the US. Cernat (2023) shows that the European Union (EU) has signed a large number of what he calls mini trade deals based on the EU's Official Journal database. Similar to Claussen (2022), Cernat finds that mini trade deals are often targeted at NTMs. Cernat also argues that using the term "mini" can be misleading as certain deals affect substantial trade flows, even compared to RTAs. A study by the National Board of Trade Sweden takes a global approach to conduct a mapping of TTDs (Larsson and Wennerberg, 2024). They provide a list of 114 TTDs across four domains with relevance for global value chains – resilience, digital, green and horizontal – signed between 2016 and July 2024. Another recent study, by the Africa Policy Research Institute identifies nearly 100 partnerships involving 12 external economies with various African economies concerning "critical" and "green" minerals (Beuter et al., 2025).³ The study highlights how, despite their strategic importance, these agreements generally remain vague, non-binding and difficult to access, leading to a call for increased transparency and accessibility to understand their implications. This is a common thread across all prior studies on TTDs.

In this chapter, we build on and contribute to this literature through three main contributions. First, we extend the existing mapping of TTDs by the National Board of Trade Sweden in the digital and critical mineral space. Second, we conduct the first rigorous empirical assessment of the determinants leading to their signing and of their trade effects. Third, we expand the discussion of the relationship of TTDs both with respect to international trade law and domestic policy. The chapter is organized as follows. Section 2 introduces our definition of TTDs and their distinctive nature compared to other trade policy instruments. Section 3 provides a mapping of digital

³ The study adopts a broad approach to TTDs, including any partnership related to mining and mineral resources. As a result, many of the agreements may not specifically pertain to critical raw minerals. This ambiguity makes it difficult to determine which of these agreements constitute TTDs specifically targeting critical raw minerals, which is why we conduct a more selective mapping approach in our own analysis.

TTDs and CRM TTDs and their provisions. Section 4 presents trends in TTDs and the results of the economic analysis, while Section 5 provides the analysis of the links to national and multilateral rules and regulations. Section 6 concludes.

8.2 Defining Targeted Trade Deals

The literature on TTDs uses various terms and definitions to describe alternative agreements that do not fit within the traditional framework of RTAs, partly reflecting their heterogeneous nature. Claussen (2022) was the first to extensively map these “mini” or “skinny” trade deals, coining the term “trade executive agreements” (TEAs) specific to the US legislative context. Examining EU legislation, Cernat (2023) referred to these agreements as “trade mini-deals”. Both include a wide array of legal instruments in their national mappings, including mutual recognition agreements. Meanwhile, the National Board of Trade Sweden adopted the term “trade-related agreements”, defining them as agreements between at least two governments with trade cooperation as one of the objectives, but lacking an explicit market access component or solely promoting investments (Larsson and Wennerberg, 2024).

In this chapter, we follow a similar approach to defining TTDs as in the literature, but in a more limited way, as our global perspective prevents a context-specific approach. In that regard, our definition is closest to that of the National Board of Trade Sweden. TTDs are defined as bilateral or plurilateral government-to-government agreements aimed at enhancing cooperation with a trade-related dimension, that are limited in scope, either by their sectoral focus or their market access commitments. We refer to these agreements as TTDs for three reasons. First, the term captures one key difference to RTAs, which is that TTDs tend to have more narrow objectives than broad-based economic integration. Second, it provides a neutral classification that avoids implications regarding specific legislative responsibilities, as seen with TEAs, but captures their often lighter negotiation and implementation process. Third, it moves away from labels such as “skinny” or “mini”, which might suggest insignificance even though some agreements could have important trade impacts (Claussen, 2022; Cernat, 2023). By using the term TTD, we adopt a broad and inclusive framework that captures a part of the diverse and evolving nature of modern trade governance, ensuring its applicability across various policy environments and institutional settings.⁴

The heterogeneous nature of TTDs implies that it is difficult to develop a clean definition of TTDs and that every mapping will exhibit a degree of subjectivity. We also recognize that a broad term can create ambiguity concerning what type of agreements are included within the scope. However, if we introduced a more narrow or specific term (e.g., sectoral agreement), it would exclude a lot of the agreements we have identified due to their diverse structure and scope. A broader term, such as “trade

⁴ See section 3 for more details on our definition and selection criteria.

agreements” would blend them with RTAs that have been well studied in the literature and differ from TTDs across the key dimensions we highlight above. An additional difference to RTAs worth highlighting is that TTDs, through their focus on information sharing and regulatory co-operation, tend to improve market access by addressing NTMs rather than by removing or reducing tariffs. The TTD between Japan and the US regarding a framework on domestic electronic transactions is one example of this:

“Each Party shall endeavour to a) avoid unnecessary regulatory burden on electronic transactions; and b) facilitate input by interested persons in the development of its legal framework governing electronic transactions.”⁵

As previous studies have shown (e.g., Larsson and Wennerberg, 2024), TTDs can cover many sectors and areas due to their flexible nature. In this chapter we only focus on two of these – digital and CRM TTDs. There are three main reasons why we have chosen to specifically look at these areas. The first reason is the increased importance of digital trade and access to CRMs driven by technological change, climate change and geopolitical tensions. This also explains why TTDs in these two areas have surged. Second, digital and CRM TTDs differ along several dimensions, which makes them ideal to illustrate the heterogeneous nature of TTDs. Third, given our global coverage, we need to limit the scope of the analysis in light of resource constraints. However, digital and CRM TTDs are to be considered solely as illustrative examples of the broader importance of TTDs. Moreover, while the differences between TTDs in these two areas illustrate the diversity of TTDs, conclusions based on digital and CRM TTDs might not adequately reflect TTDs in other areas. For instance, Claussen (2022) shows that TTDs for agricultural goods, often linked to standards and testing procedures, tend to be binding more frequently than the digital and CRM TTDs we have identified.

8.3 Mapping Targeted Trade Deals

8.3.1 Mapping Methodology

Using our definition of TTDs, we compiled a database that covers 185 TTDs, comprising 106 related to CRM, and 79 related to the digital economy and electronic commerce. When compiling this database, the concept of “trade-related” was interpreted flexibly, so that any agreement with a trade scope and pertaining, at least in part, to one of the sectors under study has been included in our database.⁶ The TTD database captures international trade-related cooperation mechanisms within the selected sectors, while explicitly excluding RTAs and RTA chapters covering related topics. For practical purposes, the dataset is bound by a cut-off date of 31 December

⁵ Agreement between the United States of America and Japan concerning Digital Trade, Art. 9, Para. 2.

⁶ An overview of our operationalization of the TTD definition through inclusion criteria is available in Annex 1.

2024 and TTDs signed after this date are not included in the list. It is important to note that, even within the defined period, the dataset does not claim to be exhaustive. Given the opaque nature of these trade policy instruments, it is likely that a meaningful number of TTDs remains undocumented. Nonetheless, the resulting dataset offers a novel and valuable perspective on contemporary trade policy dynamics.

The database is constructed through extensive data collection efforts, primarily relying on public sources. The hierarchy of sources was as follows:

- (1) Official documents
- (2) Joint statements
- (3) Government press releases (preferably from both sides)
- (4) News media

Whenever possible, the official TTD texts were used for the analysis, as they provide the most comprehensive and authoritative sources of information. However, due to the frequent unavailability of these documents, reliance on joint statements and government press releases was often necessary, ideally from both participating parties. In limited instances, media reports were used when no official information could be found whatsoever. To facilitate the analysis, all non-English documents were translated into English using the ChatGPT-4o model.

Regarding the target area of TTD, in the case of CRM, an agreement is included only if CRM are explicitly mentioned, or if there is a strong case that critical raw minerals form an integral part of the agreement. General agreements covering mineral resources or mining are excluded, as they could predominantly concern oil, natural gas or other minerals outside the study's scope. Nevertheless, grey areas exist and were handled on a case-by-case basis. For example, a Turkish press release regarding the 2023 MoU between Türkiye and Saudi Arabia mentions that “the deal includes mineral investments and the cooperation required for cutting-edge technology, solar panels and electric cars”. We interpret this as focusing on the critical raw minerals necessary for the green and digital transition, and hence include the MoU in our database. In the digital domain, the concept of “digital” is interpreted broadly to encompass cooperation in the digital economy and its related sub-sectors. Accordingly, digital TTDs may pertain to the digital economy, electronic commerce, key inputs like semiconductors, artificial intelligence (AI) or cross-border data flows.

The TTDs identified are then codified along multiple dimensions and, where the official text is available, its provisions are mapped. The TTD database captures the signatories, date of signing and entry into force,⁷ type of agreement, binding nature, text availability,

⁷ The date of entry into force is primarily relevant for formal agreements, which often require a period of ratification following the conclusion of negotiations.

accession status and duration of validity (see Annex 8.2).⁸ The compiled list of TTDs facilitates the identification and analysis of broader trends and patterns. The in-depth provision mapping should enable a better understanding of how governments design TTDs and provide objective measures of heterogeneity that should allow for a more detailed examination of the effectiveness of specific TTD provisions. This is akin to the approach used by the literature on deep trade agreements (see, e.g., Mattoo, Rocha and Ruta, 2020). However, in the case of TTDs, this is constrained by the limited availability of TTD texts.

8.3.2 Provision Mapping Approach

We map the provisions of TTDs to investigate the scope and breadth of the cooperation areas they cover. Given the stark differences between the critical raw minerals sector and the digital economy, the mapping was done on a sectoral basis, allowing for additional thematic insights. Since this is a first-of-its-kind approach to these types of agreements and since TTDs are more heterogeneous than RTAs, our focus lies on identifying general themes and trends.

Our rationale behind the provision mapping is based in part on prior provision mapping efforts. The CRM provisions are based on the general thematic mapping conducted by the Africa Policy Research Institute (Beuter et al., 2025). Additionally, since most TTDs establish institutional mechanisms (e.g., working groups or coordination in multilateral fora), and some provisions specifically aim to improve infrastructure and logistics, we included those themes as provisions. Annex 8.3 presents a complete overview of the seven CRM TTD provisions that are mapped. For the digital provision mapping, we took inspiration from the Trade Agreement Provisions on Electronic-commerce and Data (TAPED) dataset (Burri, Vasquez Callo-Müller and Kugler (2025)). While the TAPED database provides more granularity in terms of the provisions mapped, given our focus on the macro trends and developments, we synthesized a range of frequent digital TTD provisions into broader categories. Ultimately, we ended up with nine digital TTD provisions to map, presented in Annex 8.4.

Overall, this provision mapping offers a structured yet flexible overview of key themes in CRM and digital TTDs, tailored to the study's focus rather than aiming for exhaustive detail. Drawing on existing datasets and informed by observed patterns in agreement texts, the selected provisions reflect both commonly recurring elements and sector-specific priorities. This approach supports a comparative analysis of how WTO members shape emerging trade policy areas.

⁸ In some cases, multiple bilateral TTDs exist between the same country pair on the same topic under a shared framework. For example, the UK-Singapore Digital Economy Agreement is supplemented by seven MoUs covering related issues such as cybersecurity and digital trade facilitation. In such instances, only the overarching TTD is included in our TTD database to maintain an overview of standalone TTDs, insofar as this is possible. The number of digital TTDs would be even higher than 81 if each individual agreement were counted separately.

8.3.3 Non-Mappable TTDs

Given that the official signed TTD document is only available in less than half of the cases, we also attempt to obtain insights from the remainder of the TTDs. We run a large language model (LLM)-based general provision extraction on the source documents, such as government press releases or media reports. Using a structured prompt – unique to the sector – and employing the ChatGPT-4o model, we can distil information on the main areas of cooperation. However, we cannot make definitive statements about these contents, as ultimately we do not know the exact provisions or circumstances that were agreed upon. Moreover, governments may state the same priorities, but at times also emphasize different areas from the same MoU, depending, it may be assumed, on their respective policy contexts and priorities. Especially in the cases of press releases and news media reports, there is much diversity in the language used and the comprehensiveness of reporting. There are also instances where an MoU signing is merely acknowledged with no details about the contents apart from the main topic. We have thus decided to keep separate the analyses and interpretations from “mappable” and “non-mappable” TTDs as described in the previous and current section.

8.4 Descriptive Statistics and Empirical Analysis

Based on our database, we constructed a dyadic panel dataset where the unit of observation is a dyad-year or country-pair-year.⁹ This structure enables us to explore both the determinants of TTD formation – why specific country pairs sign TTDs – and the impact of TTDs on trade flows where sufficient post-agreement data are available. Variables are harmonized for the two areas, digital and CRM, separately. Given the timing of the first sector-specific agreements, we use adjusted temporal windows. For CRM TTDs, we cover the period from 2006 to 2024 (with the first agreement in 2011), allowing for a sufficient pre-treatment span. For digital TTDs, coverage spans 2011-2024 (with the first agreement in 2016) to maintain comparability around TTD adoption periods.

8.4.1 Additional Data Sources

We merge our TTD dataset with multiple secondary sources. These encompass bilateral trade flows, geographic and historical linkages, governance and institutional quality, and measures of strategic resource capacity. The selected indicators reflect the core determinants of bilateral trade cooperation. Economic size, geographic proximity and historical ties capture standard gravity forces that shape trade potential, consistent with the foundations of the gravity model of trade (Anderson and Wincoop, 2003). Institutional quality, political alignment and regional integration proxies help

⁹ A dyad-year refers to one observation for a pair of countries in a given year. For example, the trade relationship between France and Japan in 2015 is one dyad-year, while the same pair in 2016 counts as another.

capture the legal and institutional scaffolding that facilitates cooperation – elements emphasized in both economic integration theory and research on trade agreement formation (e.g., Limão, 2007).

