Supplementary Material for

COVID-19 Vaccinations, Business Activity, and Firm Value

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Non-Linearity in the Effect of Vaccination Rates on Visits

This figure provides a quadratic model, a cubic model, and piece-wise linear model with bins increasing in 5 percent intervals for *VRATE*. *LNVISITS* is projected up to 50% *VRATE* which corresponds to the 97th percentile of the variable.
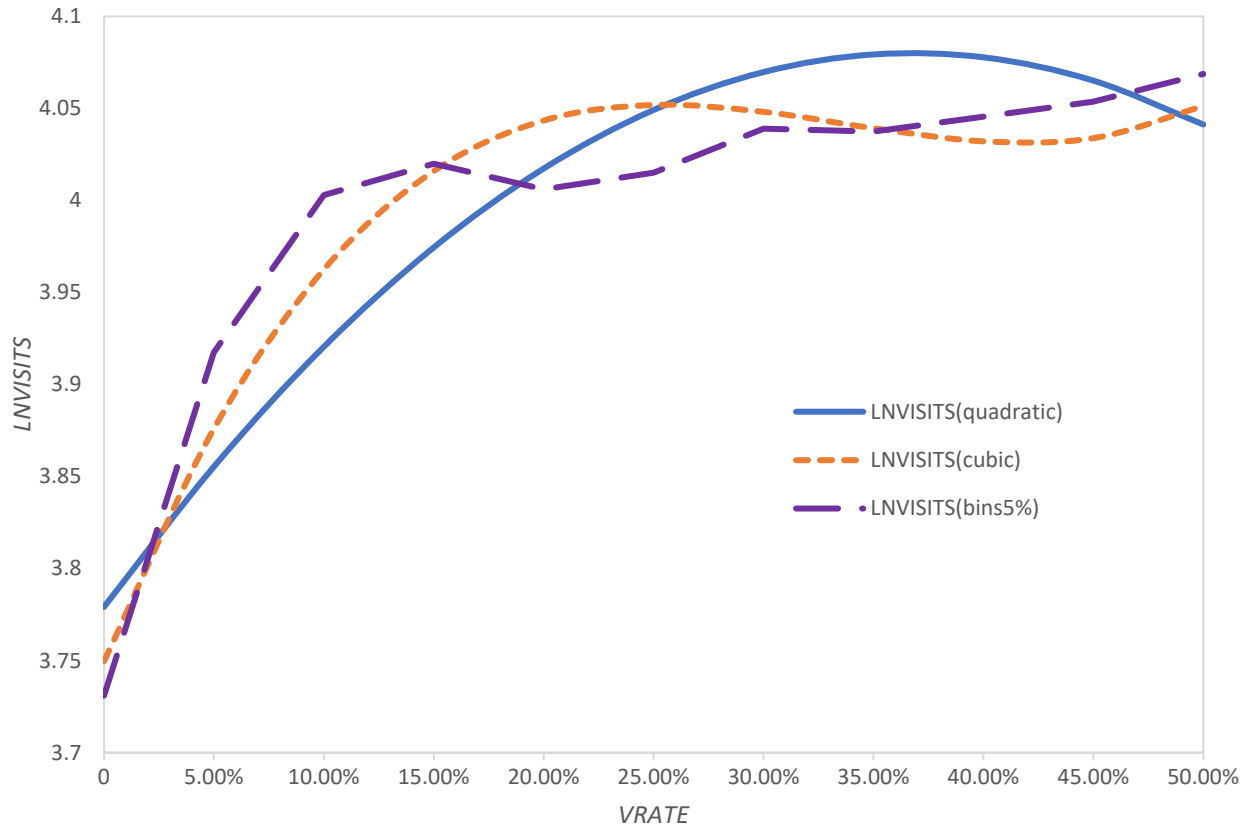
TABLE A1

Detailed Set of Restrictions and Vaccination Rates

The table presents regression of the natural logarithm of weekly store visits at establishment level, *LNVISTS,* on county-level cumulative vaccination rates, *VRATE,* and control variables, including detailed set of dummies for restrictions and capacity, for the period December 28, 2020-June 28, 2021. The restriction variables come are based on Spiegel and Tookes (2022). In the cases where a category takes multiple levels, the base level is full closure. Variable definitions are provided in the Appendix. Standard errors are clustered at county level. We use ∗∗∗, ∗∗, and ∗ to indicate statistical significance at the 1, 5, and 10% levels, respectively.

