World Trade Organization

Economic Research and Statistics Division

GREAT EXPECTATIONS: QUANTIFYING THE POTENTIAL ECONOMIC IMPACT OF THE WTO AGREEMENT ON E-COMMERCE

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Manuscript date: 23 September 2025

Abstract:

As digital trade becomes an increasingly vital component of the global economy, identifying the impact of wider international cooperation on digital trade issues becomes a growing policy imperative. This paper seeks to provide a quantitative analysis of the potential economic impacts of concluding the WTO Agreement on E-commerce (AoE). Immediate adoption of the AoE by the 71 economies that currently support its incorporation is projected to raise their GDP by 0.43% and trade by 0.97% with global GDP increasing by 0.14% and global trade by 0.58%. For each year that the implementation is delayed, USD 159 billion is being left on the table (cumulative USD 2.4 trillion until 2040). The quantitative analysis also indicates that if the AoE were to be extended to all WTO Member States, the global economic benefits would nearly quadruple from a 0.14% to a 0.51% increase in GDP and a 2.3% increase in global trade, or USD 8.7 trillion by 2040, mostly favouring low- and lower-middle-income economies, particularly in Sub-Saharan Africa and South Asia. As WTO Members continue to deliberate about how best to incorporate the AoE into the WTO architecture, the findings from this paper underscore the economic benefits of enacting the AoE and the importance of expanding participation as much as possible to maximise its development potential.

Key Words: Computable General Equilibrium Models; Trade Policy; E-Commerce
JEL codes: C68; F13; L81
Print Date: 23 September 2025

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1. Introduction

The digital transformation has reshaped the global economy, fundamentally altering how goods and services are produced, exchanged, and consumed (IMF, OECD, UNTAD, WBG, WTO, 2023[1]). As a result, digital trade has emerged as one of the fastest growing segments of international trade with digitally delivered services growing at nearly twice the speed of goods trade since 2005 (WTO, 2025[2]). In parallel, digital trade discussions have gained momentum – reflected in the growing inclusion of digital trade chapters in trade agreements, the rise in dedicated digital economy and digital trade agreements, and the plurilateral discussions under the WTO's Joint Statement Initiative (JSI) on e-commerce, which reached agreement on a stabilised text for a *WTO Agreement on E-commerce* (AoE) in July 2024.

Despite the increasing importance of digital trade, policymaking in this area remains hindered by a lack of clear evidence on the potential economic implications of international cooperation in this area. Beyond political consensus, crafting effective digital trade policies demands a robust understanding of how digital trade agreements affect global markets, trade flows, and the distribution of economic benefits.

Against this backdrop, the aim of this paper is to quantify the potential economic impact of digital trade discussions at the WTO with a specific focus on the Agreement on E-commerce. By grounding the analysis in strong empirical evidence and sound quantitative analysis, this work aims to contribute to a more informed and balanced approach to digital trade governance.

Methodologically, the analysis proceeds in three steps. First, employing a structural gravity model, the impact of changes in the OECD Index of Digital Trade Integration and Openness (INDIGO)— (OECD, 2025[3]) on trade flows is estimated. Second, changes in projected ad valorem equivalent trade costs (AVEs) are calculated by combining the findings from step 1 with a counterfactual analysis identifying how the OECD INDIGO would change as a result of the AoE. Two scenarios are investigated: (i) the adoption of the AoE by the 71 economies that currently support its incorporation into Annex IV at the WTO (AoE71); and (ii) the adoption of the AoE by all 166 WTO Members (AoE166). Third, the WTO Global Trade Model, a computable general equilibrium (CGE) model, is employed to project the economic impact on trade and GDP of the changes in trade costs from step 2.

The analysis generates five main findings. First, analysis using the INDIGO reveals that existing digital trade integration and openness is in its early stages, only 8.5% of the way towards what might be considered full integration. Second, counterfactual analysis using the INDIGO suggests that digital trade integration and openness would increase by 21% as a result of the AoE 71. However, if all WTO Members join the AoE, digital trade integration and openness would increase by 244%.

Third, the simulations project important economic gains at the global level across both scenarios. More specifically, under the AoE 71 scenario, the GDP and trade of participating economies is projected to rise by 0.43% and 0.97% respectively and by 0.14% and 0.58% globally. This means that, every year the agreement incorporation into the WTO architecture is delayed leads to foregone trade of USD 159 Billion (with a cumulative total of USD 2.4 trillion until 2040). Under the AoE166 scenario global GDP would rise by 0.51% and trade by 2.3%, the global cumulative increase in trade in the AoE166 scenario is about four times larger at USD 8.7 Trillion.

Fourth, in the AoE71 scenario gains concentrate across participating economies and are largest for low and lower-middle income economies. That said, since more high-income and upper-middle income economies are currently participating, gains are somewhat concentrated in these economies. However, in the hypothetical AoE166 scenario where all WTO Members join, low and lower middle-income economies are projected to benefit most. In low-income economies real GDP and real exports would go up by 2.5% and 4.5% respectively, while in lower-middle

income economies, GDP would go up by 1.3% and exports by 4%. Importantly, in this scenario the gains would also rise for higher-middle-income and high-income economies.

Fifth, the projected effects of the AoE on trade and in particular GDP depend on the projected trajectory for global trade growth, including in the context of accelerating technical change. More specifically, the projections include increasing trade associated with digitalization and the reduced need for physical face-to-face interaction. Without this technological trend in the baseline, the projected impact of the AoE on global GDP would be of 0.10% instead of 0.14%. This indicates that the economic importance of the AoE rises as digital adoption increases. This is especially important in the current context where Artificial Intelligence is revolutionising economic activity. As the impact of AI diffuse across the economy the impact of the AoE would also increase.

The empirical analysis of the impact of digital trade commitments on trade flows remains at an early stage, not least because a comprehensive mapping of such provisions has only recently become available through the TAPED dataset (Burri and Polanco, 2020[4]) (Burri, Vasquez Callo-Muller and Kugler, 2022[4]). Using a structural gravity model, Herman and Oliver (2023[6]) find that provisions facilitating digital trade in trade agreements significantly increase trade, especially for services exporters in high-income economies. López González, Sorescu and Kaynak (2023[7]) show that digital trade chapters in trade agreements, alongside improvements in connectivity, significantly reduce trade costs and increase trade flows. Building on this, López-González, Sorescu and Del Giovane (2024[8]) show that the inclusion of digital trade chapters in PTAs can potentially double the trade effects of such agreements, with particularly strong impacts arising from provisions on cross-border data flows, data localisation and source code.

However, several limitations persist in the identification of the impact of digital trade chapters in trade agreements on trade. This includes issues related to self-selection into trade agreements and the existence of concurrent commitments. This paper builds on existing work to further control for these issues, and, to our knowledge, is the first to attempt identifying the impact of a future digital trade agreement on economic activity. Combining econometric methods with a computable general equilibrium model allows capturing general rather than partial equilibrium effects, likely to be important in the context of agreements involving multiple parties. Since the INDIGO measures commitments in international agreements, the analysis focuses on the impact of commitments with the (implicit) assumption that these are implemented.

Drawing on the recently created OECD INDIGO, the next section provides an overview of the evolving digital trade policy landscape. Section three then discusses, using the INDIGO, how the WTO Agreement on E-commerce might change existing digital trade integration. Section four describes the method used to project the economic impact of the AoE under different scenarios. Section five presents the results from different simulations and section six concludes.

This quantitative assessment is designed to help policymakers weigh the opportunity costs of participation in this agreement. It is undertaken without prejudice to the ongoing discussions on the incorporation of the WTO AoE.

2. International discussions on digital trade are growing

The regulatory landscape for digital trade is complex and fast evolving. Since the year 2000, nearly half of all newly signed trade agreements include a dedicated digital trade chapter (López González, Sorescu and Kaynak, 2023[4]). More recently, economies have started negotiating Digital Economy Agreements (DEAs) or Digital Trade Agreements (DTAs)— these are standalone agreements designed to facilitate digital trade and promote cross-border cooperation. Additionally, at the 11th WTO Ministerial Conference in Buenos Aires in December 2017, 71 WTO Members issued a Joint Statement to initiate exploratory discussions on trade-related aspects of e-commerce. These discussions concluded in July 2024 with a stabilised-text for an

Agreement on E-Commerce (AoE). In parallel, digital trade-related issues are also being discussed in other established fora such as the Asia Pacific Economic Cooperation (APEC), the Organisation for Economic Cooperation and Development (OECD), and the United Nations.

Against this backdrop, the OECD's Index of Digital Trade Integration and Openness (INDIGO)—(OECD, 2025[5])—provides insights into the evolution of efforts to reduce digital fragmentation by increasing international cooperation in the area of digital trade. The index is a summary measure of evolving international discussions and commitments on issues that matter for digital trade across 193 economies from 2000 to 2024. It ranges from zero to one, where zero implies no digital trade integration and openness and one captures full digital trade integration and openness with all partners and across all issues identified.

The INDIGO's bilateral level calculation captures not only the breadth of international discussions but also their depth. That is, it can be understood as a measure of distance to full digital trade integration with all partners. Additionally, the INDIGO distinguishes between two dimensions:

- **INDIGO-i** tracks *non-trade-related* international instruments, including agreements on privacy, cybersecurity, and AI governance.
- **INDIGO-t** focuses on *trade-related instruments*, including WTO agreements, regional trade agreements, and dedicated digital economy agreements.

The INDIGO is based on an underlying framework that reflects ongoing and concluded digital trade and related discussions, covering 28 specific areas categorised under five broad policy areas:

- **Enabling e-commerce**: Including issues related to electronic transaction frameworks, electronic authentication and electronic signatures, electronic contracts, electronic invoicing, electronic payments, digitalising border processes and paperless trading.
- **Openness and e-commerce**: Including customs duties on electronic transmissions, as well as access to the internet, telecommunications, ICT goods and open government data.
- **Trust and e-commerce**: Including online consumer protection, unsolicited commercial electronic messages, personal data protection, source code, cryptography, and cybersecurity.
- **Cross-border data flows and data localisation**: Including location of computing facilities.
- **Emerging digital economy issues**: Including competition in the digital economy, digital inclusion, digital identities, artificial intelligence, taxation and FinTech.

By offering a structured and evolving view of digital trade integration, the INDIGO serves as a critical tool for policymakers, helping identify where progress is being made, where gaps remain, and how economies can work together to create a more open and seamless global digital economy. For instance, in terms of discussions outside of trade agreements (Figure 1a), the INDIGO-i shows that, before 2020, progress was achieved through the adoption of UNCITRAL instruments, discussions related to privacy regulation[3] and broader data governance. A significant spike in 2020 reflects progress on tax challenges arising from the digitalisation of the Economy under the G20/OECD Inclusive Framework on Base erosion and profit shifting (BEPS) and Artificial Intelligence (AI) governance at the G20, the OECD and United Nations Educational, Scientific and Cultural Organization (UNESCO).

Where trade discussions are concerned (Figure 1b), the INDIGO-t shows progress in the area of *openness to e-commerce*, driven by WTO initiatives such as the Telecommunications Reference Paper, the WTO Information Technology Agreement (ITA) and the WTO e-

[3] See for example, the OECD Privacy Guidelines (updated in 2013) and APEC's Cross-border Privacy Rules (CBPR).