Our measures of CRM endowments and digital readiness capture how sector-specific conditions shape incentives for TTD formation. For CRMs, we focus on the maximum endowment within a dyad for a year. This enables us to test whether the presence of a large, resource-rich partner is what drives cooperation and whether TTDs are used to anchor access to major suppliers. For digital readiness, we look at both the dyadic mean for a year (average preparedness) and the intra-dyadic gap for a year (asymmetry). Taken together, these measures help us distinguish whether TTDs emerge in contexts of shared capacity or serve as instruments to manage uneven development. The table below summarizes additional data used for analysis, along with their primary sources.

Table 8.1: Overview of Additional Data and Source

Digital trade in services	We measure digital trade using exports and imports of digitally deliverable services (DDS), following international guidance from the Handbook on Measuring Digital Trade (International Monetary Fund (IMF), The Organization for Economic Co-operation and Development (OECD), UN Trade and Development (UNCTAD), WTO, 2023). ¹⁰ The underlying data come from the WTO-OECD Balanced Trade in Services (BaTiS) database, spanning the period 2005-2023. ¹¹
Critical raw minerals trade	Bilateral merchandise trade in selected Harmonized System (HS)-6 codes classified as “critical raw minerals or immediate downstream products” following the ADB-WTO Trade in Critical Raw Minerals Database. Data come from the WTO Analytical Database. ¹²
Gravity controls: time-invariant controls	Standard dyadic controls – geographic distance, contiguity, common language, landlocked status, and colonial ties – are taken from the USITC Dynamic Gravity Dataset (DGD) (Gurevich and Herman, 2018). As these variables are time-invariant, we carry forward their 2019 values for the 2020-2024 period.
Gravity controls: economic size	We include GDP per capita (PPP, current international US dollars) as a measure of income level in the analysis of TTD formation, while total GDP –measured in constant US dollars – is used as a control variable in the trade impact regressions. All indicators are sourced from the World Bank World Development Indicators (WDI) API.
Gravity controls: institutional quality	To capture variation in institutional stability and regulatory quality, we include exporter-level values from the World Governance Indicators (WGI) API. Specifically, we use three components: rule of law, regulatory quality and governance effectiveness.
WTO membership	A binary indicator equal to 1 if both partners are WTO members in a given year.
Regional trade agreements	RTA dummy status is captured through a dyadic indicator equal to 1 from the year an agreement enters into force, as notified to the WTO. Source: WTO RTA Database and Mario Larch’s Regional Trade Agreements Database from Egger and Larch (Egger and Larch, 2008).
Critical raw minerals endowment	For each dyad, we take the maximum production value of critical raw minerals (in constant 1998 USD) between exporter and importer. For regression analysis, we normalize by annual world totals and take the log of the maximum global production share, ensuring comparability across years. Source: United States Geological Survey (USGS) Mineral Commodity Summaries (2024, 2025); USGS Historical Statistics for Mineral and Material Commodities (2023); BGS World Mineral Statistics (2023); Our World in Data.

continued on next page

¹⁰ https://www.wto.org/english/res_e/booksp_e/digital_trade_2023_e.pdf

¹¹ https://www.wto.org/english/res_e/statis_e/gstdh_batis_e.htm

¹² <https://ttd.wto.org/en/download>

Table 8.1: continued

Digital infrastructure capability index (DCI)	Composite index (0-centered) based on standardized values of internet users, mobile subscriptions and secure servers per capita. Constructed from WDI indicators using annual z-scores. ¹³
Shared regional bloc	Identifies whether both countries in a dyad belong to the same regional integration arrangement. Membership is time-invariant and manually coded based on bloc participation. Included blocs: USMCA, Mercosur, AfCFTA, ASEAN, EU, EFTA, SAARC and GCC.
Political alignment (“like-mindedness”)	We proxy geopolitical proximity using ideal point distances in UN General Assembly roll-call votes, sourced from version 3 of the Bailey-Strezhnev-Voeten dataset (updated through 2023) (Bailey et al., 2017).
Geopolitical sanctions	To account for bilateral geopolitical tensions, we include dyadic sanction indicator (dummy) for a year from the Global Sanctions Database (GSDB, v3) (Felbermayr et al., 2020).

Despite our efforts to collect TTD data that was as comprehensive as possible, several limitations constrained our ability to estimate the trade effects of TTDs:

- Over 80% of CRM TTDs were signed between 2022 and 2024. With only one to two years of post-treatment trade data available for some of the agreements, there is potential for imprecise estimates when attempting to identify their effects on trade flows.
- The ideal measure for CRM endowments would be reserve data. However, such estimates are not available for the large sample of economies that we analysed. As a result, we needed to rely on production data which does not capture the impact of new mining investments.
- While digitally deliverable services represent the best available proxy for digital trade, they are a noisy measure of trade flows regulated by digital TTDs. On the one hand, they exclude digitally ordered goods, platform-enabled transactions, and software-embedded exports like mobile phones, which may lead to an underestimation of digital trade effects. On the other hand, DDS includes trade flows that are digitally deliverable but may not in fact have been digitally delivered, potentially leading to an overestimation. Nevertheless, this data remains the most comprehensive and internationally comparable source currently available, as it is constructed using established econometric and statistical estimation methods rather than raw administrative records, consistent with recent best-practice recommendations for gravity modelling (Larch, Shikher, and Yotov, 2025).
- Major initiatives, such as the Belt and Road Initiative (BRI) and the EU Global Gateway, may shape the strategic logic behind TTDs, but the documentation underlying them does not lend itself to the standardized coding necessary for inclusion. As such, they are discussed narratively but excluded from econometric modelling and quantitative analysis.

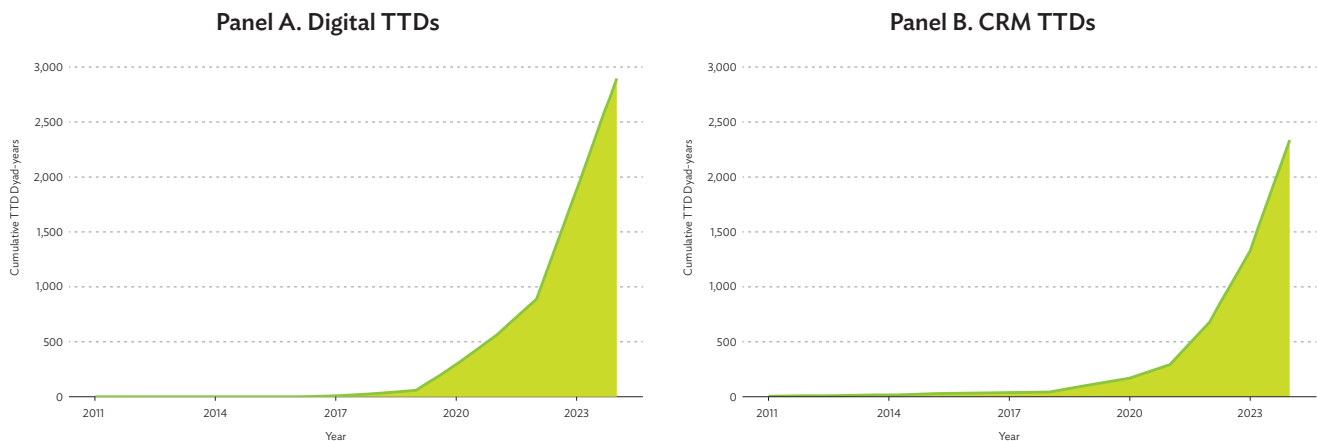
¹³ DCI aggregates three WDI indicators – internet users per 100 people, mobile cellular subscriptions and secure internet servers per million people – into a standardized country-year index. Indicators are z-normalized by year to ensure comparability. A penalized version (weighted DCI) adjusts for missing components to reflect real-world infrastructure gaps.

We include three segments in our data analysis: (i) graphical illustration of TTD adoption patterns, (ii) exploratory analysis of agreement formation patterns and (iii) regression-based estimation of determinants of trade formation and trade effects. We combine descriptive evidence, event-style diagnostics and regression results to assess patterns in TTD formation and their potential effects on trade flows across digital and CRM sectors.

8.4.2 Patterns and Trends in TTD

Our database reveals a sharp rise in both digital and CRM TTDs since 2020. Of 185 targeted deals identified, around 80% (148) were signed after 2019. We also track dyad-years cumulatively, which enables us to capture both the signing of new TTDs and the persistence of existing ones over time. Our unit of analysis for Figures 8.1 and 8.2 is the dyad-year, representing a country-pair observed in a given year. Digital TTDs grew from fewer than 100 dyad-years in 2019 to almost 3,000 by 2024, marking a clear shift toward targeted deals as a trade policy instrument. CRM TTDs have also increased sharply in recent years, reflecting growing policy attention to mineral supply security (see Figure 8.1). Together, these shifts demonstrate how trade governance in both digital and mineral sectors has undergone rapid changes since 2020. Figure 8.2 illustrates this global expansion and the widening regional spread of TTD participation.

Figure 8.1: Cumulative Adoption of Targeted Trade Deals



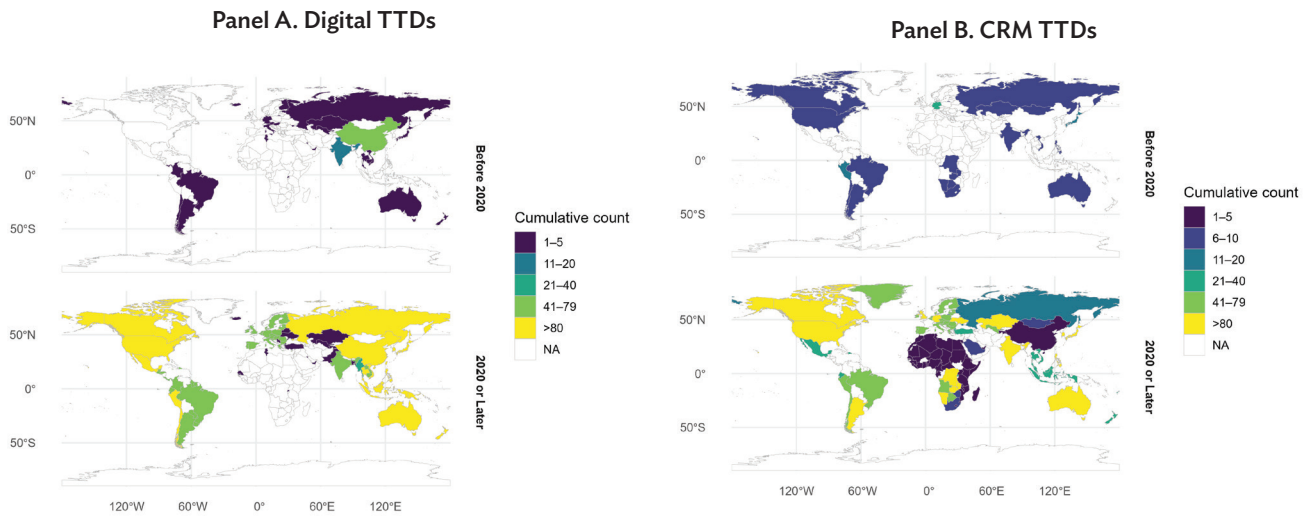
Source: Authors' calculations based on newly compiled TTD Database.

Digital TTD participation is concentrated among high- and upper middle-income economies, involving economies such as Chile, Japan and Singapore (see also Box 8.1). Regional coverage has expanded since 2020, mainly across North America, Europe and East Asia. Sub-Saharan Africa and much of the Global South are either excluded or remain marginal participants in global digital TTD activities. Cross-regional flows are concentrated in a few high-density corridors – particularly those between East

Asia and Europe and between Latin America and Europe – while South-South digital cooperation remains minimal. North-North and South-North pairings dominate, with more than 350 and 300 dyad-years, respectively, compared to fewer than 75 South-South pairings. This imbalance highlights a persistent digital divide and the risk of a fragmented global digital trade system shaped by advanced economies, with lower-income partners remaining on the margins.

CRM TTD participation is highly asymmetric across regions, actors and flows. As shown in the geographic distribution in Figure 8.2, most activity post-2020 has come from a small group of high-frequency signatories – led by the Republic of Korea, the US, Australia and the Democratic Republic of the Congo – which appear in over 50 unique dyad-years each. Regional flows remain concentrated, with the heaviest bilateral activity linking East Asia and Africa, as well as Europe and Latin America. North-South partnerships dominate the CRM TTDs landscape while South-South activity remains limited.

Figure 8.2: Global Spread of TTD Participation Pre- and Post-2020



Source: Authors' calculations based on newly compiled TTD Database.

Box 8.1: Government Perspectives on TTDs

Chile's Approach to Critical Raw Minerals and Global Value Chains

Division of Economic Analysis and Trade Policy (DAE), Undersecretariat for International Economic Relations (SUBREI), Ministry of Foreign Affairs of Chile

Chile, a global leader in copper and lithium production, plays a strategic role in shaping resilient and sustainable global value chains for critical raw minerals. These resources are essential for the green transition, including the deployment of renewable energy, electric vehicles and digital technologies. Chile is the world's leading exporter of copper concentrates (with a 29.4% share in 2024) and the second largest exporter of refined copper in the form of cathodes and cathode sections, representing 20% of total global exports; it is also the world's second largest exporter of lithium and leader in shipments of refined lithium, representing 42% of global exports of carbonates and hydroxides.

As one of the most open economies in the world, Chile has signed 35 trade agreements covering 65 markets, giving it preferential access to around 88% of global GDP. This extensive network of agreements, together with Chile's active participation in multilateral organizations, underpins its credibility as a reliable and responsible supplier in global markets.

Chile's commitment to critical raw minerals governance is reflected in several policy instruments at both the domestic and international levels. Its National Lithium Strategy sets the foundations for responsible and sustainable production, community participation, traceability and value creation through productive linkages, services and innovation. Internationally, Chile has strengthened cooperation via the 2023 Chile-EU Advanced Framework Agreement, which incorporates a chapter on energy and raw materials, and through a binational working group with Argentina under an MoU on lithium and salt flats, aiming to promote shared research, capacity building, sustainable extraction and value addition in regional value chains.

