

Quantifying e-commerce mobility

Review of e-commerce data in urban logistics research

4th VREF Conference on Urban Freight

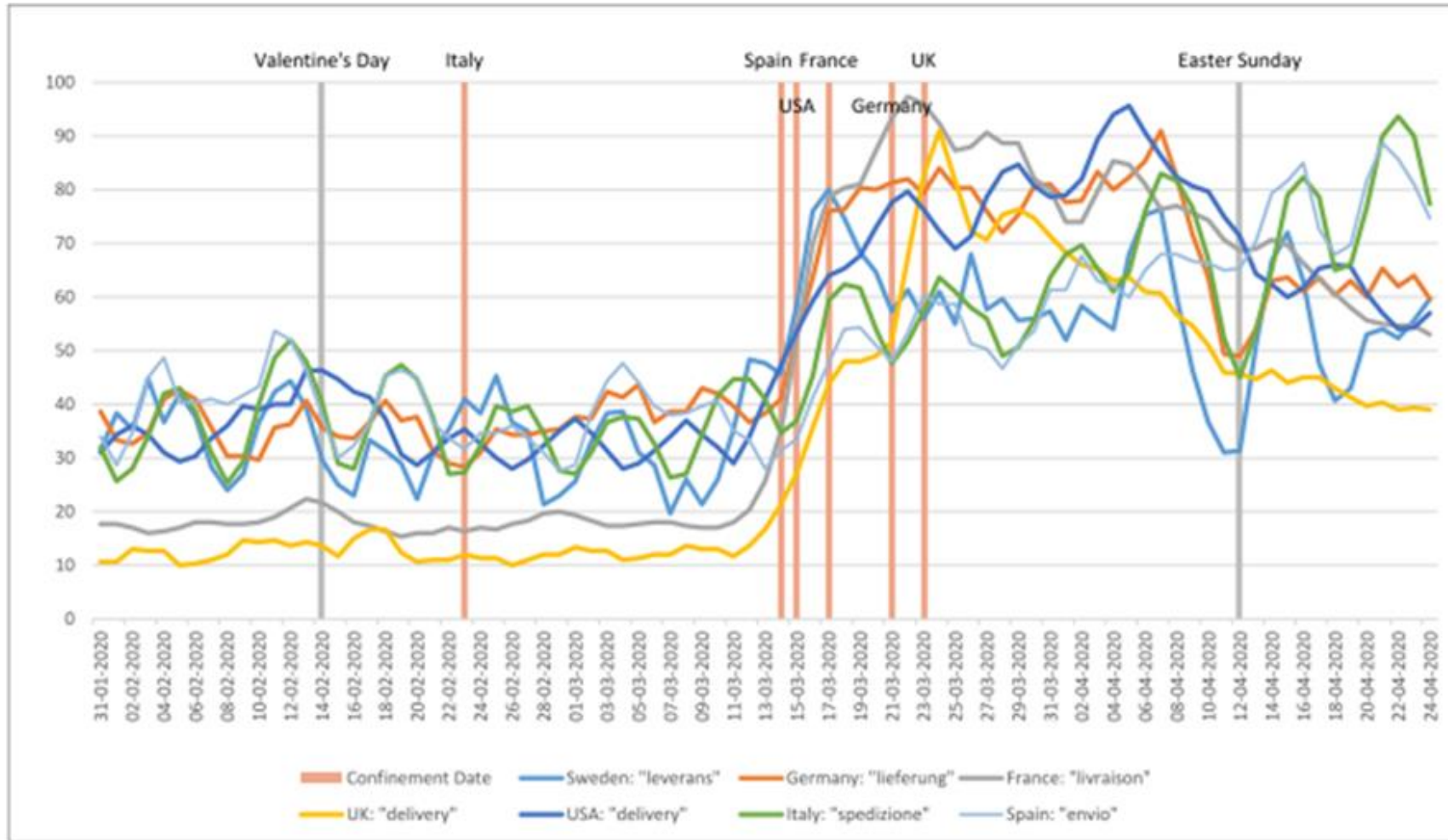
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Welcome to the

