Restaurants in Recovery

Exploring Policy and Vaccine Impacts on Restaurant Attendance

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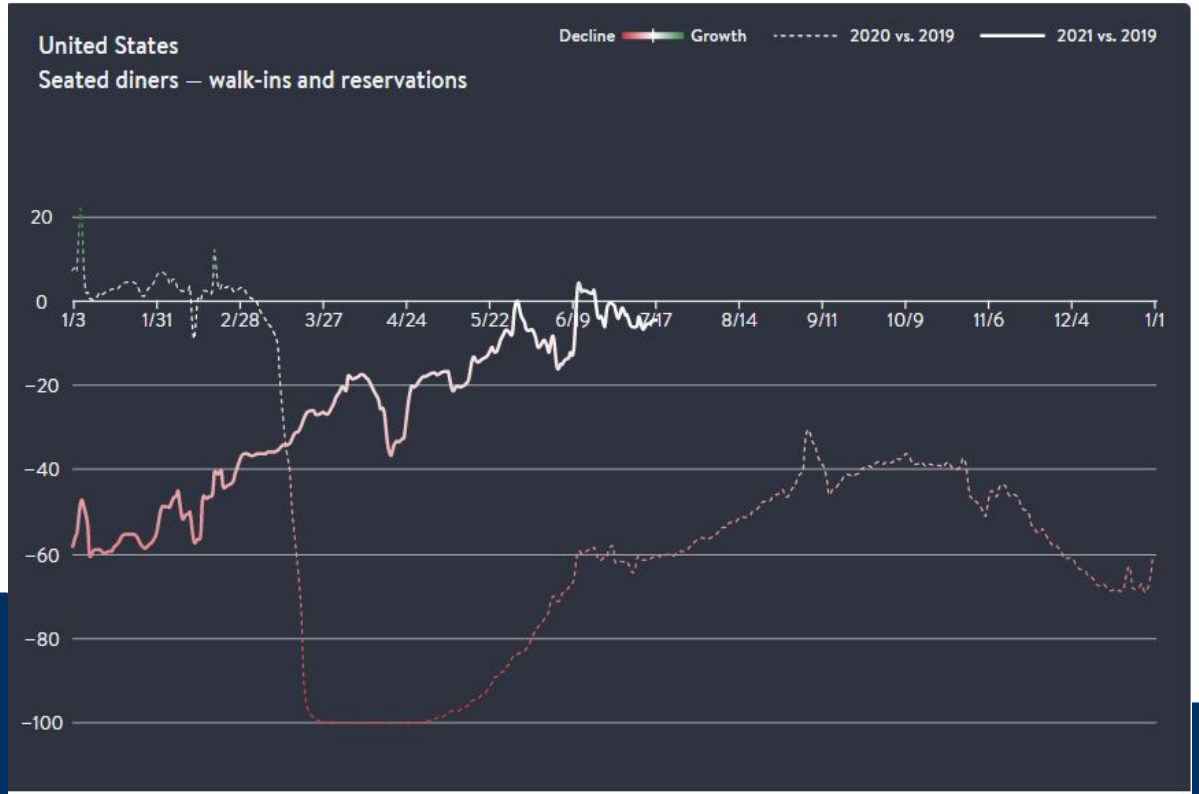
Restaurants and Tourism are Symbiotic

- We used OpenTable attendance data, Vaccination data, and US State COVID Policy data to explore causal connections between pandemic measures and restaurant recovery.



