

Data-Related Restrictions and Digital Services Trade

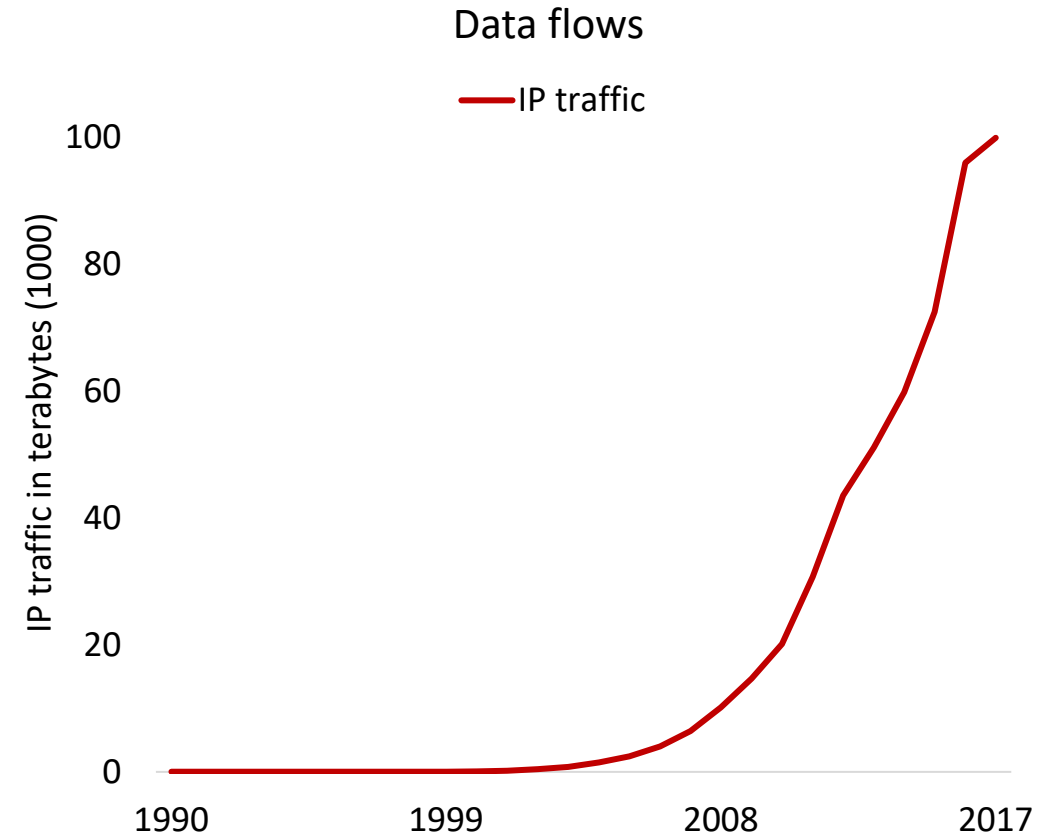
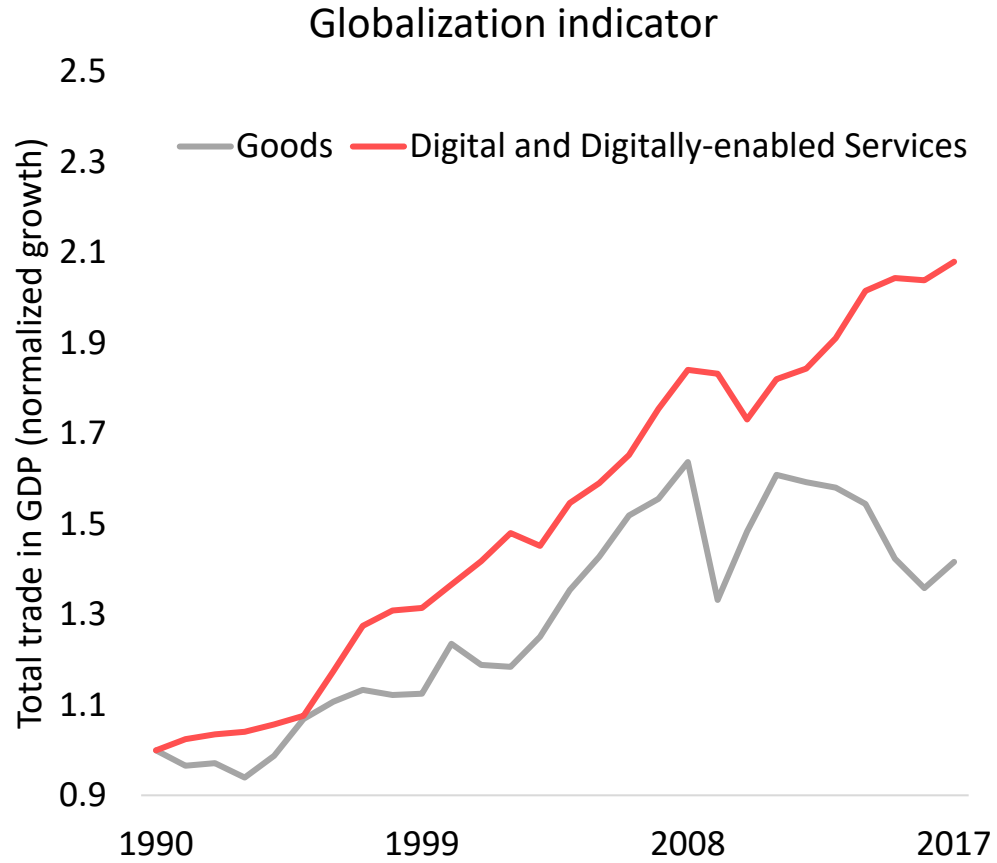
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Digital-based globalization



