



Exploring the Link Between Education and Illegal Pet Ownership in NYC

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Our Research Focus

1

Data Exploration

Analyzing NYC Open Data and US Census Bureau data on illegal pets and education attainment.

2

Statistical Analysis

Utilizing regression models to quantify relationships between education levels and incident rates.

3

Policy Insights

Identifying potential policy responses based on key findings and areas for further research.



Data Sources

Illegal Pets Data

NYC Open Data: complaint records on illegal pets

NYC OpenData

HomeDataAboutLearnContact Us

Sign In

AboutDataRelated Content

Actions

illegal animals kept as pets

Social ServicesCommunity created

View based on 311 Service Requests from 2010 to Present

All 311 Service Requests from 2010 to present. This information is automatically updated daily.

Last Updated
December 2, 2024

Data Provided By
311

About this Dataset

A member of the public created this dataset. NYC Open Data has not reviewed or endorsed any changes, including filters or updates to the title and description. Learn more.

Updated
December 2, 2024

Data Last Updated
December 2, 2024

Metadata Last Updated
November 10, 2015

Date Created
November 10, 2015

Dataset Information

Agency311

Update

Update FrequencyDaily

Topics

Education Attainment Data

US Census Bureau: education levels for NYC boroughs

United States Census Bureau

New York education

Advanced Search

AllTablesMapsProfilesPages

NotesBackTopicsCodesDatasetYearColumnsTransposeMargin of ErrorRestoreExportMore Tools

Please note that American Community Survey 1-Year estimates are published for geographies with a population of 65,000 or more. For more information, see the guidance for when to use 1-year or 5-year estimates.

Label	New York		Percent		Male	
	Total	Estimate	Margin of Error	Estimate	Margin of Error	Estimate
AGE BY EDUCATIONAL ATTAINMENT						
Population 18 to 24 years	1,715,312		+/-2,220	0.0	0.0	666,617
Less than high school graduate	402,245		+/-737	5.3%		91,489
High school graduate (includes equivalency)	640,212		+/-4,516	31%	+0.8	296,252
Some college or associate's degree	693,341		+/-3,778	40.0%	+0.8	333,676
Bachelor's degree or higher	338,714		+/-3,353	16.0%	+0.6	146,911
Population 25 years and over	13,885,705		+/-4,341	0.0	0.0	6,061,740
Less than 9th grade	812,044		+/-8,296	5.8%	+0.1	397,824
9th to 12th grade, no diploma	698,791		+/-8,837	5.8%	+0.1	423,328
High school graduate (includes equivalency)	3,366,650		+/-30,249	34.2%	+0.2	1,681,067
Some college, no degree	2,095,103		+/-25,574	14.4%	+0.2	1,009,476
Associate's degree	1,240,700		+/-21,276	9.0%	+0.2	548,543
Bachelor's degree	3,336,170		+/-28,722	22.6%	+0.2	1,523,029
Graduate or professional degree	2,506,737		+/-29,627	18.1%	+0.2	1,077,483
High school graduate or higher	12,264,360		+/-25,801	88.3%	+0.2	5,846,788
Bachelor's degree or higher	5,642,907		+/-42,333	40.6%	+0.3	2,600,500
Population 25 to 34 years	2,734,288		+/-5,985	0.0	0.0	1,358,255

Data Sources

Education Attainment Data

We chose 5-years estimates from 2010 to 2022 because they are the **most reliable** indicators, though not the most current ones.

