Unequal Response to Mobility Restrictions: Evidence from COVID-19 Lockdown in the City of Bogotá. (**Online Appendix**)

A Appendix Figures and Tables

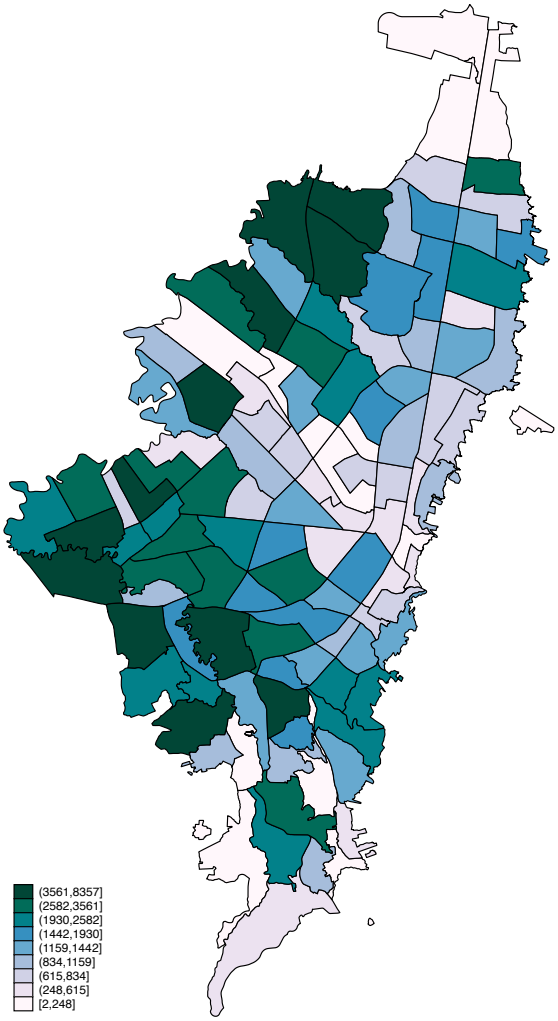

Figure A.1: Aggregate number of cases registered by UPZ for the 30 week period starting in March 2, 2020.

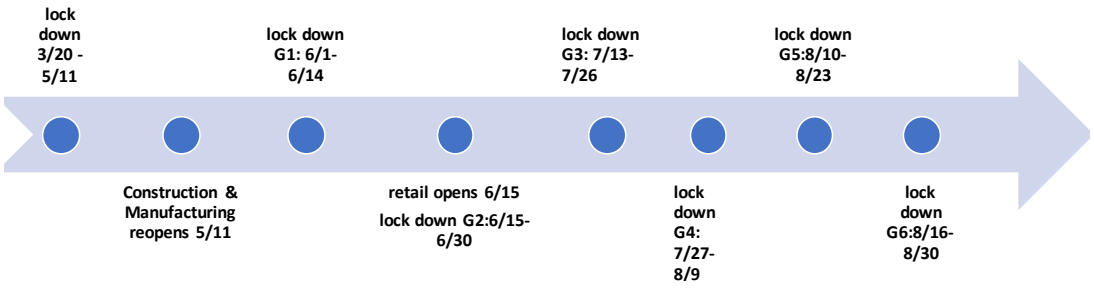

Figure A.2: After the first general lockdown, 6 localized stay at home orders were implemented by districts, shown in the timeline as groups G1 to G6. The districts included in each were the following: **G1:**Kennedy; **G2:**Ciudad Bolívar, Suba Engativa y Bosa; **G3:**Ciudad Bolívar, San Cristóbal, Rafael Uribe, Chapinero, Santa Fe, Usme, Los Mártires and Tunjuelito; **G4:**Bosa, Kennedy, Puente Aranda, and Fontibón; **G5:**Suba, Engativá, and Barrios Unidos; **G6:** Usaquén, Chapinero, Santa Fe, La Candelaria, Teusaquillo, Puente Aranda, and Antonio Nariño. Some districts went through more than one lockdown.