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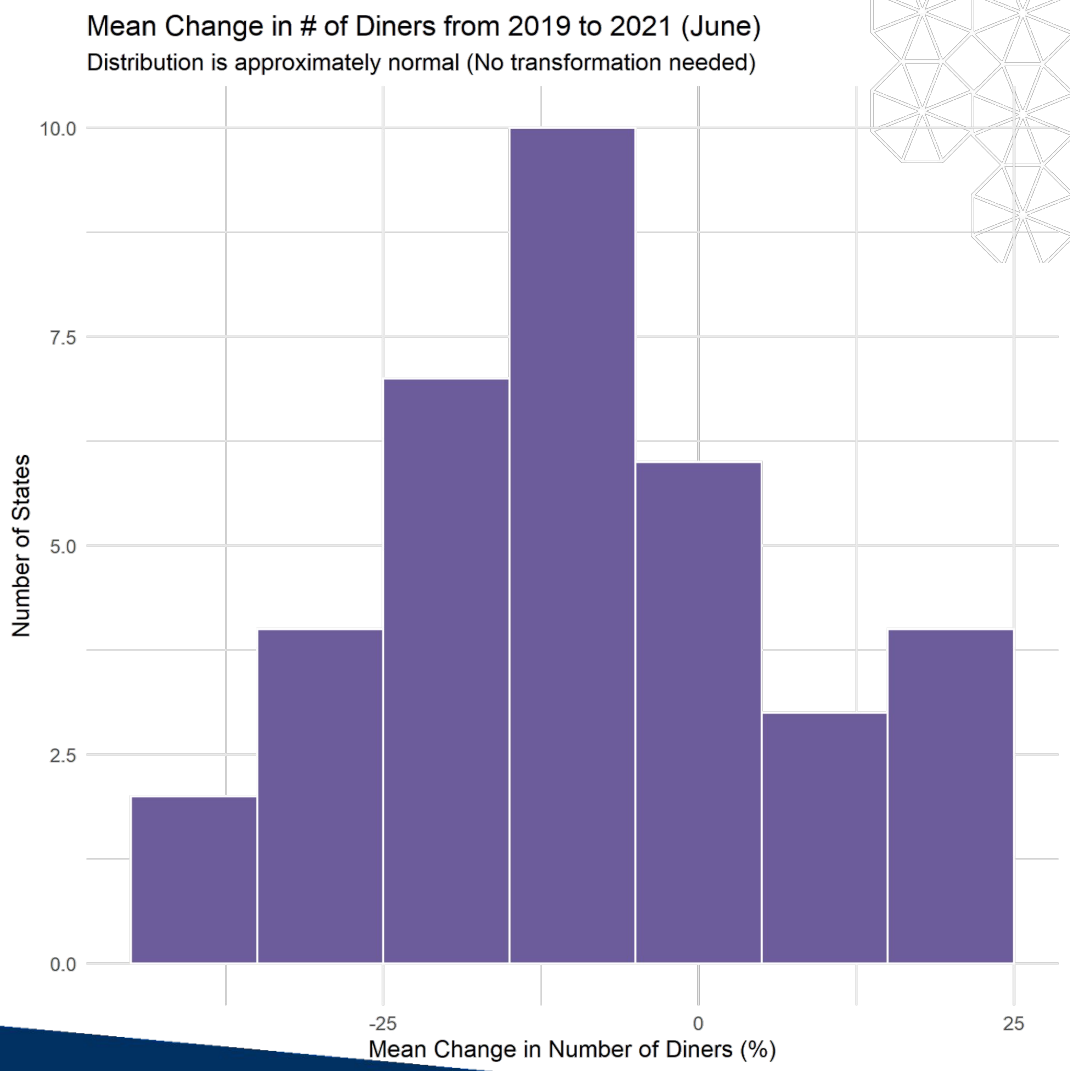
Research Questions

1. Was restaurant attendance in the US in June of 2021 higher in states which had more aggressive responses to COVID19?

2. How did pandemic policy choices and vaccine distribution from 2020 and early 2021 impact restaurant attendance in June 2021?

Dependant Variable (y)

- Mean % change in number of diners from June 2019 to June 2021
- Online reservations, phone reservations, and walk-ins
- Some are positive, some are negative
- Only includes states with 50+ Restaurants



