Data and Services Trade: Regulatory Options for a New Globalization

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IIFT ECONOMICS SOCIETY (IES)

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Digital-based globalization was already underway

For the Globalization Indicator, from 2005 to 2015:
- Total Manufacturing Industries:
  - Yearly data points from 2005 to 2015
  - Trade-to-Production vs. LOWESS
- Total Information Industries:
  - Yearly data points from 2005 to 2015
  - Trade-to-Production vs. LOWESS
Trade increasingly based on intangibles
Implication

- New intangible “factors” giving rise to trade (HO)
- New technologies, new comparative advantages
  - MGI (2016): data as a flow. Data as a factor?
Data centres (DC) (per 1 Mln population)

Source: Data Centre Map
Software-intensities Ferracane and van der Marel (2021)
Data centres and digital services trade

Correlation between Exports of Info. Services and Data Centres

Coeff: 0.57, *** p<0.01, R2: 0.35
Baseline results (data matters for comparative advantage)

<table>
<thead>
<tr>
<th>Model</th>
<th>( \ln(SX)_{ij} )</th>
<th>( \ln(SX)_{ij} )</th>
<th>( \ln(SX)_{ij} )</th>
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<tbody>
<tr>
<td>(1)</td>
<td>( \ln(D/L)_j \times \ln(DC/P)_c )</td>
<td>0.048** (0.047)</td>
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<tr>
<td></td>
<td>( \ln(D/L)_j \times \ln(IXP/P)_c )</td>
<td></td>
<td>-0.021 (0.328)</td>
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<td></td>
<td>( \ln(D/L)_j \times \ln(SIS/P)_c )</td>
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<tr>
<td></td>
<td>( \ln(D/L)_j \times \ln(GDPpc PPP)_c )</td>
<td>0.049 (0.396)</td>
<td>0.194*** (0.001)</td>
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<tr>
<td></td>
<td>FE Exporter</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td></td>
<td>FE Sector</td>
<td>Yes</td>
<td>Yes</td>
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<td></td>
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<td>1426</td>
<td>1071</td>
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<tr>
<td></td>
<td>R2A</td>
<td>0.877</td>
<td>0.891</td>
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<tr>
<td></td>
<td>R2W</td>
<td>0.018</td>
<td>0.033</td>
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<tr>
<td></td>
<td>RMSE</td>
<td>1.218</td>
<td>1.035</td>
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</table>
Data restrictions digital services trade covered by **data localization**
Countries imposing data localization policies
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)
Data-related policy restrictions

• Are data-related policy restrictions burdensome?
• And if so, which ones are the most costly data-related restrictions?
  • Data localization, local storage, and conditional flow regimes
Data-related policy restrictions
Empirical research


  ➢ Yes, they do in the aggregate using composite indicator
Further baseline results  
Van der Marel & Ferracane (ongoing)

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<td>Data localization</td>
<td>-0.763***</td>
<td>-0.411***</td>
<td>-0.687***</td>
<td>-0.415***</td>
<td>-0.464***</td>
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<td></td>
<td>(0.000)</td>
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<td>Local storage</td>
<td>-0.039</td>
<td>0.071</td>
<td>-0.025</td>
<td>-0.007</td>
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<td>(0.675)</td>
<td>(0.406)</td>
<td>(0.770)</td>
<td>(0.936)</td>
<td>(0.430)</td>
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<tr>
<td>Conditional flow</td>
<td>0.043</td>
<td>0.466***</td>
<td>-0.086*</td>
<td>0.275***</td>
<td>0.635***</td>
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<td></td>
<td>(0.327)</td>
<td>(0.000)</td>
<td>(0.051)</td>
<td>(0.000)</td>
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<td>Yes</td>
<td>Yes</td>
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<td>R2A</td>
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<td>0.777</td>
<td>0.776</td>
<td>0.776</td>
<td>0.779</td>
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Results so far

• Data localization ×
• Data storage – not for lower developed countries (RCA, LMC, etc.)
• Conditional flow regime ?
Results so far

• Moreover, regulatory frameworks also matter
• Globally, three different data frameworks
Models cross-border (pers) data transfers

Open model (green), Regulatory Safeguard (blue), Government control (red)

Source: Ferracane and van der Marel (2021b)
3 data models and digital services trade

Source: Ferracane and van der Marel (2021). The dependent variable is bilateral digital services exports (DSX) using the underlying gross trade data from the TiVA database. Sector groupings for digital services trade can be found in the paper Annex Table A2, as well as other details of the econometric specification and methodology.
Data protection

