

Digital provisions in services trade agreements and mode 1 export effects

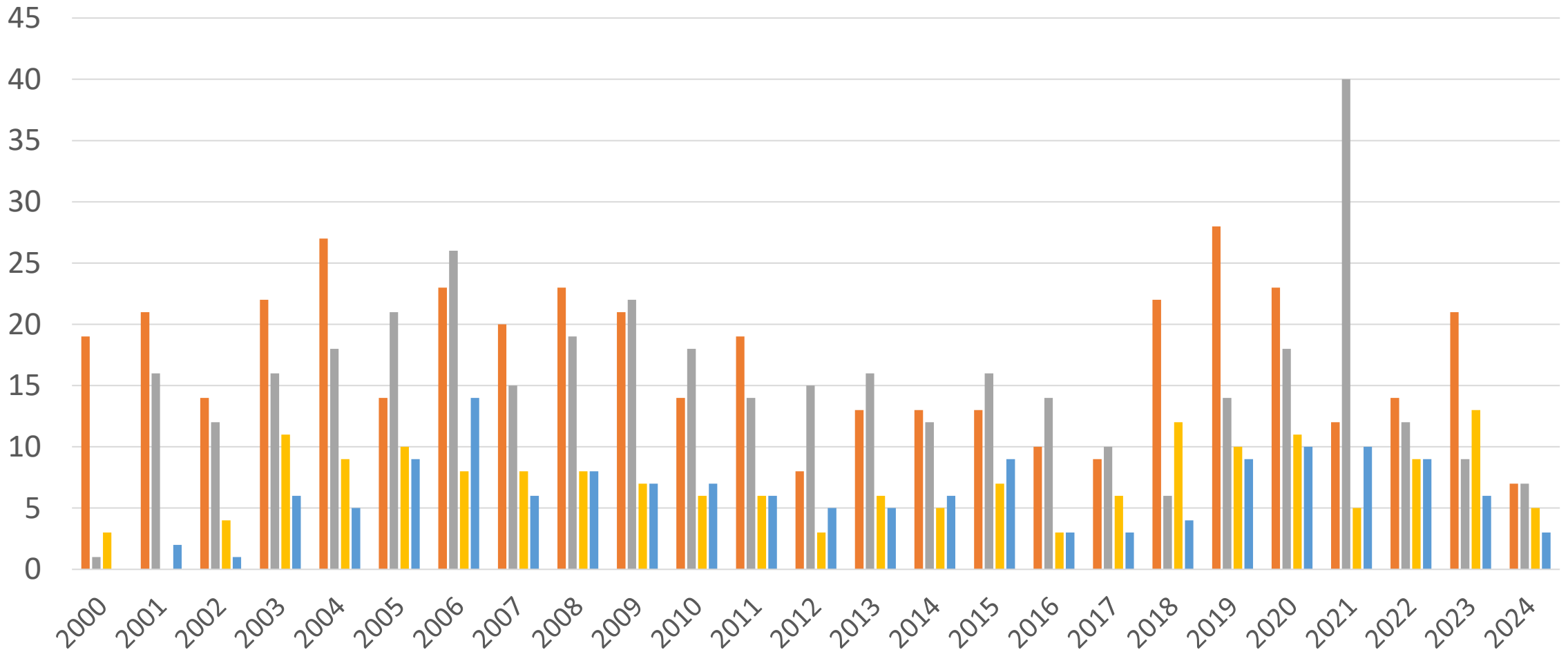
A Study of exports of finance and insurance services from Asia

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Motivation

- Globally Services trade growth between 2005-2023 at 6%
- Digitally delivered services trade growth at around 7.4% as against 4.7% for non digitally traded services growth (OECD 2025)
- Asia's share in global services trade grew from 20% to 30% in the same period
- Asian countries are signatories to a variety of trade agreements with varying level of commitments to promote digital trade
 - While countries like Singapore and Korea have services trade agreements with both developed (USA, UK, EFTA) and developing nations, closely followed by Indonesia and Viet Nam, most other Asian countries have services-based agreements mainly amongst Asian countries
- The role of digital depth and especially ecommerce depth in promoting services exports remain under researched for specific services exports from Asia like Financial and Insurance & Pension services

