How to estimate economic effect of tourism by the input-output table

Senior Researcher, Social and Public Management Research Division, Mitsubishi Research Institute, Inc.

Kazuyuki Tsuchiya
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5. Estimate of the economic ripple effect in Nara Tourism Statistics Week
   (Request for cooperation in a questionnaire survey)
1. Significance of estimate of the economic ripple effect of tourism

(a) Estimate on effect of event invitation
   • Estimate on the effect of inviting a tourism event to the region.

(b) Preparation of documents for budget session with the government and municipalities
   • Prepare the documents about the economic effect as a part of the budget session material to invite tourism events and to construct MICE facilities.

(c) Verification of the effect of holding and inviting the events
   • Verify the effect of holding and inviting the events.

(d) Preparation of PR materials for organizers and exhibitors
   • Prepare materials to help organizers and exhibitors understand the effect of tourism events.
2. Analysis of economic ripple effect of tourism in Japan

“Research study on economic impacts of tourism in Japan" (JTA)

- The Ministry of Land, Infrastructure, Transport and Tourism conducted a "Research study on economic impacts of tourism in Japan (I, II, III)" for three years from FY 2000 to 2002 in order to review TSA introduction and examine the economic effect of travel and tourism consumption in Japan.

- In FY 2003, the Ministry conducted a "National tourism survey", as an approved statistics survey, and the results were analyzed and reviewed in order to verify the rationality of survey items and survey method for estimation based on TSA in Japan. The domestic travel and tourism consumption and the details of FY 2003 were identified to estimate the economic effect.

- Since then, the economic effect of travel and tourism consumption in Japan has been estimated every year.
2. Analysis of economic ripple effect of tourism in Japan

“Research study on economic impacts of tourism in Japan” (JTA)

Economic ripple effect of tourism consumption in Japan (CY 2012)

Induced domestic production: 46.7 trillion yen
(Percentage in the production activity in Japan: 5.2%)

Source: Research study on economic impacts of tourism in Japan (Japan Tourism Agency, March, 2014)
3. Analysis tools and available data for the economic ripple effect

General method

- Input-output analysis using the **national input-output table**
- Input-output analysis using the **input-output table by prefecture**

Figure: Ripple flow of input-output analysis

1) Estimates of input "(a) output (direct effect)", "(b) added value", and "(c) intermediate input"
The direct effect ((a) output) of tourism consumption is estimated by a questionnaire survey. Additionally, the increase in "(b) added value" and "(c) intermediate input" are estimated by multiplying the "(a) output" by the added value coefficient and input coefficient.

2) Estimate of "(d) production-induced"
After calculating the domestic self-sufficiency by multiplying the "(c) intermediate input" by the domestic self-sufficiency rate by industry, the "(d) production-induced" by industry is obtained with the Leontif inverse matrix derived from the input-output table.

3) Estimate of "(f) increase of employee income"
The "(e) added value" is calculated by multiplying "(d) production-induced" by the added value coefficient. The "(f) increased value of employee income" is obtained by multiplying the ratio of employee income by the sum of the "(b) added value" and "(e) added value".

4) Estimate of "(g) increase of final demand"
The "(g) increase of final demand" is calculated by multiplying the "(f) increase of employee income" by the consumption conversion coefficient (consumption propensity).

5) Estimate of "(h) production-induced"
After calculating the domestic self-sufficiency by multiplying the "(g) increase of final demand" by the consumption expenditure ratio by industry, the "(d) production-induced value" by industry is obtained with the Leontif inverse matrix derived from the input-output table.
3. Analysis tools and available data for the economic ripple effect

**Independently developed tool**

(1) Easy measurement model for estimating the economic ripple effect of MICE by region (JTA)

- The Japan Tourism Agency (JTA) developed "Simple measurement model (old model)", for international conferences in FY 1999, and for MICE as a whole in FY 2000, and widely released them to public with the aim to simplify the measurement of the economic ripple effect of MICE.
  
  * The model is optimized as a tool in Excel format for general use while the basic estimation method is based on the aforementioned input-output analysis.

- The understanding of the importance on the measurement of the economic ripple effect of MICE was further deepened by the old model. However, there were requests on the improvement of model functions, such as enabling the calculation of economic ripple effect focused on particular regions.

- In response, functionality of the "Simple measurement model (old model)" was expanded to enable the calculation of the economic ripple effect by "nation","prefecture"and "international convention city (52 cities nationwide)" by using input-output tables of the respective regions, and a "Simple measurement model by region (new model)" was developed.
3. Analysis tools and available data for the economic ripple effect

Independently developed tool

(1) Easy measurement model for estimating the economic ripple effect of MICE by region (JTA)

Source: Introduction of "Simple measurement model by region" for measurement of the economic ripple effect of MICE (JTA)
3. Analysis tools and available data for the economic ripple effect

Independently developed tool

(2) Interprefectural input-output analysis model (Mitsubishi Research Institute, Inc.)

