Determinants of International Conference Venues in Japanese Prefectures

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Abstract

In this paper, we attempt to show what is effective to attract more international conferences to a region, using Japanese prefectural data of 1998-2017. This article follows the methodology of Falk and Hagsten (2018), performing regression analysis on data of 943 European cities from 2012 to 2016 and showing that city size and other factors (culture, openness, etc.) work to attract international conferences. Our Poisson-regression analysis shows positive effects of the size of the economy measured by prefectural population, with prefecture/year dummies. The positive population effect is also confirmed with five-rank population categorization, and the effect gets larger as population category goes up. Other two independent variables, number of universities in a prefecture and whether a prefecture has at least one bullet-train station, has positive effects in regression with population categorization. Especially, statistical significance of the number of universities is consistent with an observation that universities are main international-conference venues in Japan.

Keywords: International Conference, Japanese Prefectural Data, Poisson Regression
JEL: Z30 and Z39

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1. Introduction

An international conference is an event that attracts many people from both inside and outside of a country and whose participants are expected to give various benefits to local economies partly due to their characteristic as business travelers. Because of those desirable properties, many countries and cities are competing with each other to attract more international conferences these days. Previous studies have focused on cities in Europe and other developed economies, which have long history of hosting international conferences and other MICE (Meeting, Incentive Travel, Convention/Conference, and Exhibition) events, especially for Europe (Crouch and Louviere 2004 for Australia, Mair and Thompson 2009 for the U.K., Borghans et al. 2010 for labor economists in Europe, Hanly 2012 for Ireland, Events Industry Council 2016 for the U.S., for instance), whose origin of exhibition is back to the Middle Ages.[1]

Compared to European cities, fewer studies have focused on Asian counterparts, including Japan.[2] However, Asian countries/cities have been growing their importance as hosts of international meetings. For instance, Union of International Associations (UIA) showed in its press release of June 16, 2018 that in 2017, four of top ten international meeting countries were in Asia (South Korea, Singapore, Japan, and Thailand) while five of them are in Europe (Austria, Belgium, Spain, Germany, and France).

In this paper, we attempt to show what is effective to attract more international conferences to a region, using Japanese prefectural data of 1998-2017. This article follows the methodology of Falk and Hagsten (2018), who examine factors that some European cities have to host a lot of international conferences. They perform regression analysis on data of 943 cities from 2012 to 2016, and show that city size and other factors (culture, openness, etc.) work to attract international conferences.[3] Our regression analysis show mixed results of prefectural population, depending on model specification with prefecture/year dummies. Other independent variables, including tourism resources, international organizations, accommodation, and transportation infrastructure, also have mixed results, whose statistical significance

[1] See Getz and Page (2016) for more extensive survey on the previous literature and other research topics on event tourism.

[2] One exception is Chen (2006) for Taiwan. Also, in the 2010s, China has drawn more attentions from researchers because of its economic development as well as its increased number of international conferences.

[3] Bernini (2009) classifies Italian cities into six categories based on the cluster theory, and performs quantile regression as well as OLS to find competitive advantages of cities in terms of convention venues.

changes with prefecture/year fixed effects. Therefore more analysis on the current independent variables as well as policy measures by central/local governments is needed.

The structure of this article is as follows. Section two discusses data and some observations. Section three shows regression analysis. Section four concludes this article with further extensions.

2. Data and Observations

The data of international conferences held in Japan by prefecture are from Japan National Tourism Organization (JNTO) International Conferences Statistics. In the statistics, an international conference is defined as an event satisfying the following four conditions:

(1) Its purpose is not to pursue the interests of specific companies.

(2) Its total number of participants is more than fifty.

(3) Its number of participating countries, including Japan, is more than three.

(4) Its session is more than one day.