This chapter

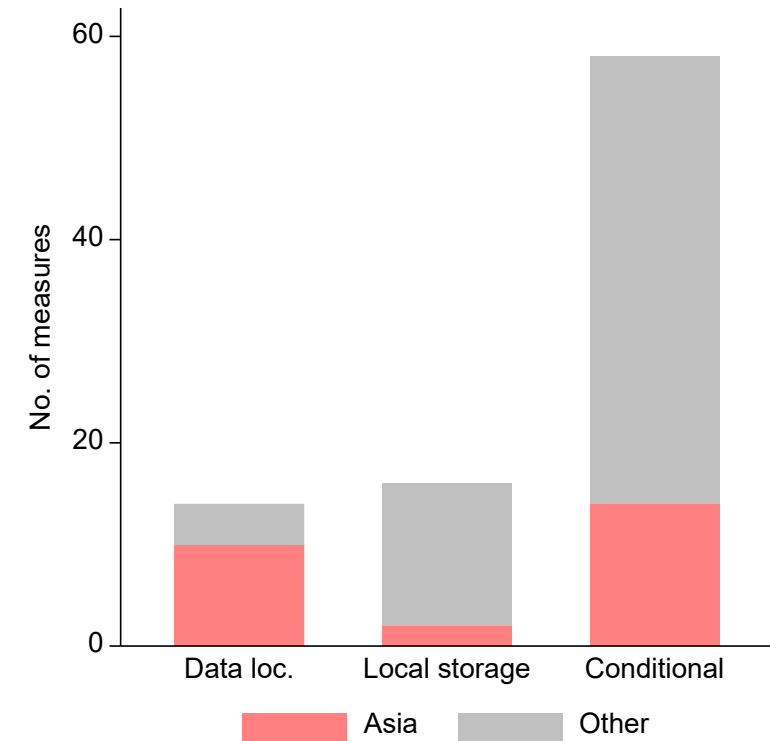
- Looks further into the specifics of “data restrictiveness” restrictions
 - **Data localization, local storage, and conditional flow regimes**
- Builds on previous work to find out *what* and *where* in Asia

Asia's role in digital services trade and policy

Share global digital services trade covered by countries imposing data localization policies by Asia and Rest of the World (2006-2019)