E-COMMERCE MOBILITIES OBSERVATORY

Intensified searches for deliveries



Increased parcel volume



2017 in France
2 million parcels per day

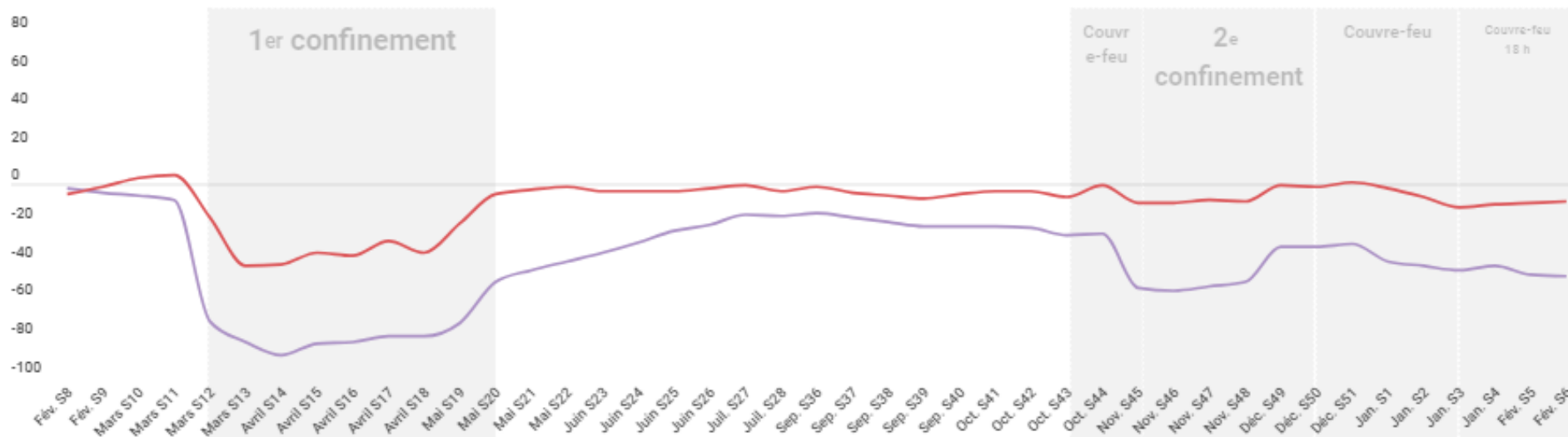


2020 in France
4 million parcels per day


E-commerce & mobility: it's complicated

- **Omnichannel:** +50% turnover of French omnichannel retailers with acceleration of home deliveries as well as click and collect (FEVAD, 2021).
- **Fragmentation:** 30% of the French buy food products online (FEVAD, 2021).
- **Substitution/complementarity:**

Change in trips for **essential** and **non-essential** shopping throughout lockdowns and curfews
Paris region, Google Mobility data, compared to January 2020



Importance of robust, comparable and appropriate data



“City logistics is the means over which freight distribution can occur in urban areas and the strategies that can improve its overall efficiency while mitigating externalities such as congestion and emissions. It includes providing services contributing to efficiently managing the movements of goods in cities and providing innovative responses to customer demands.”

