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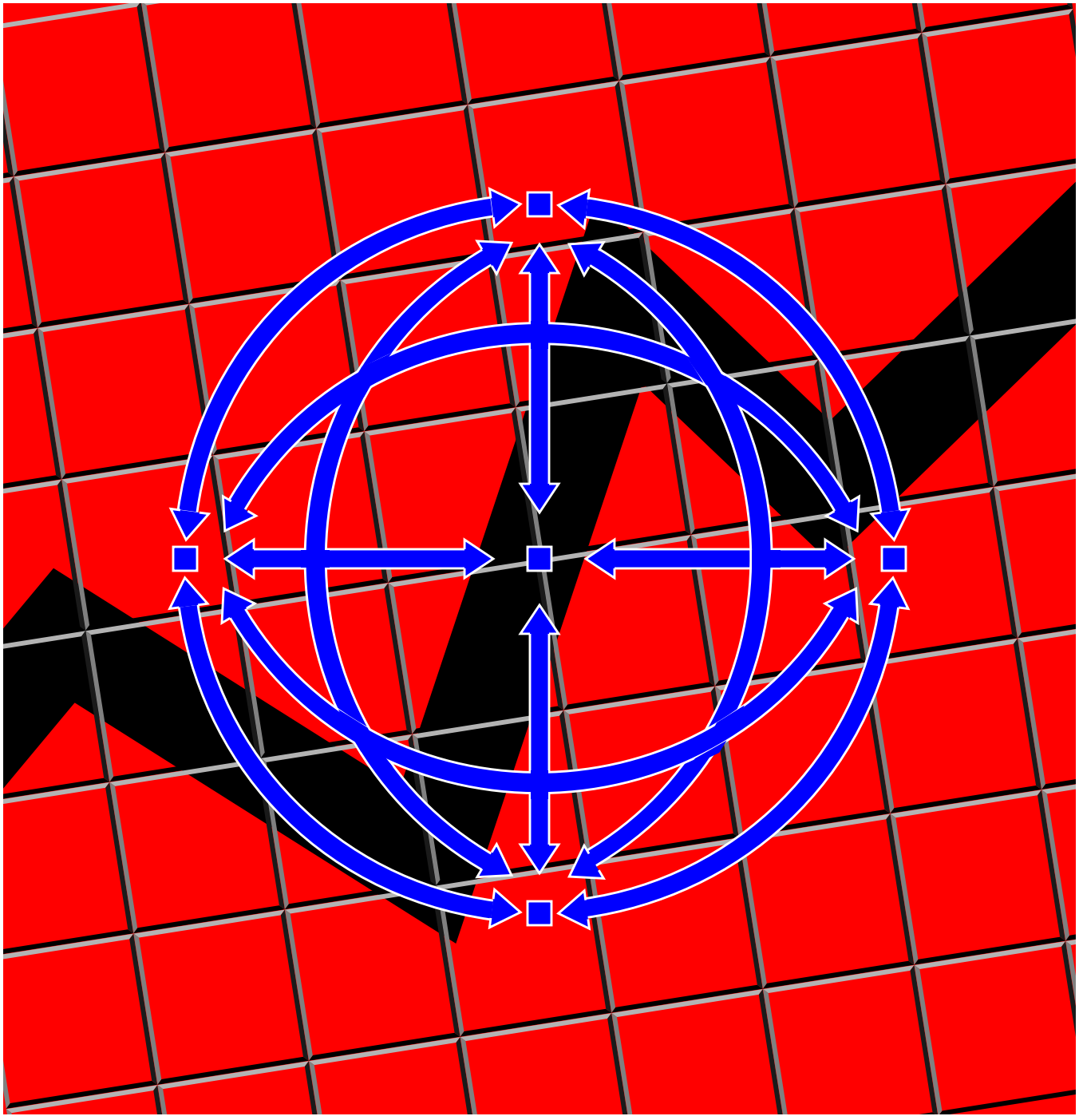
System of National Accounts

Guide to the National Tourism Indicators

Sources and Methods



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Note of Appreciation

Canada owes the success of its statistical system to a long-standing cooperation involving Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

List of Abbreviations

ARIMA	Autoregressive Integrated Moving Average Model
BOP	Balance of Payments
CSNA	Canadian System of National Accounts
CTS	Canadian Travel Survey
GST	Goods and Services Tax
IEA	Income and Expenditure Accounts
IMAD	Industry Measures and Analysis Division
IPI	Implicit Price Index
ITS	International Travel Surveys
I/O	Input-Output Accounts
NAED	National Accounts and Environment Division
NTI	National Tourism Indicators
SEPH	Survey of Employment, Payrolls and Hours
SIC	Standard Industrial Classification
SNA	System of National Accounts
STC	Statistics Canada
SSTD	Services, Science and Technology Division
TSA	Tourism Satellite Account

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Requests

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This guide was prepared from May to August 1996. Any changes to the methodology that occur after this date are not discussed in the publication. To find out about any methodological changes, contact the information officer at the phone number shown in the **Requests** section.

For the data described in this ***Guide to the National Tourism Indicators: Sources and Methods***, users should consult two publications:

National Tourism Indicators, Quarterly Estimates
catalogue no. 13-009-XPB

National Tourism Indicators, Historical Estimates
catalogue no. 13-220-XPB

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CHAPTER 1

Introduction and Overview

1.1 Overview

The purpose of this guide is to provide an overview of the National Tourism Indicators (NTI). It serves as a reference to help the user understand the content, derivation and limitations of each indicator.

The document consists of four chapters and two appendices. This chapter summarizes the structure, purposes, concepts and definitions, revision policy, publication schedule, and quality evaluation of the indicators. Chapters 2, 3 and 4 describe the sources and methods for the supply, demand and employment indicators, respectively. Appendix A provides a concordance between the tourism commodities and the Input-Output (I/O) commodity classification. Appendix B identifies the components of the tourism industry within the 1980 Standard Industrial Classification (SIC).

The National Tourism Indicators were developed to update the 1988 Tourism Satellite Account (TSA) on a quarterly and annual basis. They provide timely information which facilitates ongoing monitoring and analysis of tourism and its related activities in Canada. The indicators measure trends from 1986 to date for most components of the TSA, using time series data that match the concept and definition of each TSA component as closely as possible. They cover the domestic supply of tourism commodities (see Appendix A), the demand for these commodities by Canadian and foreign visitors, and the employment generated within the tourism industries as a result of this demand (see Appendix B).

The indicators are benchmarked to the levels published in the TSA and have been projected backward to 1986 and forward to the present, quarterly and annually. As is the case with the TSA, the indicators in general follow the concepts and definitions of the System of National Accounts (SNA) and are integrated with estimates of the Input-Output Accounts (I/O), the Income and Expenditure Accounts (IEA) and the Balance of Payments (BOP) of Statistics Canada.

The supply and demand indicators are presented in current prices (unadjusted for seasonality and seasonally adjusted) and 1986 prices (seasonally adjusted only). They are expressed in millions of dollars. The employment indicators are published in thousands of employed persons.

1.2 Seasonal Adjustment

The quarterly NTI exist in two versions, one unadjusted and the other adjusted for seasonal variations. Tourism is dominated by large seasonal fluctuations exhibiting similar patterns from one year to the next, which tend to mask underlying non-seasonal trends. So that users can see the underlying trends, these regular seasonal patterns are removed through a statistical technique known as seasonal adjustment.

Most seasonal adjustment at Statistics Canada is undertaken using a technique known as X11ARIMA. It involves the application of moving averages to estimate the trend-cycle, seasonal and irregular components of a series, with special treatment for outliers and foreseeable trading-days. The Statistics Canada X11ARIMA method fits an autoregressive integrated moving-average (ARIMA) model to the series and uses it to project the series forward and backward prior to the seasonal adjustment itself being carried out. This makes it possible to perform seasonal adjustment more consistently at the end points of a series, thereby reducing the magnitude of the revisions to the seasonally adjusted data.

All quarterly NTI are seasonally adjusted using the X11ARIMA method. The adjustment is generally made at the lowest level of aggregation and seasonally adjusted aggregates are obtained by summation. The advantages of this approach are twofold. First, by carrying out the seasonal adjustment at the most detailed level, seasonal shifts in the aggregates are more easily explained. Second, the calculation of seasonally adjusted aggregates by summation preserves the accounting identities in the system and this is much more convenient for users.

1.3 Current and Constant Price Estimates

Aggregates expressed at the prices of the period being referred to are commonly called current price estimates. For example, the estimate of Tourism Demand in Canada for total tourism commodities at market prices is $25,244 million for 1988, meaning that this amount is valued at the market prices prevailing in 1988. This is the most natural way to define and measure the tourism components, since the values are observed at current prices in the economy itself. The NTI also provide some estimates that are valued in the prices of another period, the year 1986. This is done to facilitate the analysis of period-to-period changes, by separating a series into its distinct price and volume components.

An increase or decrease in the value of tourism from one period to another results from the joint effect of a change in the quantities of goods and services produced and of a change in the prices at which they are sold. The decomposition of the total change into separate price and quantity components results in the constant price estimates. It is accomplished by recalculating a series at the prices of some base period. The resulting period-to-period changes in these constant price estimates are interpreted as showing the “real” or “inflation-adjusted” growth of the series or, in this case, tourism. The NTI constant price estimates are expressed at the prices of 1986. Thus, for example, the estimate of tourism demand at 1986 prices for 1990 is smaller than the one at current prices. The difference reflects the fact that the market prices of most goods and services increased between 1986 and 1990.

The constant price estimates of tourism can be viewed as a fixed-weighted or Laspeyres index, in which the market prices of the base period are the fixed weights and the index is scaled to equal the current dollar value of tourism in the base period. This may not be obvious, since the prominent indexes in the statistical system are those for prices (such as the consumer price indexes), rather than for quantities and are typically scaled to equal an arbitrary number (most often 100) in the base period. Just as a Laspeyres index of prices is based on “a fixed basket of quantities” and can be interpreted as the cost of that basket in the prices of different time periods, so a Laspeyres index of quantities is based on “a fixed set of prices” and can be viewed as a basket of quantities sold at different times revalued at the set of fixed prices.

1.4 Price Indexes

The previous section addressed the topic of measuring tourism at the constant prices of some base period. The resulting estimates of “real tourism” gauge the volume of economic activity. What about the price component? If a volume component can be extracted from the current price estimates of tourism, can the remainder be interpreted as the price (or inflation) component? The answer to this question is yes, but the resulting index of prices must be interpreted as a Paasche or variable-weighted index rather than as a Laspeyres index. Dividing the current price series for tourism by the corresponding series at constant prices yields an Implicit Price Index (IPI) which, together with the constant price series, in effect decomposes tourism at market prices into its price and quantity elements. The variable-weighted nature of IPIs should always be kept in mind, however. Changes over time in these indexes reflect not just price changes, but also variation in the weights attached to different goods and services. The impact of weight shifts on observed period-to-period changes in the tourism implicit price index can be quite significant.

1.5 Revisions

The data will be revised in accordance with the policies of the IEA: that is, a particular quarter’s estimates can be revised in other quarters during the same year, but cannot be revised in subsequent years except at the time the first quarter estimates are published. These annual revisions are limited to four years, after which the estimates are considered final. Thus, taking the estimates for the second quarter of 1996 as an example, revisions could occur at the time of release of the estimates for the third and fourth quarters of 1996 and the first quarters of 1997, 1998, 1999, and 2000.

There are exceptions to this revision policy. About every ten years, historical revisions are carried out which open the entire record of the accounts. Such a major revision of the Canadian System of National Accounts will be undertaken in late 1997, incorporating new international guidelines (SNA 93) for the historical period of the CSNA. The implications of these revisions will be incorporated in the NTI when they become available. The price base for the SNA will be set at 1992 at the time of the introduction of the revised estimates.

Data for the year 1992 will be developed for the TSA, with revisions to the 1988 data. The indicators will be rebenchmarked to the new and revised data, probably in

the first quarter of 1997. The availability of two benchmark years, 1988 and 1992, will permit the assessment of all the indicators and strengthen the projections.