Note that the JNTO's definition is different from those by other organizations. For example, the definition of international conference by International Congress and Convention Association (ICCA), whose database are used by Falk and Hagsten (2018), does not include one-time events.[4]

The reasons why prefecture data rather than city data are used in this article are as follows. First, about large Japanese cities, Matsubara (2015) conducted a similar analysis. Thus, one of the purposes of this article is to compare results from prefecture data with those from city data. Second, data of possible explanatory variables are available only at prefecture level, not at city level in Japan. However, limited data availability may not be necessarily bad. For instance, even if tourist attractions luring (potential) participants of international conferences are not in cities of conference venues, it is enough that those attractions are located NEARBY the cities. Therefore, it is possible that tourist attractions in a prefecture may appeal to conference participants visiting cities in the same prefecture that do not have those attractions by themselves. Third, many Japanese prefectures have a big city besides their capital cities for geographical or historical reasons. For instance, in some prefectures, their capital cities are political centers while other cities are

[4] For details, see "Criteria" in the website of ICCA Association Database, whose URL is available in the references.

economics centers.[5] This implies that in such prefectures, venues of international conferences are not concentrated in their capital cities, depending on characteristics of international conferences held in those prefectures. This might suggest that analysis with city data is more appropriate, and the numbers of international conferences for all Japanese cities are available in the JNTO statistics. However, as stated above, data of possible determinants of international conferences, especially policy variables, are not available at city level. Moreover, how the venues of international conferences are diffused in a prefecture and how such diffusion affects decisions by conference organizers is not a focus of this article, except for showing some examples in Appendix 2.

Table 1 shows averages and other information for the number of international conferences by prefecture, prefectural population, and two variables in the regression analysis (section 3). One variable is a number of universities in a prefecture, available at Basic School Survey, Ministry of Education, Culture, Sports, Science and Technology. This variable is to capture the prefecture's ability to host international conferences (see Tables 2). The other variable is a dummy whether a prefecture has at least one bullet train station, indicating the transportation infrastructure of the prefecture (see Appendix 1 for data source). For all variables, there are huge variations among prefectures. Tokyo has the maximum of the all. Many prefectures in rural areas had no or few international conferences during the sample period. Such regional variations should be studied more.

Table 1 Descriptive Statistics of Key Variables

Variable/Statistics	Average	Minimum	Maximum	Standard Deviation
Number of International Conferences in a Year	45.175	0	670	94.913
Population (thousands)	2,708	557	14,007	2,615
Number of Universities	15.680	1	140	20.701
Bullet Train Station dummy	0.560	0	1	0.497

Note. NOB = 1,034 (= 47 prefectures×22 years). The sources are shown in the text.

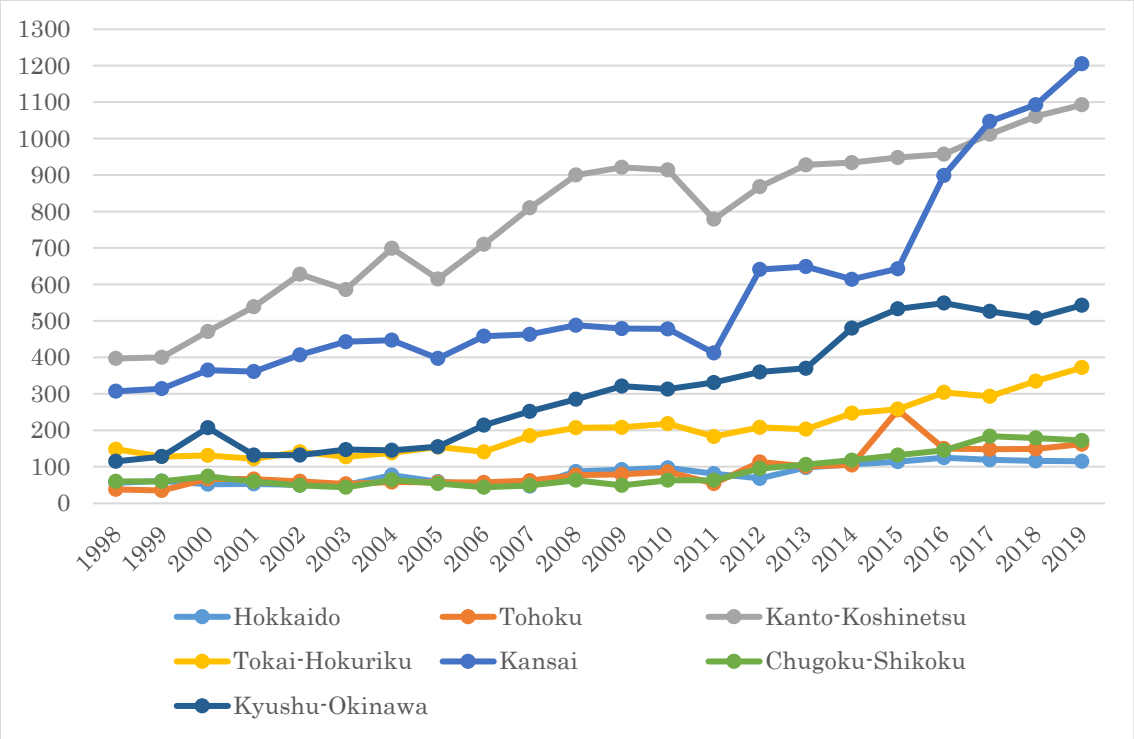
Figure 1 shows the time series of the numbers of international conferences by region from 1998 to 2019. Among the seven regions, the following three regions