Agreements by year



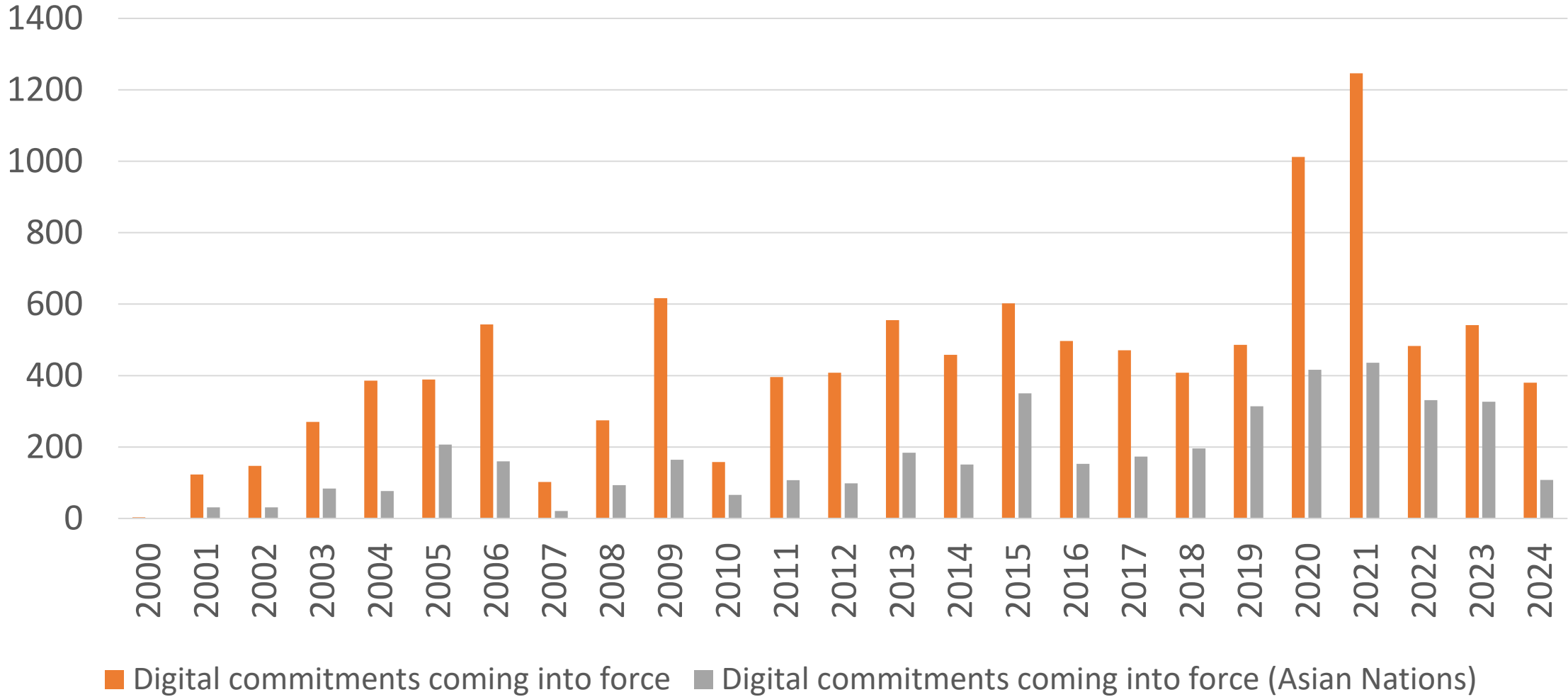
Agreements Signed

Agreements signed with either asian country

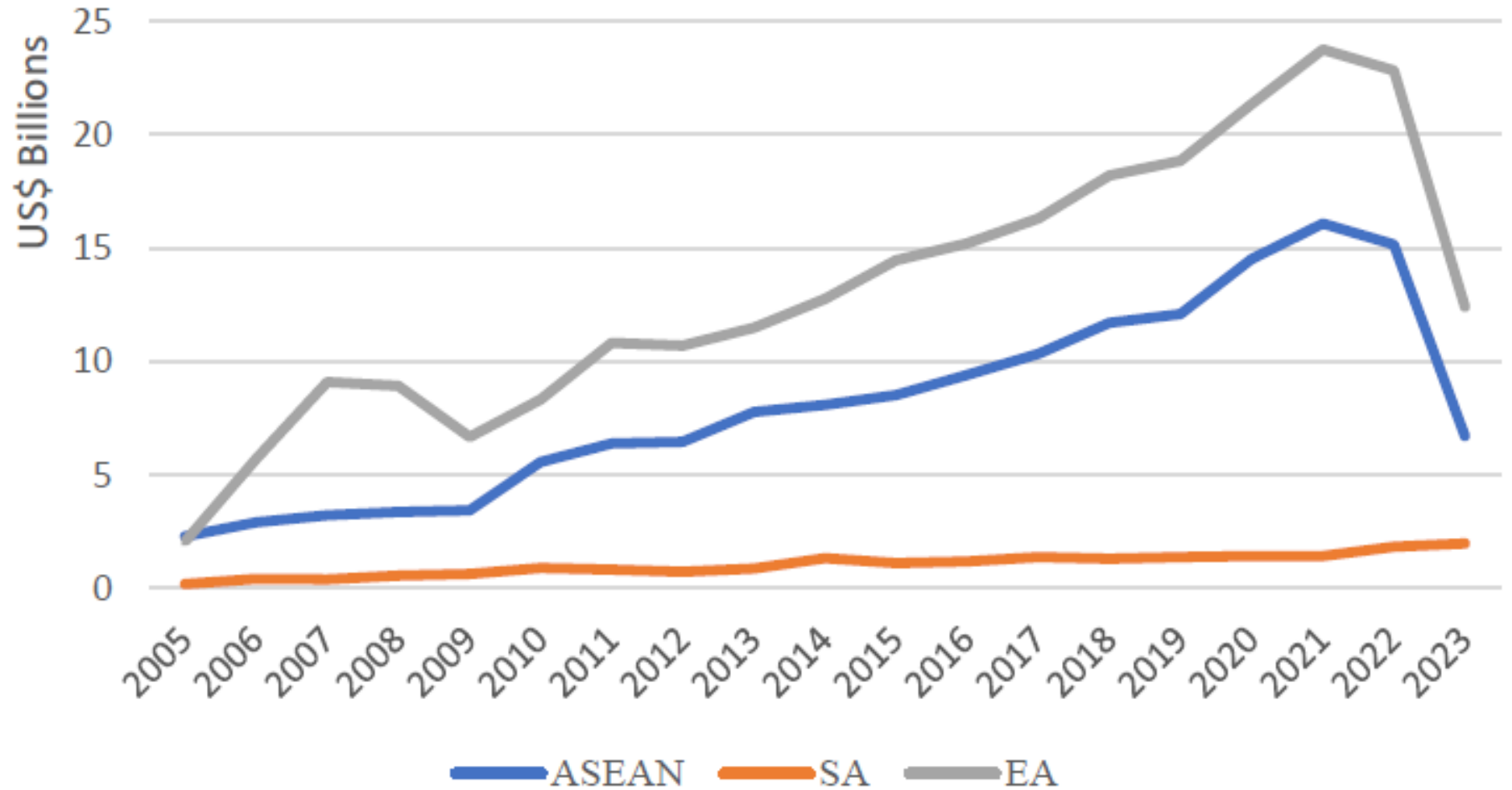
Agreements coming into force

