Online Appendix A: Additional Tables and Figures

I Tables

Table A.1: Relationship Between the Instrument and Number of Retail Establishments

	Dependent Variable: # of Establishments									
Retail Establishments	Neighbor-hood Shops	Conv. Chains	Super-markets	Depart-ment Stores	Butcher	Poultry	Fish and Seafood	Fruits and Veg.	Non-alcoholic Drinks	Clothing Stores
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Economies of $Scale_{c,t-1}$ x	-5.09***	1.32***	-0.01	-0.05*	-0.09	0.00	-0.06	0.33	0.16	-0.18
Chain $Suitability_{m,c}$	(0.796)	(0.169)	(0.026)	(0.028)	(0.121)	(0.087)	(0.047)	(0.682)	(0.119)	(0.921)
Observations	158,515	158,515	158,515	158,515	158,515	158,515	158,515	158,515	158,515	158,515

Note: The table displays the relationship between the instrument and the number of establishments in the neighborhood estimated using Equation 2. Standard errors are clustered at the municipality level.

Table A.2: Effect of Chains on Shop Survival

Dependent Variable:	Cox		Poisson				OLS			
Store Level (Exit=1)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Number of Chain Stores	0.044***	0.045***	0.044***	0.045***	0.030***	0.023***	0.019***	0.020***	0.013***	0.011***
	(0.0012)	(0.0012)	(0.0035)	(0.0036)	(0.0021)	(0.0045)	(0.0011)	(0.0012)	(0.0008)	(0.0018)
Observations	1,526,922	1,379,334	1,526,922	1,379,334	1,379,137	1,374,123	1,526,922	1,379,334	1,379,329	1,377,267
Store Controls		Y		Y	Y	Y		Y	Y	Y
Year x Municipality FE					Y	Y			Y	Y
Neighborhood FE						Y				Y
Mean Dep. Variable | Chains>0	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Mean Chain Stores | Chains>0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Note: The table displays the estimation of survival models. Columns 1 and 2 are Cox survival models. Columns 3-6 are survival models estimated using a Poisson and age of establishment fixed effect measured by the number of censuses the establishment has been open. Hazard ratios of Cox models and Poisson models after splitting on all observed failure times are identical (Royston and Lambert, 2011, Section 4.5). Hence, the coefficients of columns 1-2 and 3-4 are identical, but the standard errors reflect the differences in the underlying assumptions of each method. Columns 7-9 are OLS estimates with the age of establishment fixed effects. Standard errors are clustered at the municipality level.

Table A.3: Robustness - Alternative Specifications

Dependent Variable: # of Neighborhood Shops	2SLS (1)	2SLS Long Differences (2)	2SLS Long Differences (3)	2SLS Long Differences (4)	2SLS Log-Linear (5)	2SLS Log-Log (6)
Number of Chain Stores	-3.85***	-3.82***	-4.84***	-4.88***	-0.03***	-1.81*
	(0.758)	(0.368)	(0.771)	(0.490)	(0.004)	(0.997)
Observations	158,515	34,182	33,987	34,182	158,515	158,515
Economic Activity Controls	Y				Y	Y
Year x Municipality FE	Y				Y	Y
Neighborhood FE	Y				Y	Y
Δ Economic Activity Cont.			Y			
Municipality FE				Y		
Mean Dep. Var. | Chains>0	175	-1.12	-1.12	-1.12	175	175
Mean Ch. Stores | Chains>0	6.7	7.3	7.3	7.3	6.7	6.7
From 0 to Avg. # Ch. Stores	-14.7%				-19.4%	
KP F-statistic	61.18	160.55	30.75	373.73	61.18	4.47

Note: The table displays the estimation of Equation 3. Columns 2-4 are long differences (2019-2004) of the number of neighborhood shops and convenience chains, and the instrument uses the economies of scale measure of 1999. Column 5 uses the natural logarithm of the number of shops as the dependent variable. Column 6 uses the natural logarithm of the number of shops as the dependent variable and the natural logarithm of the number of chain stores as the dependent variable. Standard errors are clustered at the municipality level.

Table A.4: Prices at Chains and Shops

	Dependent Variable: Log Price				
	ENIGH (Consumption Data)		Price Microdata		
	Food (1)	Non-Food (2)	All (3)	Food (4)	Non-Food (5)
I[Chain Store]	0.039***	0.010	0.109***	0.152***	-0.136*
	(0.003)	(0.011)	(0.041)	(0.046)	(0.079)
Observations	2,102,770	764,822	1,526	1,307	219
Household Charac. Controls	Y	Y			
Census Tract x Year x Product FE		Y			
Census Tract x Year x Product x Product Size FE	Y				
Municipality x Year x Barcode FE			Y	Y	Y

Note: The table displays the difference in log price between convenience chains and neighborhood shops. Columns 1 and 2 use consumption data, and columns 3-5 use price microdata. The consumption data includes quantities/sizes for food but not for other products. Standard errors are clustered at the municipality level.

Table A.5: Effect on Employment and Wages

	Employment		Log Wages	
		Excluding		Shops +
	All	Owners	Shops	Chains
	(1)	(2)	(3)	(4)
Number of Chain Stores	1.736	7.43***	-0.002	0.010***
	(1.494)	(0.401)	(0.003)	(0.003)
Observations	149,302	149,302	144,682	149,302
Economic Activity Controls	Y	Y	Y	Y
Year x Municipality FE	Y	Y	Y	Y
Neighborhood FE	Y	Y	Y	Y
Avg. Dep. Var.|Chains>0	376.8	84.7		
KP F-Statistic	60.69	60.69	59.94	60.69

Note: The table displays the estimation of Equation 3 using 2SLS, where the dependent variable is the number of jobs or the log wage. Column 1 is the effect on the total employed in chains and shops, column 2 excludes the overhead jobs of chains, and column 3 excludes shop owners. Column 4 is the average effect on wages at shops, and column 5 is the average effect on wages at shops and chains. Standard errors are clustered at the municipality level.

Table A.6: Effect of Chains on Shops' Prices

	Dependent Variable: Log Price						
	Price Microdata			ENIGH (Consumption Data)			
	All	Food	Non-Food	All	Food		Non-Food
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Number of Chain Stores	0.000	0.000	0.000	0.002	0.002	0.002**	0.003
	(0.000)	(0.000)	(0.000)	(0.002)	(0.002)	(0.001)	(0.012)
	[0.262]	[0.681]	[0.495]	[0.179]	[0.182]	[0.028]	[0.781]
Observations	110,516	81,944	28,572	11,970,529	9,822,768	8,479,123	2,147,761
Economic Activity Controls	Y	Y	Y	Y	Y	Y	Y
Year x Municipality x Barcode FE	Y	Y	Y				
Neigh. x Barcode FE	Y	Y	Y				
Year x Municipality x Product FE				Y	Y		Y
Neighborhood x Product FE				Y	Y		Y
Year x Mun x Product x Size FE						Y	
Neigh. x Product x Size FE						Y	
KP F-statistic	64	60	62	55	58	47	29

Note: The table displays the estimation of Equation 3 using 2SLS, where the dependent variable is the log price. Columns 1 and 2 use price microdata, and columns 3-7 use consumption data. The consumption data includes quantities/sizes for food but not for other products.

Table A.7: Robustness - Alternative IV Specifications

Dependent Variable: # of Neighborhood Shops	Main	Per Chain	Squared & Cubed	1st Degree Neigh	3rd Degree Neigh	Squared Sum	Sum	Lasso1	Lasso2	Conv 1999	Non-Lag IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Number of Chain Stores	-3.85***	-3.64***	-3.76***	-3.25***	-4.38***	-3.26***	-3.67***	-2.36***	-2.28***	-3.50***	-3.67***
	(0.758)	(0.564)	(0.752)	(0.730)	(0.775)	(0.880)	(0.763)	(0.519)	(0.533)	(0.850)	(0.731)
Observations	158,515	158,515	158,515	158,515	158,515	158,515	158,515	158,515	158,515	158,515	158,515
Economic Activity Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Neighborhood FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year x Municipality FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mean Dep. Variable | Chains>0	175	175	175	175	175	175	175	175	175	175	175
Mean Chain Stores | Chains>0	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
From 0 to Avg. # Conv. Stores	-14.7%	-13.9%	-14.4%	-12.4%	-16.8%	-12.5%	-14.1%	-9.0%	-8.7%	-13.4%	-14.0%
KP F-statistic	61.18	16.97	32.31	60.09	74.61	39.87	51.53	218.18	201.30	84.23	53.89

Note: The table displays the estimation of Equation 3 using 2SLS with variations of the instrument. Column 2 presents results using one IV per chain (instead of aggregating across chains), and Column 3 uses a polynomial of the instrument that includes its square and cube. Columns 4 and 5 present results using first and third-degree neighboring municipalities instead of second-degree ones. Column 6 does not take the square root of the square sum of chain stores in nearby municipalities. Column 7 does not square the number of chain stores in nearby municipalities before adding them up and does not take the square root of the sum. In columns 8 and 9, I create a measure of suitability in two stages. The first stage is a lasso regression of the number of chain stores in each census tract obtained from the 2020 firm directory (DENUE) on explanatory variables. The second stage is to predict the number of chain stores using the lasso-selected variables and estimates. This prediction is the measure of suitability used. The variables include sociodemographic characteristics at the census tract and municipality level from the 2000 and 2010 population census, street data from open street maps, and municipality-fixed effects. The difference between Columns 8 and 9 is that Column 9 does not include the 2000 population census variables. The lasso estimations also include each variable's square, cube, and natural logarithm transformation totaling more than 2,600 variables in each analysis. The lasso in column 9 selected 675 variables, and the one in column 10 selected 373 variables. The prevalence of wide streets in the census tract was one of the three variables with the largest magnitude coefficient in both lasso estimations. In Column 10, I use the number of chain stores and hybrid stores in each neighborhood in 1999 to measure suitability. Column 11 uses the contemporaneous number of chain stores in nearby municipalities instead of the lagged ones to construct the instrument. Standard errors are clustered at the municipality level.