Additionally, Chile has signed an MoU with South Korea for cooperation in mining and mineral resources, including lithium (2022), and has engaged in exploratory talks and joint projects with other partners seeking secure supply chains and value added production. These initiatives exemplify how Chile links trade policy with broader global objectives, positioning itself as a key partner in sustainable and inclusive growth.

Through this approach, Chile positions itself not only as a leading exporter of copper and lithium, but also as an active shaper of international cooperation frameworks. By linking its trade policy with sustainability and reliability in supply, Chile strengthens its role as a strategic partner in global value chains critical for the green economy.

Singapore's approach to digital economy partnerships

Ministry of Trade and Industry, Singapore

Singapore's digital economy is expected to grow between US\$40-65 billion by 2030, while Southeast Asia's digital economy is on track to reach \$1 trillion in gross merchandise value, approximately four times the \$263 billion gross merchandise value in 2024.¹

Realizing this growth potential requires coordinated efforts by countries to create conducive environments for digital trade to flourish. Notably, countries have pursued different pathways to regulate the digital economy given its evolving and dynamic nature. Fragmented regulations could pose barriers for businesses to engage in cross-border digital trade. It is against this backdrop that Singapore pioneered digital economy agreements (DEAs) in 2020 to address new trade realities that were not addressed in traditional free trade agreements. Singapore's DEAs aim to put in place common rules, standards and frameworks to: (i) facilitate digital trade; (ii) ensure trusted and secure data flows; and (iii) build trusted digital systems. This would enable businesses, large and small, to improve their operational efficiency, reduce costs, have better cash flows from receiving faster payments, and enjoy greater trust in transacting in the digital economy. For instance, a case study from Lloyds Bank showed that the use of e-bills of lading helps to reduce the time taken to complete a transaction by 90%, from 15 days to just one day.²

Singapore has established a strong network of DEAs with ambitious digital trade rules thus far (Australia, the Digital Economy Partnership Agreement, the United Kingdom (UK), the Republic of Korea, the EU and the European Free Trade Association), and continues to expand this network to better connect and integrate with the global digital economy. Singapore is also a co-convenor of the WTO Joint Statement Initiative on E-Commerce, together with Australia and Japan.

¹ Google, Temasek, Bain and Company (2023) e-Conomy SEA 2024

² International Chambers of Commerce-Digital Standard Initiative (ICC-DSI) (2024) Key Trade Documents and Data Elements on the Frontlines.

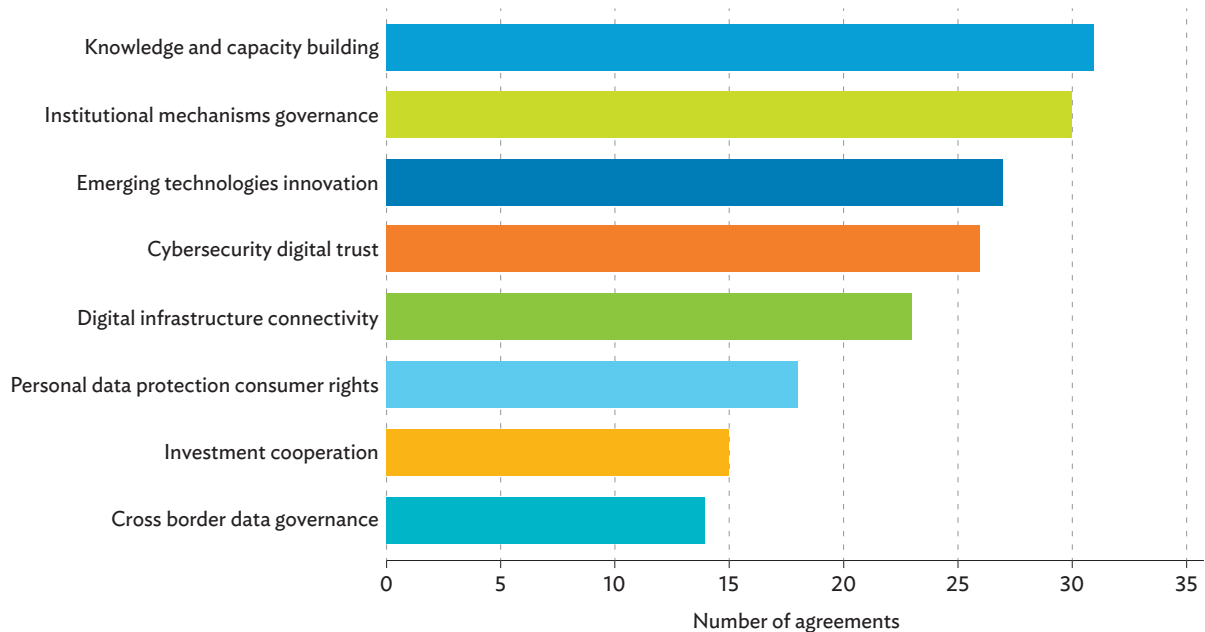
8.4.3 TTD Characteristics and Provision Analysis

Before presenting the findings of the provisions mapping, it is important to emphasize again that this analysis could only be conducted where the official texts of TTDs were publicly accessible. This is a much larger constraint than in the analysis of RTA provisions: the mapping could only be coded for about 42%, or 33, of digital TTDs and 52%, or 55, of CRM TTDs. Despite this limitation, the available texts provide valuable insights into the substance and structure of these increasingly prevalent trade policy instruments.

1. Digital TTD Provisions

Digital TTDs seek to address a broad range of policy areas under the digital economy umbrella. As depicted in Figure 8.3, core provisions shared by almost all analysed TTDs include commitments to knowledge sharing and capacity building, as well as to institutional mechanisms and governance. These features reflect an overarching emphasis on regulatory cooperation and strategic dialogue, rather than market access or trade liberalization in the traditional sense. Instead, the costs of non-tariff measures are intended to be reduced by addressing information frictions.

Figure 8.3: Presence of Various Digital TTD Provisions



Source: Authors' calculations based on newly compiled TTD Database. We mapped 33 digital TTDs; each entry shows how many of these targeted deals (out of 33) contain the respective provision.

In addition to these foundational elements, digital TTDs commonly set out areas for cooperation across different sector-specific themes. Commonly cited focus areas include emerging technologies (e.g., AI, semiconductors, quantum computing), cybersecurity and digital trust, and digital infrastructure and connectivity (e.g., data centres and submarine cables). The inclusion of these themes under TTDs reflects efforts to align trade policy with the evolving dynamics of the digital economy. In this sense, policy coordination and technological governance takes precedence over the mere facilitation of cross-border digital trade.

A distinguishing feature of digital TTDs is their relatively higher degree of formalization, particularly when compared to CRM TTDs analysed in the following subsection. In recent years, several comprehensive digital trade or digital economy agreements have been concluded. These agreements are signed as standalone legal instruments but may explicitly build upon and complement pre-existing RTAs. These comprehensive and formal digital TTDs establish new institutional frameworks and introduce detailed provisions on digital standards, cross-border data flows and fintech regulation, going well beyond the scope of traditional RTAs.

Investment provisions are less prevalent in digital TTDs. Only a minority of digital TTDs include investment-related language and, where investment is mentioned, it is typically broad and aspirational. Commitments often take the form of general encouragement or recognition of investment opportunities, rather than concrete initiatives or funding instruments. Only a handful of digital TTDs mention specific funding sources, and none contain commitments to specific investment projects. This relative absence of investment-specific provisions is perhaps unsurprising, given the intangibility and global reach of digital trade, which contrasts with the location-bound and capital-intensive nature of CRM extraction and processing. While investment may be relevant for digital infrastructure or data-related services, digital TTDs tend to focus more on standards alignment, regulatory cooperation and enabling frameworks than on financing or business linkages.

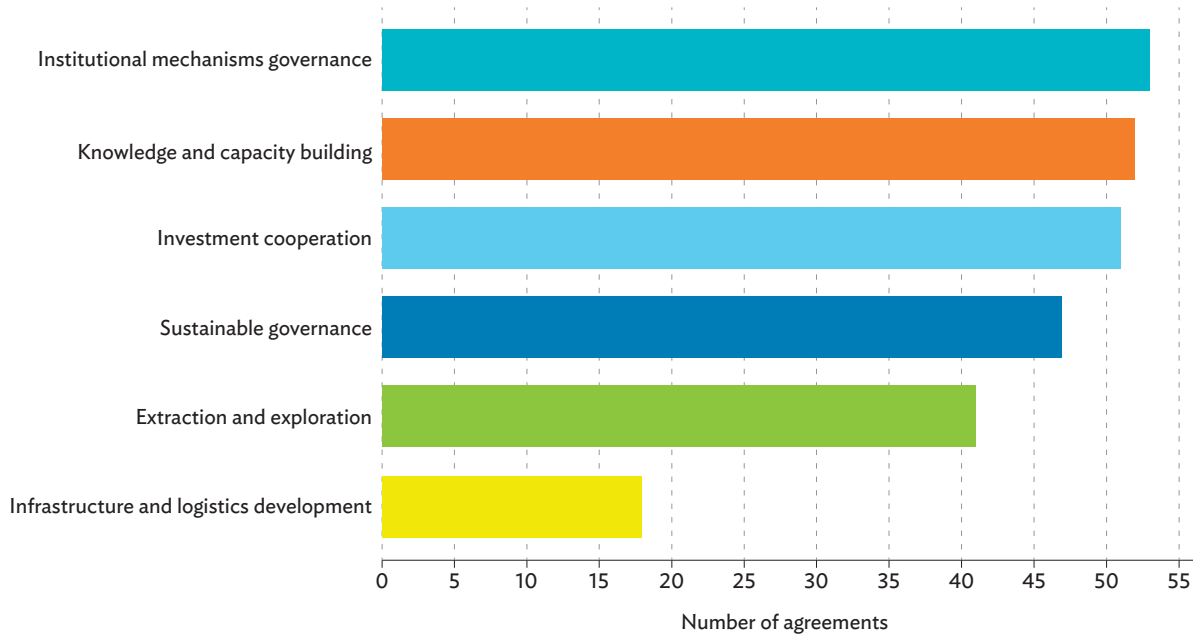
In sum, digital TTDs represent a strategic trade policy instrument aimed at shaping the future governance of the digital economy. They exhibit strong ambitious language and cover a diverse range of policy areas. However, their provisions are often phrased in broad and even vague and noncommittal terms. Few agreements provide operational detail or specify how the outlined goals are to be implemented. As a result, their practical impact remains difficult to verify based on publicly accessible information, limiting their transparency, accountability and verifiability as trade policy tools.

2. CRM TTD Provisions

Figure 8.4 illustrates the inclusion of selected provisions across CRM TTDs, revealing a notable degree of convergence in their substantive content. This uniformity is largely attributable to the widespread use of MoUs or memoranda of cooperation (MoCs),

which tend to adopt standardized, non-binding formats. These legal instruments often rely on templated structures and generalized language, contributing to a high level of similarity across TTDs, regardless of the economies involved.

Figure 8.4: Presence of Various CRM TTDs Provisions



Source: Authors' calculations based on newly compiled TTD Database. We mapped 55 CRM TTDs; each entry shows how many of these targeted deals (out of 55) contain the respective provision.

Despite diverse geopolitical and economic contexts, the scope of provisions in CRM TTDs are remarkably consistent. Nearly all CRM TTDs include references to institutional mechanisms, such as sectoral working groups or dialogues, and to technical cooperation, including knowledge sharing and capacity building. These priorities reflect a shared emphasis on upstream collaboration and strategic alignment in the context of securing CRM supply chains. Many targeted deals also invoke environmental, social or governance (ESG) goals, using language such as “sustainability”, “responsible sourcing” or “environmental cooperation”.

However, while these provisions imply a broad and coordinated agenda, the actual language used in CRM TTDs often remains generic and lacks operational detail, similar to digital TTDs. The texts rarely define how objectives, such as capacity building or environmental, social and governance (ESG) adherence, are to be achieved, by whom or within what timeframe. Institutional mechanisms are mentioned, but their structure, decision-making authority and follow-up procedures are usually left unspecified. Consequently, it is frequently unclear what practical steps are to be taken under a given agreement. Based on the published texts alone, monitoring progress or assessing implementation is virtually impossible.

A particularly illustrative example is the case of investment cooperation. As shown in Figure 8.4, the majority of CRM TTDs mentions investment. Yet, upon closer inspection, investment-related provisions are typically vague and declarative. Most TTDs refer to investment in general terms, using phrases such as “encourage” or “promote” without specifying concrete mechanisms, responsible actors or implementation pathways. Approximately one-quarter of TTDs mention potential sources of investment funding, but without making any direct commitments.¹⁴ Only three TTDs refer explicitly to tangible investment projects, two of which are linked to the Minerals Security Partnership (MSP) – an alliance between 14 nations and the EU, represented by the European Commission. Thus, while investment frequently appears in the provision mapping, its presence may often signal rhetorical intent rather than constitute a structured or enforceable framework.

Nevertheless, the lack of detail in published CRM TTDs does not necessarily imply that no follow-up activity occurs. The EU MoUs, for instance those with Chile and Zambia, are accompanied by non-public implementation roadmaps that reportedly outline cooperation measures in areas such as supply chain integration, infrastructure development, research collaboration and capacity building (Carry, 2025; Schulze, 2025). These roadmaps suggest that operational planning exists behind the diplomatic signalling found in TTD texts, albeit generally not made public. However, the confidential nature of these implementation documents poses significant limitations. Since the roadmaps are not publicly available, it is practically impossible for external observers to assess whether the agreed-upon objectives are being pursued or achieved. This lack of transparency limits independent evaluation, public accountability and informed policymaking. It also complicates evaluating the commercial value of entering such targeted deals.

Conventional agreements include clear implementation mechanisms, institutional responsibilities and public information obligations. While they may also include imprecise, non-binding provisions, their aim is generally to include a majority of precise, binding provisions. In comparison, CRM TTDs seem to rely heavily on voluntary cooperation and non-committal language, often without formal monitoring structures or implementation frameworks. As a result, even when TTDs express high-level strategic ambitions, the absence of transparency and verifiable action plans could undermine their long-term effectiveness.