Number of data localization policies, local storage requirements, and conditional flow regime imposed by Asia and other countries (2019)

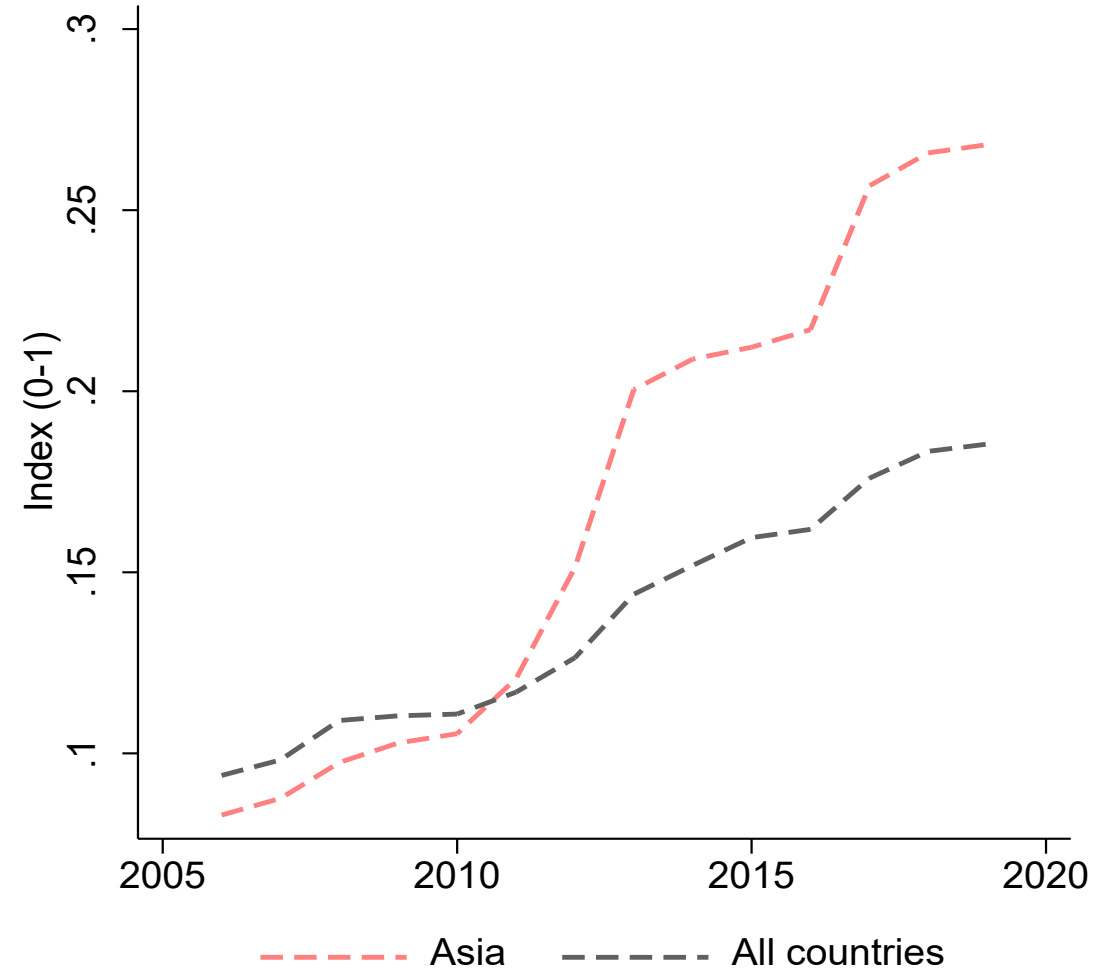


Looking at other indicators

- OECD DSTRI:
 - Since 2014, some (Asian) countries have increased their data-related restrictions: Turkey, India, and Japan even slightly. China already higher

Data restrictions (DTI / DTRI, 2022)

