Traveller Accommodation Service Price Index (TASPI)

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Introduction

The paper provides an overview of Statistics Canada's **Traveller Accommodation Services Price Index (TASPI)** including data sources, methods and future development. TASPI is a monthly series measuring price changes for short-term accommodation services, excluding taxes and other related services, for two client groups, leisure and business.

The first section describes the industry covered by the survey. The second section summarizes the pricing measurement. The third section concludes on measurement evaluation including descriptions of several new initiatives plus future sources for data collection.

1. Descriptions and characteristics of the industry

1.1 Definition of the industry

The **Traveller Accommodation Industry** covers North American Industry Classification (NAICS) 7211. This industry is defined as follows:

Hotels (except casino hotels) and motels (NAICS 72111, ISIC I5510)

This industry comprises establishments primarily engaged in providing short-term lodging in facilities known as hotels, motor hotels, resort hotels and motels. These establishments may offer food and beverage services, recreational services, conference rooms and convention services, laundry services, parking and other services.

Casino hotels (NAICS 72112, ISIC I5510)

This industry comprises establishments primarily engaged in providing short-term lodging in hotel facilities with a casino on the premises. The casino operation includes table wagering games and may include other gambling activities, such as slot machines and sports betting. These establishments generally offer a range of services and amenities, such as food and beverage services, entertainment, valet parking, swimming pools, and conference and convention facilities.

Other traveller accommodation (NAICS 72119, ISIC I5510)

This industry comprises establishments, not classified to any other industry, primarily engaged in providing short-term lodging.

The classification of the traveller accommodation industry is straight forward and there are relatively few issues.

The **Traveller Accommodation Service Price Index (TASPI)** only covers **Hotels (except casino hotels) and motels (NAICS 72111, ISIC I5510).**

1.2 Market conditions

The total gross domestic product (GDP) for the Accommodation Services industry (NAICS 7211) in 2018 was $12.4 billion. This accounted for about 0.64% of all industries in Canada. Since 2012, the Accommodation Services industry has accounted for approximately 0.90% of all service-producing industries with a peak share in 2012 (0.93%).

Table 1 - Size of the Accommodation Services Industry, Canada *(in CAD x 1,000,000)*

	2012	2013	2014	2015	2016	2017	2018
All Industries	1,710,433	1,753,922	1,804,500	1,819,352	1,839,239	1,898,412	1,938,526
Service-Producing Industries	1,195,808	1,221,949	1,253,250	1,271,585	1,296,756	1,332,464	1,359,544
Accommodation Services	11,109	11,300	11,487	11,170	11,307	11,718	12,413

Source: Statistics Canada, table 36-10-0449-01
Calculated as an annual average

Table 2 - Portion of Accommodation Services Industry in GDP, Canada *(in percent)*

	2012	2013	2014	2015	2016	2017	2018
Portion of all Industries	0.65	0.64	0.64	0.61	0.61	0.62	0.64
Portion of Service Industries	0.93	0.92	0.92	0.88	0.87	0.88	0.91

The number of employees in the Accommodation Services industry in 2018 was 190,850 down from 196,510 in 2017 and a peak of 201,295 employed in 2012.

Table 3 - Number of jobs in the Accommodation Services Industry, Canada

	2012	2013	2014	2015	2016	2017	2018
Total number of jobs	201,295	193,495	186,975	183,805	190,775	196,510	190,850
Number of employee jobs	197,130	188,340	181,570	177,835	184,475	190,220	184,790
Number of self-employed jobs	4,165	5,155	5,405	5,970	6,300	6,290	6,060

