

The Impact of Data Transfer Restrictions on Data Centre Geography

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PRIN INNODATA Final workshop
Rome, February 5th, 2026

Motivation

- In the digital economy, physical capital, such as data centres (DCs), continues to play a crucial role
- This asset type is relevant across several dimensions, including consumer protection, environmental concerns, and geopolitics
- This work studies how regulations on cross-border personal data flows affect the installation of DCs

Layout of the work

- 1 Develop a theoretical framework in which data regulation, modelled as a quota on data that must be stored and processed domestically, affects DCs installation. The effect is weaker where the marginal cost of local computing is higher
- 2 Conduct a cross-country event study to identify changes in DC entry following the tightening of regulations on cross-border personal data transfers

Results

- 1 Tightenings of cross-border data transfer rules are associated with higher domestic DC entry (+15%)
- 2 The response is weaker in countries where processing and connectivity costs are higher (i.e., where bandwidth usage is lower)
- 3 Results are robust to several checks, including counterfactual exercises (cryptocurrency-related DCs), alternative sample compositions (winsorisation), and other specifications

Comments (1)

- 1 **Organisation:** Presenting the theoretical model before the empirical analysis would help frame the paper and clarify the underlying mechanisms
- 2 **Model assumptions:** Clarify the nature of the semi-log additive production function, $Y = C^\alpha \log(1 + D^\gamma)$, and discuss the robustness of the results to alternative functional forms

Comments (2)

- 1 Downstreamness:** This measure reflects the number of production stages to final demand. Data are assumed to circulate within the economy through inter-industry intermediate input flows. Does it make sense to focus on connections between the software industry (computer software and programming) and the rest of the economy to proxy data transfers?
- 2 Downstreamness:** Make explicit whether the computation method captures the number of connections (network links) rather than the volume of exchanged goods and services (nodes).

Comments (3)

- 1 **Event analysis:** A dynamic DiD specification—including lagged dependent variables (to address selectivity) and leads/lags of the treatment (to capture anticipation or delayed effects)—could help mitigate identification concerns
- 2 **Contamination effects:** The current approach regresses a binary-contiguity-weighted number of DCs on national regulation. It may be preferable to reverse this check, given that the distributional properties of OLS operate at the country i level.

Comments (4)

- 1 **Skewness:** Regressions run windsored distribution of outcome variables. This removes the potential bias on extrem value, but do not addresses zeros and the count data nature of the outcome variable. Perhaps, useful to run negative binomial or pseudo-poisson maximum likelihood regression
- 2 **Exogeneity of the treatment:** The average number of new DCs is small. Are they concentrated? Can these firms affect the route of (de)regulation process?

Economic Implications of Data Regulation: Balancing openness and Trust

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Background

Why data regulation is necessary

- Privacy and personal data protection
- National security
- Digital security
- Audit and competition policy
- Digital industrial policy

Background

Costs of data regulation

- Complex and fragmented regulatory frameworks
- Weaker enforcement of public policy goals

Role of trust: Data Free Flow with Trust (DFFT)

Aims

- Identify the costs of data regulation through a survey (400 responses across 32 countries and all major sectors)
- Simulate the impact of alternative data regulation regimes on key macroeconomic aggregates

Survey Results

- Data is costly and difficult to separate by type or geography
- Most cross-border business data consists of **personal data**
- Firms face higher compliance costs

Simulation Results (selection)

- **Full fragmentation of data flows**
 - Global GDP falls by **4.5%**; exports by **8.5%**
- **No data flow regulation**
 - Lower trade costs, but reduced trust
 - Global GDP declines by about **1%**
- **Balanced regimes (open or pre-authorized safeguards)**
 - Global exports increase by **3.6%**
 - Global GDP increases by **1.8%**

Comments (general)

- To understand the impact of regulation on GDP, it would be helpful to clarify how data is modelled (as an asset or an intermediate input).
- Does regulation affect the volume of data exchanged, or does it change how data is used (e.g. through substitution effects)?
- How does data regulation interact with other regulatory dimensions or legislation, such as Intellectual Property Rights (data \Rightarrow information \Rightarrow knowledge \Rightarrow wisdom)?