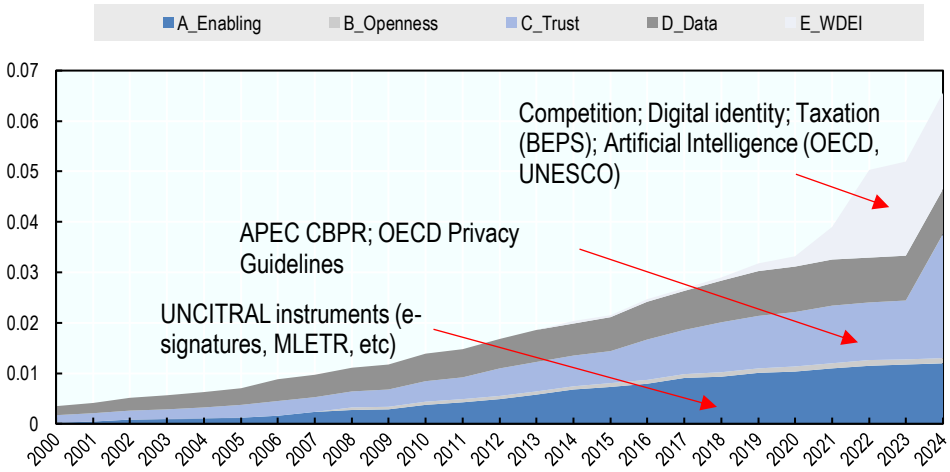
commerce Moratorium (which is the only explicit WTO provision on e-commerce that applies to all WTO Members). Advances are also seen in *enabling e-commerce* as Members implement the WTO Trade Facilitation Agreement which contains elements that matter for the facilitation of digital trade.

The INDIGO reveals that WTO instruments remain fundamental in driving existing global integration and openness in digital trade—RTAs account for 10% of the current INDIGO-t value (OECD, 2025[5]). This is because, while digital trade provisions in RTAs and digital economy agreements have been proliferating, to date, these continue to involve a small set of predominantly high- and upper-middle income economies (López González, Sorescu and Kaynak, 2023[4]).

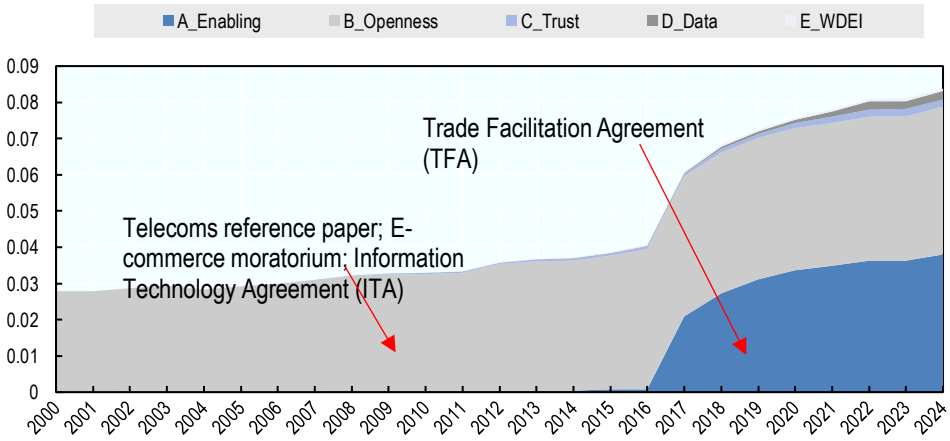
Despite progress, global digital trade integration and openness remain in their early stages. The world economy is only 8.5% of the way towards full digital trade integration and openness, signalling both the challenges ahead but also the opportunities for wider (more economies) and deeper (more issues) international cooperation.

Figure 1. International discussions on issues that matter for digital trade are growing

a. Non-trade instruments - Global INDIGO-i



b. Trade instruments - Global INDIGO-t



Note: The figure shows the unweighted average INDIGO across all 193 economies covered and the contribution of the five broad policy areas.
Source: (OECD, 2025[5])

3. The Agreement on E-commerce is poised to significantly increase the level of digital trade integration and openness

Beyond measuring existing integration and openness to digital trade, the INDIGO can be used for counterfactual, 'what-if?', analysis. The stabilised text of the AoE (July 2024) can be coded to simulate what the INDIGO-t would look like if implemented (without prejudice to how the agreement is implemented). Table 1 displays, for the five broad policy areas, the score that would arise as a result of the AoE.[4] A score of zero implies no commitment, a score of 0.5 a non-binding commitment and a score of 1 a binding commitment.

The AoE has a strong coverage in areas related to *enabling electronic commerce*, this includes provisions on electronic transaction frameworks, e-authentication, e-signatures, e-contacts and e-invoicing (among others). Indeed, in the context of the INDIGO framework, the AoE scores 5 out of a possible 7 points in this category.

In the area of *openness and e-commerce*, which, among others, includes the non-imposition of customs duties on either electronic transmissions or on ICT goods, the AoE covers most elements except for market access for ICT goods, scoring a total of 3 out of 5 points.

In *trust and e-commerce*, the AoE touches on consumer protection, spam, personal data protection and cybersecurity, but not on source-code and cryptography (scoring 3.5 out of 6 potential points).

Although appearing in many trade agreements, the AoE does not include commitments on cross-border data flows and data localisation, nor does it cover any of the issues classified under *wider digital economy issues*.

Overall, under the INDIGO framework, the AoE scores 11.5 points of a potential 28 points, suggesting the agreement is 40% of the way towards maximum depth (38% when applying weights).[5] As a point of reference, the Digital Economy Partnership Agreement (DEPA) between Chile, Korea, New Zealand and Singapore scores 16 out of 28 (57% of the way towards maximum depth) and the UK-Singapore Digital Economy Agreement (DEA), the deepest identified in the INDIGO database, scores 18 out of 28 (64%).

Table 1. Scores for 'Stabilised text' of WTO Agreement on E-commerce

Policy area	Specific area	AoE article	Score
A. Enabling electronic commerce	1. Electronic transaction frameworks	Article 4: Electronic transaction framework	0.5
	2. Electronic authentication and electronic signatures	Article 5: Electronic authentication and electronic signatures	1
	3. Electronic contracts	Article 6: Electronic contracts	1
	4. Electronic invoicing	Article 7: Electronic invoicing	1
	5. Electronic payments	Article 10: Electronic Payments	0.5
	6. Digitalising border processes	Article 9: Single windows data exchange and system interoperability	0.5
	7. Paperless trading	Article 8: Paperless trading	0.5

[4] The AoE agreement is coded with some differences relative to how it is coded in the TAPED database (Burri, Vasquez Callo-Muller and Kugler, 2022[25]). For example, the TAPED database codes Article 11: Customs duties on electronic transmissions as 0.5, the INDIGO codes this as 1. This change is based on the deep analysis of such provisions in (Andrenelli and Lopez-Gonzalez, 2023[35]) Other minor differences arise in some digital trade facilitation areas.

[5] The INDIGO framework applies distributed weights that give more importance to some elements over others. Here the unweighted score is higher than the weighted score because the AoE does not include commitments in the area of cross border data flows and data localisation, which tend to have higher weights in the INDIGO methodology, see (OECD, 2025[3]).

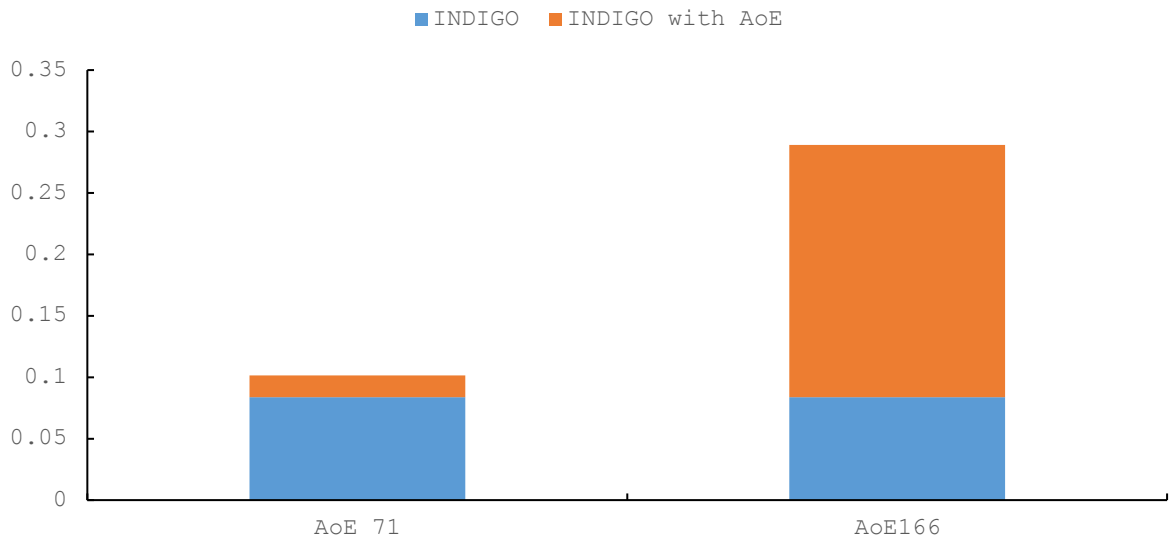
B. Openness and electronic commerce	8. Non-imposition of Customs duties on electronic transmissions	Article 11: Customs duties on electronic transmissions	1
	9. Open government data	Article 12: Open government data	0.5
	10. Access to and use of the internet for electronic commerce	Article 13: Access to and use of the Internet for electronic commerce	0.5
	11. Non-imposition of customs duties on ICT goods		0
	12. Disciplines related to Telecommunication Services	Article 21: Telecommunications	1
C. Trust and electronic commerce	13. Online consumer protection	Article 14: Online consumer protection	1
	14. Unsolicited commercial electronic messages	Article 15: Unsolicited commercial electronic messages	1
	15. Personal data protection	Article 16: Personal data protection	1
	16. Source code		0
	17. Cryptography		0
	18. Cybersecurity	Article 17: Cybersecurity	0.5
D. Cross-border data flows and data localisation	19. Cross-border data flows		0
	20. Location of computing facilities		0
E. Wider digital economy issues	21. Competition policy in the digital economy		0
	22. Digital identities		0
	23. Digital inclusion		0
	24. FinTech cooperation		0
	25. Artificial Intelligence		0
	26. Government procurement by electronic means		0
	27. LawTech cooperation		0
	28. Taxation		0

Source: (OECD, 2025[5])

The INDIGO can then be used to identify the impact of the AoE on overall digital trade integration and openness (Figure 2). Under the assumption that the 71 WTO Members which supported the incorporation of the AoE into Annex IV at the February 2025 General Council Meeting adopt the agreement, global digital trade integration and openness, as measured by the INDIGO-t, would increase by 21% (the INDIGO-t would go from 0.084 to 0.1).[6] Importantly, different final configurations of membership would imply different global outcomes. For example, if all 166 WTO Members were to adopt the AoE, global digital trade integration and openness would increase by 244% (the INDIGO-t would go from 0.084 to 0.288). To put these number into perspective, the current contribution of existing digital trade chapters in trade agreements to the current INDIGO-t score is 10% (OECD, 2025[3]).