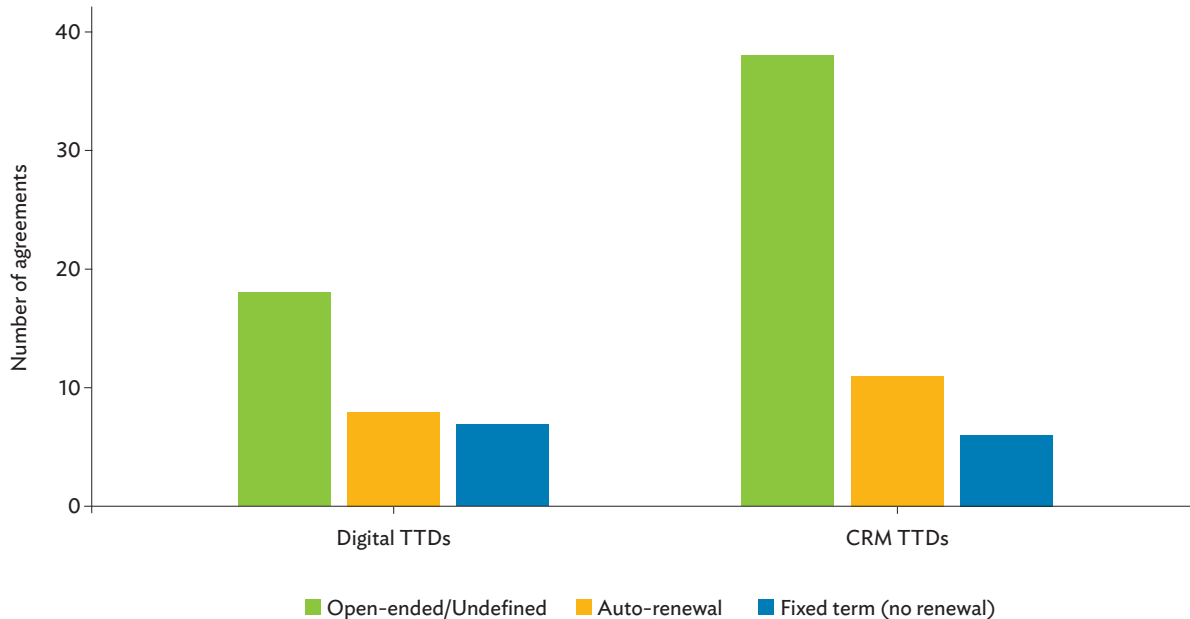
3. Duration and Entry into Force of TTDs

TTDs tend to be open-ended. Figure 8.5 presents the types of validity periods included in the texts of CRM and digital TTDs. A clear pattern emerges as most TTDs either specify automatic renewal or omit any reference to duration altogether, implying

¹⁴ For example, EU MoUs often mention Global Gateway as a potential source of funding under CRM TTDs, but without stating further details.

an open-ended validity. This is particularly pronounced in CRM TTDs, and the vast majority of the TTDs fall into this category. Digital TTDs exhibit a somewhat more balanced profile, but auto-renewal or undefined terms are still very prevalent. In this regard, TTDs are similar to RTAs, which generally also do not contain a specific end date, precisely to ensure legal certainty. This suggests that TTDs are intended to achieve trade-generating outcomes within the areas they target.

Figure 8.5: Dates of Validity in TTD Texts



Source: Authors' calculations based on newly compiled TTD Database.

4. Enforceability and Dispute Settlement Mechanisms

The preceding provision mapping shows the wide range of cooperation themes addressed by TTDs but these themes do not reveal whether the provisions are legally binding or accompanied by mechanisms that ensure compliance. To move from descriptive coverage to an assessment of enforceability, we apply a structured, rule-based natural language processing (NLP) text analytics framework.¹⁵ This approach is designed to identify provisions that contain mandatory legal language and effective dispute settlement mechanisms, distinguishing them from aspirational references or general statements of intent. In other words, the focus is on whether TTDs articulate obligations that can, in principle, be enforced, rather than merely signalling cooperation.

¹⁵ For “legally binding”, provisions are coded as binding when a legal actor is paired with mandatory terms (“shall”, “must”, “is obligated to”). Any explicit disclaimer (e.g. “non-binding”, “no legal obligation”) is coded as non-binding; all others default to “not specified”. For “dispute settlement”, texts are coded as adjudicative when a dispute trigger is linked to third-party adjudication (e.g. “arbitration”, “tribunal”, “binding decision”). References limited to consultations or negotiations are consultative, and the absence of any provision is not specified.

In the CRM domain, binding commitments are extremely rare. Only three of 55 mappable TTDs (5%) employ mandatory legal language. Fourteen texts contain explicit non-binding clauses, while the vast majority (38 TTDs, nearly 70%) provide no specification. Dispute settlement provisions are even more limited, with 49 of 55 TTDs (close to 90%) omitting any mechanism, and the remainder containing only consultative references with no adjudicative recourse. Digital TTDs display a relatively higher degree of formalization. Among the 33 mappable deals coded, eight contain binding provisions, 13 have non-binding formulations and 12 are unspecified. On the dispute settlement dimension, 31 have no specified provision, while just two include consultative mechanisms. No digital TTD provides for adjudicative settlement.

Taken together, these findings underscore that the references to cooperation, dialogue or institutional consultation are frequent, yet they rarely translate into binding obligations or adjudicative dispute settlements. The result is a structure that privileges flexibility, signalling and expediency over legal precision and enforceability. Whether this has an impact on their trade effects, is ultimately an empirical issue that we examine below.

8.4.4 What Drives TTD Formation?

In this section, we examine patterns between TTD formation and key bilateral factors, including digital infrastructure, governance quality, political alignment and shared regional integration blocs. The descriptive analysis in section 4.4.1 highlights what could drive the formation of TTD and inform our choice of explanatory variables beyond the traditional predictors in the econometric analysis presented in section 4.4.2.

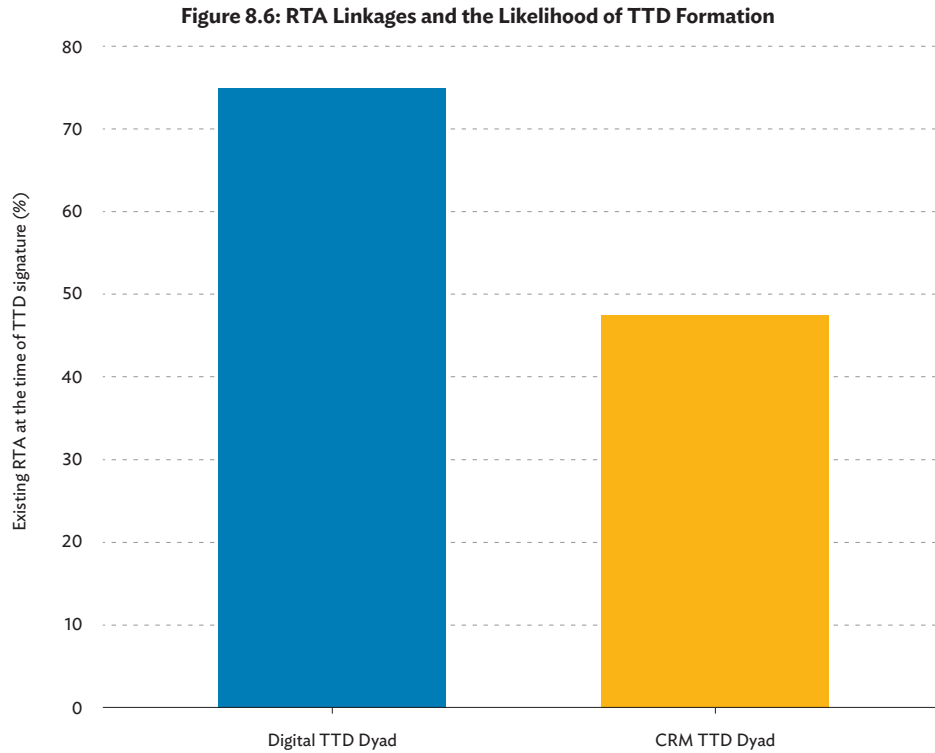
1. Exploring the Potential Drivers of TTD Formation

We begin by examining how institutional and governance linkages – such as existing RTAs, shared regional blocs and governance quality – are associated with the formation of TTDs. These factors may shape the enabling environment for agreement formation, particularly in areas with a high regulatory burden, such as digital trade. Additionally, the indicators explored here could help identify sector-specific drivers that extend beyond the gravity model. By comparing digital and CRM TTDs, we assess whether targeted trade deals tend to build on existing cooperation frameworks or arise from more strategic or resource-based considerations.

The Role of Institutional Scaffolding for TTD Formation

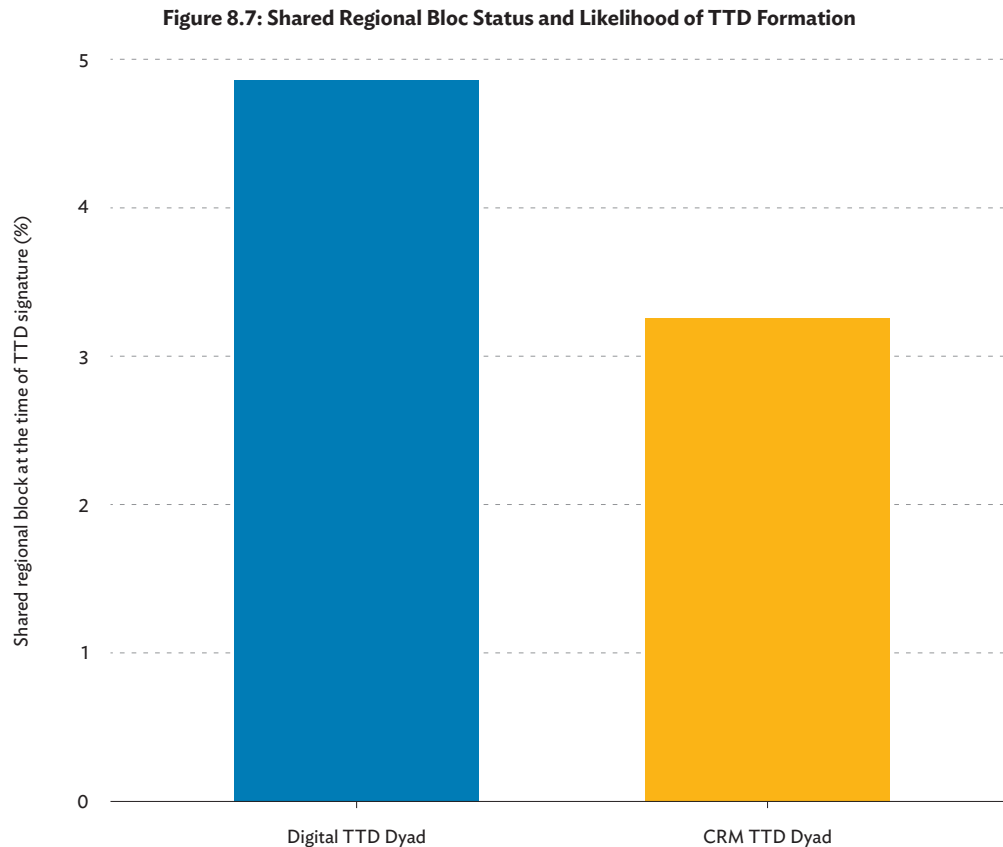
Pre-existing RTAs are very common for TTD signatories. This holds even more for digital TTD signatories than for CRM TTD signatories. Figure 8.6 shows that about 74% of digital TTD dyads, meaning country pairs that sign a digital TTD, already had an existing RTA in place at the time of TTD signing. If we consider the non-TTD dyads, only one out of five cases show an RTA. Digital TTDs, therefore, tend to build on and expand existing trade frameworks, often appearing as additional instruments

within broader economic partnerships. In contrast, Figure 8.6 also shows that 47% of CRM TTD dyads had an existing RTA in place at the time of signing a TTD. While RTAs can support CRM negotiations, digital TTDs are more likely to be tied to existing institutional structures. In contrast, CRM TTDs can emerge more opportunistically, often in response to resource or supply chain requirements.



Source: Authors' calculations based on newly compiled TTD Database and RTA data from the WTO RTA database and Egger and Larch, 2008.

Regional bloc membership is another potential determinant of TTD formation, though to a much lesser extent than RTAs, and differing across TTD types. Figure 8.7 shows that digital TTDs are more often concluded between partners that belong to the same regional bloc, consistent with what is observed for RTAs. This underscores the role of existing institutional linkages in fostering digital cooperation. Among country pairs that sign a TTD, about 5% of digital TTD dyads and 3% of CRM TTD dyads share membership in a regional bloc at the time of signing. Together with RTA patterns, this suggests that digital TTDs are more likely to be embedded within established cooperation frameworks, whereas CRM TTDs tend to emerge in a more opportunity-driven manner, reflecting resource complementarities and strategic supply chain considerations that extend beyond formal regional architectures.



Source: Authors' calculations based on newly compiled TTD Database and Regional Blocs Database.

Governance Quality and TTD Formation

Governance quality on the exporter side potentially may play a notable role in TTD formation, particularly in the digital TTD domain. Digital TTDs are more likely to form when exporters have stronger governance institutions. Better rule of law, regulatory quality and government effectiveness reduce the perceived risk of digital exchange and support institutional trust between partners. In line with this, the data shows that exporters in digital TTD dyads score significantly higher across all three institutional dimensions: government effectiveness, regulatory quality and rule of law, compared to those in non-TTD dyads. This pattern suggests that importers are more likely to engage in digital trade deals with partners that offer stronger institutional environments for implementing and enforcing cross-border digital rules.