1.6 Quality of Estimates

Quality assessment is a difficult matter given the number and variety of data sources and methods employed. This section is to help users understand the tourism indicators and apply them more effectively, with a fuller awareness of their strengths and weaknesses.

An important aspect of quality is the accuracy of the indicators. For which aggregates are these indicators considered to be quite good and for which are they seen to be of lower quality? One objective measure of the reliability of the indicator for any commodity is the share of its 1988 value that is accounted for by the data series used to construct the indicator. For example, because revenue from passenger transportation by level I and level II carriers constitutes about 80% of all air passenger transport revenue, the indicator is very reliable. By this measure, the majority of the indicators are considered to be reliable approximations to the commodities they represent.

Ideally, the quality characteristics of the indicators should be rigorously ascertained from measured sampling biases and variances, and other measurement error properties of the survey and other input data sources. In practice, this is not possible, certainly not in any comprehensive manner, given the complexity of the estimation methods involved, the variety of inputs and the lack of reliable statistical measures of errors for many of these.

A subjective approach is followed instead, using ordinal quality ratings. The ratings are assigned by statisticians of the National Accounts and Environment Division.

The scale allows for three ratings:

1. **most reliable**
2. **reliable**
3. **acceptable**

A rating of 1 is assigned when the estimates are based on censuses, administrative records, surveys or other highly reliable sources, and the concepts and definitions underlying the input data closely correspond to those of the TSA, or else adjustments required for coverage, valuation and classification are straightforward.

A rating of 2 is attributed primarily to estimates based on administrative records or surveys which are not highly reliable, or else require difficult, error-prone adjustments to convert them to the concepts of the TSA.

Finally, a rating of 3 denotes estimates for which direct, reliable observation is not possible and which are therefore dependent on judgement to a large degree or are based on indirect sources.

The ratings apply to the indicators at current prices. The quality of the estimates at constant prices usually depends on that of the estimates at current prices, because the former are derived through the division of the latter by appropriate deflators or price indexes. In such cases, the quality of the constant price indicators is deemed

no better than that of those at current prices; the quality reduction, if any, is then attributable to the corresponding price indexes.

An overall quality assessment of the published supply indicators in current prices is shown in Table 3, Chapter 2. Lower quality ratings are given in cases where current price series are built up from partial information or less reliable data series, or when problems of concept or definition remain in the measurement. Quality assessment for the demand side and for the employment series will be possible only when the next benchmark TSA is available.

1.7 Use of Data from the System of National Accounts

Where possible, the measures derived in the TSA and in the NTI are consistent with those in the System of National Accounts (SNA). This is achieved in various ways.

In the case of incomplete survey results or, lags in its availability, the indicators rely on quarterly and annual personal expenditure series from the IEA. Data measuring the supply of commodities at current and constant prices from the I/O are used, where available, to benchmark or compare with the supply indicators. The accounting identities of the SNA are also satisfied by the indicators, for example, the supply for each tourism commodity must equal the sum of its tourism demand and non-tourism demand.

Following are additional examples of National Accounts methods applied and data used in developing the tourism indicators.

- Quarterly and annual personal expenditure data from the IEA are compared to the supply and demand estimates for tourism commodities. Personal expenditure series are in turn benchmarked to annual levels of total supply by commodity in the I/O for the years for which they are available.
- Employment series are used as proxies for revenue. Because they are classified to the same industries, they are comparable in coverage to the revenue data. Also, there is often a strong correlation between revenue and employment.
- Deflators from the IEA are used to derive the constant price series.
- Industry Measures and Analysis Division (IMAD) provides monthly constant price estimation at the industry level, thus providing a source for the evaluation of the NTI constant price series.
- The tax rates applicable to the personal expenditure series are incorporated in calculating tax amounts on tourism commodities.
- Quality assessments of the indicators draw on the subjective evaluations of the NAED series.
- The tourism commodities are identical with or correspond with identifiable components of I/O commodities, therefore using the same commodity definitions.

1.8 Concepts and Definitions

1.8.1 Tourism

The most important concept underlying the TSA and the NTI, that of ‘tourism’, has been evolving over time. The definition used here is the one most recently adopted by the World Tourism Organization and the United Nations Statistical Commission: “the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes”.[1]

This definition goes beyond the concept of tourism as merely travel for leisure. It also encompasses travel for business purposes, to visit friends and relatives or for personal reasons, such as health treatment. On the other hand, not all travel constitutes tourism. Excluded are commuting to and from work, travel for purposes of study or job relocation, as well as travel by migrants and diplomats or members of the armed forces on assignment.

In relation to Canada, the definition comprises different forms of tourism: travel by Canadians within Canada (domestic tourism), travel by non-residents to Canada (inbound tourism) and travel by Canadians to another country (outbound tourism). Also, in Canada, the ‘usual environment’ is defined as being within 80 kilometres of home. Any travel by a resident to a Canadian location under that distance is not considered ‘tourism’. However, crossing an international boundary is generally considered to be travel outside the ‘usual environment’.

1.8.2 Visitors

The persons undertaking tourism are referred to as either tourists (those visitors who stay overnight or longer in the location visited), or same-day visitors.

1.8.3 Tourism Commodities

A commodity is defined as a good or service which is sold at a price designed to cover the cost of production, e.g., a hotel room, a meal, an airline ticket, a t-shirt. For purposes of tourism, commodities are classified into two categories: tourism commodities and non-tourism commodities.

A commodity is referred to as a tourism commodity if a significant part of its total demand in Canada comes from visitors. Otherwise, it is referred to as a non-tourism commodity. Thus, accommodation is considered to be a tourism commodity, because a substantial proportion of its demand is from tourism. However, beer bought in stores is classified as a non-tourism commodity, since purchases by visitors represent a small proportion of total sales in Canada.

There are two exceptions to the definition of tourism commodities: urban transit and parking. These two services are considered tourism commodities even though the proportion of total demand due to tourism is not significant. The reason is that many

1. United Nations and World Tourism Organization, **Recommendations on Tourism Statistics**, New York, 1994. p. 5

visitors use these services, especially in major urban areas. If these two services were not available in an area, visitors would be less inclined to visit or to undertake certain activities once there.

The definition of tourism commodities is based on recommendations from the National Task Force on Tourism Data.[1] Appendix A provides a list of the tourism commodities covered by the NTI, and a concordance with the I/O commodity classification.

1.8.4 Tourism Industries

An industry is defined as a group of operating units or establishments engaged in the same or similar kind(s) of economic activity, e.g., hotels, restaurants, airlines, department stores. Industries produce commodities, both tourism and non-tourism.

While the commodities purchased by visitors may be supplied by several industries, the TSA and the NTI focus on industries which are the main producers of the tourism commodities. Accordingly, a 'tourism industry' is so considered here if:

a) it provides tourism commodities to visitors, and

b) it would cease to exist without tourism or would continue to exist only at a significantly reduced level of activity.

Air transportation satisfies part a) and the first criterion of part b) of the definition, for instance, while food and beverage services satisfy part a) and the second criterion of part b). An example of a non-tourism industry, one that does not satisfy either criterion of the second part of the definition, is the food stores industry, even though purchases by visitors are important for this industry in certain locations. An example of a non-tourism industry, because it does not satisfy part a), is the steel foundries industry. This industry does not sell its products to visitors.

The definition of tourism industries is drawn from recommendations by the National Task force on Tourism Data. See Appendix B for more details on the tourism industries of the NTI and TSA.

1.8.5 Domestic Supply

The domestic supply of tourism commodities is defined as the total production in Canada of the specified commodities. It does not include imports. For example, the sale of a ticket on a non-Canadian airline is excluded from the supply of passenger air transport.

1.8.6 Tourism Demand

Tourism demand for tourism commodities is defined as expenditures made by visitors on the domestically produced tourism goods and services. It includes expenses made before and after a trip, such as purchases of vehicle repairs and parts, as well as those incurred during a trip, such as purchases of accommodation and meals.

1. Statistics Canada, **National Task Force on Tourism Data, Final Report**, March 1989.

Tourism demand comprises three broad categories: tourism demand in Canada, that is, total demand by visitors for Canadian produced commodities, and its two components, tourism domestic demand and tourism exports.

- Tourism Domestic Demand consists of spending by Canadian visitors on domestically produced commodities. It includes purchases of Canadian commodities which result from domestic and outbound tourism. For example, it includes the purchase of an air fare from a Canadian carrier to a destination outside Canada.
- Tourism Exports is defined as spending by non-resident visitors on Canadian produced commodities. It comprises purchases of Canadian commodities as a result of inbound tourism, including spending that may take place outside of Canada, such as the purchase of an airline ticket from a Canadian international carrier, to travel to Canada.

The entire domestic supply of tourism commodities is not purchased by visitors. For example, only part of food and beverage services are purchased by visitors in or to Canada, while most are purchased for local consumption. Therefore, domestic supply is always greater than tourism demand.

1.8.7 Employment

The employment data presented in the TSA and NTI are benchmarked to the 'person-year' concept incorporated in the I/O annual estimates used for productivity measurement. A person-year so defined can be a person employed on either a full-time or a part-time basis (that is, in terms of the number of hours worked per day or per week). A person working for half the months in the year on the other hand, would be defined as half a person-year. The published annual and quarterly estimates in the NTI correspond to the annual or quarterly averages of the monthly estimates provided by the surveys conducted by Statistics Canada. Full-time is defined as usually working a minimum of 30 hours per week. The average full-time hours per week for a given industry is the average of usual hours worked by those working a minimum of 30 hours per week.

1.9 Links Between Supply and Tourism Demand

The supply of commodities to tourists and same day visitors includes three parts. First the tourism commodities produced in Canada, second, imported tourism commodities and finally, non-tourism commodities. Within the framework of the TSA and NTI, the supply of imported tourism commodities is considered null.[1]

The following table outlines the relationship between the whole of the economy and supply, and the tourism demand in Canada. It allows for a better understanding of what the NTI measure. The top part of the table shows the supply of tourism and non-tourism commodities for the year 1988. It is the tourism commodities portion that are tracked by the supply indicators of the NTI. The supply of tourism commodities represented 6.9% of the total supply of commodities in Canada in 1988. It is followed by the demand for tourism and non-tourism commodities in 1988. The tourism commodities portion is tracked by the demand indicators of the NTI. In 1988, tourism commodities accounted for almost 84% of spending by tourists and

1. Supply is the production, in Canada, of the specified commodity. It does not include imports. For example the sale of a ticket on a non-Canadian airline is excluded from supply.

same day visitors in Canada. The bottom part of the table links the supply and the demand. It shows that the demand for tourism commodities represented 39% of the supply of tourism commodities, while the consumption of non-tourism commodities by tourists and same day visitors represented only 0.6% of the supply of non-tourism commodities in Canada.

Relationship between Supply and Demand in the NTI, Canada 1988

	Non-tourism	Tourism
Supply[1,2]		
Supply of commodities produced in Canada, $'000,000	879,390	65,515
Share of total supply	93.1%	6.9%
Tourism demand in Canada[3,4]		
Demand for commodities by tourists and same day visitors in Canada, $'000,000	4,930	25,244
Share of total tourism demand	16.3%	83.7%
Demand as a proportion of supply	0.6%	38.5%

1. Total supply is extracted from the I/O accounts.
2. Tourism supply is based on Table 1 of the NTI historical estimates.
3. The demand for non-tourism commodities is based on Table 1 of the TSA article.
4. The demand for tourism commodities is based on Table 6 of the NTI Historical Estimates.

1.10 Relationship Between the NTI and TSA

It is the **activity of the visitor** which lies at the centre of tourism, rather than any distinguishing feature of the commodity purchased. To satisfy their trip requirements, visitors purchase a variety of commodities. Satisfying these demands requires production from many supplying industries. In order to properly measure the production and the demand activities arising from tourism, the following relationships must be taken into account.

Not all goods and services purchased by visitors are tourism commodities. Thus, visitors not only purchase tourism commodities, such as passenger air transportation and accommodation, but also non-tourism commodities such as clothes and groceries. Conversely, not all tourism commodities are purchased by visitors. For instance, meals are consumed by both visitors and other consumers.