- For further detailed economic ripple effect by region, the Mitsubishi Research Institute has independently developed an interprefectural input-output table since 1995, which administrative institutions have not developed.

- The Institute has developed an interprefectural input-output analysis model using the table.

- Interprefectural trading goods and services are indicated in the interprefectural table. Therefore, the interprefectural input-output analysis model enables the estimation of the ripple effect by prefecture, not only for the host prefecture of the tourism event but also for the stimulated demand (direct effect) in other prefectures. In addition, the model takes into account the rebounding effect, the effect that reflects the effect of the hosting city through local trade to other areas and boosts demand to promote economic effect in the hosting city.
3. Analysis tools and available data for the economic ripple effect

Independently developed tool

(2) Interprefectural input-output analysis model (Mitsubishi Research Institute, Inc.)

Figure: Difference between the input-output table by prefecture and interprefectural input-output table
3. Analysis tools and available data for the economic ripple effect

Available data (input-output table)
In Japan, the following input-output table can be applied for economic effect analysis.

(1) Input-output table (national) (Ministry of Internal Affairs and Communications)
- Created in order to reveal the overall economic structure of Japan in the target year, and provide basic data for economic ripple effect analysis and the revision of various economic indicators.
- Created every five years, in principle.

(2) Input-output table by prefecture (prefecture)
- Input-output table created for each prefecture (created based on government manual). Describes trade of goods and services within the prefecture between industries and between industry and household, outside the prefecture and overseas.
- Created every five years, in principle.

(Note 1) The table may be extended as appropriate, during the five years' time.
(Note 2) Input-output tables by city may be created for ordinance-designated cities.
(Note 3) For prefectures like Mie, input-output tables of divided regions within the prefecture may be created.
3. Analysis tools and available data for the economic ripple effect

Available data (tourism related statistics)
Following statistics may be used to estimate the consumption per unit of tourism.

(1) National tourism survey (JTA)
- Conducted in order to understand the nationwide travel status in Japan.
- Continuously conducted since FY 2003, and expanded target to all ages since the survey in CY 2009.
- The survey target includes approx. 25,000 Japanese citizens living in Japan extracted from the basic resident register.

(2) Consumption Trend Survey for Foreigners Visiting Japan (JTA)
- Conducted in order to understand the consumption status of foreign visitors and create basic data for tourism administration.
- The survey is conducted every quarter, (January-March, April-June, July-September and October-December) starting from April-June, 2010.
- The survey target includes foreign visitors departing from Japan except for transit passengers, crew and foreigners staying in Japan for over a year, and is conducted with the aim to achieve a total of 6,600 samples per quarter (26,400 samples per year).
### 3. Analysis tools and available data for the economic ripple effect