Distinguishing features of ACS 1-year, 1-year supplemental, 3-year, and 5-year estimates

1-year estimates	1-year supplemental estimates	3-year estimates*	5-year estimates
12 months of collected data <i>Example: 2023 ACS 1-year estimates Date collected between: January 1, 2023 and December 31, 2023</i>	12 months of collected data <i>Example: 2023 ACS 1-year supplemental estimates Date collected between: January 1, 2023 and December 31, 2023</i>	36 months of collected data <i>Example: 2011-2013 ACS 3-year estimates Date collected between: January 1, 2011 and December 31, 2013</i>	60 months of collected data <i>Example: 2019-2023 ACS 5-year estimates Date collected between: January 1, 2019 and December 31, 2023</i>
Data for areas with populations of 65,000+	Data for areas with populations of 20,000+	Data for areas with populations of 20,000+	Data for all areas
Smallest sample size	Smallest sample size	Larger sample size than 1-year	Largest sample size
Less reliable than 3-year or 5-year	Less reliable than 5-year	More reliable than 1-year; less reliable than 5-year	Most reliable
Most current data	Most current data	Less current than 1-year estimates; more current than 5-year	Least current



Data Cleaning and Standardization

Data Merging

Joining annual education datasets from 2010 to 2022 to annual illegal pet incidents in NYC with time variable (in year format as the key)

Variable Selection

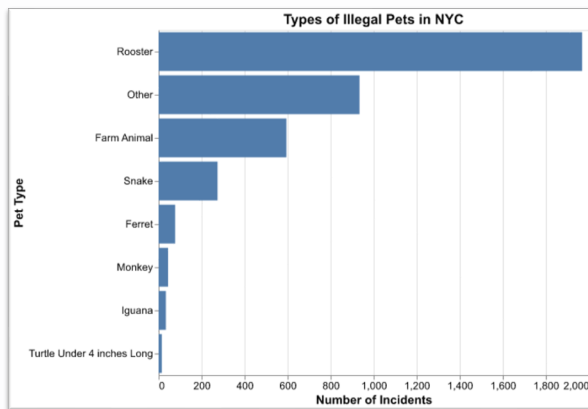
Selecting the education attainment of the population aged 25 and older

Selecting variables related to incident locations and illegal pet types to connect the two datasets.

Incident Normalization

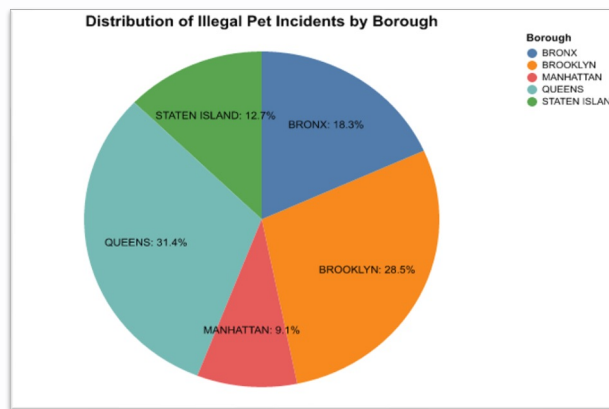
Normalizing incident counts per 10,000 people for fair comparisons because some borough might have higher population and higher incident count.

Visualizations



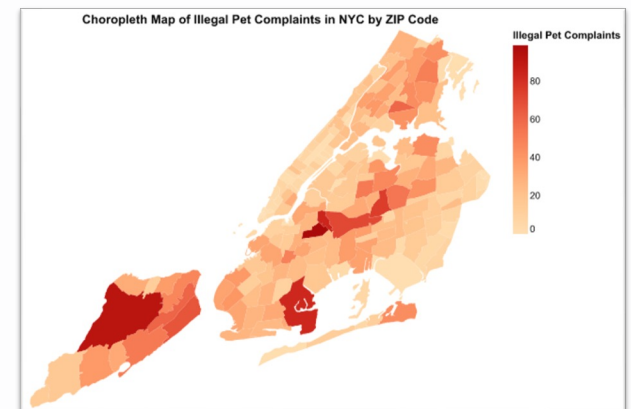
Types of Illegal Pets

A bar chart reveals roosters as the most common illegal pet type.



