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## **Economic Impact of the Tokyo 2020 Olympic Games\***

### **Abstract**

The Tokyo Olympics, scheduled to be held in 2020, can be expected to have positive effects on the Japanese economy. Such effects will come mainly through the following two demand channels: (i) an increase in foreign tourism, and (ii) an increase in construction investment associated with this event.

The number of foreign visitors to Japan has been growing steadily, mainly due to the easing of visa requirements and the depreciation of the yen. The government's target of reaching 20 million foreign visitors by 2020 will likely be achieved. Nevertheless, taking other countries as a yardstick, there is still ample room for an increase in the number of foreign visitors, and it is certainly possible to further promote tourism in Japan, for example by reinforcing measures to attract foreign tourists in the run-up to the Tokyo Olympics. The experience of past host countries shows that the key is to achieve a lasting increase in tourism by promoting touristic resources nationwide. For Japan, this means, for example, establishing routes that allow tourists coming to Japan for the Olympic Games to make excursions to regional areas in addition to visiting the Tokyo metropolitan area.

Construction investment associated with the Tokyo Olympics includes not only that directly related to the building of facilities for the Olympic Games, but also various types of indirectly related construction investment, such as the construction of new

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hotels and the refurbishment of existing hotels in the private sector, urban redevelopment, the construction of commercial facilities, and the enhancement of transportation infrastructures. Based on the experience of previous host countries, construction investment associated with the Tokyo Olympics is projected to increase substantially during 2017 and 2018 and then peak out toward around 2020.

To avoid large business cycle fluctuations due to the boom-and-bust in construction investment, it is necessary to create new demand through various measures to help strengthen economic growth such as deregulation in addition to the measures to attract tourists mentioned above. At the same time, in order to meet such new demand, supply-side efforts should be taken to tackle the structural labor shortage facing Japan today by increasing labor productivity and further raising labor participation of women and the elderly.

## 1. Introduction

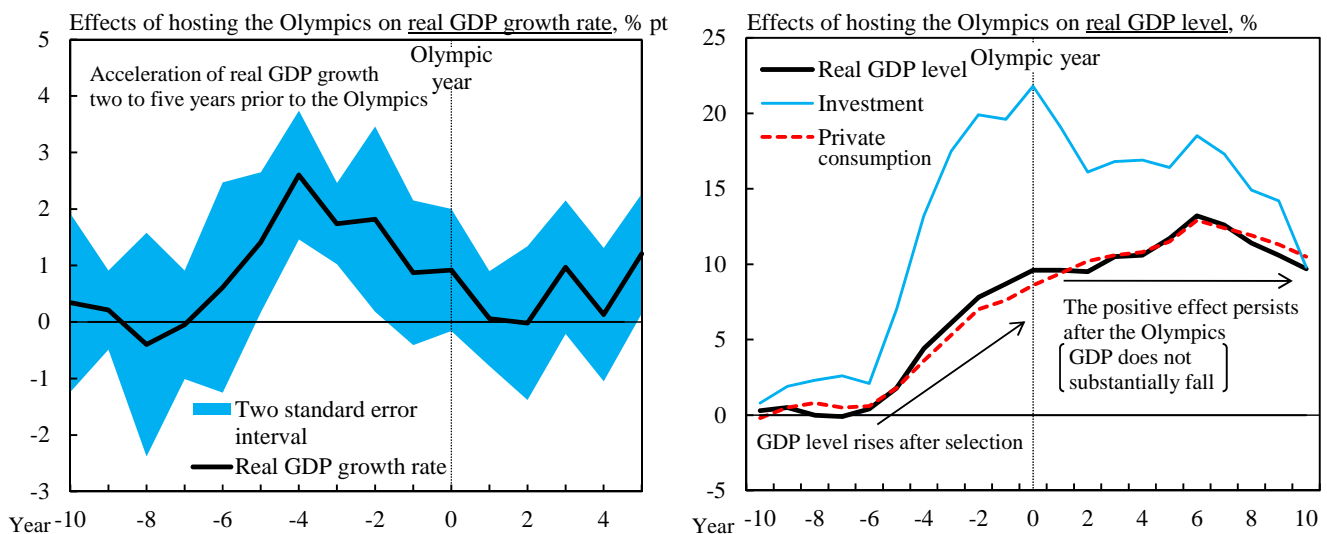
The countdown has started for the Tokyo Olympics scheduled to be held in 2020, which is less than five years from now. During the event, up to 920,000 spectators are expected to visit Tokyo per day,<sup>1</sup> and apart from the direct demand generated by these visitors, the Games are expected to affect Japan’s economy through various other demand channels.

To start with, this paper will consider the economic impact of the Olympic Games in past host countries, relying on existing research. Next, it will examine—as quantitatively as possible—the potential economic impact of the Tokyo Olympics, focusing in particular on the following two demand channels: (i) the expected increase in foreign tourism, and (ii) the increase in construction investment associated with this event. Lastly, this paper will provide rough estimates of the macroeconomic impact by aggregating these effects, and then briefly discuss what kind of efforts are required to enhance economic growth in order to ensure that hosting the Olympic Games provides a sustained boost to the Japanese economy.

## 2. Experience of Past Olympic Host Countries

Before considering the economic impact of the Tokyo Olympics, let us review existing studies on the impact of the Olympic Games on past host countries. Of particular interest is a recent study by Brückner and Pappa [2015] on the economic impact of the Olympic Games using cross-country panel data for the period from 1950 to 2009, which they employed to quantify the impact of hosting the Olympic Games on real GDP (Chart 1).

**Chart 1: Impact of Hosting the Olympics on Real GDP (Brückner and Pappa [2015])**



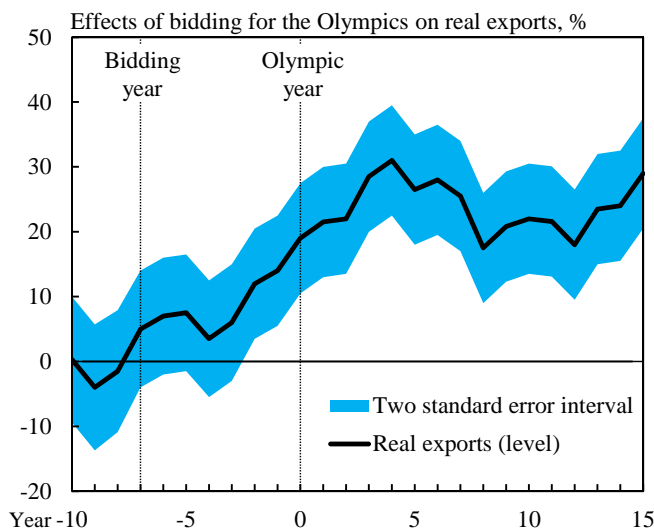
Note: Figures are estimates by Brückner and Pappa [2015] using cross-country panel data from 1950 to 2009.

<sup>1</sup> Projection by the Tokyo 2020 Olympic and Paralympic Bid Committee [2013].