VARIABLES	(1) LNVISITS	(2) LNVISITS	(3) LNVISITS	(4) LNVISITS	(5) LNVISITS
VRATE	0.1851***	0.3968***	0.5121***	0.5466***	0.1108***
	(0.0371)	(0.0320)	(0.0164)	(0.0173)	(0.0183)
LNSALES		0.2723***	0.2754***		
		(0.0036)	(0.0035)		
DEBT		0.0667***	0.0603***		
		(0.0217)	(0.0206)		
MKTBOOK		-0.0817***	-0.0785***		
		(0.0036)	(0.0036)		
ROA		-0.4419***	-0.4988***		
		(0.0602)	(0.0584)		
CASH		2.0504***	2.0055***		
		(0.1095)	(0.1074)		
PBLACK		0.1875**			
		(0.0832)			
PLATINO		0.2238*			
		(0.1154)			
TRUMP_BIDEN_2020		0.8123***			
		(0.0805)			
STAY_AT_HOME	-0.0491***	-0.0602***	-0.0238***	-0.0257***	0.0223***
	(0.0151)	(0.0123)	(0.0088)	(0.0092)	(0.0054)
STATE_OF_EMERGENCY	-0.0106	0.0028	0.0289***	0.0331***	-0.0020
	(0.0116)	(0.0097)	(0.0067)	(0.0070)	(0.0050)
BARS 100% OPEN	0.0049	-0.0316	-0.0109	-0.0126	0.0292*
	(0.0470)	(0.0380)	(0.0190)	(0.0197)	(0.0162)
BARS 51%-99% OPEN	0.0614**	0.0192	-0.0107	-0.0124	0.0096
	(0.0294)	(0.0264)	(0.0134)	(0.0138)	(0.0087)
BARS 26%-50% OPEN	-0.0041	0.0055	0.0112	0.0122	0.0203***
	(0.0182)	(0.0172)	(0.0133)	(0.0139)	(0.0059)
BARS 25% CAPACITY LIMIT	-0.0212	-0.0097	-0.0110	-0.0105	0.0157***
	(0.0162)	(0.0157)	(0.0148)	(0.0153)	(0.0059)
GATHERINGS NO RESTRICTION	0.1134***	0.1106***	0.1040***	0.1100***	0.0309***
	(0.0168)	(0.0163)	(0.0139)	(0.0147)	(0.0073)
GATHERINGS MAX OVER 100	0.0523***	0.0481***	0.0402***	0.0426***	0.0250***