Table A.8: Robustness - Adding Controls

Dependent Variable: # of Neighborhood Shops	Main (1)	Nearby Chains Control (2)	Businesses PCA (3)	Super-markets Control (4)	Main No Controls (5)	Pop. Census Controls (6)	HH Sample (7)	HH Controls (8)	HH Controls FA (9)
Number of Chain Stores	-3.847***	-3.774***	-4.476***	-3.848***	-4.825***	-2.832***	-4.047***	-4.237***	-4.112***
	(0.758)	(0.953)	(0.829)	(0.755)	(0.669)	(0.758)	(0.988)	(0.989)	(0.987)
Observations	158,515	158,515	158,515	158,515	158,515	152,138	49,354	49,354	49,354
Economic Activity Controls	Y	Y	Y	Y		Y	Y	Y	Y
Neighborhood FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year x Municipality FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mean Dep. Var. | Chains>0	175	175	175	175	175	179	212	212	212
Mean Ch. Stores | Chains>0	6.7	6.7	6.7	6.7	6.7	6.8	9.4	9.4	9.4
From 0 to Avg. # Ch. Stores	-14.7%	-14.4%	-17.1%	-14.7%	-18.5%	-10.8%	-18.0%	-18.8%	-18.3%
KP F-statistic	61.18	49.07	79.62	61.08	103.81	54.06	81.59	78.39	81.30

Note: The table displays the estimation of Equation 3 using 2SLS with alternative controls. Column 2 controls for the number of convenience chain stores in census tracts more than 1 km away from but at most 2 km away. Column 3 uses the principal components with an eigenvalue larger than one instead of the factors from the factor analysis to control for the presence of other businesses in the neighborhood. Column 4 controls for the number of supermarkets in the neighborhood. Column 5 is the main specification without the economic activity controls from the factor analysis. Column 6 adds controls from the 2000 and 2010 population census, including the average age of household head, household income, hours worked, population, and the number of households, interpolated and extrapolated linearly. Column 7 restricts the sample to neighborhoods for which there is ENIGH data. Column 8 includes the following household controls from ENIGH: number of inhabitants, men, women, adults, and minors; expenses on clothing, shoes, home, rent, energy, healthcare, public transportation, education, income, total expenses, and income per capita. Column 9 uses factor analyses to control for the same household variables keeping the factors with an eigenvalue larger than one. Standard errors are clustered at the municipality level.

Table A.9: Effect by Municipality Size

Dependent Variable: # of Neighborhood Shops	IV All Urban	Towns Avg. pop 14K	Cities Avg. pop 262K	Large Cities Avg. pop 880K
	(1)	(2)	(3)	(4)
Number of Chain Stores	-3.85***	-4.32***	-3.37***	-4.84**
	(0.758)	(1.503)	(0.746)	(1.835)
Observations	158,515	74,879	54,968	30,183
# of Municipalities	1,961	1,813	120	29
Economic Activity Controls	Y	Y	Y	Y
Neighborhood & Year x Mun FE	Y	Y	Y	Y
Mean Dep. Variable | Chains>0	175	125	192	201
Mean Chain Stores | Chains>0	6.7	3.3	7.7	8.6
Effect from 0 to Avg. # Conv. Stores	-14.7%	-11.3%	-13.5%	-20.8%
KP F-statistic	61.18	42.30	40.75	29.05

Note: The table displays the estimation of Equation 3 using 2SLS splitting the sample by municipality size. Standard errors are clustered at the municipality level.

Table A.10: Robustness - Alternative Standard Errors

	Dependent Variable: # of Neighborhood Shops				
	(1)	(2)	(3)	(4)	(5)
Number of Chain Stores	-3.85***	-3.85***	-3.85**	-3.85***	-3.85***
	(0.758)	(0.444)	(0.752)	(0.627)	(0.546)
Observations	158,515	158,515	158,515	158,515	158,515
Economic Activity Controls	Y	Y	Y	Y	Y
Neighborhood FE	Y	Y	Y	Y	Y
Year x Municipality FE	Y	Y	Y	Y	Y
Clustered SE	Municipality	Neighborhood Year	Municipality Year	Mun x Year	Mun x Year Neighborhood
KP F-statistic	61.18	37.95	28.07	80.56	106.59

Note: The table displays the estimation of Equation 3 using 2SLS clustering the standard errors at different levels.

II Figures

Figure A.1: Shops, Hybrid Stores, and Chains

Source: Google Maps
Note: The figure contains an example of a shop (top left), a hybrid store (top right), and a chain store (bottom) in Saltillo, Mexico. Hybrid stores share the same establishment type code as Chains in the Economic Census, but different from Chains, the owners only have one store.

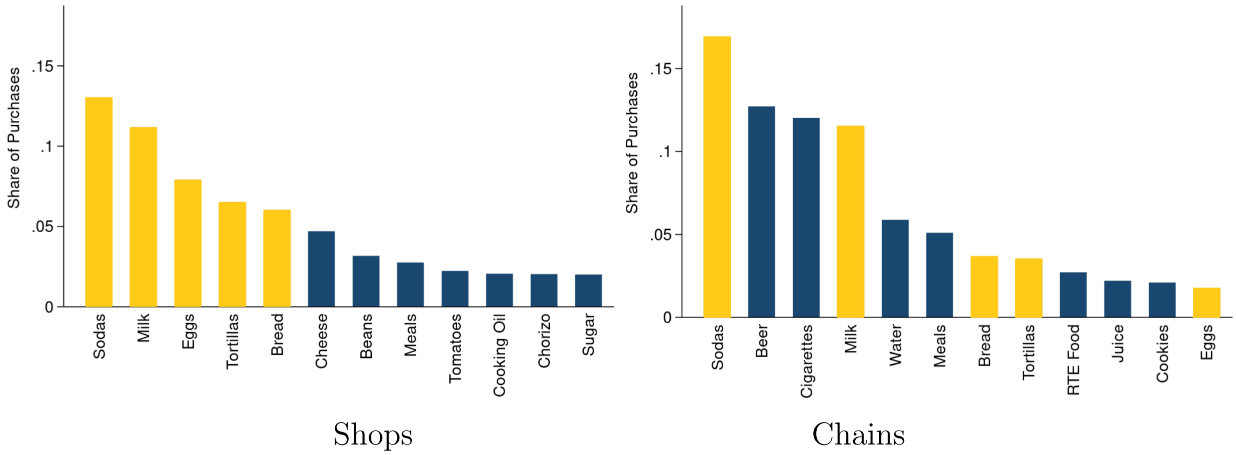


Figure A.2: Share of Store Sales for Top 12 Products

Source: Income and Expenditure Survey (ENIGH 2018)

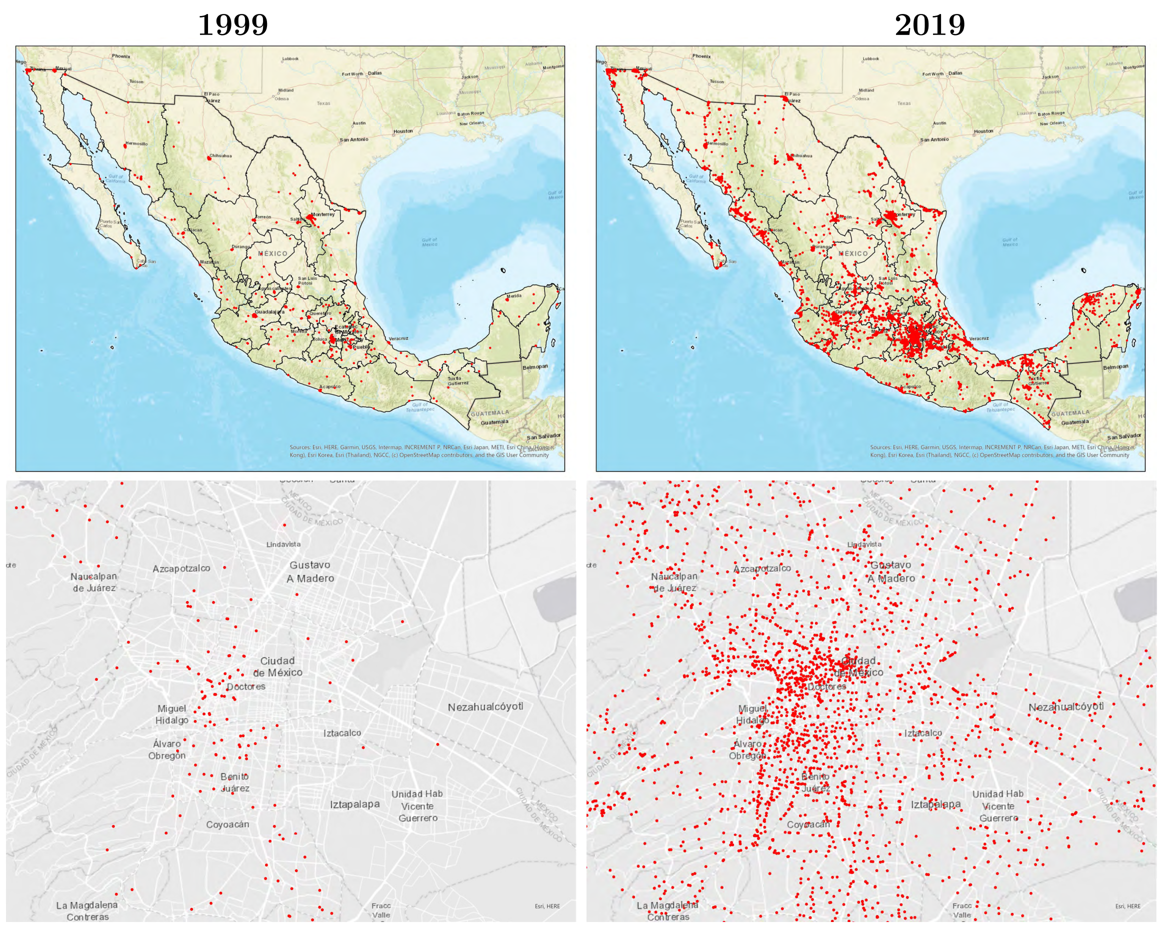


Figure A.3: Chain Stores Expansion

Note: The maps display the location of chain stores. A chain store is a store that belongs to a chain with more than 100 stores. Locations for 1999 are approximated using the 1999 Economic Census Data. Locations for 2019 are obtained from DENUE 2020.