Agreements coming into force with either asian country

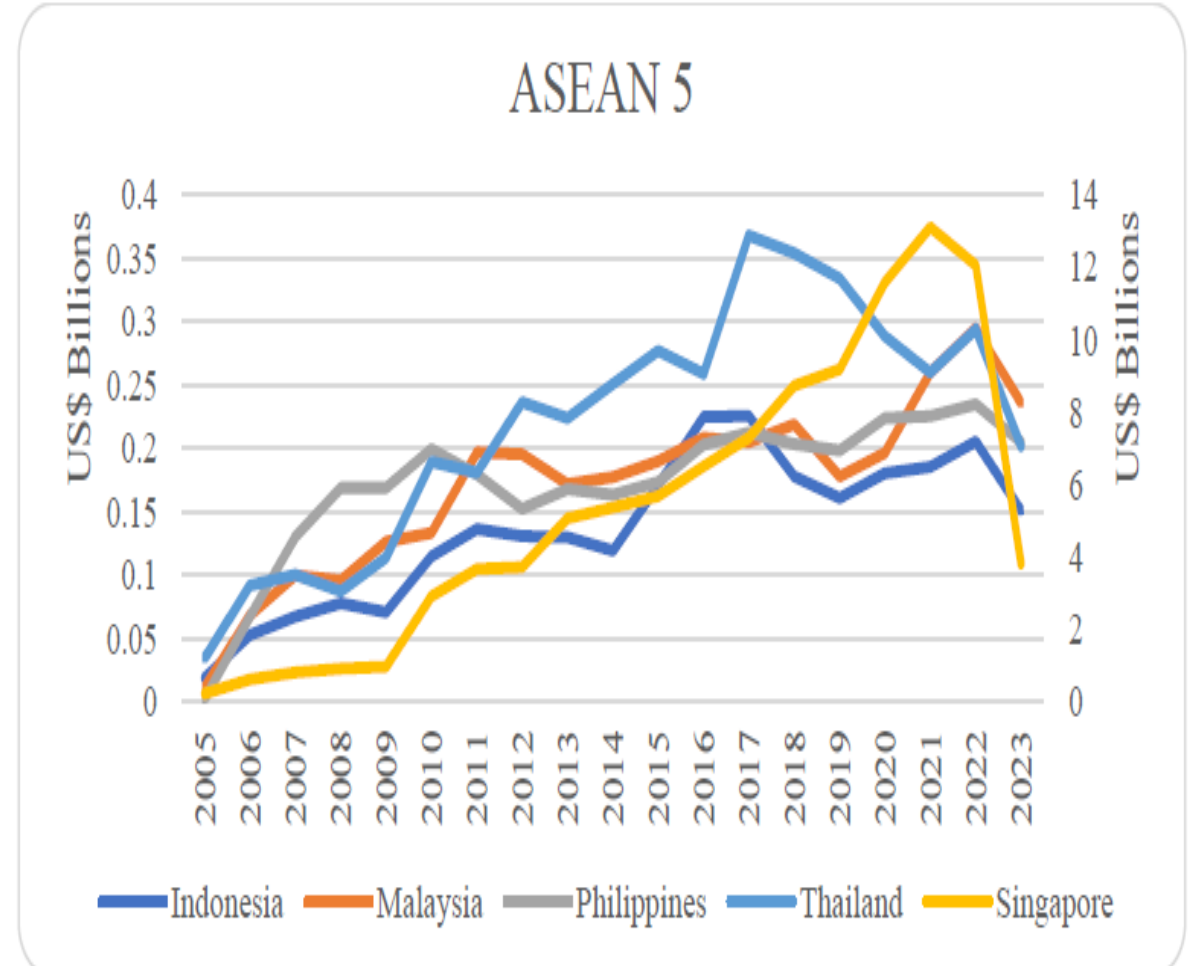
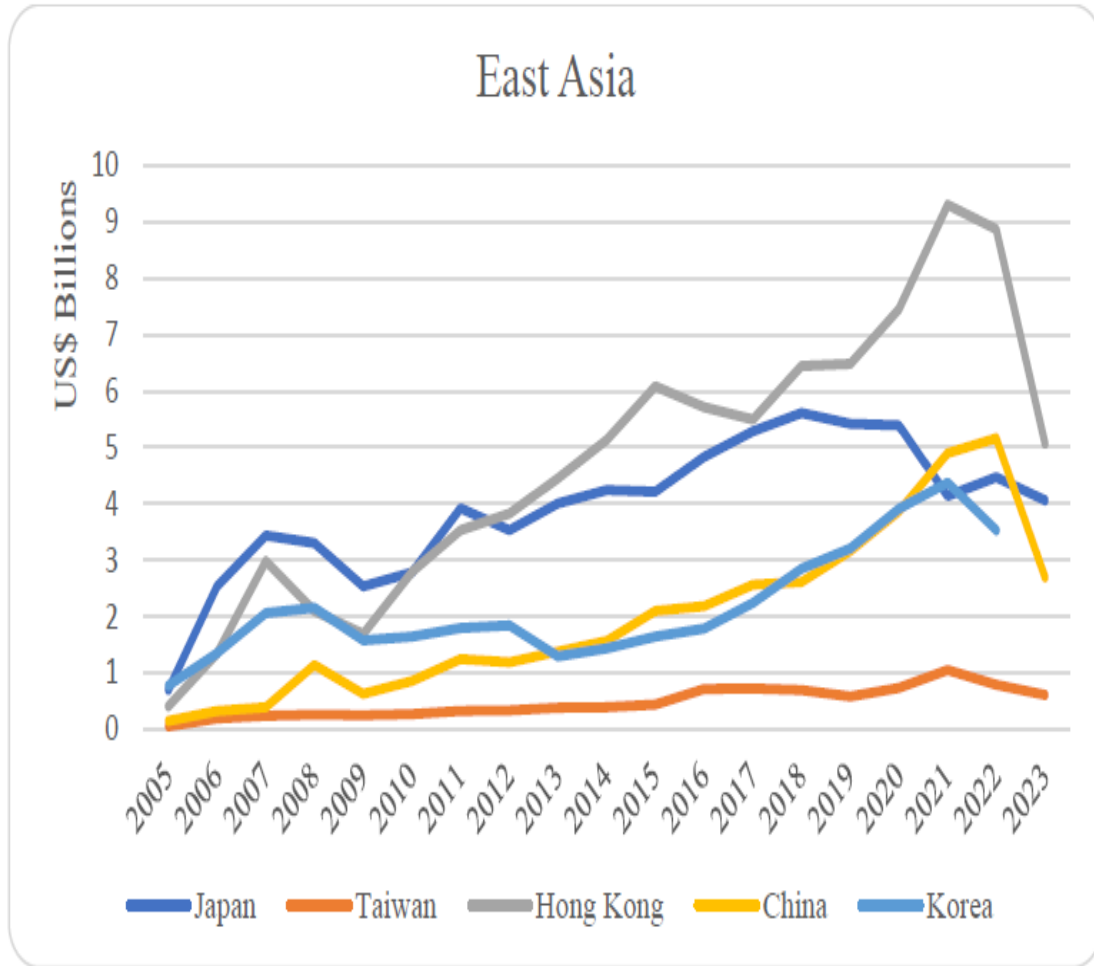
Digital commitments in trade agreements