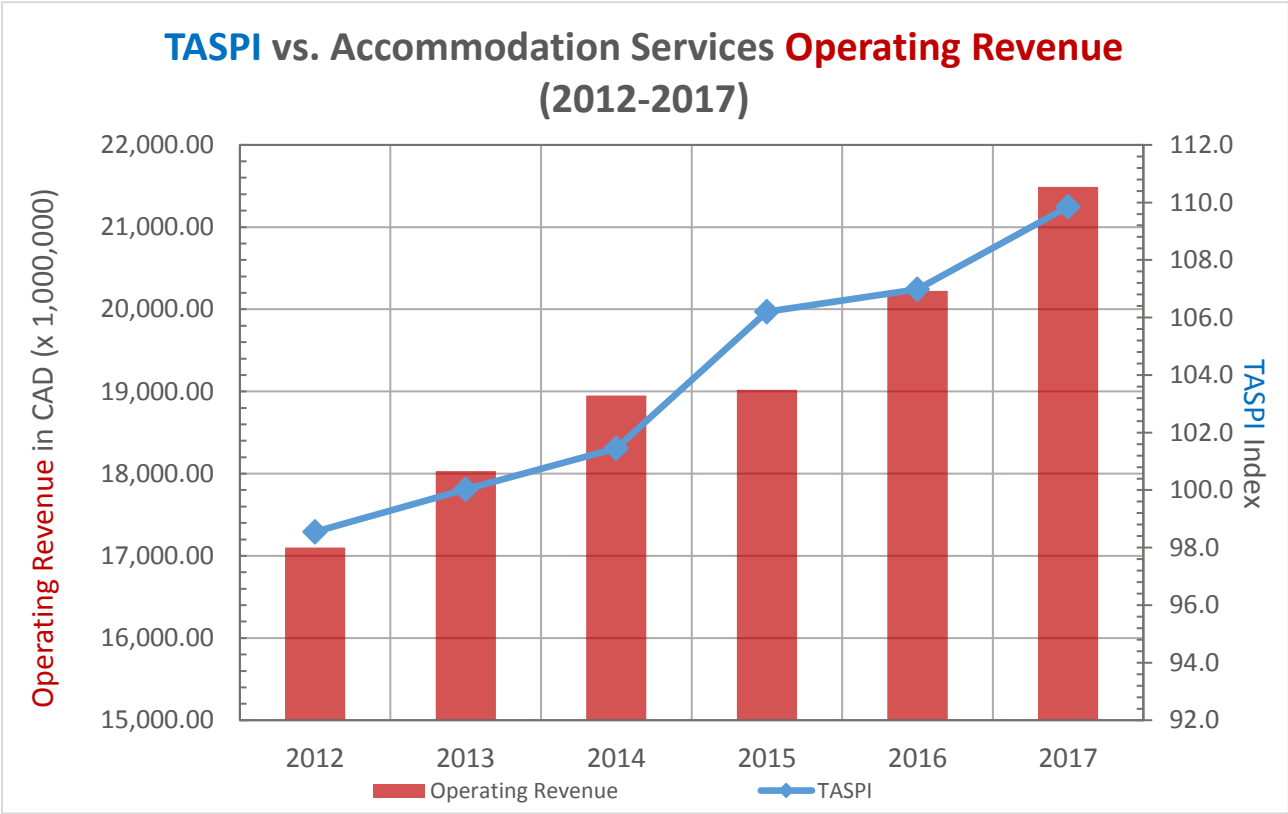*Source: Statistics Canada, table 36-10-0489-01*

Full-time workers account for on average 78% of the job market for Accommodation Services industry since 2012. This is slightly below the average of 81% for all industries and above the aggregated NAICS 72 level, accommodation services combined with food services, which is 58%. Having a higher portion of full-time workers generally has a positive impact on productivity since the turnover rates are lower.

Operating revenue for accommodation services (NAICS 7211) reached $21.5 billion in 2017 based on the most recent survey data available. **Hotels (except casino hotels) and motels (NAICS 72111)** had an operating revenue of $17.5 billion or 81% of the total operating revenue for the industry. This portion of the industry is the target population for the **Traveller Accommodation Service Price Index (TASPI)**.

As seen in figure 1, from 2012 to 2017 TASPI correlates with the overall operating revenues of the accommodation service industry in Canada as both have been following an upward trend.

Growth of operating revenue slowed down in 2015 compared to TASPI, but recovered in the following year, leaving the overall trends for both very similar.