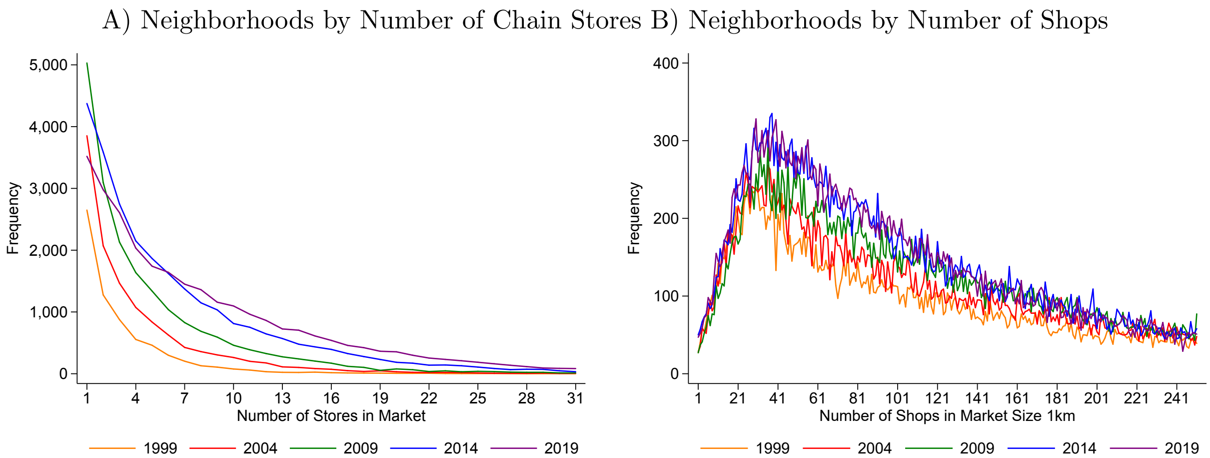


Figure A.4: Frequency Distribution by Number of Shops and Chain Stores

Note: The distributions of AGEBs by number of stores are computed using data from the 1999, 2004, 2009, and 2014 Economic Censuses. The AGEBs distribution by number of chain stores is conditional on the AGEB having at least one chain store.

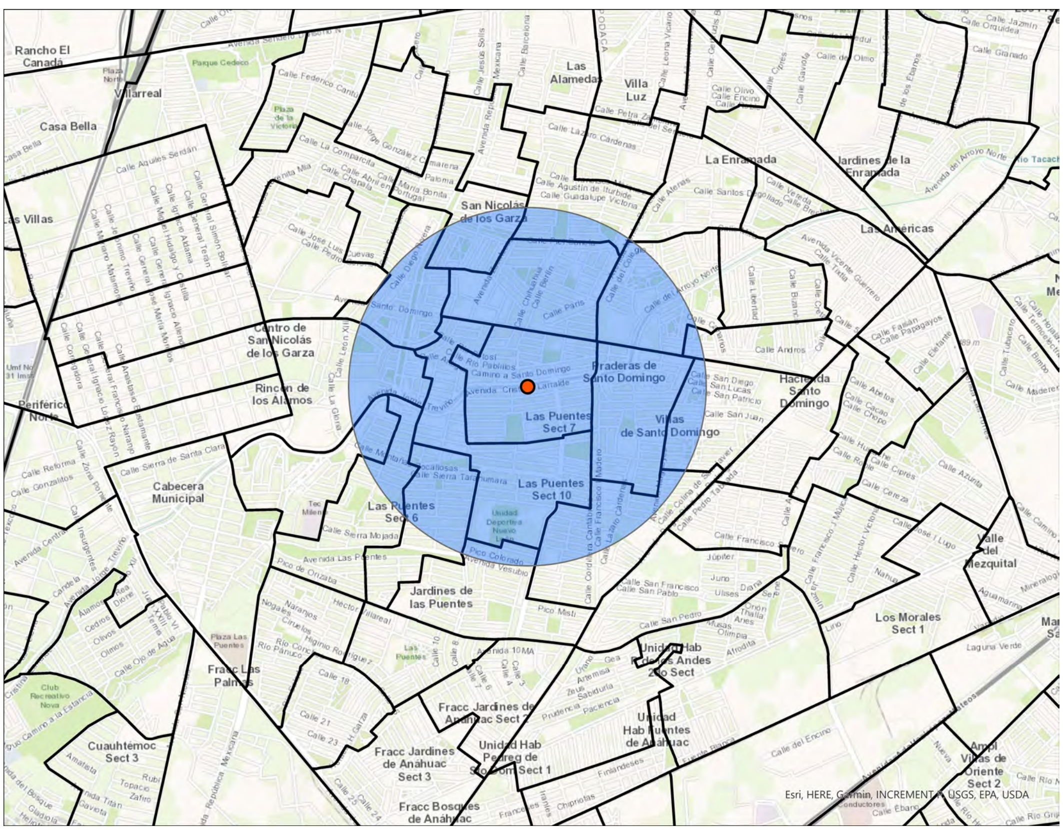


Figure A.5: Market Definition

Note: The map displays a 1km-radius circle centered at the centroid of the AGEB. All the AGEBs that intersect with the circle define a neighborhood. The AGEBs shape and location are obtained from INEGI Marco Geostadístico.

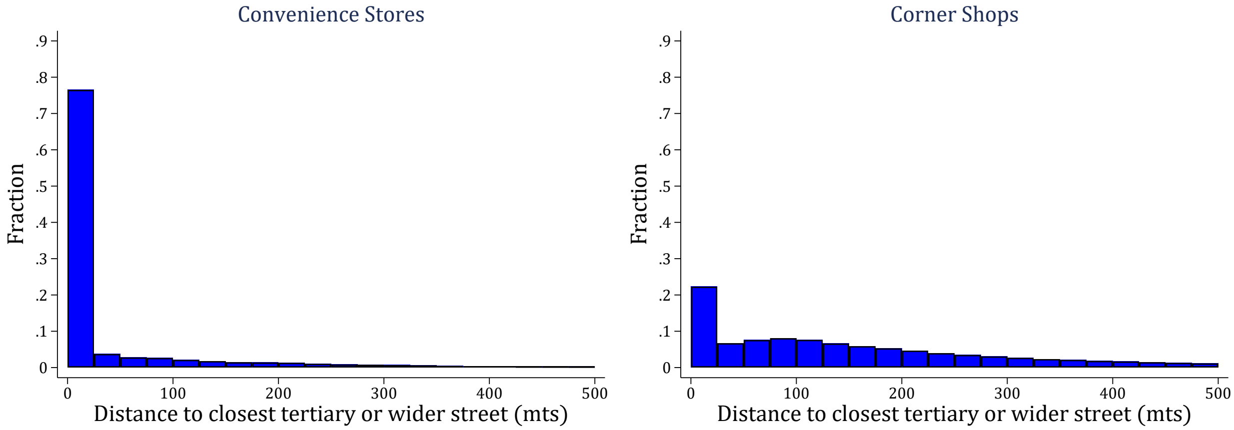


Figure A.6: Distance to Closest Wide Street

Note: The graphs display the distance distribution from the store to the closest wide street. A wide street is defined as a street that is classified as trunk, primary, secondary, or tertiary by Open Street Maps. Streets location and type is obtained from Open Street Maps and stores locations are obtained from DENUE 2020.

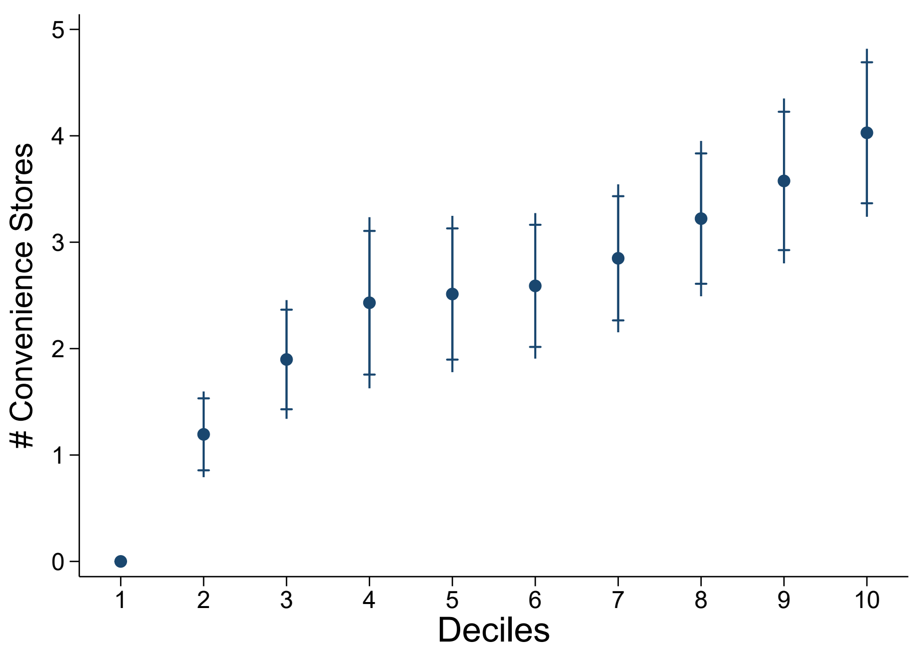


Figure A.7: Relationship Between the Instrument and the Number of Chain Stores

Note: The figure displays the relationship between the instrument and the number of chain stores in the neighborhood. The figure displays estimates and 90 and 95% confidence intervals from a regression where the dependent variable is the number of chain stores in a neighborhood and the independent variables are dichotomous variables that take the value of 1 for each of the deciles 2 through 10 of the instrument. The estimation includes year-municipality and neighborhood fixed effects and controls for economic activity.

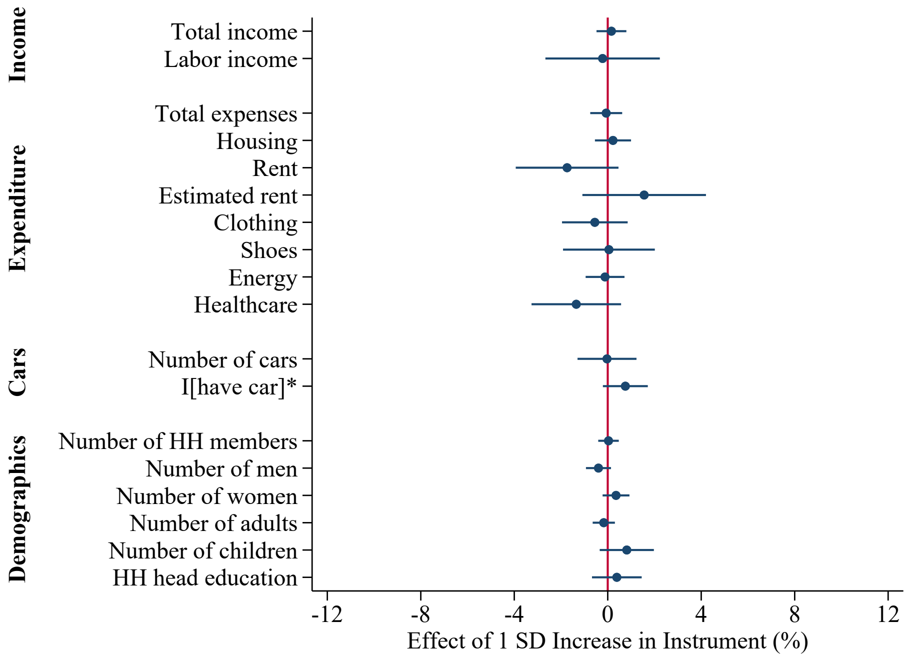


Figure A.8: Placebo - Relationship Between the Instrument and Household Characteristics

Note: The figure displays the estimates of regressing household characteristics on the instrument. Household characteristics vary at the household level, and the instrument varies at the neighborhood-year level.