Their estimation results show that hosting the Olympics provided a significant boost to real GDP growth between five and two years before the Games are held. Their results further indicate that the cumulative effect on the real GDP level was a plus of about 10 percent in the years running up to the Games. The boost to GDP ahead of the Olympic Games is mainly attributable to (i) the increase in construction investment associated with the event and (ii) the increase in foreign visitors to the host country as a result of heightened international interest.<sup>2</sup> Further, the GDP level does not substantially fall back after the Olympics. In other words, the positive impact on the economy persists. Although fixed investment tends to clearly decline after the Olympics, consumption and other demand components continue to increase, offsetting this decline.

As one of the reasons why hosting the Olympics had a sustained positive impact on the level of GDP, a number of other studies note that host countries tended to implement policies to boost economic growth when they were chosen to host the Games. For instance, Rose and Spiegel [2011] provide empirical results indicating that host countries' real exports significantly increased and argue that this may be because countries tended to implement policies to increase their openness around the time they were chosen to host the Games (Chart 2).<sup>3</sup>

**Chart 2: Impact of Hosting the Olympics on Real Exports (Rose and Spiegel [2011])**



Host countries' external policies	
Rome (1960)	Italy accedes to the United Nations in 1955, when it is chosen to host the Olympics
Tokyo (1964)	Japan accedes to the OECD and becomes an IMF Article 8 member
Barcelona (1992)	Spain accedes to the European Economic Community in 1986, when it is chosen to host the Olympics
Beijing (2008)	China accedes to the WTO in 2001, when it is chosen to host the Olympics
Tokyo (2020)	Japan participates in negotiations for the TPP in 2013, when it is chosen to host the Olympics

Note: Figures in the left panel are estimates by Rose and Spiegel [2011], who used a gravity model of international trade flows employing cross-country panel data for the period 1950 to 2006.

<sup>2</sup> Another potential factor is the boost to sales of audiovisual equipment in the run-up to the Games (the so-called “Olympic cycle”), although this boost occurs not only in the host country. In Japan, TV broadcasting in 8K ultra-high definition (UHD) is scheduled to begin in 2018 and the government is planning to use the Tokyo 2020 Games as a platform to present 8K UHD technology as a major Japanese innovation to the rest of the world (Ministry of Internal Affairs and Communications [2015]).

<sup>3</sup> In fact, Rose and Spiegel’s [2011] empirical results indicate that unsuccessful bids had a similar positive impact on exports. They consequently argue that hosting the Olympics does not directly affect trade.

External liberalization through, for example, the conclusion of economic partnership agreements (EPAs) and free trade agreements (FTAs) is generally considered to improve macroeconomic productivity in the long run by stimulating trade and capital flows (see, e.g., Baldwin [1989], Ministry of Economy, Trade and Industry [2001]). In addition, hosting an international event like the Olympic Games signals a country's medium- to long-term commitment to greater international openness, which in turn may raise growth expectations. It is likely that Brückner and Pappa's [2015] finding that hosting the Olympic Games provides a sustained boost to the GDP level reflects such greater openness. In Japan's case, in the same year that Tokyo was chosen as the host city for the 2020 Olympics, the government announced that Japan would join the Trans-Pacific Partnership (TPP). Thus, if Japan uses hosting the Olympics as an opportunity to promote growth through strengthening international economic ties, Japan, just like other host countries in the past, might be able to enjoy a persistent boost to its economy.

On the other hand, a number of studies cast doubt on the view that hosting the Olympics has sustained economic effects. Owen [2005] and Giesecke and Madden [2011], for example, argue that most assessments tend to overestimate the economic impact of hosting the Olympics, since they ignore that private investment may be crowded out by increases in government spending. However, these studies focus only on the direct effects, such as investment for the construction of Olympic facilities, consumption during the event, and related spillover effects; they therefore do not necessarily contradict the results obtained by Brückner and Pappa [2015] and Rose and Spiegel [2011], which focus on the broader macroeconomic effects, including the effects of external liberalization.

Given the experience of past host countries examined in the literature, it is highly likely that hosting the Tokyo Olympics, together with additional policy support, will have positive effects on the Japanese economy. However, there is considerable uncertainty about the magnitude of these effects, which for the following reasons may well be smaller than in the case of past host countries. First, many previous Olympic Games were held in countries that were developing at the time rather than countries that were already developed. In developing countries, the impact of social infrastructure investment on the economy as a whole (that is, the marginal productivity of social infrastructure) is likely to be relatively large.<sup>4</sup> Therefore, using the average of the impact for previous host countries as a yardstick may somewhat overestimate the magnitude of the effect. Second, relative to GDP, the planned budget for the Tokyo Olympics comes to only about 0.1-0.2 percent, a figure that is smaller than the average

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<sup>4</sup> For instance, expanding the highway and railroad network is likely to raise the efficiency of logistics, which in turn is likely to boost economic activity in the private sector.

for previous host countries (which is about 0.4 percent according to Brückner and Pappa [2015]) and reflects the fact that Japan’s social infrastructure is already well developed.<sup>5</sup>

### **3. Tourism Demand from Foreign Visitors**

Hosting the Tokyo Olympics is likely to boost foreign tourism and improve Japan’s travel balance.<sup>6</sup> Conceptually, increases in travel receipts can be brought about through two channels: (i) an increase in the number of foreign visitors, and (ii) an increase in the expenditure per visitor. The demand generated by foreign visitors and the associated spillover effects can be expected to make a positive contribution to the Japanese economy as a whole.

#### ***Recent developments in the number of foreign visitors to Japan***

Since Tokyo was chosen as the host city, the number of foreign visitors to Japan has gathered pace, running above the prior trend, primarily on the back of an easing of visa requirements for sightseeing and of the yen’s depreciation (Chart 3).<sup>7</sup> The government’s target of 20 million foreign visitors by the year 2020 will most likely be achieved early.<sup>8</sup> Assuming that the current pace of increase from 2011 extends beyond 2015, the total number of annual visitors to Japan could reach 33 million by 2020. This level is essentially on par with the number of foreign visitors to the U.K., which hosted the Olympics in 2012 (Chart 4). The number of visitors to Japan could rise even further if efforts by the public and private sectors to promote tourism in Japan are successful.

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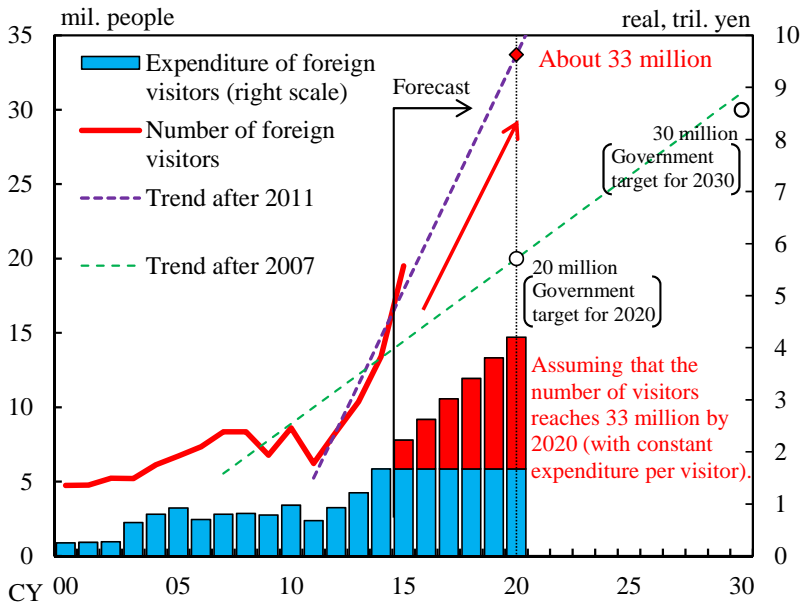
<sup>5</sup> The Tokyo 2020 Olympic and Paralympic Bid Committee and Tokyo Metropolitan Government [2012] estimate that the total cost of constructing facilities and infrastructure as well as running the event will amount to 666.1 billion yen (0.14 percent of nominal GDP in 2014).