**Expenditure paid per foreign tourist before and during visiting Japan in 2013 (by nationality and region)**

<table>
<thead>
<tr>
<th>Nationality and region</th>
<th>Number of samples</th>
<th>a. Trip expenditure during visit to Japan (yen/person)</th>
<th>b. Expenditure before departure (yen/person)</th>
<th>c. Total expenditure (=a. + b.) (yen/person)</th>
<th>d. Average number of stays</th>
<th>e. Trip expenditure per stay (=b./d.) (yen/stay)</th>
<th>f. Total expenditure per stay (=c./d.) (yen/stay)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All nationalities and regions</td>
<td>19,787</td>
<td>107,687</td>
<td>115,837</td>
<td>216,523</td>
<td>11.6</td>
<td>9,700</td>
<td>18,131</td>
</tr>
<tr>
<td>Korea</td>
<td>6,768</td>
<td>48,224</td>
<td>66,204</td>
<td>114,429</td>
<td>6.5</td>
<td>10,120</td>
<td>17,491</td>
</tr>
<tr>
<td>Taiwan</td>
<td>5,271</td>
<td>80,255</td>
<td>80,009</td>
<td>160,263</td>
<td>6.4</td>
<td>12,440</td>
<td>24,918</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>1,664</td>
<td>85,164</td>
<td>113,198</td>
<td>198,362</td>
<td>5.8</td>
<td>13,941</td>
<td>23,027</td>
</tr>
<tr>
<td>China</td>
<td>3,966</td>
<td>90,389</td>
<td>139,111</td>
<td>279,500</td>
<td>19.8</td>
<td>9,529</td>
<td>14,083</td>
</tr>
<tr>
<td>Thailand</td>
<td>1,140</td>
<td>105,781</td>
<td>105,085</td>
<td>210,866</td>
<td>10.3</td>
<td>10,172</td>
<td>20,411</td>
</tr>
<tr>
<td>Singapore</td>
<td>621</td>
<td>113,679</td>
<td>135,381</td>
<td>249,060</td>
<td>7.7</td>
<td>17,601</td>
<td>32,380</td>
</tr>
<tr>
<td>Malaysia</td>
<td>505</td>
<td>139,267</td>
<td>111,029</td>
<td>250,316</td>
<td>12.5</td>
<td>9,512</td>
<td>20,053</td>
</tr>
<tr>
<td>India</td>
<td>670</td>
<td>115,829</td>
<td>138,523</td>
<td>254,352</td>
<td>13.3</td>
<td>5,426</td>
<td>9,964</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>819</td>
<td>191,544</td>
<td>151,069</td>
<td>342,614</td>
<td>12.2</td>
<td>12,370</td>
<td>28,055</td>
</tr>
<tr>
<td>Germany</td>
<td>657</td>
<td>190,272</td>
<td>140,810</td>
<td>331,082</td>
<td>13.1</td>
<td>5,860</td>
<td>25,270</td>
</tr>
<tr>
<td>France</td>
<td>576</td>
<td>174,044</td>
<td>193,438</td>
<td>367,482</td>
<td>20.0</td>
<td>9,861</td>
<td>18,354</td>
</tr>
<tr>
<td>Russia</td>
<td>546</td>
<td>122,937</td>
<td>184,945</td>
<td>307,882</td>
<td>25.1</td>
<td>7,362</td>
<td>12,255</td>
</tr>
<tr>
<td>United States</td>
<td>2,858</td>
<td>202,234</td>
<td>156,943</td>
<td>359,177</td>
<td>15.3</td>
<td>10,227</td>
<td>23,405</td>
</tr>
<tr>
<td>Canada</td>
<td>947</td>
<td>186,069</td>
<td>178,192</td>
<td>364,261</td>
<td>14.7</td>
<td>12,140</td>
<td>23,093</td>
</tr>
<tr>
<td>Australia</td>
<td>849</td>
<td>167,238</td>
<td>194,226</td>
<td>361,463</td>
<td>13.4</td>
<td>14,505</td>
<td>26,994</td>
</tr>
<tr>
<td>Other</td>
<td>910</td>
<td>141,826</td>
<td>135,050</td>
<td>276,876</td>
<td>26.0</td>
<td>5,200</td>
<td>10,662</td>
</tr>
</tbody>
</table>

(Note 1) Overall average of expenditure is the average value by nationality and region weighted by the "number of foreign visitors" by JNTO.

(Note 2) Smaller digits than the digits indicated in the table are applied to all values including the average number of stays. Therefore, the digits in the above table for "expenditure per stay (e or f)" does not match the "expenditure (b or c) / average number of stays (d)".

Source: 2013 Annual Report on Consumption Trend Survey for Foreigners Visiting Japan (JTA)
4. Typical analysis cases

(1) Analysis case on the economic ripple effect of tourism events: Economic ripple effect analysis of the 1300th Anniversary of Nara Heijo-kyo Capital

【Outline of analysis】
- A questionnaire survey was conducted targeting guests of the 1300th Anniversary of Nara Heijo-kyo Capital to understand the guests' evaluation and to measure the economic ripple effect of the event.
- The economic ripple effects of Nara, Kinki and nationwide were measured to compare the results with the assumptions made in the planning stage, with hope to leverage the figures in future tourism promotion in Nara.

【Analysis results】
- Despite the downturn of economy, the event attracted guests that exceeded expectations, and resulted in approx. 321 billion yen of total effect nationwide (the sum of numeric values in red in the right figure), approx. 97 billion yen of total effect in Nara, and created approx. 10,000 jobs. The economic effect of the 1300th anniversary celebration of Nara Heijo-kyo Capital was larger than expected.

* Values are a national total

Source: Report on the questionnaire survey conducted on guests and the economic ripple effect survey of the 1300th anniversary of Nara Heijo-kyo Capital. (Communication Designing Institute) (March, 2011)
4. Typical analysis cases

(1) Analysis case on the economic ripple effect of tourism events: Economic ripple effect analysis of the 1300th Anniversary of Nara Heijo-kyo Capital

Ripple flow of economic effect

4. Typical analysis cases

(2) Analysis case on the economic ripple effect of MICE facilities: Measurement of economic ripple effect of MICE at Pacifico Yokohama

【Outline of analysis】
▶ Pacifico Yokohama is a facility that attracts many people from inside and outside the region and the consumption behavior by visitors and convention organizers have a great impact on the vitalization of the local economy.
▶ In order to measure the contribution to the regional economy, a survey on the economic ripple effect of MICE in FY 2012 was implemented.