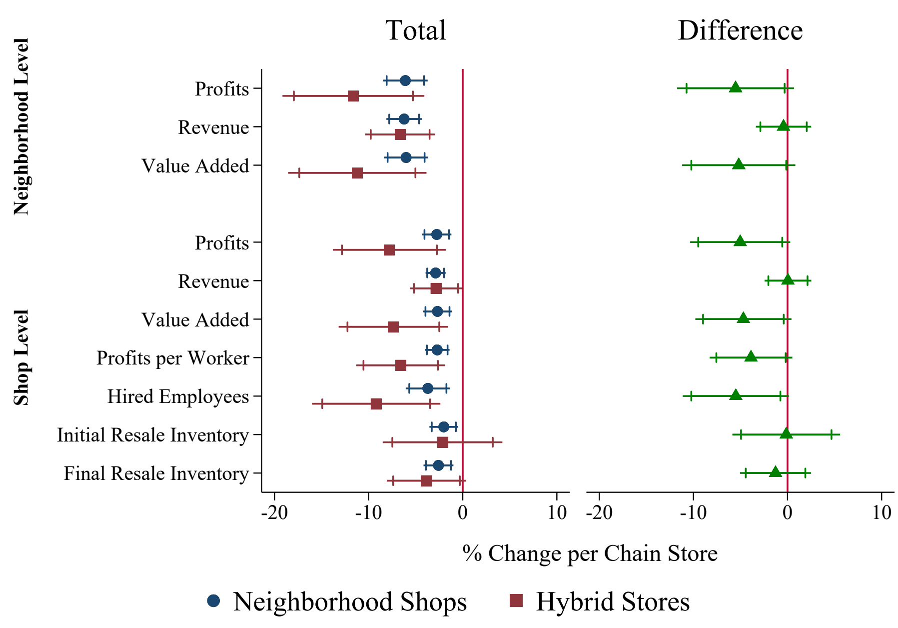


Figure A.9: Effects of Chains on Shops' Performance by Shop Size

Note: The figure displays the estimation and the 90 and 95% confidence intervals of Equation 3 using 2SLS but adding i) the interaction of the number of chain stores and a dummy variable for whether the average/sum is for a hybrid store to the second stage and ii) the interaction of the instrument and the same dummy to the first stage. The dependent variable in Equation 3 is the inverse hyperbolic sine of the row label.

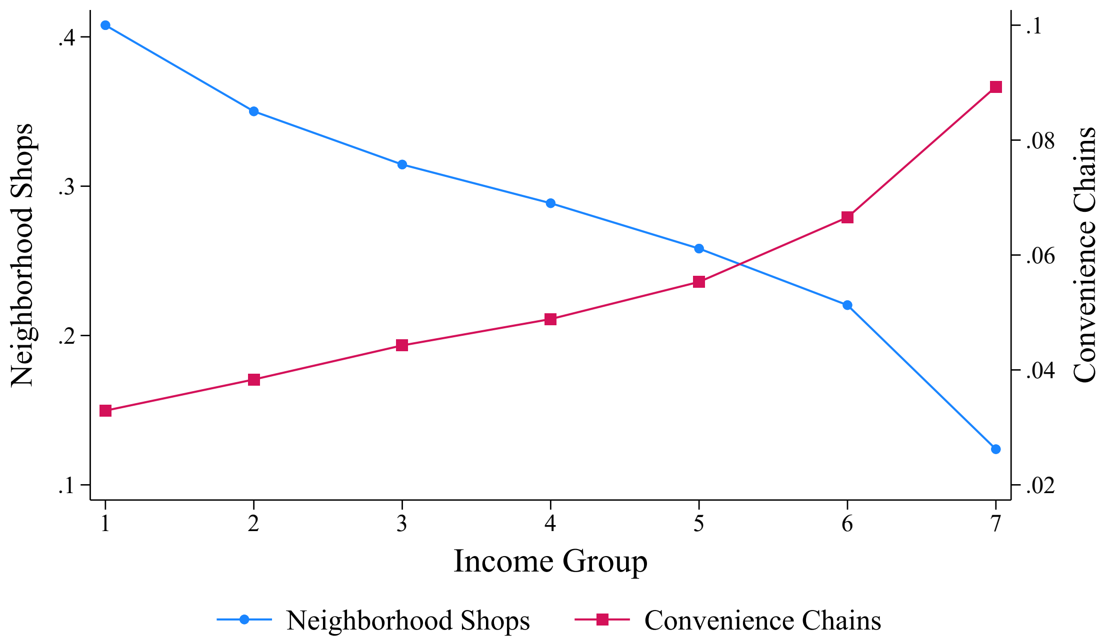


Figure A.10: Ex-Post Market Shares by Income Group

Note: The sample includes 25,036 households living across 376 municipalities in census tracts where convenience chains are present (market share ≥0.5%) from retail transactions in ENIGH 2018.

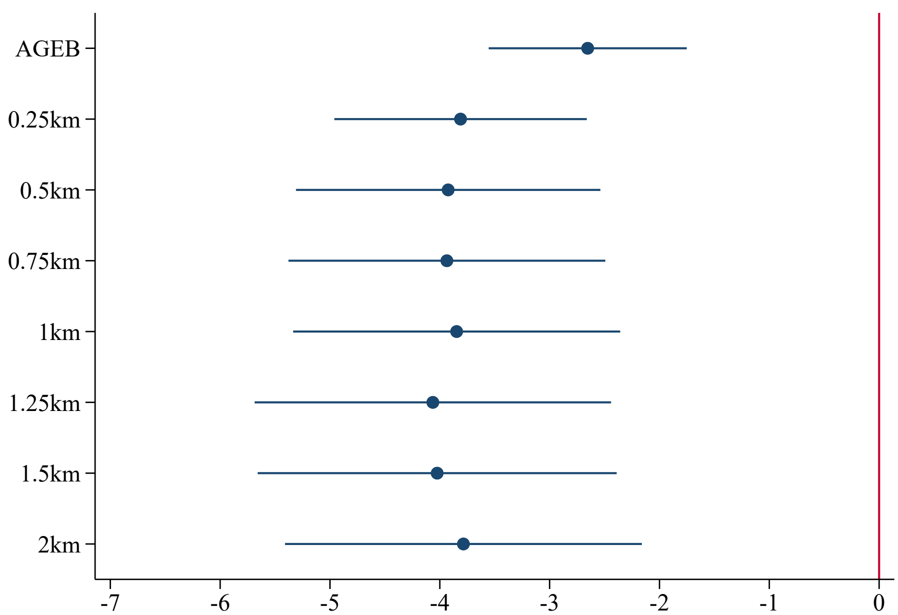


Figure A.11: Robustness - Alternative Neighborhood Definitions

Note: The figure displays the estimation of Equation 3 using 2SLS with alternative neighborhood definitions. In row 1, the neighborhood is defined at the census tract level. In rows 2 to 8, a neighborhood is defined as the census tracts that are within the distance in the label of the census tract center.

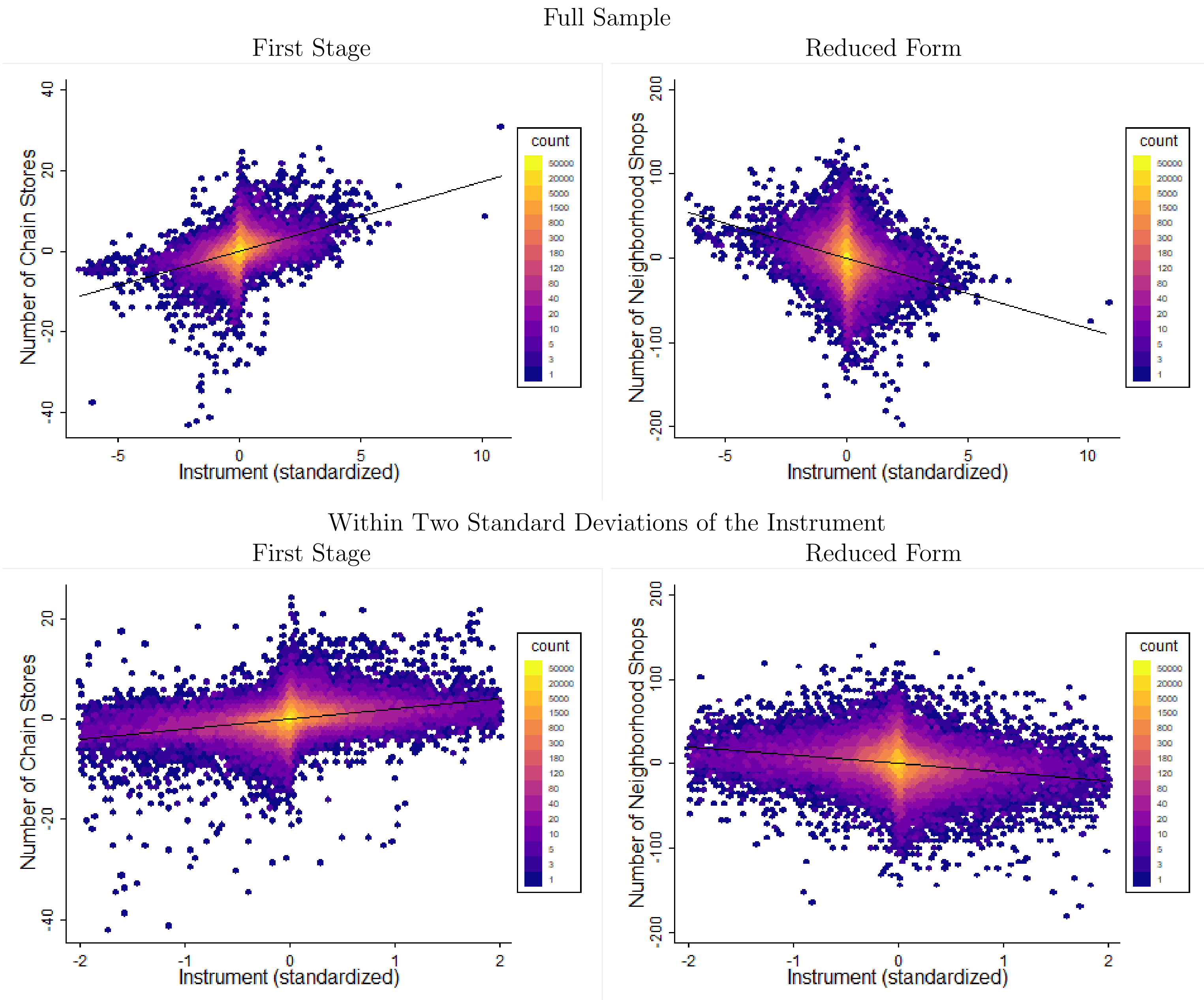


Figure A.12: Variation After Residualizing by Year-Municipality and Neighborhood

Note: The figures display the variation in the data after residualizing by year-municipality and neighborhood.