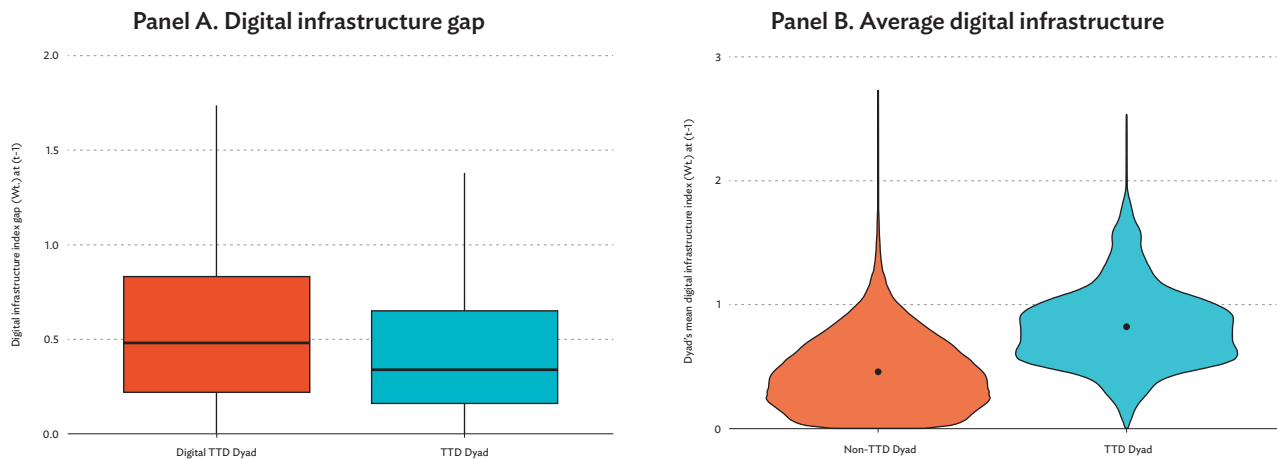
For CRM TTDs, the pattern is similar in direction but slightly less pronounced. Exporters in CRM TTD dyads have better scores than their non-TTD counterparts across all three governance indicators, though the differences are smaller than in digital trade. This observation suggests a trade-off in resource partnerships, where governance plays a role but could sometimes be outweighed by strategic factors such as supply chain security. Overall, these findings indicate that institutional reliability on the exporter side is positively associated with TTD formation.

Digital Infrastructure and Digital TTD Formation

Digital TTDs appear more likely to emerge between countries with similar levels of digital infrastructure. To evaluate whether technological capacity could influence the formation of digital TTDs, we utilize the customized weighted Digital Infrastructure Capability Index (DCI, see Table 8.1). As shown in Panel A of Figure 8.8, the infrastructure gap between TTD partners in a given year is significantly lower than that observed among non-TTD dyads. Such symmetry also increases the feasibility of similar regulations and reciprocal market access.

Beyond digital infrastructure symmetry, overall readiness is an important factor in agreement formation. Panel B of Figure 8.8 shows that the average digital infrastructure score for TTD dyads is significantly higher than that for non-TTD country-pairs or dyads. Hence, digital infrastructure appears to influence the formation of targeted deals consistent with Baldwin’s “threshold model” (Baldwin, 2016; Baldwin and Jaimovich, 2012), which asserts that cooperation in areas such as digital trade becomes viable only after both partners reach a minimum level of capacity.

Figure 8.8: Digital Infrastructure and the Formation of Digital TTDs



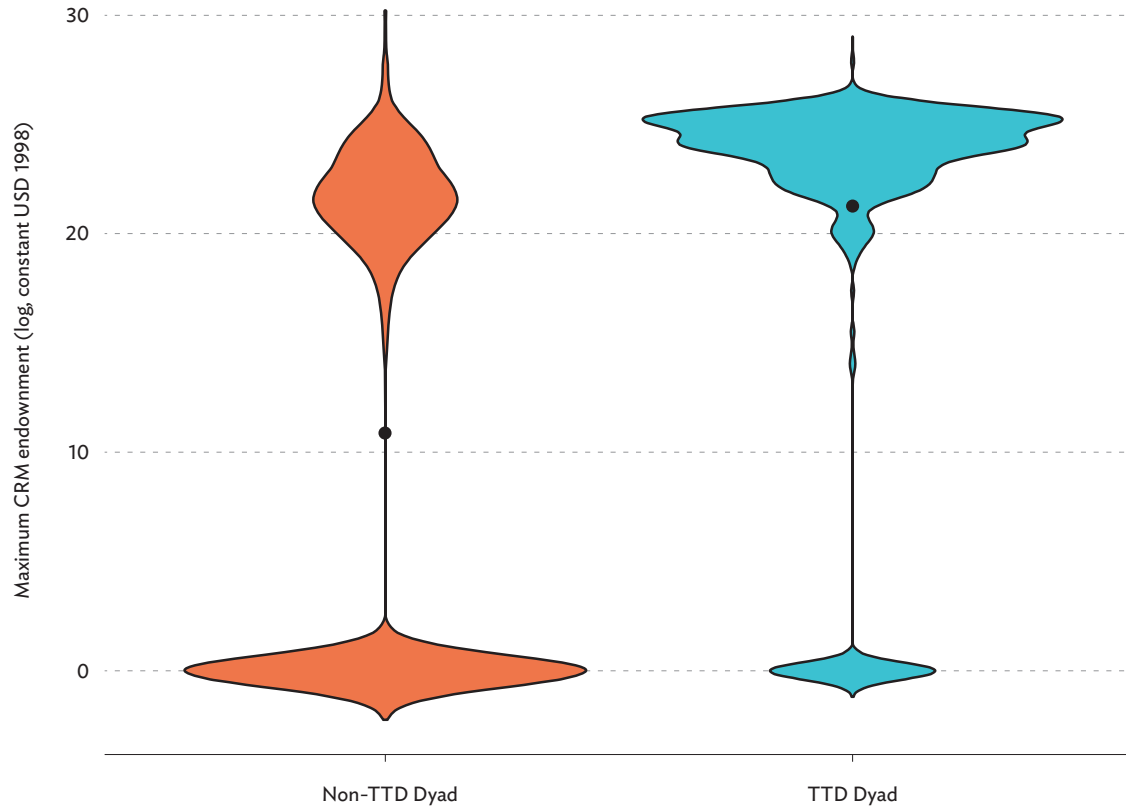
Source: Authors’ calculations based on the newly compiled TTD database and the Digital Infrastructure Composite. Index constructed from the WDI and ITU data.

CRM Endowments and CRM TTD Formation

Like digital infrastructure for digital TTDs, CRM endowments in at least one CRM TTD partner increase the likelihood of CRM TTD formation. We create an anchor variable to capture the highest production value of critical raw minerals between exporter and importer for each year. The objective is to explore whether resource endowments influence the formation of CRM TTDs. This measure captures whether the presence of a large, resource-rich partner drives cooperation, operationalizing the idea that TTDs may be based on access to dominant suppliers. Figure 8.9 shows the distribution of maximum CRM endowments for TTD and non-TTD dyads. TTD dyads are disproportionately anchored by at least one partner with a large endowment, with

their distribution shifted well above that of non-TTD dyads. Thus, TTDs are more likely when a highly endowed partner is present in the trade deal, making the partnership strategically meaningful. The findings also suggest that resource-poor countries may be able to sign deals with major producers to increase supply chain resilience.

Figure 8.9: CRM Endowments and the Formation of CRM TTDs



Source: Authors' calculations based on the newly compiled TTD Database, CRM data from Our World in Data, and U.S. Geological Survey (USGS) Mineral Commodity Summaries.

2. Econometric Evidence on TTD Formation

A more robust examination of the determinants of TTD formation based on econometric analysis confirms many of the results arising from the descriptive statistics. To complement the exploratory analysis with more rigorous evidence, we estimate pooled logistic regression models (see Annex 8.5) to identify which factors are consistently linked to the likelihood of governments forming TTDs. As many of the determinants we have assessed above are correlated, such as digital infrastructure and governance quality, this approach enables us to more precisely identify the relevance of individual factors. The estimated coefficients are expressed as odds ratios that compare the impact of a variable on the likelihood of signing a TTD. For instance, the presence of an existing RTA increases the likelihood of digital TTD formation by a factor of about 8.22 relative to country pairs in a given year without an RTA.

Table 8.2: Drivers of TTD Formation (Odds Ratio)

Variable	Digital TTD	CRM TTD	Interpretation/Policy Insight
Log distance	3.69***	1.11**	Greater bilateral distance is positively associated with the likelihood of TTD formation, strongly for digital and marginally for CRM. ¹⁶
Contiguity	6.74***	1.17	Border sharing raises digital TTD odds, no effect for CRM.
Existing RTA	8.22***	1.91***	Prior RTAs are a huge predictor in digital, moderate in CRM.
Both WTO members	6.04***	4.80***	Multilateral membership strongly boosts odds in both.
Shared regional bloc	13.64***	2.19***	Regionalism drives digital TTDs, much weaker effect for CRM.
Mean dyad-year digital infrastructure	1.60***	—	High average readiness strongly boosts digital TTD odds.
Stronger partner CRM share	—	1.71***	CRM TTDs more likely when stronger partner holds non-trivial endowment.
UN General Assembly (UNGA) policy distance	1.38***	0.97	Digital TTDs may form despite political divergence; but no effect on CRM TTDs.
Governance effectiveness (exporter)	4.45***	0.78***	Good governance attracts digital partners; despite weaker governance of the exporter, CRM TTDs can form driven by necessity.
Sanctions	0.58**	0.71	Hostile ties strongly suppress TTD formation, especially digital.

Note: The binary dependent variable equals 1 if a digital or CRM TTD is in force between country pairs in a given year. All time-varying variables are lagged by one year, while time-invariant controls are taken contemporaneously. We estimate separate regressions for digital and CRM TTDs, with year fixed effects included to capture global shocks. Standard errors are clustered at the dyad level to allow for within-pair correlation. Additional non-reported controls include standard gravity variables such as contiguity, landlockedness and economic size.

The results highlight distinct drivers of digital versus CRM TTD formation. Digital TTDs are firmly rooted in institutional scaffolding, with existing RTAs, joint WTO membership and shared regional bloc membership all exerting significant effects (see Table 8.2). Digital readiness also has a significant influence on the formation of digital TTD. Targeted trade deals are likely when both partners have reached a basic level of capacity and maintain comparable infrastructure. Distance and contiguity both increase the probability of digital TTD formation, indicating two parallel patterns – regional integration among neighbours and cross-continental partnerships between advanced economies. The positive coefficient on distance suggests that digital cooperation can offset spatial constraints, consistent with mechanisms such as the modular structure of GVCs, the scalability of cloud-based collaboration and data-driven spillovers that facilitate partnerships across long distances. Exporter government effectiveness is strongly and positively associated with agreement formation, reflecting the centrality of capable institutions in sustaining digital cooperation.

For CRM TTDs, institutional factors such as WTO membership and regional ties remain relevant but play a more modest role than in digital trade. Additionally, CRM TTDs hinge on the presence of at least one partner with a significant critical raw minerals production value, consistent with an anchor logic. At the same time,

¹⁶ Note: Distance is expressed in natural logarithms. A one-unit increase in $\ln(\text{distance})$ corresponds to an e-fold (≈ 2.7 -fold) increase in actual distance. The reported odds ratios therefore capture the effect of proportional rather than absolute changes in distance.

asymmetric deals could arise because smaller partners seek access to these anchors. Overall, TTD formation reflects a blend of institutional scaffolding and sector-specific dynamics. Digital TTDs are underpinned by existing integration, governance quality and digital readiness, while CRM TTDs are likely to cluster around resource anchors that create incentives for deals.

8.4.5 TTD Impact: Digital Trade and CRM

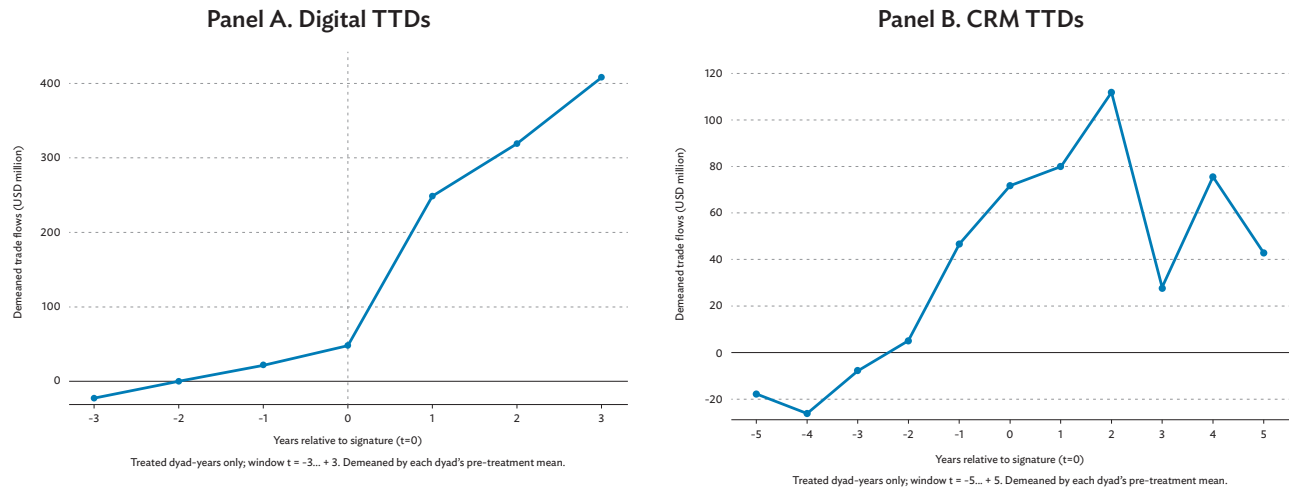
This section examines whether digital and CRM TTDs result in measurable increases in bilateral trade in digitally deliverable services (DDS) and critical raw minerals. To do so, we assemble a dyadic panel of bilateral trade flows, where our unit of analysis is dyad-year – a pair of countries observed in a given year. This structure allows us to track how trade patterns evolve before and after the signing of a TTD.