[6] For a list of AoE 71 WTO Members see WT/GC/W/963

Figure 2. Entry into force of the WTO Agreement on E-Commerce would increase digital trade integration and openness significantly



Note: The numbers are based on different assumption about the final composition of the agreement. AoE 71 captures those WTO Member States which supported the incorporation of the agreement into the WTO at the General Council Meeting in February 2025. AoE 166 captures full membership in the agreement by all WTO Member States.
Source: Own calculations using the OECD INDIGO

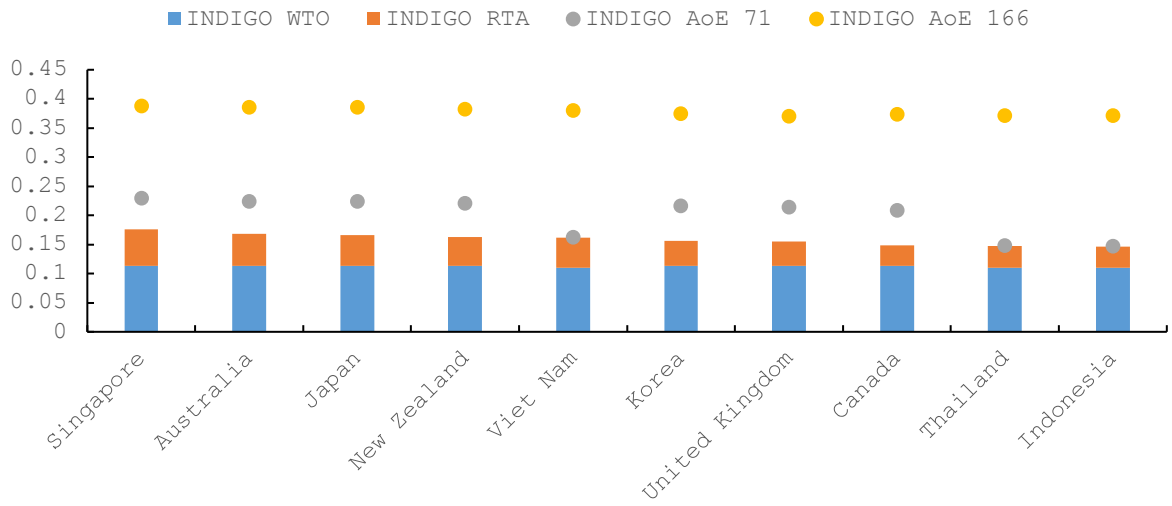
The more progress a WTO Member has already made in its RTAs on digital-trade-related issues and in its WTO commitments, the lower the additional contribution of the AoE to digital trade integration and openness (Figure 3). For example, Singapore, which has the highest INDIGO-t, would see its existing integration and openness increase by 30% as a result of the WTO AoE71 and by 120% as a result of the WTO AoE166 (Figure 3a). By contrast, those with the lowest INDIGO-t score in the AoE71 group (Figure 3b), Benin, Burkina Faso, Gambia and Paraguay, would see their digital trade integration and openness increase by 100% thanks to the AoE71 and by 330% if the AoE were extended to include the full WTO membership.

Three important messages emerge from this analysis:

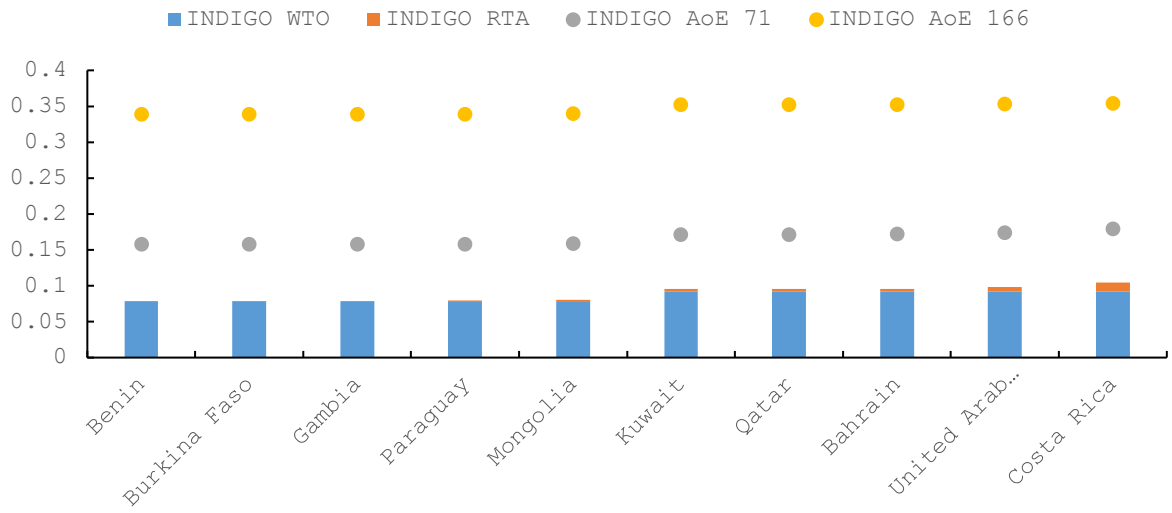
- The lower the degree of existing digital trade integration and openness, the higher the potential boost from the AoE to the INDIGO.
- The more members to the AoE, the higher the increase in the INDIGO both at the economy level and globally.
- There are potential opportunity costs associated with not participating in the WTO Agreement on E-Commerce. For example, economies in the top 10 like Viet Nam, Thailand and Indonesia would be relegated to a much lower position in the rankings should the WTO AoE come into force without them.

Figure 3. The WTO Agreement on E-Commerce is set to significantly increase global integration and openness to digital trade

a. Economy-level, highest ranked 10 economies in the initial INDIGO-t



b. Economy-level, lowest ranked 10 economies in the initial INDIGO-t among those in the AoE 71 category



Note: AoE 71 captures those WTO Member States which supported the incorporation of the agreement into the WTO at the General Council Meeting in February 2025. AoE 166 captures full membership in the agreement by all WTO Member States.
Source: Own calculations based on the OECD INDIGO

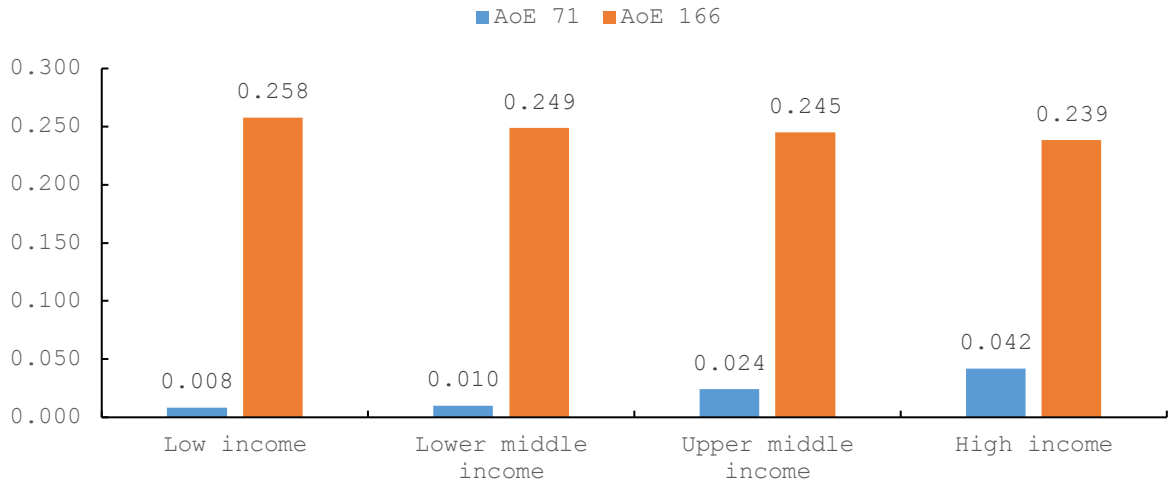
Given that different WTO Members participate in digital trade discussions to differing degrees, looking at the average impact of the AoE across different income groups and regions can be revealing (Figure 4). In terms of changes to the INDIGO, the AoE71 is poised to increase digital trade integration and openness most for high-income economies. The reason is that, in its current format, most of the participants in the AoE71 are high-income economies. That said, if the AoE were to be extended to the entirety of the WTO membership (AoE166), low-income and lower-middle-income economies would gain the most (Figure 4a).

In terms of the distribution of gains in digital trade integration and openness across different regions (Figure 4b), the AoE71 would see the largest increase in the INDIGO for economies in

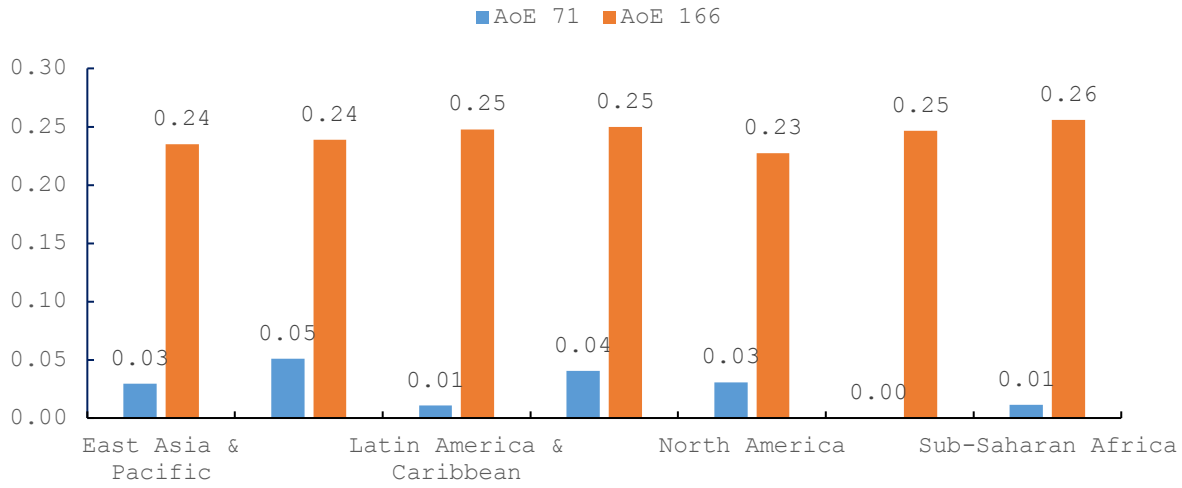
the regions Europe and Central Asia followed by the region Middle-East and North Africa. Again, as was the case above, this is largely due to the fact that it is predominantly economies from this region that currently participate in the AoE discussions. If participation would be extended to the entirety of the WTO Membership, gains would be largest in Sub-Saharan Africa, Middle-East and North Africa and Latin America and the Caribbean.

Figure 4. Average impact of AoE on INDIGO across income groups and regions

a. Average increase in INDIGO-t as a result of AoE by income group



b. Average increase in INDIGO-t as a result of AoE by region



Note: AoE 71 captures those WTO Member States which supported the incorporation of the agreement into the WTO at the General Council Meeting in February 2025. AoE 166 captures full membership in the agreement by all WTO Member States. Income levels are based on the World Bank Classification as are regions, all accessed in June 2025.
Source: Own calculations based on the OECD INDIGO

Overall, the analysis reveals that gains in digital trade integration and openness, as a result of the Agreement on E-commerce, can be substantial. That said, they depend on various factors: i) the existing degree of digital trade integration and openness; and ii) whether or not economies choose to participate in the AoE. Wider membership supports not only larger gains all round

but also wider gains for lower income economies in regions such as Sub-Saharan Africa, South Asia and Latin America.