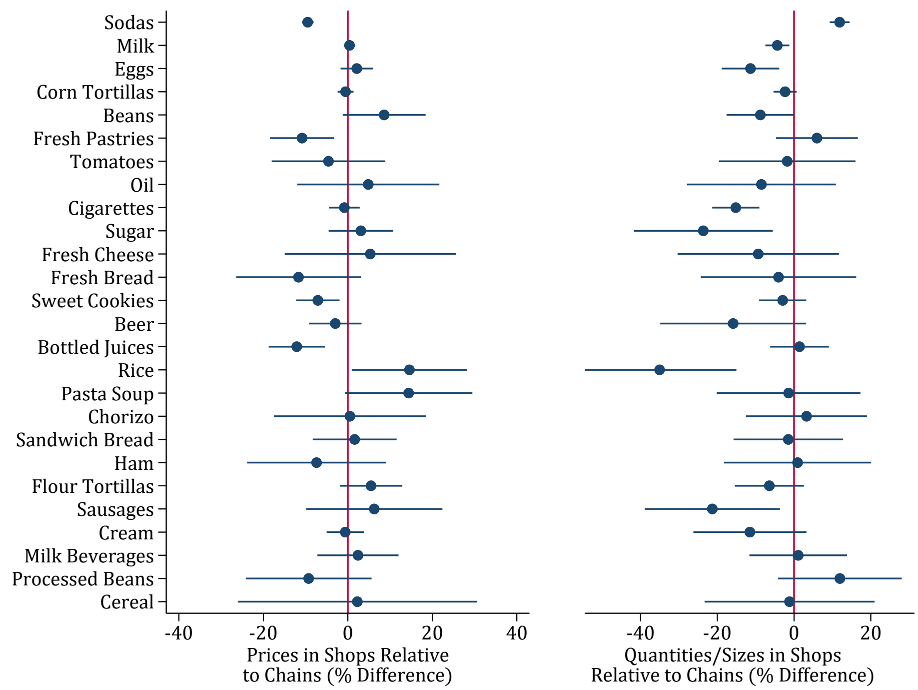


Figure A.13: Prices and Quantities/Sizes Differences Between Chains and Shops

Note: The figure displays the differences in prices and quantities/sizes between purchases in Chains and Shops and the 95% confidence interval. The standard errors are clustered at the municipality level and the estimation includes household fixed effects. Prices are per unit, for example, sodas and other beverages are priced per liter, and beans, tomatoes, and rice are priced per kilogram.

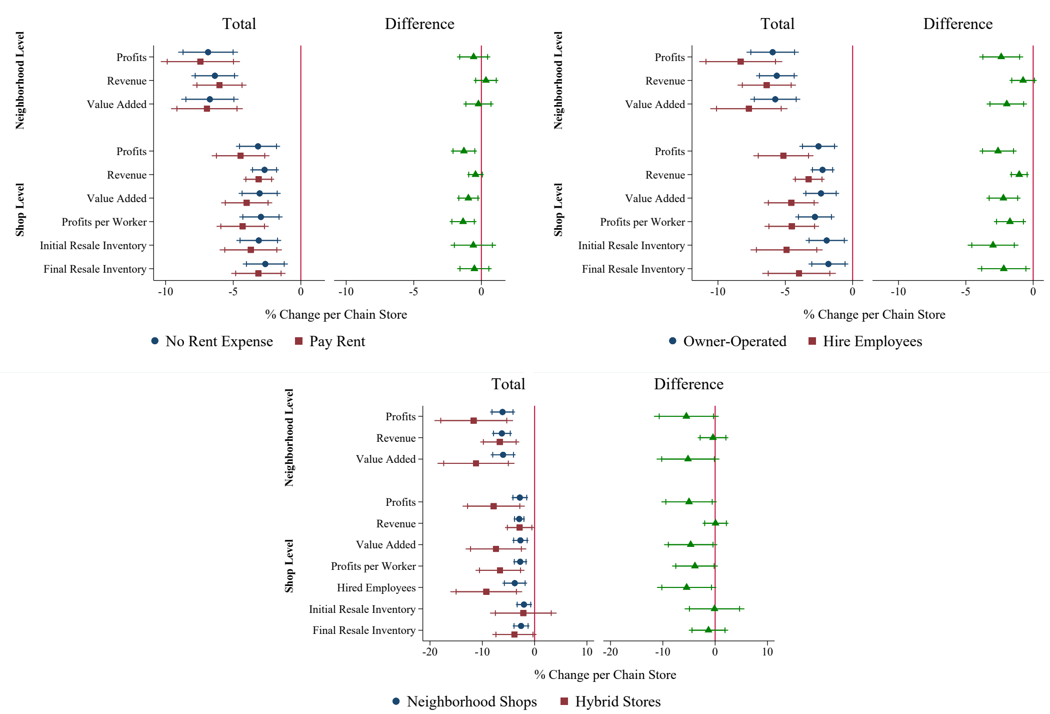


Figure A.14: Heterogeneity Controlling for Distance to Closest Convenience Chain

Note: The figure replicates Figures 5, 6, and A.9, but controlling for the distance to the closest convenience chain.

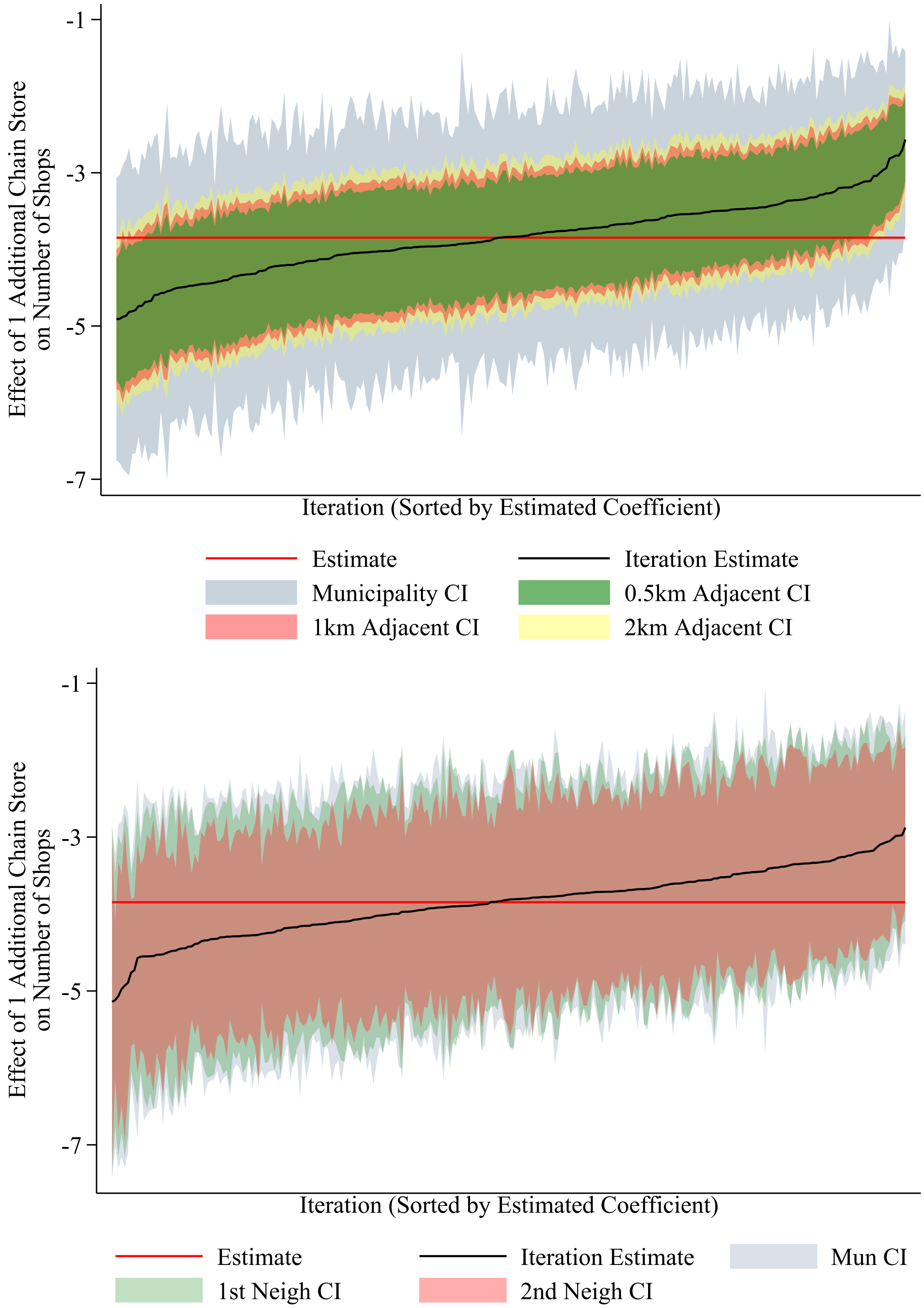


Figure A.15: Addressing Potential Spatial Correlation in Standard Errors

Note: The figure displays the estimation of Equation 3 using 2SLS. Each figure contains 250 estimations with a random sample of 5,000 markets. The figure on top displays standard errors clustered at the municipality level and standard errors accounting for the potential correlation of unobserved shocks across adjacent neighborhoods. The figure on the bottom includes standard errors that account for the potential correlation of unobserved shocks across adjacent municipalities. I use the technique proposed by Colella et al. (2019) to account for the potential spatial correlation of unobserved shocks and its companion statistical package *acreg*.

Online Appendix B: Model

This section presents a model of differentiated competition consistent with the adverse effect of the entry of chains on shops occurring mainly along the extensive margin and the decrease in shop entry driving the reduction in the number of shops.

Consider a competitive industry with many homogeneous firms (i.e., all shops in a given neighborhood), each facing sunk entry costs and standard u-shaped marginal and average costs. Assume free entry of firms and a high exogenous exit rate due to a fraction of them facing a sizable idiosyncratic shock, e.g., the owner's death.[21] I model the arrival of chains, an imperfect substitute, as a downward shift in industry-level demand for shops. Figure B.1 depicts the cost curves of a representative shop on the left side and the neighborhood-level supply and demand curves on the right side.