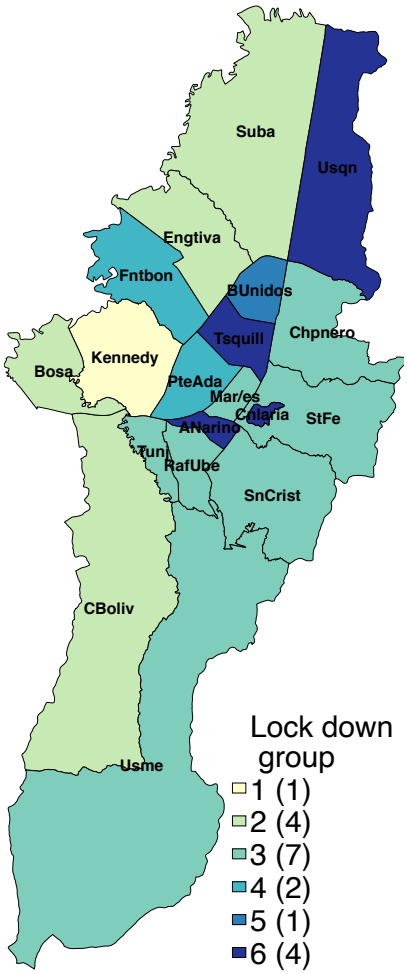

Figure A.3: After the first general lockdown from March 20 to April 12, 6 localized stay at home orders were implemented by districts. Figure A.2 show specific dates and districts in each group G1 to G6. This map shows districts included in each group. The number in the bracket indicates how many districts are in each group. Some districts went through more than one lockdown. They are associated with the group with which the experienced their earlier lockdown.

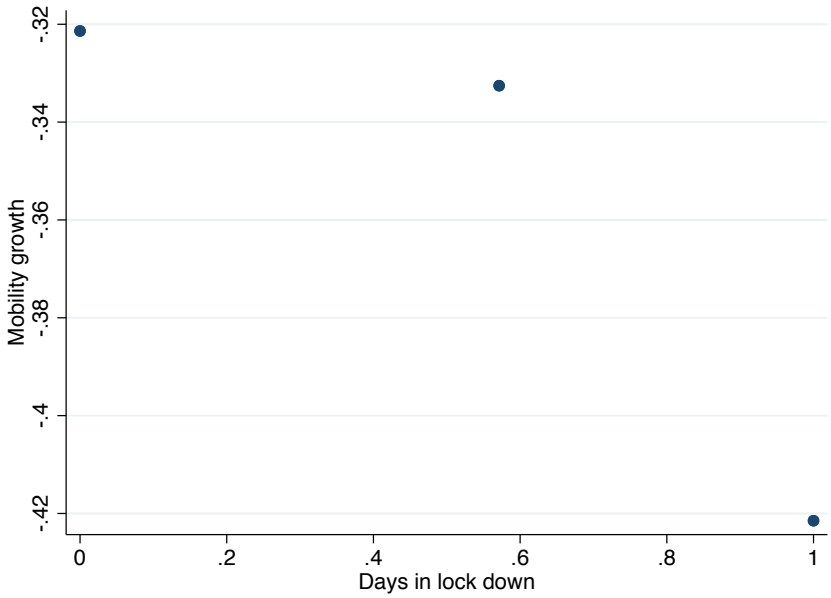

Figure A.4: Binned scatterplot showing change in mobility during different levels of lockdown. Negative numbers in the vertical axis refer to mobility drops with respect to the baseline date of March 2, 2020.