Panel A of Figure 8.10 shows that there is a jump in trade flows post-TTD signing. At the year of signature, the series depicts a discrete increase and continues to grow throughout the examined period. However, an upward trend is already visible in the years preceding the TTD signing. This continuous growth should therefore be interpreted with caution, as it may simply reflect global growth in digitally deliverable services trade rather than the direct effect of TTD implementation. The impact of the TTDs themselves can only be identified using the econometric tools in the following section. Similarly, Panel B of Figure 8.10 shows that bilateral trade in critical raw minerals increased sharply in the year prior to TTD signing, exhibiting anticipatory effects not uncommon for RTAs. While trade remains elevated throughout the post-treatment window, the increase pre-TTD-signing points to the importance of an econometric assessment.¹⁷

1. Do TTDs Boost Trade in Targeted Areas? Econometric Evidence

To estimate the impact of TTDs on bilateral trade flows, we run a state-of-the-art gravity regression to rigorously assess the effects while accounting through fixed effects for unobserved factors that may drive the changes in trade flows after the signing of a TTD, such as secular growth in the affected sectors. This is important since Figure 8.10 shows that there is an upward trend in bilateral DDS and CRM trade flows even before signing a TTD. To identify the presence of pre-trends and examine trade patterns around TTD signings, we exploit dyadic panels of bilateral DDS and CRM flows and exploit the staggered timing of TTD signatures to trace outcomes around the time of implementation.

¹⁷ We also note that the COVID-19 pandemic likely increased volatility in bilateral CRM trade patterns. While digital trade activities largely continued during lockdowns, mining and other physical operations were disrupted by border closures and mobility restrictions. As several CRM TTDs were signed during this period, part of the observed volatility and subsequent rebound may reflect the broader post-COVID-19 recovery in global trade.

Figure 8.10: Bilateral Trade Around TTD Implementation¹⁸

Source: Authors' calculations based on the newly compiled TTD Database, the WTO-OECD BaTiS database and WTO Analytical Database.

An econometric assessment does not find a significant trade effect for the average digital TTD. To identify the effect of TTDs on trade flows, we estimate Poisson Pseudo-Maximum Likelihood (PPML) fixed-effects gravity regressions, which have become the standard in empirical trade research (Santos Silva and Tenreyro, 2006; Head and Mayer, 2014; Larch and Yotov, 2024).¹⁹ The formal estimating equation and detailed results are reported in Annex 8.6. The gravity estimates indicate that digital TTDs do not yet yield a statistically significant effect on the bilateral trade of digitally deliverable services. This may be because our relatively short study period limits the ability to detect a measurable impact, and it may also be driven by the relatively noisy DDS measure. By collecting more data over time, we will be able to assess the effect of digital TTDs more reliably.

Different from digital TTDs, CRM TTDs do have a statistically significant impact on mineral trade flows. The empirical strategy for estimating CRM TTD trade effects closely follows the standard gravity literature (see Annex 8.6).²⁰ The results in Table

¹⁸ We conduct a treated-dyad only, demeaned event study: for each dyad-year that ever signs a TTD, we (i) compute event time, $e = (t - \text{TTD sign year})$; where $e \in [-3, +3]$, (ii) demean levels by the dyad's own pre-TTD mean, and (iii) average across treated dyad-years at each e . We enforce absorbing treatment by excluding all dyads that ever show a reversal from TTD (1) back to no TTD (0) and require at least one pre-TTD observation. Since most digital TTDs were signed after 2020, we limit the comparison to a seven-year window, i.e. three pre- and three post-years, to have sufficient observations to make the comparison. As we have more CRM TTD signings prior to 2020, we can use a longer window of 11 years in the CRM case.

¹⁹ Given the short event window and limited dyad-years with digital TTD after year two of signing, our specification differs from the long-panel gravity setup. Rather than using exporter-year, importer-year fixed effects, and country-pair dyad fixed effects, which would absorb nearly all the limited variation, we instead include time-invariant exporter and importer effects to capture structural heterogeneity across countries, along with a common year effect to net out global shocks. To address country-specific fundamentals, we control directly for the GDP of exporters and importers (in logs), consistent with best practice in short panels.

²⁰ As we have a longer post-treatment window, we can apply the standard gravity approach using exporter-year, importer-year, and dyad fixed effects. This specification ensures that identification comes from within-dyad variation over time – namely, the timing of CRM-TTD entry into force relative to existing RTAs.

8.3 indicate that CRM TTDs are associated with a statistically significant increase of about 12% in bilateral critical raw minerals trade. This effect is meaningful in policy terms: it suggests that such TTDs can facilitate greater cross-border flows of strategic resources, complementing existing RTAs, which raise CRM trade by roughly 30%. Together, these findings highlight that CRM TTDs have tangible effects on resource integration, potentially strengthening supply chain resilience and reducing vulnerability to concentration risks. The reason we describe the effect as meaningful is that a 12% rise (with a mean of \$125.52 million per dyad-year) in bilateral trade flows is non-trivial in the context of critical raw minerals. By lowering barriers, CRM TTDs facilitate easier exchange of these strategic resources among partners.

Table 8.3: Effect of CRM TTDs on Bilateral CRM Trade Flows (PPML Estimates)²¹

Variable	Coefficient	% Effect
CRM-TTD (dummy)	0.117**	+12%
RTA (dummy)	0.303***	+35%

2. Accounting for the Heterogeneity of TTDs

The large heterogeneity of TTDs may imply that the averaged effects we have identified so far hide a large variance of effects across different TTDs. The TTD characteristics and provision mapping in Section 4.3 highlights that the TTDs in our dataset differ substantially concerning their provisions and nature, for instance regarding their legal status or enforceability. This is also reflected in the varying terminology used to describe the TTDs from agreements to simpler partnerships. These differences and the inclusion or absence of certain provisions or other TTD characteristics are likely to influence the impact of a TTD on trade flows. This is akin to the varying impact of RTAs according to their depth (Fontagné et al., 2023). Examining this heterogeneity is particularly relevant for digital TTDs, as our econometric results show no significant average effect of digital TTDs on trade in digitally deliverable services.

To provide an initial analysis of the impact of TTD heterogeneity, we rely on the variable that captures the use of a binding, or more compulsory, language in a given TTD as this may capture the extent of provisions and the ambition of a TTD more generally. As explained in section 4.3.4, this variable is constructed by applying a structured, rule-based NLP text analytics framework to the official TTD texts and identifies when a legal actor is paired with mandatory terms (“shall”, “must”, “is obligated to”). While for CRM TTDs, only three of the 55 mappable deals contain provisions with any binding language, digital TTDs provide a limited opportunity for exploration since among the 33 TTDs with mappable texts, a quarter include binding language.

²¹ Note: Effects are approximate percentage changes based on $[\exp(\text{coefficient}) - 1] \times 100$.

When accounting for the heterogeneity of TTDs along this dimension in the gravity model, a clear pattern emerges. Digital TTDs overall do not significantly impact bilateral trade; however, those with binding language provisions are associated with a statistically significant increase in DDS trade. The coefficient for digital TTDs overall is statistically insignificant, indicating no average effect on the trade of digitally deliverable services. By contrast, the interaction term for digital TTD × binding language is positive and highly significant (see Annex 8.6 for the detailed results), suggesting that for those TTDs, bilateral trade increases by roughly one-third. RTAs remain strongly positive, in line with the broader gravity literature.

An important caveat of the analysis is that the number of TTDs with binding language is small, and the post-signing period is short. Hence, these preliminary results should be viewed as indicative and exploratory, and no causal interpretation should be inferred. The primary takeaway is that the heterogeneity of TTDs seems to be important for their trade effects. This illustrates the importance of having access to official TTD texts and suggests that further examining the role of heterogeneity is a central avenue for future research.

8.5 Legal and Policy Considerations for TTDs

TTDs can be integral building blocks towards reglobalization and increased trade but in a form that deviates from previous “blueprints”. TTDs may serve as a stepping stone towards future, more formalized trade cooperation, providing a platform for building trust between trading partners. Or, as illustrated by the prevalence of pre-existing RTAs among digital TTD signatories, they may serve to deepen and expand existing relationships. This makes it relevant to examine links to the existing institutional framework. After all, TTDs are legal instruments that complement and interact with this framework. In what follows, we briefly explore some of the key legal and policy implications arising from this form of cooperation. This may enable policymakers to identify possible adjustments that help better exploit the potential of this relatively novel tool to increase predictability and lower barriers for international trade.

In particular, we look at three different areas. First, insofar as TTDs affect trade flows, we assess how they relate to the multilateral rules-based system. Second, the investment provisions contained in some TTDs create links to the existing network of investment treaties that we briefly illustrate. And third, like any public arrangement, TTDs can be examined regarding transparency, oversight and accountability. Unlike for instance RTAs, TTDs take different legal forms, concern a variety of sectors and have various objectives, and they differ from one another even for major parties. This introduces complexity when discussing these agreements and their impact. Moreover, it is important to re-emphasize that this chapter and the emerging literature on TTDs (see, e.g., Claussen 2022b) have identified a certain lack of transparency for some types of TTDs that makes any analysis difficult, not least as they have typically not undergone

domestic parliamentary review or formal ratification. Nevertheless, analysing some of the legal and policy issues of TTDs can contribute to better understand their nature and underlying processes and improve their functioning and outcomes.

8.5.1 TTDs and the WTO Framework

TTDs contain provisions aimed at addressing bilateral trade barriers, even if they do not grant market access. In line with this, the previous section has found some evidence in line with trade-creating effects among signatories. Moreover, as detailed above, TTDs concerning CRM and digital trade frequently focus on supply chain-related objectives. They are designed to enhance – or even guarantee – the fluidity and resilience of supply chains. In this context, they place strong emphasis on collaboration and cooperation to ensure continued access to strategically important goods and services. Paragraph 6 of the 2024 WTO Ministerial Declaration explicitly welcomes efforts to promote supply chain resilience within the WTO framework. Given these links, the question arises where TTDs may fit within the WTO framework.

To the extent that TTDs address matters already covered by WTO agreements, their scope may overlap with the rights and obligations of WTO Members. TTDs may reinforce these rights and obligations; they can also regulate the same issues in ways that diverge from WTO rules. In such cases, questions may arise as to how specific provisions fit within the WTO framework, particularly where they are found to restrict trade or confer benefits and advantages not extended to all WTO members. In these scenarios, the exceptions provided within the WTO legal framework, such as Articles XX and XXIV of the General Agreement on Tariffs and Trade, or their counterparts in the General Agreement on Trade in Services (GATS), may become relevant. Other relevant connections may exist, for instance concerning the regulation of mutual recognition agreements in Article 6 of the Agreement on Technical Barriers to Trade or Article VII of GATS, the Trade Facilitation Agreement, or, in some instances, the Enabling Clause.

The fact that situating TTDs within the WTO framework is complex may contribute to the fact that TTDs have not been notified to the WTO, or to any other plurilateral or multilateral body. Facilitating access to information about TTDs to outside parties, for instance through the various WTO notification windows or through WTO committees, could increase their potential to serve as building blocks for reglobalization. For example, it could facilitate other WTO members joining such agreements. Such positive spillover effects would maximize the potential of TTDs to address GVC issues such as limited inclusiveness and increase resilience. In addition, broader participation could increase trade opportunities by plurilateralizing trade-enabling regulations of frontier issues such as digital trade. As a result, improving TTD transparency is likely to be valuable independent of where TTDs fall within WTO agreements.

8.5.2 TTDs and Investment

Digital or CRM TTDs often overlap in different ways with existing investment treaty provisions embedded within bilateral investment treaties (BITs) or broader RTAs, underscoring the strategic nature of many such agreements. This overlap raises several potential legal issues. Beyond possible contradictions between trade and investment provisions, it is conceivable that an investor is in a position to allege discrimination or expropriation under a BIT or an RTA resulting from a policy change triggered by a TTD. The convergence of trade, investment and strategic security considerations within TTDs – particularly those concerning CRM and the digital economy – has introduced complex legal challenges, including regarding investor-state dispute settlement (ISDS). Policy shifts arising from TTD commitments that are perceived to disadvantage foreign products or services or investors may prompt affected parties to invoke protections under BITs or RTAs, alleging measures tantamount to indirect or de facto expropriation or discriminatory treatment. This dynamic can constrain economies' regulatory autonomy, potentially leading to “regulatory chill”, wherein governments hesitate to adopt policies due to concerns over investment claims.

8.5.3 Domestic Issues of TTDs

The comparably light negotiation and implementation process of many TTDs can have implications from the perspective of public accountability, separation of powers, oversight, and enforceability within national jurisdictions. When TTDs are negotiated rapidly and informally, they bypass the comprehensive ratification processes typically required for multilateral or bilateral trade agreements. This does not prevent them from producing economic or legal effects, even if they are in many instances honorary pledges, mainly indicating the course of action that states intend to follow. Nevertheless, certain TTDs take the form of binding agreements, usually in simplified form (executive agreement), not involving the usual constitutional process for treaties, or requiring ratification. Some are more akin to mini treaties and must follow a formal constitutional procedure.

It is often unclear how TTDs should be approached or included in the economies' legal orders, and this will also of course vary between different legal systems. The legal ambiguity of TTDs is therefore evident. In some cases, TTDs by not being subject to parliamentary scrutiny, raise concerns about democratic legitimacy and the separation of powers (see, e.g., Claussen, 2022b). Moreover, TTDs that include regulatory commitments impacting citizens' rights, environmental standards or economic governance would benefit from public accountability. Finally, overlapping jurisdictions – such as those between federal and sub-federal governments in federations – may give rise to disputes regarding the competence to conclude or implement TTDs, complicating their domestic legal standing.

