1. Introduction

Digitalization has changed how firms organize international business. Software, audiovisual content, platform-enabled services, cloud solutions, and many business-to-business offerings can now be delivered across borders without the physical movement of goods. This shift has encouraged a familiar claim: when products are delivered electronically, geography should matter less for international exchange (Blum & Goldfarb, 2006; Lendle et al., 2016). Yet digital markets remain far from borderless. The frictions that shape cross-border exchange are not disappearing; they are being reconfigured. In digital business, the main constraints increasingly arise from institutional heterogeneity, legal uncertainty, and fragmented governance regimes rather than from transportation costs alone (Meyer et al., 2023; OECD, 2023).

That observation has immediate policy relevance. Governments now influence cross-border digital transactions through privacy law, cybersecurity requirements, content governance, taxation, competition policy, and rules governing cross-border data transfers. These interventions often reflect legitimate domestic objectives, including consumer protection, security, competition oversight, and technological sovereignty. At the same time, regulatory divergence can raise the cost of operating internationally by requiring firms to segment data architecture, duplicate infrastructure, redesign products, or limit market participation (Meyer et al., 2023; Rong et al., 2025). Digital business therefore remains deeply conditioned by national institutions, even when delivery is technologically border-light.

This study argues that the key barrier in digital markets is effective distance: the combined friction created by geography, communication barriers, cultural separation, institutional differences, and policy fragmentation. That framing is important because distance in gravity models has always captured more than freight costs (Gervais, 2019). Even in physical trade, bilateral distance proxies for information problems, search costs, contracting difficulties, and coordination challenges. In digital settings, the transport component weakens, which makes the remaining elements of effective distance easier to observe and more important for firm strategy (Akerman et al., 2022). The core international business policy question is therefore not simply whether distance still matters, but whether policy can reduce the residual frictions that separate digital markets.

Framed in this way, this paper contributes to the international business (IB) literature on multidimensional distance. We show that cross-national differences are not reducible to geography by demonstrating that digitalization changes the composition rather than the importance of cross-border frictions. As transportation barriers decline, institutional and policy-related dimensions become more consequential for international business activity (Berry, Guillen, & Zhou, 2010; Meyer et al., 2023). Effective distance is thus both a gravity-model interpretation and an IB concept: it captures the practical burden of operating across heterogeneous country environments in the digital economy.

This paper compares trade frictions across physical goods, traditional services, and digitally delivered products. It then evaluates whether digital-trade provisions in trade agreements are associated with stronger bilateral digital exchange and whether those effects vary across media, games, and online services. The analysis uses bilateral digital-trade data constructed from corporate revenue information and compares them with standard bilateral datasets on goods and services trade over 2016-2021 (Stojkoski et al., 2024; Borchert et al., 2021; Larch et al., 2025). The policy variable is taken from Trade Agreement Provisions on Electronic-commerce and Data (TAPED), which codes electronic-commerce and data-related commitments in trade agreements (Burri et al., 2025). Global flows also appear more resilient than deglobalization narratives suggest even as their composition becomes more digital and more policy shaped (Altman et al., 2024).

The recent works by OECD and UNCTAD reinforce this motivation by showing that cross-border data flows, interoperability frameworks, and digital governance arrangements have become central determinants of international exchange (Lopez Gonzalez & Jouanjean, 2017; Casalini & Lopez Gonzalez, 2019; UNCTAD, 2021). As transportation frictions recede, differences in data-transfer rules, privacy regulation, and digital market governance increasingly shape the costs of international business activity. Digital trade policy has become a core mechanism through which governments shape business opportunities.

Our findings point to a shift in the composition of cross-border frictions. Distance reduces trade in all categories, but the effect is much smaller for digital trade than for physical goods and traditional services. Digital-trade provisions are positively associated with aggregate bilateral digital trade, and the association is strongest for online services, where regulatory predictability, trusted data transfers, and interoperability are central to delivery. By contrast, digital media and games remain more sensitive to language, culture, licensing, and content governance. This study therefore shows that policy and institutional compatibility increasingly define effective distance in digital markets and that the governance of digital trade varies systematically across business models.