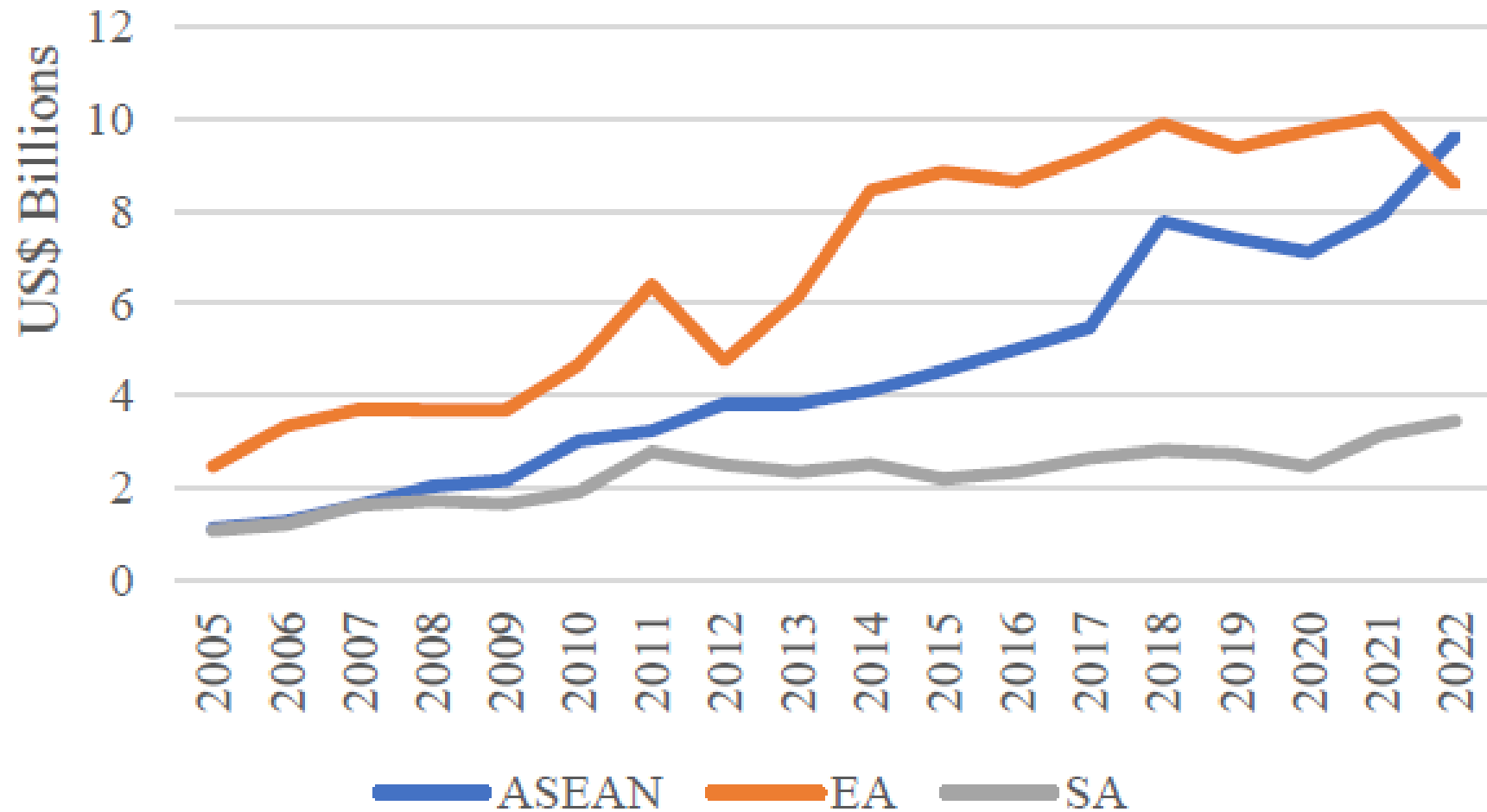
Financial Services Exports