Similarly, tourism industries do not supply only tourism commodities. They also produce non-tourism commodities. Thus, the accommodation services industry also produces retail margins, from the sale of goods, which is a non-tourism commodity. The converse is also true. Tourism commodities are not produced only by tourism industries, but also by non-tourism industries. Thus, meals are supplied by cafeterias of retail stores as well as licensed restaurants.

Taking these flows of commodities into account, the TSA measures the demand by visitors for both tourism and non-tourism commodities, as well as the production of tourism and non-tourism commodities by both tourism and non-tourism industries. Also, through the allocation of revenue by activity (tourism or other), both for tourism and non-tourism industries, the TSA estimates the value added and employment generated from direct sales to visitors.

The NTI have been developed to measure trends in the components of the TSA which characterize the supply and demand activities of tourism. Accordingly, the NTI estimate the following TSA components for each quarter:

- the domestic supply of tourism commodities
- the demand by Canadian and non-resident visitors for these domestically produced tourism commodities
- the employment attributable to tourism within the tourism industries. The employment reflects the level of production generated in tourism industries from direct sales to visitors.

By showing trends in the main components of the demand and supply sides of tourism, the NTI provides a means for monitoring tourism in Canada on a current and timely basis.

However, the NTI does not cover the following components of the TSA:

- the domestic supply of non-tourism commodities which are purchased by visitors in or to Canada, including groceries, beer, wine and liquor from stores, pre-trip purchases and other commodities such as clothes and souvenirs
- the demand by Canadian and non-resident visitors for these domestically produced non-tourism commodities
- the demand by Canadian visitors of imported tourism and non-tourism commodities. These include imports purchased by Canadians as part of outbound tourism
- the direct employment attributable to tourism within non-tourism industries. This refers to the employment generated in non-tourism industries, such as retail stores, from direct sales to visitors.

Because the NTI does not include expenditures by Canadian and non-resident visitors on non-tourism commodities, the NTI 1988 estimates of demand for total tourism commodities are smaller than the TSA figures of demand for all commodities[1]. Similarly, because the NTI does not measure direct employment attributable to tourism in non-tourism industries, the NTI 1988 estimate of tourism employment in all tourism industries is smaller than the TSA estimate of tourism employment in all industries[2]. However, the NTI estimate matches the TSA figure of tourism employment in all tourism industries[3].

1. See Lapierre and Hayes, **The Tourism Satellite Account**, Table 1, line 35, p. xl.
2. Ibid., Table 2, line 22, p. xl11.
3. Ibid., Table 2, line 20, p. xl11.

1.11 Publication

Quarterly estimates will be published at intervals of approximately 75 days after the end of the reference quarter, while annual estimates will be available with the first quarter estimates of each year. The estimates will be available in two bilingual publications, the ***National Tourism Indicators, Quarterly Estimates,*** catalogue no. 13-009-XPB and the ***National Tourism Indicators, Historical Estimates,*** catalogue no. 13-220-XPB (annual). The latter publication also contains an analytical component. It presents tables and graphs showing, for example, first differences, seasonal factors, year-over-year percentage changes and graphs comparing unadjusted and adjusted series for the whole time period.

For each supply and demand indicator, four separate series are derived:

- Not seasonally adjusted, in current prices
- Seasonally adjusted, in current prices
- Not seasonally adjusted, in 1986 prices
- Seasonally adjusted, in 1986 prices

The published tables include both series in current prices but, in 1986 prices, only the seasonally adjusted series are published.

For each employment indicator, two separate series are produced:

- Not seasonally adjusted
- Seasonally adjusted

Both series are included in the published tables.

1.12 Conclusions and Future Developments

The NTI present indicators for most commodities included in the TSA. Refinements and enhancements being planned for the NTI for the future are mentioned here. The TSA for 1992, providing a second reference period for the indicators, will permit new benchmarking, ratios and distributions to be incorporated in the NTI, improving the time series by taking into account structural changes which may have occurred in tourism since 1988. Additions to the indicators will include pre- and post-trip expenditures and purchases by visitors of other non-tourism commodities such as souvenirs and clothes. The development of tourism imports (similar to the 1988 TSA presentation) is also under consideration.

Direct employment estimates using the full-time equivalent (FTE) concept, will be available for both tourism and non-tourism industries, following the completion of the historical revision of the I/O tables, late in 1997. Corresponding labour income estimates remain to be developed for both tourism and non-tourism industries.

An indicator for direct tourism GDP will be estimated as a further enhancement, allowing the comparison of tourism to the rest of the business sector.


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CHAPTER 2

Supply Indicators

2.1 Introduction and General Approach

This chapter describes the sources and methods used to derive each supply indicator. Consistent with the methods used to derive the tourism commodity benchmark values for the TSA, the supply indicators measure trends in the values of domestic production for 18 tourism commodities and five aggregates. For each indicator, annual and quarterly estimates are provided from 1986 to date. Quarterly estimates are adjusted for seasonality. All estimates are made in current and 1986 prices.

The chapter is organized into three sections: first, a description of the approaches adopted to estimate the revenues generated by each tourism commodity; second, descriptions and tables presenting summaries of the data, sources, methods and quality assessments for all the supply indicators and third, an overview of the methods and special characteristics applying to each indicator. [1]

As defined in Chapter 1, the commodities correspond to goods and services for which a significant proportion of the demand comes from visitors and which are produced mainly by tourism industries. Accordingly, the supply indicators are based on estimates of production by tourism and non-tourism industries. The desired data for each indicator are a time series for the revenues associated directly with the identified tourism commodity within the tourism and non-tourism industries.

The supply indicators have been benchmarked to the TSA levels with the following exceptions: convention fees are included in the NTI; they are not included in the TSA. Therefore, the 1988 supply aggregates for other tourism commodities and total tourism commodities do not match those derived from the TSA[2]. Also, non-tourism commodities purchased by visitors (such as groceries and alcoholic beverages from stores) are not included in the NTI, while they are included in the TSA.

The estimates of the supply indicators are projected forward and backward from the benchmark levels. As the TSA is updated, the indicators will be benchmarked to more recent levels. The indicator series are valued at purchasers' prices. Thus, they include provincial, municipal and federal taxes (e.g. GST).

The methods developed for estimating the supply indicators make use of quarterly and annual industry survey returns as much as possible. For periods after the most

1. Appendix A provides a concordance between the commodities in the supply indicator series and the I/O commodity classification.

2. See Lapierre and Hayes, **The Tourism Satellite Account**, Table 1, p. x1.

recent survey data are available, the indicators are projected with trends estimated from surveys with partial industry coverage or from employment surveys. If these are not available, personal expenditure series for the items most closely related to the tourism commodities are used as proxies.

When quarterly survey returns for industries are not available, the quarterly patterns for the indicators often rely on quarterly personal expenditure series on closely related items. In other cases, the quarterly pattern for the indicator is obtained by combining the quarterly pattern of tourism demand in Canada with the pattern of quarterly supply estimates for the commodity. This is done to obtain a more robust or appropriate quarterly pattern than the one shown by the quarterly supply estimates.

2.2 The Tables

Three tables are presented:

Table 1. Data and Sources

Table 2. Methods, Current Price Estimates

Table 3. Quality Assessment and Ratios of Tourism Demand to Supply

Table 1 provides, for the commodities in column 1, a listing of the data used to construct the indicators (column 2) and the sources of the data from STC catalogued publications as well as unpublished data sources (column 3).

The principal source of supply data is the revenue reported to STC's industry-based surveys which adopt the 1980 SIC. In cases where such surveys do not exist, where survey results are available only annually or lag the current period, other data sources are used, including annual I/O levels of supply, employment surveys, personal expenditure series, tourism demand indicators, and ratios derived from the TSA.

The data used to measure the supply of each tourism commodity over time usually do not correspond exactly with the desired revenue series for the selected I/O commodities and components of commodities that make up the tourism commodities, described in Appendix A. In the absence of comparable or up-to-date time series for the desired revenues, proxy series are substituted. Personal expenditure series are used as proxies for half of the indicators either in the most recent years, when no surveys exist, or to interpolate a quarterly distribution where none is available. Employment series in the appropriate industry (the one that produces the tourism commodity in question) are used for vehicle rental and recreation and entertainment, while the supply or demand indicators for related commodities are used to project: meals and alcoholic beverages from other tourism industries, travel agency services, and convention fees.

The tax rates are composites of tax rates applicable to the particular commodity (usually provincial sales tax and GST) and are applied to transform the series from producers' to purchasers' prices. NAED deflators are used to restate current price estimates to estimates at 1986 prices.

Table 2 provides summaries by commodity of the methods used to derive annual and quarterly series from the data identified in Table 1.

The summaries of the annual methods indicate the methods used to estimate the trend from the benchmark levels. The annual projections are based on revenues in the appropriate industries for as recent a period as possible, but are projected beyond these years with a combination of other related data series, as identified in Table 1.

Frequently, the desired revenues are not separated out each year in the I/O tables, nor are such series usually available quarterly. Most revenue data available from STC surveys lag the reference year by two to three years and are often only available at more aggregated levels than are required for the purposes of estimating the supply of tourism commodities. In some cases (taxis, parking, convention fees) there are no surveys.

The interpolation of missing quarterly distributions relies on several methods. In some cases the quarterly pattern derived from a source different from the annual levels is scaled to the annual levels (passenger rail transport, vehicle rental) or a quarterly pattern is interpolated from the annual levels using a method of combining the supply and demand patterns, weighted according to the proportion of tourism demand to supply for the particular commodity. This method is used for 10 indicators and provides a more robust quarterly pattern, in the absence of direct or reliable, measured quarterly patterns. For example, in the case of hotel accommodation, the quarterly pattern of supply is obtained by scaling the pattern of personal expenditure on accommodation to the annual levels. However, the personal demand pattern may be somewhat different from the tourism demand pattern, since the latter includes a significant proportion of business consumption. Introducing the tourism pattern refines the quarterly pattern for the indicator, so that it represents all visitors. This is done by weighting the quarterly supply and tourism demand patterns for the commodity in question. This method ensures that if the tourism demand is large relative to the supply, the quarterly demand pattern predominates in the derived pattern for the indicator, while if the demand is small relative to supply, the supply pattern is more important in the derived pattern. The proportions of tourism demand in relation to supply by commodity are shown in Table 3.

Personal expenditure series are widely used as projectors for periods after the most recent direct sources are available. These series, which conceptually measure demand rather than supply, are incorporated in the quarterly IEA and are benchmarked to annual I/O estimates. The personal expenditure series are deemed to be acceptable proxies for supply, since most tourism commodities are services. A characteristic of services is that they are supplied only when there is a transaction or demand (i.e. an air ticket is produced only when it is purchased: there are no inventories of services). Also, quarterly personal expenditure patterns reflect the most important part of tourism spending, personal trips, and are therefore appropriate proxies for spending on tourism. The quarterly patterns of a related personal expenditure series are used for four series. Employment series are used for quarterly patterns where a heterogeneous mixture of industries provide the tourism commodity (recreation and entertainment, meals and alcoholic beverages from other tourism industries).

