

Data Sources and Analysis for “By George! Can a Land Value Tax Work in Gotham?”

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Data Sources

- *Property Valuation and Assessment Data Tax Classes 1,2,3,4*: Source: https://data.cityofnewyork.us/City-Government/Property-Valuation-and-Assessment-Data-Tax-Classes/8y4t-faws/about_data. This data set contains market value and assessment property data for every property in New York, including individual coops and condos. The file was the version of July 24, 2025, and reflects tax year (fiscal year) 2025, which runs from July 1, 2024, to June 31, 2025. The values used from the data set are as of May 14, 2024. The variables with the prefix “cur” were used—they reflect the current values for tax year 2025 (and which FY2025 tax bills were based on.) Our data set included: Total market value, total land value, total assessed value (AV), total land assessed value, total exempt values, total land exempt values, total billable AV and total land billable AV (CHECK)
- *Census Tracts*: Came from the 2020 NYC Census Tracts Shapefile (clipped to shoreline), given at <https://www.nyc.gov/content/planning/pages/resources/datasets/census-tracts>.
- *Census Tract Population and Household Income*: American Community Survey 5-Year averages, for 2023. Population: Table ACSDT5Y2023.B01003. Density is taken as population per 1000 square feet of total plot area (which is from PLUTO). Median Household Income: Table ACSDT5Y2023.B19013.
- *Primary Land Use Tax Output (PLUTO) File*. The PLUTO file lists for each tax lot many variables about the lot and building, including lot area, number of total units, number of residential units, the floor area, the latitude and longitude, the building class type. We used the PLUTO file for 2024 version 2, which was produced in the middle of 2024. More details about the PLUTO file and the variables calculated for each lot can be found in the PLUTO data dictionary: https://s-media.nyc.gov/agencies/dcp/assets/files/pdf/data-tools/bytes/pluto_datadictionary.pdf.

Processing The Tax Data

1. Current Tax Bills

First, the entire valuation and assessment data set was downloaded, and then only the current values were kept. Next tax bills for each tax parcel were estimated. First, for each lot we estimated the billable assessed value (AV), given by $billableAV = curtxbtot - curtxbextot$, which is the current taxable AV minus the value of the exempt portion of the property. (As best we can tell, tax abatement programs like the 421a program reduce the net billable AV and thus the estimated tax bills should reflect the lower taxes based on the abatements.)

Next, based on the class of the property, we applied the respective tax rate, where the tax bill is given by $taxbill = tax\ rate_{class} * billableAV$. There are four classes of properties and four tax rates given in Table 1.

Table 1: Tax Classes in NYC.

Class	Type	Rate per \$AV (FY25)	AV/MV	AV Limits	MV
I	1-3 family homes	20.09%	6%	6%/yr or 20%/ 5yrs	Based on comparable sales
II	Residential Multifamily	12.50%	45%	Bldgs. w. 10 or fewer units 8%/yr or 30%/5yrs	Net operating income/12% cap rate
III	Utilities	11.18%	45%		Replacement cost minus depreciation
IV	Commercial and Industrial	10.76%	45%	5-year phase-in	Net operating income/12% cap rate

Once these tax bills were created, the next step was to validate them compared to the Department of Finance's numbers. We thus compared our numbers the 2025 Annual Property Tax Report, https://www.nyc.gov/assets/finance/downloads/pdf/reports/reports-property-tax/nyc_property_fy25.pdf, which gives totals market values, assessed values, and tax bills. In addition, it gives the total tax liability to property owners that the city expects to collect.

While our totals do not exactly match the City's totals, they come very close. Table 2 gives a comparison of our numbers to the City's.

Table 2: Comparison of DoF Numbers with Data Analysis by Barr and Lyons

Variable		Barr & Lyons	DoF	% Diff
Total # of Properties		1,152,016	1,152,013	0.000
Market Value, NYC	\$	1,493,939	\$ 1,493,903	0.002
Land Market Value NYC*	\$	\$293,685	N/A	
Taxable Billable AV, NYC	\$	299,432	\$ 299,432	0.000
Tax Levy, NYC	\$	36,746	\$ 36,862	-0.316

Notes: Dollar values in \$Millions. Dept. of Finance (DoF) values from the [Annual Report of the NYC Real Property Tax](#) (FY 2025). Barr and Lyons numbers based on data processing and calculations outlined above but underlying MV and AV data from the *Property Valuation and Assessment Data Tax Classes 1,2,3,4 file* for FY2025. Note we exclude STAR deductions

