Data Sources and Regression Results for

The Plot Thickens (Part II): Sticky Gotham

Jason M. Barr

January 29, 2024

Data Sources

To create the changes in housing units from 2018 to early 2023, I used NYC PLUTO file for 2023 v1 and kept only properties with buildings that were constructed since 2018, at https://www.nyc.gov/site/planning/data-maps/open-data/dwn-pluto-mappluto.page.

I then added up the number of units for each city block. I then created two dummy variables: The first, *atleastoneNewUnit*, took on the value 1 if a block had at least one unit of housing added since 2018, zero otherwise. The second, *atleast10NewUnits*, took on the value of 1 if the block at least ten new units since 2018, 0 otherwise.

I also downloaded a database on the buildings in NYC that had at least one rent-stabilized or rent-controlled unit. I then counted the number of these buildings on each block. The source is: https://rentguidelinesboard.cityofnewyork.us/resources/rent-stabilized-building-lists/. The year of the data is from 2016.

To create the set of control variables, I downloaded the NYC PLUTO file for 2016 v1. And for each block, I determined the following variables.:

numGTAllowFAR: Was the count of the number of properties with a built FAR greater than the current allowable FAR.

lnAllowableResFA: The natural log of the total allowable residential FAR for the block.

lnBlockArea: The natural log of the block area in square feet.

lotavg25_50, lotavg51_75, lotavg75_100, are dummies if the lot is one of these respective quartiles (see desc stats below), based on the average of the lot sizes on each block.

lnTotalBuildingArea: The natural log of the total building floor area on the block.

NumLots: The count of the number of individual parcels on the block.

NumMLots: The count of the number of lots zoned for manufacturing on the block.

distESB_10000: The distance of the center of the block to the Empire State Building (in 10,000 feet)

numRSBuildings: The count of the number of rent-stabilized buildings on each block.

boro2, boro3, boro4, boro5: Are borough dummy variables (2=BX, 3=BK, 4=QN, 5=SI)

numHD: The number of parcels on the block that fall within a historic district

numLM: Number of parcels that have a landmarked building on the lot.

numResOwner: Number of lots that are owner-occupied buildings. This is determined based on the building category in PLUTO: one- and two-family, condos, and coop buildings.

yearbuilt_25_50, yearbuilt_51_75, yearbuilt_75_100: Year-built quartile dummies based on the average age of properties on each block.

Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
atleastone~t	28,267	.1167793	.3211628	0	1
atleast10N~s	28,267	.050589	.2191608	0	1
numGTAllow~R	28,267	7.113454	9.970783	0	98
AllowableR~R	28,267	1.462265	1.699424	0	12
totalBlock~a	28,267	156936.9	298191.8	1195	1.74e+07
AvgLotAreas	28,267	15837.88	43639.92	1113.514	480000
totalBuild~a	28,267	183645.3	486112.4	0	4.99e+07
NumLots	28,267	29.26635	19.67371	1	117
NumMLots	28,267	1.075742	4.617373	0	98
distES~10000	28,267	2819.221	1994.251	.2346594	9983.822
numRSBuild~s	28,267	1.397708	3.576968	0	58
boro2	28,267	.1042205	.3055517	0	1
boro3	28,267	.2649379	.4413079	0	1
boro4	28,267	.4246294	.4942954	0	1
boro5	28,267	.1378286	.3447261	0	1
numHD	28,267	1.027063	6.419326	0	89
numLM	28,267	.0451764	.3778385	0	27
numResOnwer	28,267	19.55078	17.55995	0	105
avgYearBuilt	27,480	1943.213	20.42259	1800	2016

Note: extreme outliers for certain variable (those in the >99 percentile) was excluded because they appeared to contain errors.