<sup>6</sup> Spending by foreign visitors in Japan is recorded as “Travel balance (receipts)” in the *Balance of Payments* statistics. In the GDP statistics, it is recorded under services exports as “Direct purchases in the domestic market by non-resident households.” The amount of spending by foreign visitors is excluded from private consumption in the GDP statistics so that is not double counted in both services exports and private consumption. In the Quarterly Estimates (QE), however, the *Family Income and Expenditure Survey*—which does not include the amount of spending by foreign visitors—is used for estimating private consumption. As a consequence, under the current estimation method, which excludes the amount of spending by foreign visitors from private consumption, the amount of private consumption in the QE may be underestimated.

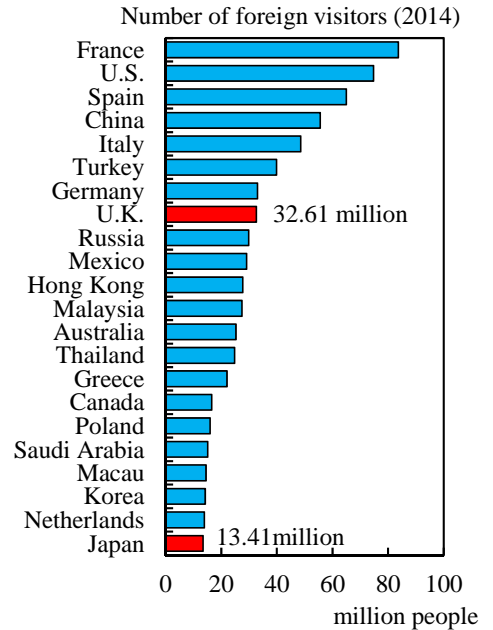
<sup>7</sup> See Mera, Kurachi, and Ozaki [2013] for factors behind the increase in foreign visitors to Japan in recent years.

<sup>8</sup> In this regard, discussions on setting a new target have begun to take place within the government, with Prime Minister Abe stating that “the next target is 30 million visitors” in his speech (Prime Minister of Japan and His Cabinet [2015]).

**Chart 3: Number of Foreign Visitors**



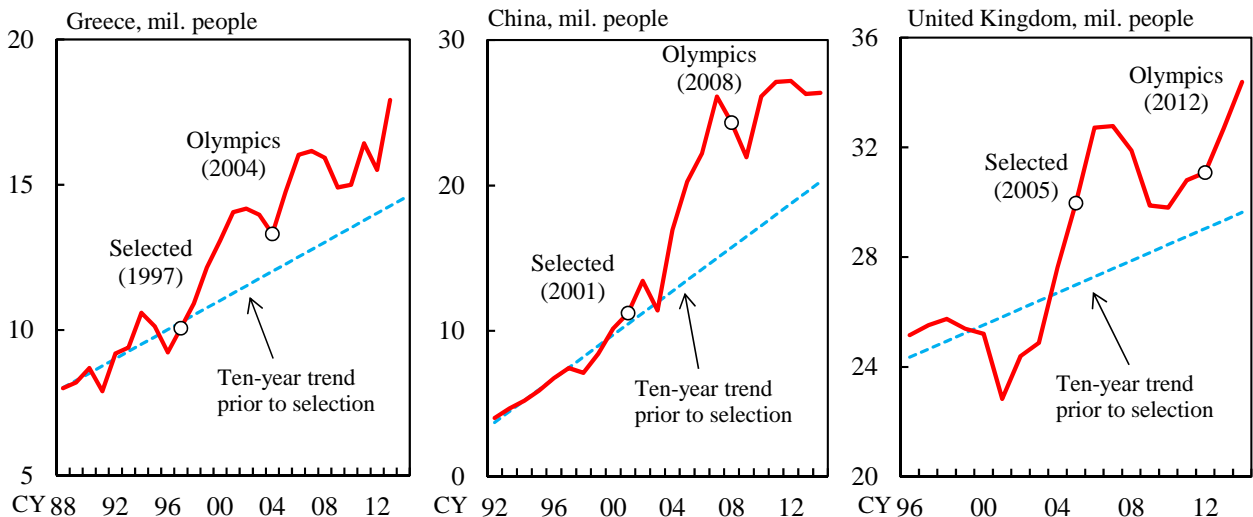
**Chart 4: International Comparison**



Notes: 1. Expenditure of foreign visitors is “Direct purchases in the domestic market by non-resident households” in the SNA. Real expenditure per visitor is assumed to be constant after 2014.  
 2. The number of foreign visitors in 2015 is calculated based on seasonally adjusted data for January to November.  
 Sources: Japan National Tourism Organization (JNTO); Cabinet Office; UNWTO.

The experience of previous host countries shows that the number of foreign visitors already starts to climb from around the time when the host city is chosen rather than the year that the Games are held, with increases typically outpacing the trend observed in the 10 years running up to the selection as host country. Mizuho Research Institute [2014] highlights that Australia, for example, as a result of active measures to attract visitors in the run-up to the Sydney Olympics, received 20 percent more foreign visitors in the year that the Games were held (2000) than the trend prior to Sydney’s selection as the host city. Similar patterns can be found for Greece (Athens, 2004), China (Beijing, 2008), and the U.K. (London, 2012) (Chart 5).

**Chart 5: Number of Foreign Visitors in Selected Olympic Host Countries**



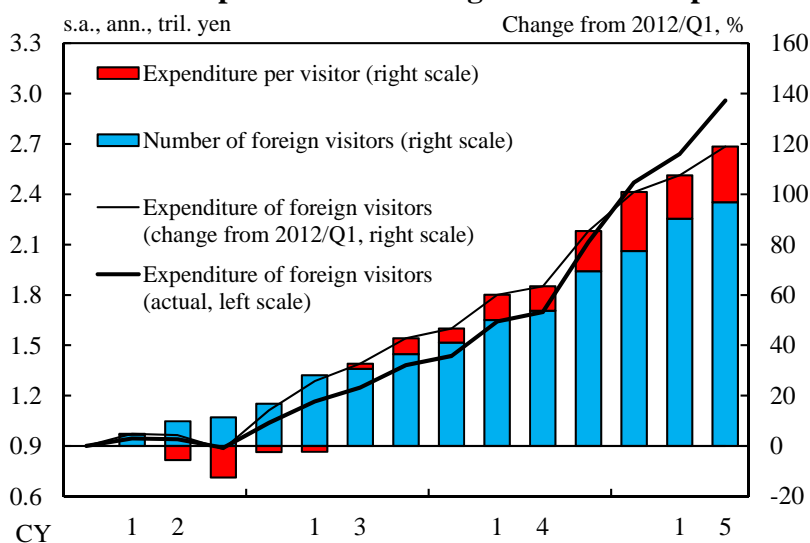
Sources: Mizuho Research Institute [2014]; CEIC, etc.