Rodrigue & Dablanc, 2021

Systematic literature review

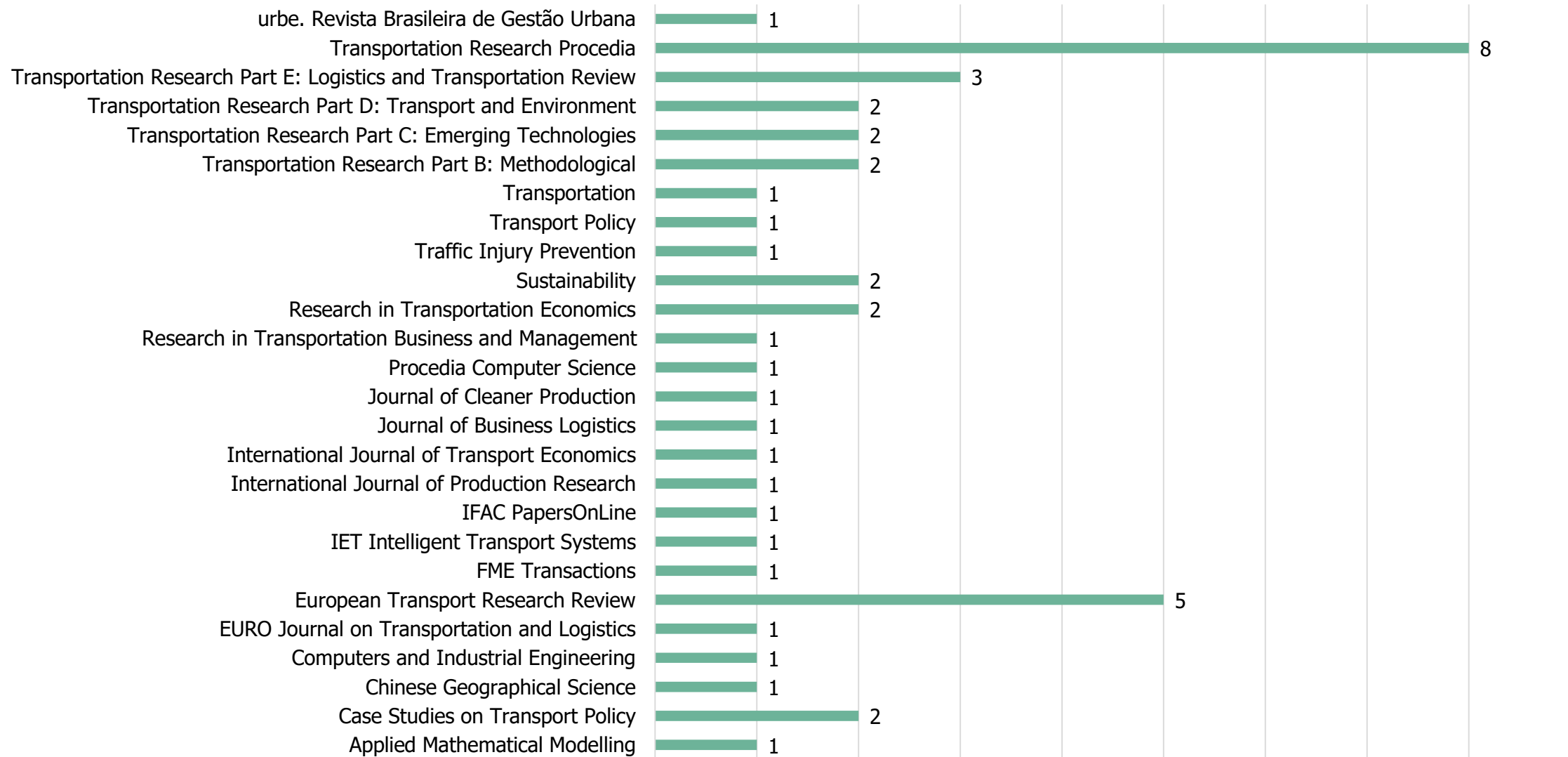
Identification of 127 articles on April 1st, 2020

- Databases: ScienceDirect, Scopus and Web of Science
- Keywords: "city", "urban", "city logistics", "urban freight" and "urban logistics" in the general search field and "ecommerce", "online retail", "omnichannel", "omni-channel", "multichannel", "multi-channel" and "online shopping" in the title, abstract and keywords specific search field
- Exclusion criteria: articles and reviews published after 2015 in peer-reviewed journals

