

# Supplementary Information

In this online appendix, we first present our data. We then demonstrate the robustness of our findings.

## A Data

Our data used for control variables come from multiple sources. We will list them one by one.

### A.1 COVID-19 policy dummies

The emergency declaration dummy was created based on the progress of the government's response as summarized by Tottori Prefecture on its website for new coronavirus infections. The site lists the prefectures that are subject to the issuance, change, and cancellation of emergency declarations in chronological order. Based on this information, we determined whether each prefecture was under a state of emergency declaration at a certain time. School closure dummies were created based on information of school closures for the national government and each prefecture in the time-series news archives on NHK's special website for new coronaviruses. The variable was set to 1 only when schools were closed in the entire prefecture. For municipality or school-level closure, the variable is set to be 0. Large-scale assembly dummies were created based on the governor's press conferences and updates on coronavirus in each prefecture. The criterion for variable 1 was defined as an event capacity of 5,000 people or less and a capacity ratio of 50% or less in each prefecture, and was set to 0 if either of these criteria was not met. In cases where the prefectural criteria were based on the guidelines of the respective industry, dummies were created based on the common guidelines of event-related industries.

### A.2 COVID-19 test cases

In the analysis of the infection prevention effect, the number of COVID-19 test cases in each prefecture was added as a control variable. As of 2020, the number of tests in each prefecture varies in Japan, especially because of the capacity of each municipality to test. If the number of tests itself is small, the number of new infection cases may be underestimated. We referred to the data on the number of tests published on the website of each prefecture.

### **A.3 Restaurant website views**

The rate of increase in the number of restaurant website views per week was also used as another indicator to capture the business conditions of restaurants. This data is available on V-RESAS, published by the Cabinet Office. In this data, the rate of increase or decrease in the restaurant website views compared to the same week in 2019 is disclosed for each prefecture. The original data is held by Retty, Japan’s largest word-of-mouth gourmet service operated by Retty, Inc..

### **A.4 Mobility by residential type**

In addition to the number of visitors to restaurants, we also used the human flow data published by V-RESAS to examine the impact on human flow in and across the prefectures. The weekly data shows the rate of increase or decrease in the mobility by residential type (within the municipality, within the prefecture, or from outside the prefecture) compared to the same week in 2019 for each prefecture.

### **A.5 Mobility inflow and outflow by prefecture**

We used Agoop’s paid data for the human flow within each prefecture and the human flow from outside the prefecture into each prefecture. Agoop’s human flow data is the aggregate data of users’ GPS information held by Agoop. Agoop’s human flow data is the aggregate data of GPS information of users held by Agoop, and it is the data that estimates the population of the entire human flow from a sample of the number of people who existed at a certain coordinate at a certain time. Therefore, it is possible to grasp not only the total number of people in a prefecture, but also the movement of people from a specific prefecture to a specific prefecture/municipality. This data was used to estimate the number of potentially infected people coming from other prefectures as shown in the SIR model above, rather than as an objective variable.

### **A.6 Mobility by facility type**

For the mobility data, we also deployed the “COVID-19: Community Mobility Report” published by Google. The data reveals the rate of increase or decrease in human flow in six types of locations (“retail and entertainment,” “grocery stores and pharmacies,” “parks,” “transfer stations,” “workplaces,” and “residences”) by country and region/prefecture. The median value for each day of the week for the five-week period from January 3 to February 6, 2020 is used as the baseline for the rate of change. Thus, the daily data is the rate of change from the base values for each day of the week.

## A.7 Weather data

For the weather data of temperature and precipitation, we used the daily weather observation data of observatories in each prefecture using the “Past Weather Data Search” of the Japan Meteorological Agency. When extracting the data from the database, several municipalities with observatories were chosen from several municipalities with the top population. In detail, Yamanashi Prefecture is represented by Kofu and Kawaguchiko; Nagano Prefecture by Nagano, Matsumoto, Ueda, and Iida; Shizuoka Prefecture by Hamamatsu, Shizuoka, and Fuji; Gunma Prefecture by Maebashi and Isesaki; Ibaraki Prefecture by Tsukuba, Mito, and Hitachi; and Tochigi Prefecture by Utsunomiya and Oyama. The average values of these municipalities was set as the representative location for each prefecture. For the values, the weekly precipitation total and the weekly average temperature was used as the representative respectively.