• EU’s DPD 1998 & GDPR 2018
• “Should offer guarantees ensuring an adequate level of protection essentially equivalent to that ensured within the Union, in particular where personal data are processed”

• Independent supervision
• Cooperation mechanisms, with EU data protection authorities
• Enforceable rights, to EU citizens (data subjects), including redress
• Much more regulatory-driven than other countries granting “adequacy”
EU adequacy decisions

Adequacy decisions

- Japan
- United States (PS)
- New Zealand
- Uruguay
- Israel
- Andorra & Faroe Islands
- Jersey
- Isle of Man
- Argentina & Guernsey
- Canada
- Switzerland & United Staes (SH)
Adequacy’s trade impact

• Benchmark **alternatives** without adequacy
  - Binding Corporate Rules (BCRs): within-multinationals data transactions
  - Standard Contractual Clauses (SCCs): for outside the firm (outsourcing)
  - Derogations / consent

- Practical business literature: alternatives are **costly** for trading firms*
## Baseline results, \( \delta_{it} \) fixed effects

<table>
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<th>Specification 1</th>
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<td>IMP</td>
<td>EXP</td>
<td>IMP</td>
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<td>ADQ</td>
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<td>0.043*</td>
<td>-0.014</td>
<td>0.035**</td>
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<td>(0.103)</td>
<td>(0.080)</td>
<td>(0.298)</td>
<td>(0.050)</td>
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<td>RTA</td>
<td>-0.023</td>
<td>-0.058</td>
<td>-0.000</td>
<td>-0.033</td>
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<td>(0.362)</td>
<td>(0.153)</td>
<td>(0.994)</td>
<td>(0.143)</td>
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<td>WTO</td>
<td>0.082</td>
<td>0.107</td>
<td>0.122**</td>
<td>-0.030</td>
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<td>(0.302)</td>
<td>(0.175)</td>
<td>(0.014)</td>
<td>(0.798)</td>
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<td>CON 181</td>
<td>-0.019</td>
<td>0.009</td>
<td>-0.005</td>
<td>-0.011</td>
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<td>(0.488)</td>
<td>(0.841)</td>
<td>(0.777)</td>
<td>(0.655)</td>
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<td>CBPR</td>
<td>-0.035</td>
<td>0.084**</td>
<td>-0.036</td>
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<td>(0.277)</td>
<td>(0.044)</td>
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<td>FE O-year</td>
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<td>FE O-D-Trend</td>
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<td>R2</td>
<td>0.995</td>
<td>0.987</td>
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### Finance
- ●

### Insurance
- ●

### IT & Info
- ●

### IPR
- ●

### Travel
- ●

### Cultural
- ●

### Business
- ●
Wider effects Recent Kearney report

Figure 9
An invalidation of an adequacy agreement between the European Union and the United States could have a major long-term impact on GDP.

Impact of an Adequacy Scenario on the EU GDP

EU GDP impact

- Low elasticity
- 0.22%
- €19 billion–€31 billion
- High elasticity
- 0.14%
- 0.14%

Sources: ECIP and Kearney analysis
3 models of cross-border data transfers


Source: Ferracane and van der Marel (2021b)
Models of data processing
Open model (green), Regulatory Safeguard (blue), Government control (red)
3 data models and digital services trade

Source: Ferracane and van der Marel (2021). The dependent variable is bilateral digital services exports (DSX) using the underlying gross trade data from the TiVA database. Sector groupings for digital services trade can be found in the paper Annex Table A2, as well as other details of the econometric specification and methodology.
Conclusion

- Digital-based services globalization going on (big)
- Intangibles such as data going to play a huge role
- Regulatory options best free of localization measures
  - How would India shift on localization and privacy issues?
  - How would it pivot to larger markets for digital services trade?
## Three data models: Taxonomy

<table>
<thead>
<tr>
<th></th>
<th>Cross-border data transfers</th>
<th>Domestic data processing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OP: Open Transfers and Processing Model</strong></td>
<td>Self-certification; self-assessment schemes; ex-post accountability; trade agreements and plurilateral/bilateral arrangements as only means to regulate data transfers.</td>
<td>Lack of comprehensive data protection framework; lack of informed consent; privacy as a consumer right.</td>
</tr>
<tr>
<td><strong>RS: Regulatory Safeguards Model</strong></td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td><strong>GC: Government Control Model</strong></td>
<td>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.</td>
<td>Extensive exceptions for government access to personal data; privacy vs security and social order.</td>
</tr>
</tbody>
</table>