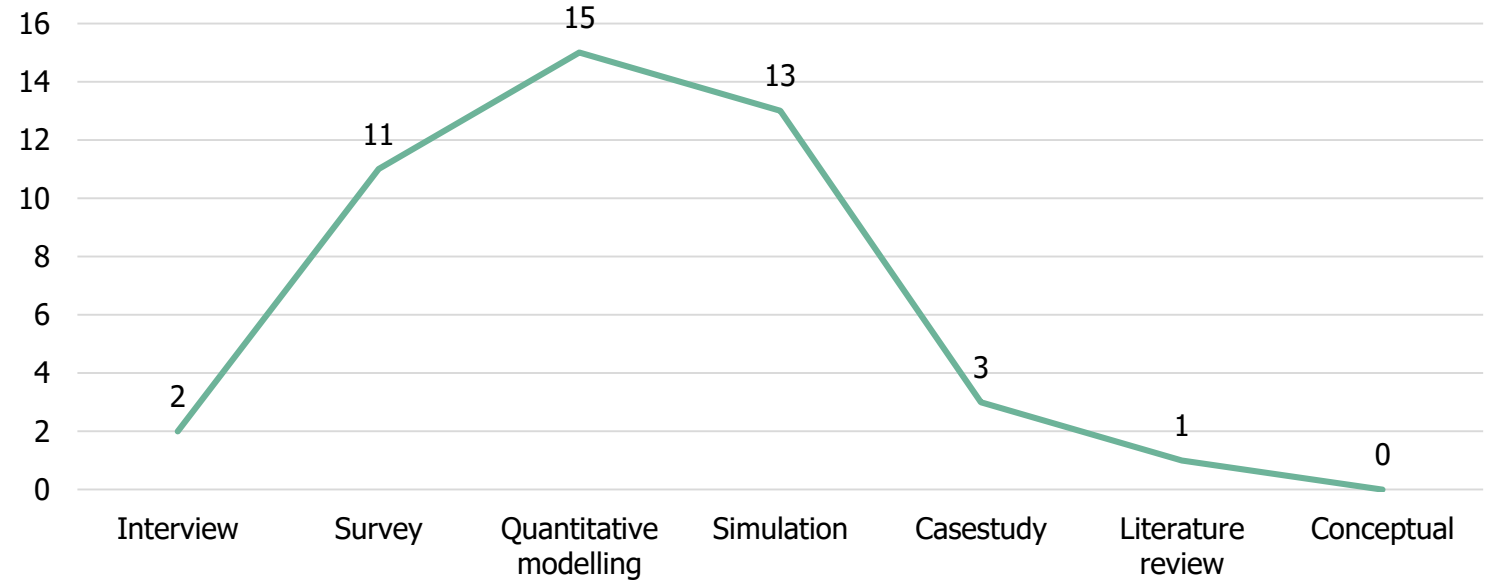
Analysis in spreadsheet file

- General article information
- Information about city or cities
- information on methodology
- information on data and sources ➔ **review corpus of 45 articles**

