Online Appendix:

The Impact of COVID-19 Pandemic on the Behavior of Online Gig Workers

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A.1 Excluding Demand Effect and Entry Effect

Now we investigate whether the increase in gig workers' labor supply is in response to a change in the demand side. Figure A1 plots the average number of booked slots per worker per day versus the average number of opened slots per worker per day during January-June, 2020. The number of daily booked slots is the equilibrium outcome of the demand and labor supply. If the increase in labor supply is driven by the increase in the demand side, then the number of daily booked slots should have a similar magnitude of increase as that of the average labor supply. However, we can see that although the average number of daily booked slots becomes higher after the outbreak of the pandemic, the magnitudes of increase in Stage 1 and Stage 2 are both much smaller than that of the average labor supply, which indicates that the increase in labor supply is unlikely to be driven by a change in the demand side.

This result is reasonable, given that the outbreak of COVID-19 happened in China earlier: the COVID-19 surged in China in January and caused lockdowns in many places in China during late January and February,[1] which could be the reason for the increasing trend of the daily booked slots in January and February. By early March, the COVID-19 pandemic had already been well controlled in China, and the schools had resumed in most places.[2] Thus, it is reasonable that the demand did not continue increasing after March.

To test whether the change in demand can explain the increase in gig workers' labor supply in a more rigorous way, we use the total number of booked slots on the platform as a reflection of the total demand, and test if it is a mediator explaining the increase in gig workers' labor supply on the platform. We first regress the total number of booked slots on the platform on the dummies of Stage 1 and Stage 2 (Column (1) of Table A6), and see that compared to before the pandemic, it marginally increases in Stage 1, but decreases significantly in Stage 2.

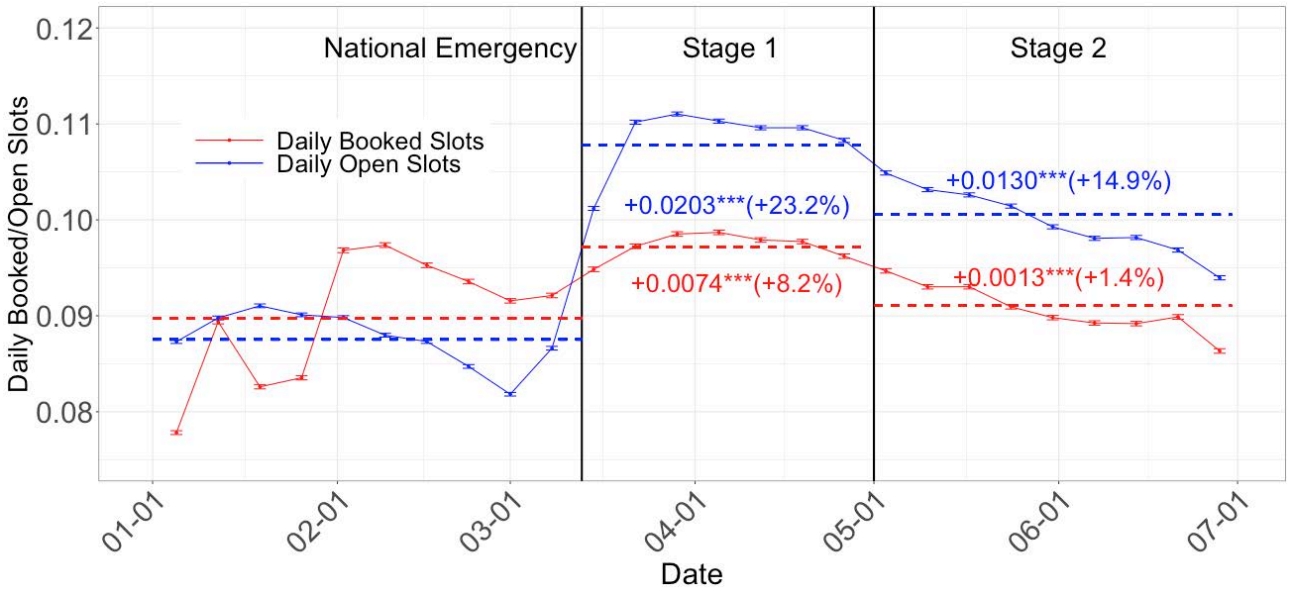
[1]The outbreak of COVID-19 was first found in Wuhan, China. Wuhan announced the lockdown on January 23, 2020 (`https://www.reuters.com/article/us-china-health-who-idUSKBN1ZM1G9`). By January 29, all parts of China announced a Class 1 Response (the highest response level) to Public Health Emergency (`https://china.caixin.com/2020-01-29/101509411.html`).

[2]According to the WHO, by March 8, the reported number of new cases in China had dropped to fewer than 100 nationally per day (`https://covid19.who.int/region/wpro/country/cn`). In February, schools in most places started the spring semester online (`https://en.unesco.org/news/how-china-ensuring-learning-when-classes-are-disrupted-coronavirus`). By mid-May, nearly 40 percent of all Chinese students had returned to schools (`http://www.xinhuanet.com/english/2020-05/12/c_139050745.htm`).

This pattern is inconsistent with the increase in average labor supply in Stage 1 and Stage 2 (Column (4)). Furthermore, when the total number of booked slots is added to the regression (Column (5)), the coefficients of Stage 1 and Stage 2 are not reduced significantly (Stage 1's coefficient becomes slightly smaller, and Stage 2's coefficient becomes larger). Thus, the total number of booked slots does not pass the mediation test, meaning that the change in demand cannot explain the increase in gig workers' labor supply.

Although we already exclude newly entered workers in our analysis and focus on the change in existing gig workers' behavior, the increase in existing gig workers' labor supply may still be driven by excessive entry of new workers through increased competition. That is, existing workers might have to open more slots because more new workers flooded into the platform after the outbreak of the COVID-19 pandemic and existing gig workers had to open more slots to get enough number of slots booked by students. However, mediation analyses do not support this hypothesis: although the total number of workers increased compared to before the pandemic (Column (2) of Table A6), the rate at which new workers entering the platform did not change significantly (Column (3)). Adding the total number of workers on the platform (Num-of-Workers) or the number of workers entering the platform per day (Num-of-Workers-Enter) to the regression increases, rather than reduces, the coefficients of Stage 1 and Stage 2 (reported in Table A6 Column (6)-(7)). Thus, neither Num-of-Workers nor Num-of-Workers-Enter is a mediator for the increase in existing workers' labor supply, meaning that the increase in existing workers' labor supply was not because of more new workers coming to the platform and driving up the competition.

Figure A1: Demand versus Supply



Notes. The figure is plotted using the data of 2020. We show the weekly average value of both variables since there is obvious seasonality pattern within each week. The error bars represent the standard error of the weekly average value. Both variables have been normalized, so we should focus on the relative changes here. $^{*}p < 0.05$,** $p < 0.01$,*** $p < 0.001$.