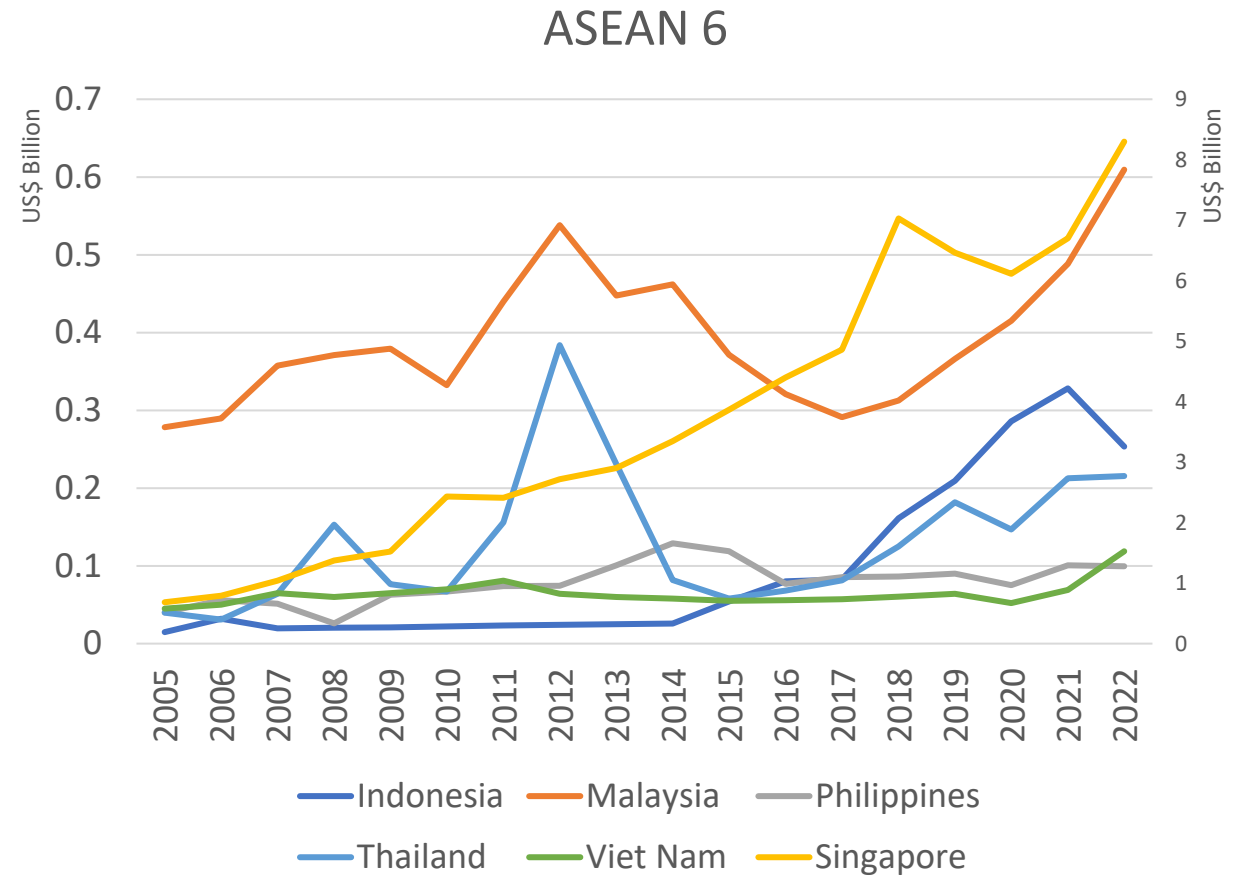
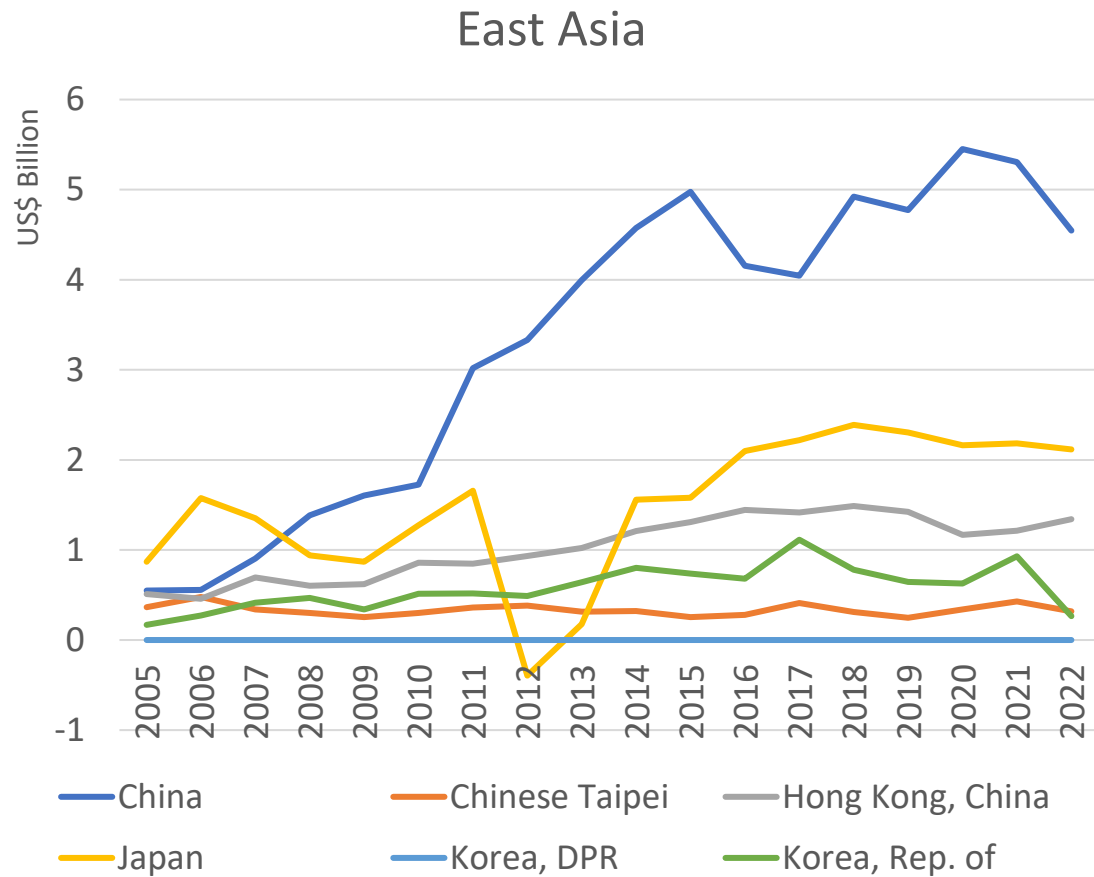
Financial Services