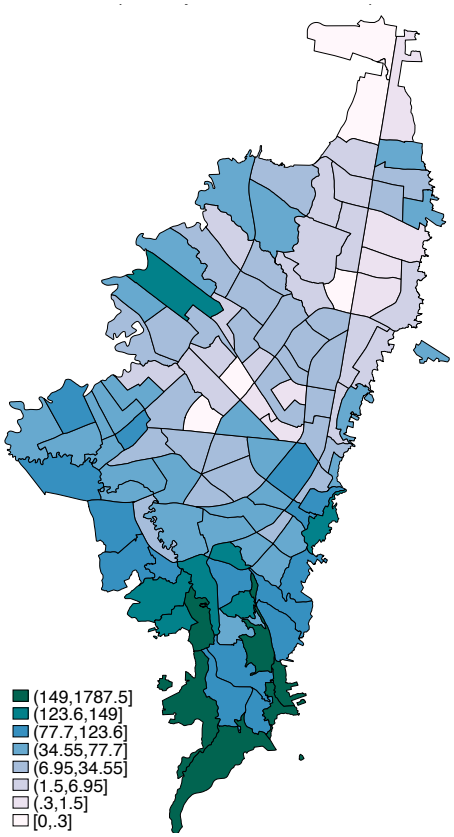

Figure A.5: Number of Subsidies (per 100 inhabitants) by UPZ. More than 350.000 households receive at most three disbursements from the city's government from March to September. The total amount in each payment was COP$160,000 (USD$ 42) per household for people classified as vulnerable and COP$240,000 (USD$ 63) for those classified as poor. According to DANE, the extreme poverty line for Bogotá was $176.602 (USD$46.8) per person per month(exchange rate used was 3,809.523 colombian pesos(COP) per us dollar). This line represents the monetary amount necessary to buy enough food to ingest 2,100 calories per day. Virtually all UPZs in Bogotá had households that received subsidies. The subsidies in our data were disbursed in three *waves* starting in April 29^{th}, May 21^{th} and July 21^{th} with 118,823, 108,220 and 127,532 payments respectively. Combining disbursements done by the government and the city, each wave got to more than 230,000 people. Not all the households received transfers in all waves.

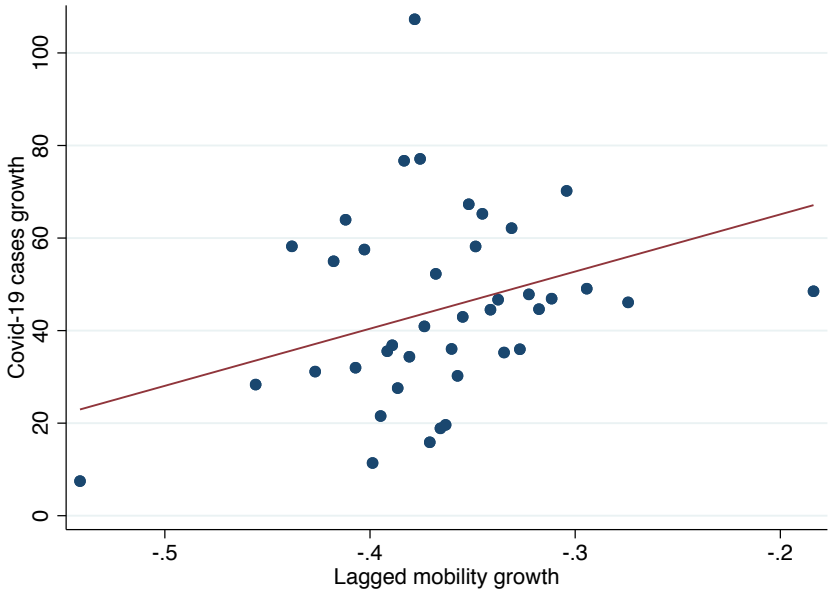

Figure A.6: Binned scatterplot showing the relationship between COVID-19 cases and fall in mobility. Binscatter groups all observations in 40 quantiles for simplicity of presentation. The scatter controls for week and UPZ fixed effects. Values in the horizontal axis refer to mobility fall with respect to the baseline date of March 2, 2020, and are lagged one week with respect to cases.