4. Calculating the implications of the Agreement on E-commerce

Since the AoE has not come into force yet, calculating its potential economic implications requires an ex-ante prediction exercise subject to a range of assumptions and caveats. This includes assumptions with respect to who the final participants in the agreement will be and the similarities between existing digital trade provisions in trade agreements and related provisions in the AoE.[7]

To calculate the potential impact of the AoE a three-step procedure is taken. First, the impact of changes in the INDIGO on trade—the elasticity—is calculated using a structural gravity model. Second, the elasticities are combined with the change in individual economy INDIGO scores arising from the AoE to obtain ad-valorem equivalent trade cost reductions (AVEs) arising from signing the AoE. Third, the AVEs are included in the WTO Global Trade Model (GTM), a Computable General Equilibrium model, to calculate the trade, output and welfare effects of the projected trade cost reductions, which consider general equilibrium effects between sectors and economies.

4.1. What is the (partial equilibrium) impact of a change in the INDIGO on trade?

To calculate how trade reacts to changes in the INDIGO, a structural gravity model is used. The gravity model has become the workhorse for international trade analysis. Since its first use in Tinbergen (1962[12]), the gravity model has received numerous theoretical underpinnings, most notably by Anderson (1979[13]), Eaton and Kortum (2002[14]), Anderson and Van Wincoop (2003[8]) and Arkolakis, Costinot and Rodriguez-Clare (2012[15]) (see also Head and Mayer (2014[16]), Yotov et al. (2016[17]), Yotov (2022[18]) for a summary of the literature). These theoretically derived underpinnings are collectively referred to as the *structural gravity model*.

In its most basic form, the gravity model stipulates that trade between two economies is proportionate to their economic mass, measured as their share in world GDP, and a set of trade costs, some of which are bilateral, such as distance, or specific trade policies, and others are multilateral, such as how remote an economy is from others (multilateral resistance).[8]

A number of important lessons have emerged from the empirical application of structural gravity models. The early literature, motivated by theoretical underpinnings, underscored the importance of exporter-year and importer-year fixed effects to control for multilateral resistances (Anderson and Van Wincoop, 2003[8]), and where possible economy-pair fixed effects (to control for time invariant and unobservable trade costs between economy pairs). Later, emphasis was placed on the use of Poisson Pseudo-Maximum-Likelihood (PPML)

[7] While the provisions of the agreement are known, its final signatories are not. Different assumptions about who will or will not participate need to be made. In addition, ex-ante prediction using the INDIGO also requires assuming that commitments in the AoE are similar, in terms of their impact, to existing digital trade commitments in trade agreements (this implies that the variance in digital trade provisions in trade agreements can be used to estimate the impact of the AoE). That is, that the impact of a commitment on e-signatures in a trade agreement between two economies is the same as the impact of that same provision in the AoE when those same economies are involved. This is not a farfetched assumption given that the language in the AoE is, in part, drawn from existing digital trade commitments.

[8] Multilateral trade resistance refers to the barriers to trade that each economy faces with all its trading partners.

estimators to account for heteroscedasticity[9] and zero trade flows (Santos Silva and Tenreyro, 2006[19]).

More recently, focus has shifted towards the use of theory-consistent 'domestic trade flows' in the estimation process (see Yotov et al. (2016[17])). Including domestic trade flows is important for a number of reasons see Borchert et al. (2022[20]), Yotov (2021[21]), Yotov (2022[18])]. They provide solutions to the "missing globalisation puzzle", which refers to the surprising finding that the volume of trade has become increasingly sensitive to distance (Disdier and Head, 2008[22]). More generally, without domestic trade flows estimated gravity coefficients would be biased.[10]

Our structural gravity estimations utilise the ITPD-E database (Borchert et al., 2022[7]) covering a large array of economies at different levels of development (and containing domestic flows, enabling their incorporation in the estimation procedure). Following the literature, the model is estimated using PPML estimator to account for zero trade flows and heteroscedasticity. To control for multilateral resistance, reporter-sector-year and partner-sector-year fixed effects are used. Unobserved heterogeneity arising from selection effects into trade agreements (the fact that economies chose their partners well) is controlled for using bilateral economy fixed effects – See Baier and Bergstrand (2004[9]; 2007[10]; 2009[11]).[11]

The impact of a change in the INDIGO on trade is captured estimating the following equation:

$$X_{ijt}^{k} = \exp\left(\beta_1 RTA_{ijt} + \beta_2 Depth_{ijt} + \beta_3 INDIGO_{ijt} + \beta_4 EU_{ijt} + \eta_{it}^{k} + \mu_{jt}^{k} + \delta_{ij}\right) * \varepsilon_{ijt}^{k} \quad (1)$$

Exports X between economy i and j in sector k at time t are regressed on a binary variable capturing whether economies have a regional trade agreement (RTA_{ijt}), a categorical variable identifying the depth of existing trade agreements ($Depth_{ijt}$) in areas not covered in digital trade chapters (taken from the World Bank's Deep Trade Agreements database) – Mattoo, Rocha and Ruta (2020[23]), and the INDIGO, capturing commitments on digital trade issues in trade discussions (RTAs, DTAs and at the WTO). An EU dummy is introduced to control for EU specific impacts, given the high level of regulatory integration in the region.[12]

The variable $Depth_{ijt}$ captures the number of provisions in a trade agreement between economies i and j at time t, ranging from zero (no agreement) to 75 (agreement across all areas covered in the database).[13] Where there is more than one agreement between two economies, the maximum value of commitments is taken.

These variables are included to control for the fact that digital trade chapters in trade agreements are not signed in isolation. Deeper agreements, which can include chapters with commitments in services or in investment, are also likely to include digital trade chapters. Controls such as the presence of an RTA and its depth are needed to ensure that β_3 , the main coefficient of

[9] If the error terms in the usual log linear specification of the gravity equation are heteroscedastic, this violates the assumption that they are statistically independent of the regressors (i.e., dependent variables used) and suggests that the estimation method leads to inconsistent estimates of the elasticities of interest.

[10] They also enable estimating the importance of international trade relative to domestic trade.

[11] Recently (Nagengast and Yotov, 2025[27]) have developed an extended two-way fixed effect estimator for staggered difference -in-difference within the structural gravity model to estimate the effects of RTAs. Their work suggests that standard estimation techniques might underestimate the impact of RTAs by more than 50%. This approach is not used in this paper due to our variable of interest being a categorical rather than a binary variable.

[12] Noting also that, by construction, the INDIGO is zero between EU partners.

[13] The World Bank Depth database does not, explicitly, code digital trade chapters in trade agreements.

interest on INDIGO, captures only the specific impact of digital trade commitments rather than other commitments made in other parts of existing agreements.[14]

$INDIGO_{ijt}$ captures the score of existing digital trade commitments in trade agreements (INDIGO-t) between economy *i* and *j* at time *t*. It ranges between zero, no commitments, and 1, capturing full commitments across all digital trade issues.[15] Where there are overlapping digital trade commitments, the maximum value of these is taken.

Reporter-sector-year (η_{it}^{k}), partner-sector-year (μ_{jt}^{k}) fixed effects are used to control for multilateral resistance. Reporter-partner fixed effects (δ_{ij}) are used to control for unobserved heterogeneity in the formation of FTAs (Baier and Bergstrand, 2007[10]; 2009[11]).

Turning to the results of the estimation, the analysis reveals that the impact of a change in the INDIGO can be large and differs across sectors of the economy (Table 2). A 0.1-point increase in the INDIGO is associated with an 8.5% increase in trade in agriculture, a 1.7% increase in trade in manufacturing and a 5% increase in trade in digitally deliverable services.[16] The impact of an increase in the INDIGO is not significantly different from zero in the case of mining, suggesting trade in these sectors is largely driven by other factors. The high coefficient for agriculture might reflect the time-sensitive (perishable) nature of agricultural products which might make them more reactive to border frictions. Measures such as e-signatures, electronic submissions, advance rulings, pre-arrival processing, single windows are likely to cut clearance times which, for perishables, might be especially important. Growing evidence supports the sizeable impact of digital technologies such as SPS electronic certificates on trade volumes (OECD, 2021[39]; Laget and Deuss, 2025[40]).

[14] Note that the interpretation of the RTA coefficient, when included with the depth variable, is somewhat difficult. Depth is only observed when RTA is equal to one, so the RTA coefficient should be interpreted as the impact of the RTA when depth is equal to zero. That said, RTA is not observed if depth is equal to zero.

[15] The bilateral INDIGO captures the existing degree of integration between two economies, weighing the issues covered according to the INDIGO methodology (see Annex Table A1 for the weights).

[16] To identify the elasticity the following equation can be used: 100x(exp(INDIGO)-1). This calculation generates the partial effects and hence does not take general equilibrium effects into account.

Table 2. Impact of an increase in the INDIGO score across sectors

	(1)	(2)	(3)	(4)
	Agriculture	Mining	Manufacturing	Digitally deliverable services
RTA	0.0883**	-0.129**	0.180***	0.632***
	(2.38)	(-2.16)	(4.3)	(7.17)
depth	-0.00169	0.00133	-0.00135	-0.00960***
	(-1.60)	(0.71)	(-1.04)	(-4.40)
INDIGO	0.849***	0.0431	0.170*	0.494*
	(6.33)	(0.19)	(1.91)	(1.93)
EU	1.098***	0.529***	0.444***	1.875***
	(14.49)	(3.58)	(4.86)	(12.04)
Observations	4 372 538	744 626	10 339 559	431 414
Reporter-sector-year	YES	YES	YES	YES
Partner-sector-year	YES	YES	YES	YES
reporter-partner	YES	YES	YES	YES

Note: Model estimated using PPML on ITPDE data. Each aggregate sector includes different subsectors. Reporter-sector-year and partner-sector-year fixed effects are used to control for multilateral resistance, economy pair fixed effects for unobserved heterogeneity arising from selection effects.
Source: Author's calculations

4.2. What are the trade cost reductions associated with the AoE (ad valorem equivalents)?

To calculate the trade cost reductions associated with the AoE, ad-valorem equivalents across sectors and economies are calculated using the following equation (Benz and Jaax (2020[24]), Bekkers and Rojas-Romagosa, 2020):

$$AVE_{ijkt} = \exp\left(-\frac{\Delta INDIGO_{ijt^*}\,\beta_{INDIGO_k}}{\theta_k}\right) - 1 \qquad (3)$$