Insurance & Pension Services



Insurance & Pension services



Methodology

- We calculate digital depth of services trade agreements taking recourse to Chapter 4 of the Deep Trade Agreements Database of the World Bank (Batshur, et al. 2024)

$$Scope_{dataprovit} = \sum_{k=1}^{400} Data_{provk}^{it}$$

- Scope variables are constructed by summing the presence of scope variables across agreements which a country is part of at time t
- Depth variables are similarly constructed summing the depth of a particular attribute across trade agreements that a country pair is a part of for time period t.

$$dep1_{crosbrdta}^{it} = \sum_{k=1}^{400} dep1_{crsdta}^{it}$$

Methodology

- Benchmark estimations focused on capturing the effect of the existence of an FTA and the total digital depth on exports of the service using the gravity model:

$$Exports_{ijt} = \alpha_0 + \alpha_1 * fta_{ijt} + \alpha_2 * tot_depth_{ijt} + \beta_{it} + \gamma_{jt} + \vartheta_{ij} + \epsilon_{ijt} \dots \dots \dots (1.1)$$

- This was followed by an estimation of scope and depth effects on exports

$$Exports_{ijt} = \alpha_0 + \alpha_1 * Scope_{dataprov_{it}} + \alpha_2 * dep1_{crosbrd_{data_{it}}} + \alpha_3 * Dep_{serv_{str_{it}}} + \beta_{it} + \gamma_{jt} + \vartheta_{ij} + \epsilon_{ijt} \dots \dots \dots (1.2)$$

- Sample Countries: Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Taiwan (Chinese Taipei), Hong Kong, Democratic People's Republic of Korea, India, Indonesia, Japan, Korea, Lao People's Democratic Republic, Malaysia, Mauritius, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand and Viet Nam.
- Trade statistics sourced from the BATiS database with mode 1 trade corroborated from TISMOS data
- We followed this up by separately estimating the effect of ecommerce related depth provisions on exports of financial services and insurance & pension services.

Ecommerce provisions

- Most ecommerce related provisions are tested through multiple models due to collinearity problems across the measures
- Specific models estimated are as follows:

$$\text{Exports}_{ijt} = \alpha_0 + \alpha_1 * EC_{3Sum_{ijt}} + \alpha_2 * \text{Dig. Trade facilitation}_{ijt} + \alpha_3 * \text{Source code}_{ijt} + \beta_{it} + \gamma_{jt} + \delta_{ij} + \epsilon_{ijt} \dots(2.1)$$

$$\text{Exports}_{ijt} = \alpha_0 + \alpha_1 * \# \text{ Articles std}_{ijt} + \beta_{it} + \gamma_{jt} + \delta_{ij} + \epsilon_{ijt} \dots(2.2) \text{ and}$$

$$\text{Exports}_{ijt} = \alpha_0 + \alpha_1 * \text{Consumer Protection}_{ijt} + \beta_{it} + \gamma_{jt} + \delta_{ij} + \epsilon_{ijt} \dots(2.3)$$

Results

- Ecommerce provisions in trade agreements have varied impact on growth of exports of services
- Trade Agreements are export promoting for financial services from ASEAN and Asia in general
- Amongst depth attributes, commitments on data protection drive financial services exports from Asia
 - FTAs with higher number of articles do not necessarily correlate with higher exports of financial services exports
- East Asia's financial services exports remain less responsive to ecommerce related commitments
- [Results Slide](#)