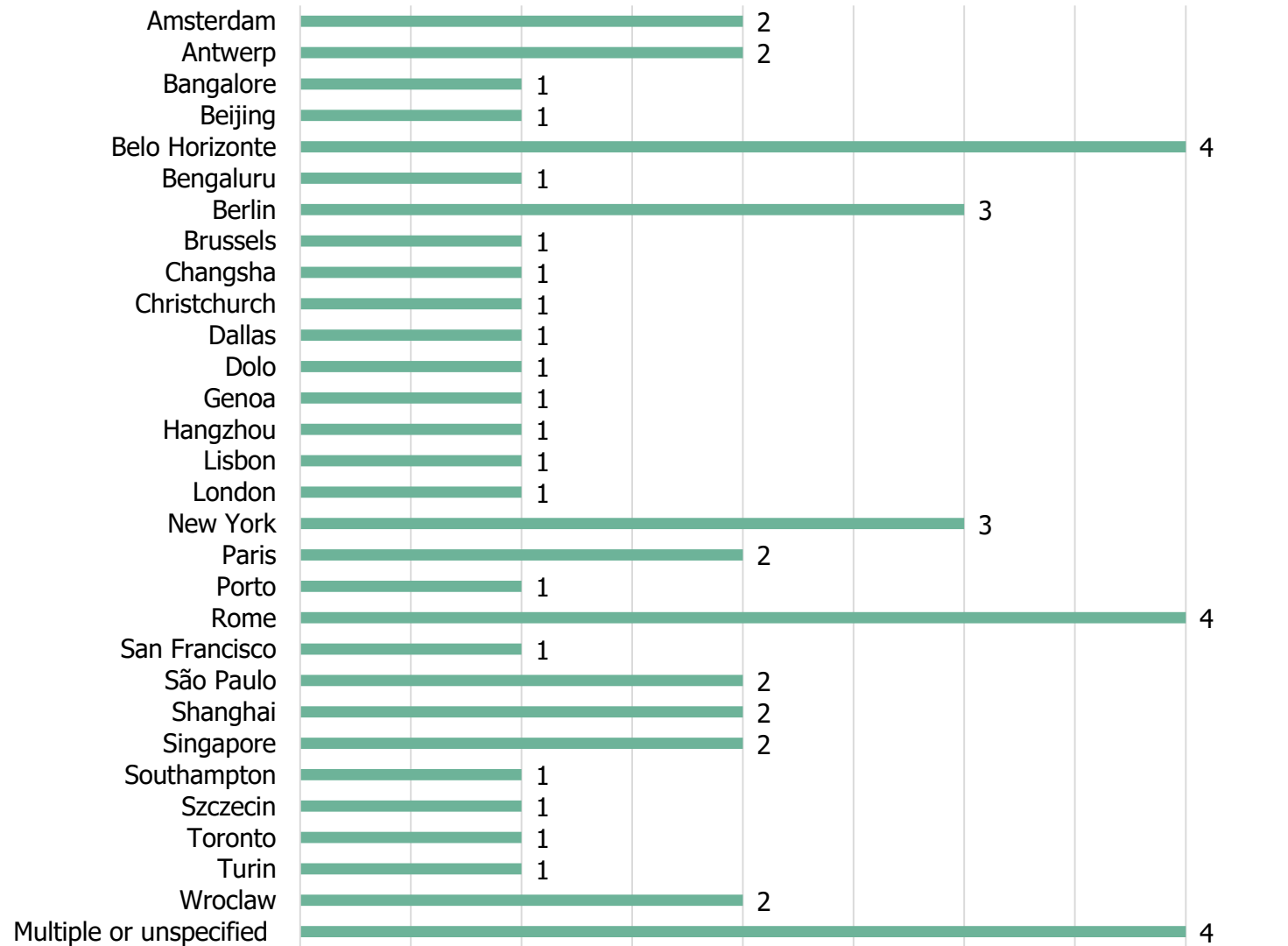
Journals in review corpus



Methodologies in review corpus



Cities in review corpus



Data, sources and methods in the review corpus



City



Infrastructure



Consumers



Volumes



Trips

More than half of articles

Number of inhabitants, area size, population density

Governmental documents, scientific articles, open maps

Data, sources and methods in the review corpus



City



Infrastructure



Consumers



Volumes



Trips

Half of articles

Number of collection points, logistics facilities, logistics sprawl

Companies, sector organisations, scientific articles, open maps

Data, sources and methods in the review corpus



City



Infrastructure



Consumers



Volumes



Trips

One third of articles
Behaviours and preferences
Surveys, proxy estimates

Data, sources and methods in the review corpus



City



Infrastructure



Consumers



Volumes



Trips

More than half of articles
Orders/parcels/deliveries
Governmental documents, scientific articles,
news articles, surveys, calculations