## A.8 Stay-home rate

We used the data on stay-home rate as a robustness check in the economic impact analysis. The Mizuno Laboratory of the National Institute of Informatics and the Graduate University for Advanced Studies publishes the data on stay-home. The data is collected by age group and time, based on the population data estimated in real-time from the information of about 78 million base stations of DOCOMO, a major Japanese telecommunication company. They defined the number of people going out from residential areas as

$$\textit{The number of people going out} = \textit{daytime population} - \textit{nighttime population}$$

and

$$\textit{The Stay-home rate} = 1 - \frac{\textit{Number of people who go out from 9 : 00 to 18 : 00 on a given day} * \textit{average}}{\textit{Number of people who go out from 9 : 00 to 18 : 00 on a normal day} * \textit{average}}$$

## B Estimation equation

The epidemiological analysis is based on the SIR-applied fixed effect model. This section shows the process of how the equation is derived from the SIR model.

The SIR model is the most basic mathematical model that captures the epidemic dynamics of infectious diseases that spread directly from person to person. The model estimates the infection status in three stages: Susceptible, Infectious, and Removed.

$$\frac{dI(t)}{dt} = \beta S(t)I(t) - \gamma I(t)$$

$\beta$  denotes infectivity, and  $\gamma$  denotes recovery rate. The above ordinary differential equation is a model that represents the number of population increases in the stage of infection, and can be rewritten as follows when estimating the number of newly infected people.

$$COVID = \beta SI$$

This multiplication can be converted into addition in logarithmic form.

$$\ln(COVID) = \ln\beta + \ln S + \ln I$$

Previous studies have shown that the coefficients of the variables on the right-hand side of the equation tend not to be equal to one when the two sides are logarithmic. In addition, it has been shown that it is appropriate to add the infectivity common to all regions and time points as the intercept. Therefore, we transform the model by adding coefficients to the variables and the intercept as follows

$$\ln(COVID) = \delta_0 + \delta_1 \ln\beta + \delta_2 \ln S + \delta_3 \ln I$$

In order to adapt this basic estimation equation to changes in external circumstances that affect the infection cases, we add control variables such as economic activity variables and weather conditions. In addition, the purpose of the GZ certification policy that we want to estimate is to reduce the infectivity ( ) that can be transferred from one infected person to another. Therefore, we redefine the infectivity ( ) as follows to derive the main estimation model.

$$\ln\beta = \alpha_1 \ln GZ + u \ln(COVID) = \delta_0 + \alpha_1 \ln GZ + \delta_2 \ln S + \delta_3 \ln I + \delta_4 \ln Control + u$$

## C Basic Statistics

### C.1 Table: COVID-19 infection cases

Table 1: Summary Statistics

Statistic	N	Mean	St. Dev.
New cases per day	408	76.061	122.493
Number of customers per restaurant	408	254.371	86.767
Sales per restaurant	408	585,798.500	174,182.800
Average temperature	408	56.563	14.107
Average rainfall	408	3.926	5.531
Infectious	408	172.859	260.401
Susceptible	408	2,205,422.000	877,185.900
Number of COVID-19 tests	408	1,711.466	2,655.616

## C.2 Cumulative GZ linear

Hirota-san will bring code here.

## D Statistical Testing

### D.1 Infection Prevention Effects

### D.2 Economic Effects

### D.3 1 week lag analysis

### D.4 Restaurants' view

### D.5 Google Mobility data

### D.6 Stay-home rate

### D.7 V-RESAS

## E Treatment Effect

### E.1 Comparison of Treatment and Control prefecture

	Yamanashi	Shizuoka	Tochigi	Nagano	Gunma	Ibaraki
Population (in thousands)	811	3,644	2,049	1,942	1,934	2,860
Population density ( $/km^2$ ) *	4,668	5,267	4,244	3,997	4,691	4,570
Distance to Tokyo ( $km$ )	101.7	142.8	172.8	96.4	98.8	99.3

Notes: Population and population density are from the 2019 and 2014 National Census, respectively. For distance to Tokyo, see “Distance between Prefectural Offices” by the Geospatial Information Authority of Japan. \*In prefectures in the Tokyo metropolitan area that were excluded from the control group, population density is about two to three times that of Yamanashi. In particular, the population densities of Tokyo, Kanagawa, Saitama, and Chiba prefectures are 12,022, 8,979, 8,340, and 7,145 persons/ $km^2$ , respectively.