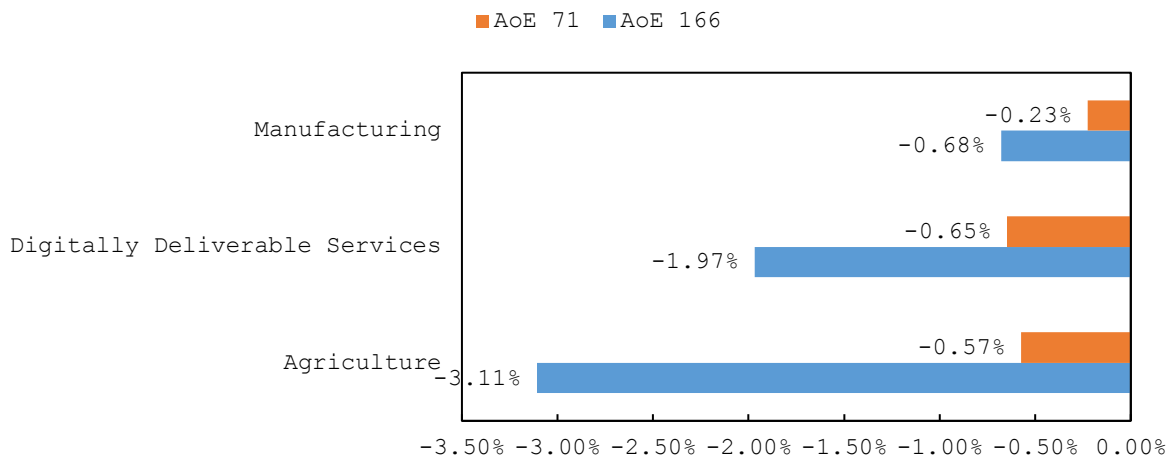
The ad valorem equivalent of an increase in the INDIGO between economy *i* and *j* at time *t* is the exponent of the change in the INDIGO between these economies (as a result of signing the AoE) multiplied by the sectoral coefficient on the INDIGO variable identified from the gravity model in the previous section. This is divided by the trade elasticity, the elasticity of the value of trade flows with respect to (iceberg) trade costs.[17]

The average trade cost reductions from the AoE are, on average, highest for digitally deliverable services (-0.65%) followed by agriculture (-0.57%) and then manufacturing (-0.23%) – Figure 5. Importantly, if the AoE were to be extended to all WTO Members, the AVEs would be 3 to 5 times higher.

Beyond the AVEs, the overall impact of the AoE will also depend on: i) the trade structure of different economies, that is, how important agriculture, digitally deliverable services or manufacturing are in bilateral trade; and ii) general equilibrium effects, including domestic and international linkages and the relative reduction in trade costs across different regions, as discussed in the next subsection.

[17] The trade elasticity is obtained from Egger et al. (2021[26])

Figure 5. Global average ad-valorem equivalent trade cost reductions of AoE



Note: The Ad-valorem equivalents are calculated as the exponent of the change in the INDIGO between two economies as a result of signing the AoE multiplied by the sectoral coefficient on the INDIGO variable identified from a gravity model. This is divided by the elasticity of substitution in sector k (σ_k) minus one: $AVE_{ijkt} = \exp\left(-\frac{\Delta INDIGO_{ijt} * \beta_{INDIGO_k}}{\theta_k}\right) - 1$. The figure reports global averages across all economies in the sample.
Source: Author's calculations

4.3. How to project the economic implications of the AoE employing a general equilibrium model?

To explore the economic impact of the AoE, the AVEs are fed into the WTO Global Trade Model (GTM). The GTM is a recursive dynamic computable general equilibrium (CGE) model describing the economic relations between economies in multiple sectors incorporating intermediate linkages. The model is described in detail in (Bekkers et al., 2025[28]).[18] The model is calibrated to the GTAP Data Base, Version 11 (2017) and projected forward to 2025 using the approach described in (Bekkers et al., 2024[29]). An aggregation with 112 regions, 5 sectors and 5 factors of production is employed. The changes in ad valorem equivalents are modelled as changes in iceberg trade costs, since most commitments in the AoE are of a regulatory nature and thus reduce economic resources employed to comply with policies. The changes in trade costs are phased in over 15 years from 2026 until 2040, in line with evidence on the period over which FTA commitments which are of a similar nature as the AoE impact trade (Baier and Bergstrand, 2007[30]). The results below report the difference between a counterfactual world with AoE and a baseline without AoE.

4.3.1. Policy Scenarios

To model the impact of the AoE two policy scenarios are explored, both for a baseline with larger trade because of projected reductions in operational trade costs related to digitalization and for a baseline without these. First, with respect to membership in the AoE two membership configurations are explored.

- In the **AoE71** Scenario the 71 WTO Members which supported the incorporation of the AoE into Annex IV at the February 2025 General Council Meeting adopt the agreement.
- In the **AoE166** Scenario the AoE is adopted by all 166 WTO Members.

[18] Aguiar et al. (2019[27]) contains a documentation of the model.

The rationale for modelling different scenarios for participation in the AoE is to evaluate how a wider participation in digital trade discussions would affect different Members. In particular, the AoE166 scenario sheds light on the question whether some regions might benefit more or less from the agreement given their current international commitments and trade structures.

The second dimension explores the impacts of evolving technological changes in the digital trade environment. More specifically, the analysis compares a baseline with rising trade as a result of falling trade costs associated with digitalization because of the rise in e-commerce and reductions in the need for physical face-to-face interaction (Bekkers, Kalachyhin and Teh, 2025[26]) and a baseline without these trade cost reductions. The projected trade cost reductions mainly expand trade in digitally delivered services. Hence, the benchmark results take into account these falling trade costs.[19] Overall, the global trade-to-GDP elasticity would rise from about 1 to 1.5 going from the baseline without and with trade cost reductions related to digitalization.

5. The projected economic impact of the Agreement on E-commerce

The simulations highlight the value of the e-commerce agreement for trade and global income. Figure 6 displays the projected average impact on GDP, trade (total) and Digitally Deliverable Services (DDS) trade, all in volumes, for participants in panel a and for all economies in panel b. The implementation of the AoE71 is projected to increase participants GDP by 0.43% and trade by 0.97% (panel a). At the global scale this means that global GDP would rise by 0.14% and global trade by 0.58%, with digitally delivered trade increasing by 1.54% (panel b).[20] Put differently, failure to implement the AoE71 leaves annually on average USD 159 Billion of trade on the table,[21] which cumulatively is an increase in global trade by USD 2.4 Trillion until 2040.

In addition, the simulations indicate that comprehensive participation in the AoE by all WTO Members would generate large additional economic gains. Indeed, if the AoE extended to the entirety of the WTO membership the GDP impact would increase from 0.14% by a factor of 3.6 to 0.51% of GDP (which corresponds with around USD 8.7 Trillion cumulatively until 2040). Trade flows would, in turn, increase by 2.3%, and digitally delivered services by 6.23%.

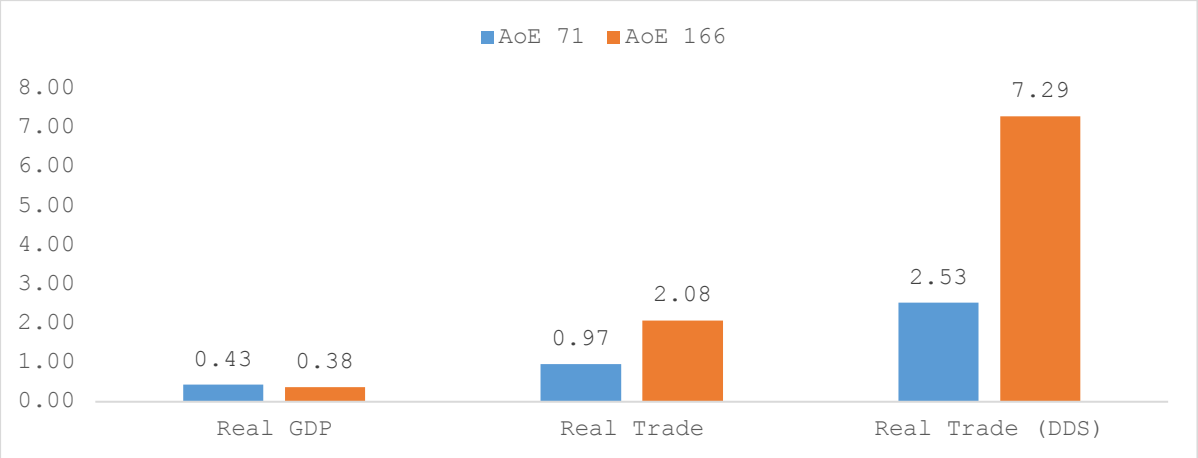
[19] As a robustness check the counterfactual scenarios are also evaluated assuming that all 28 policy areas get equal weight. The results of this analysis are available upon request. With equal weights the projected trade cost reductions and thus also the projected trade and GDP effects would be somewhat larger. Hence, by employing the weighted approach a conservative approach is taken.

[20] These results are comparable to those reported using CGE models for full agreements such as the EU-Mercosur Agreement or the Trans Pacific Partnership (TPP) Agreement. For example, LSE (2021[41]) estimates that the prospective EU-Mercosur Agreement would increase EU GDP by 0.1% and Mercosur GDP by 0.3%. A study by the USITC reported that the TPP would increase the US' GDP by 0.15% by 2032 (USITC, 2016[42]).

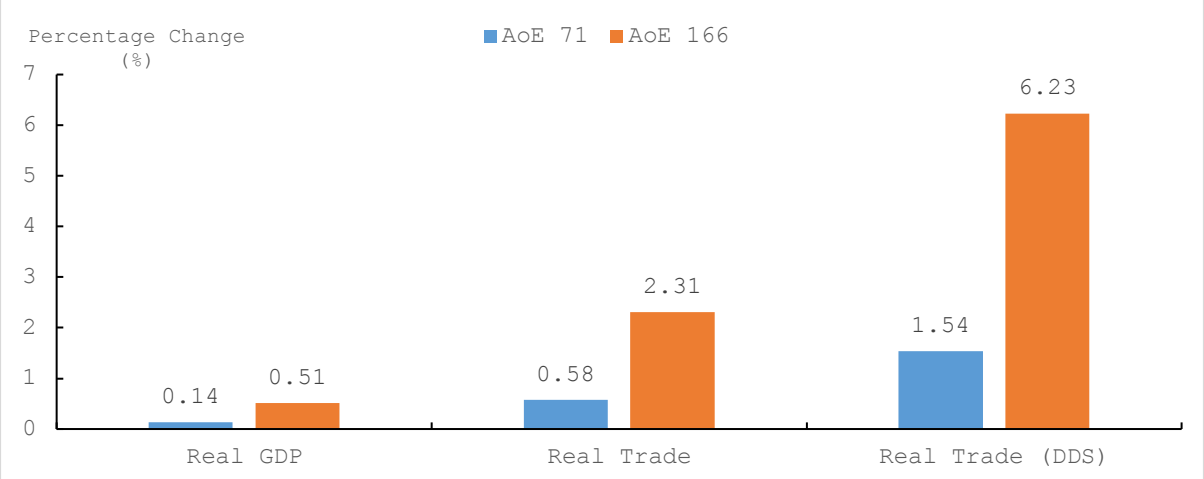
[21] The monetary gains of AoE (in billions of USD) are calculated by summing the annual differences between the projected baseline and counterfactual world exports for the fifteen years over which trade costs are projected to fall as a result of the AoE (from 2025 to 2039), starting from total world exports equal to 33 trillion USD based on the latest 2024 World Trade Statistic report. An annual average is calculated by dividing the total number over fifteen years by 15.