2. Theory and hypotheses

In standard gravity models, bilateral distance summarizes a bundle of frictions that includes transport costs, information asymmetries, search costs, contracting problems, and uncertainty. That interpretation remains useful in digital settings, but the content of distance changes when products are delivered electronically. The internet reduces delivery and some search costs, yet it does not erase unfamiliarity, language barriers, legal uncertainty, or the need to coordinate operations across jurisdictions (Blum & Goldfarb, 2006; Akerman et al., 2022). Even highly scalable digital firms must still operate within country-specific rules governing personal data, content, payments, taxation, liability, and competition (Meyer et al., 2023). A distance

coefficient in digital trade should therefore be interpreted less as a freight-cost elasticity than as a compact measure of residual frictions associated with transacting across separated institutional environments.

We define effective distance as the total friction firms face when conducting cross-border digital transactions. It includes at least three dimensions. First, geography still matters because physical separation affects time zones, interpersonal coordination, market knowledge, and cultural embeddedness. Second, institutional distance matters because firms must comply with heterogeneous national rules affecting the collection, storage, processing, and transfer of data. Third, policy fragmentation matters because those rules are actively designed and revised by governments rather than simply inherited as background conditions (OECD, 2023; Chisam et al., 2026). This framing aligns with IB research showing that digital strategy and internationalization remain deeply conditioned by national institutions (Meyer et al., 2023; Stallkamp & Schotter, 2021).

The concept connects directly to the broader IB literature on multidimensional distance. Cross-national differences include not only geography but also administrative, institutional, cultural, and economic dimensions that affect cross-border transactions and organizational adaptation (Berry, Guillen, & Zhou, 2010). Our claim is not that digitalization eliminates distance. Instead, digitalization changes which dimensions of distance matter most. As transport frictions weaken, governance compatibility, legal predictability, and institutional interoperability become more salient. Effective distance is therefore a conceptual construct rather than a directly observed variable; it helps explain why institutional and policy variables retain explanatory power after transportation-related barriers diminish.

The first implication is comparative. If digital delivery reduces the transport-related component of distance, then geographic distance should exert a weaker negative effect on digital trade than on physical goods and many traditional services. That expectation is consistent with evidence from goods, services, and internet-mediated transactions showing that distance has not vanished, but that its meaning varies across activities (Yotov, 2012; Borchert & Yotov, 2017; Gervais, 2018). Traditional services should occupy an intermediate position because many still require local adaptation, face-to-face interaction, or national authorization. This logic motivates Hypothesis 1 (H1): distance elasticities should be smallest for digital trade.

The second implication concerns policy. Digital business models are highly sensitive to rules governing information movement, storage, and use (Chisam et al., 2026; Rong et al., 2025). When countries adopt divergent regulatory regimes, firms may need to localize data, redesign products, duplicate compliance functions, or segment operations by jurisdiction. Digital-trade provisions in trade agreements may mitigate those frictions by clarifying permissible transfers, limiting localization demands, recognizing electronic signatures, and encouraging regulatory cooperation. Yet digital trade agreements should not be treated as a black box. Their provisions vary in whether they address cross-border data flows, data localization, electronic transactions,

regulatory cooperation, or interoperability mechanisms. Provisions that facilitate trusted data transfers and regulatory interoperability are likely to reduce effective distance more directly than provisions focused mainly on procedural aspects of digital commerce (Lopez Gonzalez & Jouanjean, 2017; Spiezia & Tscheke, 2020; Burri et al., 2025). Digital commitments thus reduce uncertainty and improve interoperability, allowing firms to translate one regulatory system into another at lower cost. Hypothesis 2 (H2) therefore predicts a positive association between digital-trade provisions and bilateral digital trade.

Importantly, regulatory interoperability should not be equated with complete harmonization. Governments continue to pursue legitimate objectives related to privacy, cybersecurity, consumer protection, competition, and technological sovereignty. As a result, effective digital trade governance often involves balancing openness with regulatory autonomy rather than eliminating regulatory differences altogether (Casalini & Lopez Gonzalez, 2019; UNCTAD, 2021). From an IB policy perspective, the issue is whether policy can create enough predictability and compatibility to support cross-border exchange while preserving domestic policy space. Interoperability may therefore be more realistic and politically feasible than harmonization.