【Analysis results】
▶ The economic ripple effect of the event held at Pacifico Yokohama in FY 2012 was approx. 207 billion yen nationwide (the sum of numeric values in red in the right figure, 1.07 times compared to FY 2007), approx. 87 billion yen in Yokohama city (1.26 times compared to FY 2007).
▶ Effect within the city is considered to have increased due to the improvement of regional self-sufficiency in services for businesses and individuals in Yokohama.

Source: PACIFICO NEWS March 20, 2014

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4. Typical analysis cases

(2) Analysis case on the economic ripple effect of MICE facilities: Measurement of the economic ripple effect of Convention at Pacifico Yokohama

Ripple flow of the economic effect in Yokohama

Source: Measurement of the economic ripple effect of conventions held in Pacifico Yokohama (Pacific Convention Plaza Yokohama, October, 2008)
5. Estimate of the economic ripple effect in Nara Tourism Statistics Week

(Request for cooperation in a questionnaire survey)

【Objective of analysis】
➢ One of the goals is to examine the economic ripple effect of Nara Tourism Statistics Week and widely publish the estimated results within the year.
➢ This will enable event participants to understand the economic ripple effect of the event by actual experience and will deepen the understanding in the significance and importance of tourism statistics.
➢ The analysis will also help the implementing organizations of MICE promotion policy including JTA, JNTO, municipalities and Convention Bureau (CB) to understand the economic ripple effect of a particular event more specifically and practically instead of the effect at a national level that has been estimated until now.

【Estimation method】
➢ Questionnaire survey for participants (Please fill out the questionnaire on the website or paper).
➢ Estimate of direct effect based on the questionnaire survey.
➢ Estimate of regional effect by interprefectural input-output analysis.
Please answer the questionnaire!

This questionnaire survey is to research about expenditures spent by the participants of Nara Tourism Statistics Week during their stays in Japan. The objective of this Survey is to analyze the economic effects of this event for Nara prefecture and the surrounding areas, based on the result of this questionnaire survey. This Survey is conducted on an anonymous basis, and information provided in this questionnaire will be used exclusively for the purpose of the research. We thank you for your time and courtesy in responding to the questionnaires.

\*If you answer on the website, please go to this URL. ⇒ https://www.surece.co.jp/nara_en/

Enter your 4-digit Registration ID No. □□□□

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**Q10** (Answer if you reside in Japan.) Please specify the total amount you have spent (or plan to spend) for the trip before and after the visit. (Please answer in round numbers)

**Before the visit**

**Japanese yen**

**After the visit**

**Japanese yen**

*Example*: clothing, bags, shoes, drink, alcohol, confectioneries, hair salon, cleaning, photo printing service, etc.

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**Q11** Please check the appropriate answer for each category.

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</thead>
<tbody>
<tr>
<td>Accommodation</td>
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<tr>
<td>Accessibility</td>
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<tr>
<td>Language/English Signage</td>
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<tr>
<td>Dining &amp; Drinking</td>
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<tr>
<td>Sightseeing/Including Technical Tour</td>
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<td>Internet Access / Wi-Fi</td>
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<td>ATMs / Currency Exchange</td>
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<td>Safety &amp; Security</td>
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<tr>
<td>Price</td>
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<tr>
<td>Meeting Facilities</td>
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<td>Meeting Management</td>
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<tr>
<td>Total Satisfaction</td>
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</tbody>
</table>

**Q12** Do you plan on visiting Japan again on a private holiday? (Choose one)

*Please answer this question if you are from foreign countries and not Japanese citizen.*

- Yes [ ]
- Probably [ ]
- Not sure [ ]
- Not really [ ]
- No [ ]

**Q13** Attractiveness of Japan as business travel destination (Choose one)

*Please answer this question if you are from foreign countries and not Japanese citizen.*

- Very attractive [ ]
- Attractive [ ]
- Neutral [ ]
- Not very attractive [ ]
- Unattractive [ ]

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That is all for the questionnaire. Thank you very much for your cooperation.

This questionnaire survey is commissioned to Mitsubishi Research Institute by Japan Tourism Agency. 

Contact:

Mitsubishi Research Institute, Inc.
Social and Public Management Research Division
Kazuyuki Tsuchiya

e-mail: kazuyuki@mri.co.jp
5. Estimate on the economic ripple effect in Nara Tourism Statistics Week

Please answer the questionnaire!