Figure A2: Relationships between the three factors and labor supply

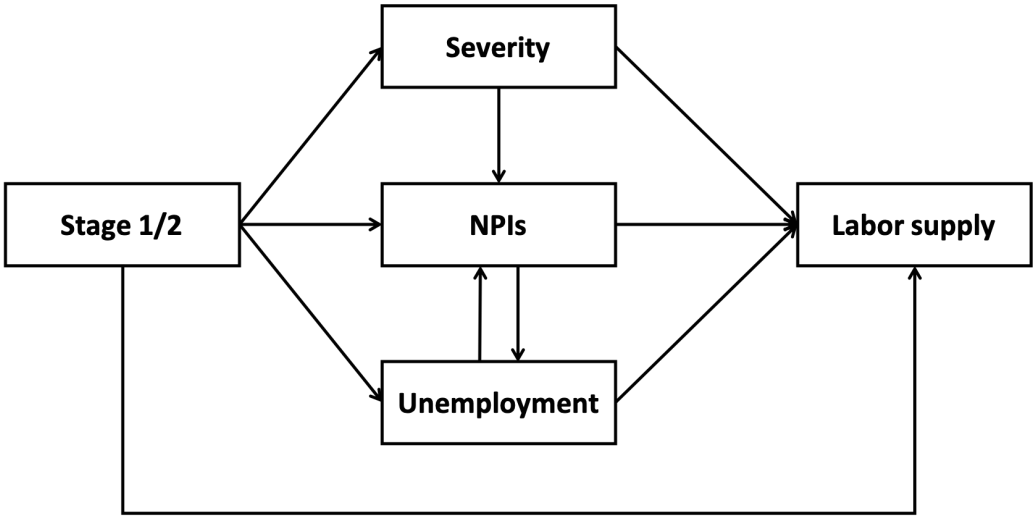
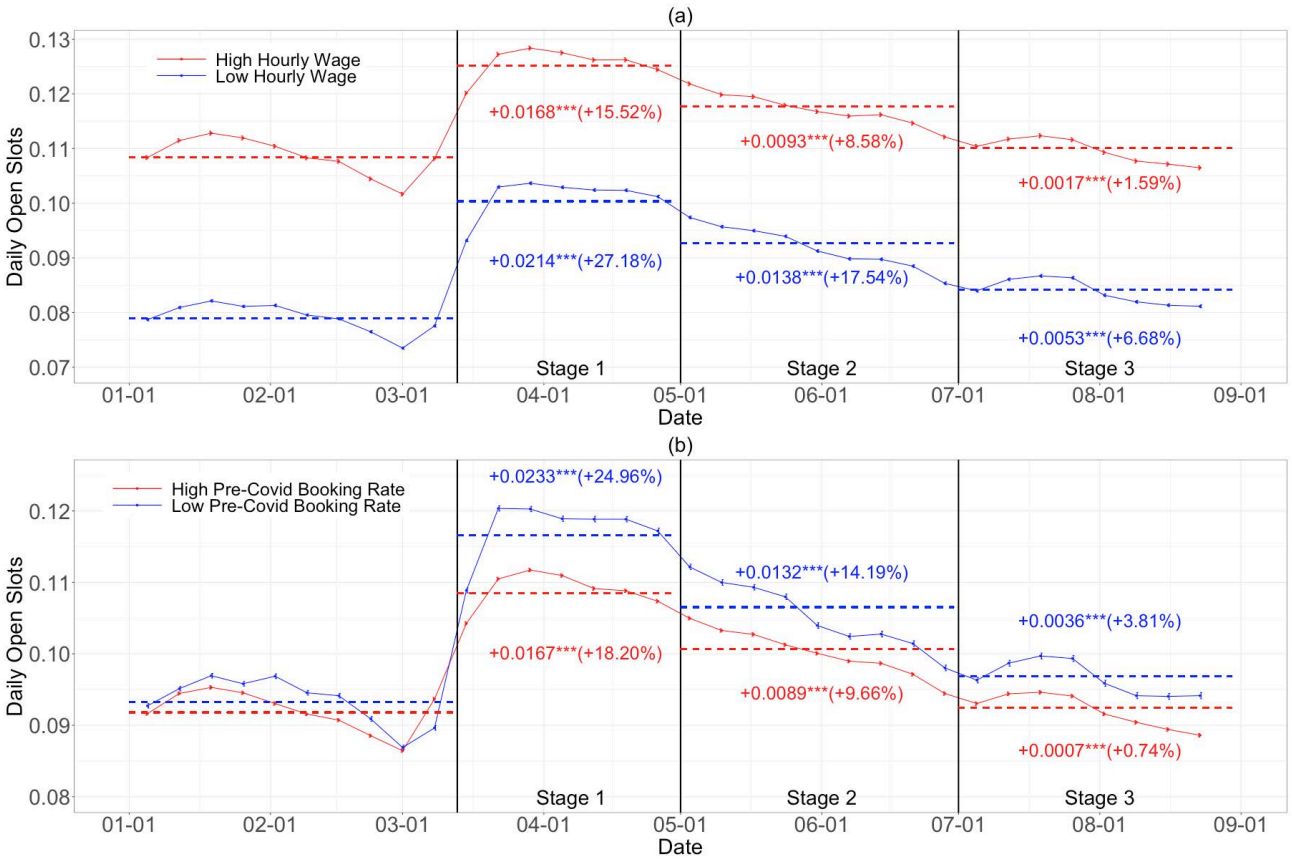


Figure A3: Change in Labor Supply for Gig Workers with High/Low Earning Potential



Notes. In Figure (a), a worker belongs to the High/Low Hourly Wage group if her hourly wage is above/below the median of gig workers' hourly wage in our data sample. In Figure (b), a worker belongs to the High/Low Pre-COVID Booking Rate group if her pre-COVID booking rate is above/below the median of gig workers' booking rate in our data sample. Figure (a) and (b) both show the weekly average value of the outcome variable since there is obvious seasonality pattern within each week. The error bars represent the standard error of the weekly average value.
Both figures show that workers with lower earning potential have a larger increase in average labor supply after the outbreak of the pandemic (compared to before the pandemic), both in terms of absolute value and percentage value.

Table A1: Variable Definitions and Summary Statistics of Labor Supply Data

(a) Variable Definitions

Variable	Definition
Panel A: Worker-Day Level Variables	
Daily-Open-Slots*	The number of slots opened by a worker in a day.
Daily-Availability	Dummy variable that equals to 1 if the worker opens at least one slot in a day.
Working-Intensity*	Conditional on the worker being available on the day, the number of slots opened by the worker that day.
Panel B: Daily Level Variables	
Stage 1	Dummy variable that equals 1 if the date is after March 13 and before the end of April.
Stage 2	Dummy variable that equals 1 if the date is in May or June.
Stage 3	Dummy variable that equals 1 if the date is in July or August.
Year2020	Dummy variable that equals 1 if the day is in the year of 2020.
Total-Booked-Slots*†	The total number of booked slots of all workers on the platform on the day.
Num-of-Workers*†	The total number of workers on the platform on the day.
Num-of-Workers-Enter*†	The number of workers who enter the platform on the day.
Panel C: Class Level Variables	
Worker-Problem	Dummy variable that equals 1 if the worker fails to fulfill a booked slot due to canceling the class, not showing up during the class, or encountering an IT problem.
Class-Rating	The rating given by the student after the class finishes, ranging from 1 to 5.
Low-Rating	Dummy variable that equals 1 if the class rating is lower than 5.
Panel D: Worker Level Variables	
Hourly Pay**	The hourly wage a worker earns on the platform in the current stage.
Pre-COVID Booking Rate**	Total number of booked slots divided by the total number of opened slots of a worker before March 13, 2020.