TABLE 1 Supply Indicators: Data and Sources

Indicator	Data Used	Source
1. Transportation	**See 1.1-1.7**	**See 1.1-1.7**
1.1 Passenger Air Transport	Passenger revenues, Level I Passenger revenues, Level II Passenger and merchandise revenues, level I Passenger and merchandise revenues, Level II Deflator, air transport Tax rate, air transport	cat. nos. 51-002, 51-206 cat. nos. 51-002, 51-026 cat. no. 51-206 cat. no. 51-002 unpublished data, NAED unpublished data, NAED
1.2 Passenger Rail Transport	Passenger revenues, VIA Rail Deflator, rail transport Tax rate, rail transport	cat. no. 52-003 unpublished data, NAED unpublished data, NAED
1.3 Interurban Bus Transport	Passenger revenues, interurban services Passenger revenues, charter and tour services Revenues from interurban transport, interurban transport establishments Personal expenditure on intercity and urban transport Deflator, intercity and rural bus transport Tax rate, intercity and rural bus transport	cat. no. 53-215 cat. no. 53-215 cat. no. 53-003 unpublished data, NAED unpublished data, NAED unpublished data, NAED
1.4 Vehicle Rental	Revenues, automobile and truck rental and leasing Employment, SIC 992 Deflator, motor vehicle renting and leasing Tax rate, motor vehicle renting and leasing	cat. no. 63-232, unpublished data, SSTD cat. no. 72-002 unpublished data, NAED unpublished data, NAED
1.5 Vehicle Repairs and Parts	Personal expenditure on motor vehicles, parts and repairs Deflator, motor vehicles, parts and accessories Deflator, motor vehicle maintenance and repair Tax rate, motor vehicles, parts and accessories Tax rate, motor vehicle maintenance and repair	cat. no. 13-201 cat. no. 13-201 unpublished data, NAED unpublished data, NAED unpublished data, NAED
1.6 Vehicle Fuel	Personal expenditure on motor fuels and lubricants Deflator, motor fuels and lubricants Tax rate, motor fuels and lubricants	cat. no.13-201 unpublished data, NAED unpublished data, NAED
1.7 Other Transportation	See 1.7.1 -1.7.4	See 1.7.1 -1.7.4
1.7.1 Passenger Water Transport	Personal expenditure on water transport Deflator, personal expenditure on water transport Tax rate, personal expenditure on water transport	unpublished data, NAED unpublished data, NAED unpublished data, NAED
1.7.2 Urban Transit	Passenger revenues, urban services Revenues, urban transit Deflator, urban transit Tax rate, urban transit	cat. no. 53-215 cat. no. no. 53-003 unpublished data, NAED unpublished data, NAED
1.7.3 Taxis	Personal expenditure on taxis Deflator, taxis Tax rate, taxis	unpublished data, NAED unpublished data, NAED unpublished data, NAED
1.7.4 Parking	Personal expenditure on parking Deflator, parking Tax rate, parking	unpublished data, NAED unpublished data, NAED unpublished data, NAED
2. Accommodation	**See 2.1 - 2.3**	**See 2.1 - 2.3**
2.1 Hotel Accommodation	Revenue, hotels Personal expenditure on accommodation Deflator, accommodation Tax rate, accommodation	cat. no. no 63-204 unpublished data, NAED unpublished data, NAED unpublished data, NAED
2.2 Motel Accommodation	Revenue, motels Personal expenditure on accommodation Deflator, accommodation Tax rate, accommodation	cat. no. no 63-204 unpublished data, NAED unpublished data, NAED unpublished data, NAED
2.3 Other Accommodation	Revenue, other accommodation services Personal expenditure on accommodation Deflator, accommodation Tax rate, accommodation	cat. no. no 63-204 unpublished data, NAED unpublished data, NAED unpublished data, NAED

TABLE 1 Supply Indicators: Data and Sources (Continued)

Indicator	Data Used	Source
3. Food and beverage services	**See 3.1 - 3.4**	**See 3.1 - 3.4**
3.1 Meals from Accommodation Services	Revenue from meals, hotels	cat. no. 63-204
	Revenue from meals, motels	cat. no. 63-204
	Revenue from meals, other accommodation services	cat. no. 63-204
	Personal expenditure on accommodation	unpublished data, NAED
	Personal expenditure on meals outside the home	unpublished data, NAED
	Deflator, meals outside the home	unpublished data, NAED
	Tax rate, meals outside the home	unpublished data, NAED
3.2 Meals from Food and Beverage Services	Receipts, licensed restaurants	cat. no. 63-011
	Receipts, unlicensed restaurants	cat. no. 63-011
	Receipts, take-out restaurants	cat. no. 63-011
	Receipts, taverns	cat. no. 63-011
	Proportion, meal revenue to total revenue, food and beverage services	TSA
	Personal expenditure on meals outside the home	unpublished data, NAED
	Deflator, meals outside the home	unpublished data, NAED
	Tax rate, meals outside the home	unpublished data, NAED
3.2 Alcoholic Beverages from Accommodation Services	Revenue from alcoholic beverages, hotels	cat. no. 63-204
	Revenue from alcoholic beverages, motels	cat. no. 63-204
	Revenue from alcoholic beverages, other accommodation industries	cat. no. 63-204
	Personal expenditure on accommodation	unpublished data, NAED
	Personal expenditure on alcoholic beverages	cat. no. 13-201
	Deflator, alcoholic beverages, service	unpublished data, NAED
	Tax rate, alcoholic beverages, service	unpublished data, NAED
3.3 Alcoholic Beverages from Food and Beverage Services	Receipts, licensed restaurants	cat. no. 63-011
	Receipts, taverns	cat. no. 63-011
	Proportion, receipts from alcoholic beverages to total revenue, food and beverages industries	TSA
	Personal expenditure on alcoholic beverages	cat. no. 13-201
	Deflator, alcoholic beverages, service	unpublished data, NAED
	Tax rate, alcoholic beverages, service	unpublished data, NAED
3.4 Meals and Alcoholic Beverages from Other Tourism Industries	Supply indicator for meals from food and beverage services	cat. no. 13-220-XPB, 13-009-XPB
	Supply indicator for alcoholic beverages from food and beverage services	cat. no. 13-220-XPB, 13-009-XPB
	Supply indicator for meals from accommodation services	cat. no. 13-220-XPB, 13-009-XPB
	Supply indicator for alcoholic beverages from accommodation services	cat. no. 13-220-XPB, 13-009-XPB
	Supply indicator for recreation and entertainment	cat. no. 13-220-XPB, 13-009-XPB
4. Other Tourism Commodities	**See 4.1 - 4.3**	**See 4.1 - 4.3**
4.1 Recreation and Entertainment	Revenue, SIC 962-965, 969	cat. no. 63-233
	Employment, SIC, 962-965, 969	cat. no. 72-002
	Deflator for recreation, sporting and camping equipment	unpublished data, NAED
	Deflator for reading and entertainment supplies	unpublished data, NAED
	Deflator for recreational services	unpublished data, NAED
	Tax rate for recreation, sporting and camping equipment	unpublished data, NAED
	Tax rate for reading and entertainment supplies	unpublished data, NAED
	Tax rate for recreational services	unpublished data, NAED
4.2 Travel Agency Services	Supply indicator for passenger air transport	cat. no. 13-220-XPB, 13-009-XPB
	Supply indicator for hotel accommodation	cat. no. 13-220-XPB, 13-009-XPB
	Demand indicator for passenger air transport	cat. no. 13-220-XPB, 13-009-XPB
	Demand indicator for hotel accommodation	cat. no. 13-220-XPB, 13-009-XPB
4.3 Convention Fees	Demand indicator for convention fees	cat. no. 13-220-XPB, 13-009-XPB
	Supply indicator for hotel accommodation	cat. no. 13-220-XPB, 13-009-XPB
	Demand indicator for hotel accommodation	cat. no. 13-220-XPB, 13-009-XPB

TABLE 2 Supply Indicators: Methods, Current Price Estimates

Indicator	Annual Series	Quarterly Series
1. Transportation	**Sum of 1.1-1.7**	**Sum of 1.1-1.7**
1.1 Passenger Air Transport	Sum of quarterly series	Total quarterly revenue from passenger air transport, level I and II carriers; projected for the most recent quarter on the basis of preliminary revenue of level I and level II carriers
1.2 Passenger Rail Transport	Sum of monthly revenues from passenger transportation of VIA Rail	Combined supply (also from monthly revenues) and tourism demand in each quarter, scaled to sum to annual
1.3 Interurban Bus Transport	Total annual revenue from urban transit operators, rural and interurban bus operators, school bus operators, and other bus operators, projected for the most recent year on the basis of personal expenditure on intercity and rural bus transport	Interpolated from annual series on basis of demand indicator for interurban bus transport, projected for the most recent 4 quarters on the basis of personal expenditure on intercity and rural bus transport
1.4 Vehicle Rental	Total annual revenue of automobile rental and recreational vehicle rental, projected for most recent 2 years on basis of employment in the automobile and truck rental and leasing industry	Combined supply and tourism demand in each quarter, scaled to sum to annual, projected for most recent 8 quarters on basis of quarterly employment in the automobile and truck rental and leasing industry
1.5 Vehicle Repairs and Parts	Personal expenditure series on motor vehicles and parts	Personal expenditure series on motor vehicles and parts
1.6 Vehicle Fuel	Personal expenditure series on motor fuels and lubricants	Personal expenditure series on motor fuels and lubricants
1.7 Other Transportation	See 1.7.1 - 1.7.4	See 1.7.1 - 1.7.4
1.7.1 Passenger Water Transport	Personal expenditure series on water transport	Personal expenditure series on water transport
1.7.2 Urban Transit	Total annual revenue from urban transit, urban transit operators, rural and interurban bus operators, school bus operators, and other bus operators, projected for most recent year with personal expenditure series on urban transit	Combined supply and tourism demand in each quarter, scaled to equal annual estimates, projected for most recent 4 quarters with personal expenditure series on urban transit
1.7.3 Taxi	Personal expenditure on taxis	Personal expenditure on taxis
1.7.4 Parking	Personal expenditure on parking	Personal expenditure on parking
2. Accommodation	**See 2.1 - 2.3**	**See 2.1 - 2.3**
2.1 Hotel Accommodation	Annual revenue from accommodation services, hotels and guest services, projected for most recent 2 years with personal expenditure series on accommodation	Combined supply and tourism demand in each quarter, scaled to equal annual estimates, quarterly supply is interpolated with the quarterly pattern of personal expenditure on accommodation, projected for most recent 8 quarters with personal expenditure series on accommodation
2.2 Motel Accommodation	Annual revenue from accommodation services, motels, projected for most recent 2 years with personal expenditure series on accommodation	Combined supply and tourism demand in each quarter, scaled to equal annual estimates, quarterly supply is interpolated with the quarterly pattern of personal expenditure on accommodation, projected for most recent 8 quarters with personal expenditure series on accommodation
2.3 Other Accommodation	Annual revenue from accommodation services (tourist cabins, camping grounds, and trailer parks, outfitters, other recreational and vacation camps), projected for most recent 2 years with personal expenditure series on accommodation	Combined supply and tourism demand in each quarter, scaled to equal annual estimates, quarterly supply is interpolated with the quarterly pattern of personal expenditure on accommodation, projected for most recent 8 quarters with personal expenditure series on accommodation

TABLE 2 Supply Indicators: Methods, Current Price Estimates (Continued)

Indicator	Annual Series	Quarterly Series
3. Food and beverage services	**See 3.1 - 3.4**	**See 3.1 - 3.4**
3.1 Meals from Accommodation Services	Annual revenue from traveller accommodation, projected for most recent 2 years with personal expenditure series on accommodation	Combined supply and tourism demand in each quarter, scaled to equal annual estimates, quarterly supply is interpolated with the quarterly pattern of personal expenditure on meals outside the home, projected for most recent 8 quarters with personal expenditure series on accommodation
3.2 Meals from Food and Beverage Services	Annual revenue from licensed restaurants, unlicensed restaurants, take-out restaurants, and taverns, using the proportion of revenue of meals to total revenue of food and beverage industry, TSA, projected for most recent year with personal expenditure series on accommodation	Combined supply and tourism demand in each quarter, scaled to equal annual estimates, quarterly supply is interpolated with the quarterly pattern of personal expenditure on meals outside the home, projected for most recent 4 quarters with personal expenditure series on meals outside the home
3.2 Alcoholic Beverages from Accommodation Services	Annual revenue from sales of alcoholic beverages, by type of accommodation establishment, projected for most recent 2 years with personal expenditure series on accommodation	Combined supply and tourism demand in each quarter, scaled to equal annual estimates, quarterly supply is interpolated with the quarterly pattern of personal expenditure on service from alcoholic beverages, and projected for most recent 8 quarters with personal expenditure series on accommodation
3.3 Alcoholic Beverages from Food and Beverage Services	Annual revenue from alcoholic beverages sold by licensed restaurants, and from taverns, using TSA proportion of receipts attributable to alcoholic beverages to total receipts from the food and beverages industry, projected for most recent year with personal expenditure series on service for alcoholic beverages	Revenue from alcoholic beverages sold by licensed restaurants, and from taverns, using TSA proportion of receipts attributable to alcoholic beverages to total receipts from the food and beverages industry, projected for most recent 4 quarters with personal expenditure series on service for alcoholic beverages
3.4 Meals and Alcoholic Beverages from Other Tourism Industries	The sum of the annual supply indicators for meals from food and beverage services, meals from accommodation services; alcoholic beverages from food and beverage services and alcoholic beverages from accommodation services. Benchmarked to the TSA and projected for most recent 2 years with employment	Quarterly series is interpolated with supply indicator for recreation and entertainment and projected for most recent 8 quarters with employment
4. Other Tourism Commodities	**See 4.1 - 4.3**	**See 4.1 - 4.3**
4.1 Recreation and Entertainment	Annual revenue from service and repairs in recreational services industries, projected for most recent 2 years with employment in these industries	Interpolated and projected with employment series in recreational services industries
4.2 Travel Agency Services	Annual supply indicators for passenger air transport and hotel accommodation	Combined supply and tourism demand indicators in each quarter, scaled to equal annual estimates
4.3 Convention Fees	Annual demand series divided by ratio of tourism demand to supply for hotel accommodation	Quarterly demand series divided by ratio of tourism demand to supply for hotel accommodation

Table 3 provides the quality assessments by commodity using the criteria set out in Chapter 1 and drawing on the personal expenditure series evaluations. The commodities with the highest proportion of spending generally have the best ratings, while the heterogeneous categories have the lowest quality ratings. Overall, the total supply of tourism commodities is rated as a “1”.