Results

- Asia in general and ASEAN in particular have seen financial services exports grow in response to commitments on
 - protection of IP rights in ecommerce transaction,
 - presence of ecommerce in services chapters,
 - clear resolution in case of clashes between provisions on chapters of ecommerce, services and investments
- Commitments to guarantee consumer protection, protection against sharing source code of software promote financial services exports from ASEAN and Asia overall

Results

- Insurance and Pension services
 - East Asia exports have stagnated post 2018 with China experiencing a dip after 2020
 - Singapore and Malaysia have seen steep growth in 2022
- FTAs have a trade promoting impact
- Total depth has a weak influence
- Facilitation of cross border data flows positively promotes insurance and pension services exports
- Higher number of chapters for different modes of services exports promotes I&P services exports
- Consumer protection of ecommerce transactions and non requirement of sharing source codes in trade agreements post 2018 especially promote I&P exports from ASEAN post 2018

Conclusion

- The ecommerce provisions that are most facilitative in promoting exports of financial and Insurance and pension services include:
 - Data Protection
 - Consumer Protection in ecommerce transactions
 - Non-requirement of source code sharing and
 - IPR protection
- Cooperation in ICT and cyber security commitments further supplement the effects as does commitments on new issues like cross border data flows.
- South Asian countries with currently lower volumes of trade in these services may use the above as thrust areas as trade agreements get negotiated.

Appendix

Variable	Description
<i>EC_3_sumijt</i>	Captures if the exporter (i) and importer (j) who at time t are a part of a trade agreement with (a) ecommerce chapter together with the services chapter, (b) includes provisions to indicate which chapter takes precedence in case of conflicts (in case of separate chapters on investments, services and ecommerce) (c) there is a commitment not to impair intellectual property rights (IPR) for ecommerce transactions
<i>Dig.Trade Facilitation_{ijt}</i>	Captures if exporter (i) and importer (j) who at time t are a part of a trade agreement which facilitates (a) paperless trading, (b) contains provisions on electronic transfer of record and (c) promotes customs procedures automatization
<i>Source Code_{ijt}</i>	Captures if exporter (i) and importer (j) who at time t are a part of a trade agreement which (a) prohibits transfer or access to source code/algorithms owned by a citizen or company in the exporting country as a condition to import, (b) non-requirement for transfer of any proprietary information related to cryptography from exporter to importer.
<i># Articles std_{ijt}</i>	The standardised value of number of articles addressing ecommerce or digital trade in chapters or annexes in trade agreements between exporter i and importer j at time t.
<i>Consumer Protection_{ijt}</i>	Captures if exporter (i) and importer (j) who at time t are a part of a trade agreement which makes provisions for (a) protection of consumers using e-commerce, (b) promotes cooperation between national consumer protection agencies, (c) requiring consumer consent for sending unsolicited commercial electronic messages etc.

Estimation Results

Financial Services Exports: FTA and total depth

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Asian Exports	Asian exports	ASEAN exports	East Asia exports	Asian exports post 2018	ASEAN exports post 2018	East Asia exports post 2018
FTA	0.12*	0.17*	0.29**	-0.10	0.32***	0.33**	0.20
Total depth		-0.00	0.00	-0.00	-0.00	-0.00	-0.00
Constant	6.42***	6.42***	6.15***	6.65***	6.77***	6.43***	7.08***
N	4671	4671	2987	2697	1386	876	791
Exporter-Time	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer-Time	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporter-Importer	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ² Pseudo	0.97	0.96	0.96	0.98	0.98	0.98	0.99

Financial services exports- digital scope and depth

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	Asian Exports	ASEAN Exports	East Asia Exports	Asian exports post 2018	ASEAN Exports post 2018	East Asia Exports post 2018
Data Protection	-0.23***	-0.31***	0.97***	0.10	0.24*	0.52*
Cross Border flow	-0.40***	-0.08	-0.45*	-1.73***	-2.30***	(omitted)
Structure	0.01	-0.05	-0.18***	-0.17*	-0.26**	0.03
Constant	6.49***	6.27***	6.83***	7.35***	6.86***	6.98***
N	4671	2987	2697	1386	876	791
Exporter-fixed	Yes	Yes	Yes	Yes	Yes	Yes
Importer-Fixed	Yes	Yes	Yes	Yes	Yes	Yes
Exporter-Importer	Yes	Yes	Yes	Ye	Yes	Yes
Pseudo R ²	0.97	0.96	0.98	0.98	0.98	0.99

Financial services exports: Ecommerce depth

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	Asian Exports	Asian Exports	Asian Exports	Asian Exports post 2018	Asian Exports post 2018	Asian Exports post 2018
EC3_sum	0.08***			0.06*		
Dig. trade facilitation	-96.23***			-23.93		
Source code protection	30.90**			26.01*		
# articles std		3.36			9.00***	
Consumer Protection			0.10**			0.15***
Constant	6.45***	6.44***	6.43***	6.84***	6.83***	6.82***
N	4671	4671	4671	1386	1386	1386
Exporter-Year	Yes	Yes	Yes	Yes	Yes	Yes
Importer-Year	Yes	Yes	Yes	Yes	Yes	Yes
Exporter-Importer	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.97	0.97	0.97	0.98	0.98	0.98