Ultimately, as for TTD's relationship with international economic law, transparency could help address many of the issues identified by the emerging literature on TTDs. Wider information sharing with domestic stakeholders would limit concerns regarding oversight and accountability and, yet again, could maximize the economic value of these agreements by increasing awareness among firms.

Before turning to the concluding section, it is useful to complement the empirical and legal analysis above with insights from the private sector. After all, TTDs ultimately shape the operating environment of firms, which act as both users and indirect co-producers of the emerging governance structures described in this chapter. The following box (Box 8.2) provides a business sector perspective on how companies interpret, respond to and navigate the growing landscape of targeted trade deals.

Box 8.2: The View From Business: Navigating Targeted Trade Deals in a Fragmented Global Economy

Chapter 8 of this report suggests that TTDs are becoming an increasingly prominent feature of the trade-policy landscape, particularly in the digital economy and critical minerals sectors. Although this certainly appears to be the case, from the perspective of global business, the emerging picture is less one of a radical break than of a familiar dynamic playing out through new instruments. Firms have long operated in a world where regulatory cooperation, soft-law commitments and plurilateral initiatives have shaped market access and other commercial outcomes in ways that are just as consequential as, say, tariff cuts or the reduction or elimination of quotas.

This expanding ecosystem of mini deals demands that companies adjust how they monitor negotiations, plan investments and engage policymakers. The chapter implicitly highlights several enduring lessons for business: that implementation determines real market access; that trade policy is now a core management function; that firms must track multiple cooperation forums; and that opacity continues to impose strategic uncertainty. This box examines how businesses navigate TTDs, complementing Chapter 8's analysis of these deals as a new form of global value chain governance.

Implementation Remains the Real Battlefield

From the perspective of the firms actually trading across borders or operating on foreign markets, trade agreements have never been self-executing. Even during the high-water mark of the WTO and the proliferation of comprehensive FTAs, firms were regularly forced to navigate the gap between legal commitments and commercial reality, which was indeed the whole reason dispute settlement procedures became an increasingly important and visible part of the global trade policy architecture. Market access concessions on paper often ran up against the reality of poor or haphazard implementation that took on various forms including licensing delays, opaque regulatory procedures, selective enforcement, divergent technical standards and sudden changes driven by domestic political developments.

Examples from earlier periods illustrate this pattern. Commitments in sectoral deals or FTAs on telecommunications and financial services sat alongside slow or uneven licensing in major emerging markets. Preferential tariff schemes under early regional agreements were undercut by complex rules of origin or inconsistent customs administration. In pharmaceuticals or electronics, divergent interpretations of technical standards meant firms could not rely on treaty text alone.

TTDs have not changed this structural reality so much as simply having multiplied the number of arenas in which it plays out. In critical minerals, for example, bilateral and plurilateral partnerships among producer and consumer countries set out objectives related to supply chain security, sustainability and local value addition. For firms, however, the operative constraints remain environmental permitting timelines, clarity of land use rules, the predictability of export licensing regimes and how investment-screening mechanisms are applied in practice. In the digital economy, purpose-built agreements on data flows, digital identities or source code protection may reduce uncertainty at the margins, but companies still navigate divergent privacy laws, cybersecurity requirements and sectoral regulations that can override or dilute the effect of agreements or frameworks negotiated and concluded at the international level.

As a result, firms approach TTDs the same way they have long approached multilateral and regional agreements: as signals rather than guarantees. The signing and ratification of these agreements is the beginning of a long implementation story that needs careful monitoring. The core business question remains: how – and how consistently – will commitments be applied by regulators, courts and administrative agencies over time?

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Box 8.2: continued**Trade Policy as a Strategic Management Function**

Trade policy has always been of heightened strategic importance for internationally exposed companies. Large exporters, multinationals and globally integrated supply-chain actors have, for decades, monitored tariff changes, standards harmonization efforts, investment rules and the outcomes of international dispute settlement cases. What has shifted is the degree to which these considerations are now embedded in the day-to-day management of firms, rather than being confined to specialized government affairs or legal compliance units.

Several developments over the past decade have driven this shift. Data protection and cybersecurity rules have forced firms to redesign global data architectures. Export controls and investment-screening regimes in sensitive technologies have reshaped supplier relationships. Brexit, successive waves of tariffs and unilateral sanctions regimes have prompted wholesale reconfiguration of distribution networks. Large-scale industrial policy measures, such as the US Inflation Reduction Act, have made eligibility for fiscal incentives contingent on specific sourcing patterns and location decisions.

TTDs sit on top of this landscape and represent continuity in the trend of trade policy taking on strategic importance. Digital economy agreements may influence decisions about where to locate data centres. Semiconductor and critical minerals partnerships can affect assumptions about long-term supply security or future eligibility for tax credits. Green technology arrangements may shape expectations about procurement access or recognition of sustainability standards.

In response, many firms have moved from treating trade and industrial policy as external constraints to incorporating them as explicit variables in corporate planning. This is visible in at least three ways: Organizational structures: Companies are creating dedicated trade and regulatory intelligence functions reporting to senior management and board-level committees.

Decision processes: Capital expenditure and site selection processes increasingly assess policy exposure – not just in terms of current rules, but the direction of travel in key jurisdictions.

Skill profiles: Firms are recruiting policy specialists and trade lawyers into roles closer to core business functions, including supply chain management and product development. In this sense, TTDs do not change whether firms engage with trade policy but rather deepen how and where they do so inside the firm.

More Forums, Not New Logics: How Firms Read Targeted Trade Deals

From the standpoint of corporate strategists, TTDs are best understood as an additional layer of governance, not a distinct paradigm. The basic logic that firms apply when evaluating WTO commitments, FTAs or APEC initiatives continue to apply when they assess digital economy agreements, critical minerals MoUs or sector-specific cooperation frameworks.

At the macro level, firms ask largely familiar questions:

Does this initiative create legal certainty or merely represent policy signalling? Are its provisions binding, and if so, how much predictability do they afford in practice? Which domestic agencies will be responsible for implementation, and what is their track record? How does this framework interact with existing obligations under WTO law, FTAs and domestic regulation?

The answers to these questions often reveal that TTDs sit within a complex web of existing economic integration and regulatory cooperation frameworks rather than operating as standalone agreements. A digital trade corridor may reference principles already reflected in existing FTAs, while critical minerals partnerships may rest on pre-existing environmental and investment regimes. Firms must therefore treat TTDs as part of an overlapping regime complex rather than as a discrete layer.

The practical consequence is that TTDs rarely displace the work firms were already doing. Instead, they require existing monitoring machinery to extend to new sectoral clubs, implementation committees and standard-setting processes.

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Box 8.2: continued**Firms as Quiet Co-Authors of Targeted Trade Governance**

Although firms are not formal parties to TTDs, they are rarely passive observers. Over the past three decades, the private sector has acquired significant experience in shaping, clarifying and operationalizing trade rules. Sectoral business organizations and large firms supplied technical detail underpinning negotiations on telecommunications, financial services and customs facilitation. In regional settings, industry coalitions have played similar roles in e-commerce, investment and regulatory cooperation. Public-private dialogues around Asia Pacific Economic Cooperation (APEC) initiatives, Organisation for Economic Co-operation and Development (OECD) codes and G20 processes entrenched the idea that implementation is co-produced by regulators and firms.

The same pattern is visible in TTDs:

Digital economy agreements often draw on consultation with cloud providers, payments companies and logistics platforms, whose operational experience shapes notions of interoperability and workable data-transfer regimes.

Critical minerals partnerships rely on input from mining, processing, battery and automotive companies when specifying sustainability benchmarks and traceability requirements.

Green technology frameworks frequently build on technical standards first developed in corporate supply chain programmes and industry standards bodies.

This does not mean that firms control TTD design – governments still make final decisions and national security considerations increasingly loom large. But the detailed content of targeted deals is often heavily informed by private-sector practice, through formal consultations, industry submissions or informal expertise sharing.

Transparency, Fragmentation and the Black Box Problem

If there is one dimension where TTDs pose a sharper challenge than earlier instruments, it lies in transparency and process. Traditional trade agreements, especially in the WTO and FTA contexts, developed institutionalized channels for business input: public comment periods, advisory committees and stakeholder forums. While far from perfect, they provided recognized entry points for firms to make views known and anticipate how rules were evolving.

By contrast, many recent targeted arrangements – particularly in critical minerals and technology security space – are negotiated under heightened confidentiality. Governments cite national-security concerns, strategic competition or commercial sensitivity to justify limited disclosure. Detailed implementation roadmaps may be only partially public or not published at all. Even domestic industry stakeholders may have incomplete visibility into the precise scope of obligations or future decisions on project selection or eligibility criteria.

For business, this complicates matters in two ways. First, it makes forward-looking planning more difficult, since firms cannot easily map long-term capital decisions onto opaque frameworks. Second, it raises the stakes around informal channels of information, privileging actors with closer access to decision makers. Smaller firms and those in countries with weaker consultation traditions may find themselves at a relative disadvantage.

This black box problem is not entirely new – elements were present in earlier negotiations. But the concentration of TTDs in strategic sectors, combined with heightened geopolitical tensions, has made it more pronounced. As a result, firms are investing more heavily in regulatory intelligence capabilities and multilateral business coalitions that can monitor developments across multiple jurisdictions.

Strategic Implications for Firms and Policymakers

From the business perspective, the rise of targeted trade deals yields three broad implications.

First, TTDs do not eliminate the primacy of implementation; they entrench it. Firms will continue to judge the value of any initiative less by its rhetoric and more by how it is administered: the clarity of guidance, the consistency of enforcement, the efficiency of approval processes and the stability of underlying political commitments.

Second, trade and industrial policy have become fully internalized management concerns. The proliferation of TTDs reinforces the need for companies to mainstream policy analysis within their risk management, supply chain design, capital budgeting and technology strategies. Large firms are already building the institutional capacity to do this; smaller firms may require support from industry associations, chambers of commerce and public institutions that can help translate complex policy frameworks into operational guidance.

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Box 8.2: continued

Third, firms will remain active – if often understated – co-authors of the new trade architecture. Governments designing TTDs that are meant to be implementable and commercially meaningful will depend on granular industry input. Structures that institutionalize transparent, broad-based business engagement will serve both public and private interests by improving rule quality and reducing unintended consequences.

For policymakers, these insights from business suggest that the success of targeted trade deals will ultimately be judged less by the number of initiatives launched and more by their credibility, administrative quality and interoperability with existing frameworks. For firms, the task is to continue doing what many have already learned to do well: treat trade policy as a strategic variable, invest in understanding and shaping the evolving rule set, and focus relentlessly on the implementation realities that determine whether new agreements translate into genuine commercial opportunity.

Note: This box was authored by Simon Lacey (formerly with the World Economic Forum, currently with Belt Road Capital Management). The views expressed are those of the author and do not necessarily reflect those of the affiliated institutions.

8.6 Conclusions

In this chapter, we examine a rapidly proliferating instrument of trade cooperation – targeted trade deals or TTDs. We refer with this term to government-to-government trade-related cooperation that is limited to a particular objective. To study TTDs, we compile a global dataset of TTDs on the digital economy and critical raw minerals. Equipped with this dataset, we provide novel insights into the geographic distribution of these agreements, their content, and their economic and legal implications. In particular, we show that TTDs have expanded considerably within the past five years but that not all regions participate in TTD formation equally. These deals tend to focus on non-tariff barriers only, especially information frictions that can be reduced through consultative processes, and they tend to be explicitly non-binding. However, TTDs are also relatively heterogeneous. For instance, we do observe tariff liberalizing and/or binding provisions in some TTDs. Importantly, we are the first to establish empirically determinants of TTD formation and provide evidence indicating that TTDs can increase bilateral trade flows between signatories. Finally, we examine their status and relationship with the multilateral and domestic legal frameworks.

Overall, we find that TTDs fulfil pragmatically strategic objectives and contribute to international cooperation. The increasing prevalence of TTDs suggests that they might be able to serve as a valuable complement to RTAs and multilateral agreements, helping to bring trading partners closer to one another. Their flexibility enables trading partners to advance cooperation in specific sectors or policy areas without becoming entangled in the broader, and often more politically sensitive, negotiations. They fit, as a result, under the umbrella of reglobalization. This applies particularly to the growing use of TTDs by economies whose GVC integration has until now been limited. One example to that effect is the high number of agreements signed between European and Latin American economies, which may support a closer integration of Latin America in European GVCs and address barriers identified to Latin American GVC integration in Chapter 2 of this report.

We also find, alongside similar studies, that some TTDs are concluded with limited transparency and that some regions remain at the margins of TTD formation. Such TTDs could contribute to a fragmented global trading system or foster trade relationships that are perceived as unbalanced. Adopting a pragmatic approach to better incorporate them within existing frameworks and increase transparency, for instance regarding public access to official texts, could address many of these concerns. It could help maintain trust and coherence across the multilateral trade framework. It may also contribute to increased value of entering these cooperations.

To conclude, it is important to emphasize that this chapter is only a contribution to a small but growing literature on TTDs, and a key takeaway is that there remains much scope to better understand the content, functionality and effect of TTDs. Across all the dimensions of TTDs we study – economic and legal – there are numerous questions that we only touch upon and that deserve further analysis. By providing a dataset on TTDs, we hope that scholars can contribute to such questions, including the extension of the underlying data to other areas or newer agreements. The evidence clearly shows that TTDs have become an integral part of the institutional framework governing trade and GVCs. More analysis of these agreements could therefore help maximize their potential in facilitating trade.

