

Turnover and Output Measurement for Freight Transport by Road



21st Voorburg Group Meeting

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Background

- **Transportation Division**
 - Responsible for surveys of revenue and expenses (turnover)
- **Prices Division**
 - Responsible for developing/producing SPPI
- **System of National Accounts**
 - Responsible for estimates of real and nominal GDP

Definition of the service

- **North American Industry Classification System (NAICS) 2002,**
 - **NAICS group 484** ⇒ establishments primarily engaged in the truck transportation of goods, either general freight or specialized freight.
- **There are three types of trucking unit, or “carrier”,**
 - **For-hire carrier** ⇒ transport of goods for \$\$\$\$\$.
 - **Owner-operators** ⇒ own or lease one or more power units and provide hauling services under contract.

Definition of the service - cont'd

- Private carrier ⇒ company whose principal occupation is not trucking, but which maintains its own fleet of vehicles (owned or leased) for transporting its own freight.
- Type of service measured is for-hire.
- Truckload (TL) and/or less-than-truckload (LTL) services.

Unit of measure collected - Coverage

| Annual revenue | For-hire carriers | | Owner operators |
|-------------------------------|-------------------|------|-----------------|
| \$25 million + | QMCF-top | AMCF | SFHOO |
| \$1 million to < \$25 million | QMCF-medium-sized | | |
| \$30,000 to < \$1 million | SFHOO | | |

Unit of measure collected - Coverage

- *Annual Motor Carriers of Freight Survey (AMCF)*
- *Quarterly Motor Carriers of Freight Survey (QMCF)*
- *Survey of Small For-Hire Carriers and Owner Operators (SFHOO).*

The AMCF Survey

AMCF = Annual Motor Carriers of Freight

- **Balance sheet and income statement detail**
- **Equipment (Trailers by type and length)**
- **Information is available by region, by activity, for local versus long distance carriers and by revenue size**

The QMCF survey

QMCF = Quarterly Motor Carriers of Freight

- **Revenues by activity**
- **Expense detail**
- **Operating ratios**
- **Employment**
- **Equipment (Power units – Tractors and Straight Trucks)**
- **Information available by region, for general vs. specialized freight carriers and for domestic vs. international movements**

The TCOD Survey

TCOD = Trucking Commodity Origin-Destination

- Commodity
- Origin and destination
- Revenue
- Weight
- Distance
- Tonne-kilometres
- Information available by province/territory, for local versus long distance carriers, for domestic versus international movements and for census metropolitan areas (CMA).



TCOD - Summary of Re-design

| | Old TOD (2003) | New TCOD |
|--------------------------------|--|---|
| Periodicity | Quarterly | Annual |
| Coverage – Revenues | 2050 companies ↳ \$12 billion | 4,200 companies ↳ \$18 billion |
| Coverage – NAICS | Long-distance | Long-distance & local |
| Shipments | 570,000 | 3.45 million |
| Stratification | Regional | Prov./terr. |

Market conditions and constraints

- **Motor Vehicle Transport Act (MVTA – 1987)**
 - **Deregulation of trucking industry**
- **North American Free Trade Act (NAFTA (1992))**