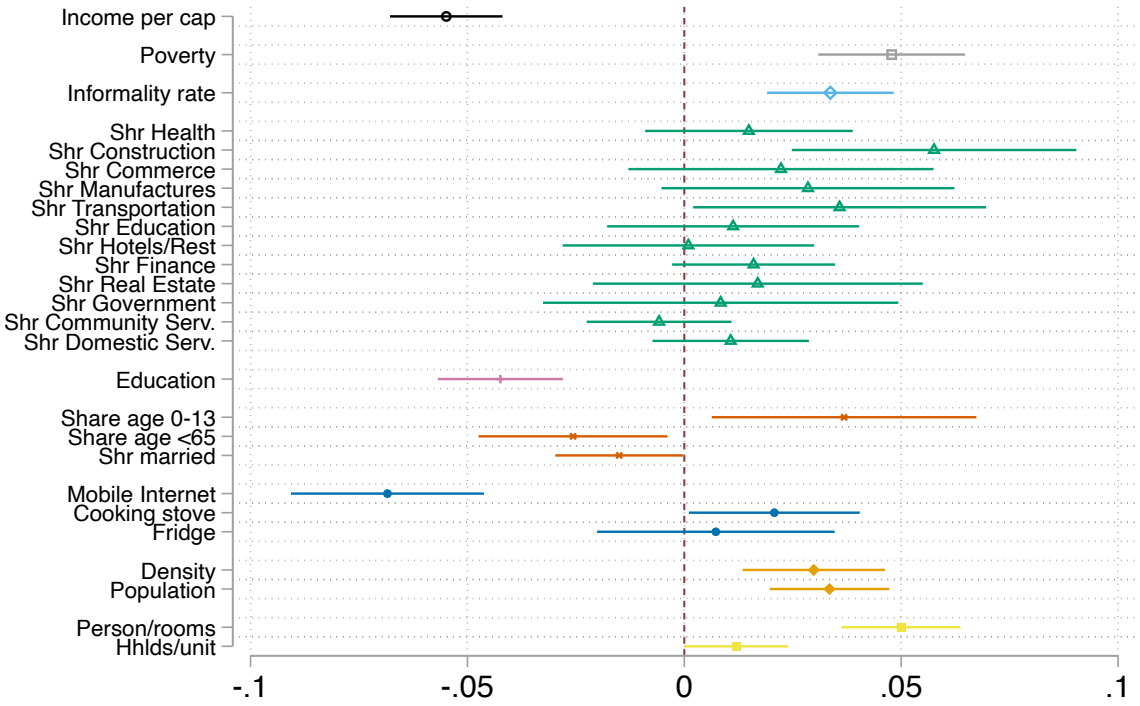

Figure A.7: Results from the single stage regression approach that explain UPZ level mobility change during the general lockdown. Coefficients shown here are equivalent to the θs from equation 2. Each group of coefficients, identified by color and marker, comes from a separate regression. Regression statistics are found in Tables A.6 and A.7.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Week before lockdown	-0.08***			-0.11***			-0.08***		
	(0.01)			(0.00)			(0.01)		
Lockdown		-0.41***			-0.66***			-0.56***	
		(0.03)			(0.02)			(0.02)	
Week after lockdown			-0.35***			-0.64***			-0.35***
			(0.03)			(0.01)			(0.03)
R-squared	0.605	0.605	0.605	0.752	0.752	0.752	0.722	0.722	0.722
Observations	1456	1456	1456	1456	1456	1456	1456	1456	1456
UPZ FEs	✓	✓	✓	✓	✓	✓	✓	✓	✓
Week FEs	✓	✓	✓	✓	✓	✓	✓	✓	✓
UPZ time trend				✓	✓	✓			
UPZ Lockdown Effect							✓	✓	✓

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors reported in parenthesis. UPZ Time Trends interacts UPZ and week effects: $\gamma_i \times \tau_t$. UPZ Lockdown Effect allows for the effect of the general lockdown to be heterogeneous by adding a term that interacts the lockdown indicator with UPZ indicators: $\text{LockDown}_t \times \gamma_i$.

Table A.1: Mobility before and after lockdown

	Percentage change in mobility					
	(1)	(2)	(3)	(4)	(5)	(6)
Lockdown (continuous)	-0.41***					
	(0.03)					
Lockdown		-0.41***	-0.41***	-0.66***	-0.56***	
		(0.03)	(0.03)	(0.02)	(0.02)	
Placebo						-0.01
						(0.01)
R-squared	0.605	0.605	0.605	0.752	0.722	0.752
Observations	1456	1456	1456	1456	1456	1456
UPZ FEs	✓	✓	✓	✓	✓	✓
Week FEs	✓	✓	✓	✓	✓	✓
trend			✓			
UPZ time trend				✓		✓
UPZ Lockdown Effect					✓	

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors reported in parenthesis. UPZ Time Trends interacts UPZ and week effects: $\gamma_i \times \tau_t$. UPZ Lockdown Effect allows for the effect of the general lockdown to be heterogeneous by adding a term that interacts the lockdown indicator with UPZ indicators: $\text{LockDown}_t \times \gamma_i$.

Table A.2: Impact of continuous lockdown on mobility

	Percentage change in mobility			
	(1)	(2)	(3)	(4)
Lockdown	-0.41***	-0.41***	-0.41***	-0.42***
	(0.03)	(0.03)	(0.03)	(0.03)
Lockdown × Subsidies/cap			-0.09	-0.68
			(0.22)	(1.39)
Lockdown × Subsidies/cap^2				-0.57
				(5.40)
Subsidies/cap		1.11***	1.16***	4.84**
		(0.34)	(0.29)	(2.00)
Subsidies/cap^2				-13.26**
				(6.01)
R-squared	0.605	0.609	0.609	0.615
Observations	1456	1456	1456	1456
UPZ FEs	✓	✓	✓	✓
Week FEs	✓	✓	✓	✓

Robust standard errors reported in parenthesis. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.3: Controlling for subsidies