### E.2 Comparison of policies in Treatment and Control prefecture

Table 2: The COVID-19 new infection cases (2 week lag) and the Green Zone certification

	<i>Dependent variable:</i>			
	New infection cases (2 week lag), log			
	(1)	(2)	(3)	(4)
Cumulative GZ-certified restaurants, log	−0.083*** (0.015)	−0.108** (0.030)	−0.104** (0.030)	−0.099** (0.027)
Cumulative GZ-certified restaurants and hotels, log				
Infectious, log	0.557*** (0.042)	0.573*** (0.037)	0.566*** (0.033)	0.564*** (0.033)
Susceptible, log	5.477 (6.643)	−0.021 (7.455)	2.941 (6.841)	4.963 (6.193)
State of Emergency	0.048 (0.230)	0.156 (0.217)	0.095 (0.198)	0.108 (0.196)
Tests (2 week lag), log	0.045* (0.021)	0.049* (0.022)	0.046* (0.020)	0.046* (0.020)
Customers per restaurant, log		0.550 (0.443)	0.522 (0.469)	0.568 (0.461)
Average temperature, log			−0.341 (0.503)	−0.350 (0.495)
Average rainfall, log			−0.110 (0.058)	−0.108 (0.059)
School closure				
Gathering restriction				
Prefecture FE	X	X	X	X
Week FE	X	X	X	X
Observations	396	396	396	396
R <sup>2</sup>	0.929	0.930	0.930	0.930
Adjusted R <sup>2</sup>	0.913	0.913	0.913	0.913

*Note:*

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*

Table 3: Restaurants' sales and customers (POS) and the Green Zone certification

	<i>Dependent variable:</i>						
	Sales per restaurant, log				Customers per restaurant		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Cumulative GZ-certified restaurants, log	0.018*** (0.002)	0.016*** (0.003)	0.016*** (0.004)	0.016*** (0.003)	0.040*** (0.003)	0.037*** (0.005)	0.037*** (0.005)
State of Emergency	-0.267*** (0.018)	-0.264*** (0.017)	-0.257*** (0.014)	-0.261*** (0.037)	-0.223*** (0.032)	-0.219*** (0.030)	-0.217*** (0.030)
The number of new COVID-19 cases, log		-0.013 (0.010)	-0.015 (0.011)	-0.015 (0.011)		-0.017 (0.012)	-0.018 (0.013)
Average temperature, log			0.296* (0.129)	0.298* (0.128)			0.188* (0.089)
Average rainfall, log			-0.007 (0.005)	-0.007 (0.005)			-0.012** (0.004)
School closure				0.085 (0.108)			
Gathering restriction				0.004 (0.041)			
Prefecture FE	X	X	X	X	X	X	X
Day FE	X	X	X	X	X	X	X
Observations	5,106	5,106	5,106	5,106	5,106	5,106	5,106
R <sup>2</sup>	0.935	0.935	0.935	0.935	0.947	0.947	0.947
Adjusted R <sup>2</sup>	0.921	0.922	0.922	0.922	0.936	0.936	0.937

*Note:*

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*

Table 4: TABLE: COVID-19 new cases (1 week lag) and the Green Zone certification

	<i>Dependent variable:</i>			
	New infection cases (1 week lag), log			
	(1)	(2)	(3)	(4)
Cumulative GZ-certified restaurants, log	−0.079*** (0.017)	−0.095** (0.029)	−0.093** (0.031)	
Cumulative GZ-certified restaurants and hotels, log				−0.088** (0.028)
Infectious, log	0.567*** (0.041)	0.582*** (0.034)	0.581*** (0.029)	0.579*** (0.029)
Susceptible, log	6.724 (6.892)	2.749 (8.490)	2.743 (10.859)	4.552 (10.134)
State of Emergency	0.044 (0.194)	0.117 (0.216)	0.116 (0.242)	0.127 (0.242)
Tests (1 week lag), log	0.043* (0.021)	0.047* (0.021)	0.048* (0.023)	0.047* (0.023)
Customers per restaurant, log		0.375 (0.450)	0.342 (0.466)	0.380 (0.462)
Average temperature, log			0.378 (0.423)	0.375 (0.427)
Average rainfall, log			−0.010 (0.120)	−0.009 (0.119)
Prefecture FE	X	X	X	X
Week FE	X	X	X	X
Observations	402	402	402	402
R <sup>2</sup>	0.932	0.932	0.932	0.932
Adjusted R <sup>2</sup>	0.916	0.916	0.916	0.916

