The creation of the "Charges for package tours to overseas" index in Japan's CPI after the COVID-19 pandemic

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"Charges for package tours to overseas" index in the J-CPI

- In Japan's Consumer Price Index (J-CPI), "Charges for package tours to overseas" are surveyed through web scraping. *Detailed formula: page 13

  - 6 months of prices collected 2-7 months before the departure date are used.
  - Quality is fixed by selecting the same grade of airline and accommodation facility.
  - Destinations are selected from representative regions and cities with a large number of Japanese visitors. In principle, two or more cities are selected from each region.
  - Travel agencies with a large share of transaction volume are preferentially selected.

Image of web-scraping usage (hotel charges)

1
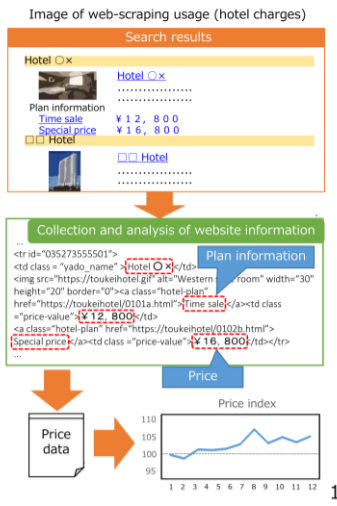

During the COVID-19 pandemic

- International tour packages were effectively suspended starting in 2020 due to the COVID-19 pandemic.
- Sales were suspended or greatly reduced due to prolonged cancellations. Stable collection of charges for package holiday became difficult.

→ After January 2021, the index was supplemented by substituting the value for the same month in 2020.

"Charges for package tours to overseas" index (2019-2023)

2
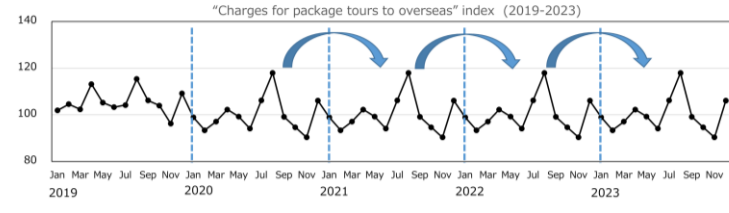
Circumstances surrounding tour packages in 2023

- The number of Japanese nationals departing from Japan gradually recovered.
  - The number of Japanese people exiting in September 2023 was about 60% of that in the same month of 2019.
- In 2023, it was found that the same quality of overseas packaged tour price data could now be obtained continuously over several months.

Number of Japanese nationals departing from Japan

Immigration Services Agency "Immigration Control Statistics"
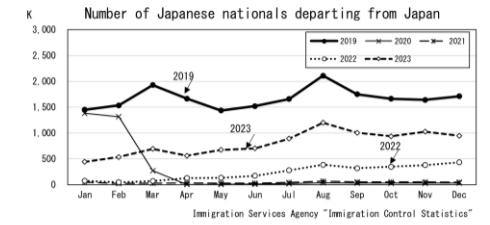
→ It was a challenge to resume collecting overseas packaged tour prices through web scraping and reflect them in the J-CPI.

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Issues considered in order to resume the compilation of the "Charges for package tours to overseas" index

Several issues needed to be considered in order to resume the compilation of the "Charges for package tours to overseas" index.

1. Quality adjustment
2. Weights
3. Method of linking

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Issue 1: Quality adjustment

1. Quality adjustment
- The two characteristics that have been considered in the J-CPI are a) airlines and b) hotel grades.
- a): Due to the bankruptcies of some airlines and transfers to other companies, travel agencies changed their business relationships with airlines.
- b): Lists of hotel grades employed by each travel agency are still available.

→ a): We changed the airlines used in the survey and adjusted the price ratios of the old and new airlines based on a month in which the prices of both airlines could be obtained.

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Issue 2: Weights

2. Weights
- The weights are estimated by combining a) destinations and b) travel agencies.
  - a) Since the transaction volume by travel destination is subject to seasonal fluctuations, annual totals are used.

→ As both the quantity and quality of the data were insufficient to create weights for each destination country based on the composition ratio of the transaction volume, we estimated the index for each month in 2023 under the current 2020-base weights.

$$I_{t,a} = \frac{\sum_b I_{t,a,b} w_{0,a,b}}{\sum_b w_{0,a,b}}$$
$$I_t = \frac{\sum_a I_{t,a} w_{0,a}}{\sum_a w_{0,a}}$$

t: Comparison period, 0: Base period, a: Travel destination, b: Travel agency w(0,a,b): Transaction volume ratio by travel agency at each travel destination w(0,a): Transaction volume ratio by travel destination

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Index estimation result

- Based on issues 1 and 2, the index was estimated as follows.

"Charges for package tours to overseas" index
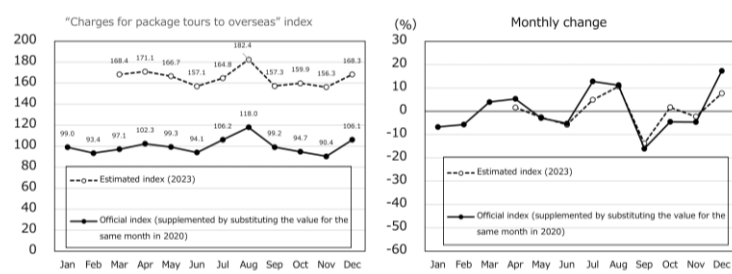
Monthly change

→ Estimated index: about 160-180 (2020=100)
Monthly changes using the index were generally in line with those in 2020.