VARIABLES	(1) LNVISITS	(2) LNVISITS	(3) LNVISITS	(4) LNVISITS	(5) LNVISITS
	(0.0165)	(0.0153)	(0.0144)	(0.0151)	(0.0068)
GATHERINGS MAX 11 TO 100	0.0706***	0.0577***	0.0551***	0.0587***	0.0244***
	(0.0163)	(0.0152)	(0.0140)	(0.0148)	(0.0071)
GYMS 100% OPEN	-0.0360	0.0000	0.0143	0.0203	0.0393**
	(0.0569)	(0.0505)	(0.0319)	(0.0333)	(0.0161)
GYMS 51%-99% OPEN	0.0829*	0.0738*	0.0688**	0.0768***	0.0650***
	(0.0501)	(0.0410)	(0.0283)	(0.0297)	(0.0160)
GYMS 26%-50% OPEN	0.0349	0.0293	0.0565**	0.0630**	0.0525***
	(0.0430)	(0.0375)	(0.0274)	(0.0289)	(0.0164)
GYMS 25% CAPACITY LIMIT	0.0233	0.0306	0.0317	0.0380	0.0412***
	(0.0415)	(0.0346)	(0.0252)	(0.0265)	(0.0136)
NO EMPLOYEE MASKS MANDATE	0.1231	0.0391	0.0801***	0.0819***	0.0097
	(0.0926)	(0.0860)	(0.0128)	(0.0153)	(0.0141)
EMPLOYEE MASKS RECOMMENDED	0.0273*	0.0153	0.0404***	0.0433***	0.0122**
	(0.0151)	(0.0140)	(0.0103)	(0.0107)	(0.0062)
NO RESIDENT MASKS MANDATE	-0.0620	-0.0372	-0.1104***	-0.1152***	-0.0207
	(0.0910)	(0.0854)	(0.0127)	(0.0152)	(0.0138)
RESIDENT MASKS RECOMMENDED	0.0145	-0.0131	-0.0599***	-0.0630***	-0.0182***
	(0.0188)	(0.0151)	(0.0089)	(0.0093)	(0.0058)
NO ELECTIVE PROCEDURES	-0.0741	-0.0429	-0.0580***	-0.0628***	-0.0241***
	(0.0836)	(0.0735)	(0.0081)	(0.0084)	(0.0057)
NO VISITORS TO NURSING HOMES	-0.0248	-0.0368	0.0156	0.0104	0.0036
	(0.0402)	(0.0299)	(0.0118)	(0.0124)	(0.0086)
MOVIE THEATER 100% OPEN	0.0183	-0.0031	-0.0530***	-0.0599***	-0.0228**
	(0.0354)	(0.0304)	(0.0157)	(0.0162)	(0.0102)
MOVIE THEATER 51%-99% OPEN	0.0174	0.0151	0.0054	0.0041	-0.0031
	(0.0314)	(0.0253)	(0.0134)	(0.0138)	(0.0087)
MOVIE THEATER 26%-50% OPEN	-0.0411	-0.0459	-0.0658***	-0.0720***	-0.0333***
	(0.0335)	(0.0291)	(0.0138)	(0.0144)	(0.0094)
MOVIE THEATER 25% CAPACITY LIMIT	-0.0521	-0.0613*	-0.0508***	-0.0562***	-0.0273***
	(0.0366)	(0.0333)	(0.0128)	(0.0135)	(0.0086)
RESTAURANTS 100% OPEN	0.0765	0.0900**	0.0870***	0.0985***	-0.0374**
	(0.0482)	(0.0427)	(0.0227)	(0.0236)	(0.0173)
RESTAURANTS 51%-99% OPEN	0.0872***	0.0952***	0.1098***	0.1195***	-0.0207
	(0.0319)	(0.0256)	(0.0191)	(0.0199)	(0.0145)
RESTAURANTS 26%-50% OPEN	0.0842***	0.0703***	0.0503***	0.0550***	-0.0255**
	(0.0229)	(0.0199)	(0.0166)	(0.0173)	(0.0112)
RESTAURANTS 25% CAPACITY LIMIT	0.1076***	0.1039***	0.0649***	0.0686***	-0.0151
	(0.0219)	(0.0203)	(0.0184)	(0.0191)	(0.0096)
RETAIL 100% OPEN	0.0461	-0.0082	0.0410*	0.0402	0.0261
	(0.0777)	(0.0563)	(0.0244)	(0.0281)	(0.0178)
RETAIL 51%-99% OPEN	0.0593	0.0047	0.0222	0.0216	0.0301
	(0.0807)	(0.0573)	(0.0280)	(0.0319)	(0.0190)
RETAIL 26%-50% OPEN	0.0600	0.0185	0.0247	0.0238	0.0161

VARIABLES	(1) LNVISITS	(2) LNVISITS	(3) LNVISITS	(4) LNVISITS	(5) LNVISITS
	(0.0751)	(0.0536)	(0.0222)	(0.0259)	(0.0167)
RETAIL 25% CAPACITY LIMIT	0.0424	0.0229	0.0220	0.0221	0.0040
	(0.0691)	(0.0479)	(0.0192)	(0.0228)	(0.0153)
SPAS 100% OPEN	0.0082	0.0015	0.0112	0.0102	0.0308***
	(0.0293)	(0.0233)	(0.0102)	(0.0114)	(0.0077)
SPAS 51%-99% OPEN	-0.0913**	-0.0565*	-0.0192	-0.0200	0.0044
	(0.0384)	(0.0314)	(0.0156)	(0.0173)	(0.0098)
SPAS 26%-50% OPEN	-0.0680**	-0.0279	0.0281*	0.0315*	0.0180*
	(0.0332)	(0.0264)	(0.0159)	(0.0176)	(0.0095)
SPAS 25% CAPACITY LIMIT	-0.1396***	-0.0803***	-0.0266	-0.0270	0.0030
	(0.0349)	(0.0266)	(0.0185)	(0.0205)	(0.0116)
PARKS CLOSED	0.0481	0.0449	-0.0125	-0.0158	0.0022
	(0.0362)	(0.0376)	(0.0462)	(0.0407)	(0.0409)
Observations	7,802,975	7,802,975	7,802,975	7,802,975	7,802,975
Adjusted R-squared	0.3184	0.3772	0.3970	0.9386	0.9405
State FE, Industry FE	YES	YES			
County FE, Industry FE			YES		
Store FE				YES	
Store FE, Time FE					YES

TABLE A2

Percentage Change in Visits

The table presents regression of the percent change in weekly store visits at establishment level relative to the same calendar month in 2019 (pre-COVID), *PVISITS,* on county-level weekly cumulative vaccination rates, *VRATE,* and store and time fixed effects for the period December 28, 2020-June 28, 2021. We report coefficient estimates with standard errors in parentheses. Variable definitions are provided in the Appendix. Standard errors are clustered at county level. We use ∗∗∗, ∗∗, and ∗ to indicate statistical significance at the 1, 5, and 10% levels, respectively.

