Localising data in a Globalised World

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Conference on the Use of Data in the Digital Economy
2-3 October 2017, WTO, Geneva
The ubiquitous exchange of data across-borders has led to the emergence of regulations seeking to address concerns ranging from security and protection of individual privacy through to regulatory and audit reach.

The implications of these ‘data localisation’ measures are not well understood and have led to a polarised debate.

Different countries reach their own understanding of the nature and importance of privacy and security within their own cultural and political contexts.

Analysis can help better unpack some of the issues.
Aim of the paper

• To contribute to debate by filling some informational gaps by:
  1. documenting the nature, reach and evolution of the emerging measures;
  2. shedding some light on how firms use data and how they perceive the emerging measures
  3. by identifying the possible opportunity costs involved in terms of foregone economic activity

• To provide policy-makers with information to assist in weighing some of the trade-offs involved in finding the balance between ensuring important public policy objectives and maintaining the benefits from free flows of data.
UNDERSTANDING THE NATURE AND EVOLUTION OF DATA MEASURES
Data regulation database

- Identified pieces of legislation, regulation or policies that are implemented by governments and currently in force.

- To be included, measures must treat foreign senders/receivers differently from domestic equivalents, or explicitly regulate the geographic location of data storage.

- Over 100 measures across 68 economies identified (not exhaustive).

- Analysis of measures informs a broad taxonomy.

- Measures fall into two categories:
  - Cross-border flow restrictions (75)
  - Local storage requirements (41)
Taxonomy of cross-border data transfer measures

Free / No specific mention

Conditional

One-of
- Private sector safeguards
  - Actionable
  - Non-actionable
- Government safeguards
  - Domestic focus
  - International focus

Combination
- Private sector safeguards
  - Actionable
  - Non-actionable
- Government safeguards
  - Domestic focus
  - International focus

Prohibition

General level of restrictiveness
Evolution and nature of data transfer restrictions

• Growing in number and in complexity…
• Mainly horizontal and involving personal data, but also health, financial, public and telecom data.
Evolution and nature of local storage measures

- Increasingly compulsory (and combined with prohibition)
- Often transpositions of traditional tax or audit requirements to a digital context
- Type of data: Telecoms, Financial, personal, health and public.
- Affected sectors, 50% horizontal, but also finance, public, telecom and health
FIRM PERCEPTIONS
Business Questionnaire

• Aims to identify how firms use data and gauge the nature and rationale of concerns related to emerging data localisation regulation.

• 259 firms with headquarters distributed over 48 countries and representing 21 sectors.

• Mix of multiple choice and open ended questions

• Delivered on-line with link distributed by business associations.

• Many caveats, sample selection, representativeness, still useful to get information where there is very little knowledge of how firms use data.
Importance of personal data varies by sector but stronger for services

Bars show the share of respondents by answer given across sectors. This figure is based on answers from 159 firms and only sectors for which we have more than 3 respondent is represented. Coal oil gas mining and Construction: 3; Heavy manufacturing: 4 Other manufacturing: 5; Agriculture and Insurance: 7; Trade: 10; Other machinery and equipment: 11; Other financial services: 13; Communications: 19; Other business services: 26; ICT services: 41.
Separating personal from non personal data can be costly

Bars show the share of respondents by answer given across sectors. This figure is based on answers from 165 firms. Including 18 answering “I don’t know”. Lumber and paper products, Motor vehicles and transport equipment, Recreation and other services, Textiles wearing apparel and leather, Transport air water and other are represented by a single firm; Electronic equipment, Food, Other government services, Utilities (2 firms); Construction (3); Coal oil gas mining and Heavy manufacturing (4); Insurance (5); Agriculture (6); Other machinery and equipment and Trade (10); Other financial services (12); Communications (15); Other business services (22) and ICT services (38).
Data used for domestic and international purposes

Data management activity

- Domestic client related activities
- Personnel activities (HR etc)
- International client related activities
- Domestic production/processing...
- International production/processing...
- Dealing with compliance standards
- Dealing with external suppliers
- Other internal operations
- Dealing with affiliates

Score is created from the frequency and occurrence and the ranking among the three most prevalent data management tasks. This figure is based upon answers from 195 firms.
Some firms think they will gain from measures others are concerned about losses
### Perceived costs of measures (selected sectors)

<table>
<thead>
<tr>
<th>Sector</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data Transfer</td>
<td>Storage</td>
</tr>
<tr>
<td></td>
<td>(as share of total costs)</td>
<td>(as share of ICT costs)</td>
</tr>
<tr>
<td>Agriculture</td>
<td>0.31%</td>
<td>34%</td>
</tr>
<tr>
<td>Coal oil gas mining</td>
<td>0.63%</td>
<td>1%</td>
</tr>
<tr>
<td>Motor vehicles and transport equipment</td>
<td>0.01%</td>
<td>21%</td>
</tr>
<tr>
<td>Electronic equipment</td>
<td>2.29%</td>
<td>21%</td>
</tr>
<tr>
<td>Other machinery and equipment</td>
<td>5.07%</td>
<td>31%</td>
</tr>
<tr>
<td>Utilities</td>
<td>2.31%</td>
<td>21%</td>
</tr>
<tr>
<td>Construction</td>
<td>6.51%</td>
<td>23%</td>
</tr>
<tr>
<td>Communications</td>
<td>7.50%</td>
<td>34%</td>
</tr>
<tr>
<td>Other financial services</td>
<td>3.88%</td>
<td>24%</td>
</tr>
<tr>
<td>ICT services</td>
<td>3.37%</td>
<td>22%</td>
</tr>
<tr>
<td>Other business services</td>
<td>3.85%</td>
<td>19%</td>
</tr>
<tr>
<td>Recreation and other services</td>
<td>2.46%</td>
<td>21%</td>
</tr>
</tbody>
</table>