Notes. Variables marked with * have been normalized by dividing the original value by its maximum value. (The maximum value is taken throughout 2019 and 2020 data.) Variables marked with ** have been normalized to the standard normal distribution. The variables marked with † are calculated based on all workers on the platform, and all the other variables are calculated based on the two 40,000-worker samples of 2020 and 2019.

(b) Summary Statistics

Year 2020

Variable	Count	Mean	S.D.	Min	Median	Max
Panel A: Worker-Day Level Variables						
Daily-Open-Slots*	8165521	0.0963	0.1022	0.0000	0.0741	0.6111
Daily-Availability*	8165521	0.7018	0.4575	0.0000	1.0000	1.0000
Working-Intensity*	5730504	0.1372	0.0962	0.0185	0.1111	0.6111
Daily-Booked-Slots*	8165521	0.0932	0.1176	0.0000	0.0370	1.0000
Panel B: Daily Level Variables						
Total-Booked-Slots†*	244	0.8004	0.1110	0.4748	0.8095	1.0000
Num-of-Workers†*	244	0.9037	0.0686	0.7740	0.9105	1.0000
Num-of-Workers-Enter†*	244	0.1449	0.1688	0.0000	0.0824	
Panel C: Class Level Variables						
Worker-Problem	28523299	0.0092	0.0954	0	0	1
Low-Rating	3268970	0.0007	0.0256	0	0	1
Class-Rating	3268970	4.9942	0.1194	1	5	5

Year 2019

Variable	Count	Mean	S.D.	Min	Median	Max
Worker-Day Level Variables						
Daily-Open-Slots*	8432380	0.0829	0.0890	0.0000	0.0741	1.0000
Daily-Availability*	8432380	0.6708	0.4699	0.0000	1.0000	1.0000
Working-Intensity*	5656175	0.1236	0.0823	0.0185	0.1111	1.0000
Daily-Booked-Slots*	8432380	0.1087	0.1275	0.0000	0.0741	1.0000

Notes. For the year of 2020, the data is from January 5, 2020 (Sunday) to August 29, 2020 (Saturday). For the year of 2019, the data is from January 6, 2019 (Sunday) to August 31, 2019 (Saturday). Variables marked with * have been normalized by dividing the original value by its maximum value. (For worker-day level variables, the maximum values are taken throughout 2019 and 2020 data, so the maximum values of the normalized variables in each year can be less than 1.) The variables marked with † are calculated based on all workers on the platform, and all the other variables are calculated based on the two 40,000-worker samples of 2020 and 2019.

Table A2: Epidemiological Measures, Unemployment, and Non-Pharmaceutical Interventions

(a) Definitions and Sources of Epidemiological Measures and Unemployment Rate

Variable	Definition	Sources
New Deaths per 1K	Daily number of new deaths caused by COVID-19 (confirmed or probable) in a state / state population * 1000	The New York Times[a] and U.S. Census
New Cases per 1K	Daily number of new COVID-19 cases (confirmed or probable) in a state / state population * 1000	The New York Times and U.S. Census
Test Positive Rate	Daily positive tests / Daily total tests in a state	U.S. Department of Health & Human Services
COVID Inpatients per 1K	Number of current hospitalized COVID-19 patients (confirmed or suspected) in a state / state population * 1000	U.S. Department of Health & Human Services
COVID Inpatient Beds Utilization	Current percentage of total inpatient beds utilized by COVID-19 patients (confirmed or suspected) in a state.	U.S. Department of Health & Human Services
Mortality Rate	Cumulative number of COVID-19 deaths / Cumulative number of COVID-19 cases in a state	The New York Times
Unemployment Rate	The monthly unemployment rate in a state (seasonally adjusted)	U.S. Bureau of Labor Statistics[b]

[a] https://github.com/nytimes/covid-19-data
[b] https://www.bls.gov/lau/#data

(b) Summary Statistics of Epidemiological Measures and Unemployment Rate

	Count	Mean	SD	Min	Median	Max
New Cases per 1K	1768	0.0651	0.0855	0.0000	0.0341	0.5512
New Deaths per 1K	1768	0.0019	0.0037	-0.0003	0.0008	0.0468
Test Positive Rate	1768	0.0666	0.0747	0.0000	0.0477	0.5478
COVID Inpatients per 1K	1768	0.0855	0.1147	0.0000	0.0543	0.8926
COVID Inpatient Beds Utilization	1768	0.0465	0.0621	0.0000	0.0330	0.6450
Mortality Rate	1768	0.0242	0.0237	0.0000	0.0195	0.2022
Unemployment Rate (%)	12315	8.1490	4.6167	2.0000	7.6000	30.1000

Notes. The six epidemiological measures are at the state-week level. Unemployment Rate is at the state-day level. You may notice the minimum value of New Deaths Cases per 1K is negative—it occurs when a state corrects an error in the number of deaths they've reported in the past. The unemployment rate of Puerto Rico is missing for March and April, 2020.

(c) Definition of Non-Pharmaceutical Intervention Variables

Variable	Definition
SIP Started	Dummy variable indicating if the state's shelter-in-place (or stay-at-home) order has started.
SIP Ended	Dummy variable indicating if the state's shelter-in-place (or stay-at-home) order has ended.
Closure of K12	Dummy variable indicating if the state has closed the K-12 public schools statewide.
Closure of Daycare	Dummy variable indicating if the state has closed all daycares statewide.
Daycare Reopen	Dummy variable indicating if the state has allowed daycares to reopen statewide.
Closure of Non-essential Businesses	Dummy variable indicating if the state has closed non-essential businesses statewide.
Non-essential Businesses Reopen	Dummy variable indicating if the state has allowed non-essential businesses to reopen statewide.
Closure of Restaurants	Dummy variable indicating if the state has closed all restaurants (except for takeout) statewide.
Restaurants Reopen	Dummy variable indicating if the state has allowed all restaurants to reopen (for indoor and/or outdoor dining) statewide.

Notes. Notice that the dummy variables which indicate the start of a policy (SIP Started, Closure of K12, Closure of Daycare, Closure of Non-essential Business, and Closure of Restaurants) equal to 1 as long as the date is after the starting date of the corresponding policy in the state (even when the policy has ended). The dummy variables which indicate the end of a policy (SIP Ended, Daycare Reopen, Non-essential Businesses Reopen, Restaurants Reopen) equal to 1 if the date is after the end date of the corresponding policy in the state. In Table 4, the coefficients of the former ones reflect the change in labor supply when the policy starts, and the coefficients of the latter ones reflect the change in labor supply when the policy ends. Within our data observation period, no states have reopened K12 schools, so there is no "K12 Reopen" defined here. In Appendix Table A10, we run the same set of analyses as in Panel B and Panel C of Table 4 using an alternative definition of policy dummies—that is, we define the policy dummies equal to 1 when the policy is in effect and equal to 0 when before the policy starts or after the policy ends. The results are very close to what we get in Table 4.