Distribution of Illegal Pet Incidents

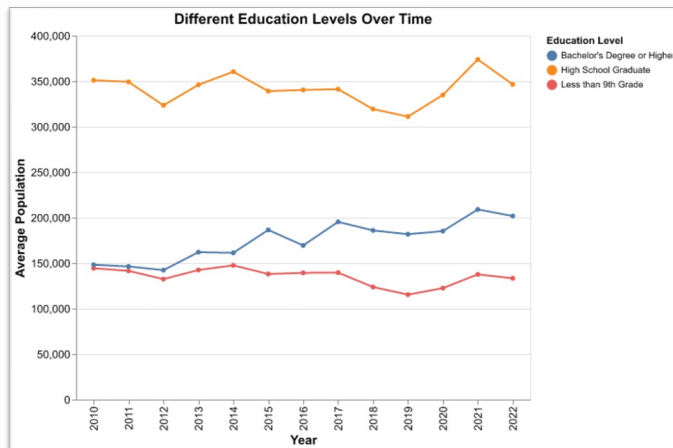
Pie chart highlights the geographic distribution of incidents, with Brooklyn and Queens leading in complaint counts, reflecting their population density.



Spatial Patterns of Incidents

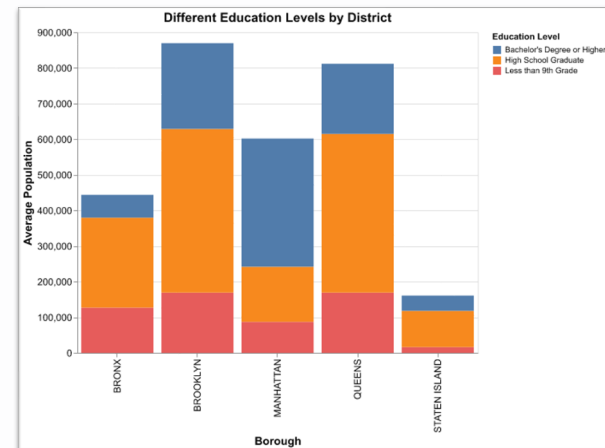
Choropleth map shows ZIP-level variability in illegal pet complaints, highlighting dense clusters.

Visualizations



Education Attainment Trend

Line plot illustrates trends in educational attainment (e.g., high school graduates, bachelor's degrees) over the study period



Education Levels by Borough

Bar chart highlights uneven distribution of bachelor degree holders among boroughs, with Manhattan leading the total share and amount

Regression Analysis Results

-0.0466

Less than 9th Grade

Negative correlation between education level and incident rate.

-0.0336

High School Graduates

Slight negative correlation between education level and incident rate.

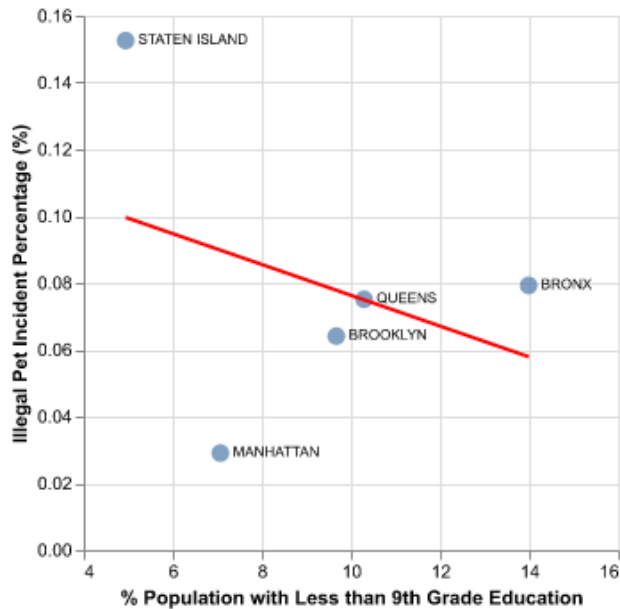
-0.0400

Bachelor's Degree

Negative correlation between education level and incident rate.