### *Increase in per visitor expenditure of foreign tourists in Japan*

The per visitor expenditure of foreign tourists in Japan has also recently increased. This is illustrated in Chart 6, which shows that the total expenditure of foreign visitors increased not only as a result of the uptrend in the number of foreign visitors, but also due to an increase in per visitor expenditure, partly assisted by the expansion of items subject to duty-free treatment.<sup>9</sup>

**Chart 6: Expenditure of Foreign Visitors in Japan**

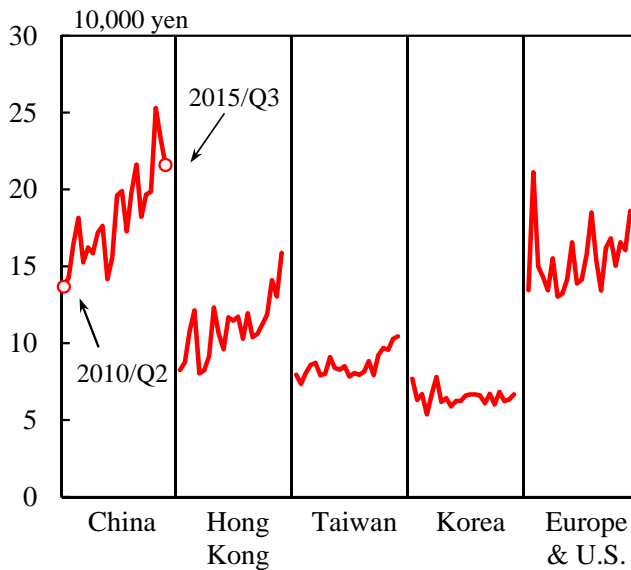


Note: Expenditure per visitor = expenditure of foreign visitors (SNA basis) / number of foreign visitors.  
Sources: Cabinet Office; Japan National Tourism Organization (JNTO).

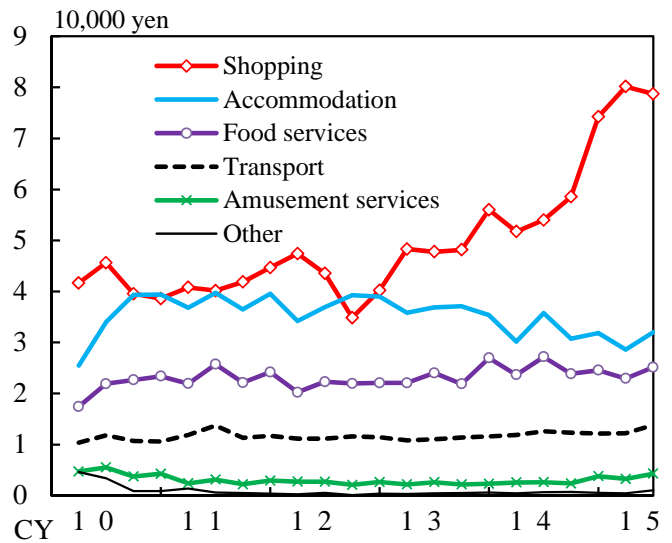
Looking at per visitor expenditure by nationality (Chart 7), this has been increasing for visitors from many countries and regions, but the upward trend is most pronounced for visitor from China. This is consistent with media coverage of the voracious shopping behavior of Chinese tourists (often referred as “*bakugai*,” which can be directly translated as “explosive buying”). Consequently, looking at per visitor expenditure by expenditure category shows that shopping expenditure has increased notably in recent years (Chart 8).

<sup>9</sup> Japan’s duty free system changed as of October 1, 2014: in addition to general goods (household electrical appliances, apparel, etc.) that had already been subject to duty-free treatment, goods such as consumables became exempt from consumption tax, so that duty-free treatment is now applied to all items. From fiscal 2016, the minimum spend for tax exemption will be lowered (from currently 10,000 yen per store for general goods to 5,000 yen).

**Chart 7: Expenditure per Visitor in Japan (Breakdown by Nationality)**



**Chart 8: Expenditure per Visitor in Japan (Breakdown by Expenditure Category)**



Notes: 1. Figures for expenditure per visitor are based on a survey conducted by the Japan Tourism Agency. For details, see the appendix.  
 2. Figures for visitors from Europe and the U.S. in Chart 7 are the simple averages for visitors from the United Kingdom, Germany, France, and the United States.

Source: Japan Tourism Agency.

To explore the determinants of per visitor expenditure for each expenditure category, we conduct a dynamic panel data analysis using panel data on the expenditure of foreign visitors by nationality and expenditure category. The results, shown in Chart 9, indicate that, for shopping, the coefficient on the real exchange rate, which represents the price elasticity of shopping, is statistically significant, while the coefficient on lagged expenditure, which represents the persistence of behavior, is insignificant (see the appendix for details on the estimation method). Further, looking at a breakdown of shopping expenditure by type of item shows that the exchange rate elasticity of expenditure on consumer electronics, purchases of which by foreign visitors have risen markedly, is relatively high, while the exchange rate elasticity of food is relatively low, although the coefficient on lagged expenditure, representing the degree of persistence, is positive and statistically significant. These results can be interpreted as indicating that Japanese electronics are being purchased due to their high cost performance, while purchases of Japanese food are increasing because of their reputation for safety and their brand power.<sup>10</sup>

<sup>10</sup> A survey by Hakuhodo [2015] conducted on Chinese citizens visiting Japan indicates that they placed importance on the following three points when buying Japanese products: (1) their safety; (2) their high cost performance; and (3) their price. In sum, it seems that Chinese visitors are sensitive to both quality and price aspects when buying Japanese products.

**Chart 9: Dynamic Panel Data Analysis of Determinants of Real Expenditure per Visitor**

	Shopping	Consumer electronics	Food	Food services	Accommodation	Transport	Amusement services	Cultural experiences
Lagged expenditure (Persistence)	-0.004 [0.040]	-0.032 [0.068]	0.160 ** [0.076]	0.177 ** [0.089]	0.274 *** [0.078]	0.282 *** [0.060]	0.037 [0.048]	0.126 *** [0.047]
Real exchange rate (Price elasticity)	-0.669 *** [0.108]	-1.605 *** [0.359]	-0.387 *** [0.118]	-0.163 * [0.089]	-0.007 [0.129]	-0.098 [0.155]	-0.210 [0.254]	-0.479 * [0.290]
Fixed effect, Seasonal dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2558	285	570	285	285	1082	1522	796
AR2 test (p-value)	0.715	0.381	0.371	0.970	0.842	0.366	0.629	0.448
J-statistic (p-value)	0.996	0.777	0.999	0.947	0.983	0.143	0.950	0.921