Table A3: How gig workers' labor supply changes during the pandemic: Month Dummies

	Outcome Variable: Daily-Open-Slots			
	(1)	(2)	(3)	(4)
Month 3	0.0169***	0.0143***	0.0145***	
	(0.0005)	(0.0005)	(0.0005)	
Month 4	0.0225***	0.0183***	0.0179***	
	(0.0006)	(0.0005)	(0.0005)	
Month 5	0.0155***	0.0087***	0.0086***	
	(0.0005)	(0.0004)	(0.0004)	
Month 6	0.0103***	0.0011*	0.0010	
	(0.0005)	(0.0005)	(0.0005)	
Month 7	0.0070***	-0.0052***	-0.0057***	
	(0.0005)	(0.0005)	(0.0005)	
Month 8	0.0033***	-0.0131***	-0.0135***	
	(0.0006)	(0.0005)	(0.0005)	
Month 3 × Year2020				0.0180***
				(0.0006)
Month 4 × Year2020				0.0263***
				(0.0007)
Month 5 × Year2020				0.0179***
				(0.0006)
Month 6 × Year2020				0.0007
				(0.0008)
Month 7 × Year2020				-0.0074***
				(0.0006)
Month 8 × Year2020				-0.0078***
				(0.0005)
Year2020				-0.0117***
				(0.0006)
Constant	0.0875***			
	(0.0009)			
Worker FE		Yes	Yes	Yes
Day of Week FE			Yes	
Day of Year FE				Yes
Observations	8165521	8165521	8165521	16597901
Adjusted R^2	0.0058	0.5765	0.5809	0.5261

Notes. All analyses are performed at the worker-day level. "Month 3" equals 1 if the date is in March and after March 13, the date of declaration of national emergency. Columns (1)-(3) use the data of 2020. Column (4) is a year-to-year DiD regression using the data of both 2019 and 2020. Standard errors are clustered at state level, shown in parentheses. *p<0.05, **p<0.01, ***p<0.001. The regression results are consistent with those in Table **??**.

Table A4: Placebo Test: Changing the Cutoff Dates

Panel A:	Outcome Variable: Daily-Open-Slots									
Changing First Cutoff Date	10 Days Earlier	5 Days Earlier	Original Cutoff	5 Days Later	10 Days Later	10 Days Earlier	5 Days Earlier	Original Cutoff	5 Days Later	10 Days Later
Placebo Stage 1	0.0114***	0.0143***	0.0165***	0.0179***	0.0174***					
	(0.0004)	(0.0004)	(0.0005)	(0.0005)	(0.0005)					
Placebo Stage 2	0.0038***	0.0047***	0.0050***	0.0048***	0.0039***					
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)					
Placebo Stage 3	-0.0104***	-0.0096***	-0.0092***	-0.0094***	-0.0104***					
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)					
Placebo Stage 1× Year2020						0.0179***	0.0200***	0.0230***	0.0252***	0.0250***
						(0.0005)	(0.0006)	(0.0006)	(0.0007)	(0.0006)
Placebo Stage 2× Year2020						0.0090***	0.0093***	0.0097***	0.0095***	0.0084***
						(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
Placebo Stage 3× Year2020						-0.0082***	-0.0079***	-0.0075***	-0.0077***	-0.0088***
						(0.0006)	(0.0006)	(0.0006)	(0.0005)	(0.0005)
Year2020						-0.0112***	-0.0114***	-0.0118***	-0.0116***	-0.0104***
						(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
Day of Week FE	Yes	Yes	Yes	Yes	Yes					
Day FE						Yes	Yes	Yes	Yes	Yes
Worker FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8165521	8165521	8165521	8165521	8165521	16597901	16597901	16597901	16597901	16597901
Adjusted R^2	0.5793	0.5802	0.5809	0.5814	0.5809	0.5254	0.5257	0.5261	0.5263	0.5262
Panel B:	Outcome Variable: Daily-Open-Slots									
Changin Second Cutoff Date	10 Days Earlier	5 Days Earlier	Original Cutoff	5 Days Later	10 Days Later	10 Days Earlier	5 Days Earlier	Original Cutoff	5 Days Later	10 Days Later
Placebo Stage 1	0.0165***	0.0166***	0.0165***	0.0161***	0.0156***					
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)					
Placebo Stage 2	0.0068***	0.0059***	0.0050***	0.0043***	0.0038***					
	(0.0004)	(0.0004)	(0.0004)	(0.0005)	(0.0005)					
Placebo Stage 3	-0.0092***	-0.0092***	-0.0092***	-0.0092***	-0.0092***					
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)					
Placebo Stage 1× Year2020						0.0223***	0.0228***	0.0230***	0.0229***	0.0227***
						(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
Placebo Stage 2× Year2020						0.0121***	0.0109***	0.0097***	0.0086***	0.0073***
						(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0007)
Placebo Stage 3× Year2020						-0.0075***	-0.0075***	-0.0075***	-0.0075***	-0.0076***
						(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
Year2020						-0.0118***	-0.0118***	-0.0118***	-0.0118***	-0.0117***
						(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
Day of Week FE	Yes	Yes	Yes	Yes	Yes					
Day FE						Yes	Yes	Yes	Yes	Yes
Worker FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8165521	8165521	8165521	8165521	8165521	16597901	16597901	16597901	16597901	16597901
Adjusted R^2	0.5805	0.5807	0.5809	0.5810	0.5810	0.5258	0.5260	0.5261	0.5262	0.5263
Panel C:	Outcome Variable: Daily-Open-Slots									
Changing the Third Cutoff Date	10 Days Earlier	5 Days Earlier	Original Cutoff	5 Days Later	10 Days Later	10 Days Earlier	5 Days Earlier	Original Cutoff	5 Days Later	10 Days Later
Placebo Stage 1	0.0165***	0.0165***	0.0165***	0.0165***	0.0165***					
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)					
Placebo Stage 2	0.0061***	0.0056***	0.0050***	0.0040***	0.0036***					
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)					
Placebo Stage 3	-0.0080***	-0.0086***	-0.0092***	-0.0092***	-0.0099***					
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)					
Placebo Stage 1× Year2020						0.0230***	0.0230***	0.0230***	0.0230***	0.0230***
						(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
Placebo Stage 2× Year2020						0.0118***	0.0107***	0.0097***	0.0087***	0.0075***
						(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
Placebo Stage 3× Year2020						-0.0067***	-0.0071***	-0.0075***	-0.0079***	-0.0077***
						(0.0006)	(0.0006)	(0.0006)	(0.0005)	(0.0005)
Year2020						-0.0118***	-0.0118***	-0.0118***	-0.0118***	-0.0118***
						(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
Day of Week FE	Yes	Yes	Yes	Yes	Yes					
Day FE						Yes	Yes	Yes	Yes	Yes
Worker FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8165521	8165521	8165521	8165521	8165521	16597901	16597901	16597901	16597901	16597901
Adjusted R^2	0.5809	0.5809	0.5809	0.5806	0.5806	0.5262	0.5262	0.5261	0.5260	0.5258

Notes. The three cutoff dates mean the cutoff dates between Stage 0 (pre-COVID) and Stage 1, between Stage 1 and Stage 2, and between Stage 2 and Stage 3. All analyses are performed at the worker-day level, using the data of 2020. Standard errors are clustered at state level, shown in parentheses. *p<0.05, **p<0.01, ***p<0.001.

The results show that our main findings do not change qualitatively even when we move the cutoff dates between stages 5 days earlier/later or 10 days earlier/later.

