SCOPE FOR AUTOMATION IN THE SWEDISH COMMODITY FLOW SURVEY

Henrik Petterson, Transport Analysis

UNECE Working Party on Transport Statistics, 2021-06-11
INTRODUCTION

• The Swedish Commodity Flow Survey (CFS) is one of few large-scale surveys on freight transportation in the world

• The objective of this presentation is to give a brief review of
  • The Swedish CFS
  • Freight data sources that can complement the CFS
  • The scope for data sharing
  • Possible steps ahead
REVIEW OF SWEDISH CFS

• Purpose of CFS is to describe firms’ domestic and international movement of freight by all modes

• The CFS contains records of individual shipments to or from a company in Sweden, with detailed information about each shipment.

• Focus on movement of freight, not vehicles and vessels
REVIEW OF SWEDISH CFS

- The CFS is used to produce official statistics and conduct analyses of the freight transportation sector
- Users include researchers, government agencies and private companies
- Transport analysis responsible for producing the survey
- The survey is conducted every 4-6 years
  - The next survey is due 2021

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shipment-level variables</strong></td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td>SEK (based on invoice value, excl. VAT and transport cost)</td>
</tr>
<tr>
<td>Weight</td>
<td>KG</td>
</tr>
<tr>
<td>Cargo type</td>
<td>liquid bulk, solid bulk, container, palletized, swap bodies and trailers, Other</td>
</tr>
<tr>
<td>Commodity type</td>
<td>NST 2007</td>
</tr>
<tr>
<td>Transport mode</td>
<td>Road, rail, sea, air or multi-/intermodal</td>
</tr>
<tr>
<td>Place of origin</td>
<td>Zip code (only within Europe), country code</td>
</tr>
<tr>
<td>Place of destination</td>
<td>Zip code (only within Europe), country code</td>
</tr>
<tr>
<td><strong>Firm-level variables (from business registers)</strong></td>
<td></td>
</tr>
<tr>
<td>Sector</td>
<td>NACE code</td>
</tr>
<tr>
<td>Size</td>
<td>Number of employees</td>
</tr>
</tbody>
</table>
SURVEY METHODOLOGY

• Sample survey of 12,000 workplaces
  • Firms leave information about shipments for some specific week(s) in the survey year
  • Mainly Web-based survey
  • Mandatory participation

• Data also based on administrative records and business registers
  • Covers firms in the forestry, agriculture, sugar production and petroleum industry
SURVEY LIMITATIONS

- High production costs
- Response burden of firms
- Small samples and limited geographic resolution
- Motivates automated data collection methods
SCOPE FOR AUTOMATION: DATA AVAILABILITY

• Data availability investigated in development projects (Transport Analysis, Swedish Transport Administration)

• Information about movement of freight available in
  • Transport Administration (TA) Systems

• Information about movement of vehicles and vessels available in
  • Fleet Management Systems (FMS)
  • Automatic Identification System (AIS)
  • Registries maintained by air and railway traffic regulators
SCOPE FOR AUTOMATION: DATA SHARING

• Firms’ views on data sharing investigated in development projects (Swedish Transport Administration 2019)

• Shippers (commodity owners)
  • Generally positive to data sharing
  • Motivation: finding bottlenecks to optimize freight flows and increase fill rates
  • Motivation: enable consolidation of shipments and use of longer and heavier vehicles

• Carriers
  • Some were willing to share their data given that they benefitted from increased efficiency
  • Others feared increased price competition due to data sharing
  • Unwilling to provide information about specific customers
SCOPE FOR AUTOMATION: DATA SHARING

• Logistics service providers
  • Data sharing viewed as a threat to business model
  • Feared that collaboration would violate competition rules

• Providers of transport administration (TA)-systems
  • Some were willing to provide aggregated data
  • Others saw little scope for data sharing due to contractual agreements with their clients
SCOPE FOR AUTOMATION: GOING FORWARD

• Strategy for the Commodity Flow Survey (Transport Analysis 2020)

• Short term development (1-4 years)
  • Conduct pilot projects for development of new data collection methods
  • Replace survey with data from company registers (shippers, carriers and/or LSPs)
  • Start with sectors in which freight flows are stable and regular (e.g. paper and steel)
PILOT STUDY 2021

- Recruit companies (commodity owners/shippers)

- Data collection
  - define variables and concepts for data capture and validation
  - test data collection, feed back to/from respondents

- Evaluation of quality and costs
- International outlook and regional cooperation
- Conclusions and step forward
CONCLUSIONS

• Swedish Commodity Flow Survey describes the movement of freight
• Degree of automation of data collection currently low
• Companies in the transportation sector are currently collecting data on freight and transportation that could be used in the CFS
• Firms’ views on data sharing differ and are related to the associated costs and benefits
• Future steps towards automation of data collection in the CFS likely to occur in small-scale pilot projects
• Degree of automation of the CFS appears to remain limited in the near future
QUESTIONS OR COMMENTS?

henrik.petterson@trafa.se