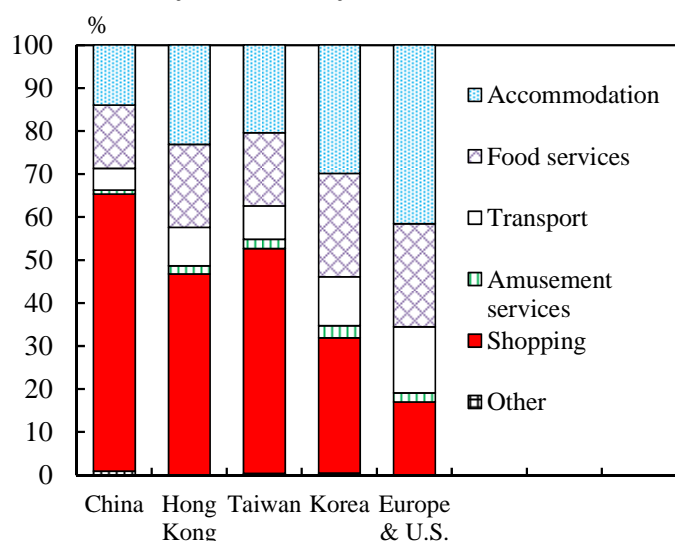
Notes: 1. The observation period is 2010/Q2 to 2015/Q2. For details of the estimation method, see the appendix.  
 2. Expenditure on cultural experiences includes fees for local tours and art appreciation, admissions, etc.  
 3. Standard errors are shown in [ ]. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.  
 Source: Authors' calculation based on data from the Japan Tourism Agency and other sources.

For other expenditure categories such as accommodation, transport, and cultural experiences, the exchange rate elasticities are relatively low and mostly insignificant, while lagged expenditure is clearly significant. These results indicate that the increases in per visitor expenditure on these items have become relatively sustainable, likely reflecting growing interest among foreign visitors in Japan's tourist attractions thanks to both public and private publicity campaigns as well as word of mouth.<sup>11</sup> Although cultural experiences (which fall under amusement services) so far make up only a small share of visitor expenditure, if expenditure on this category were to increase in the future, this would likely extend visitors' length of stay—since such leisure-related consumption takes more time than goods consumption<sup>12</sup>—so that the positive impact on the economy is potentially larger.

<sup>11</sup> Chart 8 further shows that per visitor expenditure on amusement services and transport has recently started to increase. On the other hand, expenditure on accommodation has been trending downward, with the reason likely being that more visitors are staying in lower-cost accommodation, which in turn may be partly due to the fact that visitors from China increasingly include not only the wealthy but also those from middle income households.

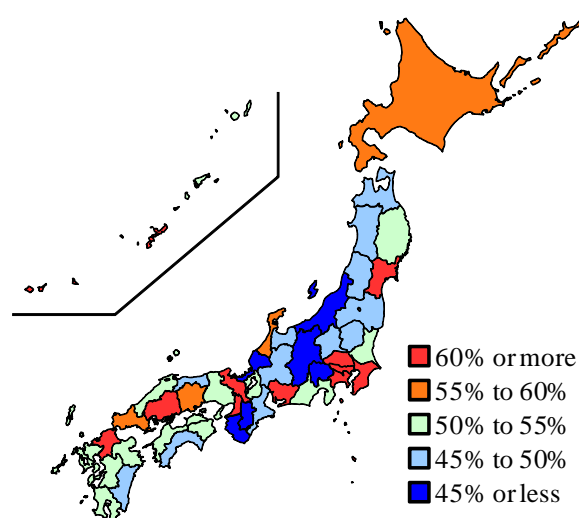
<sup>12</sup> To give an example, touring the Bank of Japan Currency Museum, which reopened on November 21 last year following refurbishment, takes about one hour, meaning that when travel time to and from the museum is included, a cultural experience such as this one will involve several hours.

**Chart 10: Breakdown of Expenditure in Japan by Nationality**



Source: Japan Tourism Agency.

**Chart 11: Occupancy Rate by Prefecture in 2014**



Source: Japan Tourism Agency.

In order to further raise the expenditure per visitor in the run-up to and during the Olympics in a sustainable manner, it is important to rely not only on changes in the duty-free system and exchange rate developments (which, as seen above, played an important part in the case of spending on consumer electronics), but to take measures to sustainably raise per visitor expenditure by increasing international awareness of the quality, brand power, and safety of products and services in Japan to boost expenditure on food, cultural experiences, and other leisure-related consumption. Especially with regard to leisure-related consumption, the key is to make it easy for foreign tourists to visit not only metropolitan areas, which are convenient for shopping, but also tourist attractions in the regions by further raising awareness of and establishing excursions routes to such attractions, which would also lead visitors to stay longer.<sup>13</sup> If such efforts are successful, apart from raising income in the regions, this should increase the utilization of underused facilities, given that occupancy rates at hotels and other accommodation in the regions are low (Chart 11), and enhance productivity of the tourism industry in Japan overall.<sup>14</sup>

<sup>13</sup> For detailed examples of such efforts, see Japan Tourism Agency [2015], Ministry of Economy, Trade and Industry [2015], and Yamazaki [2015].

<sup>14</sup> Morikawa [2015] points out that since holiday periods abroad and in Japan differ, an increase in foreign visitors to Japan should smooth out demand fluctuations and result in higher occupancy rates. He further argues that increased occupancy rates would raise productivity of the accommodation industry.

#### 4. Construction Investment Associated with the Olympic Games

It is very likely that, just as in previous host countries, hosting the Olympics will boost economic growth in Japan through an increase in construction investment in the run-up to the event.

##### *Major construction projects related to the Olympics and construction patterns*

Construction investment associated with the Tokyo Olympic includes not only that directly related to the building of Olympics facilities, but also various types of indirectly related construction investment such as the construction and refurbishment of private hotels, urban redevelopment, the construction of commercial facilities, and the enhancement of transportation infrastructure. Chart 12 provides a list of major projects related to the Olympics based on various media reports. Most private-sector analysts estimate total construction investment to come in around 10 trillion yen, which is very similar to the amount obtained by adding up the major projects listed in Chart 12, which also reaches approximately 10 trillion yen.<sup>15</sup>

**Chart 12: Major Construction Projects Related to the Tokyo Olympics**

	Project	Scale	Start (including plans)	Completion	Details
Facilities	National Olympic Stadium	Upper limit of 155 bil. yen	Undetermined	2020	Plans under consideration
	Sports facilities / Olympic village	Around 0.3 tril. yen	Around 2016	2019	
Accommodation	Private hotels	Around 0.8 tril. yen	2015	2020	Refurbishment of existing hotels and opening of new hotels in the metropolitan areas
Other projects					
Transportation	Three Loop Roads of the National Capital Region	Around 2 tril. yen	2000	2020	Road opened between Kanzaki IC and Daiei JCT (June 2015)
	Direct route between Haneda and Narita, etc.		Undetermined	Around 2020	Plans under consideration
Redevelopment	Toyosu and Tsukiji	Around 4 tril. yen	2014	2016	Relocation of Tsukiji market to Toyosu
	Nihonbashi and Ginza		2014	2018	Reconstruction of department stores, etc
	Shinagawa and Tamachi		Around 2016	2020	Opening of new station for Yamanote Line between Shinagawa and Tamachi
	Shinjuku, Shibuya, and Ikebukuro		2014	Around 2020	Redevelopment at Shinjuku's west exit, Shibuya station, and Ikebukuro's west exit
	Waterfront casino	Around 0.8 tril. yen	Undetermined	--	Plans under consideration