Table A5: How daily availability and working intensity change during the pandemic

	(1) Daily Availability	(2) Daily Availability	(3) Daily Availability	(4) Working Intensity	(5) Working Intensity	(6) Working Intensity
Stage 1	0.0685***	0.0443***		0.0154***	0.0161***	
	(0.0012)	(0.0012)		(0.0003)	(0.0003)	
Stage 2	0.0480***	-0.0029*		0.0094***	0.0078***	
	(0.0015)	(0.0013)		(0.0004)	(0.0003)	
Stage 3	0.0261***	-0.0652***		0.0027***	-0.0018***	
	(0.0017)	(0.0014)		(0.0004)	(0.0004)	
Stage 1 × Year2020			0.0798***			0.0208***
			(0.0015)			(0.0004)
Stage 2 × Year2020			0.0493***			0.0071***
			(0.0018)			(0.0004)
Stage 3 × Year2020			0.0013			-0.0088***
			(0.0019)			(0.0005)
Year2020			-0.0719***			-0.0078***
			(0.0020)			(0.0005)
Constant	0.6696***			0.1307***		
	(0.0016)			(0.0005)		
Day FE			Yes			Yes
Day of Week FE		Yes			Yes	
Worker FE		Yes	Yes		Yes	Yes
Observations	8165521	8165521	16597901	5730504	5730027	11385902
Adjusted R^2	0.0033	0.3908	0.3578	0.0039	0.6609	0.6122

Notes. This table replicates our analyses in Table **??** on the other two outcome variables of gig workers' labor supply—Daily-Availability and Working-Intensity. All analyses are performed at the worker-day level. Column (3) and (6) use the data of both 2019 and 2020 to perform the year-to-year DiD regression. All the other columns use the data of 2020. Notice that Working-Intensity is defined only when Daily-Availability= 1, and therefore the number of observations is smaller in Columns (4)-(6). The number of observations is slightly smaller in Columns (5) compared Columns (4) because singleton observations are dropped when fixed effects are included. Standard errors are clustered at the state level, shown in parentheses. *p<0.05, **p<0.01, ***p<0.001. Column (1) and (4) show that the increases in these two factors each contribute about half of the increase in labor supply. Column (2)-(3) and (5)-(6) show that the increases in these two factors in Stage 1 and Stage 2 are robust after worker heterogeneity and seasonality have been controlled for.

Table A6: Test for Demand Effect and Entry Effect

	(1) Total-Booked-Slots	(2) Num-of-Workers	(3) Num-of-Workers-Enter	(4) Daily-Open-Slots	(5) Daily-Open-Slots	(6) Daily-Open-Slots	(7) Daily-Open-Slots
Stage 1	0.0259*	0.0665***	-0.0559	0.0165***	0.0158***	0.0241***	0.0167***
	(0.0110)	(0.0036)	(0.0332)	(0.0005)	(0.0005)	(0.0007)	(0.0005)
Stage 2	-0.0878***	0.1202***	-0.0513	0.0049***	0.0073***	0.0186***	0.0051***
	(0.0103)	(0.0034)	(0.0313)	(0.0004)	(0.0004)	(0.0006)	(0.0004)
Total-Booked-Slots					0.0269***		
					(0.0009)		
Num-of-Workers						-0.1141***	
						(0.0040)	
Num-of-Workers-Enter							0.0037***
							(0.0002)
Day of Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Worker FE				Yes	Yes	Yes	Yes
Observations	178	178	178	6437768	6437768	6437768	6437768
Adjusted R^2	0.6793	0.8771	0.0068	0.5976	0.5978	0.5980	0.5976

Notes. Columns (1)-(3) are performed on the daily level data of 2020. Column (4)-(7) are performed on the worker-day level data of 2020. Standard errors in column (4)-(7) are clustered at the state level. Standard errors are shown in parentheses. *p<0.05, **p<0.01, ***p<0.001.

Table A7: Mediation Analysis: Choice of Current or Previous Week Measures

Panel A-1	Outcome Variable: Daily-Open-Slots							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Stage 1	0.0165***	0.0041***	0.0155***	0.0036***	0.0138***	0.0041***	0.0035***	0.0140***
	(0.0005)	(0.0007)	(0.0008)	(0.0007)	(0.0007)	(0.0007)	(0.0008)	(0.0008)
Stage 2	0.0049***	-0.0039***	0.0049***	-0.0051***	0.0019***	-0.0038***	-0.0051***	0.0039***
	(0.0004)	(0.0010)	(0.0010)	(0.0010)	(0.0005)	(0.0010)	(0.0010)	(0.0008)
Current Severity		Yes	Yes			Yes		Yes
Current Unemployment		Yes		Yes	Yes			Yes
Current Policies		Yes		Yes		Yes	Yes	
Observations	6437768	6437707	6437768	6437707	6437707	6437768	6437768	6437707
Adjusted R^2	0.5976	0.5985	0.5978	0.5984	0.5977	0.5985	0.5984	0.5979
Panel A-2	Total effects	Explained by	Explained by Severity		Explained by Unemployment		Explained by Policies	
		Three Mediators	Total	Direct	Total	Direct	Total	Direct
Stage 1	0.0165	0.0124	0.0010	-0.0005	0.0027	0.0000	0.0130	0.0099
		75.2%	6.1%	-3.0%	16.4%	0.0%	78.8%	60.0%
Stage 2	0.0049	0.0088	0.0000	-0.0012	0.0030	0.0001	0.0100	0.0078
		179.6%	0.0%	-24.5%	61.2%	2.0%	204.1%	159.2%
Panel B-1	Outcome Variable: Daily-Open-Slots							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Stage 1	0.0165***	0.0095***	0.0133***	0.0108***	0.0148***	0.0095***	0.0107***	0.0126***
	(0.0005)	(0.0006)	(0.0008)	(0.0005)	(0.0006)	(0.0005)	(0.0005)	(0.0008)
Stage 2	0.0049***	0.0026***	0.0039***	0.0023**	0.0023***	0.0026***	0.0023**	0.0032***
	(0.0004)	(0.0007)	(0.0010)	(0.0007)	(0.0006)	(0.0007)	(0.0007)	(0.0008)
Previous Severity		Yes	Yes			Yes		Yes
Previous Unemployment		Yes		Yes	Yes			Yes
Previous Policies		Yes		Yes		Yes	Yes	
Observations	6437768	6157707	6157768	6157707	6157707	6157768	6157768	6157707
Adjusted R^2	0.5976	0.6030	0.6025	0.6029	0.6024	0.6030	0.6029	0.6026
Panel B-2	Total effects	Explained by	Explained by Severity		Explained by Unemployment		Explained by Policies	
		Three Mediators	Total	Direct	Total	Direct	Total	Direct
Stage 1	0.0165	0.0070	0.0032	0.0013	0.0017	0.0000	0.0058	0.0031
		42.4%	19.4%	7.9%	10.3%	0.0%	35.2%	18.8%
Stage 2	0.0049	0.0023	0.0010	-0.0003	0.0026	0.0000	0.0026	0.0006
		46.9%	20.4%	-6.1%	53.1%	0.0%	53.1%	12.2%
Panel C-1	Outcome Variable: Daily-Open-Slots							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Stage 1	0.0165***	0.0037***	0.0140***	0.0037***	0.0137***	0.0037***	0.0036***	0.0127***
	(0.0005)	(0.0007)	(0.0008)	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0008)
Stage 2	0.0049***	-0.0031**	0.0049***	-0.0044***	0.0017**	-0.0029**	-0.0043***	0.0041***
	(0.0004)	(0.0010)	(0.0009)	(0.0010)	(0.0006)	(0.0009)	(0.0010)	(0.0007)
Current Severity		Yes	Yes			Yes		Yes
Previous Severity		Yes	Yes			Yes		Yes
Current Unemployment		Yes		Yes	Yes			Yes
Previous Unemployment		Yes		Yes	Yes			Yes
Current Policies		Yes		Yes		Yes	Yes	
Previous Policies		Yes		Yes		Yes	Yes	
Observations	6437768	6157700	6157768	6157700	6157700	6157768	6157768	6157700
Adjusted R^2	0.5976	0.6034	0.6027	0.6032	0.6025	0.6034	0.6032	0.6027
Panel C-2	Total effects	Explained by	Explained by Severity		Explained by Unemployment		Explained by Policies	
		Three Mediators	Total	Direct	Total	Direct	Total	Direct
Stage 1	0.0165	0.0128	0.0025	0.0000	0.0028	0.0000	0.0129	0.0090
		77.6%	15.2%	0.0%	17.0%	0.0%	78.2%	54.5%
Stage 2	0.0049	0.0080	0.0000	-0.0013	0.0032	0.0002	0.0092	0.0072
		163.3%	0.0%	-26.5%	65.3%	4.1%	187.8%	146.9%