*since they come from the State (CHECK). * Land Market value excludes the proportion of each lot that is exempt from taxation if a lot has some or all of the value exempt*

2. Land Value Tax Bills

Given the Department of Finance (DoF) calculates the total market value and land value of each property, respectively, we use this data to calculate each property's tax bill if the City converted to a land value tax (LVT). The assumption is that property owners only pay taxes on the land values and now taxes are paid on the value of the buildings (or "improvements"). The total tax levy is \$36.863 billion and the total market value for land is \$293.7 billion, giving a land value tax rate of 0.1255 per \$1 of market value of land (netting out the exempt portion). Note that if all exempted land was taxable the citywide LVT take rate would fall to 0.0815.

3. Census Tract Level Data

We first added up the total market values (MVs), assessed values (AVs), current tax bills and estimated bills under the LVT for every census tract. Next, we aggregated the PLUTO data for the CT level and merged it the tax and values data. Our key variable of interest was to take the percentage change at of the tax bill at census tract (CT) level, via the formula:

$$\% \Delta taxbill_{CT} = 100 * (LVT_{CT} - Tax_{CT}) / Tax_{CT}. \text{ (CHECK)}$$

Further, to investigate the correlates with $\% \Delta taxbill_{CT}$ we also collected the following variables at the CT level: total lot area, total building area, total floor area ratio (building area/lot area), median assessed land values to total assessed values (as an indicator of building density or lack thereof), the Distance of centroid of the CT to the Empire State Building (in degrees).

Some Analysis and Results

The % changes are mapped in the blog post, but additional analysis is presented here.

Figures

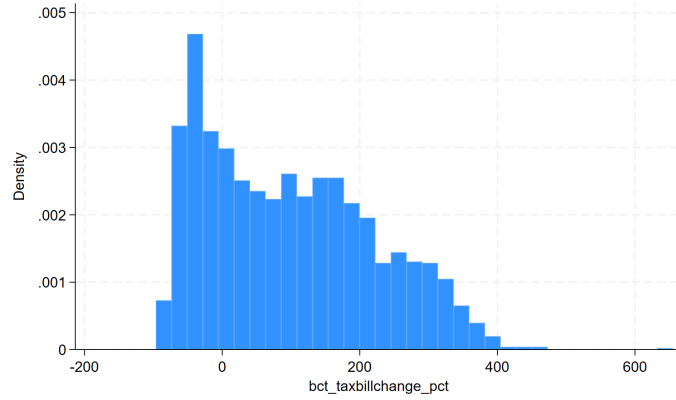


Figure 1: Histogram % Change in tax bill moving to LVT, by Census tract. Note for CT's that have less than 1000% increase.

Tables

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bct_taxbillchange_pct				

	Percentiles	Smallest		
1%	-75.69472	-96.31908		
5%	-61.58478	-93.31228		
10%	-48.95584	-87.82863	Obs	2,225
25%	-12.48714	-87.01709	Sum of wgt.	2,225
50%	85.25626		Mean	99.36319
		Largest	Std. dev.	129.8548
75%	188.0063	655.0652		
90%	280.113	1128.651	Variance	16862.28
95%	320.2599	1177.345	Skewness	1.390707
99%	377.2992	1478.248	Kurtosis	11.48424

Table 1: Desc. Stats for % Change in Tax Bill by Census Tracts when Moving to an LVT

Summary of bct_taxbillchange_pct			
boro	Mean	Std. dev.	Freq.

MN	-35.518959	36.711381	290
BX	35.030165	127.85218	342
BK	121.62981	113.31029	775
QN	146.19371	121.78262	696
SI	191.716	116.78907	122

Total	99.363188	129.85484	2,225

Table 1: Desc. Stats for % Change in Tax Bill by Census Tracts by Boro.

Regression Analysis

This table gives regression results. The dependent variable is the % change in the tax bill when converting to the LVT vis a vis the 2025 tax bill under the current system, at the census tract level. The independent variables include the log of the Floor Area Ratio (FAR) and its square. Boroughs dummies (MN is omitted borough), the distance of the CT centroid to the Empire State Building and its square, the % of structures in the CT that are residential, the median ratio of the assessed land value to total AV (measure of building density). In equations (4) and (5), we include CT FAR dummies in half-unit intervals (rounded down; between 0 and less than 0.5 is omitted), e.g. FAR_0.5 is dummy if CT FAR is between .5 and .9999, etc.