Figure 6. The AoE is poised to increase global GDP and trade significantly

a. Impact of implementing the AoE 71 and AoE166 scenarios (participants only)



b. Impact of implementing the AoE 71 and AoE166 scenarios (all economies)



Note: Panel a shows the projected long run impact for the 71 participating economies of the scenario where participants implements the AoE (AoE71) and of a hypothetical scenario where the AoE disciplines are implemented across all WTO Members (AoE166). Panel b shows the global impacts for these two scenarios. The simulations assume a 15-year implementation period with digitalization in the baseline.
Source: Author's calculations

As expected, the gains from the AoE71 largely accrue to participating economies, and within these to lower-middle and low income economies where GDP is poised to grow by 1.36% and 0.64% and digitally delivered services by 5.28% and 10.86% (Figure 7a). That said, since participating economies are predominantly high and upper-middle income economies, these are projected to gain most globally in the AoE71 scenario (Figure 7b). Trade gains are especially pronounced in participating upper-middle income economies where digitally delivered services are projected to grow by more than 3% globally. Minor reductions in GDP and trade would arise in low and lower-middle income economies which to a large extent do not participate in the AoE at the time of this analysis. These effects are primarily due to trade diversion which is projected to have a similar impact across non-participating economies of all income levels. For example, some high-income economies can also be impacted by this, but on average the impact

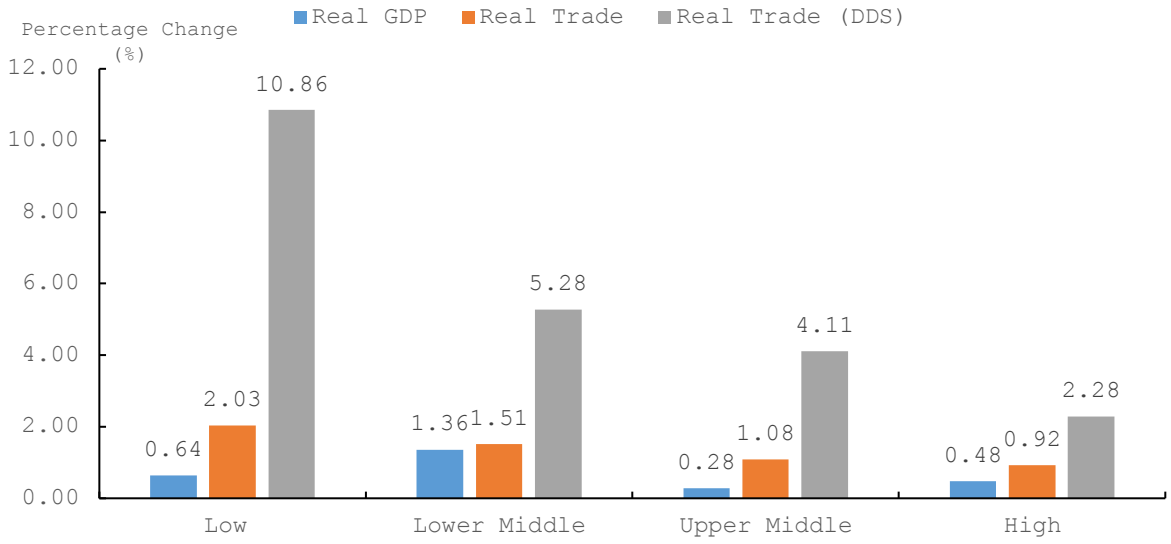
for high income economies is dominated by the positive effects for high income participating economies.[22]

By contrast, if the AoE were extended to all WTO Members, the largest economic gains would arise in low-income economies (Figure 7c). They would see their GDP grow by 2.5%, their total exports by 4.5% and their digitally deliverable services by 12.7%. For lower-middle income economies, gains would also be substantive with a projected increase in GDP of 1.3%, increases in all trade of 4% and in DDS trade of 9%. The main reason for these large-scale gains is that many low-income and lower-middle income economies would see a relatively large increase in the number of e-commerce related commitments and thus a relatively large projected reduction in trade costs. Hence, there are relatively large economic gains expected from participating in the AoE, especially for lower income economies. This is a clear case of benefits for individual economies participating which are amplified when more partners join the agreement (network effects).

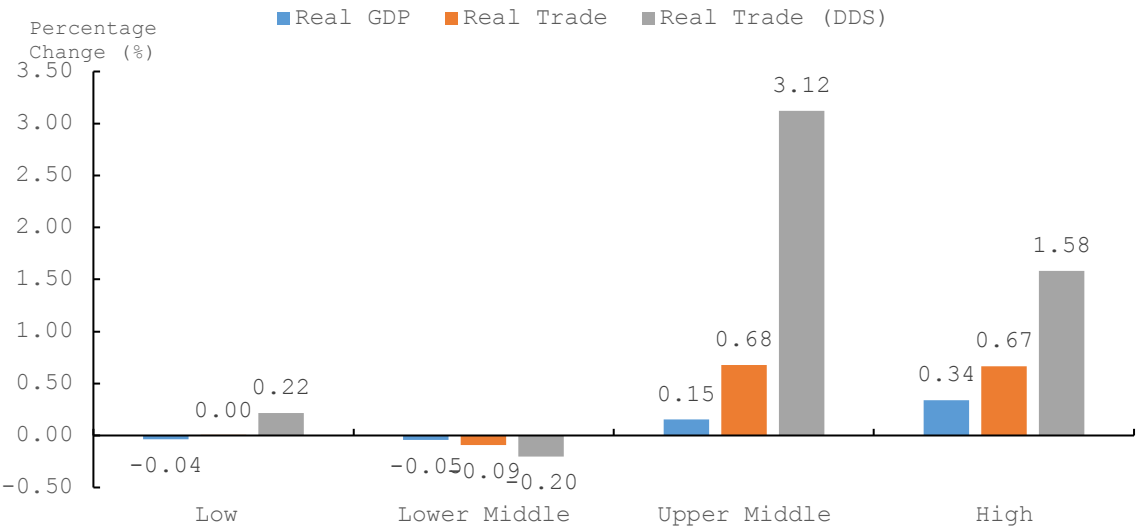
[22] That said, it is possible that many of the commitments in the AoE could benefit economies that do not participate in the Agreement as it might be difficult to discriminate. In this case, it is likely that there is no trade diversion as is reported here due to the modelling assumption that only the trade costs of participating economies are reduced.

Figure 7. High-income regions see GDP and trade rise most under AoE71 and low-income regions see largest gains under AoE166.

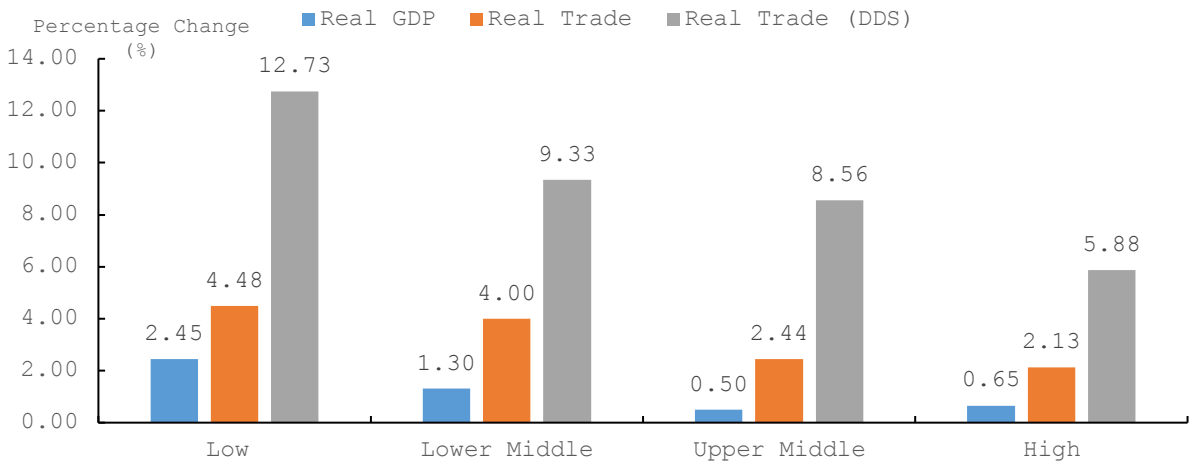
a. Impact of implementing the AoE 71 scenario (participants only)



b. Impact of implementing the AoE 71 scenario (all regions)



c. Impact of implementing the AoE 166 scenario

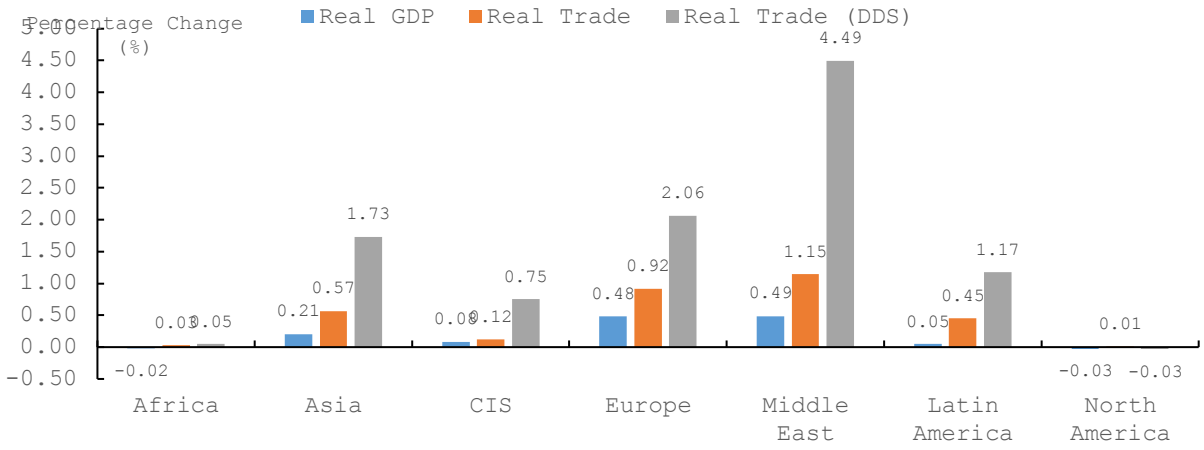


Note: The figure displays the projected long-run impact (by 2040) of Scenario AoE71 for the 71 participating Members in panel a, and of Scenario AoE71 across all regions in panel b. The long run impact for all economies of a hypothetical scenario whereby the AoE disciplines are implemented across all 166 WTO Members is displayed in panel c. Each time the projected change in real GDP, real exports, and real exports of digitally deliverable services (DDS) for low-income, lower-middle-income, upper-middle-income and high-income regions is displayed. Baseline value weighted averages are used to calculate regional averages. The simulations assume a 15-year implementation period with digitalization in the baseline.
Source: Author's calculations