[5] See Appendix 2, showing examples of three prefectures (Osaka, Fukuoka, and Okinawa).

have attracted many international conferences and/or the numbers have grown at very high rates.

- Kanto-Koshinetsu (gray), including Tokyo and Kanagawa (Yokohama).
- Kansai (blue), including Osaka, Kyoto, and Hyogo (Kobe).
- Kyushu-Okinawa (navy), including Fukuoka and Okinawa.

Figure 1 Number of International Conferences by Region, 1998-2019



Notes

1. Source: JNTO statistics.
2. Except for Hokkaido, which is one of the 47 prefectures, each Region consists of the following prefectures.
   - Tohoku: Aomori, Iwate, Akita, Yamagata, Miyagi, Fukushima.
   - Konto-Koshinetsu: Gumma, Tochigi, Ibaraki, Chiba, Saitama, Tokyo, Kanagawa, Niigata, Nagano, Yamanashi.
   - Tokai-Hokuriku: Toyama, Ishikawa, Fukui, Shizuoka, Gifu, Aichi, Mie
   - Kansai: Shiga, Kyoto, Nara, Wakayama, Osaka, Hyogo.
   - Chugoku-Shikoku: Tottori, Shimane, Okayama, Hiroshima, Yamaguchi, Kagawa, Tokushima, Ehime, Kochi.
   - Kyushu-Okinawa: Fukuoka, Saga, Nagasaki, Oita, Kumamoto, Miyazaki, Kagoshima, Okinawa.

Table 2-1 Ten Most International-Conference Attracting Venues in 2008

Venue	Prefecture	Number of International Conferences	Number of Foreign Participants	Number of Domestic Participants	Total Number of Participants
PACIFICO Yokohama	Kanagawa	97	16,275	181,132	198,885
Kyushu U.	Fukuoka	67	1,305	9,541	10,846
Kyoto U.	Kyoto	64	3,389	7,822	11,211
Tsukuba International Congress Center	Ibaraki	48	2,305	17,714	20,019
Nagoya U.	Aichi	48	1,226	7,540	8,766
Keidanren Kaikan	Tokyo	36	1,005	6,630	7,635
Kyoto International Conference Center	Kyoto	34	6,165	32,287	38,452
Fukuoka International Congress Center	Fukuoka	33	1,635	52,874	54,509
Makuhari Messe	Chiba	33	3,815	39,378	43,193
Hokkaido U.	Hokkaido	30	2,034	12,084	14,118

Source: JNTO statistics.

Kanto-Koshinetsu has Tokyo, capital of Japan and other highly urbanized prefectures surrounding Tokyo (Kanagawa, Chiba, and Saitama). Those four prefectures form Greater Tokyo Area. The above three prefectures in Kansai region have long history and a lot of tourist-attracting sites.[6] Kyushu-Okinawa region is a south-west part of Japan, and near to other East-Asian countries such as China, South Korea, and Taiwan. This area has also attracted many foreign cruise ships

[6] Kyoto was the former capital of Japan. Osaka was the economic center of Japan for a long time. Kobe has been one of the largest ports in Japan as well as Yokohama.

in the 2010s because of its locational advantage to other regions in Japan (Matsubara and Bae 2018).

Table 2-2 Ten Most International-Conference Attracting Venues in 2013

Venue	Prefecture	Number of International Conferences	Number of Foreign Participants	Number of Domestic Participants	Total Number of Participants
PACIFICO Yokohama	Kanagawa	128	14,077	196,123	210,200
Kyushu U.	Fukuoka	127	2,486	12,668	15,154
Osaka U.	Osaka	84	1,375	11,496	12,871
Nagoya U.	Aichi	76	2,578	12,080	14,658
Kyoto U.	Kyoto	59	2,878	6,960	9,838
Hokkaido U.	Hokkaido	50	984	8,165	9,149
U. of Tokyo	Tokyo	44	1,498	5,874	7,372
Osaka International Convention Center	Osaka	43	4,659	75,043	79,702
Tohoku U.	Miyagi	39	999	28,061	29,060
United Nations U.	Tokyo	37	1,131	6,385	7,516

Source: JNTO statistics.