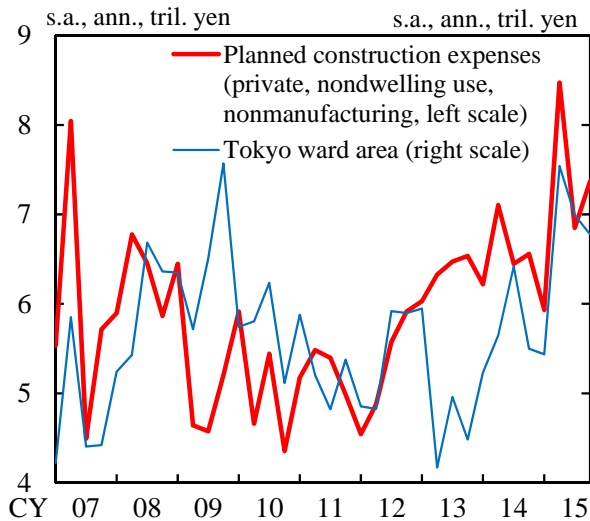
Sources: Various press releases; Nikkei BP [2015]; Mitsubishi UFJ Morgan Stanley Securities [2013]; Mizuho Research Institute [2014].

Chart 12 indicates that many of the projects are already underway. In fact, planned construction expenditure for the Tokyo city area has already risen markedly, and investment on refurbishment (renovation investment by accommodation facilities) to

<sup>15</sup> Mitsubishi UFJ Morgan Stanley Securities [2013], Mizuho Research Institute [2014], and SMBC Nikko Securities [2013], for example, provide estimates of 10.1 trillion yen, 12.8 trillion yen, and 13.0 trillion yen, respectively (including the building of Olympic facilities). It should be noted, though, that definitions of investment associated with the Olympics vary substantially, so that estimates differ greatly depending on what is included. As a result, estimates range from a total of 2.2-4.9 trillion yen (Japan Research Institute [2013]) to 55 trillion yen (Daiwa Securities [2013]).

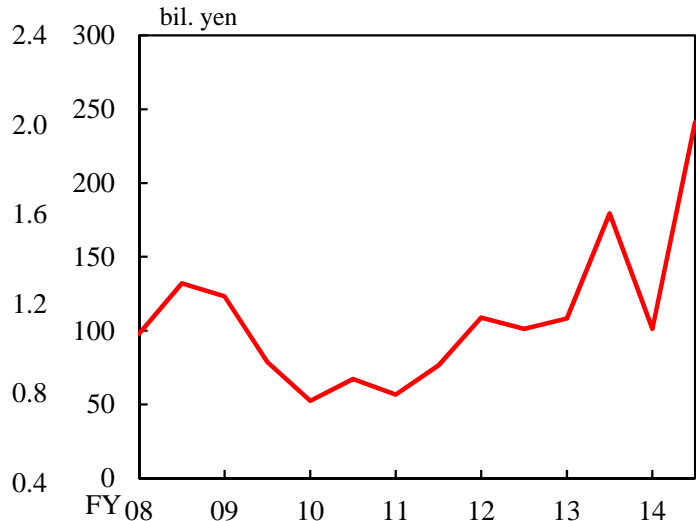
meet foreign visitors' requirements has gradually climbed (Charts 13 and 14).<sup>16</sup> Such developments can also increasingly be observed in regional areas.<sup>17</sup>

**Chart 13: Construction Starts**



Note: The value for 2015/Q4 is that for October.  
Source: Ministry of Land, Infrastructure, Transport and Tourism.

**Chart 14: Investment in Accommodation Refurbishment**



Note: Orders received for renovation or refurbishment.  
Source: Ministry of Land, Infrastructure, Transport and Tourism.

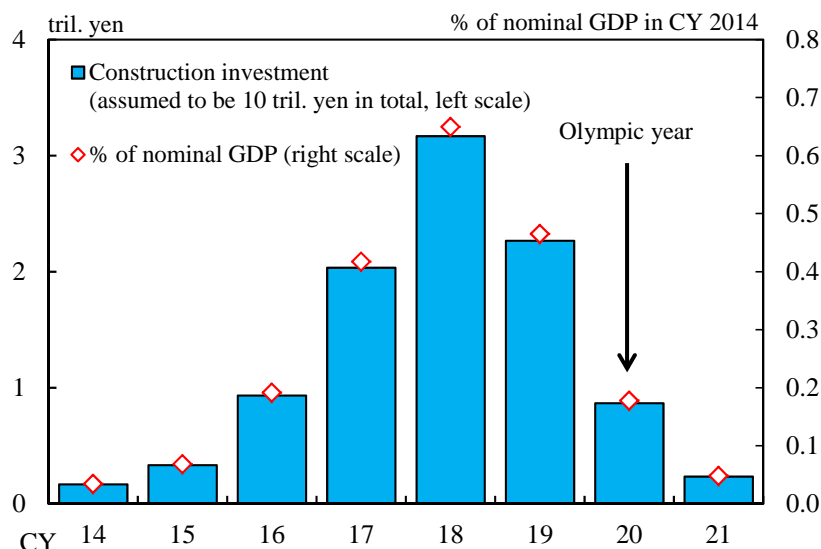
As the experiences of past host countries (particularly Australia and the U.K.) shows, construction investment tends to surge in the two to three years prior to the Games since the construction of Olympics-related facilities needs be completed before the event.<sup>18</sup> In the case of the Tokyo Olympics, construction investment will most likely spike around the years 2017-2018. Assuming that the cumulative investment amount reaches about 10 trillion yen in line with the various estimates mentioned earlier, the GDP level in the period through 2017-2018 will be pushed up by an amount equivalent to about 0.4-0.6 percent of nominal GDP in 2014 (Chart 15).

<sup>16</sup> Apart from investment associated directly with the Olympics, the increase in construction investment is also attributable to the renovation of older buildings and construction to increase the earthquake resistance of buildings.

<sup>17</sup> For example, the *Nihon Keizai Shimbun* in an article titled “More and more hotels in regional areas built or refurbished” (December 2, 2015 evening edition) reported that new construction and refurbishment of hotels and other accommodation facilities are on the rise in regional cities gaining attention due to the Hokuriku Shinkansen (Hokuriku bullet train) and the future opening of the linear Chuo Shinkansen (maglev train) as well as resorts such as *onsen* (hot springs).

<sup>18</sup> For details on Australia (Sydney 2000 Olympics), see Madden and Crowe [1998]. For details on the U.K. (London 2012 Olympics), see U.K. Department of Culture, Media & Sport [2013].

**Chart 15: Estimated Construction Expenditure on Olympics-related Projects**



Note: Estimates based on the construction pattern estimated by Madden and Crowe [1998], who mainly focus on the construction of Olympic facilities in the run-up to the Sydney Olympics.  
 Source: Authors' estimates based on Madden and Crowe [1998] as well as data from the Cabinet Office and other sources.