In short, the findings show that higher density neighborhoods have lower impacts on their tax bill changes; and further out from the center where density is lower has higher increases.

	(1)	(2)	(3)	(4)	(5)
lnBuildingDensity	-1.235 (-0.34)	-1.986 (-0.48)			
lnBuildingDensity_sq	-7.471*** (-4.70)	-7.892*** (-4.81)	-7.271** (-4.55)		
BX	-9.945 (-0.48)	6.146 (0.42)	-9.700 (-0.48)	-9.674 (-0.56)	42.88*** (10.79)
BK	65.62** (4.46)	79.35*** (7.77)	66.22** (4.50)	64.19*** (5.58)	98.91*** (8.03)
QN	35.44 (1.50)	46.54* (2.49)	36.31 (1.51)	34.71 (1.48)	90.06** (4.55)
SI	42.24 (1.10)	49.22 (1.50)	43.52 (1.11)	43.93 (1.21)	109.9** (3.59)
distESB	980.7** (3.21)	512.9** (3.52)	989.0** (3.10)	917.5** (3.08)	
distESB_sq	-1579.4 (-2.12)		-1591.0 (-2.06)	-1377.3 (-1.76)	
Resid_FA_pct	-1.803** (-4.39)	-1.771** (-3.97)	-1.813*** (-4.69)	-1.791** (-4.39)	-2.007** (-3.98)
med_lv_tv_ct	3.846*** (11.02)	3.921*** (10.12)	3.851*** (11.24)	3.310*** (7.63)	
FAR_0.5				62.44*** (7.66)	57.75*** (5.52)
FAR_1.0				65.83** (4.51)	42.62 (1.72)
FAR_1.5				61.55* (2.63)	27.66 (0.72)
FAR_2.0				46.44** (3.51)	2.445 (0.12)
FAR_2.5				47.37** (4.15)	9.950 (0.66)
FAR_3.0				45.84** (3.85)	5.759 (0.30)
FAR_3.5				35.40** (3.50)	-7.112 (-0.70)
FAR_4.0				42.60** (3.32)	6.842 (0.40)

FAR_4.5				53.57** (3.09)	23.93 (1.09)
FAR_5.0				36.97*** (7.24)	-9.092 (-0.53)
FAR_5.5				41.64** (3.39)	-3.126 (-0.18)
FAR_6.0				38.47 (1.48)	6.469 (0.12)
FAR_6.5				50.11*** (5.57)	15.22 (0.88)
FAR_7.0				70.24*** (7.06)	31.79 (1.78)
FAR_7.5				27.73* (2.72)	-12.37 (-0.72)
FAR_8.0				-52.42 (-1.20)	-118.9* (-2.47)
FAR_8.5				19.13*** (5.94)	-19.09 (-1.10)
FAR_9.0				3.752 (0.44)	-60.69* (-2.70)
FAR_10.0				-20.50 (-0.55)	-90.00 (-1.54)
FAR_11.0				-41.15* (-2.62)	-109.8** (-3.72)
FAR_11.5				-50.82** (-3.12)	-85.88** (-2.94)
FAR_12.0				15.71** (3.70)	-31.54 (-1.64)
FAR_12.5				-31.69** (-3.71)	-64.62** (-2.79)
FAR_13.0				-50.91** (-3.55)	-102.7** (-3.66)
FAR_15.5				-13.93 (-0.85)	-102.5** (-3.47)
FAR_17.0				-38.31* (-2.41)	-99.54** (-3.36)
FAR_18.0				-24.68 (-1.51)	-93.19** (-3.12)
FAR_19.0				-45.12** (-3.27)	-80.26** (-2.96)
_cons	-50.93* (-2.66)	-36.38 (-1.97)	-52.24* (-2.29)	-95.88*** (-5.03)	58.55 (1.96)
N	2219	2219	2219	2219	2221
R-sq	0.590	0.588	0.590	0.592	0.510
adj. R-sq	0.589	0.586	0.589	0.585	0.503
AIC	25644.1	25659.4	25644.3	25635.3	26064.3
BIC	25666.9	25682.2	25667.1	25658.1	26087.1

t statistics in parentheses; * p<0.10, ** p<0.05, *** p<0.01. s.e.'s clustered by borough. Note: other regression specifications (not shown) included median household income and population density, but these were not found to be strong predictors once building density measures were included in the regression. Results available upon request to the authors.