Regression Results

Equation (1) is OLS with the *atleastonenewunit* as the dummy variable. Equation (2) is a probit regression with the *atleastonenewunit* as the dummy variable (dprobit results from Stata are given). Equation (3) is OLS with the *atleasteneenewunits* as the dummy variable. Equation (4) is an OLS regression with the number of new units built from 2018 to early 2013. For simplicity, the blog post discusses the results of Equation (1).

Equation (3) is similar to (1) though the coefficient estimates are generally smaller in magnitude due to the increased "difficulty" of building multifamily properties.

	(1) atleastone~t	(2) atleastone~t	(3) atleast10N~s	(4) numNewR~2018
numGTAllow~R	-0.00168*** (-6.77)	-0.00912*** (-6.30)	-0.000859*** (-5.17)	-0.0347*** (-3.32)
lnAllowabl~A	0.0961*** (18.93)	0.510*** (18.53)	0.0902*** (26.51)	4.542*** (20.99)
lnBlockArea	-0.0387*** (-6.58)	-0.178*** (-5.49)	-0.0539*** (-13.70)	-2.689*** (-10.83)
lotavg25_50	0.0458*** (7.38)	0.235*** (7.10)	0.0226*** (5.43)	1.356*** (5.19)
lotavg51_75	0.0631*** (8.42)	0.297*** (7.40)	0.0362*** (7.22)	2.554*** (8.08)
lotavg75_100	0.0203* (1.83)	0.0165 (0.27)	0.0128* (1.73)	1.687*** (3.61)
lnTotalBui~a	-0.0405*** (-9.75)	-0.203*** (-9.61)	-0.0242*** (-8.70)	-1.186*** (-6.73)
NumLots	0.00966*** (9.73)	0.0345*** (7.46)	0.00322*** (4.84)	0.142*** (3.38)
NumMLots	0.00344*** (5.21)	0.0122*** (4.26)	0.00412*** (9.29)	0.303*** (10.81)
distES~10000	-0.0000390*** (-3.87)	-0.000102** (-2.17)	-0.00000428 (-0.63)	-0.000248 (-0.58)
numRSBuild~s	-0.000806 (-1.07)	-0.00367 (-1.01)	0.00165*** (3.28)	0.0959*** (3.02)
boro2	0.0772*** (6.62)	0.355*** (5.85)	0.0956*** (12.24)	5.313*** (10.76)
boro3	0.102*** (9.51)	0.507*** (8.97)	0.0868*** (12.04)	3.538*** (7.76)
boro4	0.0893*** (7.68)	0.416*** (6.73)	0.0789*** (10.12)	3.823*** (7.76)
boro5	0.167*** (12.21)	0.869*** (12.14)	0.0823*** (9.00)	3.940*** (6.83)

numHD	-0.00291***	-0.0160***	-0.00212***	-0.0954***
	(-9.19)	(-7.67)	(-10.01)	(-7.16)
numLM	-0.0130**	-0.0881**	-0.0111***	-0.763***
	(-2.42)	(-2.30)	(-3.09)	(-3.36)
numResOnwer	-0.00431***	-0.0184***	-0.00261***	-0.0989***
	(-15.59)	(-13.74)	(-14.08)	(-8.49)
yearbuilt~50	0.0147**	0.0766**	0.00193	-0.325
	(2.48)	(2.42)	(0.49)	(-1.31)
yearbuilt~75	0.0413***	0.230***	0.00461	-0.232
	(6.64)	(6.92)	(1.11)	(-0.88)
yearbuil~100	0.0324***	0.180***	0.00593	0.0546
	(4.92)	(5.16)	(1.34)	(0.20)
_cons	-0.315***	-3.857***	-0.226***	-12.22***
	(-5.80)	(-12.63)	(-6.22)	(-5.33)
N	25699	25699	25699	25586
R-sq	0.075		0.106	0.068
adj. R-sq	0.074		0.105	0.067
AIC	14425.5	17714.9	-6138.1	205702.8
BIC	14604.9	17894.3	-5958.7	205882.1

t statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01