Before chains' entry (point 1), the equilibrium price is given by the intersection of the short-run supply (SRS) and demand curves, which is also equal to the minimum average total cost (ATC), inclusive of the sunk entry cost. At this price, potential entrants are indifferent about entering or not. Because the price is above average variable cost (AVC), incumbents have short-term economic profits. This equilibrium behaves as a steady-state with new firms replacing those that exit due to idiosyncratic shocks.[22]

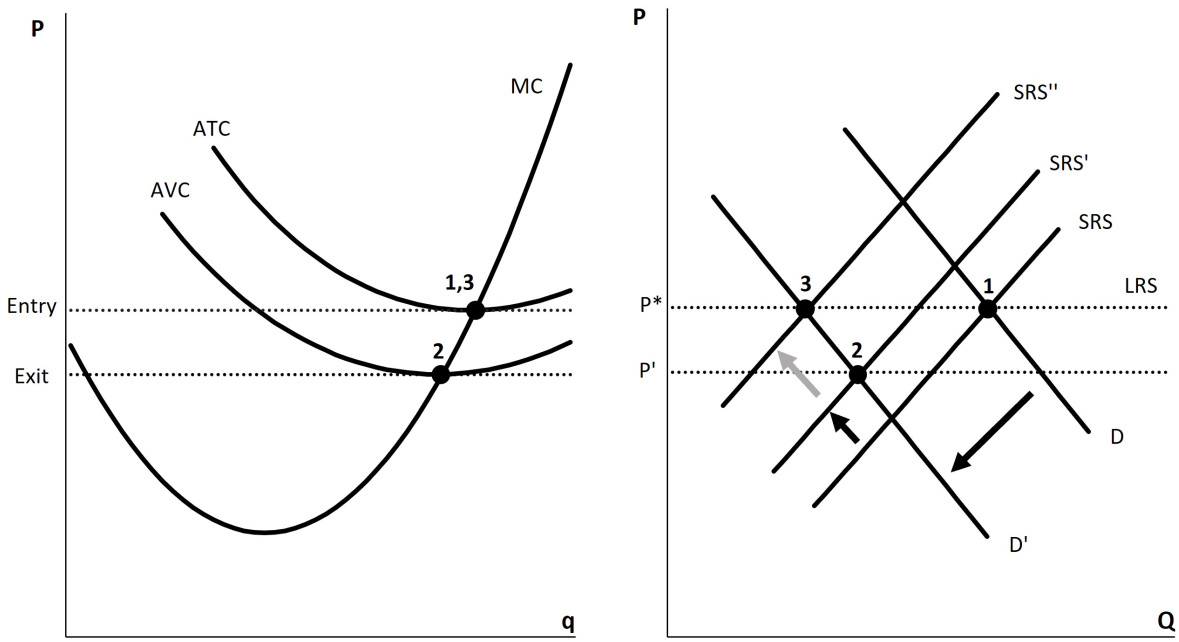
Now suppose chains enter. Provided the resulting downward shift in demand is large relative to the sunk entry cost, the intersection of the new demand curve and the SRS curve will occur below the minimum AVC.[23] In this case, shops face short-term losses and begin to exit. This process shifts up the SRS curve until it intersects the demand at a price equal to the minimum AVC, point 2, where incumbents are indifferent between exiting or not. This new short-run equilibrium has a lower price, profits, and revenue.

Some shops exit due to their idiosyncratic shocks as time progresses, but new firms do not replace them because the price is below the minimum ATC. These exits without replacement gradually shift up the short-run supply curve until the price equals the minimum ATC (point 3). This new steady-state differs from the first (point 1) at the neighborhood level because it has lower profits and revenue. Provided the fraction of shops facing idiosyncratic shocks has not changed, fewer exits and entries will be in the new steady state because fewer shops

[21] This assumption is consistent with a 10% yearly exit rate.

[22] Firms that face the idiosyncratic shock exit, which shifts the short-run industry supply curve up, increases the equilibrium price, and makes entry profitable. Entry shifts the short-run supply curve back down until the potential entrants are indifferent between entering or not, and the price returns to its long-run equilibrium (ATC = MC).

[23] Alternatively, suppose the intersection of the new demand curve and the SRS curve occurs above the minimum AVC (not depicted). In that case, incumbents' profits decrease but not enough to incur short-term losses and exit.



Firm (Shop) Level Industry (Neighborhood) Level

Figure B.1: Differentiated Competition with Entry Costs

Note: The figure on the left contains the marginal cost (MC), average variable cost (AVC), and average total cost (ATC) curves of a representative shop. The sunk entry cost drives the difference between the ATC and AVC. The figure on the right plots the transition from the long-term equilibrium (1) to a short-term equilibrium (2) caused by the entry of a differentiated competitor shifting the demand curve from D to D'. At (2), firms that face the idiosyncratic shocks exit, but new firms do not enter. This exit without replacement leads to a shift upward of the supply curve from SRS to SRS' and a new long-run equilibrium in (3).

exist.

In summary, the model predicts that there will be a reduction in the number of shops, a decrease in the number of entries, an ambiguous effect in the number of exits, and that the negative effects on shops' performance will concentrate on the extensive margin. With current assumptions, surviving shops are as well-off after the entry of chains. The model can be extended to allow heterogeneity in shops, for example, in their entry cost. This heterogeneity would lead to the long-run supply having a positive slope and chains' entry having a negative impact at the shop level.

Online Appendix C: Zeroth Stage

If chains exploit economies of scale arising from stores in nearby municipalities sharing distribution, monitoring, marketing, and overhead costs, chains would open stores in municipalities close to each other. To quantify the importance of economies of scale I estimate the relationship between the number of chain stores that chain f has in municipalities adjacent to municipality c at time $t-1$ and the number of chain stores that f has in municipality c at time t. I interpret the coefficient of interest, β, as a measure of economies of scale.

$$\#Stores_{f,c,t} = \eta_{f,t} + \mu_{c,t} + \zeta_{f,c} + \beta \#StoresNearbyMuns_{f,c,t-1} + \epsilon_{f,c,t} \tag{C.1}$$

Table C.1: Same-Chain Economies of Scale

	Dependent Variable: # of Chain Stores in Municipality								
Nearby Municipalities:	2nd Degree Adjacent Municipalities			Adjacent Municipalities			3rd Degree Adjacent Municipalities		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Number of Stores Nearby Municipalities (same chain)$_{t-1}$	0.064***	0.064***	0.056***	0.157***	0.157***	0.134***	0.031***	0.031***	0.027***
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.00)	(0.00)	(0.00)
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Number of Neighborhood Shops Nearby Municipalities$_{t-1}$		0.000			0.000			0.000	
		(0.00)			(0.00)			(0.00)	
		[0.9760]			[0.5667]			[0.7948]	
Sample Size		335,240			335,240			335,240	
Year, Mun, & Firm FE	Y	Y		Y	Y		Y	Y	
Firm x Mun FE			Y			Y			Y
Year x Mun FE			Y			Y			Y
Year x Firm FE			Y			Y			Y
R-squared	0.152	0.152	0.809	0.174	0.174	0.813	0.126	0.126	0.802
Within R-squared	0.089	0.089	0.094	0.112	0.112	0.115	0.061	0.061	0.063

Note: The table displays the estimation of Equation C.1. For columns 1-4, Nearby municipalities are the adjacent municipalities and those adjacent to these, for columns 5-6 Nearby municipalities are the adjacent municipalities, and for columns 7-8 Nearby municipalities are the adjacent municipalities, those adjacent to these, and those adjacent to the adjacent municipalities. Standard errors are clustered at the municipality level.

Across all specifications in Table C.1, there is strong evidence of economies of scale: the number of same-chain stores in municipalities nearby are positively correlated. Columns 1-3 use 2^{nd} degree neighbors (adjacent municipalities and municipalities adjacent to these), columns 4-6 use 1^{st} degree neighbors, and columns 7-9 use 3^{rd} degree neighbors. Economies of scale matter: 18 additional same-chain stores in nearby municipalities translate to one more same-chain store in the municipality – accounting for 9% of the variation in the number of stores each chain has in a municipality.[24]

Table C.2: Cross-Chain Economies of Scale

	Dependent Variable: # of Chains Stores in Municipality						
Nearby Municipalities:	2nd Degree			Adjacent Cities		3rd Degree	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Number of Stores Nearby Municipalities	-0.001***	-0.001***	-0.002***	-0.002***	-0.004***	0.000***	-0.001***
(different chain)$_{t-1}$	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Sample Size	11,062,920			11,062,920		11,062,920	
Year, Mun, & Firmj FE	Y	Y		Y		Y	
Firm k FE		Y		Y		Y	
Firm j x Mun & Firm k x Mun FE			Y		Y		Y
Firm j x Year & Firm k x Year FE			Y		Y		Y
Year x Municipality FE			Y		Y		Y
R-squared	0.070	0.070	0.789	0.070	0.789	0.070	0.789
Within R-squared	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: The table displays the estimation of Equation C.2. For columns 1-3, Nearby municipalities are the adjacent municipalities and those adjacent to these, for columns 4-5 Nearby municipalities are the adjacent, and for columns 6-7 Nearby municipalities are the adjacent municipalities, those adjacent to these, and those adjacent to the adjacent municipalities. Standard errors are clustered at the municipality level.

Table C.1 documented the existence of economies of scale. The following analysis tests whether these economies of scale are indeed firm-specific. If all chains enter the same municipalities at the same time, this would be likely driven by municipality characteristics and not by firm-level economies of scale. The following equation tests for cross-firm economies of scale, which should not exist if economies of scale are indeed firm-specific. The coefficient of interest, β, estimates the relationship between the number of stores chain g has in municipalities nearby to municipality c at time t and the number of stores that chain f (a competitor) has in municipality c at time $t-1$ after controlling for firm(f)-time, firm(g)-time, municipality-time, firm(f)-municipality, and firm(g)-municipality fixed effects.

$$\#Stores_{f,c,t} = \eta_{f,t} + \mu_{c,t} + \zeta_{f,c} + \gamma_{g,t} + \delta_{g,c} + \beta \#StoresNearbyMuns_{g,c,t-1} + \epsilon_{f,c,t} \quad \text{(C.2)}$$

Economies of scale are firm-specific. Table C.2 shows that the positive correlation in Table C.1 dissipates when using the number of different-chain stores (competitors) in nearby municipalities, and the number of competitors in nearby municipalities accounts for less than 0.001% of the variation in the number of stores each chain has in a municipality. Moreover, there is a small pro-competitive effect: a negative relationship between the number of stores a competitor g has in municipalities adjacent to municipality c and the number of stores chain f has in municipality c.

[24] The 9% is obtained by computing the within R-squared. It is the R-squared after demeaning each variable with respect to the fixed effects.