East Asia- Financial Services exports

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	East Asia Exports	East Asia Exports	East Asia Exports	East Asia Exports post 2018	East Asia Exports post 2018	East Asia Exports post 2018
EC3_sum	-0.09**			-0.04		
Dig. trade facilitation	-36.49			26.09		
Source code protection	8.07			13.71		
# articles std		-6.72***			2.33	
Consumer Protection			-0.15***			-0.02
Constant	6.64***	6.56***	6.58***	7.11***	7.06***	7.09***
N	2697	2697	2697	791	791	791
Exporter-year	Yes	Yes	Yes	Yes	Yes	Yes
Importer-year	Yes	Yes	Yes	Yes	Yes	Yes
Exporter-Importer	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.98	0.97	0.98	0.98	0.98	0.98

ASEAN: Financial Services Exports

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	ASEAN Exports	ASEAN Exports	ASEAN Exports	ASEAN Exports post 2018	ASEAN Exports post 2018	ASEAN Exports post 2018
EC3_sum	0.26***			0.34***		
Dig. trade facilitation	-107.63***			-82.50**		
Source code protection	31.95*			-7.37		
# articles std		17.18***			12.43***	
Consumer Protection			0.27***			0.20***
Constant	6.22***	6.19***	6.20***	6.54***	6.51***	6.52***
N	2987	2987	2987	876	876	876
Exporter-year	Yes	Yes	Yes	Yes	Yes	Yes
Importer-year	Yes	Yes	Yes	Yes	Yes	Yes
Exporter-Importer	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.97	0.97	0.96	0.98	0.98	0.98

Insurance & Pension Services: FTA and total depth

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Asian Exports	Asian Exports	ASEAN Exports	East Asia Exports	Asian Exports post 2018	ASEAN Exports post 2018	East Asia Exports post 2018
FTA	0.23**	0.16*	-0.03	0.76***	0.23**	0.25**	0.22
Total Depth		0.35*	-0.12	0.04	-0.09	-0.43**	0.24
Constant	4.62***	4.60***	4.89***	3.65***	4.67***	4.76***	4.18***
N	4715	4715	2954	2695	1458	897	858
Exporter-year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer-year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporter-Importer	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.93	0.92	0.93	0.88	0.95	0.95	0.94

I&P Services: Digital Scope and Depth

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	Asian Exports	ASEAN Exports	East Asia Exports	Asian Exports Post 2018	ASEAN Exports Post 2018	East Asia Exports Post 2018
Data Protection	0.10	0.05	0.29	-0.10	-0.24	0.05
Cross Border flow	0.52**	0.84***	-0.41	0.49*	0.77**	(omitted)
Structure	0.03	-0.18***	0.25***	-0.17	-0.15	-0.34**
Constant	4.62***	4.97***	3.53***	4.97***	4.90***	5.33***
N	4715	2954	2695	1458	897	858
Exporter-year	Yes	Yes	Yes	Yes	Yes	Yes
Importer-year	Yes	Yes	Yes	Yes	Yes	Yes
Exporter-Importer	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.92	0.93	0.88	0.95	0.95	0.93

I&P Services: Ecommerce depth

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	Asian Exports	Asian Exports	Asian Exports	Asian Exports post 2018	Asian Exports post 2018	Asian Exports post 2018
EC3_sum	0.08			0.05*		
Dig. trade facilitation	64.24*			38.90*		
Source code protection	-10.36			-11.83		
# articles std		3.62			-1.58	
Consumer Protection			0.07			0.02
Constant	4.61***	4.68***	4.69***	4.66***	4.78***	4.75***
N	4715	4715	4715	1458	1458	1458
Exporter-year	Yes	Yes	Yes	Yes	Yes	Yes
Importer-year	Yes	Yes	Yes	Yes	Yes	Yes
Exporter-Importer	Yes	Yes	Yes	Yes	Yes	Yes
R ² Pseudo	0.92	0.92	0.92	0.95	0.95	0.95

East Asia: I&P services

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	East Asia Exports	East Asia Exports	East Asia Exports	East Asia Exports post 2018	East Asia Exports post 2018	East Asia Exports post 2018
EC3_sum	0.17***			0.12***		
Dig. trade facilitation	74.13			-104.07**		
Source code protection	-63.48**			61.70***		
# articles std		5.17			0.88	
Consumer Protection			0.22***			0.13*
Constant	3.66***	3.85***	3.79***	4.39***	4.37***	4.27***
N	2695	2695	2695	858	858	858
Exporter-year	Yes	Yes	Yes	Yes	Yes	Yes
Importer-year	Yes	Yes	Yes	Yes	Yes	Yes
Exporter-Importer	Yes	Yes	Yes	Yes	Yes	Yes
R ² pseudo	0.88	0.88	0.88	0.94	0.94	0.94

ASEAN: I&P services exports

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	ASEAN Exports	ASEAN Exports	ASEAN Exports	ASEAN Exports Post 2018	ASEAN Exports Post 2018	ASEAN Exports Post 2018
EC3_sum	-0.15*			-0.10*		
Dig. trade facilitation	113.96***			87.75***		
Source code protection	10.25			5.19		
# articles std		-3.74			-3.72*	
Consumer Protection			-0.11			-0.02
Constant	4.84***	4.89***	4.89***	4.78***	4.84***	4.82***
N	2954	2954	2954	897	897	897
Exporter-year	Yes	Yes	Yes	Yes	Yes	Yes
Importer-year	Yes	Yes	Yes	Yes	Yes	Yes
Exporter-Importer	Yes	Yes	Yes	Yes	Yes	Yes
R ² Pseudo	0.93	0.93	0.93	0.95	0.95	0.95

[Conclusion](#)