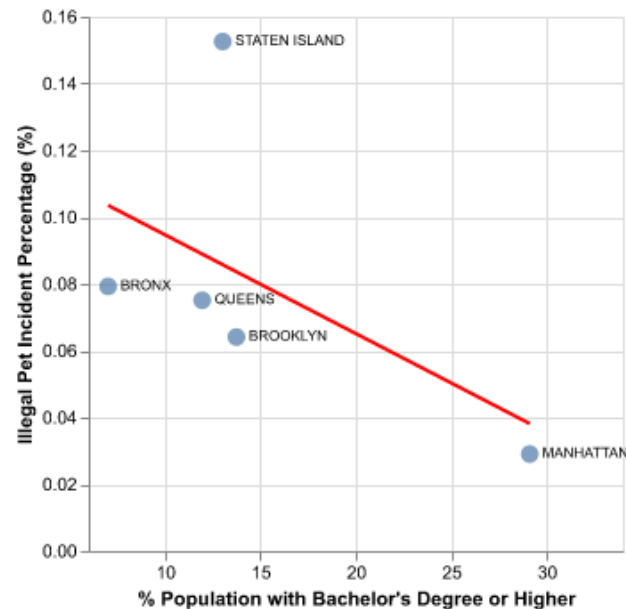
OLS Regression Results						
Dep. Variable:	Incident_Percentage(%)	R-squared:	0.999			
Model:	OLS	Adj. R-squared:	0.997			
Method:	Least Squares	F-statistic:	474.2			
Date:	Tue, 03 Dec 2024	Prob (F-statistic):	0.0337			
Time:	17:00:05	Log-Likelihood:	27.108			
No. Observations:	5	AIC:	-46.22			
Df Residuals:	1	BIC:	-47.78			
Df Model:	3					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
const	1.9435	0.160	12.153	0.052	-0.088	3.975
pop_25_less_9th_percentage	-0.0466	0.003	-14.102	0.045	-0.089	-0.005
pop_25_hs_grad_percentage	-0.0336	0.003	-10.392	0.061	-0.075	0.007
pop_25_bach_plus_percentage	-0.0400	0.003	-12.152	0.052	-0.082	0.002
Omnibus:	nan	Durbin-Watson:	1.873			
Prob(Omnibus):	nan	Jarque-Bera (JB):	0.799			
Skew:	-0.967	Prob(JB):	0.671			
Kurtosis:	2.698	Cond. No.	4.58e+03			

Regression Analysis Results



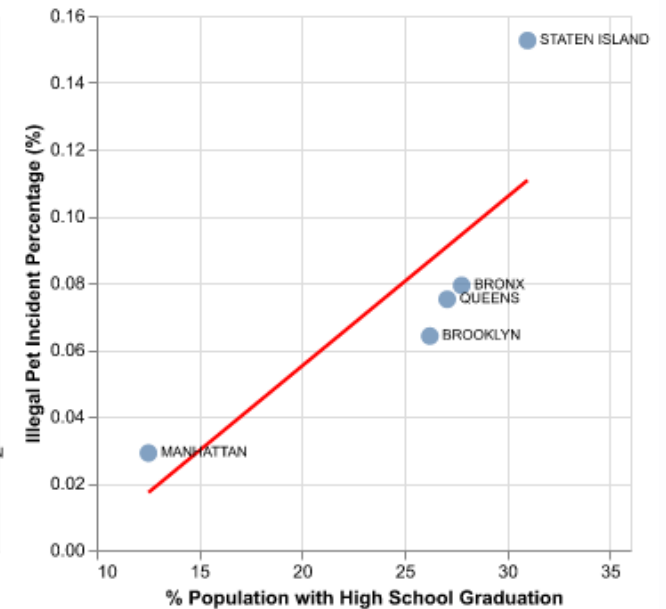
-0.0466

Less than 9th Grade



-0.0336

High School Graduates



-0.0400

Bachelor's Degree

NLP Sentiment and Resolution Analysis

"Warning Issued"