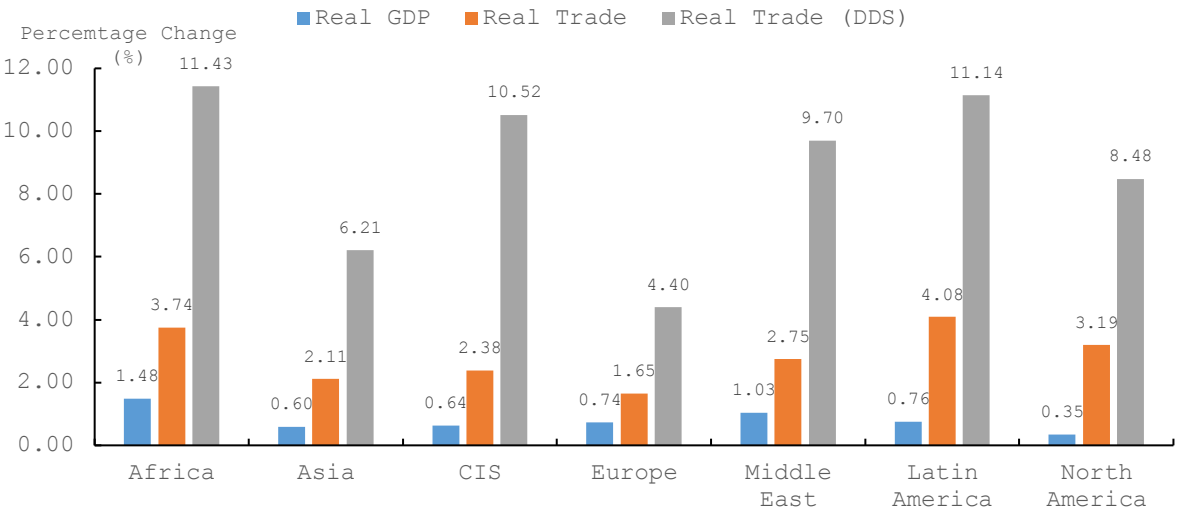
In terms of regional impacts, the AoE71 is projected to increase economic activity most in the Middle East and Europe (Figure 8) with increases in GDP of nearly 0.5% in both regions and particularly large increases in digitally deliverable services exports (2% for Europe and more than 4% for the Middle East). In Asia the impact of the AoE71 on GDP is projected to be 0.2% while the impact on trade flows would be about 0.6%. North America and Africa are poised to suffer small losses as a result of trade diversion related to the non-participation of most economies in these two regions in the AoE71. The results change markedly when considering the AoE166 scenario. In this scenario Africa would experience the largest economic gains from the agreement, seeing GDP increase by 1.5%, trade by 3.7% and digitally deliverable services by 11.4%. The Middle East and Latin America follow closely in terms of gains with projected GDP increases of 1% and 0.75% respectively.

Figure 8. The impact of the AoE on real GDP and trade varies substantially across regions

a. Impact of implementing the AoE 71 scenario



b. Impact of implementing the AoE 166 scenario



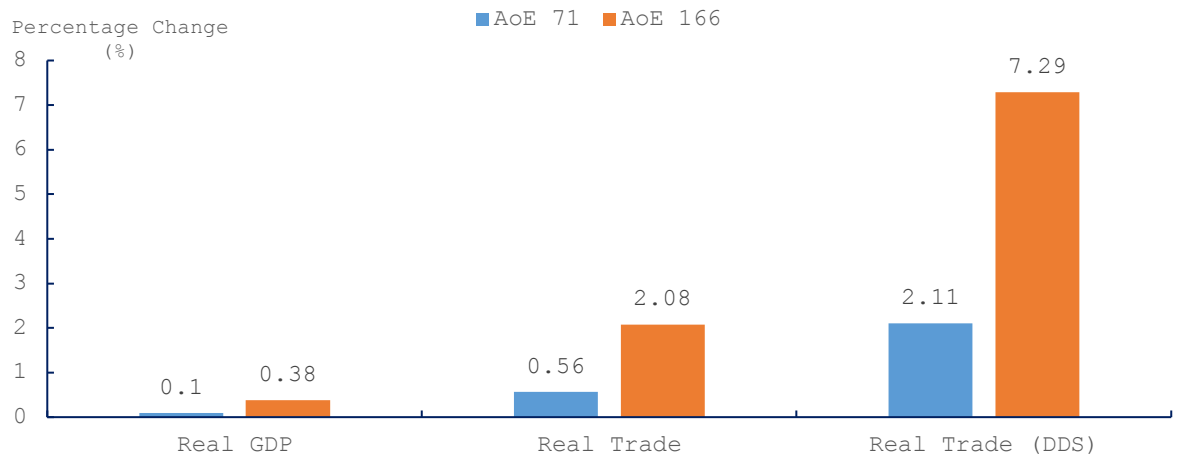
Note: The figure displays the projected long-run impact (by 2040) of the AoE across all regions (with AoE disciplines implemented in the 71 participating Members) in panel a and impacts of a hypothetical scenario whereby the AoE disciplines are implemented across all 166 WTO Members in panel b, on real GDP, real exports, and real exports of digitally deliverable services (DDS) for Africa, Asia, CIS, Europe, Middle East, Latin America and North America following the UN definition of regions. Baseline value weighted averages are used to calculate regional averages. The simulations assume a 15-year implementation period with digitalization in the baseline.
Source: Author's calculations

The projected impacts on trade and in particular GDP are affected by baseline trade levels. As discussed, the benchmark results presented above take into account reductions in trade costs related to digitalization driven more specifically by the rise in e-commerce and the reduced need for physical face-to-face interaction.

Since the trade cost reductions related to digitalization included in the benchmark raise the baseline trade shares, they also raise the GDP effects of the AoE. Hence, the robustness check without digitalization in the baseline will reduce the estimated gains from the AoE. Figure 9

shows that real GDP gains fall by roughly 25 to 30 percent under both the AoE71- and AoE166 scenarios compared to the results in Figure 7. More specifically, the projected global GDP effect without digitalization is 0.10% instead of 0.14% (with digitalization). However, the percentage increase in real trade in digitally deliverable services is slightly higher without the face-to-face shocks, since these shocks raise the baseline volume of services trade. As a result, the percentage increase is smaller, although the absolute increase is still bigger.[23] The GDP results indicate that that the economic importance of the AoE rises with digitalization. The reason is that digitalization is expected to raise the importance of digital trade in the economy and thus the economic benefits of a less costly digital trade policy environment.

Figure 9. Without reductions in costs due to digitalisation in the baseline, the global impact of the AoE is smaller



Note: The figure displays the projected long-run impact (by 2040) of the AoE across all regions (with AoE disciplines implemented in the 71 participating Members) and impacts of a hypothetical scenario whereby the AoE disciplines are implemented across all 166 WTO Members, on real GDP, real exports, and real exports of digitally deliverable services (DDS) employing a baseline without digitalization related reductions in trade costs. The simulations assume a 15-year implementation period with digitalization in the baseline.
Source: Author's calculations

6. Findings from the work

As digital trade becomes an increasingly important part of international trade, international cooperation becomes more pressing. This paper has shown that existing digital trade integration and openness is at its early stages and only 8.5% of the way towards what might be considered full integration. Although RTAs with digital trade provisions have been proliferating, to date, WTO discussions have contributed the lion's share of existing digital trade integration and openness.

Against this backdrop, the Agreement on E-commerce is poised to increase digital trade integration and openness by 21% if implemented by the current 71 WTO Members that support its incorporation into Annex IV. However, if the AoE were to be extended to the entirety of the WTO membership, digital trade integration and openness would increase by 244%. The higher the membership the higher the overall digital trade integration for individual economies.

[23] Figures A1 and A2 in the annex demonstrate that these patterns are consistent across both income and regional groups.

This is reflected in the numbers from the simulations. The AoE71 is projected to increase participants GDP by 0.43% and trade by 0.97%. On a global scale this would imply an increase in global GDP of 0.14% and global trade of 0.58% which translates into a cumulative increase of USD 2.4 Trillion by 2040. However, if extended to the entire WTO Membership, the GDP impact of the AoE is projected to multiply by a factor of 3.6 to 0.51% of GDP or USD 8.7 Trillion by 2040. Trade flows would, in turn, increase by 2.3% and digitally delivered services by 6.2%.

Looking at the gains according to income level and regions is also important. In its current format, the AoE71 is projected to increase GDP and trade most for economies in Europe and in the Middle East. Largely because of the high degree of participation in these regions, with very small and sometimes negative impacts in non-participating regions. That said, it is the low and lower middle-income economies which participate which are poised to gain most from the AoE71 with increases in GDP of 0.64% and 1.36% respectively. Digitally deliverable services trade is expected to rise by 10.86% in low-income economies and 5.28% in lower-middle income economies.

Importantly, gains are driven by participation. When the simulations extend participation to the entire WTO Membership very different patterns emerge. Low and lower-middle income economies gain most, particularly in Africa, the Middle East and Latin America.

Overall, the analysis shows that there are important benefits associated with the AoE but that these are contingent on participating. It also suggests the presence of network effects as wider participation implies more open markets for digital trade so individual economy gains increase when more partners sign the agreement.

At present, WTO Members are discussing how best to incorporate the AoE into the WTO architecture. This paper suggests that there is a considerable opportunity cost to delaying these discussions. For every year that implementation is delayed, USD 159 Billion of trade is left on the table. It also makes the case for promoting wider participation, especially if the AoE is to deliver more inclusive outcomes.

To our knowledge, this is a first attempt at estimating the potential impact of a prospective digital trade agreement. Although the analysis has tried to control for issues related to unobserved heterogeneity arising from selection into trade agreements and the existence of concurrent commitments in trade agreements, more work is required to ensure that other issues might not be driving the results. Future work could identify how international commitments and domestic regulatory reforms interact, and the extent to which domestic digital infrastructure and skills are a determining factor in unlocking benefits across economies at different levels of development.

Moreover, the analysis does not incorporate potentially important shifts in patterns of digitalisation arising from the wider adoption of AI. Indeed, if AI leads to more trade, especially in digitally deliverable services, it is expected that the impact of the AoE would increase markedly. Future work could investigate this in greater detail as well as looking at the impact of increasing the depth of the AoE through the incorporation of provisions related to cross-border data flows, data localisation and source-code in a potential phase II of the Agreement on E-commerce. Future work could also look at different degrees of implementation of the commitments as currently full implementation is assumed.