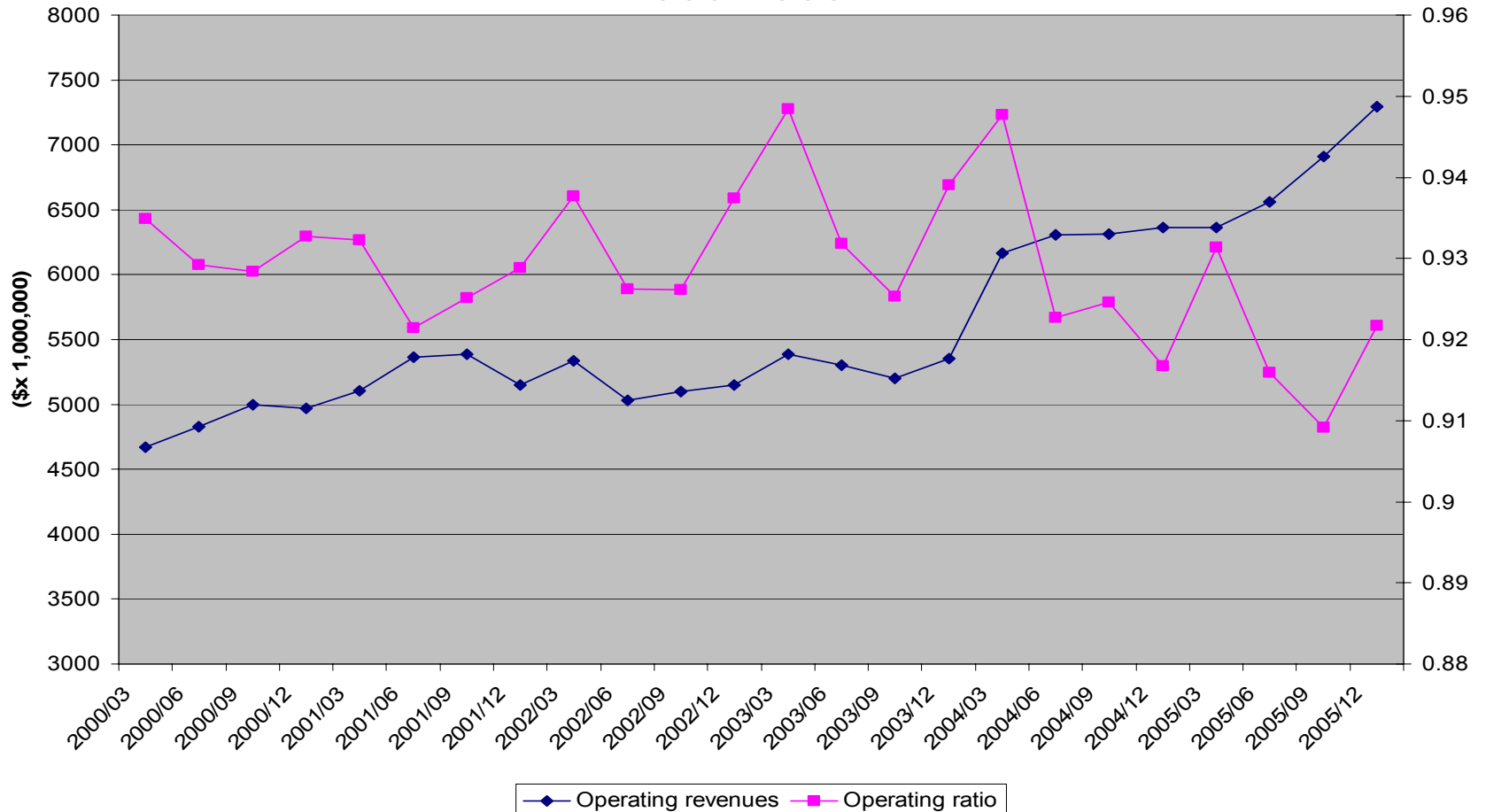


Market conditions and constraints

- **One-third of total output of transportation sector in 2004.**
- **53% of exports and 78% of imports to/from the United States were moved by truck.**
- **Healthy industry (2000-2004)**
 - **Revenues up 1.6% quarterly**
 - **Return on assets 5.0%**

Market conditions

For-hire Trucking Industry 2000-2005



Standard classification structure, product detail/levels.

- **Output**

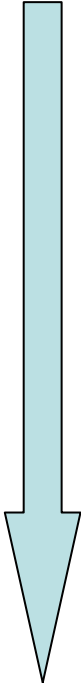
- **Operating revenues** ⇒ Revenues from freight operations only. Amount billed by the carrier, exclude revenues earned by other carriers (interline).
- **Operating expenses** ⇒ Expenses incurred in carrying motor carrier freight operations only. Exclude non-operating expenses such as capital loss, interest paid, etc.

Standard classification structure, product detail/levels.

- **Operating ratio \Rightarrow Share of total operating revenues absorbed by total operating expenses (excluding interest charges). A ratio greater than 1.00 represents an operating loss.**
- **Tonne-kilometre \Rightarrow Weight (mass) multiplied by distance from origin to destination for each shipment. This is the standard output measure of the trucking industry.**

Main Classifications

NAICS



SCTG



Standard Classification of Transported Goods

- **42 commodities at the two-digit level**

Top Ten for 2003 - SCTG

| SCTG | Category | Domestic Revenue \$'000 | % |
|-------------|------------------------------------|--------------------------------|----------|
| 42 | Miscellaneous transported products | 2,322,948 | 26.3 |
| 26 | Wood products | 554,657 | 6.3 |
| 36 | Vehicles | 502,075 | 5.7 |
| 34 | Machinery | 474,879 | 5.4 |
| 33 | Articles of base metal | 445,643 | 5.1 |
| 13 | Non-metallic minerals n.e.c. | 347,700 | 3.9 |

Top Ten for 2003 - SCTG cont.