Notes. The first part of each panel (Panel A-1/B-1/C-1) shows the regression results. All analyses are performed at the worker-day level. Day-of-week fixed effects and worker fixed effects are included in all regressions. For the six measures of pandemic severity, we use the weekly mean to replace the daily value. "Previous" means the value of the variable a week ago. This is why Column (2)-(8) have fewer observations in each Panel B and C compared to Panel A. The unemployment rates of Puerto Rico are missing for March and April, 2020, and therefore the columns involving Unemployment Rate (Column (2), (4), (5), and (8) for each Panel) have fewer observations. Standard errors are clustered at the state level, shown in parentheses. *p<0.05, **p<0.01, ***p<0.001.
The second part of each panel (Panel A-2/B-2/C-2) calculates how much of increase in gig workers' labor supply in Stage 1 and Stage 2 can be explained by the total or direct effect of each mediator (Column (3)-(8)) or the three mediators as a whole (Column (2)), with the percentage value below the absolute value.
Guided by the results, we choose to use the previous values of pandemic severity measures and the current values of unemployment rate and NPI policies.

Table A8: Mediation Analysis: Adding Mediator Variables Separately

	Outcome Variable: Daily-Open-Slots											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Stage 1	0.0165***	0.0160***	0.0158***	0.0140***	0.0158***	0.0149***	0.0161***	0.0145***	0.0041***	0.0155***	0.0125***	0.0090***
	(0.0005)	(0.0004)	(0.0005)	(0.0006)	(0.0004)	(0.0005)	(0.0007)	(0.0007)	(0.0008)	(0.0005)	(0.0005)	(0.0015)
Stage 2	0.0049***	0.0041***	0.0039***	0.0033***	0.0033***	0.0030***	0.0041**	0.0048***	-0.0090***	0.0043***	0.0040***	-0.0000
	(0.0004)	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0012)	(0.0012)	(0.0009)	(0.0004)	(0.0008)	(0.0017)
New Cases per 1K		0.0105										
		(0.0064)										
New Deaths per 1K			0.2936***									
			(0.0718)									
Test Positive Rate				0.0179***								
				(0.0041)								
COVID Inpatients per 1K					0.0111***							
					(0.0027)							
COVID Inpatient Beds Utilization						0.0264***						
						(0.0060)						
Mortality Rate Cumulative							0.0178					
							(0.0272)					
SIP Started								0.0040***				
								(0.0010)				
SIP Ended								-0.0045***				
								(0.0010)				
Closure of K12									0.0140***			
									(0.0009)			
Closure of Daycare										0.0058***		
										(0.0007)		
Daycare Reopen										-0.0068***		
										(0.0006)		
Closure of Non-essential Businesses											0.0061***	
											(0.0009)	
Non-essential Businesses Reopen											-0.0062***	
											(0.0004)	
Closure of Restaurants												0.0093***
												(0.0017)
Restaurants Reopen												-0.0058***
												(0.0006)
Day of Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Worker FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6437768	6157768	6157768	6157768	6157768	6157768	6157768	6437768	6437768	6437768	6437768	6437768
Adjusted R^2	0.5976	0.6023	0.6024	0.6024	0.6024	0.6024	0.6023	0.5978	0.5981	0.5978	0.5979	0.5981

Notes. This table adds each of the mediator to the regression separately. The regression analyses are performed at the worker-day level. For the six measures of pandemic severity (Column (2)-(7)), we use the mean value in the previous week, and this is why Column (2)-(7) have fewer observations. Standard errors are clustered at the state level, shown in parentheses. *p<0.05, **p<0.01, ***p<0.001.