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Issue 3: Method of linking

3. Method of linking
- The following two methods were considered for linking the current official value (supplemental value) and the index created using prices collected through web scraping.

- a) Linking directly
  - The index is linked to the supplemental value without adjustment.
- b) Linking to reflect the year-on-year change
  - The index is linked after adjusting the index to match the year-to-year ratio between indices created using the prices after price collection resumes.

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Issue 3: Method of linking

Features and notes about the two linking methods are as follows.

	a) Linking directly	b) Linking to reflect the year-on-year change
Features	• The index level after the switchover reflects the current charges for package tours to overseas. →Useful for long-term analysis (e.g., comparison with 10 years ago)	• The year-on-year change after the switchover reflects price movements over the one-year period from the same month in 2023 to the current month in 2024.
Notes	•The year-on-year change after the switchover includes changes over multiple years from 2021 to the time of the switchover. →The year-on-year change and contribution to the upper-category indices of charges for package tours to overseas are excessive.	•The index level after the switchover is lower than the current price level of charges for package tours to overseas.

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Issue 3: Method of linking

Indices adopting each method were calculated as follows.
*The indices after March 2024 are for illustrative purposes only.

a) Linking directly

b) Linking to reflect the year-on-year change
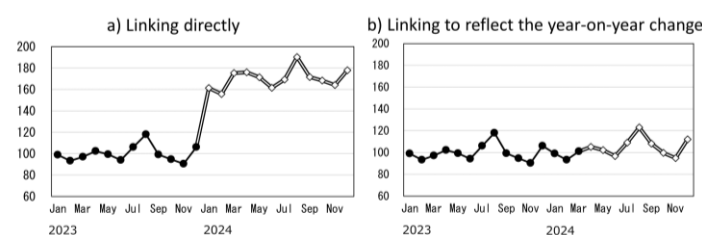
→ Taking into account the opinions of the study committee members, "a) Linking directly" was adopted because of the importance of showing current price levels.

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Determination of the timing of the switchover

- Since the CPI is an important indicator used in many areas, including various economic policies and the deflator of economic statistics, it was necessary to carefully consider the timing of the switchover.
- The study committee suggested that the switchover be made as soon as possible.

→ Starting with the January 2024 results, which mark the beginning of the 2024 results, the index has been switched to the one using prices collected through web scraping.

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Explanation for the switchover at the time of publication

- The switchover was carefully explained to each party.
  - The mass media was briefed on the switchover during a press briefing at the time of publication.
  - The general public was informed by posting a Q&A about the switchover on the Statistics Bureau of Japan's website (below).

https://www.stat.go.jp/data/cpi/4-1.html

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Ref.: Methodology of compilation of "Charges for package tours to overseas"

(1) Reservation time and tour plan
   The prices of tour plans (package tours with transportation and accommodations only) that do not include a sightseeing tour are adopted for all days of each month in line with the plan release time at travel agencies and the purchase time of consumers*.

(2) Travel destination
   Destinations are selected from representative regions (Asia, North America, Europe, and Oceania) and cities with a large number of Japanese visitors. In addition, since charges for package tours are quite susceptible to regional situations, two or more cities are selected in principle from each region in order to grasp monthly price trends as stably as possible.

(3) Travel agency
   Based on the transaction volume of travels handled by major travel agencies, travel agencies with a high share of transaction volume are preferentially selected.

(4) Airline and accommodation facility, etc.
   As for the airlines that provide transportation services and for the grades of accommodation facilities, those that are stably supplied in each region and handled in large quantities are selected based on the statuses of travel handled by each travel agency.

(5) Method of index calculation
   Price indices are calculated by following the steps 1) to 3) below.
   1) By simply averaging by the number of tour plans, the average prices are calculated for each travel destination, travel agency, and departure date.

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Ref.: Methodology of compilation of "Charges for package tours to overseas"

$$P_{t,a,b,c} = \frac{\sum_d P_{t,a,b,c,d}}{n_{t,a,b,c}}$$

t: Comparison period, 0: Base period, a: Travel destination, b: Travel agency, c: Departure date, d: Tour plan

2) By simply averaging by the number of days in the current month, the monthly average price is calculated for each travel destination and travel agency. In addition, by dividing by the price in the base period, the index for each travel destination and travel agency is calculated.

$$P_{t,a,b} = \frac{\sum_c P_{t,a,b,c}}{n_{t,a,b}} \qquad I_{t,a,b} = \frac{P_{t,a,b}}{P_{0,a,b}} \times 100$$

t: Comparison period, 0: Base period, a: Travel destination, b: Travel agency, c: Departure date

3) The weighted average is calculated by using the transaction volume ratio by travel agency ($w_{0,a,b}$) at each travel destination, and the index for each travel destination is calculated. Finally, the index is calculated by averaging with weights using the transaction volume ratio by travel destination ($w_{0,a}$).

$$I_{t,a} = \frac{\sum_b I_{t,a,b} w_{0,a,b}}{\sum_b w_{0,a,b}} \qquad I_t = \frac{\sum_a I_{t,a} w_{0,a}}{\sum_a w_{0,a}}$$

t: Comparison period, 0: Base period, a: Travel destination, b: Travel agency

https://www.stat.go.jp/english/data/cpi/pdf/2020basea3.pdf

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Thank you

mascot of Statistics Bureau of Japan
"Census-Kun" and "Mirai-chan"
(Master. Census)   (Miss. Future)

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