The third implication is heterogeneity within digital trade. Brandl et al. (2025) argue that services differ in digitizability, information intensity, and regulatory exposure. Online services often depend on continuous cross-border data processing, cloud infrastructure, remote account management, payment integration, and algorithmic personalization. Media and games, although digitally delivered, remain more deeply embedded in language, licensing, intellectual property, content moderation, age restrictions, and culturally specific demand. Digital delivery also does not eliminate trust requirements, communication barriers, or culturally embedded demand; these remain strongly associated with cross-border exchange online (Blum & Goldfarb, 2006; Akerman et al., 2022). This implies that policy effects should vary across digital business models. Hypothesis 3 (H3) therefore predicts that online services will be less sensitive to geography and more responsive to institutional and policy compatibility than consumer-facing digital content.

3. Data and methodology

The empirical analysis estimates gravity models for bilateral trade in physical goods, traditional services, and digitally delivered products over 2016-2021. The strategy is comparative: modeling multiple transaction types within a common framework makes it possible to assess whether bilateral frictions change as delivery shifts from physical shipment to electronic transmission. Bilateral imports by destination country i from origin country j in year t (m_{ijt}) are modeled as a function of log distance ($Dist_{ij}$) and a vector of bilateral covariates ($\boldsymbol{X}_{ijt}$), with importer-year (α_{it}) and exporter-year (γ_{jt}) fixed effects, as shown in Equation (1), where ϵ_{ijt} is the error term.

$$m_{ijt} = \exp\left[\alpha_{it} + \gamma_{jt} + \delta \log\left(Dist_{ij}\right) + \boldsymbol{\beta X}_{ijt}\right]\epsilon_{ijt} \quad (1)$$

The models are estimated using Poisson pseudo-maximum likelihood (PPML), now standard in gravity work because it accommodates zero trade flows and avoids the bias induced by heteroskedasticity in log-linear specifications (Silva & Tenreyro, 2006). The inclusion of fixed effects aligns the estimates with contemporary sectoral gravity analysis, including the treatment of country-time heterogeneity (Azevedo et al., 2024).

The empirical exercise proceeds in two steps. The baseline specification includes geographic distance and standard bilateral gravity controls: contiguity, colonial ties after 1945 (*Col45*), participation in a regional trade agreement (*RTA*), common religion (*Comrelig*), and linguistic proximity (*Lpn*). This first step establishes whether geography matters differently across goods, services, and digital trade. The second step adds two variables intended to capture non-geographic dimensions of effective distance: a broader communication-and-cultural proximity measure (*Cnl*) and an indicator for whether the country pair is linked by a trade agreement containing digital-trade provisions (*TAPED*). If the distance coefficient falls, especially in digital trade, once these variables are introduced, that pattern is consistent with the argument that what appears to be distance in digital markets partly reflects institutional and regulatory separation rather than physical remoteness alone. Because effective distance is conceptual rather than directly observed, the empirical strategy tests its relevance indirectly through the changing explanatory power of geography, communication, and policy variables.

Distance is measured as kilometers between the most populous cities of country pairs. In physical goods trade, this variable continues to proxy transport and logistics costs. In digital trade, however, the coefficient is interpreted more broadly as capturing residual frictions correlated with geography, including information barriers, preference differences, and regulatory separation. The model therefore includes several bilateral proximity measures to distinguish kilometer-based remoteness from broader familiarity. Linguistic proximity draws on the common-language data developed by Gurevich et al. (2024), while common religion, colonial ties, and the communication-and-cultural index help identify whether the estimated distance effect reflects shared norms and ease of interaction rather than transportation alone. This specification responds directly to cautions in the trade-cost literature about indirect measures of distance and their interpretation (Gervais, 2019).

The bilateral goods and services data cover 229 countries and are drawn from datasets commonly used in gravity estimation (Borchert et al., 2021; Larch et al., 2025). The digital-trade data come from the bilateral dataset on digitally delivered products constructed from corporate revenue information by Stojkoski et al. (2024). These data cover 188 destination countries and 103 origin countries and include digitally encoded intangible goods and electronically delivered

services such as music, films, software, video games, cloud computing, and digital advertising. A major advantage of the dataset is that it can be disaggregated into digital media, online games, and online services, allowing direct tests of heterogeneity across business models.