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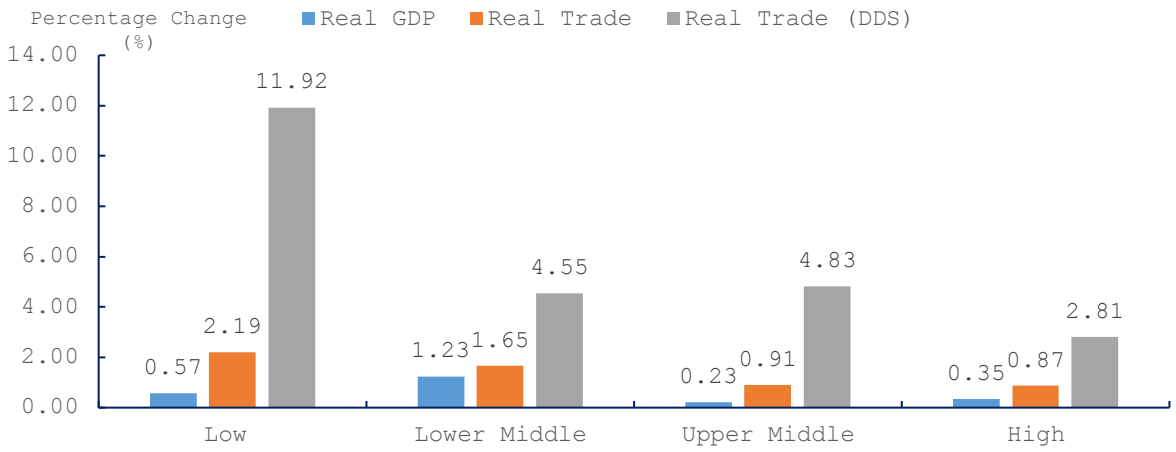
Supporting Tables and Figures

Table A1.Weights by Specific Area in the INDIGO

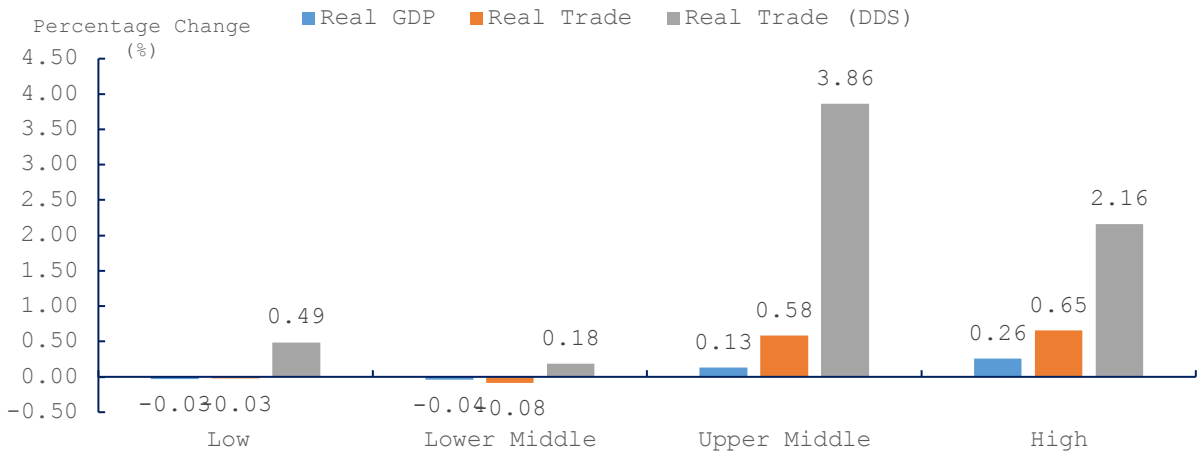
Policy area	Specific area	AoE article	weights
A. Enabling electronic commerce	1. Electronic transaction frameworks	Article 4: Electronic transaction framework	0.029
	2. Electronic authentication and electronic signatures	Article 5: Electronic authentication and electronic signatures	0.029
	3. Electronic contracts	Article 6: Electronic contracts	0.029
	4. Electronic invoicing	Article 7: Electronic invoicing	0.029
	5. Electronic payments	Article 10: Electronic Payments	0.029
	6. Digitalising border processes	Article 9: Single windows data exchange and system interoperability	0.029
	7. Paperless trading	Article 8: Paperless trading	0.029
B. Openness and electronic commerce	8. Non-imposition of Customs duties on electronic transmissions	Article 11: Customs duties on electronic transmissions	0.040
	9. Open government data	Article 12: Open government data	0.040
	10. Access to and use of the internet for electronic commerce	Article 13: Access to and use of the Internet for electronic commerce	0.040
	11. Non-imposition of customs duties on ICT goods		0.040
	12. Disciplines related to Telecommunication Services	Article 21: Telecommunications	0.040
C. Trust and electronic commerce	13. Online consumer protection	Article 14: Online consumer protection	0.033
	14. Unsolicited commercial electronic messages	Article 15: Unsolicited commercial electronic messages	0.033
	15. Personal data protection	Article 16: Personal data protection	0.033
	16. Source code		0.033
	17. Cryptography		0.033
	18. Cybersecurity	Article 17: Cybersecurity	0.033
D. Cross-border data flows and data localization	19. Cross-border data flows		0.100
	20. Location of computing facilities		0.100
E. Wider digital economy issues	21. Competition policy in the digital economy		0.025
	22. Digital identities		0.025
	23. Digital inclusion		0.025
	24. FinTech cooperation		0.025
	25. Artificial Intelligence		0.025
	26. Government procurement by electronic means		0.025
	27. LawTech cooperation		0.025
	28. Taxation		0.025

Figure A1. Impact of the AoE by income level (without digitalization in the baseline)

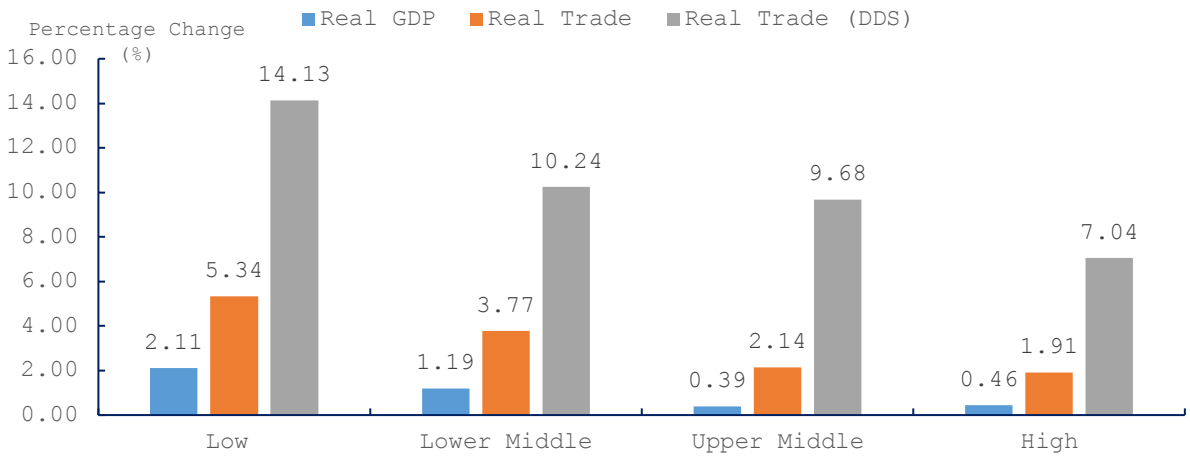
a. Impact of implementing the AoE 71 scenario (participants only)



b. Impact of implementing the AoE 71 scenario (all regions)



c. Impact of implementing the AoE 166 scenario

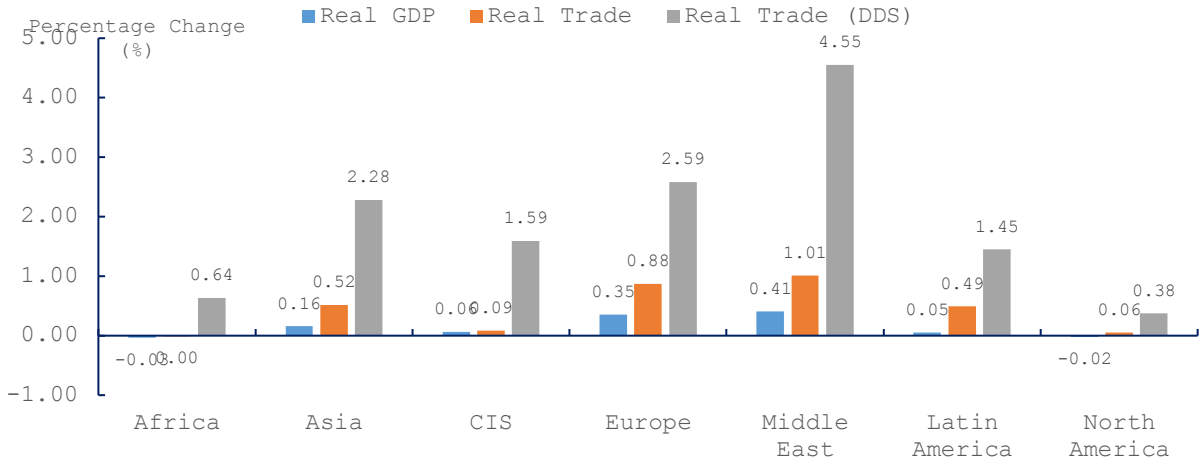


Note: The figure displays the projected long-run impact (by 2040) of the AoE for the 71 participating Members in panel a, across all regions in panel b, and impacts of a hypothetical scenario whereby the AoE disciplines are implemented across all 166 WTO Members in panel c, on real GDP, real exports, and real exports of digitally deliverable services (DDS) for low-income, lower-middle-income, upper-middle-income and high-income regions employing a baseline without digitalization related reductions in trade costs. Baseline value weighted averages are used to calculate regional averages. The simulations assume a 15-year implementation period with digitalization in the baseline.

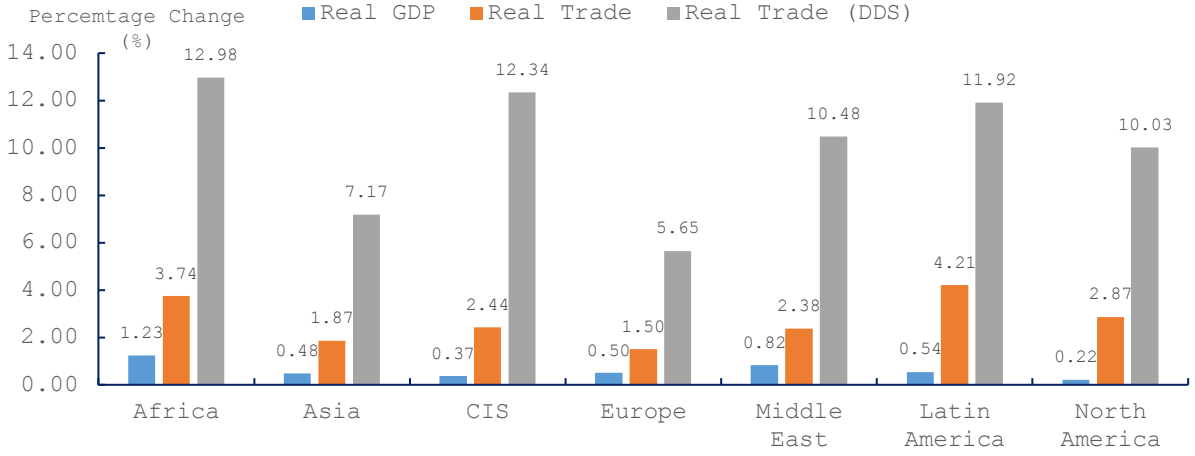
Source: Author's calculations

Figure A2. Impact of the AoE by region (without digitalization in the baseline)

a. Impact of implementing the AoE 71 scenario



b. Impact of implementing the AoE 166 scenario



Note: The figure displays the projected long-run impact (by 2040) of the AoE across all regions (with AoE disciplines implemented in the 71 participating Members) in panel a and impacts of a hypothetical scenario whereby the AoE disciplines are implemented across all 166 WTO Members in panel b, on real GDP, real exports, and real exports of digitally deliverable services (DDS) for Africa, Asia, CIS, Europe, Middle East, Latin America and North America following the UN definition of regions employing a baseline without digitalization related reductions in trade costs. Baseline value weighted averages are used to calculate regional averages . The simulations assume a 15-year implementation period with digitalization in the baseline.

Source: Author's calculations