This table also presents the ratios calculated in the TSA of tourism demand to supply. Overall, the ratio is 38.8, with a range from 7 (parking) to 97.8 (travel agency services). The latter, not surprisingly, is the most tourism-intensive commodity in the list. As indicated in Chapter 3, these ratios, when applied to the supply estimates, form the basis of the values for the demand indicator series from 1986 to date.

TABLE 3 Supply Indicators: Quality Assessment and Ratios of Tourism Demand to Supply

Indicator	Rating	Tourism Demand as a Share of Supply, 1988
1. Transportation	**1**	**42.4**
1.1 Passenger Air Transport	1	92.1
1.2 Passenger Rail Transport	1	83.8
1.3 Interurban Bus Transport	2	88.1
1.4 Vehicle Rental	2	83.0
1.5 Vehicle Repairs and Parts	2	19.0
1.6 Vehicle Fuel	2	32.4
1.7 Other Transportation	3	22.4
1.7.1 Passenger Water Transport	3	93.5
1.7.2 Urban Transit	3	28.8
1.7.3 Taxi	3	83.0
1.7.4 Parking	3	7.0
2. Accommodation	**2**	**89.8**
2.1 Hotel Accommodation	2	91.4
2.2 Motel Accommodation	2	95.4
2.3 Other Accommodation	3	75.1[1]
3. Food and Beverage Services	**2**	**25.6**
3.1 Meals from Accommodation Services	2	51.8
3.2 Meals from Food and Beverage Services	2	25.9
3.2 Alcoholic Beverages from Accommodation Services	2	16.2
3.3 Alcoholic Beverages from Food and Beverage Services	2	14.7
3.4 Meals and Alcoholic Beverages from Other Tourism Industries	2	27.7
4. Other Tourism Commodities	**2**	**32.7[2]**
4.1 Recreation and Entertainment	2	27.7
4.2 Travel Agency Services	2	97.8
4.3 Convention Fees	3	91.1
5. Total Supply of Tourism Commodities	**1**	**38.8**

1. Includes Camping, Outfitters and Other Accommodation.

2. Includes Recreation and Entertainment and Travel Agency Services as they were shown in the 1988 TSA and a ratio of tourism demand to supply for Conventions Fees as it was used in the NTI.

2.3 Overview by Indicator

1. Transportation

1.1 Passenger Air Transport

The indicator for the passenger air transport commodity is the sum of scheduled passenger air transport and chartered passenger air transport. Both components form a subset of the I/O commodity, air transportation.

The indicator is derived from surveys of quarterly passenger air transportation revenues generated by level I and II air carriers. Level I and level II carriers are the largest carriers of the six levels included in air transport, measured in terms of the numbers of passengers and the tons of freight carried. The revenues cover both regular and charter operations of these carriers. To update the indicator for time periods beyond the availability of survey data, preliminary information on revenues generated by the operations of level I and level II carriers is employed as a projector.

1.2 Passenger Rail Transport

The indicator for this commodity measures the supply of passenger rail transportation, a component of the I/O commodity, railway transportation.

The indicator is constructed using monthly surveys of revenues from passenger transportation by VIA Rail. While the annual levels of the indicator are generated from these monthly estimates, the quarterly pattern is derived from weighted averages of quarterly estimates of supply and tourism demand for this commodity. The quarterly supply estimates used are also drawn from the VIA Rail monthly estimates. Because tourism demand constitutes a large proportion of supply, a higher weight is given to the tourism demand estimates than the supply in the calculation of the quarterly averages.

1.3 Interurban Bus Transport

Interurban bus transport is defined as the combined supply of interurban and rural passenger bus service, charter and tour bus service and other vehicle passenger service. The first commodity is a component of the I/O commodity, bus transport, interurban and rural. The other commodities are components of the I/O commodity, school bus and other transport.

The indicator is derived from annual surveys of interurban and charter bus revenues generated by urban transit operators, rural and interurban bus operators, school bus operators and other bus operators. To obtain quarterly estimates, the annual source data are interpolated with the quarterly pattern from the corresponding tourism demand indicator. The personal expenditure series on intercity and rural bus transport is used to project the indicator series for time periods beyond the availability of survey data.

1.4 Vehicle Rental

The indicator for this commodity measures the supply of automobile rental and recreational vehicle rental. These two commodities are components of the I/O commodity, rental of automobiles and trucks.

The annual estimates for the indicator are based on an annual survey of revenues generated by the automobile and truck rental and leasing services industry. For the periods when revenue data are not available, annual figures are projected forward using employment data for this industry.

The quarterly pattern for the annual indicator data is derived from weighted averages of quarterly estimates of supply and tourism demand for this commodity. The quarterly supply estimates are generated by applying the quarterly distribution of employment in the automobile and truck rental and leasing services industry to the annual figures obtained for the indicator. Because tourism demand represents a large proportion of supply, a higher weight is allocated to the tourism demand estimates than the supply in the calculation of quarterly averages.

1.5 Vehicle Repairs and Parts

This commodity is the sum of the 20 I/O categories shown in Appendix A.

The indicator is estimated using the quarterly series for personal expenditure on motor vehicle repairs and parts in the absence of aggregated supply information.

1.6 Vehicle Fuel

Vehicle fuel includes the following I/O commodities: natural gas excluding liquefied, gasoline, diesel oil, and liquid petroleum gases.

The indicator is based on the quarterly personal expenditure series on motor fuels and lubricants. The source data are available monthly. Without aggregated data on the supply of vehicle fuel, personal expenditure on vehicle fuel was used as a proxy. Tourism demand is low relative to supply.

1.7 Other Transportation

Other transportation is the sum of passenger water transportation, urban transit, taxis and parking. These four have limited supply data available and tourism demand accounts for small proportions of supply.

1.7.1 Passenger Water Transport

This indicator measures the supply of passenger water transport, a component of the I/O commodity, water transportation. In the absence of supply information, the indicator is based on personal expenditure on water transport.

The annual levels are obtained from the personal expenditure series on water transport by applying the TSA ratio of the annual estimate of revenue from passenger water transport to the 1988 annual figure of personal expenditure on water transport.

The quarterly pattern for the indicator is derived from weighted averages of quarterly estimates of supply and tourism demand for passenger water transport. The quarterly supply estimates used are generated using the quarterly figures of personal expenditure on water transport and the above mentioned ratio. Because tourism demand represents a large proportion of supply, a higher weight is allocated to the tourism demand estimates than supply in calculating the quarterly averages.

1.7.2 Urban Transit

Urban transit corresponds to the I/O commodity, urban transit.

The annual estimates for the indicator are derived from annual surveys of urban transit revenues generated by urban transport operators, rural and interurban bus operators, school bus operators and other bus operators.

The quarterly pattern for the indicator is derived from weighted averages of estimates of supply and tourism demand for this commodity. In this case, the quarterly supply estimates are obtained from a monthly (quarterly since 1995) survey of urban transit revenues generated by urban transport establishments and the personal expenditure series for missing quarters. Because tourism demand is small relative to supply, a higher weight is assigned to the quarterly supply estimates than demand in calculating the quarterly averages.

Personal expenditure on urban transit is used to project the quarterly/annual estimates of urban transit revenues for time periods beyond the availability of survey data.

1.7.3 Taxi

The commodity for this indicator is the sum of taxicab transport and limousine services (e.g. airport). The first commodity is the I/O category, taxicab transportation, and the second, a component of the I/O category, school bus and other transport.

The indicator is based on the quarterly personal expenditure series on taxis. The absence of supply information explains the use of the personal expenditure series.

1.7.4 Parking

Parking constitutes a component of the I/O commodity, other services incidental to transport.

The indicator for this commodity is estimated with the quarterly series for personal expenditure on parking. The absence of supply information explains the use of the personal expenditure series.

2. Accommodation

Total accommodation is the sum of the indicators described in sections 2.1 to 2.3.

2.1 Hotel Accommodation

The commodity for this indicator consists of hotel accommodation services and guest house accommodation services. These commodity categories form a subset of the I/O commodity, accommodation services.

The annual levels for this indicator are obtained from annual surveys of revenues from accommodation services generated by hotels and guest houses. Annual estimates are projected forward with the annual series of personal expenditure on accommodation for the periods when survey data are not available.

The quarterly pattern for the indicator is derived from weighted averages of quarterly estimates of supply and tourism demand for this commodity. The quarterly supply estimates used for producing these averages are generated by applying the

quarterly distribution of personal expenditure on accommodation to the annual figures obtained for the indicator. Because tourism demand is large relative to supply, a higher weight is allocated to the tourism demand estimates than to supply when calculating the quarterly averages.

2.2 Motel Accommodation

The commodity refers to motel accommodation services, a component of the I/O commodity, accommodation services.

The annual estimates for this indicator are based on an annual survey of revenues from accommodation services generated by motels. Annual values are projected forward with the annual series of personal expenditure on accommodation for the periods when survey data are not available.

The quarterly pattern for the indicator is derived from weighted averages of quarterly estimates of supply and tourism demand for this commodity. The quarterly supply estimates are generated by applying the quarterly distribution of personal expenditure on accommodation to the annual figures obtained for the indicator. Because tourism demand is large in proportion to supply, a higher weight is assigned to the tourism demand estimates than to supply in calculating the averages.

2.3 Other Accommodation

The commodity for this indicator consists of the following four components of the I/O commodity, accommodation services:

- accommodation from tourist cabins
- accommodation from camping grounds and trailer parks
- accommodation from outfitters
- accommodation from other recreational and vacation camps.

The annual levels for this indicator are estimated from an annual survey of revenues from accommodation services generated by the establishments mainly providing the services listed above. Annual estimates are projected forward with the annual personal expenditure series on accommodation for the periods when survey data are not available.

The quarterly pattern for the indicator is derived from weighted averages of quarterly estimates of supply and tourism demand for this commodity. The quarterly supply estimates used are generated by applying the quarterly distribution of personal expenditure on accommodation to the annual figures obtained for the indicator. Because tourism demand is large relative to supply, a higher weight is allocated to the tourism demand estimates than to supply in computing the quarterly averages.

3. Food and Beverage Services

Total food and beverage services is the sum of the commodities described in sections 3.1 to 3.5.

3.1 Meals from Accommodation

Meals from accommodation is a component of the I/O commodity, meals.

The annual estimates for this indicator are obtained from revenues generated by meals derived from an annual survey of traveller accommodation. Annual estimates are projected forward using the personal expenditure series on accommodation for periods when survey data are not available.

The quarterly pattern for the annual indicator is obtained from weighted averages of quarterly estimates of supply and tourism demand for this commodity. The quarterly supply estimates used are created by applying the quarterly distribution of personal expenditure on meals outside the home to the annual estimates for the indicator. Because tourism demand is large relative to supply, a higher weight is assigned to the tourism demand estimates than to supply in calculating the quarterly averages.