The policy variable is drawn from TAPED, which identifies trade agreements containing e-commerce and data-related commitments (Burri et al., 2025). This variable is central because it captures whether public policy may reduce effective distance by increasing legal predictability and interoperability in cross-border digital exchange. The measure, however, does not identify which specific provision type drives the estimated association. The policy effect is therefore interpreted as evidence on the aggregate relevance of digital trade governance rather than as a direct estimate of the effects of particular commitments on data flows, localization, or electronic transactions. That interpretation is consistent with emerging digital economy agreements such as CPTPP and DEPA, as well as ongoing WTO e-commerce negotiations, all of which seek to facilitate trusted data flows and regulatory cooperation while preserving domestic policy space.

The design incorporates two safeguards. First, because the digital dataset covers fewer countries than the goods and services datasets, the analysis compares full-sample estimates for goods and services with estimates restricted to the same country pairs observed in the digital data. Second, the study reports robustness exercises using geodesic capital-to-capital distance and arithmetic-mean and harmonic-mean population-weighted city-level measures from the CEPII Gravity Database (Conte et al., 2022). One limitation remains: data for intra-national digital flows are not available, so the results should be interpreted as evidence on bilateral cross-border frictions rather than as a full domestic-versus-international decomposition of trade costs (Yotov, 2012, 2022).

4. Results, discussion, and policy relevance

The estimates reveal a clear hierarchy in the role of geography across transaction types. In the aggregate regressions, physical goods display the largest negative coefficient on log distance, ranging from approximately -0.628 in the baseline model to -0.586 in the preferred specification with additional controls. Traditional services also exhibit sizeable distance effects, with coefficients between roughly -0.589 and -0.519. Digital trade, by contrast, shows substantially smaller elasticities, from around -0.253 in the simpler model to -0.174 in the most controlled specification. Restricting the goods and services regressions to the same country pairs observed in the digital dataset does not materially alter this ranking, indicating that the lower distance elasticity of digital trade is not simply a consequence of sample composition. The evidence therefore strongly supports H1: digital delivery attenuates the role of geography, but does not eliminate it.

This result fits the broader literature. For goods, the strong and stable coefficients accord with the classic gravity view that transportation and logistics remain central to trade patterns

(Yotov, 2012; Borchert & Yotov, 2017). For services, the intermediate coefficients are consistent with findings that many services remain exposed to local regulation and organizational coordination requirements (Kimura & Lee, 2006; Gervais, 2018). For digital exchange, the smaller distance effects echo research showing that the internet weakens but does not abolish the law of gravity because information frictions, preferences, search costs, trust requirements, and culturally embedded demand still matter online (Blum & Goldfarb, 2006; Akerman et al., 2022). Borders remain; what changes is the composition of the frictions they represent.

The augmented specifications sharpen that interpretation. For physical goods, adding communication and cultural controls leaves the distance coefficient large and stable, as expected if transport costs still anchor the trade-cost structure. Traditional services remain strongly distance-sensitive as well, although some bilateral controls weaken. Digital trade behaves differently. Once linguistic, cultural, and policy-related variables are added, the estimated role of geographic distance becomes smaller, while language and communication variables become much more salient. In the preferred digital specification, linguistic proximity is large and statistically significant, and the communication-and-cultural measure is strongly positive. This pattern suggests that a meaningful share of what distance appears to proxy in digital markets is the friction created by mutual intelligibility, communication environments, and institutional context.

The estimates for digital-trade provisions provide the clearest evidence on policy relevance. In the aggregate digital-trade models, the coefficient on the digital-provisions indicator is positive in all specifications and becomes statistically significant in the most demanding model, where it is approximately 0.151. The generic regional-trade-agreement indicator is not positive for digital trade in the same way and is statistically insignificant in the preferred specification. This divergence suggests that digital commitments are doing something more specific than broad trade liberalization. By clarifying data-transfer conditions, recognizing electronic transactions, and reducing uncertainty around compliance, digital provisions appear to lower effective distance between digital markets (Burri et al., 2025; Rong et al., 2025). Policy is therefore not merely background context; it helps constitute the conditions under which digital business becomes operationally feasible.