Table A9: Mediation Analysis: Direct Effect of Each Mediator

Panel A	Outcome Variable: Daily-Open-Slots													
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Stage 1	0.0028***	0.0037***	0.0037***	0.0032***	0.0037***	0.0035***	0.0040***	0.0036***	0.0028***	0.0028***	0.0079***	0.0027***	0.0027***	0.0029***
	(0.0007)	(0.0007)	(0.0007)	(0.0008)	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0006)	(0.0013)	(0.0007)	(0.0006)	(0.0006)
Stage 2	-0.0043***	-0.0049***	-0.0052***	-0.0053***	-0.0050***	-0.0053***	-0.0041***	-0.0051***	-0.0042***	-0.0043***	0.0009	-0.0041***	-0.0050***	-0.0042***
	(0.0010)	(0.0011)	(0.0010)	(0.0010)	(0.0011)	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0014)	(0.0011)	(0.0010)	(0.0010)
New Cases per 1K	-0.0432***	-0.0041							-0.0427***	-0.0431***	-0.0386***	-0.0423***	-0.0428***	-0.0465***
	(0.0097)	(0.0089)							(0.0100)	(0.0096)	(0.0109)	(0.0097)	(0.0095)	(0.0097)
New Deaths per 1K	0.3556**		0.0938*						0.3547**	0.3546**	0.3367**	0.3646**	0.3518***	0.3713***
	(0.1026)		(0.0353)						(0.1017)	(0.1016)	(0.1014)	(0.1074)	(0.1006)	(0.1034)
Test Positive Rate	0.0107**			0.0054					0.0106**	0.0106**	0.0115*	0.0120**	0.0112**	0.0114**
	(0.0038)			(0.0040)					(0.0039)	(0.0038)	(0.0046)	(0.0041)	(0.0040)	(0.0036)
COVID Inpatients per 1K	-0.0064				-0.0002				-0.0069	-0.0064	-0.0089	-0.0071	-0.0059	-0.0063
	(0.0055)				(0.0038)				(0.0056)	(0.0054)	(0.0066)	(0.0053)	(0.0053)	(0.0054)
COVID Inpatient Beds Utilization	0.0265***					0.0105*			0.0262***	0.0266***	0.0257	0.0268***	0.0263***	0.0272***
	(0.0072)					(0.0047)			(0.0071)	(0.0073)	(0.0139)	(0.0072)	(0.0072)	(0.0069)
Mortality Rate	-0.0529***						-0.0317*		-0.0546***	-0.0525***	-0.0362**	-0.0518***	-0.0536***	-0.0538***
	(0.0131)						(0.0127)		(0.0133)	(0.0127)	(0.0124)	(0.0138)	(0.0130)	(0.0121)
Unemployment	-0.0000	-0.0000	-0.0001	-0.0000	-0.0000	-0.0001	0.0000	-0.0000		-0.0000	0.0000	-0.0000	-0.0000	-0.0000
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)		(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
SIP Started	0.0003	0.0001	-0.0001	-0.0000	0.0001	-0.0002	0.0002	0.0001	0.0002		-0.0001	0.0003	0.0007	0.0007
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0007)	(0.0007)	(0.0007)		(0.0007)	(0.0007)	(0.0006)	(0.0006)
SIP Ended	-0.0003	-0.0004	-0.0005	-0.0005	-0.0004	-0.0004	-0.0003	-0.0004	-0.0002		-0.0004	-0.0004	-0.0008	-0.0011
	(0.0013)	(0.0014)	(0.0014)	(0.0014)	(0.0014)	(0.0014)	(0.0015)	(0.0014)	(0.0014)		(0.0013)	(0.0014)	(0.0013)	(0.0011)
Closure of K12	0.0118***	0.0113***	0.0113***	0.0112***	0.0113***	0.0113***	0.0115***	0.0115***	0.0118***	0.0118***		0.0119***	0.0119***	0.0127***
	(0.0011)	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0014)	(0.0014)	(0.0011)	(0.0011)		(0.0011)	(0.0011)	(0.0008)
Closure of Daycare	0.0026**	0.0027***	0.0025***	0.0025***	0.0027***	0.0024***	0.0029***	0.0028***	0.0025**	0.0026**	0.0027***		0.0026**	0.0028***
	(0.0008)	(0.0008)	(0.0007)	(0.0007)	(0.0007)	(0.0006)	(0.0007)	(0.0007)	(0.0008)	(0.0007)	(0.0007)		(0.0008)	(0.0007)
Daycare Reopen	-0.0029***	-0.0034***	-0.0032***	-0.0029***	-0.0033***	-0.0030***	-0.0029***	-0.0033***	-0.0029***	-0.0029***	-0.0030***		-0.0030***	-0.0034***
	(0.0008)	(0.0009)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)		(0.0008)	(0.0007)
Closure of Non-essential Businesses	0.0013	0.0004	0.0004	0.0002	0.0003	0.0003	0.0003	0.0003	0.0010	0.0015	0.0017	0.0015		0.0018
	(0.0009)	(0.0010)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0007)	(0.0009)	(0.0011)	(0.0010)		(0.0011)
Non-essential Businesses Reopen	-0.0021*	-0.0028**	-0.0024**	-0.0025**	-0.0027**	-0.0023**	-0.0026**	-0.0027**	-0.0021*	-0.0021**	-0.0020*	-0.0021*		-0.0034**
	(0.0009)	(0.0008)	(0.0009)	(0.0008)	(0.0009)	(0.0009)	(0.0009)	(0.0009)	(0.0009)	(0.0008)	(0.0009)	(0.0009)		(0.0012)
Closure of Restaurants	0.0019	0.0029*	0.0029*	0.0029*	0.0029*	0.0028*	0.0026*	0.0029*	0.0020	0.0020	0.0074***	0.0020	0.0026	
	(0.0012)	(0.0012)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0013)	(0.0012)	(0.0012)	(0.0012)	(0.0016)	(0.0012)	(0.0014)	
Restaurants Reopen	-0.0026	-0.0030*	-0.0031*	-0.0031*	-0.0031*	-0.0032*	-0.0033*	-0.0030	-0.0026	-0.0028**	-0.0026	-0.0032*	-0.0034*	
	(0.0014)	(0.0015)	(0.0015)	(0.0015)	(0.0015)	(0.0015)	(0.0015)	(0.0015)	(0.0014)	(0.0010)	(0.0013)	(0.0014)	(0.0014)	
Day of Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Worker FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6157707	6157707	6157707	6157707	6157707	6157707	6157707	6437707	6157768	6157707	6157707	6157707	6157707	6157707
Adjusted R^2	0.6032	0.6031	0.6031	0.6031	0.6031	0.6031	0.6031	0.5984	0.6032	0.6032	0.6030	0.6032	0.6032	0.6032

Panel B		New Cases per 1K	New Deaths per 1K	Test Positive Rate	COVID Inpatients per 1K	COVID Inpatient Beds Utilization	Mortality Rate	Six Severity Measures	Unemployment	SIP	Closure of K12	Closure of Daycare	Closure of Non-essential Business	Closure of Restaurant
Stage 1		-0.0001	-0.0001	0.0004	-0.0001	0.0001	-0.0004	0.0008	0.0000	0.0000	0.0051	-0.0001	-0.0001	0.0001
Stage 2		-0.0002	0.0001	0.0002	-0.0001	0.0002	-0.0010	-0.0008	0.0001	0.0000	0.0052	0.0002	-0.0007	0.0001

Notes. This table is to estimate the direct mediation effect of each mediator, i.e., how much of gig workers' increase in labor supply in Stage 1 and Stage 2 can be explained by each mediator when the other mediators have been controlled for. The comparison between Columns (2)-(7) and Column (8) provides the direct mediation effect of pandemic severity based on each of the six measures of pandemic severity, respectively. The comparison between Column (1) and Column (8) gives the direct mediation effect of pandemic severity based on all six measures of pandemic severity. The comparison between Columns (9)-(14) and Column (1) provides the direct mediation effect of unemployment and each of the NPIs.

Panel A: The regression analyses are performed at the worker-day level. For the six measures of pandemic severity, we use the mean value in the previous week, which creates missing values for the first week. This is why all other columns have fewer observations than Column (8) (the only column not including pandemic severity measures). The unemployment rate of Puerto Rico is missing for March and April, 2020, and therefore Column (9) has more observations (the only column not including Unemployment Rate).

Standard errors are clustered at the state level, shown in parentheses. *p<0.05, **p<0.01, ***p<0.001.

Panel B calculates the direct mediation effect based on the estimation results presented in Panel A. For Columns (2) - (7), the direct mediation effect of the pandemic severity based on each of the six measures equals the coefficients of Stage 1 and Stage 2 in Column (8) minus those in the focal column. For Column (8), the direct mediation effect of the pandemic severity based on all six measures equals the coefficients of Stage 1 and Stage 2 in Column (8) minus those in Column (1). For Columns (9)-(14), the direct mediation effect of unemployment and each of the NPIs equals the coefficients of Stage 1 and Stage 2 in the focal column minus those in Column (1).

