Multimodal container transport

A bottom-up approach

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Motivation
Multimodal transport chains

Economies and supply chains entangled on global scale

- **International events** influence transport flows NL
- Description **multimodal** transport chains challenging
- Important for **infrastructure planning** (BasGoed model Rijkswaterstaat)
- **European Green deal**: shift transport to ‘green’ modalities
Multimodal transport chains

Modality
- Sea
- Inland waterways
- Rail
- Road
Multimodal transport chains

Modality
- Sea
- Inland waterways
- Rail
- Road

UK

US

CN

Duisburg
Why focus on containers?
Containers

Easy to switch transport mode (multimodal optimisation)
Containers

Easy to switch transport mode (multimodal optimisation)

CSQU3054383
- Owner code
- Serial number
- Category identifier
- Check digit

Unique identifier

Easy to track in transport chains
Current status
StatLine: mono-modal container transport

European mandatory statistics goods transport

Data quality insufficient
Multi-modal container transport?

Top-down

Bottom-up
Data collection bottom-up
Bottom-up monthly data collection

Large amounts of data required, every month!
Bottom-up monthly data collection

Large amounts of data required, every month!

Survey?  →  High administrative burden

(Government) registrations  →  Not available

Alternatives?
Transport management systems

Variable 1
Variable 2
...
Variable n

“Pre-” data processing
Transport management systems

Variable 1
Variable 2
...
Variable n

“Post-” data processing
Safe infrastructure
Safe infrastructure

Data access management
Data sources (import)

- ~20 sea terminals
- ~2500 road transport companies → Sample (?)
- ~15 rail transport companies (+ x rail terminals)
- ~50 inland waterways terminals + IVS

ICS

Customs
Data integration
Methodological challenges

“Structural missingness”

“Incidental missingness”

Source 1

Source 2

⋮

Source n
Methodological challenges

Overlapping data (errors, different definitions)

actual time of arrival?
Expected output (examples)
Modal split
Container flows via inland waterways (NL) by country of origin [TEU x 1000]
Outlook
Outlook

- Extension to other **cargo types** like liquid and solid bulk
- Share methodology Eurostat
- **Data sharing cross-border** (privacy preserving data sharing: join at micro-level, safe dissemination at macro level)
Facts that matter