A policy-oriented interpretation, however, requires caution against treating digital trade policy as a one-dimensional liberalization project. The likely mechanism is greater interoperability rather than unrestricted convergence. Provisions that facilitate trusted data transfers, reduce unnecessary localization requirements, or promote regulatory cooperation may matter more than provisions dealing mainly with procedural aspects of electronic transactions. Moreover, governments continue to pursue legitimate policy objectives related to privacy, cybersecurity, consumer welfare, competition, and national security. The policy implication is not that all regulatory diversity is inefficient; it is that certain forms of interoperability can reduce avoidable frictions while preserving domestic regulatory autonomy (Casalini & Lopez Gonzalez, 2019; UNCTAD, 2021).

The disaggregated estimates complement the aggregate analysis by highlighting heterogeneity across digital trades. In the category-level models, media and games remain meaningfully sensitive to distance. For digital media, the coefficient on log distance is about -0.400 in the baseline and around -0.360 in the preferred specification. For online games, the coefficient is even larger, roughly -0.527 in the baseline and -0.494 in the preferred specification. These values are much closer to the traditional-services estimates than to the weakest online-services estimates. They indicate that consumer-facing digital content remains embedded in language, licensing, intellectual-property rules, content moderation, age restrictions, and country-specific demand conditions. Even when delivery is online, these categories continue to confront cross-border barriers that correlate strongly with spatial and institutional separation.

Online services display a markedly different pattern. In the baseline category model, the distance coefficient is already smaller than for media and games, at roughly -0.195. Once additional controls are introduced, it falls to approximately -0.085 and loses statistical significance. At the same time, the coefficient on digital-trade provisions becomes positive and significant, reaching about 0.201 in the preferred model. This contrast strongly supports H3. For data-intensive online services, the decisive impediments to cross-border exchange appear to be legal predictability, interoperability, and the practical feasibility of moving and processing data across jurisdictions rather than physical remoteness per se. These results are consistent with the view that cloud-based and platform-enabled business models rely on distributed infrastructure and continuous information flows, making regulatory compatibility more important than kilometers once transport frictions have been stripped away (Meyer et al., 2023; Lopez Gonzalez et al., 2023; Rong et al., 2025).

The robustness exercises point in the same direction. When the benchmark distance measure is replaced by geodesic capital-to-capital distance or by arithmetic-mean and harmonic-mean population-weighted city-level distances, the qualitative ranking remains unchanged: distance is strongest for physical goods, weaker for traditional services, and weakest for digital trade, while media and games remain more distance-sensitive than online services. Taken together, the results imply three policy lessons. First, the key border in digital markets is increasingly regulatory rather than physical. Second, digital-trade provisions can function as market-making instruments by reducing uncertainty and improving interoperability without requiring full harmonization. Third, policy should be business-model specific: rules that facilitate cross-border data use appear especially consequential for online services, whereas media and games may also require attention to content governance, consumer protection, and intellectual-property regulation.

5. Conclusions

The main conclusion is not that geography has become irrelevant in the digital economy, but that the meaning of distance has changed. In physical goods trade, distance still summarizes a

dense bundle of transport, logistics, and coordination costs. In traditional services, it remains important because many transactions still depend on local authorization, adaptation, and organizational proximity. In digital trade, by contrast, much of the transport component weakens and the remaining barriers increasingly reflect effective distance: the combined friction created by geography, communication barriers, institutional heterogeneity, and policy fragmentation. This conceptual shift is central to international business policy because it directs attention away from physical shipment alone and toward the governance architecture that shapes digital market access.

This study contributes to the IB literature in two ways. First, it extends research on multidimensional distance by showing that digitalization changes the composition rather than the relevance of cross-border frictions. Second, it links that idea to business-policy debates by showing that digital-trade governance can alter the effective distance firms face when they internationalize digitally. The contribution is therefore not primarily methodological; it is a policy-oriented account of how cross-border digital business depends on institutional compatibility across heterogeneous national systems.

The empirical evidence supports that interpretation on three fronts. First, the negative effect of geographic distance is substantially smaller for digitally delivered products than for physical goods and traditional services. Second, digital-trade provisions in trade agreements are positively associated with bilateral digital trade, especially once broader institutional controls are considered. Third, the disaggregated analysis shows that digital trade is internally heterogeneous: online services appear less sensitive to geographic distance and more responsive to policy and institutional compatibility than media and games. These findings imply that public policy increasingly shapes the boundaries of digital business by influencing whether firms can move data, coordinate operations, and transact predictably across jurisdictions.