Transfer shocks are applied as an NTM on exports while storage shocks are applied on the use of ICT inputs (and thus they are presented as a share of total costs and ICT costs respectively. * identifies missing data which is instrumented by the average across all sectors but checked against other variables in the questionnaire to ensure consistency of responses. Throughout, the lowest response values from the Business Questionnaire were taken to reduce upward bias from respondents. The figures for the low scenario are obtained by subtracting the sample mean minus the standard deviation from the high-scenario values. When this causes the value to be negative, this is replaced by zero. Lumber and paper products, Construction, Motor vehicles and transport equipment, Recreation and other services, utilities are represented by a single firm; Electronic equipment, Coal oil gas mining, Other government services (2 firms); Communications, other financial services, other machinery equipment (4); The remainder by 5 or more with; Other business services (10) and ICT services (16) being most represented in terms of firm coverage.
IDENTIFYING THE TRANSMISSION MECHANISMS AND OPPORTUNITY COST OF DATA REGULATION
Modelling approach

• Modelling impact of measures is complex:
  • Dearth of statistics
  • Cost increases hard to identify
  • Choice of assumptions and modelling techniques

• Different ways of modelling reflect different views on the role of data for economic activity. Is data pervasive or just ICT budget?

• Premature to measure impact of current measures but hypothetical exercise can help illustrate the direction of potential effect and transmission channels.

• Likely importance of inter-linkage effects and global nature of impact favours use of CGE model (GDP captures digitally enabled transactions even if it does not single these out).
measures

- Cross-border flow restrictions:
  - Impose *compliance cost when exporting* (iceberg cost) related to splitting personal and non-personal data or cost of compliance associated with meeting requirements of a conditional flow restriction.

- Storage restriction (or x-border restriction if data=ICT budget):
  - Cost increase modelled as increase in input costs from *domestic data service sector* (modified local content requirement).

- Hypothetical exercise introduces measures horizontally across all sectors to identify transmission mechanisms.
Observations from hypothetical analysis

- Cross-border data transfer measures:
  - Varies across countries and regions
  - Highest in sectors more reliant on export markets or engaged in GVCs
  - Spillover effects likely to arise (countries might be affected by measures in other countries)

- Local storage requirement (or x-border restriction if data=ICT budget):
  - Positive impact on domestic ‘data’ service sector;
  - but negative impact on all other sectors which see their competitiveness fall (on aggregate negative outweighs positive)
  - Very small (negligible) spillover effect.
Conclusions

• Given **global nature of internet** and escalating costs from patchwork of differing approaches to data regulation → **value in efforts towards a common global understanding** on how to deal with data.

• Premature to define what this might look like, but useful work and experience to draw on (OECD principles for internet policy-making or experience with SPS and TBT issues at WTO).

• Value of processes and dialogue to identify common objectives and principles.

• Important to involve a **multi-stakeholder discussion** taking advantage of technological knowledge of business community and involving civil society to help governments tackle the genuine privacy and security concerns in a way that that preserves the significant economic and trade benefits flowing from data-enabled business
Contact us
We look forward to hearing from you!

Access all of the information from the Trade & Agriculture Directorate at:

www.oecd.org/tad

You can reach us via e-mail by sending your message to the following address:

tad.contact@oecd.org

We invite you to connect with us on Twitter by following:

@OECDtrade
Taxonomy of local storage requirements

Free/ No specific mention

Conditional
• Guarantee of government
• Time specific storage requirement
• Foreign storage is necessary

Compulsory & prohibitive data restriction

Compulsory & other data restriction

Compulsory

General level of restrictiveness
But value of data hard to measure

• Data measured in bits and bytes, some files ‘heavier’ by nature (audio, video) does not equate with greater value.

• 100 personal shopping entries might occupy same memory as 100 personal health records, but
  • Value will depend on the perspective of final user (whether a supermarket or a health service).
  • Value can increase when data merged (greater that the sum of parts).
  • Information not used today can become valuable tomorrow (inherent/potential value – think Tesla).

• Data increasingly seen as a ‘natural resource’, is non-rivalrous and copies at marginal cost.
What is ‘international’ data used for

To what degree does data originating from other countries matter to the various parts of your business

- Strategy development
- Operations (Data analytics and processing)
- Operations (supply chain management) (incl. …)
- Administrative functions (contracts, etc.)
- Sales
- Human Resources (back office)
- After-sales service

Score is created from the frequency and occurrence and the ranking among the three most prevalent data management tasks. Figure is based upon answers from 165 firms.
How do firms report to make their data storage and analysis decisions?

Score is created from the frequency and occurrence and the ranking among the three most prevalent data management tasks. Figure based upon answers from 181 firms.