Besides the regional variations shown in Figure 1, there is another factor possibly related with such variations. Tables 2-1 to 2-3 show the ten most international-conference attracting venues in years 2008, 2013, and 2018 respectively. Those tables clearly show that in Japan, universities are main international-conference venues, especially in the 2010s. Compared to international convention centers such as PACIFICO Yokohama in Kanagawa prefecture listed in the all tables, universities' total number of participants per conference is much smaller. On the other hand, ratios of foreign participants tend to be higher among universities.[7] Therefore, these tables suggest that (numbers of)

[7] One exception is Tohoku University in Miyagi Prefecture in Tables 2-2 and 2-3. Especially in Table 2-2 (year 2013), the ratio of foreign participants is very small, although the total number of participants is higher than other universities in the both

universities are possible determinant of regional variations observed in Figure 1, and that effects of (numbers of) universities themselves should be explored.

Table 2-3 Ten Most International-Conference Attracting Venues in 2018

Venue	Prefecture	Number of International Conferences	Number of Foreign Participants	Number of Domestic Participants	Total Number of Participants
Kobe U.	Hyogo	180	2,190	18,786	20,976
Kyoto U.	Kyoto	150	3,838	15,819	19,657
Kyushu U.	Fukuoka	114	3,111	16,697	19,808
PACIFICO Yokohama	Kanagawa	104	13,307	188,205	201,512
Nagoya U.	Aichi	96	2,853	10,349	13,202
RIKEN	Saitama	86	1,119	6,669	7,788
Tohoku U.	Miyagi	75	2,533	33,862	36,395
United Nations U.	Tokyo	66	1,822	7,226	9,048
U. of Tokyo	Tokyo	63	3,262	9,083	12,345
Hokkaido U.	Hokkaido	52	1,772	15,553	17,325

Source: JNTO statistics.

3. Regression Analysis

We perform regression analysis whose dependent variable is the number of international conferences held in a prefecture in a year. Because the dependent variable is count data with zeros, we perform Poisson regression.[8] In 3-1, effects of population and prefecture/year dummies are discussed. In 3-2, other way of capturing the population effects and effects of other variables are examined.

3-1 Effects of Population and Prefecture/Year Dummies

In the regression analysis discussed in this subsection, independent variables are the following four ones: (1) Log of population of a prefecture, capturing the size of

tables. One possible factor is the Great East Japan Earthquake in 2011. The Fukushima First Nuclear Power Plant is located in Fukushima Prefecture in the Tohoku region.

[8] About count data and Poisson regression, see Wooldridge (2002).

the economy. Population data is from e-stat, portal site for Japanese Government Statistics (other government data such as number of universities are also available at e-stat). (2) Prefecture dummy (Tokyo as reference). (3) Year dummy (1998 as reference). (4) Others.

Table 3: Determinants of International-Conference Venues
(Population and Prefecture/Year Dummies)

Dependent variable = Number of International Conferences. NOB = 1,034.

Equation / Variable	(1)	(2)	(3)	(4)	(5)	(6)
Log (population)	1.578 (0.006)	3.744 (0.165)	1.585 (0.006)	1.119 (0.188)	3.792 (0.165)	1.217 (0.195)
Prefecture (Tokyo as reference)		Yes(+) (-)Saitama		Yes(-) -zero for 3 prefectures -(+)Kyoto and Fukuoka	Yes(+) (-)Saitama	Yes(-) (+)Kyoto
Year (1998 as Reference)			Yes (-)→(+)	Yes (-)→(+)		Yes (–)→(+)
Year 2011					-0.144 (0.023)	
Bullet Train Station						0.036 (0.044)
Log(Number of Universities)						-0.107 (0.087)
Pseudo R^2	0.642	0.888	0.683	0.930	0.889	0.930

Notes

1. Standard errors are in parentheses. For log (population), every coefficient is statistically significant at one-percent level.
2. Prefecture, Year 2011, and Bullet Train Station are dummies (signs of the coefficients are in parentheses).