3.2 Meals from Food and Beverage Services

Meals from food and beverage services is a component of the I/O commodity, meals.

The indicator for this commodity is built from monthly survey estimates of total revenue generated by the different types of food and beverage service establishments. Estimates of revenue from meals are extracted from these total revenue figures by applying the TSA ratio of revenue from meals to total revenue for the food and beverage services industry in each period.

3.3 Alcoholic Beverages from Accommodation

The commodity represents alcoholic beverages sold by accommodation services. In the case of purchases of alcoholic beverages in hotels, restaurants, etc., the value of the service margin on the alcoholic beverage is shown separately in the SNA, using the concept of a margin less the value of goods sold.[1] This commodity includes service margins, a component of the I/O commodity, service margins on alcoholic beverages.

The annual estimates for this indicator are produced from an annual survey of sales of alcoholic beverages by each type of accommodation establishment and are projected forward using personal expenditure on accommodation for time periods when the survey data are not available.

The quarterly pattern for the indicator is derived from weighted averages of quarterly estimates of supply and tourism demand for this commodity. The quarterly supply estimates used are generated by applying the quarterly pattern of personal expenditure on service for alcoholic beverages to the annual figures obtained for the indicator. Because tourism demand is very small in proportion to supply, less weight is assigned to the tourism demand estimates than to supply in computing the quarterly averages.

1. See **Service Industries in the Canadian Input-Output Accounts**, p 53.

3.4 Alcoholic Beverages from Food and Beverages Services

The indicator measures the supply of alcoholic beverages sold by food and beverage services. In the case of purchases of alcoholic beverages in hotels, restaurants, etc., the value of the service margin on the alcoholic beverage is shown separately in the SNA, using the concept of a margin less the value of goods sold.

The commodity includes service margins, a component of the I/O commodity, service margins on alcoholic beverages.

The quarterly and annual figures for this indicator are built using monthly surveys of total revenue generated by each type of food and beverage service establishment. Estimates of revenue from alcoholic beverages are extracted from these total revenue figures by applying the TSA ratio of revenue from alcoholic beverages to total revenue for the food and beverage services industry.

3.5 Meals and Alcoholic Beverages from Other Tourism Industries

This indicator is the sum of two data series: meals from other tourism industries and alcoholic beverages from other tourism industries. In principle, other tourism industries could encompass all the tourism industries not specified as producers of meals and alcoholic beverages (such as bus transportation, water transportation). In practice, most meals and alcoholic beverages from other tourism industries are produced from recreation and entertainment, and from air and rail transport. The sum of the two series is benchmarked to the TSA.

The first data series measures the supply of meals produced by other tourism industries. This commodity is a component of the I/O commodity, meals. The annual levels are estimated using the combined annual movements in the following supply indicators: meals from food and beverage services, and meals from accommodation services. The quarterly pattern of these annual estimates is obtained by interpolating the quarterly distribution found in the supply indicator series for recreation and entertainment.

The second data series estimates the supply of alcoholic beverages sold by other tourism industries. This commodity includes service margins, which are a component of the I/O commodity, service margins on alcoholic beverages. The annual estimates are generated using the combined annual movements in the following supply indicators: alcoholic beverages from food and beverage services, and alcoholic beverages from accommodation services. The quarterly pattern of the series is also derived from the supply indicator series for recreation and entertainment.

4. Other Tourism Commodities

Other tourism commodities is the sum of the following supply indicators: recreation and entertainment, travel agency services and convention fees. These three indicators are described in sections 4.1 to 4.3.

4.1 Recreation and Entertainment

This indicator measures the supply of the 21 components of I/O commodities listed in Appendix A. The list of heterogeneous commodities are components of the I/O commodities, education services, motion picture exhibition, lotteries, gambling and race tracks, and other recreational services.

The recreation and entertainment indicator is derived from annual surveys of revenue from services and repairs generated by each kind of establishment classified as part of the recreational services industries. For time periods when survey data are not available, annual estimates are projected forward using employment series for the recreational services industries. The employment series are also used to derive the quarterly pattern of the indicator.

4.2 Travel Agency Services

This commodity comprises retail travel services - cruise packages, retail travel services - other packages, wholesale travel services - cruise packages, and wholesale travel services - other packages. These four commodities are components of the I/O commodity, services incidental to transport.

The annual levels for the indicator are estimated using the annual movement obtained by combining the supply indicator series for passenger air transport and hotel accommodation.

The quarterly pattern of the indicator is based on weighted averages of quarterly estimates of supply and total tourism demand for this commodity. For the calculation of these averages, quarterly estimates of the combined supply of passenger air transport and hotel accommodation are used to approximate the quarterly supply of travel agency services. Because total tourism demand is large relative to supply, more weight is allocated to the total tourism demand estate than to supply in calculating the averages.

4.3 Convention Fees

This indicator measures the supply of convention fees. In the absence of survey data on the supply of convention fees, the annual and quarterly indicators are based on the demand for convention fees and the ratio of total tourism demand to supply for hotel accommodation.


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CHAPTER 3

Demand Indicators

3.1 Introduction

This chapter describes the sources and methods for the demand indicators. The indicators are divided into three broad categories: tourism demand in Canada, and its components, tourism domestic demand and tourism exports. Within each category, indicators are provided for 18 tourism commodities and five aggregates. For each indicator, annual and quarterly estimates are provided from 1986 to the present. Quarterly estimates are adjusted for seasonality. All estimates are presented in current and 1986 prices.

The demand indicators are all benchmarked to the TSA, except for one tourism commodity: private cottages are excluded from the NTI. Therefore, the 1988 demand aggregates for total accommodation and total tourism commodities do not match those derived from the TSA.[1] Also, the demand indicators do not include non-tourism commodities such as groceries, alcoholic beverages purchased from stores, pre-trip expenditures and other commodities (e.g. souvenirs). These commodities are, however, included in the TSA.

The indicators are based on expenditure data which come principally from a survey of Canadian households (Canadian Travel Survey) and from surveys of international travellers crossing the Canadian border (International Travel Surveys).

Conducted every second year, the Canadian Travel Survey (CTS) has gone through several modifications since 1992. Changes to the data collection method, the survey qualifying questions and the questionnaire have affected the comparability of estimates between survey years. Accordingly, consistent time series of tourism domestic demand for the period 1986 to date are not available from the CTS.[2]

In the International Travel Surveys (ITS), the frontier counts of international travellers entering or returning to Canada are considered to be very accurate, but the expenditure data are more difficult to evaluate. Although the questionnaires are distributed to a pre-selected sample of travellers, the results are dependent on the co-operation of customs officers who distribute the questionnaires and on travellers entering or returning to the country who are asked to mail completed questionnaires back to Statistics Canada. Potential sampling, response and estimation biases, as well as the accuracy of recall, especially for the detailed categories of spending, tend to be more problematic in surveys of this type. In addition, survey coverage,

1. See Lapierre and Hayes, **The Tourism Satellite Account**, Table 1, p. xl.
2. See **Touriscope, Domestic Travel, Canadians travelling in Canada, 1994**, p. 54-55.

methods and questionnaires do vary over time and for purposes of the indicators, consistent time series are needed. A question remains as to whether respondents are representative of non-respondents,[1] and time series of benchmarks at a detailed commodity level are not usually available for verification of the results. This is true especially in cases for which the demand for a good or service by visitors represents a small proportion of the domestic supply.

The demand indicators also rely on the TSA to make up for the lack of consistent or detailed expenditure series available from the travel surveys. For example, annual ratios of tourism demand in Canada to domestic supply for tourism commodities (see Table 3, Chapter 2) and quarterly distributions of expenditures by non-residents have been taken from the TSA. These figures for 1988 are applied throughout the period to generate the expenditure details for many demand series.

The relevance of these 1988 figures over time can only be evaluated indirectly without more recent estimates of these key data. In particular, the TSA ratios are applied to the NTI supply series in order to estimate the levels of annual tourism demand in Canada by commodity. For those commodities where tourism demand represents a high proportion of the domestic supply, and where the indicator is considered very reliable (for example air passenger transport), the ratio is likely to give a very reliable result over time. More problematic results are likely where tourism demand represents a small, and likely more volatile proportion of the supply and the indicator containing a heterogeneous mix of goods and services, is considered a less reliable series. These are usually the items representing small proportions of tourism demand for all tourism commodities.

The ratios and distributions used from the TSA and the trends of the indicators can also be judged in the light of related information. Factors that would be expected to influence the highly discretionary tourism spending are economic conditions (for example, unemployment and uncertainty concerning continuing employment during a recession) and the introduction of a new tax such as the Goods and Services Tax (GST), which taxed services for the first time in 1991. During uncertain economic times, visitors could take more local trips instead of longer, more expensive trips, or visitors could stay with friends and relatives or go camping instead of paying for more expensive accommodation. Travel in Canada could replace more expensive trips outside the country as well. Or, as a result of specific world events, such as the Gulf War of 1991, Canada could become a more popular tourist destination, increasing demand for exports. As the value of the Canadian dollar falls, more Canadians will likely stay in the country, and more foreigners will likely travel to Canada. This will raise the demand for tourism in Canada accordingly. Also, structural change in the demand for tourism may result from the growing popularity of cruises, the introduction of the (GST), the impact of the “open skies” policy on airline routes between the United States and Canada in 1995, and the growth in casinos. These issues will be explored in more depth as the indicator series are analysed in the light of related trends.

When new benchmark TSAs become available, or when consistent or detailed time series of trip spending become available from the travel surveys, the indicators will be revised to incorporate the new information.

1. In 1990, an internal Statistics Canada evaluation found that at the level of aggregate spending, there was no evidence of non-response bias.

3.2 General Approach

The methods used in estimating the three broad categories of demand indicators are summarized here and described in more detail in the rest of the chapter. The methodology makes the best possible use of the data currently available.

- Annual values for tourism demand in Canada are derived for each commodity by applying the ratios of tourism demand to supply from the TSA to the annual values of supply indicators.
- Quarterly and annual figures for the tourism export series are based on quarterly expenditure aggregates from the ITS. These aggregates are distributed by commodity according to the quarterly distributions of tourism exports from the TSA.
- Annual figures for tourism domestic demand are derived residually, subtracting annual tourism exports from annual tourism demand in Canada for each commodity.
- Tourism domestic demand by quarter is estimated by applying quarterly patterns from the CTS and TSA to annual values for tourism domestic demand.
- The quarterly pattern for tourism demand in Canada is obtained by combining the quarterly levels of tourism domestic demand and tourism exports.
- Seasonal adjustments by commodity are introduced at the level of both tourism domestic demand and exports and the results summed, to arrive at the seasonally adjusted data for tourism demand in Canada. The use of quarterly distributions from different years and sources could introduce variability into the quarterly estimates which might affect the seasonal adjustment procedure and results. Such variability is closely examined and analysed in constructing the time series.
- The demand series, seasonally and not seasonally adjusted, are deflated using seasonally and not seasonally adjusted NAED deflators respectively to obtain the estimates at 1986 prices. However, the unadjusted series at 1986 prices are not published.

3.3 Methodology

3.3.1 Annual Tourism Demand in Canada

Annual tourism demand in Canada is derived for each tourism commodity (in the absence of time series for tourism domestic demand) by applying the ratios of tourism demand to supply from the TSA to the annual values from the supply indicators. For each commodity, the same ratio is applied for each year,making annual tourism demand in Canada a fixed proportion of the annual domestic supply for the commodity.

3.3.2 Tourism Exports

Exports by commodity are calculated by applying the TSA distributions of tourism exports to the ITS estimates of total expenditure in Canada by non-residents for the period 1986 to the present.

The method uses solely the 1988 quarterly distributions of tourism exports from the TSA to provide a commodity breakdown of each quarterly expenditure total obtained from the ITS for the specified period, because the ITS can provide only

aggregated series of trip spending. The quarterly distributions taken from the TSA will be revised each time a new year is added to the TSA.

3.3.2.1 Quarterly Distribution of Tourism Exports

From the TSA, trip expenditures by non-residents (or baskets of goods and services) for 36 profiles of trips are derived for each quarter of 1988. Each basket represents expenditures by non-residents for 28 commodity categories (as listed in Table 5), for each trip profile specified in Table 4. The 36 profiles result from combinations of the trip characteristics listed in Table 4. For example, one trip profile is a same-day, business trip by plane.