Figure 1 – Traveller Accommodation Services Price Index vs. Operating Revenue

Source: Statistics Canada, table 33-10-0102

2. General framework for TASPI measurement

The price for the **Traveller Accommodation Service Price Index (TASPI)** is defined as a transaction price and represents the amount received by an establishment (excluding taxes) for offering short-term accommodation services (overnight or short stay) for a specific room and for two determined client groups, business and leisure.

The price data are collected monthly from the Internet with phone follow-up for obtaining unavailable prices. The phone follow-up needed to be re-introduced as using internet only collection resulted in missing prices on rooms that had been sold out.

Each collected price corresponds to a booking for the same establishment and room specifications made two weeks in advance of the occupancy date. This helps to eliminate fluctuations in price resulting from varying advance-booking periods for different reference periods. The price collected represents the amount received by an establishment (excluding all taxes) for offering short-term accommodation services (overnight or short stay) for a specific room for leisure and business client groups. For the leisure group, the price represents the regular or standard daily rate for a double occupancy (two adults) room booked on the third Saturday of the month. While for the business group, the price represents the business or corporate daily rate for a single occupancy (one adult) room booked on the third Wednesday of the month.

The weights used for the TASPI estimation correspond to the aggregated revenues calculated at the geographical stratum level. The weights come from the Statistics Canada Annual Survey of Services Industries - Accommodation Services (survey number 2418). The weight reference period is currently 2013. Weights are updated during a sample/basket update which typically occurs every 5 years. The last update occurred with the release of first quarter 2016 data.

Estimates are produced by calculating a weighted average of price relatives, which are chained together to form an index series. The TASPI is a Laspeyres chain linked index.

The unweighted geometric mean formula is used to calculate average price changes at the lowest aggregation level.

Time and effort is devoted to keeping the specifications constant such that only the pure changes in price are tracked. Some information is also collected in order to ensure, as much as possible, that the collected data correspond to the same specifications over time. This constant quality price then feeds into the Canadian System of Macroeconomic Accounts (CSMA) estimates of constant dollar Gross Domestic Product (GDP).

The index is not subject to revision and is not seasonality adjusted.

TASPI follows a seasonal pattern where prices increase in the spring and summer months and subsequently decrease in the fall and winter months. Other factors such as events or conferences (i.e. the 2010 Winter Olympics in Vancouver) can attract more traffic to the respective area, which can drive up accommodation prices.

3. Evaluation of Measurement and New Initiatives

There are several recently completed and on-going projects that are focused on evaluating and improving the accuracy of statistics on the short term accommodation industry at Statistics Canada. The following is a brief description on several initiatives undertaken at Statistics Canada and plans for the future.

3.1. An Analysis of Price Movements for Short-Term Accommodation through Time.

This research objective was to determine if collecting prices in advance of the reference period can improve the quality of **Traveller Accommodation Service Price Index (TASPI)**. Current period and future period prices for the same accommodations were collected from the internet. The index based on future period prices was compared to the current index.

During the analysis, two basic questions were studied. Were prices collected in advance of the reference period good predictors of prices and what time period is the best predictor?

The results concluded that the method of using advanced internet collection for price substitution had an effect on the index. Generally speaking, the ability to replace missing prices due to price unavailability with prices collected in advance showed more significant movement, which in turn could indicate that price flattening did occur with missing data. The effect was most pronounced on the index when the prices were high due to a higher demand and therefore room prices were often unavailable. This difference varied by region, season and type of class of room (business vs. leisure). The use of the advanced collected prices should increase the accuracy of the index but quantitative conclusions were difficult to measure.

The results for using the advance collection method to predict prices showed that patterns were not consistent. Therefore, a one-size-fits-all national pricing pattern for all reference months would be inadvisable. Instead, individual pricing patterns for different reference months and regions would be more appropriate. A larger data set and further analysis would be needed to investigate this in more detail.

Overall, advanced collection would be useful for price substitution, data confrontation and as an indicator of future events.

3.2. Measuring private short-term accommodation in Canada

A second initiative to help improve measurement for the short term accommodation industry for the Canadian System of Macroeconomic Accounts (CSMA) was to measure the private short-term accommodation in Canada.