The results also carry implications for policy design and firm strategy. Governments seeking to support digital trade should reduce unnecessary uncertainty and improve compatibility across jurisdictions through clearer data-transfer rules, stronger interoperability mechanisms, and better designed digital commitments in trade agreements. Firms, in turn, cannot assume that digital delivery alone guarantees borderless scale. Online services appear to benefit most when markets permit predictable data movement and interoperable compliance processes, whereas media and games remain more exposed to national differences in language, culture, licensing, and content rules. International business strategy in the digital economy therefore depends not only on technology and demand conditions, but also on how firms organize compliance, data governance, and market entry across heterogeneous institutional environments (Meyer et al., 2023; Brandl et al., 2025).

Some limitations remain. The estimates are based on aggregate bilateral flows rather than firm-level transactions, so the mechanisms are inferred rather than directly observed. The TAPED-based variable identifies the presence of digital provisions in trade agreements, but it

cannot isolate which specific commitments drive the estimated associations. Future research should therefore combine finer-grained policy measures with firm-level evidence on compliance costs, organizational adaptation, and market-entry strategy, including distinctions among rules on cross-border data flows, data localization, electronic transactions, and regulatory cooperation. More generally, the empirical analysis does not directly measure effective distance. Rather, effective distance serves as a theoretical construct that helps explain why institutional and policy variables retain explanatory power after transportation-related barriers diminish. Even with those limitations, the central message is clear: in digital markets, the most consequential borders are increasingly the ones that public policy creates or helps dismantle.

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Table 1: PPML estimates of Equation (1), 2016–2021

Imports	Physical goods				Traditional services				Digital goods		
Sample restriction	None	Same countries	Additional controls	Additional controls	None	Same countries	Additional controls	Additional controls	Same countries	Additional controls	Additional controls
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
log($Dist$)	-0.6283***	-0.6027***	-0.5933***	-0.5859***	-0.5890***	-0.5417***	-0.5370***	-0.5188***	-0.2531***	-0.2669***	-0.1743**
	(0.054)	(0.053)	(0.053)	(0.048)	(0.059)	(0.053)	(0.053)	(0.053)	(0.054)	(0.064)	(0.075)
Contiguity	0.4249***	0.3662***	0.4039***	0.3870***	0.3026***	0.3270***	0.3548***	0.2454***	-0.0450	-0.0535	-0.0662
	(0.103)	(0.093)	(0.085)	(0.089)	(0.078)	(0.075)	(0.065)	(0.070)	(0.222)	(0.256)	(0.208)
Lpn	0.0898	0.0467	0.0655	0.1523	-0.2916	-0.2007	-0.1870	0.3141	0.9043*	0.8780*	2.0252***
	(0.228)	(0.261)	(0.265)	(0.339)	(0.356)	(0.345)	(0.341)	(0.311)	(0.468)	(0.494)	(0.625)
Col45	0.4567*	0.4842*	0.3813	0.4057*	0.4325***	0.3615**	0.2805*	0.3524**	0.0363	-0.0234	0.0789
	(0.234)	(0.253)	(0.253)	(0.243)	(0.153)	(0.150)	(0.146)	(0.141)	(0.146)	(0.158)	(0.148)
Comrelig	0.1667	0.2207	0.1329	0.0668	0.6502**	0.7011**	0.7574**	0.6256**	0.5020	0.6183	0.0974
	(0.158)	(0.159)	(0.152)	(0.144)	(0.287)	(0.307)	(0.311)	(0.282)	(0.377)	(0.404)	(0.254)
RTA	0.2859***	0.2837***	0.2822***	0.2072*	0.3243***	0.3398***	0.3475***	0.2997***	-0.0571	-0.0703	-0.1000
	(0.085)	(0.098)	(0.102)	(0.107)	(0.096)	(0.093)	(0.100)	(0.108)	(0.075)	(0.085)	(0.088)
Cnl				0.1464				0.6268***			1.0257***
				(0.300)				(0.211)			(0.288)
Taped				0.1130				0.1410			0.1510*
				(0.117)				(0.092)			(0.078)
Observations	206,670	39,418	24,924	24,924	129,876	24,747	18,688	18,688	39,418	24,924	24,924
Robustness exercises: other distance measures											
log($Dist^H$)	-0.6734***	-0.6439***	-0.6391***	-0.6259***	-0.6328***	-0.5864***	-0.5812***	-0.5582***	-0.2880***	-0.3138***	-0.2169**
	(0.051)	(0.049)	(0.046)	(0.042)	(0.047)	(0.041)	(0.041)	(0.041)	(0.064)	(0.075)	(0.090)
log($Dist^A$)	-0.7474***	-0.7207***	-0.7145***	-0.6999***	-0.6901***	-0.6361***	-0.6322***	-0.6084***	-0.2881***	-0.3134***	-0.2104**
	(0.058)	(0.058)	(0.055)	(0.052)	(0.053)	(0.044)	(0.043)	(0.046)	(0.065)	(0.076)	(0.086)
log($Dist^C$)	-0.6897***	-0.6673***	-0.6584***	-0.6498***	-0.6098***	-0.5617***	-0.5586***	-0.5421***	-0.2431***	-0.2605***	-0.1658**
	(0.054)	(0.052)	(0.051)	(0.048)	(0.058)	(0.053)	(0.052)	(0.051)	(0.059)	(0.071)	(0.081)