*Note:*

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01



Table 5: Restaurant View (percentage change) and the Green Zone certification

	<i>Dependent variable:</i>		
	Restaurant View (percentage change)		
	(1)	(2)	(3)
log(cumGZ + 1)	1.900*** (0.252)	1.497*** (0.253)	1.431*** (0.258)
emergency	-3.842** (1.164)	-4.281** (1.390)	-8.328** (2.115)
log(newcase_day + 1)		-1.709** (0.449)	-1.945*** (0.424)
log(avg_temp)		-25.388 (17.074)	-24.349 (17.874)
log(avg_rain + 1)		-0.372 (0.480)	-0.517 (0.501)
dummy_school_closure			6.709** (2.110)
dummy_gathering_restriction			4.643 (3.290)
Restaurant View Yamanashi mean		-21.052	
Restaurant View Control mean		-22.641	
Prefecture FE	X	X	X
Week FE	X	X	X
Observations	408	408	408
R <sup>2</sup>	0.947	0.950	0.953
Adjusted R <sup>2</sup>	0.935	0.939	0.942

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 6: Mobility type (Google Mobility) the Green Zone certification

Dependent variable:																
	retail and recreation			grocery and pharmacy			parks			transit stations			workplaces		residential	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)				
log(cumGZ + 1)	0.372*** (0.042)	0.366*** (0.045)	0.051 (0.038)	0.099 (0.062)	2.804*** (0.101)	3.138*** (0.346)	0.448*** (0.051)	0.548*** (0.180)	-0.029 (0.051)	-0.003 (0.048)	0.061*** (0.013)	0.060*** (0.006)				
emergency	-3.992*** (0.583)	-3.890*** (0.421)	-0.245 (0.468)	-0.393 (0.357)	4.231 (4.044)	5.191 (3.188)	-2.007 (2.514)	-1.387 (2.132)	1.410*** (0.343)	1.282*** (0.258)	1.006*** (0.234)	0.964*** (0.171)				
log(newcase_day + 1)		-0.180 (0.107)		0.121 (0.129)		0.538 (0.972)		0.127 (0.527)		0.031 (0.070)		0.060* (0.029)				
log(avg_temp)		8.489** (2.193)		5.912** (1.679)		74.310*** (7.775)		27.060** (7.974)		6.769** (1.881)		-3.482** (0.989)				
log(avg_rain + 1)		-0.769*** (0.101)		-1.084*** (0.088)		-4.338*** (0.520)		-0.653 (0.329)		-0.261*** (0.061)		0.298*** (0.031)				
Prefecture FE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Date FE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Observations	2,646	2,646	2,646	2,646	2,627	2,627	2,646	2,646	2,646	2,646	2,646	2,646	2,646	2,646	2,646	2,646
R <sup>2</sup>	0.965	0.967	0.897	0.910	0.837	0.860	0.899	0.905	0.991	0.991	0.991	0.984	0.987	0.987	0.987	0.987
Adjusted R <sup>2</sup>	0.958	0.961	0.876	0.891	0.803	0.830	0.879	0.885	0.989	0.989	0.989	0.981	0.984	0.984	0.984	0.984

*Note:*

Standard errors are clustered at the prefecture level. <br> \*p<0.1; \*\*p<0.05; \*\*\*p<0.01  
 \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 7: The night-time stay-home rate and the Green Zone certification

	<i>Dependent variable:</i>		
	NSHR		
	(1)	(2)	(3)
log(cumGZ + 1)	−0.004*** (0.001)	−0.003** (0.001)	−0.004*** (0.001)
emergency	0.086*** (0.014)	0.088*** (0.015)	0.070*** (0.017)
log(newcase_day + 1)		0.005 (0.003)	0.004 (0.003)
log(avg_temp)		0.023 (0.031)	0.024 (0.032)
log(avg_rain + 1)		0.009*** (0.002)	0.009*** (0.002)
dummy_school_closure			−0.001 (0.004)
dummy_gathering_restriction			0.021* (0.010)
Prefecture FE	X	X	X
Day FE	X	X	X
Observations	2,724	2,724	2,724
R <sup>2</sup>	0.947	0.948	0.948
Adjusted R <sup>2</sup>	0.937	0.937	0.938