Most common resolution

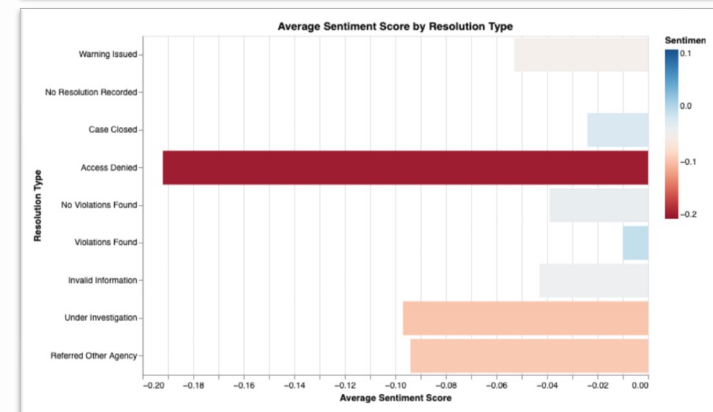
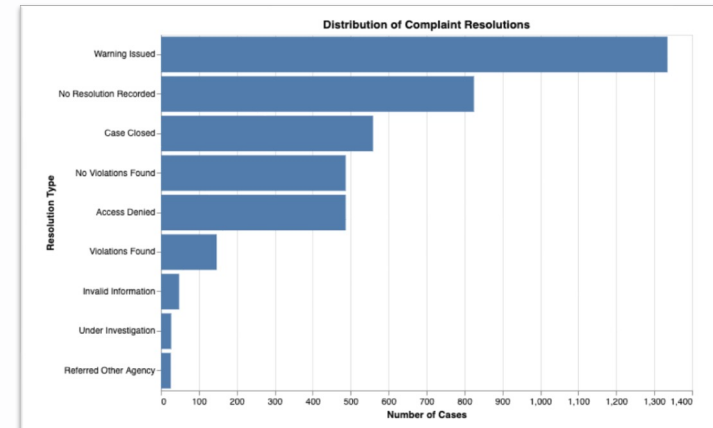
"Access Denied"