Notes: All specifications include importer-year and exporter-year fixed effects. Two-way clustered standard errors by origin and destination are in parentheses. ***$p < 0.01$, **$p < 0.05$, and *$p < 0.1$. Robustness exercises replace $Dist$ by alternate distance measures. See text for further details.

Table 2: PPML estimates of Equation (1) for digital goods categories, 2016–2021.

Categories	Media	Games	Online services	Media	Games	Online services
	(1)	(2)	(3)	(4)	(5)	(6)
$log(Dist)$	-0.3995**	-0.5267***	-0.1950***	-0.3604**	-0.4936***	-0.0851
	(0.174)	(0.067)	(0.070)	(0.183)	(0.088)	(0.082)
Contiguity	-0.5721	-0.2995	0.0727	-0.5646	-0.3398	0.0268
	(0.404)	(0.238)	(0.290)	(0.393)	(0.226)	(0.208)
Lpn	1.3723**	0.6290**	1.0229*	1.9574***	1.0199*	2.5813***
	(0.662)	(0.310)	(0.621)	(0.654)	(0.554)	(0.843)
Col45	-0.2956	0.1430	0.0070	-0.2767	0.1617	0.1504
	(0.417)	(0.116)	(0.132)	(0.410)	(0.103)	(0.111)
Comrelig	-0.7418*	0.1018	1.0498	-0.8493***	0.1072	0.0089
	(0.449)	(0.322)	(0.769)	(0.311)	(0.280)	(0.471)
RTA	-0.1935	-0.0487	0.0238	-0.2758*	0.0003	-0.0272
	(0.167)	(0.104)	(0.132)	(0.160)	(0.148)	(0.160)
Cnl				0.4370	0.4763	1.2984***
				(0.325)	(0.569)	(0.403)
Taped				0.1449	-0.0155	0.2009**
				(0.157)	(0.141)	(0.099)
Observations	7,522	23,473	8,940	7,522	23,473	8,940
Robustness exercises: other distance measures						
$log(Dist^H)$	-0.4216**	-0.5579***	-0.2488**	-0.3909**	-0.5219***	-0.1261
	(0.183)	(0.074)	(0.104)	(0.192)	(0.088)	(0.117)
$log(Dist^A)$	-0.4297**	-0.5840***	-0.2531**	-0.3922*	-0.5444***	-0.1257
	(0.195)	(0.079)	(0.103)	(0.203)	(0.096)	(0.111)
$log(Dist^C)$	-0.3910**	-0.5191***	-0.1864**	-0.3495*	-0.4807***	-0.0766
	(0.178)	(0.071)	(0.082)	(0.190)	(0.090)	(0.094)

Notes: All specifications include importer-year and exporter-year fixed effects. Two-way clustered standard errors by origin and destination are in parentheses. ***$p < 0.01$, **$p < 0.05$, and *$p < 0.1$. Robustness exercises replace $Dist$ by alternate distance measures. See text for further details.