It is likely that the boost to GDP will partly offset the negative effects of the consumption tax hike scheduled for 2017.<sup>19</sup> What is more, construction investment will inevitably shrink after the Games, so that an important challenge will be how to minimize swings in the business cycle brought about by the boom and bust of construction investment.

For this reason, it is vital to take measures to sustain the increase in foreign tourism discussed in the previous section, so that the Olympics do not only provide a temporary fillip but bring lasting benefits. In this regard, the Lillehammer Winter Olympics provide important lessons. Although Norway experienced a rise in tourist numbers as a result of hosting the Olympics, the Games failed to raise the profile of Lillehammer itself to the expected extent, so that after the visitor boom of the Olympics had dissipated, 40 percent of hotels in the city went out of business (Teigland [1999]).

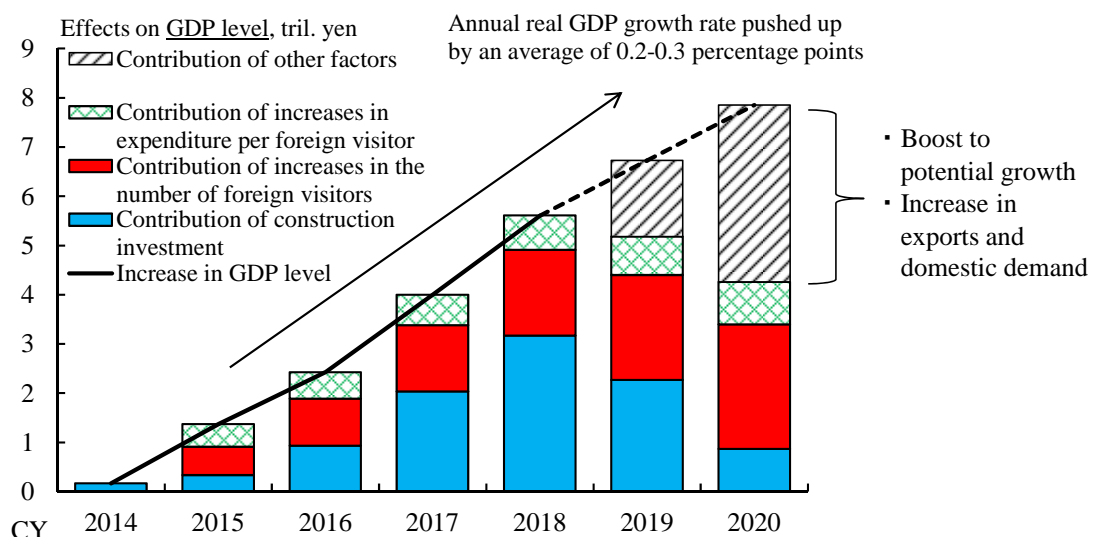
## 5. Impact of the Tokyo Olympics on the Japanese Economy and Measures to Promote Growth

Taking the above considerations into account, we attempt to provide a rough estimate of the economic impact of the upcoming Tokyo Olympics. The estimate is based on the following three assumptions: (1) the number of foreign visitors to Japan will continue to

<sup>19</sup> Expressed in terms of GDP growth, the estimate implies that the GDP growth rate in fiscal 2017 will be lifted by about 0.2 percentage points. At the same time, estimates by the Bank of Japan [2015] suggest that the negative effects of the consumption tax hike in April 2017—the contraction in demand in fiscal 2017 following the expected front-loading of consumption in fiscal 2016—will push down the growth rate for fiscal 2017 by about 0.8 percentage points.

gather pace and reach the estimate of 33 million visitors in 2020 mentioned in Section 3; (2) per visitor expenditure will grow in line with the estimates presented in Section 3;<sup>20</sup> and (3) aggregate construction investment associated with the Olympic Games will amount to a total of 10 trillion yen by 2020. Our calculation suggests that Japan's annual real GDP growth will be pushed up by about 0.2-0.3 percentage points in the period from 2015 to 2018 (Chart 16). As a result, Japan's real GDP level in 2018 will be about 1 percent (about 5-6 trillion yen) higher than would otherwise be the case. However, with construction investment subsequently likely to decline, the positive impact on GDP is expected to wane. As shown by the experience of previous host countries, in order to ensure that the positive impact on GDP extends beyond the Olympics, it is necessary to create, through measures to strengthen economic growth, new sources of demand to replace Olympics-driven construction investment when this peters out.

**Chart 16: Economic Impact of the Tokyo Olympics (Rough Estimate)**



Looking at the experience of host countries that were successful in generating new demand as a result of the Olympics shows that this was achieved primarily by stimulating economic activity in the private sector not only through improvements in transport infrastructure and measures to attract tourists, but also through bold urban regeneration projects and radical deregulation (see BOX). Especially for large redevelopment projects, such as urban regeneration, it would probably have been difficult to build the broad consensus necessary had it not been for the common

<sup>20</sup> Future per visitor expenditure was extrapolated using the parameter estimates for each expenditure category in Chart 9 based on the assumption that external factors, such as the exchange rate, remain unchanged. However, the estimates of per visitor expenditure may be rather conservative in that they do not include the effects of measures currently under discussion, such as the expansion of duty-free treatment and efforts to extend visitors' length of stay (see footnote 9 for more details).



objective provided by hosting the Olympics. Examples of successful urban regeneration, such as the Old Town of Barcelona and areas of East London, have been praised for using the impetus provided by hosting the Olympics to resolve long-standing problems.<sup>21</sup> An additional benefit of hosting the Olympics, as mentioned earlier, is that—if it is linked with a growth strategy to increase the country’s external openness—it is likely to provide a boost to exports.

Finally, given that Japan’s labor force population is expected to decline further in the period leading up to 2020, we briefly consider the labor market implications of the demand generated by the Tokyo Olympics (Chart 17). Assuming that demand will increase in line with the rise in foreign tourism and the Olympics-related construction investment considered earlier, our estimates using the Input-Output Tables for Japan suggest that more than 700,000 additional workers will be needed. Since it is particularly in construction and services, where labor market condition are already extremely tight, that additional workers will be needed, a potential risk is that construction projects may be delayed, essential services will not be provided, and investment other than that for the Olympics may be crowded out. To avoid such a situation, it is indispensable to boost the workforce by including female, older, and foreign workers, as indicated in the government’s growth strategy. At the same time, it is necessary to make efforts to raise labor productivity, particularly in the construction and services industries, through labor-saving investment.

**Chart 17: Employment Generated by Olympics-related Demand (Simulation)**

	10,000 persons							10,000 persons
	CY 2014	2015	2016	2017	2018	2019	2020	Unemployment by sector (2014)
Construction	1	3	8	17	27	19	8	10
Commerce and services	0	12	19	28	36	39	41	77
Other sectors	0	2	4	6	9	8	6	149
<b>Total</b>	<b>2</b>	<b>17</b>	<b>31</b>	<b>52</b>	<b>73</b>	<b>67</b>	<b>54</b>	<b>236</b>
[Simulated unemployment rate]	[3.6%]	[3.3%]	[3.1%]	[2.8%]	[2.5%]	[2.6%]	[2.8%]	
Working-age population (Change from 2014)	—	-98	-182	-256	-322	-379	-439	

- Notes: 1. Figures for employment generated are calculated using the 2011 Input-Output Tables for Japan. It is assumed that construction investment increases final demand in the construction sector, and inbound tourism increases that in the commerce and services sector.  
2. Unemployment by sector is calculated on a previous job basis.  
3. Simulated unemployment rates are calculated using the unemployment rate of 2014 and employment generated by the Olympics.  
4. The working-age population is defined as those aged 15 to 64 (estimated by NIPSSR).