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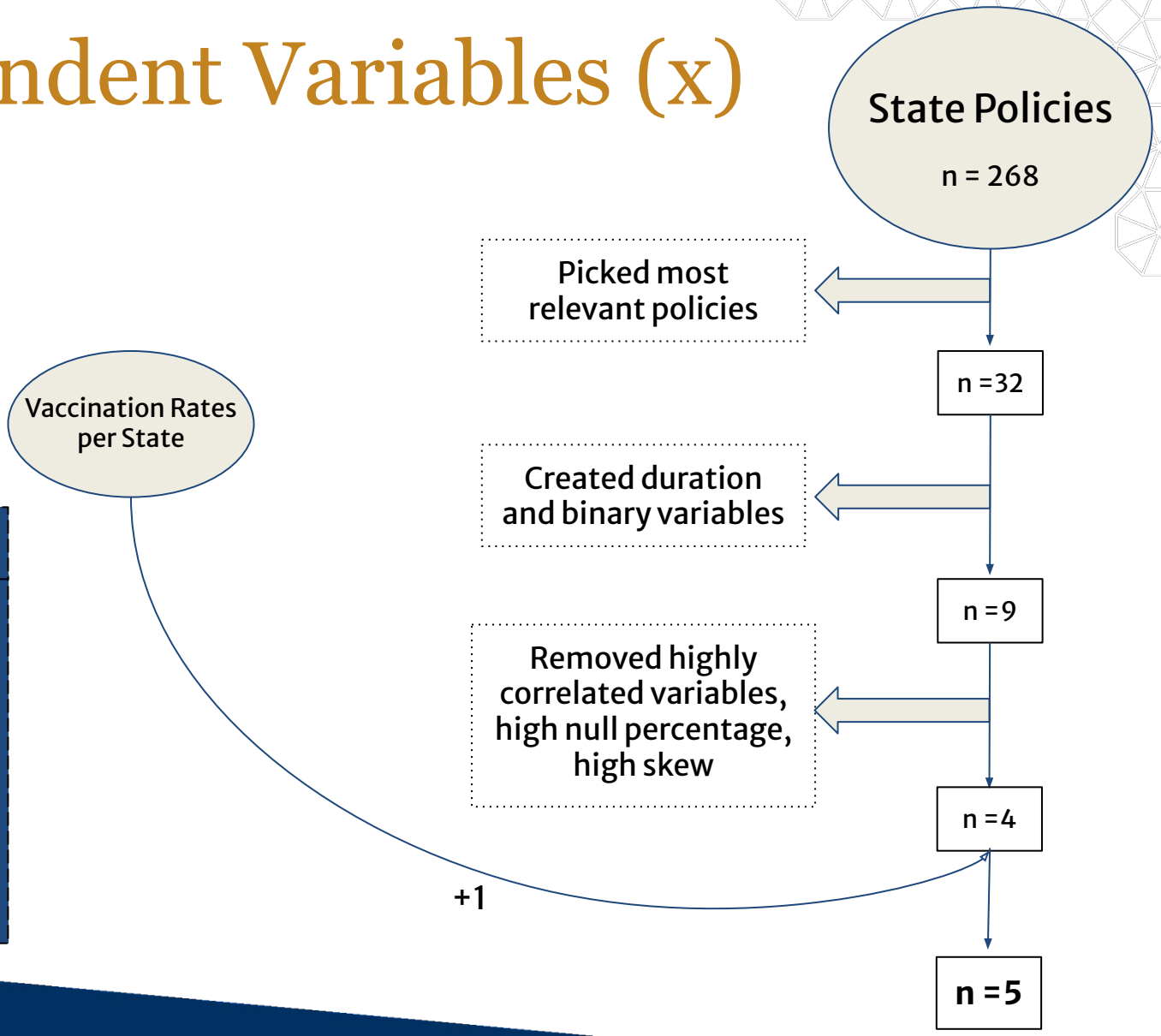
Independent Variables (x)



Final Variables:

- ★ Vaccination Rates
- ★ Stay Home Mendate
- ★ Mask Mandate
- ★ Non-Essential Business Closure
- ★ Overnight Business Closure (Curfew)

