Urban Public Transport Statistics: A Canadian Overview

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Delivering insight through data, for a better Canada
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Context

• In Canada, urban transport is a provincial responsibility (unless it crosses provincial boundaries) but the federal government plays some role (e.g. earmarking of fuel tax);

• Unlike European cities, the development of urban public transport in Canada was retarded by lower population densities, climate and higher motor vehicle ownership;

• Recent developments provide the Canadian government with a larger role in matters of urban public transport:
  • Transit infrastructure investment = $f$ (transit ridership)
  • Public transit role in reaching GHG emission reductions
  • Demographics - share of urban population growing (> 80%)
Scope

• Urban transportation planning in Canada has tended to focus on modeling the modal split between urban transit and motor vehicles – and data collection reflects this focus;

• However, the 2016 Canadian Census reported that nearly one-third (31.4%) of employed Canadians used a mode of sustainable transportation as their main mode of commuting:
  • 12.4% Public Transit
  • 12.1% Carpooling
  • 6.9% Active (walk or cycle)

• And the Census asks a question on whether each person has any difficulty walking, using stairs, using his/her hands or fingers or doing other physical activities.
Urban Public Transit Statistics – Direct Measures

Passenger Bus and Urban Transit Survey (Annual)

- **Content**: Financial (revenues, expenses, balance sheet) and operating (fuel, employment, equipment) statistics
- **Coverage**: Sample of NAICS 485 including Urban transit (4851) as well as other ground passenger transport (Intercity, School, Scenic, Charter …)

Passenger Bus and Urban Transit Survey (Monthly)

- **Content**: Collects gross revenue (excluding subsidies) and passenger trip data only
- **Coverage**: Panel of urban transit (& Intercity) companies that represent at least 75% of transit revenues in each province; panel changed in 2017 causing a break in series
Monthly Urban Transit Ridership in Canada, 2009 to 2018

Passenger Trips (millions)
Urban Public Transit Statistics: Measures of Accessibility

Passenger Bus and Urban Transit Survey (Annual)

Industry output measures of:
- **Revenues**: Amount earned from Para Transit services
- **Passengers**: Total Number using Para Transit Services
- **Equipment**: Percentage of fleet equipped for persons with disabilities

Other Selected Measures of Accessibility

- **Survey of Canada’s Core Public Infrastructure, 2017**: Data on inventory, condition and management of public transit rolling stock assets including Specialized Transit
- **Canadian Survey of Disability, 2017**: Provides information about Canadians whose everyday activities are limited due to a long-term or health-related condition
Urban Public Transit Statistics – Indirect Measures

Survey of Household Spending (Annual)

- **Content**: Large sample of Canadian households provide data on expenditures, dwelling characteristics, household composition and equipment (motor vehicles), and wealth
- **Purpose**: Provides weights for items contained in the “typical” basket used for the Consumer Price Index (CPI)

Consumer Price Index (Monthly)

- **Content**: Estimates monthly change in consumer prices based on a consumer basket of goods and services. Basket has ten components including transportation, which accounts for one-fifth (20%) of its weight
- **Method**: Integrates direct observation with admin data and other sources such as web-scraping
Household Expenditures on Selected Transport Items, 2017

Private Transportation - Vehicles

- Purchase
- Operations
- Gas & Fuel

Urban Public Transportation

- Transit
- Taxi
- Other

Includes bus, streetcar, subway and commuter rail.
Emerging issues

• Peer-to-peer ridesharing is likely to change urban transportation patterns in significant ways:
  
  • In the United States, some research has indicated that ridesharing has increased urban traffic congestion and resulted in higher levels of GHD emissions
  
  • In Canada, Hagag & McKeown (2018) report that those who rideshared during 2016 spent more on this service ($122) than did the average Canadian household on taxis ($100)
  
• Given emergence of Autonomous and Connected Vehicles (AC/CV), ridesharing could be disruptive and render current urban transport planning axioms and models passé
Data Challenges

• In Canada, robust urban travel data collected at the municipal level; however, these efforts tend to be expensive, occasional and uncoordinated, even within provinces;

• Traditional difference between urban (intra-city) and intercity travel is blurring as commuters now travel to work in other cities, planning efforts must become more coordinated; and

• National statistical agencies should be prepared to work with other levels of government to create new concepts and methods as well as to embrace alternative sources of data, for example:
  • Cell phone information on travel patterns
  • Electronic fare collection methods used in public transit
  • Partnering with private sector to harvest “big data”
Summary

• Jurisdictional matters in Canada have prevented the collection of systematic national and comparable data on urban public transport;

• Technological changes (sharing economy, AV/CV) combined with demographics (lower propensity to drive/own vehicles) will provide measurement challenges; and

• National statistical agencies must develop new concepts and methods as well as forge new partnerships in order to embrace alternative sources of data.
Contacts:

Michael Scrim  
Assistant Director  
Environment, Energy and Transportation Statistics  
Statistics Canada  
michael.scrim@canada.ca

Mario Lapointe  
Executive Director  
Economic Analysis, Outlook and Knowledge Management  
Transport Canada  
Mario.lapointe@tc.gc.ca