TABLE 4 Characteristics Used to Define Trip Profiles

Purpose	Duration	Transportation
1. Business	1. Same-day	1. Car and other
2. Visit to friends and relatives	2. 1 to 6 night(s)	2. Train or bus
3. Holidays and other	3. 7 nights or more	3. Boat
		4. Plane

Each expenditure category in each basket is projected for the period 1986 to date using an appropriate implicit price index from the NAED personal expenditure database, rebased to 1988 =100 (see Table 5). As a result, changes in the relative prices over time of goods and services purchased by non-resident visitors are reflected in the commodity basket for each period.

TABLE 5 Implicit Price Indexes Used to Project TSA Tourism Exports

Commodity	Implicit Price Indexes
Passenger air transport	Air transportation
Passenger rail transport	Rail transportation
Interurban bus transport	Intercity and rural bus transportation
Vehicle rental	Motor vehicle renting and leasing
Vehicle repairs and parts	Motor vehicle repairs and maintenance
Vehicle fuel	Motor fuel and lubricants
Water passenger transport	Water transport
Urban transit	Urban transit
Taxis	Taxi
Parking	Parking
Hotels	Accommodation
Motels	Accommodation
Camping	Accommodation
Outfitters	Accommodation
Private cottages	Accommodation
Other accommodation	Accommodation
Meals, accommodation services	Meals outside the home

TABLE 5 Implicit Price Indexes Used to Project TSA Tourism Exports (Continued)

Commodity	Implicit Price Indexes
Meals, food and beverage services	Meals outside the home
Alcoholic beverages, accommodation services	Alcoholic beverages, service
Alcoholic beverages, food and beverage services	Alcoholic beverages, service
Meals, other industries	Meals outside the home
Alcoholic beverages, other industries	Alcoholic beverages, service
Recreation and entertainment	Recreation, sporting and camping equipment Reading and entertainment supplies Recreational services Educational and cultural services
Travel agency services	Commissions, tour operators
Convention fees	Services
Groceries	Food and non-alcoholic beverages
Beer, wine and liquor from stores	Alcoholic beverages
Other commodities	Services

3.3.2.2 Total Quarterly Tourism Exports

From the ITS files, quarterly time series are obtained for ‘spending in Canada’ and ‘international fares to Canadian carriers’ for each of the 36 trip profiles. These are the only expenditure items available as time series from the ITS files.

Expenditures by all cross-border workers and crew are excluded to match the tourism expenditure definition of the TSA. Expenditures by United States and overseas residents are combined in the creation of the time series for the 36 trip profiles. For each profile, a total expenditure variable is created as the sum of ‘spending in Canada’ and ‘international fares to Canadian carriers’.

A special calculation is made to produce the series of international fares. From 1986 to 1989, fares paid by overseas residents can be categorized only by entry class, that is, *direct* entry (by air or sea from the overseas country), *via the United States* entry (by land, by air or water). Since 1990, such fares can also be disaggregated by mode of transport. The data for 1986 to 1989 are prorated to the 1990 to date mode categories, using the concordance between the two classification systems on the 1990 ITS microdata files.

3.3.2.3 Tourism Export Series

The application of the TSA commodity baskets to the ITS expenditure totals results in exports by commodity for each trip profile for the period 1986 to date. The same set of baskets from the TSA (one basket for each trip profile) is applied to the same quarter of each year. The commodity exports for the 36 profiles are then aggregated each quarter to create the export series for each of the 28 commodities. Due to the data quality in some of the series, several commodities are combined while some others are excluded, reducing the number of published commodity series to 18. These 18 commodity series are then benchmarked to the TSA.

3.3.2.4 Tourism Exports for Rail, Bus and Vehicle Rental

The methodology is modified for passenger rail transportation, because VIA Rail discontinued an important part of its services in 1990. The use of fixed baskets from the TSA results in the extraction of exports on passenger rail transport as a constant share of the ITS totals for the period to date. This implies that only domestic demand is affected by the cut in service, which seems unreasonable. A proportional share of the cut is therefore applied to exports of passenger rail transport from 1990 to date. The drop in non-resident rail consumption is offset by a corresponding increase in exports for interurban bus and vehicle rental. The quarterly pattern of interurban transport is applied to exports of passenger rail transport.

3.3.2.5 Relationship Between the Total Tourism Exports Series and the SNA

The NTI series of total tourism exports can be reconciled with the IEA series for personal expenditure on travel receipts.[1] Also, the NTI series can be reconciled with the offsetting Balance of Payments series included in exports. A small difference between the two series (less than 1% in most years) is explained by definitional differences. Travel receipts from crews and cross-border workers are excluded from total tourism exports. (With the historical revision of the Canadian SNA to meet the recommendations of SNA 93 and the International Monetary Fund, Balance of Payments Manual, fifth edition, crew expenditures are likely to increase in value).

3.3.3 Tourism Domestic Demand

A two step method is used to derive the estimates for the tourism domestic demand series. The first step estimates the annual levels for each series, while the second yields the quarterly distribution.

3.3.3.1 Annual Tourism Domestic Demand

For each year, estimates of tourism domestic demand by commodity are obtained by subtracting annual tourism exports from annual tourism demand in Canada for each commodity.

3.3.3.2 Quarterly Tourism Domestic Demand

For all commodities, except passenger air transport, a commodity specific quarterly distribution is derived and applied to each annual value of tourism domestic demand. For 1986 and 1988, the TSA quarterly pattern of domestic demand for the commodity is used. For 1990, 1992 and 1994, the corresponding CTS quarterly pattern of expenditures in Canada for the commodity is used. For in-between years, an average of the quarterly patterns for the two years is used. Table 6 lists the source of quarterly pattern used for each commodity.

In the case of passenger air transport, the quarterly pattern for tourism domestic demand is derived for each year as follows. First, quarterly estimates of tourism demand in Canada are calculated by applying the TSA ratio of tourism demand to supply for the commodity to the NTI quarterly estimates of supply for the commodity. Secondly, the quarterly values of domestic demand are derived by subtracting the quarterly estimates of tourism exports for passenger air transport from the figures obtained.

1. Travel receipts from non-residents are excluded from the IEA series of total personal expenditure. IEA personal expenditure includes net expenditure abroad, which is equal to Canadian purchases outside the country less non-resident purchases in Canada.

3.3.4 Quarterly Tourism Demand in Canada

To obtain the quarterly distribution of tourism demand in Canada for each commodity, the values of tourism exports and tourism domestic demand are added for each quarter and each commodity.

TABLE 6 Source of Quarterly Pattern for Tourism Domestic Demand

Commodity	Year	Source of Quarterly Pattern
Passenger air transport	1988, 1990, 1992, 1994	Supply, passenger air transport, NTI
Passenger rail transport	1988	Domestic demand, passenger rail transport, TSA
	1990, 1992	Reallocated expenditures in Canada[1], public transport, CTS
	1994	Reallocated expenditures in Canada, transportation fares, CTS
Interurban bus transport	1988	Domestic demand, interurban bus transport, TSA
	1990, 1992	Reallocated expenditures in Canada, public transport, CTS
	1994	Reallocated expenditures in Canada, transportation fares, CTS
Vehicle rental	1988	Domestic demand, vehicle rental,TSA
	1990, 1992	Reallocated expenditures in Canada, private transport, CTS
	1994	Reallocated expenditures in Canada, vehicle rental, CTS
Vehicle repairs and parts	1988	Domestic demand, vehicle repairs and parts,TSA
	1990, 1992	Reallocated expenditures in Canada, private transport, CTS
	1994	Reallocated expenditures in Canada, vehicle operation, CTS
Vehicle fuel	1988	Domestic demand, vehicle fuel, TSA
	1990, 1992	Reallocated expenditures in Canada, private transport, CTS
	1994	Reallocated expenditures in Canada, vehicle operation, CTS
Other transportation	1988	Domestic demand, other transportation, TSA
	1990, 1992	Reallocated expenditures in Canada, public and local transport, total, CTS
	1994	Reallocated expenditures in Canada, transportation fares, local transport, total, CTS
Hotels	1988	Domestic demand, hotels, TSA
	1990, 1992	Reported expenditures in Canada, accommodation, overnight trips, staying in hotels, CTS
	1994	Reallocated expenditures in Canada, accommodation, overnight trips, staying in hotels, CTS
Motels	1988	Domestic demand, motel accommodation, TSA
	1990, 1992	Reported expenditures in Canada, accommodation, overnight trips, staying in motels, CTS
	1994	Reallocated expenditures in Canada, accommodation, overnight trips, staying in motels, CTS
Other accommodation	1988	Domestic demand, other accommodation, TSA
	1990, 1992	Reported expenditures in Canada, accommodation, overnight trips, staying in camping, commercial cottages, other, CTS
	1994	Reallocated expenditures in Canada, accommodation, overnight trips, staying in bed and breakfast, resort/lodge, camping, commercial cottages, other, CTS
Meals, accommodation services	1988	Domestic demand, meals from accommodation services, TSA
	1990, 1992, 1994	Reallocated expenditures in Canada, accommodation, CTS
Meals, food and beverage services	1988	Domestic demand, meals from food and beverage services, TSA
	1990, 1992	Reallocated expenditures in Canada, food and beverages, CTS
	1994	Reallocated expenditures in Canada, food and beverages in restaurants and bars, CTS
Alcohol., accommodation services	1988	Domestic demand, alcohol from accommodation services, TSA
	1990, 1992, 1994	Reallocated expenditures in Canada, accommodation, CTS

TABLE 6 Source of Quarterly Pattern for Tourism Domestic Demand (Continued)

Commodity	Year	Source of Quarterly Pattern
Alcohol., food and beverage services	1988	Domestic demand, alcohol from food and beverage services, TSA
	1990, 1992	Reallocated expenditures in Canada, food and beverages, CTS
	1994	Reallocated expenditures in Canada, food and beverages in restaurants and bars, CTS
Meals and alcohol., other tourism industries	1988	Domestic demand, meals and alcohol from other industries, TSA
	1990, 1992	Reallocated expenditures in Canada, food and beverages, CTS
	1994	Reallocated expenditures in Canada, food and beverages in restaurants and bars
Recreation and entertainment	1988	Domestic demand, recreation and entertainment, TSA
	1990, 1992, 1994	Reallocated expenditures in Canada, recreation and entertainment
Travel agency services	1988	Domestic demand, travel agency services, TSA
	1990, 1992	Reallocated expenditures in Canada, public transport, accommodation, CTS
	1994	Reallocated expenditures in Canada, transportation fares, accommodation, CTS
Convention fees	1988, 1990, 1992, 1994	Quarterly patterns used for passenger air transport and hotels, NTI

1. Reallocated expenditures include the distribution of expenditures reported on prepaid packages and trip spending for which respondents did not provide a commodity breakdown.

CHAPTER 4

Employment Indicators

4.1 Introduction and General Approach

The employment series in the NTI measure the direct employment attributable to tourism within the tourism industries. The series refer, therefore, only to the persons in tourism industries who are engaged in supplying goods and services directly to visitors. They do not measure the employment in tourism industries which results from the sale of goods and services to other consumers. Also, contrary to the data available in the TSA, the indicators do not provide estimates of the employment generated by tourism in non-tourism industries.

Employment in the NTI corresponds to the concept described in Chapter 1.

4.2 Methodology

The general approach used to determine tourism employment within tourism industries is to apply fixed ratios to total employment figures for the 216 industries of the SNA business sector.

The fixed ratios applied to the 216 SNA industries are determined as follows.

Firstly, a concordance is established between the 4-digit SIC definition of the tourism industries and the 216 industries of the SNA business sector. This is done by identifying which of the 216 industries includes each 4-digit SIC tourism industry.

Secondly, from this concordance, the 1988 annual ratio of tourism labour income to total labour income is calculated for each of the 216 SNA industries, using the following data: the 1988 TSA annual estimate of tourism labour income generated by each 4-digit SIC tourism industry included in the SNA industry, and the 1988 I/O annual estimate of total labour income generated by the SNA industry.