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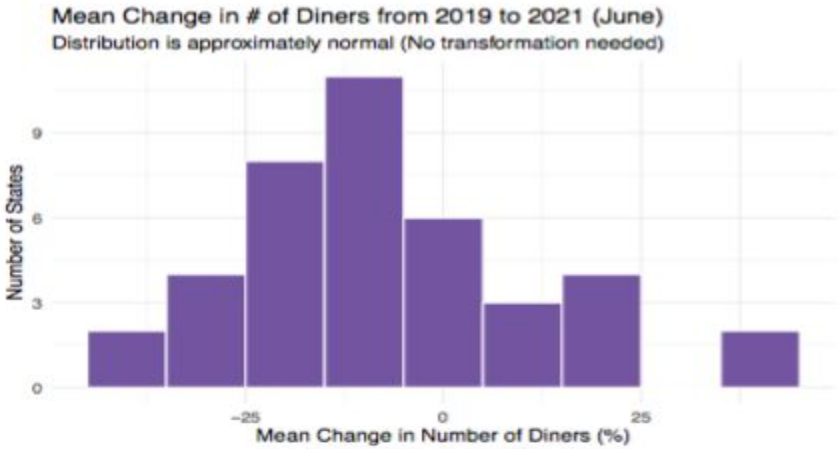
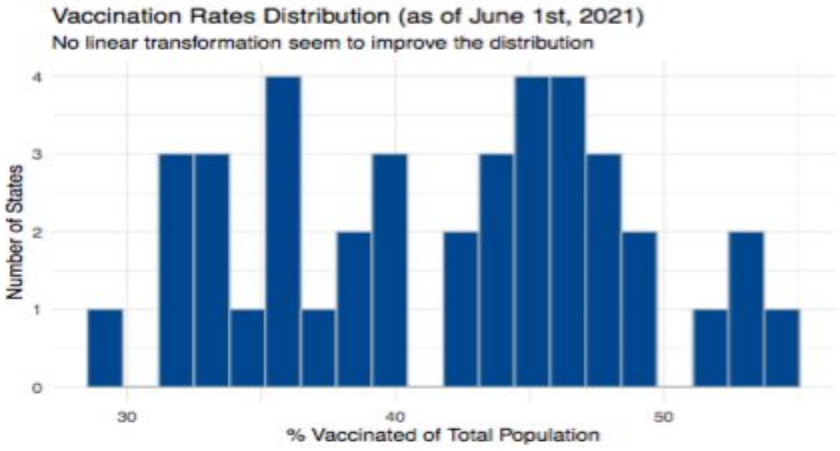
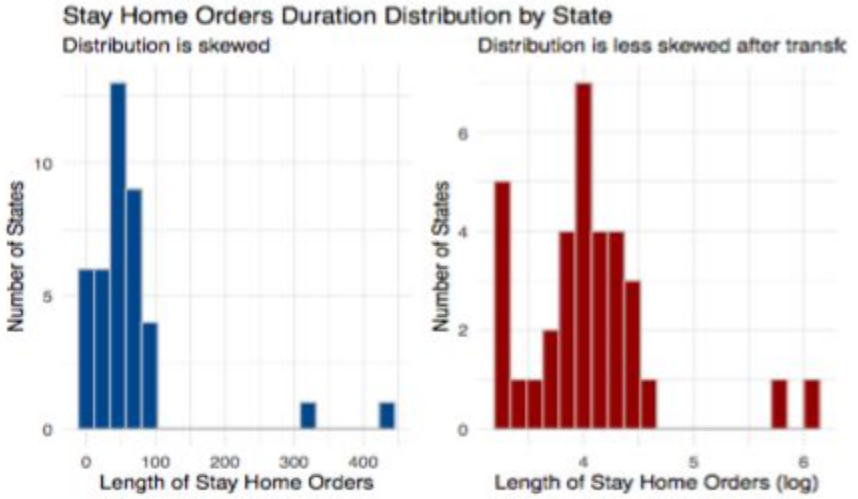
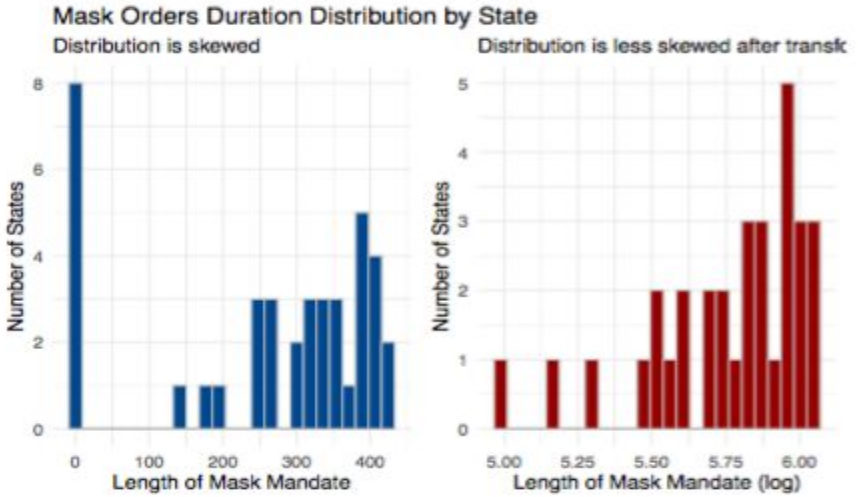
Data Exploration