Data Localization	Local Storage	Conditional Flow Regime	
Australia*	Belgium	Argentina	Korea, Rep. of*
Canada	Bulgaria	Australia*	Latvia
China, People's Rep. of*	Denmark	Austria	Lithuania
India*	Finland	Belgium	Luxembourg
Indonesia*	Germany	Brazil	Malaysia*
Korea, Rep. of*	Greece	Brunei Darussalam*	Malta
Nigeria	India*	Bulgaria	Netherlands
Pakistan*	Italy	Canada	New Zealand*
Russian Federation	Netherlands	Chile	Nigeria
Taipei, China*	New Zealand*	China, People's Rep. of*	Norway
Thailand*	Poland	Colombia	Pakistan*
Turkey	Romania	Costa Rica	Paraguay
Viet Nam*	Russian Federation	Croatia	Peru
	Sweden	Cyprus	Philippines*
	United Kingdom	Czech Republic	Poland
	United States	Denmark	Portugal
	Belgium	Estonia	Romania
		Finland	Russian Federation
		France	Singapore*
		Germany	Slovakia
		Greece	Slovenia
		Hungary	South Africa
		Iceland	Spain
		India*	Sweden
		Indonesia*	Switzerland
		Ireland	Taipei,China*
		Israel	Thailand*
		Italy	Turkey
		Japan*	United Kingdom



Where are these restrictions felt?

Code	Sector description	Digital	Digital enabled
S11	Telecom	•	•
S12	Computer	•	•
S13	Information	•	•
SF	Insurance	•	•
SG	Financial	•	•
SH	Intellectual property		•
SJ1	R&D		•
SJ2	Professional & management		•
SJ3	Tech., trade-rel. & other		•
SB	Maintenance & repair		
SD	Travel		
SE	Construction		
SC1	Sea transport		
SC2	Air transport		
SC3	Other transport		
SC4	Postal & courier		
SK1	Audio-visual & related		
SK2	Personal, cultural & recr.		

List based on Ferracane and van der Marel (2021) in which authors compute software-over-labour ratios

Digital sectors classified here have higher-than-mean ratios, including finance and insurance

Findings for Asia

- **Digital services**

- Data localization problematic, as well as strict conditional flow regimes

- **Digital-enabled services**

- Data localization problematic, conditional flow regime ambiguous
- Substantial difference w.r.t. conditional flow regimes
 - Results not driven by China, nor confounded by services policies in telecom
- Hence, digital-enabled services seem to be sensitive to this issue
 - This type of regimes and type of sectors may be sensitive to **data protection**
- Yet, how (direction of trade) and by how much is an empirical question