*Note:*

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

Table 8: The self-restraint rate by female age group and the Green Zone certification

	<i>Dependent variable:</i>						
	F15	F20	F30	F40	F50	F60	F70
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
log(cumGZ + 1)	−0.002 (0.001)	−0.002 (0.001)	−0.003** (0.001)	−0.002*** (0.000)	−0.001* (0.001)	−0.002*** (0.000)	−0.003** (0.001)
emergency	−0.009 (0.015)	0.009 (0.006)	0.011 (0.006)	0.012** (0.004)	0.020*** (0.005)	0.019*** (0.003)	0.023** (0.007)
log(newcase_day + 1)	0.002 (0.002)	0.002 (0.002)	0.003 (0.002)	0.002 (0.001)	0.002 (0.001)	0.003** (0.001)	0.004* (0.002)
log(avg_temp)	0.006 (0.062)	−0.063 (0.038)	−0.024 (0.051)	0.006 (0.029)	−0.022 (0.028)	−0.032 (0.043)	−0.136* (0.057)
log(avg_rain + 1)	0.006* (0.003)	0.004*** (0.001)	0.006*** (0.001)	0.006*** (0.001)	0.006*** (0.001)	0.007*** (0.001)	0.012*** (0.001)
dummy_school_closure	0.007 (0.052)	0.025 (0.016)	0.016 (0.010)	0.006 (0.014)	0.015** (0.005)	0.009 (0.016)	0.012 (0.012)
dummy_gathering_restriction	0.048*** (0.011)	0.005 (0.004)	0.014*** (0.003)	0.014*** (0.002)	0.009*** (0.002)	0.009*** (0.002)	0.019*** (0.004)
Prefecture FE	X	X	X	X	X	X	X
Day FE	X	X	X	X	X	X	X
Observations	2,694	2,694	2,694	2,694	2,694	2,694	2,694
R <sup>2</sup>	0.936	0.943	0.960	0.966	0.966	0.961	0.948
Adjusted R <sup>2</sup>	0.922	0.931	0.951	0.959	0.959	0.953	0.938

*Note:*

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

Table 9: The self-restraint rate by male age group and the Green Zone certification

	<i>Dependent variable:</i>						
	M15	M20	M30	M40	M50	M60	M70
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
log(cumGZ + 1)	0.003** (0.001)	-0.002** (0.001)	-0.003*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.003* (0.001)	-0.003** (0.001)
emergency	0.003 (0.016)	0.011** (0.003)	0.020*** (0.003)	0.013*** (0.003)	0.011*** (0.002)	0.028*** (0.006)	-0.018* (0.008)
log(newcase_day + 1)	0.001 (0.003)	0.004** (0.001)	0.003* (0.001)	0.002* (0.001)	0.002* (0.001)	0.000 (0.001)	0.005** (0.002)
log(avg_temp)	0.027 (0.050)	-0.039 (0.024)	-0.027 (0.039)	-0.013 (0.039)	-0.015 (0.027)	-0.084 (0.048)	-0.128* (0.062)
log(avg_rain + 1)	0.009* (0.004)	0.002* (0.001)	0.004*** (0.000)	0.006*** (0.001)	0.006*** (0.001)	0.008*** (0.001)	0.015*** (0.002)
dummy_school_closure	0.007 (0.050)	0.019* (0.008)	0.017** (0.005)	0.007 (0.005)	0.012** (0.004)	0.024 (0.015)	0.024 (0.013)
dummy_gathering_restriction	0.040** (0.013)	0.005 (0.004)	0.014*** (0.003)	0.011*** (0.002)	0.011*** (0.002)	0.012** (0.003)	0.021*** (0.004)
Prefecture FE	X	X	X	X	X	X	X
Day FE	X	X	X	X	X	X	X
Observations	2,694	2,694	2,694	2,694	2,694	2,694	2,694
R <sup>2</sup>	0.925	0.931	0.950	0.964	0.964	0.959	0.947
Adjusted R <sup>2</sup>	0.910	0.917	0.940	0.956	0.957	0.951	0.936

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 10: Interregional Mobility and the Green Zone certification