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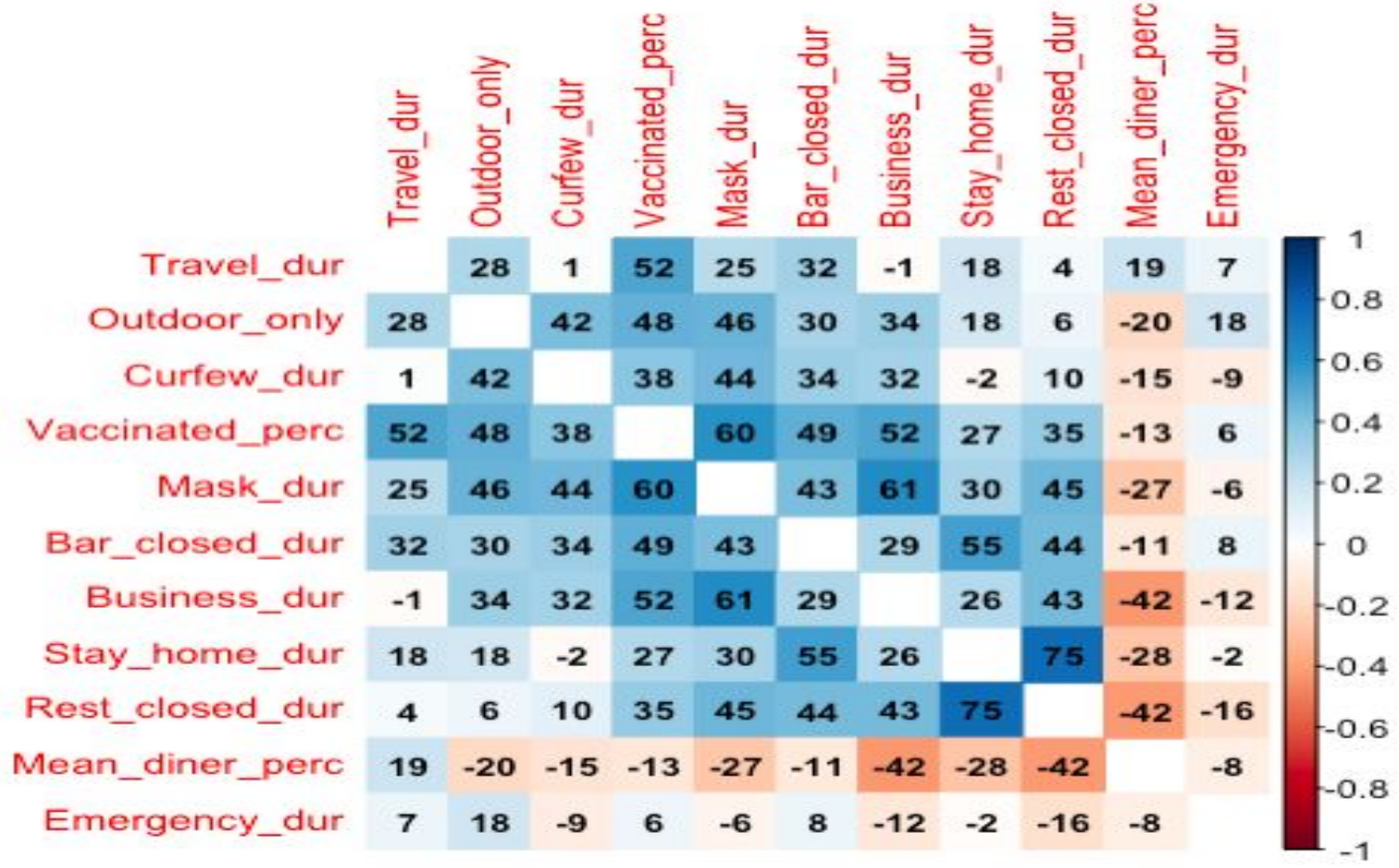
Visual Data Exploration