Table 3 shows the following results. Prefectural population has positive effects as expected (baseline regression: equation one). The effect gets larger when controlling for prefecture-fixed effects by prefecture dummies (Tokyo as

reference)(equations two and five).[9] The signs of prefecture dummies are positive except for Saitama (not significant). However, because Tokyo is the reference of prefecture dummies, the sign should be negative for most prefectures. When controlling for both prefecture-fixed effects and year effects by year dummies (1998 as reference), the population effects are similar with that of baseline regression and the signs of prefecture dummies are negative except for Kyoto and some other prefectures (equations four and six). About year dummies, the signs change around year 2004 to 2005 from negative to positive.

In equation six, two variables are added. Bullet Train Station is a dummy indicating a prefecture has at least one bullet train station, measuring the degree of transportation development in a prefecture. Log of number of universities in a prefecture measures the ability of hosting international conferences suggested by Tables 2. Although neither variables have significant effects (sign of number of universities is negative), those variables have some roles, indicates by the results of another regression specification (subsection 3-2).

The positive effects of population measuring the size of an economy is quite plausible. Also, the results in Table 3 suggest the importance of controlling for both the population fixed effects and the year effects. Especially, the year effects have not been constant over time. They were negative until the mid-2000s, and then become positive and the coefficients of the year dummies get larger. These results are consistent with the observations in Figure 1. Around in 2005, the growth of the numbers of international conferences in three leading regions (Kanto-Koshinetsu, Kansai, and Kyushu-Okinawa) started accelerating.

Besides number of universities and bullet train station dummies, more independent variables should be added to the regression equation. Following Falk and Hagsten (2018), possible candidates are:

(1) Ranking of universities.
(2) UNESCO world heritage sites.
(3) Museums
(4) (International) airport and other transportation infrastructure.
(5) International organizations
(6) Accommodation

In Japan, as Table 2 suggests, universities are venues of many international conferences, so including (1) seems to be plausible. However, most high-ranked universities, both public and private, are located in Tokyo and other big cities. Also,

[9] In equation five, year 2011 dummy is added and it has a negative effect as expected.

only two universities, University of Tokyo and Kyoto University, are listed in the top 100 of the world ranking such as Times Higher Education, whose data are used by Falk and Hagsten (2018). Variables (2) and (3) are indicators of tourism resources, which may attract (potential) participants of international conferences. International organizations host a lot of international conferences (their annual meetings for instance), so including (5) seems to be reasonable. Finally, ability of providing visitors with accommodation is necessary to invite international conferences, so (6) is added as an explanatory variable (see footnote 10 and Appendix 1).

3-2 Population-Classification Dummies with More Independent Variables

The regression analysis in the last subsection should be improved. The positive coefficients of prefectural population are consistent with intuition. However, including prefecture and year dummies change the sizes of the coefficients drastically, which suggest that the population effect is not constant for any level of population.

To solve this issue, following Falk and Hagsten (2018), population variable is classified as the following five categories:

(1) class one: less than one million inhabitants.

(2) class two: more than one million and less than 1.4 million inhabitants.

(3) class three: more than 1.4 million and less than 2 million inhabitants.

(4) class four: more than 2 million and less than 5 million inhabitants.

(5) class five: more than 5 million inhabitants.

With this classification, the 47 prefectures are divided almost equally. Note that during the sample period, some prefectures moved up or down from one class to the other due to its population increase or decrease.

In Table 4, these population-classification dummies (class one as reference) are significant positive effects. Moreover, coefficients are larger with larger-population categories, same as the resuluts in Falk and Hagsten (2018). This tendency holds with population and/or year dummies. The effects of year dummies are the same as those in Table 3; negative until around 2005 and then positive and increasing. One interesting result with prefecture dummies is that for some prefectures, the effects are positive when controlling for both prefecture and year fixed effects (Kyoto's positive effect is significant only with prefecture dummies in equation two).

Table 4: Determinants of International-Conference Venues
(Population-Classification Dummies and Other Independent Variables)

Dependent variable = Number of International Conferences. NOB =1,034.