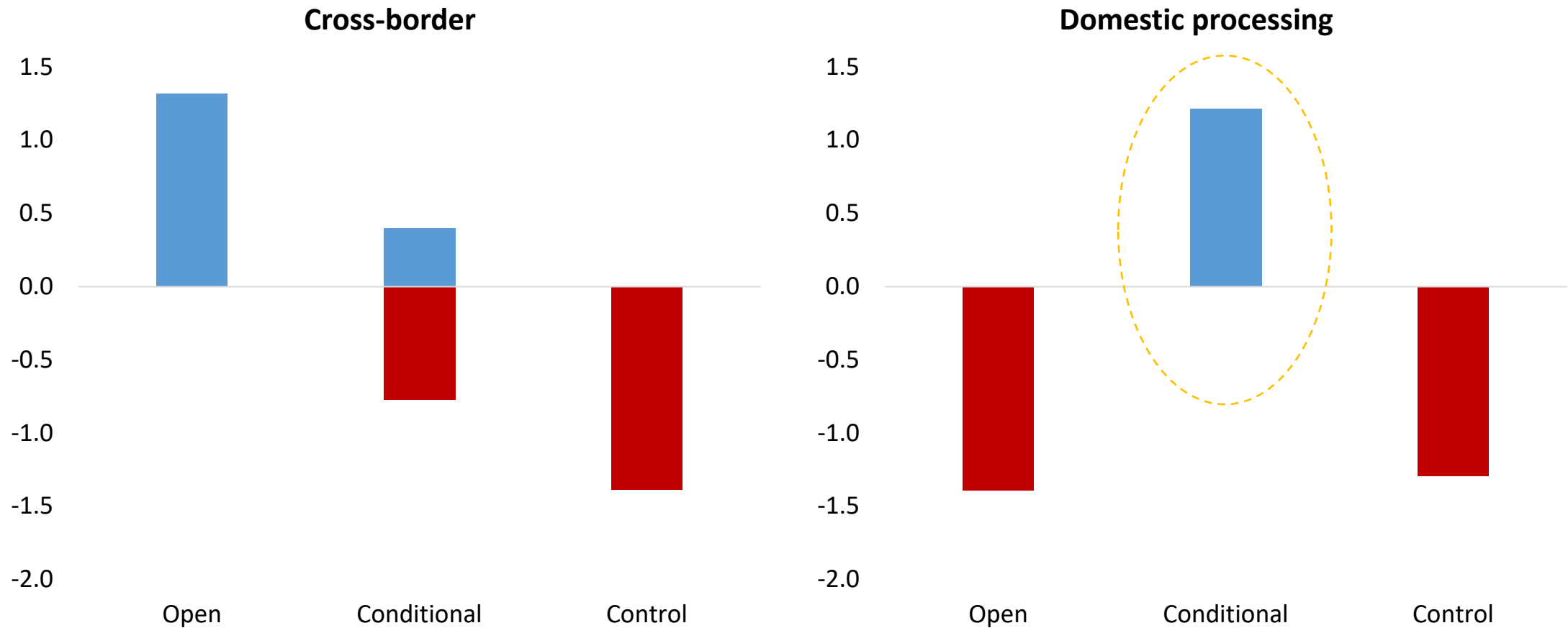
What does that mean for policy?

- Remove data loc policies in Asia. Recent waves of PTAs and JSI talks
 - How many countries are part of JSI? Asian PTAs real bite in data-related regulations?
- Ambiguous results w.r.t. conditional flow regime. Could be EU-driven
 - GDPR is by some seen as overshooting, but could in some manners also enable trade
 - How? Data protection might be a trade enhancing in the form of adequacy
 - Puts the onus on domestic **institutions / capacity to regulate / digital governance**
- **Wider question:**
 - How does Asia connect to data models elsewhere in the world? Is Japan an example?
 - **Adequacy and CBPR compatible in the long run? China-model dependent countries?**

Three data models: Taxonomy

	Cross-border data transfers	Domestic data processing
<u>OP</u> : Open Transfers and Processing Model	Self-certification ; self-assessment schemes ; ex-post accountability ; trade agreements and plurilateral/bilateral arrangements as only means to regulate data transfers.	Lack of comprehensive data protection framework ; lack of informed consent; privacy as a consumer right.
<u>RS</u> : Regulatory Safeguards Model	Conditions to be fulfilled ex-ante, including adequacy of the recipient country, binding corporate rules (BCR), standard contract clauses (SCCs,) data subject consent, codes of conduct, among others.	Wide data subject rights ; data subject consent; right to access, modify and delete personal data; establishment of data protection authorities (DPAs) or agencies; privacy as fundamental human right.
<u>GC</u> : Government Control Model	Strict conditions including bans to transfer data cross border; local processing requirements: ad hoc government authorization for data transfers; infrastructure requirements; ex-ante security assessments.	Extensive exceptions for government access to personal data; privacy vs security and social order.

Trade effects of the different data models



Coefficient results from the gravity model for data models and digital services trade. Ferracane and van der Marel (2021). The dependent variable is bilateral digital services exports using the underlying gross trade data from the TiVA database. The definition for digital services trade and other details of the econometric specification and methodology can be found in Annex Table A2 of the paper.

Conclusion

- Negative correlation between data-related restrictions and digital services trade
 - Particularly strong in Asia, but lot of action is also taking place here
- In particular, data localization and strict conditional flow rules seem burdensome
- Sophisticated conditional flow regime with access to big markets (EU / China)
 - How do data regimes of smaller countries connect to the three global models? E.g. where does THA pivot to?