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Variables

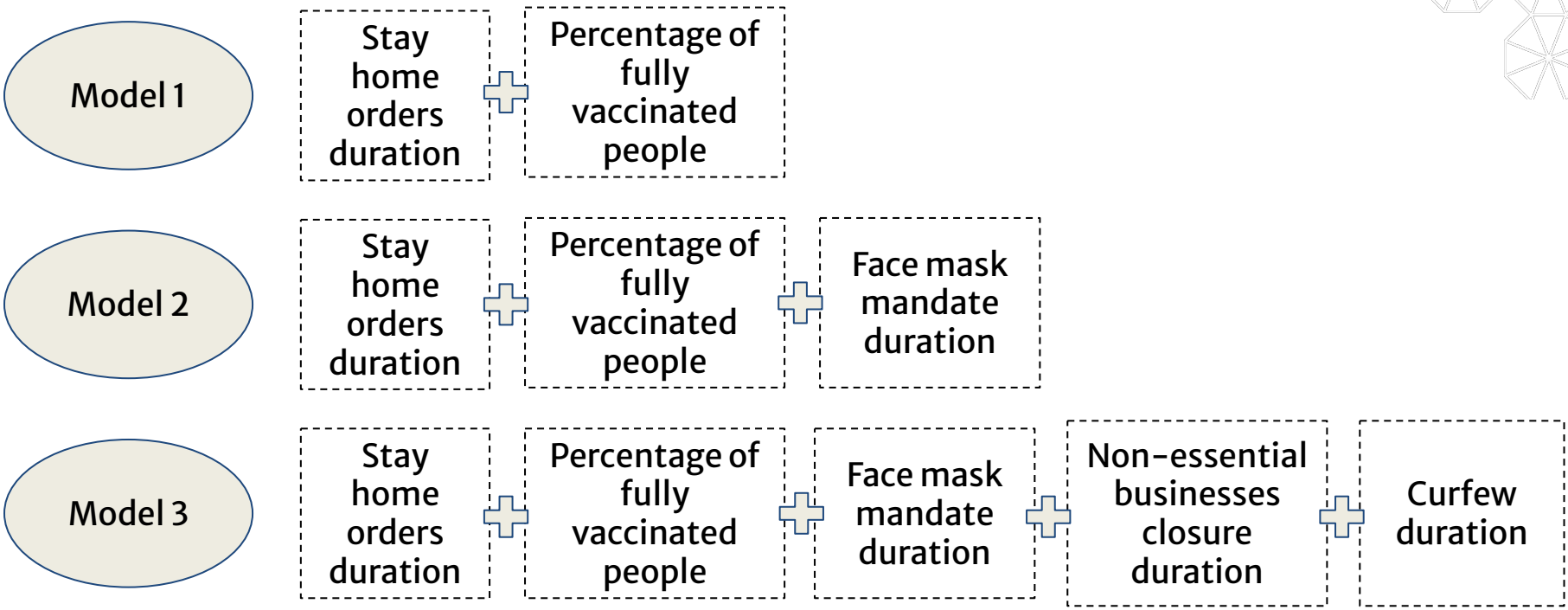
Table 2: Variables Included and Transformations

Variable	Transformation	Included_in_Model	Reason_If_Not
Bar_closed_dur	Log	No	High correlation with other variables
Business_dur	Log	Yes	-
Curfew_dur	Log	Yes	-
Emergency_dur	None	No	High skew
Mask_dur	Log	Yes	-
Mean_diner_perc	None	Yes	-
Outdoor_only	None	No	High correlation with other variables
Rest_closed_dur	Log	No	High correlation with Stay_home_dur
Stay_home_dur	Log	Yes	-
Travel_dur	None	No	High skew
Vaccinated_perc	None	Yes	-

Regression Model Assumption

- Independence of the observations
- No Multicollinearity—independent variables are not highly correlated with each other
- Homoscedasticity of errors
- Linear relationship between the outcome and independent variables
- Errors are normally distributed

Models Comparison




And the winner is...

Models Comparison - cont.

Linear Models Comparison

	Dependent variable:		
	Mean_diner_perc		
	Model 1	Model 2	Model 3
logof_Stay_home_dur	-5.364***	-4.947**	-4.548**
	(1.813)	(1.928)	(1.963)
Vaccinated_perc		0.317	0.664
		(0.487)	(0.569)
logof_Mask_dur		-1.899	-0.929
		(1.421)	(1.565)
logof_Business_dur			-17.690
			(11.508)
logof_Curfew_dur			-0.387
			(1.442)
Constant	11.496	5.588	53.047
	(6.825)	(17.992)	(36.754)
Observations	40	40	40
R2	0.187	0.226	0.276
Adjusted R2	0.166	0.161	0.170
Residual Std. Error	17.666 (df = 38)	17.715 (df = 36)	17.622 (df = 34)
F Statistic	8.753*** (df = 1; 38)	3.497** (df = 3; 36)	2.597** (df = 5; 34)
Note:			*p<0.1; **p<0.05; ***p<0.01

Omitted Variables

Variable	Effect on Dining	Effect from SHD	Omitted Variable Bias	Direction vs Zero
Household Income	+	-	-	away
COVID Case Count	-	-	+	toward
Food Delivery	-	+	--	away
Changing Preferences	-	+	-	away

Conclusion

Longer stay-at-home-orders had a negative impact on restaurant attendance in June of 2021 vs June 2019