VARIABLES	(1) *PVISITS*	(2) *PVISITS*	(3) *PVISITS*	(4) *PVISITS*
WEEKLY VRATE	1.6022***	0.6872***		
	(0.0674)	(0.0939)		
VRATE			0.0484***	0.1258***
			(0.0081)	(0.0160)
Observations	7,980,554	7,980,554	7,980,554	7,980,554
Adjusted R-squared	0.7149	0.7238	0.7141	0.7239
Store FE	YES		YES	
Store FE, time FE		YES		YES

TABLE A3

Poisson Regressions of Visits and Vaccination Rates

The table presents regression of the raw weekly visits as a count variable on county-level weekly cumulative vaccination rates, *VRATE,* and store and time fixed effects for the period December 28, 2020-June 28, 2021. We report coefficient estimates with standard errors in parentheses. Variable definitions are provided in the Appendix. Standard errors are clustered at county level. We use ∗∗∗, ∗∗, and ∗ to indicate statistical significance at the 1, 5, and 10% levels, respectively.

VARIABLES	(1) *VISITS*	(2) *VISITS*
VRATE	0.5890***	0.1311***
	(0.0113)	(0.0174)
Observations	8,283,489	8,283,489
Store FE	YES	
Store FE, Time FE		YES
Pseudo R-squared	0.909	0.909

TABLE A4

First Doses and State Allocation of Vaccines

The table presents regressions of vaccination rate on store visits. All models are based on first dose of COVID vaccines only. Models 3 and 4 control for the state allocation of vaccines.

	(1)	(2)	(3)	(4)
VARIABLES	*LNVISITS*	*LNVISITS*	*LNVISITS*	*LNVISITS*
VRATE	0.6072***	0.0861***	0.4358***	0.1851***
	(0.0115)	(0.0167)	(0.0124)	(0.0212)
ALLOCATION			0.1054***	0.0483***
			(0.0030)	(0.0042)
Observations	8,283,489	8,283,489	8,287,701	8,287,701
Adjusted R-squared	0.9383	0.9404	0.9387	0.9405
Store FE	YES		YES	
Store FE, Time FE		YES		YES

TABLE A5

Threat of the Virus: Transmission Rates and Fatalities

The table presents regressions of vaccination rate on store visits. In Panel A, we estimate OLS regressions, where Models 1 and 2 control for county level weekly COVID-19 transmission rates, and models 3 and 4 control for county level weekly COVID-19 related fatalities. In Panel B, we estimate seemingly-unrelated regressions (SUR). In (1), we regress *LNVISITS* on *VRATE* and store fixed effects, and in (2) we simultaneously regress *TRANSMISSIONS* on county-level demographic characteristics.

Panel A: Store Visits and Transmission Rates: OLS Model

VARIABLES	(1) *LNVISITS*	(2) *LNVISITS*	(3) *LNVISITS*	(4) *LNVISITS*
VRATE	0.4376***	0.1313***	0.6146***	0.1361***
	(0.0137)	(0.0191)	(0.0129)	(0.0185)
TRANSMISSIONS	-29.2377***	-7.3400***		
	(1.4100)	(0.8026)		
FATALITIES			-369.1978***	-63.3655***
			(31.2661)	(15.8946)
ALLOCATION				
Observations	8,173,983	8,173,983	8,173,983	8,173,983
Adjusted R-squared	0.9387	0.9403	0.9378	0.9403
Store FE	YES		YES	
Store FE, Time FE		YES		YES

Panel B: Store Visits and Transmission Rates: SUR Model

VARIABLES	(1) *LNVISITS*	(2) *TRANSMISSIONS*
VRATE	0.6117***	
	(0.0008)	
PBLACK		0.0507***
		(0.0001)
PLATINO		0.0913***
		(0.0001)
TRUMP_BIDEN_2020		0.0806***
		(0.0001)
POPULATION_DENSITY		0.0002***
		(0.0000)
LNINCOME		-0.0039***
		(0.0000)
Observations	8,178,030	8,178,030
Adjusted R-squared	0.0837	0.2316
Store FE	YES	