Most negative tone

Slightly Negative to Neutral

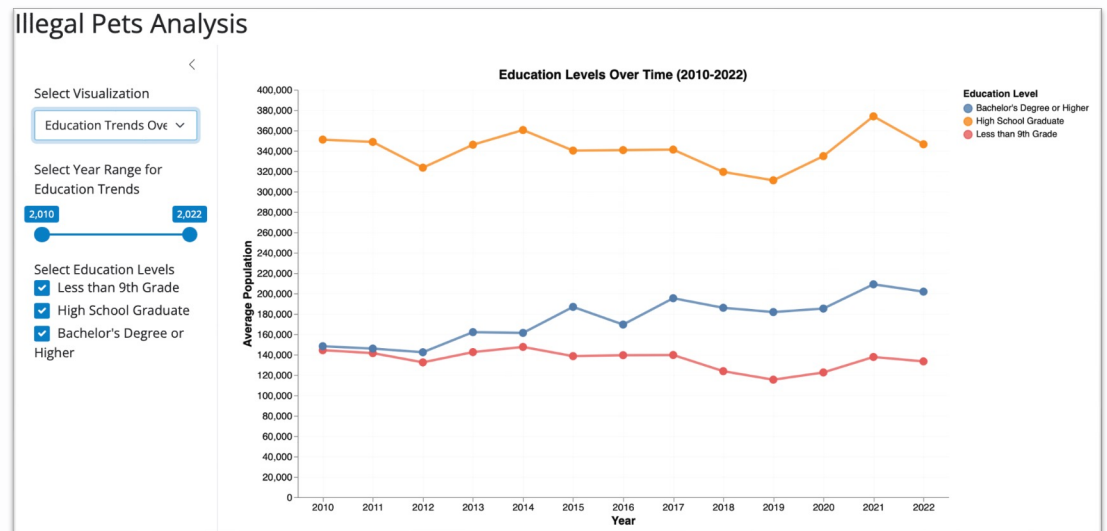
Overall tone

reflecting a professional yet firm communication style

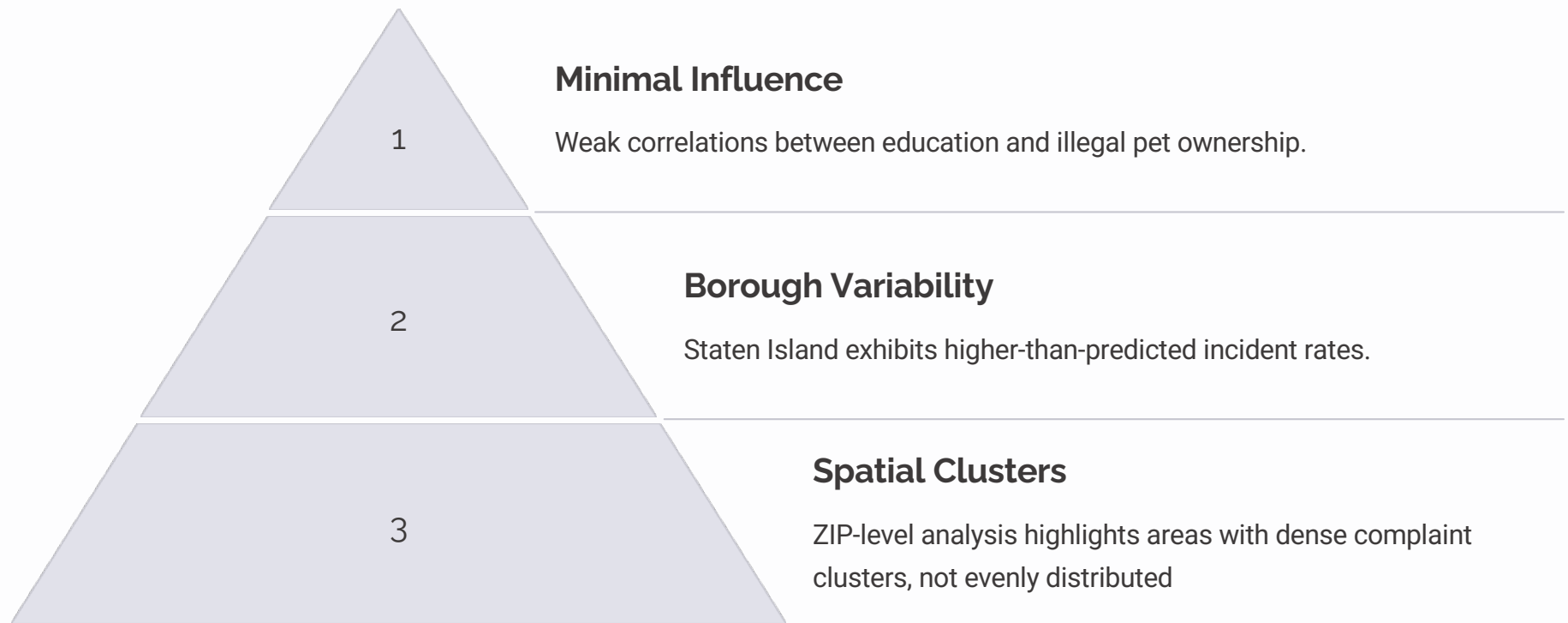


Shiny App with Interactions

With interactive **toggles** and **checkboxes**, **dropdown menu**, and **range sliders**, users can filter data by **specific years, year ranges, or education levels**. These features allow them to explore the spatial and socioeconomic factors affecting illegal pet incidents.



Key Findings and Limitations



Policy Implications and Next Steps

1

Community Outreach

Educational campaigns in high-incident areas.

2

Enhanced Enforcement

Strengthening enforcement in areas with dense clusters to avoid "access denied" problem.

3

Interactive Tools

Developing tools to engage the public and policymakers.



Future Directions for Research

Neighborhood-Level Data

Examining localized trends and variations of education.

Illegal Pets Type

Examining the popularity of certain illegal pets type (rooster, snake, etc.)



Socioeconomic Factors

Exploring income, housing, and cultural influences.