Online Appendix D: Welfare Quantification

I use the framework and code of Atkin, Faber and Gonzalez-Navarro (2018), AFG2018, to decompose the welfare effects of the expansion of chains into three effects on the household cost of living and two effects on nominal household incomes.[25] The cost of living effects are the effect on shops' prices (procompetitive price effect), the effect from the reduction in the number of shops (procompetitive exit effect), and the direct price index effect that includes the gains from being able to purchase in convenience chains, such as differences in prices, variety, and store amenities. The effects on nominal household incomes are the effect on employment and wages in the retail segment and the retail profits of owners.

Similarly to AFG2018, I estimate the welfare effects using the 24,310 households living across 829 municipalities from ENIGH 2006, 2008, 2014, and 2018 in census tracts without convenience chains based on the Economic Censuses from 2004, 2009, 2014, and 2019. The main adjustment is that I do not have a separate effect for traditional and modern sectors because all shops are traditional. The inputs required for the estimation are the effect on shops' prices (overall, food, and non-food), the price gap between chains and shops (overall, food, and non-food), ex-ante and ex-post market shares (by 12 product groups, and 7 household income groups), effect on the number of shops, the elasticity of substitution between chains and shops (overall and by food and non-food and rich and poor households), effect on shop owners' profits, effect on wages in shops and chains, and effect on employment in shops and chains.

The remainder of this Appendix is divided into three sections. The first section discusses estimating the elasticity of substitution between chains and shops and the cost of living effect, the second one describes how the estimated moments enter the quantification, and the third presents the quantification results.

I Cost of Living Effect

I follow AFG2018 and estimate the cost of living effect using two alternative methodologies. The first is a first-order approximation based on observed price differences, and the second is an exact estimation under a CES demand. The main difference in interpretation is that the CES alternative captures the effects on welfare from changes in variety and amenities, while the first-order approximation ignores these because, basically, it assumes that chains and shops always exist. In the first-order approximation, the direct price index effect is essentially multiplying the post-entry shares of convenience chains by their price difference

[25] I do not include as a potential channel the indirect effect on other sources of household income from other sectors, such as manufacturing and agriculture.

with shops, and the procompetitive effect is multiplying the post-entry share of shops by the price reduction in shops.

The CES demand is a three-tiered system. The top tier is a Cobb-Douglas over product groups. In the middle tier, consumers have CES preferences over purchasing in neighborhood shops or convenience chains, and the final tier has individual preferences over the specific product within the product group. I recover the elasticity of substitution between chains and shops by estimating a regression of log budget shares on log store-specific price indices, as in AFG2018, where the elasticity of substitution between chains and shops is one minus the estimate in Table D.1.

As discussed in AFG2018, the estimate of this regression may suffer from endogeneity even when including product group by income group by municipality and store type by product group fixed effects because demand shocks can affect both store-level market shares and store-level price indices. Similarly to AFG2018, I instrument log store-specific price indices using the leave-one-out national and regional indexes. Columns 3 to 14 present estimates using these instruments. The average elasticities range between 1.95 and 2.70. The estimates are smaller than those of the elasticity of substitution between domestic and foreign supermarkets in AFG2018. The smaller elasticity of substitution between chains and shops is consistent with differences between these being more significant than differences between domestic and foreign supermarkets. In particular, the broader differentiation between OXXO and Abarrotes Lupita relative to Bodega Aurrera and Soriana is likely the driver behind the smaller elasticity of substitution between chains and shops.[26]

The main disadvantage of using ENIGH data is that transactions are disaggregated up to the establishment type level. It is observable if the households purchased in a chain or a shop, but not in which chain. Hence, the estimated elasticity of substitution is between chains and shops as a group. A related concern is that the first stage in the IV specifications may be weak because of not using the same chain price indices and using the overall price indices of chains. However, this does not seem to be an issue because the first stage is strong in all specifications (Kleibergen-Paap Wald rk F statistic ranges from 23 to 184).

II Combining Estimated Moments for the Quantification

The inputs required for the estimation are the effect on shops' prices (overall, food, and non-food), the price gap between chains and shops (overall, food, and non-food), ex-ante and ex-post market shares (by 12 product groups, and 7 household income groups), effect on the number of shops, the elasticity of substitution between chains and shops (overall and

[26]Walmart has over 2,000 Bodega Aurrera stores in Mexico, making it the modal foreign supermarket.

Table D.1: Elasticity of Substitution between Chains and Shops

	Dependent Variable: Log Budget Shares													
	Mean Prices OLS	Median Prices OLS	Mean Prices National IV	Median Prices National IV	Mean Prices National IV	Median Prices National IV	Mean Prices National IV	Median Prices National IV	Mean Prices Regional IV	Median Prices Regional IV	Mean Prices Regional IV	Median Prices Regional IV	Mean Prices Regional IV	Median Prices Regional IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Panel A														
Log(store price index)	-0.383***	-0.361***	-0.947***	-1.091***	-1.307***	-1.509***	-1.459***	-1.650***	-0.960***	-1.107***	-1.347***	-1.585***	-1.485***	-1.704***
	(0.0429)	(0.0426)	(0.153)	(0.183)	(0.183)	(0.216)	(0.196)	(0.236)	(0.205)	(0.251)	(0.205)	(0.257)	(0.223)	(0.282)
KPF Statistic			183.95	153.78	179.60	132.37	154.35	121.59	124.98	114.46	149.35	115.66	134.38	102.78
Panel B														
Log(store price index) x poor x food	-0.434***	-0.415***	-1.517***	-1.613***	-2.044***	-2.105***	-2.252***	-2.262***	-1.316***	-1.453***	-1.782***	-1.954***	-1.931***	-2.069***
	(0.0691)	(0.0701)	(0.224)	(0.234)	(0.246)	(0.254)	(0.266)	(0.278)	(0.291)	(0.326)	(0.292)	(0.328)	(0.315)	(0.355)
Log(store price index) x rich x food	-0.496***	-0.482***	-1.436***	-1.509***	-1.916***	-1.968***	-2.099***	-2.105***	-1.279***	-1.390***	-1.703***	-1.854***	-1.834***	-1.954***
	(0.0672)	(0.0651)	(0.204)	(0.214)	(0.223)	(0.234)	(0.245)	(0.258)	(0.263)	(0.296)	(0.268)	(0.304)	(0.290)	(0.329)
Log(store price index) x poor x nonfood	-0.305***	-0.292***	-1.191***	-1.405***	-1.628***	-1.827***	-1.812***	-1.971***	-1.031***	-1.266***	-1.440***	-1.726***	-1.574***	-1.827***
	(0.0422)	(0.0439)	(0.182)	(0.210)	(0.203)	(0.230)	(0.220)	(0.252)	(0.234)	(0.286)	(0.239)	(0.295)	(0.258)	(0.319)
Log(store price index) x rich x nonfood	-0.319***	-0.258***	-1.215***	-1.253***	-1.712***	-1.765***	-1.907***	-1.923***	-1.046***	-1.098***	-1.527***	-1.662***	-1.675***	-1.788***
	(0.0490)	(0.0521)	(0.183)	(0.199)	(0.214)	(0.227)	(0.235)	(0.251)	(0.232)	(0.269)	(0.236)	(0.275)	(0.260)	(0.305)
KPF Statistic			50.03	38.84	48.15	34.28	41.62	32.47	29.10	27.04	32.15	25.97	29.11	23.74
Observations	1,875,160	1,875,160	1,874,726	1,874,726	1,874,642	1,874,642	1,874,566	1,874,566	1,872,470	1,872,470	1,872,387	1,872,387	1,872,311	1,872,311
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Product group x income group x mun FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Store type x product group FE	Y	Y	Y	Y	Y	Y			Y	Y	Y	Y		
Store type x mun FE					Y	Y					Y	Y		
Store type x product group x mun FE							Y	Y					Y	Y

Note: The table displays the relationship between log budget shares and log store-specific price indices. The coefficient corresponds to one minus the elasticity of substitution between chains and shops. The data is from ENIGH 2012, 2014, 2016, and 2018. The dependent variables are log expenditure shares by municipality, year, product group, and income group. The independent variable is a log store-specific price indices at the municipality, year, product group, and income group recovered from the store by product group by income group by the municipality by year fixed effect of regression of budget share-weighted log prices on this fixed effect and a product by income group by the municipality by year fixed effect. Standard errors are clustered at the municipality level.

by food and non-food and rich and poor households), effect on shop owners' profits, effect on wages in shops and chains, and effect on employment in shops and chains. This section details how each of the estimated moments enters the quantification.

I use a 10.69% decline in the number of neighborhood shops. This is the estimated reduction of 3.85 shops per convenience chain (Table 2) times 3.98 chain stores on average per neighborhood, divided by 143 neighborhood shops on average per neighborhood. This implies a reduction of 100% of profits for 10.69% of shop owners. For the remaining shop owners, the reduction in profits is 5.8%, 1.46% for each additional convenience chain store times 3.98 chain stores in the neighborhood. I cannot identify precisely who are the shop owners in the ENIGH, because it includes only up to four digits of the SCIAN code. According to the 2019 Economic Census, 62% of the establishments in the 4611 SCIAN code are neighborhood shops. Hence, I apply the effect to all owners of uni-personal establishments in 4611 (37.5% of owners in 4611) and to a random 60% of the owners of establishments with 2 to 5 people employed (41.6% of owners in 4611), matching the 62% share of shops out of the establishments in 4611 SCIAN code.

In 1999, the average number of jobs in a neighborhood offered by the segment of chains and shops was small, just 12.87 (.09 employees per shop x 143 shops per neighborhood). With an average of 3.98 chains per neighborhood, jobs increase by 30, more than 200%. This is a large percentage increase, but it is in a very small part of the labor force (only 0.5% of employees in Mexico are shop employees). Hence, the overall effect on employment is 1.15%. Chains do not affect the wages of shops' employees, but because they pay more to their employees, the average wage in the segment (shops + chains) increases by 4%, 1% per chain store (Table A.5).

The effect of chains on shops' prices is null (Table A.6). I use a price gap between chains and shops of 3.9% overall, 3.9% for food, and 1% for non-food (Table A.4).[27] The ex-post market shares are from 25,036 households living across 376 municipalities in census tracts with convenience chain presence (market share $\geq$0.5%) from ENIGH 2018 (Figure A.10). I use the largest estimates for the elasticity of substitution (Column 14 of Table D.1), because they render the smallest (most conservative) effects on procompetitive exit and direct price index.

The quantification estimates are the average of 1,000 bootstrap iterations. In each bootstrap, each effect is drawn from a normal distribution with the point estimate as a mean and the standard error as the standard deviation. The households being affected by effects

[27] I use the same price gap overall and for food, because ENIGH does not include size/quantity for non-food products. Hence using all products but controlling for size/quantity renders the same estimate as only using food.