Sources: Ministry of Internal Affairs and Communications; National Institute of Population and Social Security Research.

<sup>21</sup> See Oshita [2008] for details on Barcelona’s experience and Motohashi and Akagi [2015] and Council of Local Authorities for International Relations [2014] on London’s experience.

## **BOX: Examples of Initiatives in Past Host Countries**

### **1. Infrastructure improvements (transportation, etc.)**

- In Beijing, approximately 280 billion yuan (about 4.2 trillion yen) were spent on major infrastructure—including urban transportation, energy, water resources, and the urban environment—ahead of the Games (Mizuho Research Institute [2008], etc.).
- In Athens, infrastructure improvements, such as the construction of airports and highways and the extension of the subway system, were made by utilizing subsidies from the EU (Papaioannou and Peleka [2006], Kono [2001], etc.).
- In London, infrastructure improvements, such as the expansion of airport facilities and the extension of railroads, were made. At the same time, in order to avoid investment in infrastructure that would not be needed after the Olympics, residents and workers were asked to refrain from moving around the city during the event itself, when demand was at its peak (Nagase [2013], etc.).

### **2. Promoting the country's culture and regional tourist attractions**

- The Australian government developed its strategy based on the experience of previous host countries and had some success in attracting tourists to regional cities and creating business demand. After the Games, however, marketing and investment were insufficient (Chalip [2000], Honpo and Yagasaki [2015], etc.).
- VisitBritain launched a dynamic campaign with seven themes: culture, legacy, sports, music, countryside, shopping, and eating/drinking. Drawing lessons from Australia's experience, it continued to promote tourism for another three years after the Games. In addition, about 180,000 cultural events were held throughout the country, contributing to local tourism (Japan Tourism Agency [2013], Yamazaki [2014], etc.).

### **3. Attracting Chinese tourists**

- In 1999, 2004, and 2005, Australia, Greece, and the U.K. respectively started granting tourist visas to Chinese citizens in guided groups (Arita, La Croix and Mak [2012], Hooper and van Zyl [2011], etc.).

### **4. Resolving long-term issues through urban regeneration projects (urban legacy)**

- Barcelona started with projects to regenerate the Old Town area from the time it was chosen to host the Games in 1986. It revitalized the Old Town area as a major cultural and sightseeing spot by building open spaces such as parks and streets and by establishing new museums and theaters, while preserving historical buildings (Oshita [2008], etc.).
- London chose the East London area as its main Olympics site with a view to regenerating the area. Making use of the transportation network put in place before the Games, urban regeneration in the area has been promoted by (i) transforming the

Olympic Village into residential housing and (ii) attracting the digital and media industry and creating employment opportunities by converting the London Olympics Media Centre into a huge technology hub called Here East, which is a new office space for digital entrepreneurs (Motohashi and Akagi [2015], Council of Local Authorities for International Relations [2014], etc.).

#### **5. Creating new demand by effectively involving the private sector through further deregulation**

- In Australia, the Airports Act was amended in 1996 and all airports owned by the Civil Aviation Authority were privatized. As a result of attracting low cost carriers and refurbishing terminals as part of efforts to boost tourism in regional areas, many airports saw a sharp rise in passenger traffic (Development Bank of Japan [2015], etc.).
- In China, the ban on the opening of new hotels by fully foreign-owned companies was removed in 2005 and many foreign-owned hotels entered the market. The trend continued after the Olympics, with many new luxury hotels being opened near large commercial facilities and office buildings (Bank of Tokyo-Mitsubishi UFJ [2014], etc.).
- In the U.K., a select committee of experts was set up to identify restrictions hampering the development of the tourism industry. For instance, restrictions on Sunday trading hours of large retail stores were temporarily relaxed during the Olympic Games, providing a boost to demand; based on this experience, the government recently proposed that the restrictions should be permanently relaxed (Yamazaki [2014], BBC [2015], etc.).

## Appendix: Approach to Analyzing the Real Expenditure per Foreign Visitor

This appendix provides a brief description of the data and the econometric approach used in the analysis of the expenditure per foreign visitor presented in Section 3.

### 1. Data

The data on the expenditure per foreign visitor were taken from the *Consumption Trend Survey for Foreigners Visiting Japan* conducted by the Japan Tourism Agency. The survey includes information on visitors' expenditure by nationality and by expenditure category<sup>22</sup> and has been conducted quarterly since 2010/Q2. The observation period for our estimation is 2010/Q2 to 2015/Q2. Nominal values for each expenditure category are deflated using the Consumer Price Index for the corresponding item.

### 2. Estimation Model and Method

To examine the determinants and dynamics of foreign visitors' expenditure, we estimated dynamic panel data models using the “difference GMM” estimator proposed by Arellano and Bond [1991].<sup>23</sup> The model specification looks as follows:

$$\begin{aligned} \log(\text{Real Expenditure per Foreign Visitor}_{i,j,t}) \\ = \text{Constant} + \rho \times \log(\text{Real Expenditure per Foreign Visitor}_{i,j,t-1}) \\ + \beta \times \log(\text{Real Exchange Rate}_{i,t}) \\ + \sum \gamma_{s,i} \times \text{Seasonal Dummy} + \text{Fixed Effect}_{i,j} + \varepsilon_{i,j,t} \end{aligned}$$

where subscript  $i$  denotes visitors' nationality and  $j$  denotes the expenditure category. Because the observation period is relatively short due to data limitations, income and period dummies are not included as explanatory variables to ensure estimation stability, while seasonal dummies are included to control for seasonality in the data.

The coefficient on the lagged dependent variable,  $\rho$ , can be interpreted as the degree of habit formation. Such an interpretation is frequently used in the case of panel data tracking individuals, and while our panel data here track not individuals but visitors by nationality, the coefficient can be regarded as representing habit formation by visitors from a particular country, since previous visitors to Japan likely will influence the demand patterns of future visitors through word of mouth, etc.<sup>24</sup> Meanwhile, the coefficient on the real exchange rate,  $\beta$ , can be interpreted as the price elasticity of demand.

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<sup>22</sup> The survey includes information on 21 nationalities and 29 expenditure categories. Only series with no missing observations were used in our estimation. Expenditure per visitor by nationality and by expenditure category is calculated using data on the share of visitors reporting purchases on a particular item and the average amount paid when visitors reported expenditure on a particular item.

<sup>23</sup> The reason is that when estimating dynamic panel data models, employing ordinary least squares estimation for the level or difference model gives rise to endogeneity bias (i.e., the error term and lagged values of the dependent variable are correlated) and yields inconsistent estimators.

<sup>24</sup> This interpretation has been employed in a number of previous studies on tourism demand using country-level panel data (e.g., Garin-Munoz, 2006).

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