Table A10: Mediation Analysis: Alternative Definition of Policy Dummies

Panel B	Outcome Variable: Daily-Open-Slots							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Stage 1	0.0165***	0.0027***	0.0133***	0.0035***	0.0138***	0.0027***	0.0034***	0.0121***
	(0.0005)	(0.0006)	(0.0008)	(0.0008)	(0.0007)	(0.0006)	(0.0008)	(0.0008)
Stage 2	0.0049***	-0.0049***	0.0039***	-0.0064***	0.0019***	-0.0050***	-0.0068***	0.0032***
	(0.0004)	(0.0010)	(0.0010)	(0.0009)	(0.0005)	(0.0011)	(0.0010)	(0.0008)
New Cases per 1k		-0.0448***	-0.0445***			-0.0445***		-0.0430***
		(0.0097)	(0.0118)			(0.0097)		(0.0100)
New Deaths per 1k		0.3724***	0.2873			0.3784***		0.3336**
		(0.0973)	(0.1529)			(0.0940)		(0.1240)
Test Positive Rate		0.0109**	0.0204***			0.0109**		0.0183***
		(0.0037)	(0.0054)			(0.0037)		(0.0050)
Covid Inpatients per 1k		-0.0063	-0.0018			-0.0071		-0.0072
		(0.0051)	(0.0065)			(0.0053)		(0.0062)
Covid Inpatient Beds Utilization		0.0264***	0.0355			0.0260***		0.0315*
		(0.0074)	(0.0178)			(0.0073)		(0.0154)
Mortality Rate Cumulative		-0.0530***	-0.0172			-0.0570***		-0.0440**
		(0.0127)	(0.0252)			(0.0129)		(0.0158)
Unemployment		-0.0001		-0.0001	0.0004***			0.0004***
		(0.0001)		(0.0001)	(0.0000)			(0.0001)
SIP		0.0008		0.0009		0.0006	0.0006	
		(0.0009)		(0.0009)		(0.0010)	(0.0011)	
Closure of K12		0.0113***		0.0105***		0.0111***	0.0102***	
		(0.0008)		(0.0011)		(0.0008)	(0.0010)	
Closure of Daycare		0.0027***		0.0030***		0.0027***	0.0029***	
		(0.0006)		(0.0006)		(0.0007)	(0.0006)	
Closure of Non-essential Businesses		0.0014		0.0011		0.0012	0.0008	
		(0.0008)		(0.0010)		(0.0008)	(0.0010)	
Closure of Restaurants		0.0025**		0.0034***		0.0025**	0.0035***	
		(0.0009)		(0.0009)		(0.0009)	(0.0009)	
Day of Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Worker FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6437768	6157707	6157768	6437707	6437707	6157768	6437768	6157707
Adjusted R^2	0.5976	0.6032	0.6025	0.5983	0.5977	0.6032	0.5983	0.6026

Panel C	Total effects	Explained by Three Mediators	Explained by Severity		Explained by Unemployment		Explained by Policies	
			Total	Direct	Total	Direct	Total	Direct
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Stage 1	0.0165	0.0138	0.0032	0.0008	0.0027	0.0000	0.0131	0.0094
		83.6%	19.4%	4.8%	16.4%	0.0%	79.4%	57.0%
Stage 2	0.0049	0.0098	0.0010	-0.0015	0.0030	-0.0001	0.0117	0.0081
		200.0%	20.4%	-30.6%	61.2%	-2.0%	238.8%	165.3%

Notes. In this table, we define the policy dummies (SIP, Closure of K12, Closure of Daycare, Closure of Non-essential Businesses, and Closure of Restaurants) equal to 1 when the policy is in effect and equal to 0 when before the policy starts or after the policy ends. We run the same set of regressions as in Table 4. We can see that the estimated mediation effects are very close to what we got in Table 4

Table A11: How much of change in unemployment can be explained by related NPIs

	(1) Unemployment	(2) Unemployment
Stage 1	6.5856***	0.7101*
	(0.3588)	(0.3460)
Stage 2	7.3308***	0.6291
	(0.4685)	(0.5392)
SIP Started		3.6809***
		(0.8820)
SIP Ended		-1.3474*
		(0.6563)
Closure of K12		0.8809
		(0.8171)
Closure of Daycare		1.6188*
		(0.7867)
Daycare Reopen		-0.5083
		(0.6427)
Closure of Non-essential Businesses		4.9657***
		(0.6877)
Non-essential Businesses Reopen		0.5410
		(0.5963)
Closure of Restaurants		-0.8982
		(0.6688)
Restaurants Reopen		-1.4466**
		(0.5242)
State FE	Yes	Yes
Observations	9195	9195
Adjusted R^2	0.5735	0.7508

Notes. All analyses are performed at the state-day level. Standard errors are clustered at the state level, shown in parentheses. *p<0.05, **p<0.01, ***p<0.001.
The results show that NPIs explain 89.2% and 91.4% of the increase in unemployment in Stage 1 and Stage 2, respectively.

Table A12: Whether high-quality workers increase quantity more

	Daily-Open-Slots		
	(1)	(2)	(3)
Stage 1 × Pre-COVID Avg. Worker-Problem	-0.1114***		
	(0.0153)		
Stage 2 × Pre-COVID Avg. Worker-Problem	-0.1818***		
	(0.0177)		
Stage 3 × Pre-COVID Avg. Worker-Problem	-0.2044***		
	(0.0206)		
Stage 1 × Pre-COVID Avg. Low-Rating		0.0214	
		(0.0131)	
Stage 2 × Pre-COVID Avg. Low-Rating		-0.0211	
		(0.0133)	
Stage 3 × Pre-COVID Avg. Low-Rating		-0.0492***	
		(0.0119)	
Stage 1 × Pre-COVID Avg. Class-Rating			-0.0058
			(0.0052)
Stage 2 × Pre-COVID Avg. Class-Rating			0.0113
			(0.0060)
Stage 3 × Pre-COVID Avg. Class-Rating			0.0228**
			(0.0066)
Day FE	Yes	Yes	Yes
Worker FE	Yes	Yes	Yes
Observations	7133781	6479309	6479309
Adjusted R^2	0.5833	0.5775	0.5775

Notes. All analyses are performed at the worker-day level, using the data of 2020. There are many missing observations for class ratings (i.e., many students do not submit a rating after a class), and therefore the number of observations gets lower when the regression involves class ratings (Columns (2)-(3)). Standard errors are clustered at state level, shown in parentheses. *p<0.05, **p<0.01, ***p<0.001.

Table A13: How quality changes when a worker opens more slots

	(1) Worker-Problem	(2) Low-Rating	(3) Class-Rating	(4) Worker-Problem	(5) Low-Rating	(6) Class-Rating
Daily Open Slots	0.0048***	0.0047***	-0.0099***	0.0039*	0.0060***	-0.0119***
	(0.0009)	(0.0007)	(0.0012)	(0.0015)	(0.0009)	(0.0016)
Stage 1 × Daily Open Slots				0.0054***	-0.0039***	0.0073***
				(0.0014)	(0.0008)	(0.0016)
Stage 2 × Daily Open Slots				-0.0000	-0.0022	0.0023
				(0.0016)	(0.0013)	(0.0030)
Stage 3 × Daily Open Slots				-0.0005	-0.0002	-0.0004
				(0.0017)	(0.0018)	(0.0043)
Day FE	Yes	Yes	Yes	Yes	Yes	Yes
Worker FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	28522643	3267644	3267644	28522643	3267644	3267644
Adjusted R^2	0.0381	0.0226	0.0234	0.0381	0.0226	0.0234

Notes. All analyses are performed at the class level, using the data of 2020. There are many missing observations for class ratings (i.e., many students do not submit a rating after a class), and therefore the number of observations gets lower when Low-Rating and Class-Rating are the outcome variables (Columns (2)-(3) and Columns (5)-(6)). Standard errors are clustered at state level, shown in parentheses. *p<0.05, **p<0.01, ***p<0.001.