Table D.2: Quantification Estimates

	A. Exact under CES approach				
	Total Effect	Direct Price Index Effect	Procompetitive Exit Effect	Retail Labor Income Effect	Retail Profit Effect
	(1)	(2)	(3)	(4)	(5)
Average Effect	0.0046	0.0268	-0.022	0.0028	-0.0031
	(0.00020)	(0.0001)	(0.0001)	(0.0000)	(0.0000)
95% Bootstrap C.I.	[-0.005 , 0.013]	[0.022 , 0.034]	[-0.034 , -0.013]	[0.002 , 0.004]	[-0.005 , -0.001]
Min-Max Bootstrap	[-0.010 , 0.022]	[0.019 , 0.047]	[-0.043 , -0.004]	[0.001 , 0.005]	[-0.007 , -0.001]
Proportion negative	0.156	0	1	0	1
Obs. (households)	24,310	24,310	24,310	24,310	24,310
Number of Mun	829	829	829	829	829
	B. First-Order Approach				
	Total Effect	Direct Price Index Effect	Procompetitive Exit Effect	Retail Labor Income Effect	Retail Profit Effect
	(1)	(2)	(3)	(4)	(5)
Average Effect	-0.0014	-0.0011	0	0.0028	-0.0031
	(0.0001)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
95% Bootstrap C.I.	[-0.004 , 0.001]	[-0.001 , -0.001]	[0.000 , 0.000]	[0.002 , 0.004]	[-0.005 , -0.001]
Min-Max Bootstrap	[-0.005 , 0.002]	[-0.002 , -0.001]	[0.000 , 0.000]	[0.001 , 0.005]	[-0.007 , -0.001]
Proportion negative	0.912	1	0	0	1
Obs. (households)	24,310	24,310	24,310	24,310	24,310
Number of Mun	829	829	829	829	829

Note: The table reports the effect of the expansion of chains and the reduction in the number of shops on household welfare from the quantification exercise described in the Online Appendix D and Section VI. Panel A estimates the cost of living effect using a CES demand system, and panel B uses the first-order approximation. The average effect and standard errors are the averages across the 1,000 bootstraps. The confidence intervals in brackets are the 2.5 and 97.5 percentiles of the bootstraps.

that only affect subgroups of households are also selected randomly in each iteration. For example, 10.69% of shop owners that lose 100% of their retail income are selected randomly on each iteration.

III Results

In the CES specification, the procompetitive exit and the direct price index are the largest contributors to the overall welfare effect. Since convenience chains are not cheaper, the direct price index effect captures the gains from varieties and amenities of purchasing in chains, which include parking, air conditioning, flexible hours (24/7), and acceptance of electronic payment methods. The rich appreciate these amenities the most; hence, the gain from the direct price index for the rich is more than 20% larger, reaching 3.2%.

On the other hand, the procompetitive exit effect is the loss of welfare due to the reduced number of neighborhood shops. It is the largest for the poor (2.9%) and decreases throughout the income distribution, it being half the magnitude for the rich (1.5%). This is driven by poorer households, who are more cash and credit-constrained, appreciating shops and their amenities the most, such as informal credit, relationships with the owner, closeness to home, broader and tailored product mix, and ripeness of products.

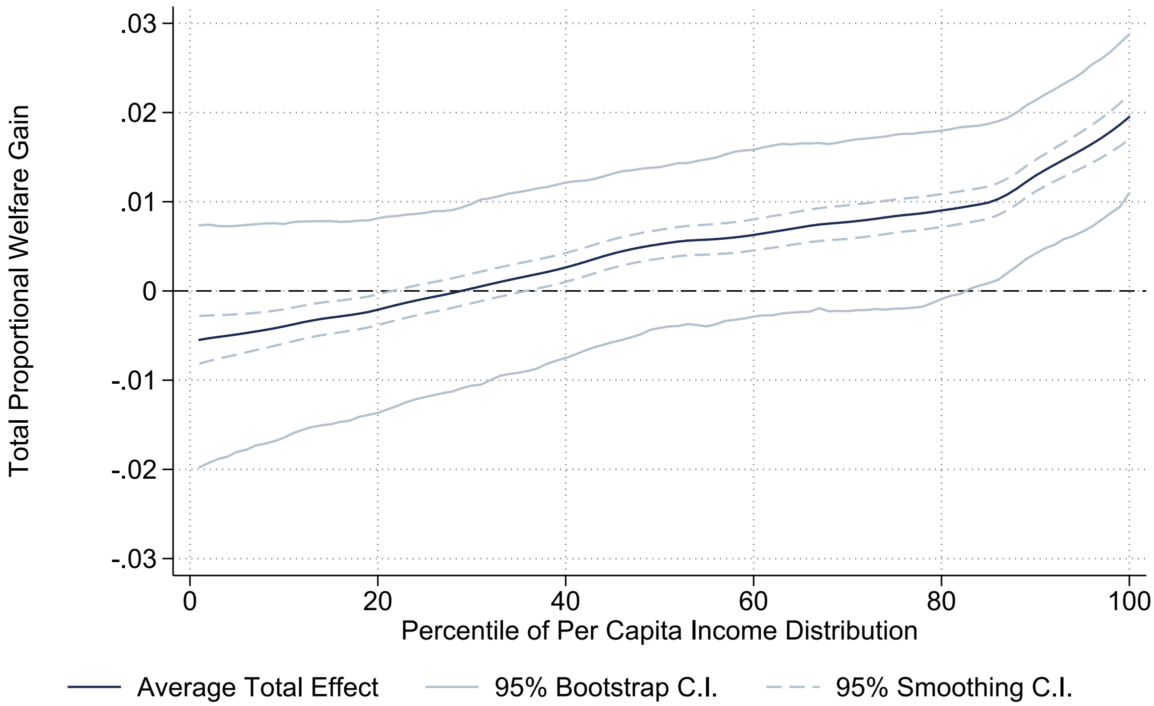


Figure D.1: Welfare Effects

Note: The graph displays the non-parametric plots of the effect of the expansion of chains and the reduction in the number of shops on household welfare using a CES demand system to estimate the cost of living effect. The quantification exercise is described in the Online Appendix D and Section VI. The solid line corresponds to the average of 1,000 bootstraps described in the Online Appendix D, the tighter dashed lines are the average of the 95 percent confidence intervals of the polynomial smoothing, and the solid gray lines are the 2.5 and 97.5 percentiles of the bootstraps.

The income effects mostly cancel each other out because labor income from new jobs at convenience chains compensates for lost income from shop owners' profits. The expansion of chains leads to 10.69% fewer shops. Hence these households lose this source of income. Moreover, for the shops that do not close, profits decline by 5.8%. However, chains also create a new source of income for households by creating jobs. On average, the decrease in jobs in shops (including owners) and the increase in jobs in chains wash out (Table A.5). In the quantification, the loss in retail profits of shop owners is compensated by the increase in retail labor income from the job creation of chains. However, because shop owners' profits are higher than wages at convenience chains, the negative effect of the retail profit (0.31%)

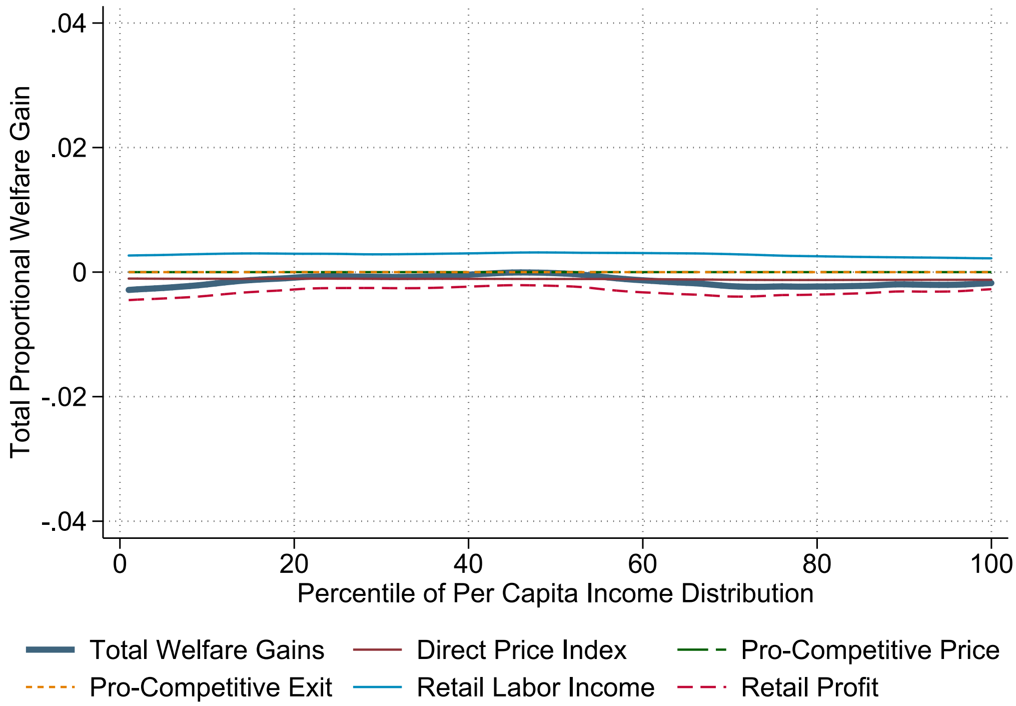


Figure D.2: Welfare Effects - First Order Approximation

Note: The graph displays the non-parametric plots of the effect of the expansion of chains and the reduction in the number of shops on household welfare using a first-order approximation based on observed price differences to estimate the cost of living effect. The quantification exercise is described in the Online Appendix D and Section VI. The plot corresponds to the average of 1,000 bootstraps described in the Online Appendix D.

is 10% larger than the positive retail labor income effect (0.28%).[28]

Consistent with the main driver of the welfare effect being the amenities no longer available at shops and those now available at chains, the first-order approximation has a zero procompetitive effect because the effect on shops' prices is zero. The direct price index effect becomes negative (Figure D.2), because chains are a little more expensive than shops, and without taking into account amenities replacing shops with chains is just a price increase. In summary, the direct price index effect in the CES model is positive and large because it considers the amenities and varieties offered at chains, while in the first-order one is negative because it does not.

In summary, the cost of living effect, which captures differences in amenities and varieties, is the main driver of the welfare effects because the income channels have a smaller magnitude and mostly cancel each other out. The richest households are the ones who appreciate the least the existence and amenities of shops and value the most chains' entry and their amenities. The opposite occurs for the poor.

[28]Based on the 2019 Economic Census, an average shop makes 9,500 MXN of monthly profits and 1.5 family members work there, hence 6,300 MXN per person. An average production, sales, and services employee in a convenience store makes 6,200 MXN minus taxes and social security.