Variable/Equation	(1)	(2)	(3)	(4)	(5)	(6)
1 Million≦Population < 1.4 Million (class 2)	1.023 (0.051)	2.354 (0.192)	2.324 (0.170)	1.434 (0.168)	2.291 (0.170)	1.428 (0.168)
1.4Million≦Population < 2 Million (class 3)	1.100 (0.051)	2.475 (0.189)	2.604 (0.169)	1.644 (0.173)	2.570 (0.170)	1.637 (0.173)
2 Million≦Population < 5 Million (class 4)	2.781 (0.046)	2.543 (0.167)	3.142 (0.153)	1.893 (0.187)	3.098 (0.156)	1.884 (0.188)
5 Million≦Population (class 5)	4.111 (0.046)	4.495 (0.091)	4.658 (0.093)	3.052 (0.193)	4.604 (0.101)	3.041 (0.193)
Prefecture Dummies (Tokyo as Reference)		Yes(-) (+)Kyoto	Yes(-) (+)Kyoto and Shimane	Yes(-) (+)Miyagi, Ibaraki, Ishikawa, Kyoto, Shimane and Fukuoka	Yes(-) (+)Kyoto and Shimane	Yes(-) (+)Miyagi, Ibaraki, Ishikawa, Kyoto, Shimane and Fukuoka
Year Dummies (1998 as Reference)			Yes (-)→(+)	Yes (-)→(+)	Yes (-)→(+)	Yes (-)→(+)
Log (Number of Universities)				0.621 (0.066)		0.618 (0.066)
Bullet Train Station					0.058 (0.042)	0.023 (0.042)
Pseudo R-squared	0.602	0.883	0.929	0.929	0.929	0.929

Notes

1. Standard errors are in parentheses. For log (population), every coefficient is statistically significant at one-percent level.
2. Year dummies have significant positive effects except for dummy of 1999.

This result shows that capturing the population, prefecture, and year effects adequately shows the regional variations more properly. With population-classification dummies, the effects of other variables are also changed. The effects of number of universities are positive and significant. The sizes of the university

effects are not negligible; ten percent increase in the number of university increases the number of international conferences by six. On the other hand, bullet train station dummy is not significant.[10]

4. Conclusions

The regression analysis of this article shows strong prefecture/year fixed effects, especially with population categorization. Possible extensions of the analysis are as follows. First, in addition to the explanatory variables examined by the regression analysis, effects of other (macro)economic variables and policy measures that prefectural governments and/or Japanese government implement should be examined. For instance, visa weaver policy by Japanese government is effective to attract foreign cruise ships (Matsubara and Bae 2018). Second, for each independent variable, other measures should be used. For airport variable, availability of (international) low-cost carrier (LCC) is one candidate. Third, some properties that only prefecture data have should be examined to check if results from prefecture data are comparable with those from city data. For instance, a measure of concentration of conference venues to capital cities and/or those of diversification of venues to more than one city are possible candidate of explanatory variables.[11]

[10] In the previous version of this article, analyzing years 1998-2017 data, more independent variables were added. Descriptive statistics and sources of those variables are shown in Appendix 1. First, the dummy of whether a prefecture has a world heritage site(s) was added. Because the world heritage sites are not very concentrated in prefectures with large population except for Kansai region, they may help prefectures in rural areas attract international conferences. Second, numbers of international organizations were added, although most of the international organizations are UN agencies located in Greater Tokyo Area. Third, numbers of rooms per hotel in a prefecture were added. Two other types of hotel variables, numbers of hotels and total numbers of rooms were also attempted. Fourth, to show the importance of transportation infrastructure, the dummy of whether a prefecture has an airport with at least one 2,500-meter runway was added. Finally, to show the effect of cultural facilities, numbers of museums of fine arts or numbers of all kinds of museum, including zoo, were added. Those variables were not statistically significant.

[11] See Appendix 2 about meaning of those variables.

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Appendix 1 Descriptive Statistics of Other Independent Variables

Variable	Source (websites)	Mean	Standard Deviation	Min	Max
Dummy = 1 if a prefecture has at least 1 world heritage site.	UNESCO World Heritage List	0.353	0.478	0	1
Number of inter-national organizations	Ministry of Foreign Affairs of Japan	0.667	2.801	0	24
Number of hotels	Ministry of Health, Labor and Welfare of Japan	194.095	145.658	10	707
Total number of hotel rooms		15541.66	16016.2	1064	102246
Number of rooms /number of hotels		75.980	24.134	37.554	172.815
Dummy = 1 if a prefecture has an airport with at least 1 runway of 2,500 meter or longer.	Ministry of Land, Infrastructure, Transport and Tourism of Japan	0.554	0.497	0	1
Dummy = 1 if a prefecture has at least one bullet-train station.	Central Japan Railway and Other Japan Railway (JR) Companies	0.552	0.498	0	1
Number of museums	Ministry of Education, Culture, Sport, Science and Technology of Japan	25.136	18.353	5	111
Number of museums of fine arts		8.809	7.675	0	45

Notes for the table of Appendix 1.