	UPZ mobility premium				
	(1)	(2)	(3)	(4)	(5)
Income per cap	-0.06***				
	(0.01)				
Poverty		0.05***			
		(0.01)			
Informality rate			0.03***		
			(0.01)		
Shr Health				0.02	
				(0.02)	
Shr Construction				0.06***	
				(0.02)	
Shr Commerce				0.02	
				(0.02)	
Shr Manufactures				0.03	
				(0.02)	
Shr Transportation				0.04	
				(0.02)	
Shr Education				0.01	
				(0.02)	
Shr Hotels/Rest				0.00	
				(0.02)	
Shr Finance				0.02	
				(0.01)	
Shr Real Estate				0.02	
				(0.02)	
Shr Government				0.01	
				(0.03)	
Shr Community Serv.				-0.01	
				(0.01)	
Shr Domestic Serv.				0.01	
				(0.01)	
Education					-0.04***
					(0.01)
R-squared	0.386	0.294	0.146	0.589	0.231
Observations	73	73	73	73	73

Robust standard errors reported in parenthesis.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.4: Impact of socioeconomic characteristics on UPZ mobility premium captured by interaction coefficients, the β_i from equation 1

	UPZ mobility premium			
	(1)	(2)	(3)	(4)
Share age 0-13	0.04*			
	(0.02)			
Share age >65	-0.03*			
	(0.01)			
Shr married	-0.02*			
	(0.01)			
Mobile Internet		-0.07***		
		(0.01)		
Cooking stove		0.02*		
		(0.01)		
Fridge		0.01		
		(0.02)		
Density			0.03***	
			(0.01)	
Population			0.03***	
			(0.01)	
Person/rooms				0.05***
				(0.01)
Hhlds/unit				0.01
				(0.01)
R-squared	0.639	0.420	0.333	0.369
Observations	73	73	73	73

Robust standard errors reported in parenthesis.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.5: Impact of socioeconomic characteristics on UPZ mobility premium captured by interaction coefficients, the β_i from equation 1 (continued from table A.4)

	(1)	(2)	(3)	(4)	(5)
Lockdown × Income per cap	-0.05***				
	(0.01)				
Lockdown × Poverty		0.05***			
		(0.01)			
Lockdown × Informality rate			0.03***		
			(0.01)		
Lockdown × Shr Health				0.01	
				(0.01)	
Lockdown × Shr Construction				0.06***	
				(0.02)	
Lockdown × Shr Commerce				0.02	
				(0.02)	
Lockdown × Shr Manufactures				0.03	
				(0.02)	
Lockdown × Shr Transportation				0.04*	
				(0.02)	
Lockdown × Shr Education				0.01	
				(0.02)	
Lockdown × Shr Hotels/Rest				0.00	
				(0.02)	
Lockdown × Shr Finance				0.02	
				(0.01)	
Lockdown × Shr Real Estate				0.02	
				(0.02)	
Lockdown × Shr Government				0.01	
				(0.02)	
Lockdown × Shr Community Serv.				-0.01	
				(0.01)	
Lockdown × Shr Domestic Serv.				0.01	
				(0.01)	
Lockdown × Education					-0.04***
					(0.01)
R-squared	0.681	0.673	0.660	0.699	0.668
Observations	949	949	949	949	949
UPZ FEs	✓	✓	✓	✓	✓
Week FEs	✓	✓	✓	✓	✓

Robust standard errors reported in parenthesis.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.6: Single Stage results.

	(1)	(2)	(3)	(4)
Lockdown × Share age 0-13	0.04**			
	(0.02)			
Lockdown × Share age > 65	-0.03*			
	(0.01)			
Lockdown × Shr married	-0.02*			
	(0.01)			
Lockdown × Mobile Internet		-0.07***		
		(0.01)		
Lockdown × Cooking stove		0.02*		
		(0.01)		
Lockdown × Fridge		0.01		
		(0.02)		
Lockdown × Density			0.03***	
			(0.01)	
Lockdown × Population			0.03***	
			(0.01)	
Lockdown × Person/rooms				0.05***
				(0.01)
Lockdown × Hhlds/unit				0.01
				(0.01)
R-squared	0.703	0.684	0.676	0.680
Observations	949	949	949	949
UPZ FEs	✓	✓	✓	✓
Week FEs	✓	✓	✓	✓

Robust standard errors reported in parenthesis.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.7: Single Stage results (continued from table A.6)