Data, sources and methods in the review corpus



City



Infrastructure



Consumers



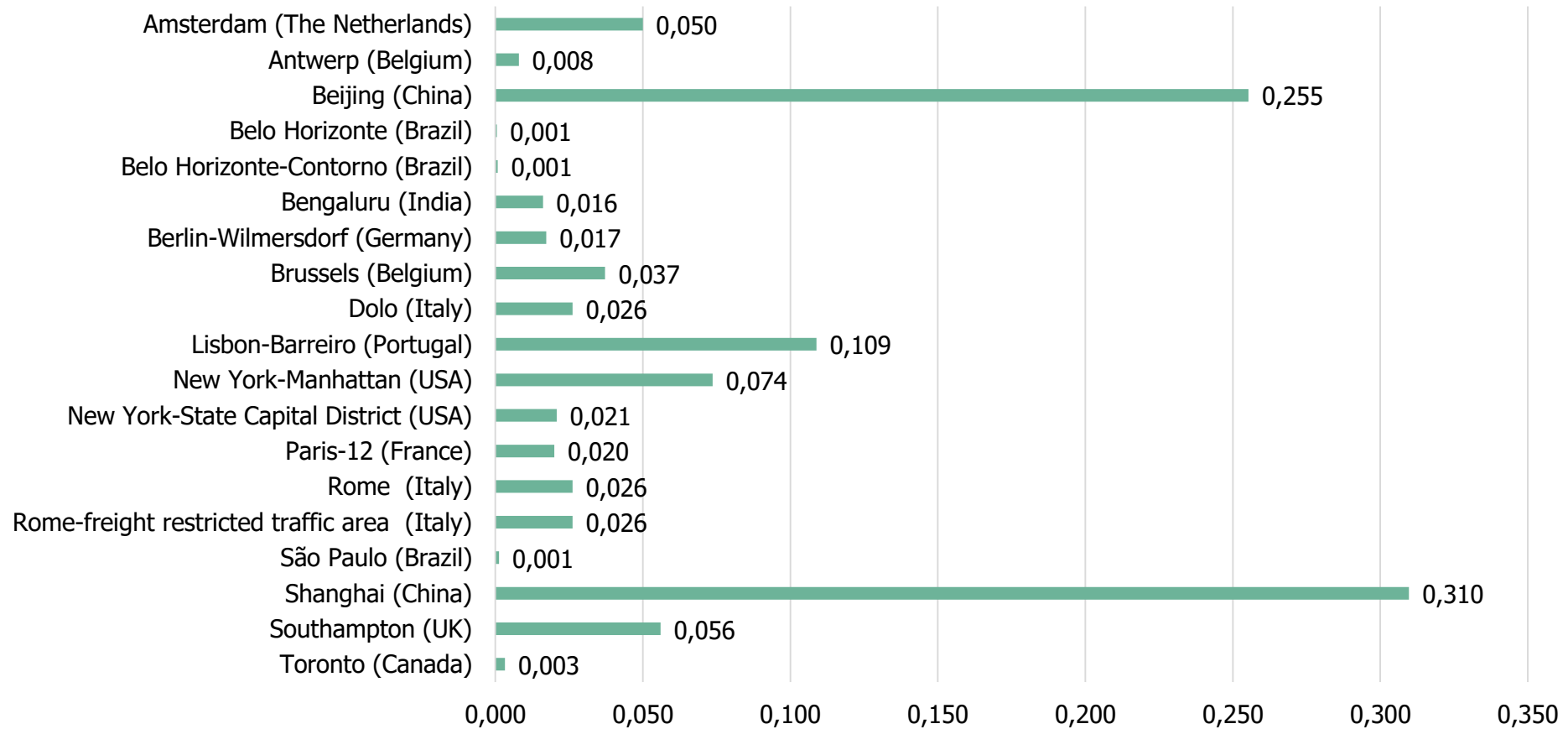
Volumes



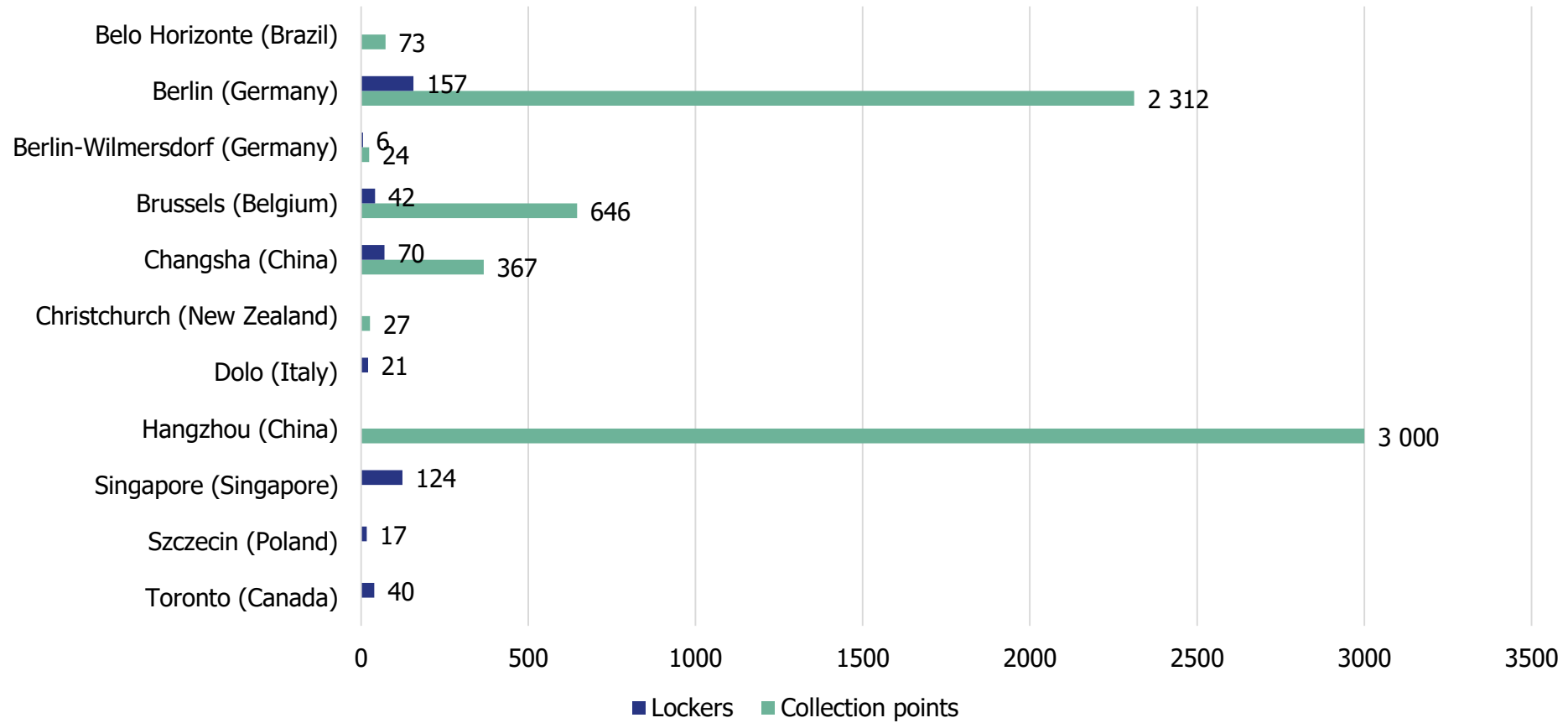
Trips

More than half of articles
Rounds, vehicles
Scientific articles,
company data, surveys

Daily deliveries per capita



Number of collection points



Identified data challenges and unresolved questions

Challenges in sources and methods:

- Unstandardised data collection
- Insufficiently detailed, adapted, defined data
- Wrong data

Unresolved questions:

- How should an e-commerce order be defined?
- How many freight trips do e-commerce orders generate?
- How to handle ongoing e-commerce developments?

Some recommendations

- Addressing the most pressing gaps in data
- Standardising data collection instruments (especially qualitative studies)
- Sharing methodologies/sources/data information (especially quantitative studies)

- Contributions outside of urban logistics research?
- Technological opportunities?
- Data accessibility?



Chaire
**LOGISTICS
CITY**

Thank you!
Questions?

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