1. For every variable, number of observations = 940 (47 prefectures with years 1998-2017).
2. Because the survey for the number of museums (of fine arts) has been conducted every three or four years, missing numbers are interpolated by the following way (see the table in the next page).

interpolated year	used year	interpolated year	used year
2000 and 2001	1999	2009 and 2010	2008
2003 and 2004	2002	2012 to 2014	2011
2006 and 2007	2005	2016 and 2017	2015

Appendix 2 Prefectures Whose International-Conference Venues are not Concentrated in Their Capital Cities.

Cities hosting international conferences more than others in each of the three prefectures, Osaka in Kansai Region and Fukuoka and Okinawa in Kyushu-Okinawa Region, from 2010 to 2017 are shown in the table. For Osaka, first four cities including its capital city are located in the northern part of the prefecture, while the last two cities are located in the southern part. For Fukuoka, first four cities including its capital city are located in the western part of the prefecture, while the last two cities are located in the eastern part. For Okinawa, first three cities including the area with the capital city are located in the southern part of the prefecture, while the next two cities are located in the northern part, and the last city is in a different island. Therefore, the table shows regional dispersion of hosting cities in these three prefectures. Also, some international conferences were co-hosted by two or more cities in a prefecture.[12]

However, each prefecture has some characteristics peculiar to each of them. For Osaka, regional dispersion is observed even inside the northern part of the prefecture. Osaka, capital city, and Senri Area had almost the same numbers of international conferences every year. One reason is that Senri Area has a lot of universities, hospitals, and other types of research institutes. It also has good access for both international airport and Shinkansen bullet train.[13] For Fukuoka, concentration for its capital city is relatively high, but Kitakyushu, the second largest city of the prefecture and a former agglomeration of steel industry with a large international port, have nonnegligible share. For Okinawa, the northern cities have nonnegligible shares. Especially, Onna village is a famous beach resort and thus has a lot of large-scale hotels that can be venues of international

[12] To specify the host cities of an international conference, individual data of the conferences must be examined, which is beyond the scope of this article. Therefore, whether each of the conferences were hosted by neighboring cities or by separate cities is unknown and whether hosting international conferences has some externality or a network effect cannot be explored at this point.

[13] Senri area shares its border with Osaka City, which has a Shinkansen station.

conferences.

<Kansai Region>	2010	2011	2012	2013	2014	2015	2016	2017
Osaka	152	135	281	314	253	242	280	251
(C) Osaka	69	72	140	*172	*130	*139	180	*139
Senri Area	65	54	113	*113	*104	*94	85	98
Ikeda	1	1	3	2	1	0	2	1
Higashiosaka	5	2	7	5	7	5	4	3
Sakai	9	3	11	13	8	*4	7	6
Izumisano	1	2	2	3	0	1	0	*3
<Kyushu-Okinawa Region>	2010	2011	2012	2013	2014	2015	2016	2017
Fukuoka	269	268	301	312	411	450	488	436
(C) Fukuoka	216	*221	252	*253	*336	*363	383	296
Kurume	1	2	3	1	1	1	0	3
Kasuga	0	*8	0	3	4	0	0	2
Yame	0	0	0	0	0	*1	0	0
Kitakyushu	49	38	45	*57	*73	86	105	134
Iizuka	1	0	0	0	*1	0	0	0
Okinawa	16	27	23	22	39	29	25	37
(C) Okinawa Area	*12	*17	14	6	16	8	*8	13
Itoman	0	1	0	0	*2	0	0	0
Nishihara	0	*2	0	0	1	0	0	0
Nago	*2	3	3	4	*8	4	1	2
Onna	3	4	6	12	12	17	*17	19
Ishigaki	0	0	0	0	1	0	0	3

Notes for the table of Appendix 2.

1. (C) indicates the capital city of a prefecture.
2. * means that the number includes international conference(s) that other city(s) in the same prefecture co-hosted in the year.
3. Senri Area in Osaka Prefecture includes Toyonaka, Suita, Ibaraki, Takatsuki, and Minoo Cities.
4. Okinawa Area in Okinawa Prefecture includes Naha (Capital), Urazoe, Ginowan, and Okinawa Cities.