Extended baseline regression for Asia

- $\ln(\text{SM})_{cst} = \Phi + \theta D_{cst} \cdot \text{Software intense}_s \geq \text{YIMPL}_{ct-1} + \delta_{st} + \gamma_{ct} + \varepsilon_{cst}$ (1)

- $\ln(\text{SM})_{cst} = \Phi + \theta D_{cst} \cdot \text{Software intense}_s \geq \text{YIMP}_{ct-1} * \text{ASIA}_c + \delta_{st} + \gamma_{ct} + \varepsilon_{cst}$ (2)

Extended baseline results

- Account for partial restrictions: $0.5 > 0$ | $0.5 > 1$
- Account for different data sources: Annual & BATiS
 - **CB** = Cross-Border | ANY of the three restrictions in place
 - **DL** = Data localization, **LS** = Local storage, **CF** = Conditional flow
 - **DS** = digital services, **DEnS** = Digital-enabled services

Extended baseline results

	(1)	(2)	(3)	(4)
	ln(SM)			
	0.5 > 0		0.5 > 1	
CB * DS	-0.138*** (0.003)	-0.090* (0.050)	-0.097 (0.115)	-0.044 (0.478)
CB * DS * Asia		-0.614*** (0.000)		-0.325*** (0.000)
FE Cou-Year	Yes	Yes	Yes	Yes
FE Sect-Year	Yes	Yes	Yes	Yes
Observations	11454	11454	11454	11454
R2A	0.774	0.775	0.774	0.775

Extended baseline results, by restriction

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ln(SM) 0.5 > 0			ln(SM) 0.5 > 1				
DL * DS	-0.069 (0.704)			-0.006 (0.978)	0.128 (0.115)			0.104 (0.202)
DL * DS * Asia	-0.873*** (0.000)			-0.931*** (0.000)	-0.580*** (0.000)			-0.578*** (0.000)
LS * DS		-0.213** (0.013)		-0.239** (0.015)		-0.099** (0.024)		-0.157*** (0.001)
LS * DS * Asia		0.061 (0.883)		-0.050 (0.905)		0.047 (0.704)		0.136 (0.302)
CF * DS			-0.022 (0.618)	-0.082* (0.075)			-0.019 (0.708)	-0.080 (0.148)
CF * DS * Asia			-0.480*** (0.000)	-0.369*** (0.000)			-0.352*** (0.000)	-0.072 (0.400)
FE Cou-Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE Sect-Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11454	11454	11454	11454	11454	11454	11454	11454
R2A	0.775	0.774	0.775	0.776	0.775	0.774	0.775	0.775

Extended baseline results, DEnS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ln(SM) 0.5 > 0			ln(SM) 0.5 > 1				
DL * DEnS	-0.042 (0.836)			0.086 (0.697)	0.129 (0.114)			0.134 (0.105)
DL * DEnS * Asia	-1.046*** (0.000)			-1.148*** (0.000)	-0.538*** (0.000)			-0.568*** (0.000)
LS * DEnS		-0.159 (0.102)		-0.230** (0.034)		0.092** (0.029)		0.045 (0.306)
LS * DEnS * Asia		0.039 (0.935)		0.121 (0.801)		-0.442*** (0.000)		-0.342*** (0.003)
CF * DEnS			0.116** (0.011)	0.061 (0.190)			0.141*** (0.006)	0.044 (0.432)
CF * DEnS * Asia			-0.094 (0.362)	0.014 (0.894)			-0.226*** (0.002)	0.099 (0.291)
FE Cou-Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE Sect-Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,454	11,454	11,454	11,454	11,454	11,454	11,454	11,454
R2A	0.776	0.774	0.774	0.776	0.775	0.774	0.775	0.775

Robustness checks

- China is not an exceptional case. Taking it out similar results
- Telecom restrictions (TL) **as control** help build **country-sector** digital networks
 - Using WB STRI > 49 threshold assigned as restrictive, i.e. unity (1)
 - Assuming time constant reform for intermediate years (\neq 2008 & \neq 2016)