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Annexes

Annex 8.1: TTD Inclusion Criteria

Critical raw minerals (theme-specific)	Does the agreement explicitly refer to cooperation on raw materials classified as critical or strategic? Or: Does the agreement implicitly pertain to such cooperation through clear references to activities, sectors, or infrastructure that directly support their production, processing, or trade? Or: Does the agreement not specifically mention “critical” raw materials but was it (a) established after the 2010 rare earths trade dispute, and (b) initiated by a country with a raw materials strategy in place?
Digital economy (theme-specific)	Does the agreement explicitly constitute cooperation in the digital economy or any related sub-sectors?
Trade-related	Does the text establish or support trade cooperation, directly or indirectly, between the countries?
Institutional scope	Does the arrangement fall outside the scope of a formal RTA, while potentially forming a separate instrument that supplements, amends or operates alongside a broader cooperative framework?
G2G	Is the agreement concluded between two or more governments or government entities?
Temporal	Was the agreement signed before or on the cut-off date of 31 December 2024?
Implementation status	Has the cooperation become active or otherwise entered into effect following its signing?

Annex 8.2: General TTD Provisions

Agreement name	How is the TTD commonly referred to in official or public sources?
Countries	What are the participating countries in the TTD?
Type	Under what classification does the TTD fall based on its title or official description?
Year	Which year marks the entry into force or activation of the TTD?
Composition	What is the structural composition of the TTD: bilateral, plurilateral or multilateral?
Binding nature	Does the TTD constitute a binding legal instrument or a non-binding political commitment?
Text available	Is the official text of the TTD available?
Source	From which source category was the TTD information extracted?
Accessions	Have there been any accessions to the TTD since its initial signing? If yes, country code and year are listed.
Timeline	What is the specified duration of the TTD, or how long is it intended to remain in force?
Renewal	Is the agreement subject to automatic renewal upon expiry?

Annex 8.3: Critical Raw Minerals TTD Provision Mapping Sheet

Theme	What is the main topic under the CRM umbrella?
Extraction and exploration	Does the text mention cooperation on exploration and/or extraction activities?
Knowledge and capacity building	Does the text include provisions for technical knowledge transfer, training or research cooperation?
Economic linkages and diversification	Does the text mention cooperation on business linkages, market access or industrial diversification?
Investment cooperation	Are there provisions for investment incentives, financing mechanisms, or joint investment projects? 0 = not mentioned at all 1 = mentioned as an aim but not specified 2 = mentioned and related to some potential funding source 3 = direct financial commitment
Sustainable governance	Does the text mention environmental, social or governance (ESG) principles or sustainability?
Infrastructure and logistics development	Does the text mention building or improving infrastructure necessary for production or exports?
Institutional mechanisms and governance	Does the text establish regulatory or institutional mechanisms for oversight, governance or alignment in multilateral fora?

Note: With the exception of the categorical nominal variable “Theme” and the ordinal variable “Investment cooperation”, all responses are coded as binary values: 1 indicates the presence of the relevant provision in the agreement, and 0 indicates its absence.

Annex 8.4: Digital TTD Provision Mapping Sheet

Theme	What is the main topic under the digital economy umbrella?
Cross-border data flows	Is there a provision on the movement, localization or governance of data across borders?
Personal data protection and consumer rights	Is there a provision on personal data protection or consumer rights in digital environments?
Cybersecurity and digital trust	Is there a provision that supports cybersecurity, digital trust or the secure functioning of digital systems?
Trade facilitation	Is there a provision aimed at simplifying or enabling digital trade processes and transactions?
Digital infrastructure	Is there a provision on developing or enhancing digital infrastructure or connectivity?
Emerging technologies	Is there a provision promoting cooperation, development or governance of emerging digital technologies or innovation?
Investment cooperation	Are there provisions for investment incentives, financing mechanisms or joint investment projects? 0 = not mentioned at all 1 = mentioned as an aim but not specified 2 = mentioned and related to some potential funding source 3 = direct financial commitment
Knowledge and capacity building	Does the text include provisions for technical knowledge transfer, training or research cooperation?
Institutional mechanisms and governance	Does the text establish regulatory or institutional mechanisms for oversight, governance or alignment in multilateral fora?

Note: With the exception of the categorical nominal variable “Theme” and the ordinal variable “Investment cooperation”, all responses are coded as binary values: 1 indicates the presence of the relevant provision in the agreement, and 0 indicates its absence.

Annex 8.5: Estimation Strategy and Regression Results

1. TTD formation - estimation equation

Pooled Logistic Model:

$$\Pr(TTD_{ijt=1}) = \log it^{-1}(\beta_0 + \beta_1 X_{ij} + \beta_2 Z_{ij,(t-1)} + \delta_t)$$

Note: i is exporter and j is importer. Standard errors are clustered at the dyad level, accounting for arbitrary correlation across time within each bilateral country pair. Time-invariant dyadic variables (e.g., distance, language, contiguity) enter directly, while all time-varying predictors are lagged by one year (i.e., measured at $t-1$) to reflect pre-treatment conditions and reduce simultaneity concerns.

2. TTD formation – regression results

Table 8.A.1: Determinants of TTD Formation (Odds Ratio, Year FE)

Variable	Digital TTD OR (s.e.)	CRM TTD OR (s.e.)
Geographic and cultural factors		
Log distance	3.668*** (0.303)	1.111* (0.065)
Contiguity	6.736*** (2.642)	1.172 (0.347)
Common language	0.747*** (0.070)	1.172* (0.112)
Exporter landlocked	0.555*** (0.053)	1.136 (0.103)
Importer landlocked	0.518*** (0.048)	1.108 (0.100)
Institutional factors		
Existing RTA	8.218*** (0.830)	1.912*** (0.173)
Both WTO members	6.035*** (1.176)	4.796*** (0.725)
Shared regional bloc	13.638*** (3.180)	2.193*** (0.495)
Sector-specific capabilities		
Gap in digital infrastructure	0.942* (0.033)	—
Mean dyad-year digital Infrastructure	1.593*** (0.241)	—
Stronger partner CRM share	—	1.712*** (0.036)
Political and governance		
UNGA policy distance	1.384*** (0.081)	0.965 (0.056)
Governance effectiveness (exporter)	4.451*** (0.558)	0.779*** (0.069)
Rule of law (exporter)	0.245*** (0.028)	1,632*** (0.149)
Economic factors		
Log GDP per capita sum	3.036*** (0.318)	2.880*** (0.225)
GDP per capita gap (ln)	0.586*** (0.031)	0.872*** (0.041)
Sanctions	0.579** (0.149)	0.709** (0.096)
Model statistics		
Observations	300,506	469,421
Mean of dependent variable	0.018	0.009

Table 8.A.2: Determinants of TTD Formation (Average Marginal Effects, Year FE)

Variable	Digital TTD AME	CRM TTD AME
Geographic and cultural factors		
Log distance	0.018*** (0.001)	0.001* (0.000)
Contiguity	0.026*** (0.005)	0.001 (0.002)
Common language	-0.004*** (0.001)	0.001* (0.001)
Exporter landlocked	-0.008*** (0.001)	0.001 (0.001)
Importer landlocked	-0.009*** (0.001)	0.001 (0.001)
Institutional factors		
Existing RTA	0.029*** (0.001)	0.005*** (0.001)
Both WTO members	0.024*** (0.003)	0.012*** (0.001)
Shared regional bloc	0.036*** (0.003)	0.006*** (0.002)
Sector-specific capabilities		
Gap in digital infrastructure	-0.001* (0.000)	—
Mean dyad-year digital infrastructure	0.006*** (0.002)	—
Stronger partner CRM share	—	0.004*** (0.000)
Political and governance		
UNGA policy distance	0.004*** (0.001)	-0.000 (0.000)
Governance effectiveness (exporter)	0.020*** (0.002)	-0.002*** (0.001)
Rule of law (exporter)	-0.019*** (0.002)	0.004*** (0.001)
Economic Factors		
Log GDP per capita sum	0.015*** (0.001)	0.008*** (0.001)
GDP per capita gap (ln)	-0.007*** (0.001)	-0.001*** (0.000)
Sanctions	-0.007** (0.003)	-0.003** (0.001)
Model statistics		
Observations	300,506	469,421
Mean of dependent variable	0.018	0.009

Note: Dyad-clustered robust standard errors (s.e.) in parentheses. All time-varying variables lagged one year except time-invariant geographic variables. Significance levels: * p < 0.10, ** p < 0.05, *** p < 0.01.

Annex 8.6: Impact of TTDs on Bilateral Trade Flows

1. PPML Gravity Model Estimation for Digital TTDs and Bilateral DDS Trade

We construct our estimation equation following the structural gravity framework. Given the short [-3, +3] horizon, we do not employ exporter-year or importer-year fixed effects; instead, we include time-invariant exporter and importer effects and a common year effect, while directly controlling for country-specific fundamentals (log GDPs). The estimating equation is specified as:

$$E[y_{ij,t}|X_{ij,t}] = \exp(a \cdot DTTD_{ij,t} + b \cdot RTA_{ij,t} + c \cdot Z_{ij} + d \cdot GDP_{i,t} + e \cdot GDP_{j,t} + \varphi_i + \psi_j + \tau_t)$$

To aid interpretation of the estimation equation, this appendix provides a compact notation list. The list mentions the symbols used, their definitions, and the corresponding variables included in the empirical specification. This ensures clarity in linking the simplified equation to the gravity model discussed in the main text for causal analysis.

- $y_{ij,t}$ = Bilateral DDS trade between exporter i and importer j in year t
- $DTTD_{ij,t}$ = Digital TTD dummy
- $RTA_{ij,t}$ = Regional trade agreement dummy
- Z_{ij} = Vector of time-invariant controls between exporter and importer (contiguity, common language, colonial tie, log distance)
- $GDP_{i,t}$ & $GDP_{j,t}$ = Exporter and importer GDP (logs) in constant USD
- φ_i & ψ_j = Exporter and importer fixed effects
- τ_t = Year fixed effect
- a = Coefficient of interest (the impact Digital TTD on bilateral trade flows)

Turning to the PPML gravity framework, results indicate that digital TTD does not have statistically significant effect on bilateral DDS trade flows, while existing RTAs, geography, language and market size display strong expected effects (see Table 8.A.3). These results underline the need for more granular causal analysis of Digital-TTD provisions for a longer period of time.

Table 8.A.3: Impact of Digital TTDs on Bilateral Digital Trade Flows

Dep. var.: Bilateral DDS trade	Coef.	Std. Error
Digital TTD (dummy)	-0.013	(0.043)
RTA (dummy)	0.217	(0.088) **
Contiguity	-0.023	(0.121)
Common language	0.457	(0.090) ***
Colonial tie	-0.093	(0.119)
Log distance	-0.472	(0.043) ***
Exporter GDP (log)	1.029	(0.081) ***
Importer GDP (log)	0.723	(0.215) ***
N	429,410	
Mean of dep. var. (million USD)	63.29	
FE absorbed	exp, imp, year	
SEs	dyad-clustered	

Note: Dyad-clustered robust standard errors in parentheses. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

2. PPML Gravity Model Estimation for CRM TTDs and Bilateral CRM Trade

The CRM specification follows standard gravity practice (Anderson and van Wincoop, 2003; Head and Mayer, 2014). Exporter-year and importer-year fixed effects absorb all country-specific shocks such as GDP or production, while dyad fixed effects capture time-invariant bilateral factors. Identification therefore comes from within-dyad changes in policy status. This design is consistent with the benchmark PPML approach in trade (Santos Silva and Tenreyro, 2006; Larch and Yotov, 2024), and the estimation equation is:

$$E[CRM_{ij,t}|X_{ij,t}] = \exp(f \cdot CRM_{TTD}_{ij,t} + g \cdot RTA_{ij,t} + \varphi_{i,t} + \psi_{j,t} + \delta_{ij})$$

The notations are:

- $CRM_{ij,t}$ = Bilateral critical raw minerals trade between exporter i and importer j in year t
- $CRM_{TTD}_{ij,t}$ = CRM TTD dummy
- $RTA_{ij,t}$ = Regional trade agreement dummy
- $\varphi_{i,t}$ = Exporter-year fixed effects
- $\psi_{j,t}$ = Importer-year fixed effects
- δ_{ij} = Dyad (exporter-importer pair) fixed effects
- f = Coefficient of interest (the impact CRM TTD on bilateral trade flows)

Table 8.A.4: Impact of CRM TTDs on Bilateral Critical Raw Minerals Trade Flows

Dep. Var.: Bilateral CRM Trade	Coef.	Std. Error
CRM TTD (dummy)	0.117	(0.051)**
RTA (dummy)	0.303	(0.089)***
N	250,252	
Mean of dep. var. (million USD)	125.52	
FE absorbed	exp-year, imp-year, dyad (exp-imp pair)	
SEs	dyad-clustered	

Note: Dyad-clustered robust standard errors in parentheses. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

3. Digital TTDs, Binding Language and Impact on DDS Bilateral Trade

This annex extends the baseline gravity analysis of digital TTDs using a measure of enforceability as a proxy for the extent and ambition for the TTD to assess whether the heterogeneity of TTDs affects their trade effects. The model adds an interaction term for digital TTD \times binding language, while the standalone binding language dummy is omitted due to multicollinearity. This setup separates the average effect of digital TTDs from the incremental effect of agreements that contain binding provisions. The

analysis is suggestive only: eight digital TTDs in our dataset include binding language, representing about 2% of digital TTD dyad-years and less than 0.1% of all dyad-year observations (including both TTD and non-TTD dyad years). Results should therefore be interpreted as preliminary and indicative only, and no causal interpretation should be inferred.

Table 8.A.5: Impact of Digital TTDs with Binding Language on Bilateral Digital Trade Flows

Dep. Var.: Bilateral DDS Trade	Coef.	Std. Error
Digital TTD (dummy)	-0.047	(0.048)
RTA (dummy)	0.224**	(0.088)
Digital TTD × binding language	0.284***	(0.110)
Contiguity	-0.025	(0.121)
Common language	0.461***	(0.091)
Colonial tie	-0.094	(0.119)
Log distance	-0.471***	(0.043)
Exporter GDP (log)	1.045***	(0.083)
Importer GDP (log)	0.742***	(0.215)
N	429,410	
Mean of Dep. Var. (million USD)	63.29	
FE absorbed	exp, imp, year	
SEs	dyad-clustered	