By applying these 1988 labour income ratios to I/O employment numbers for the 216 SNA industries, an estimate of direct employment generated by tourism is derived for each 4-digit tourism industry. As the TSA is updated, the labour income ratios will be revised.

Annual employment numbers for the 216 industries are available from I/O for the period 1986 to 1992. These employment numbers are projected annually to the current year by fitting the I/O annual estimates against annual data from the Survey of

Employment, Payroll and Hours (SEPH) and time (representing linear growth) respectively. The coefficients of these two regressions are then used to project the I/O figures starting with 1993. Thus, if a strong correlation exists between the SEPH data and the I/O data, the SEPH data will be heavily weighted in the projected annual figures. Similarly, if the I/O data show a strong linear movement, this movement will strongly influence the projections.

The 1988 labour income ratios are applied to these annual figures, enabling the extraction of annual tourism employment numbers for the tourism industries from 1986 to date.

The quarterly pattern of employment is derived for each tourism industry using the monthly distribution of SEPH data for the nearest 3-digit SIC industry[1]. However, the data are published only at the quarterly level to ensure more stability in the series. The quarterly and annual estimates represent averages of the monthly data.

In the NTI, employment data for the tourism industries is not presented at the same level of industry detail as in the TSA[2]. In particular, employment data are provided for the accommodation and the food and beverage services industries at the aggregated level only. To date, I/O does not provide separate employment estimates for the components of these two industries.

In the NTI publications, tourism employment within the tourism industries is shown with total employment in the business sector. Since all tourism industries are part of the business sector, the latter indicator provides a reference for assessing the significance of, as well as the trend and cycle in direct employment generated by tourism.

Users are probably aware that employment data for small, local or seasonal industries, such as occur in tourism, are somewhat more difficult to collect through Statistics Canada regular surveys. Consequently, readers may bear this in mind when using the tourism employment indicators for such industries.

1. Establishments in SEPH are coded at the 3-digit SIC level.
2. See Lapierre and Hayes, **The Tourism Satellite Account**, Table 2, p. xlii.

APPENDIX A

Concordance of Tourism and I/O Commodity Classification

Each tourism commodity component is identified by a five digit code. The first four digits correspond to a commodity as identified in the Input Output Accounts (I/O). The presence of a fifth non-zero digit indicates that the commodity constitutes a component of the four digit I/O commodity.

Tourism Commodity	NTI Code	Tourism Commodity Component	I/O Code	I/O Commodity
1. **Transportation**				
1.1 Passenger Air Transport	53001	Scheduled Passenger Air Transport	5300	Air Transportation
	53003	Chartered Passenger Air Transport	5300	Air Transportation
1.2 Passenger Rail Transport	53501	Passenger Rail Transport	5350	Railway Transportation
1.3 Interurban Bus Transport	53701	Interurban and Rural Passenger Bus	5370	Bus Transport, Interurban and Rural
	53102	Charter and Tour Bus	5310	School Bus and Other Transport
	53104	Other Vehicle Passenger Service	5310	School Bus and Other Transport
1.4 Vehicle Rental	57701	Automobile Rental	5770	Rental of Automobiles and Trucks
	57704	Recreational Vehicle Rental	5770	Rental of Automobiles and Trucks
1.5 Vehicle Repairs and Parts		Vehicle Repairs and Parts	1250	Passenger Car Tires
			1260	Truck, Bus and Off-highway Tires
			1279	Other Tires and Tubes
			1289	Tire Repair Material and Retreads
			1300	Conveyor and Transmission Belting
			3410	Motor Vehicle Engines and Parts
			3420	Motor Vehicle Electric Equipment
			3431	Motor Vehicle Stamping
			3432	Motor Vehicle Steering and Suspension
			3433	Motor Vehicle Wheels and Brakes
			3434	Motor Vehicle Plastic Parts and Trim
			3435	Motor Vehicle Fabric Accessories
			3436	Other Motor Vehicle Parts and Accessories
			3690	Batteries
			3742	Vehicle Lighting Equipment
			3970	Lubricating Oils and Greases
			4090	Paints and Related Products
			4710	Antifreeze Preparations
			4729	Additives and Automobile Chemicals
			5510	Repair Service for Machinery and Equipment
1.6 Vehicle Fuel		Vehicle Fuel	0390	Natural Gas Excluding Liquefied
			3950	Gasoline
			3962	Diesel Oil
			3990	Liquid Petroleum Gases
1.7 Other Transportation				
1.7.1 Passenger Water Transport	53301	Water Transportation	5330	Water Transportation
1.7.2 Urban Transit	53800	Urban Transit	5380	Urban Transit
1.7.3 Taxi	53900	Taxicab Transport	5390	Taxicab Transportation
	53103	Limousine Services	5310	School Bus and Other Transport
1.7.4 Parking	53215	Parking	5320	Other Services Incidental to Transport

Tourism Commodity	NTI Code	Tourism Commodity Component	I/O Code	I/O Commodity
2. Accommodation				
2.1 Hotel Accommodation	56901	Hotel Accommodation Services	5690	Accommodation Services
	56904	Guest House Accommodation Services	5690	Accommodation Services
2.2 Motel Accommodation	56902	Motel Accommodation Services	5690	Accommodation Services
2.3 Other Accommodation	56903	Accommodation from Tourist Cabins	5690	Accommodation Services
	56906	Accommodation from Camping Grounds and Trailer Parks	5690	Accommodation Services
	56907	Accommodation from Outfitters	5690	Accommodation Services
	56908	Accommodation from Other Recreational and Vacation Camps	5690	Accommodation Services
3. Food and Beverage Services				
3.1 Meals from Accommodation Services	57001	Meals from Accommodation	5700	Meals
3.2 Meals from Food and Beverage Services	57002	Meals from Food and Beverage Services	5700	Meals
3.2 Alcoholic Beverages from Accommodation Services	57101	Service Margin on Alcoholic Beverages Sold by Accommodation Services	5710	Service Margin on Alcoholic Beverages
	11601	Cost of Alcoholic Beverages	1160	Distilled Alcoholic Beverages, Including Coolers
			1190	Beer, Including Coolers
			1200	Wine, Including Coolers
3.3 Alcoholic Beverages from Food and Beverage Services	57102	Service Margin on Alcoholic Beverages Sold by Food and Beverage Services	5710	Service Margin on Alcoholic Beverages
	11602	Cost of Alcoholic Beverages	1160	Distilled Alcoholic Beverages, Including Coolers
			1190	Beer, Including Coolers
			1200	Wine, Including Coolers
3.4 Meals and Alcoholic Beverages from Other Tourism Industries	57003	Meals from Other Tourism Industries	5700	Meals
	57103	Service Margin on Alcoholic Beverages Sold by Other Tourism Industries	5710	Service Margin on Alcoholic Beverages
	11603	Cost of Alcoholic Beverages	1160	Distilled Alcoholic Beverages, Including Coolers
			1190	Beer, Including. Coolers
			1200	Wine, Including Coolers
4. Other Tourism Commodities				
4.1 Recreation and Entertainment	56101	Museums and Archives	5610	Education Services
	56420	Motion Picture Exhibition	5642	Motion Picture Exhibition
	56511	Horse Racing	5651	Lotteries, Gambling and Racetracks
	56512	Other Racing	5651	Lotteries, Gambling and Racetracks
	56513	Lotteries and Gambling	5651	Lotteries, Gambling and Racetracks
	56521	Theatrical and Staged Entertainment	5652	Other Recreational Services
	56522	Professional Sports Entertainment	5652	Other Recreational Services
	56523	Golfing	5652	Other Recreational Services
	56524	Curling	5652	Other Recreational Services
	56525	Skiing	5652	Other Recreational Services
	56526	Boat Rentals and Marina Services	5652	Other Recreational Services
	56527	Other Sports and Recreational Clubs	5652	Other Recreational Services
	56528	Bowling and Billiards	5652	Other Recreational Services
	56529	Amusement Parks, Carnivals and Circuses	5652	Other Recreational Services
	56530	Dance halls, Studios and Schools	5652	Other Recreational Services
	56531	Coin-operated Amusement Services	5652	Other Recreational Services
	56532	Roller Skating	5652	Other Recreational Services
	56533	Botanical and Zoological Gardens	5652	Other Recreational Services
	56534	Other Amusement and Recreational Services	5652	Other Recreational Services
4.2 Travel Agency Services	53204	Retail Travel Services-cruise Packages	5320	Other Services Incidental to Transport
	53205	Retail Travel Services-other Packages	5320	Other Services Incidental to Transport
	53211	Wholesale travel services-cruise packages	5320	Other Services Incidental to Transport
	53212	Wholesale travel services-other packages	5320	Other Services Incidental to Transport
4.3 Convention Fees	57601	Convention Fees, Other Services	5760	Other Services to Business & Persons
	57801	Convention Fees, Association Dues	5780	Trade Association Dues

APPENDIX B

Definition of the *Tourism Industry*

The following list includes the industries, as defined in the Standard Industrial Classification (1980 SIC), that form the *tourism industry* in the TSA and the NTI. A tourism industry is so considered in the TSA and the NTI if it provides commodities to visitors and if, without tourism, it would cease to exist or would continue to exist only at a significantly reduced level of activity. The tourism industries are the major suppliers of tourism commodities. The industries are taken from a list established during the 1980's by the National Task Force on Tourism Data. The Task Force included representatives from the industries, associations and academic institutions interested in tourism, and provincial and federal government officials.

Tourism industries are not identified separately in the Canadian statistical system. Revenues and expenses by commodity, as well as number of employed persons, must be extracted for each industry to derive a measure of the production and employment generated by tourism within the *tourism industry*. For example, industry 4511 includes both passenger and merchandises transportation. When the purpose is to measure tourism in the TSA and the NTI, only the production and employment associated with the passenger portion purchased by visitors is taken into account. The same approach is used for each industry in the following list.

1980 SIC industries which define the tourism industries of the TSA and the NTI:

Air Transportation

- 4511 - Scheduled air transport industry
- 4512 - Non-scheduled air transport, chartered, industry

Railway Transportation

- 4531 - Railway transport industry

Water Transportation

- 4541 - Freight and passenger water transport industry
- 4542 - Ferry industry
- 4549 - Other water transport industries

Bus Transportation

- 4571 - Urban transit systems industry
- 4572 - Interurban and rural transit systems industry

- 4574 - Charter and sightseeing bus service industry

Taxicabs

- 4581 - Taxicab industry
- 4575 - Limousine service to airports and stations industry

Vehicle Rental and Leasing

- 9921 - Automobile and truck rental and leasing services

Hotels

- 9111 - Hotels and motor hotels
- 9114 - Guest houses and tourist homes

Motels

- 9112 - Motels

Campgrounds

- 9131 - Camping grounds and travel trailer parks

Other Accommodation

- 9113 - Tourist courts and cabins
- 9141 - Outfitters (hunting and fishing camps)
- 9149 - Other recreation and vacation camps

Food and Beverage Services

- 9211 - Restaurants, licensed
- 9212 - Restaurants, unlicensed (including drive-ins)
- 9213 - Take-out food services
- 9221 - Taverns, bars and night clubs

Recreation and Entertainment

- 8551 - Museums and archives
- 9621 - Regular motion picture theatres
- 9622 - Outdoor motion picture theatres
- 9629 - Motion picture exhibition
- 9631 - Entertainment production companies and artists
- 9639 - Other theatrical and staged entertainment services
- 9641 - Professional sports clubs
- 9643 - Horse race tracks
- 9644 - Other race tracks
- 9651 - Golf courses
- 9652 - Curling clubs
- 9653 - Skiing facilities
- 9654 - Boat rentals and marinas
- 9661 - Gambling operations

- 9691 - Bowling alleys and billiard parlours
- 9692 - Amusement park, carnival and circus operation
- 9694 - Coin-operated amusement services
- 9695 - Roller skating facilities
- 9696 - Botanical and zoological gardens
- 9699 - Other amusement and recreational services n.e.c.
- 9999 - Other services n.e.c.

Travel Services

- 9961 - Ticket and travel agencies
- 9962 - Tour wholesalers and operators


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