| SCTG | Category | Domestic Revenue \$'000 | % |
|-------------|---|--------------------------------|-------------|
| 7 | Prepared foodstuffs n.e.c. and fats and oils | 318,969 | 3.6 |
| 5 | Meat, fish, seafood, and preparations | 282,904 | 3.3 |
| 32 | Base metal in primary or semi-finished forms and in finished basic shapes | 260,209 | 2.9 |
| 23 | Chemical products and preparations n.e.c. | 259,959 | 2.9 |
| | Total | 5,769,943 | 65.4 |
| | All other commodities | 3,052,931 | 34.6 |



NAICS

| | |
|-------------|--|
| 484 | Truck Transportation |
| 4841 | General Freight Trucking |
| 48411 | General Freight Trucking, Local |
| 48412 | General Freight Trucking, Long Distance |
| 484121 | General Freight Trucking, Long Distance, Truck-Load US |
| 484122 | General Freight Trucking, Long Distance, Less Than Truck-Load US |

NAICS cont.

| | |
|--------|---|
| 4842 | Specialized Freight Trucking |
| 48421 | Used Household and Office Goods Moving |
| 484210 | Used Household and Office Goods Moving |
| 48422 | Specialized Freight (except Used Goods) Trucking, Local |
| 484221 | Bulk Liquids Trucking, Local CAN |
| 484222 | Dry Bulk Materials Trucking, Local CAN |

NAICS cont.

| | |
|--------|---|
| 484223 | Forest Products Trucking, Local CAN |
| 484229 | Other Specialized Freight (except Used Goods) Trucking, Local CAN |
| 48423 | Specialized Freight (except Used Goods) Trucking, Long Distance |
| 484231 | Bulk Liquids Trucking, Long Distance CAN |
| 484232 | Dry Bulk Materials Trucking, Long Distance CAN |
| 484233 | Forest Products Trucking, Long Distance CAN |
| 484239 | Other Specialized Freight (except Used Goods) Trucking, Long Distance CAN |

Revenues by NAICS, 2001 – 2003

| | NAICS | 2001 % | 2002 % | 2003 % |
|----------------------------------|---------------|-------------------|-------------------|-------------------|
| General freight | 4841 | 61 | 62 | 63 |
| Movers | 48421 | 3.0 | 2.9 | 2.4 |
| Liquid bulk | 484221 | 7.9 | 8.6 | 7.1 |
| Dry bulk | 484222 | 7.0 | 5.6 | 7.5 |
| Forest products | 484223 | 4.9 | 4.6 | 3.9 |
| Other specialized freight | 484239 | 17 | 16 | 17 |
| Total | | 100 | 100 | 100 |

SNA concepts and GDP measurement

- **Output**

- **Truck transport industry is treated as a “margin” industry.**

- **Total operating revenues are distributed across all commodities based on using the results of the TCOD.**
 - **Transportation charges for a good form part of the eventual purchaser price concept (along with other types of margins such as wholesale and retail).**

SNA concepts and GDP measurement

- **Deflation**

- **Current deflator is based on unit value indexes of revenue and tonne-kilometres for 76 commodities classified by distance groups from the domestic portion of the TCOD survey.**
- **Volume indexes from the same survey are also used to check the results of this deflator.**

SNA concepts and GDP measurement

- **Deflation**

- **Unit value indexes have exhibited some volatility and are subject to changes in the quantity/quality mix in adjacent time periods.**
- **As a result, the deflator in any given year could be based on all of the above data plus any relevant information available on the trucking industry.**

Comparing turnover with SPPI

- **Currently developing an SPPI to replace average unit prices with surveyed price data.**



SPPI - Definition of price

Price is the price charged by a carrier for hauling a certain type of good of specific weight and specific distance under certain terms.

Prices: Spot, contract/transaction, tarriff and list

Additional services: Loading/unloading, washing truck, keeping cargo overnight, etc.,

SPPI - Options for Prices

- **Option A**

- **Use Tucking Commodity Origin Destination data (TCOD)**
 - **Revenue per tonne-kilometre**

- **Option B**

- **Do a survey**
 - **Collect prices and specifications for ‘profiled’ shipments**

SPPI – Current development

- **Develop option B - survey.**
- **Use TCOD for shipment profiles and weighting.**



Option B - Survey

- **Advantages:**

- **Consistency in following price movements for the same commodities and distances.**
- **Quality change – control for terms of the service.**
- **Experience of other countries using similar method.**

Option B - Survey

- **Disadvantages:**

- **Cost and time of developing a new survey.**
 - **Collection**
 - **Edit/imputation (neutral?)**
- **↑ Response burden.**

Option B - Survey

- **Treatment of quality change**
 - **Hold terms of service constant, i.e. follow the same specifications.**
 - **Where necessary, make valuation adjustments for change in service quality.**

Discussion