	<i>Dependent variable:</i>								
	incity			inpref			outpref		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
log(cumGZ + 1)	-0.115*** (0.022)	-0.106*** (0.026)	-0.105*** (0.026)	0.224** (0.060)	0.177* (0.081)	0.186* (0.083)	1.055*** (0.163)	1.132*** (0.148)	1.044 (0.11)
emergency	0.630** (0.240)	0.589** (0.166)	0.658** (0.237)	-5.249*** (0.585)	-5.128*** (0.459)	-4.661*** (0.615)	-0.125 (2.457)	-0.212 (2.680)	-5.77 (2.68)
log(newcase_day + 1)		0.050 (0.050)	0.054 (0.047)		-0.254 (0.177)	-0.228 (0.176)		0.424 (0.466)	0.09 (0.37)
log(avg_temp)		-1.461 (1.701)	-1.480 (1.716)		6.131 (3.778)	6.092 (3.663)		-10.450 (16.018)	-8.8 (17.1)
log(avg_rain + 1)		0.007 (0.107)	0.009 (0.106)		-0.167 (0.317)	-0.151 (0.319)		0.552 (0.735)	0.35 (0.73)
dummy_school_closure			-0.135 (0.174)			0.218 (0.836)			11.83* (1.35)
dummy_gathering_restriction			-0.079 (0.178)			-0.530 (0.347)			6.371 (2.18)
Mean of Mobility in Yamanashi		5.49			-7.079			-27.778	
Mean of Mobility in Control		5.165			-7.584			-27.881	
Prefecture FE	X	X	X	X	X	X	X	X	X
Week FE	X	X	X	X	X	X	X	X	X
Observations	408	408	408	408	408	408	408	408	408
R <sup>2</sup>	0.980	0.980	0.980	0.963	0.963	0.963	0.942	0.943	0.94
Adjusted R <sup>2</sup>	0.975	0.975	0.975	0.954	0.955	0.955	0.929	0.929	0.93
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01								

	Yamanashi	Shizuoka	Tochigi	Nagano	Gunma	Ibaraki
Title of the certification policy	Yamanashi Green Zone Certification	Fujinokuni Safety and Security Certification	Tochimarukinoshina Reli-able Certification	Shinshu Safe Store Certification System	Stop Covid-19! Counter-measure Certification System	Ibaraki's Amabiechan
Introduction date	May 2020	May 2021	May 2021	April 2021	July 2020	June 2020
Third-party onsite inspection requirements	Yes	Yes	Yes	Yes	Yes	Yes (from April 14, 2021)
Subsidies on indoor infection control measures	From July 10, 2020	Only in Hamamatsu City	From January 22, 2021	From September 15, 2020 - December 28, 2020	Only in Maebashi City	From October 2, 2020 to December 31, 2020
Prefectural/municipal support on the introduction of delivery services	From April 17, 2020	From April 17, 2020	From January 22, 2021	From September 15, 2020 - December 28, 2020	Only in Maebashi City	In certain cities

Notes: Prepared by the authors with reference to prefectures' press releases and newspaper articles. Gunma Prefecture introduced a certification system around the same time as Yamanashi, but the penetration rate remains 21.6% as of October 2020 (see Reference List 12-30).

### E.3 List of Business suspension request

	First Emergency Declaration (April 2020 - May 2020)	Second Emergency Declaration (January 2021 - March 2021)	Third Emergency Declaration (April 2021 - June 2021)
Yamanashi	April 20 - May 14 (business closure on bars and nightclubs)	January 25 - February 7	No
Shizuoka	April 25 - May 17 (qualified facilities were individually exempted)	December 23 - January 5 (only in Fuji City)	May 19 - June 1 (only in Kosai City)

First Emergency Declaration (April 2020 - May 2020)	Second Emergency Declaration (January 2021 - March 2021)	Third Emergency Declaration (April 2021 - June 2021)
Tochigi April 18 - May 15 (restriction on alcohol service hours only)	January 8 - February 21 (in specified cities until January 12)	No
Nagano April 23 - May 15	January 18 - February 4 (in specified cities)	April 2 - 9 (Nagano City) April 21 - 29 (in specified cities)
Gunma April 18 - May 15	December 15 - March 1 (in specified cities)	May 8 - June 20
Ibaraki April 18 - May 17 (bars and nightclubs only)	November 30 - December 20, January 6 - 17 (in specified cities) January 18 - February 22 (entire Prefecture)	April 22 - June 16 (in specified cities)

Notes: Prepared by the authors with reference to each prefecture's official website and newspapers (see Reference List 31-59).