In summary, in an effort to appropriately measure emerging platform-enabled household activities, Statistics Canada has sought alternative measurement methods to help understand the overall impact of this market on the Canadian economy.

New technologies and innovative platforms are rapidly changing the way we interact with one another, how we buy products and how these goods and services are delivered to us. Digitization has been accompanied by the emergence of transformative business models, such as digital intermediary platforms, which connect buyers and sellers in various types of markets. Some of these platforms enable individuals to leverage under-utilized assets, such as a house or car, to provide market output. While these types of peer-to-peer services have always existed, the scale and pace at which they are occurring has been increasing since the emergence of intermediary platforms such as *Airbnb*, *VRBO* and others.

The private short-term accommodation market has recently seen tremendous growth. According to a report by CBRE1 (2017), Airbnb has grown globally from 21,000 guests in 2009 to over 80 million in 2016. In Canada, if Airbnb listings are combined with hotel accommodations, Airbnb accounted for roughly 18% of total traveller accommodation in 2016 (CBRE, 2017). This is almost double the market share from 2015 (CBRE, 2017; HLT Advisory, 2016).2 Private short-term accommodation activities are largely focused around the rental of houses, apartments or rooms within residential properties. This growth in private short-term accommodation services over the last few years has raised many public policy questions. What is the impact of these activities on housing and rental markets? How should these markets be regulated and taxed? Do they pose concerns for public safety?

In addition to the policy questions raised, these new platform-enabled markets present notable measurement challenges from a statistical perspective. Tax data, business and household surveys, which are the main source of data used throughout the Canadian System of Macroeconomic Accounts (CSMA), are not designed to capture this type of activity. A lack of detail, classification challenges and possible under reporting of revenues means that the CSMA may not accurately capture this activity using these traditional sources. This paper is available on-line at https://www150.statcan.gc.ca/n1/pub/13-605-x/2019001/article/00001-eng.htm

3.3. Use of the Application Programming Interfaces (APIs) for TASPI data collection

An API is a set of rules that allows for machine-to-machine communication. APIs force developers to organize their code to a predefined structure of inputs and outputs. This allows for code to be modular and for programs to hide their technical complexities. There are several APIs which allow users to gather vast amount of structured data available on the internet.

Hotel aggregator websites like *Expedia.com*, *TripAdvisor.com* and *Hotels.com* are some potential API data sources that could supply accommodation price data.

Some of the advantages for TASPI to use the API data sets include:

1. *Speed* – APIs are incredibly fast tools for accessing data. An individual request yielding 10 to 50 results only takes several seconds.
2. *Hotel Coverage* – Our current API providers, *Travelport* and *Sabre*, each contain price information for thousands of hotels within Canada.
3. *City Coverage* – The combination of the API's speed and the number of hotels it tracks means that we could easily increase the number of hotels that we sample.
4. *Customizability* - The API offers the ability to customize our request parameters to filter the results we receive. We can choose the number of guests, the room type, dates of stay, and more.
5. *Cost savings* – The cost savings benefits offered by APIs can be a major advantage over the current data collection method. Each request generally costs between USD$0.02 and $0.08 with multiple items returned.

In conclusion, APIs are a new potential data-source that offer a multitude of advantages for collection methods. The existence of APIs for accommodations demonstrate that they are a source that could be integrated into TASPI. Statistics Canada <u>will</u> take advantage of the API data sets. Presently, Statistics Canada is drafting the methodology and setting up two APIs, *Travelport* and *Sabre*, with a target to deploy the new collection tool in the fall of 2020.

Conclusion

Statistics Canada will continue to evaluate and refine the accuracy of statistics on the short-term accommodation industry. The **Traveller Accommodation Service Price Index (TASPI)** will take advantage of the two API data sets as new potential data-sources, which will further open TASPI towards new ideas and potential products. This will also move TASPI away from the traditional statistics-gathering methods as they are no longer sufficient to provide Canadians the type of information needed in a timely manner. Also, Statistics Canada will continue to monitor the private short-accommodation market (*Airbnb*, *VRBO* and others) and properly account for this market in our statistics, TASPI included.

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