Final Project
Fall 2021

DATA ANALYTICS FOR STRATEGIC COMMUNICATION

Katelyn Brickhouse

Topic

The In Rem auction is run by the Department of Assessment and Taxation with the goal of recovering unpaid property taxes, garbage user fees, water utility bills, or sewer rents by selling the property at auction.

Article §28-76 of the City Code states that the department of assessment and taxation, with the assistance of the department of law, shall be responsible for tax foreclosure pursuant to the real property tax law of the state of New York.

Article §6-23(f) of the City Code sets out the duties for the director of the real estate department and allows for the sale of properties acquired by the city through tax foreclosure.

Article §15-41 allows for foreclosure on unpaid resident user fees.

Data Sources

Open Data Buffalo

- Economic & Neighborhood Development

2019 In Rem 44 - 52 Auction Results (10/29/19)

https://data.buffalony.gov/Economic-Neighborhood-Development/2019-In-Rem-44-52-Auction-Results-10-29-19-/rpm6-28cg

- Property address, winning bid, purchaser name, neighborhood, council district

Neighborhood Metrics

https://data.buffalony.gov/Economic-Neighborhood-Development/Neighborhood-Metrics/adai-75jt

- Neighborhood, poverty rate, race percentages, median income, employment rate

Q1: Which neighborhood has the most properties struck to the city from the In Rem auction?

Procedure: Crosstabs

- Analyze> Descriptive Statistics> Crosstabs> Rows: Neighborhood, Columns: Status

Answer: Broadway Fillmore had the most properties (12) struck to the city.

Neighborhood * Status Crosstabulation

Count

		Status			
		Adjourned	Sold	Struck to City	Total
Neighborhood	Black Rock	0	2	0	2
	Broadway Fillmore	42	32	12	86
	Delavan Grider	8	14	1	23
	Elmwood Bidwell	0	1	0	1
	Fillmore-Leroy	1	5	0	6
	First Ward	1	1	0	2
	Fruit Belt	3	5	1	9
	Genesee-Moselle	38	25	6	69
	Hamlin Park	0	3	0	3
	Hopkins-Tifft	1	2	1	4
	Kaisertown	1	2	0	3
	Kenfield	17	6	0	23
	Kensington-Bailey	6	12	0	18
	Lovejoy	17	9	2	28
	Masten Park	10	9	0	19
	MLK Park	6	15	3	24
	Pratt-Willert	0	1	0	1
	Riverside	0	4	0	4
	Schiller Park	25	9	1	35
	Seneca Babcock	9	14	0	23
	Seneca-Cazenovia	3	1	0	4
	University Heights	0	2	0	2
	Upper West Side	0	1	0	1
	West Side	0	1	0	1
Total		188	176	27	391

Q2: Which neighborhood has the lowest average sale price of In Rem auction sales?

Procedure: Compare Means

- Data> Select cases> Status = “Sold”
- Analyze> Compare Means> Means> Dependent List: WinningBid, Layer 1: Neighborhood

Answer: Black Rock - $750.00 average property price

Report

WinningBid

Neighborhood	Mean	N	Std. Deviation
Black Rock	750.00	2	353.553
Broadway Fillmore	7946.87	32	11459.916
Delavan Grider	25771.43	14	21727.169
Elmwood Bidwell	920000.00	1	.
Fillmore-Leroy	16740.00	5	22146.399
First Ward	35000.00	1	.
Fruit Belt	23300.00	5	10244.511
Genesee-Moselle	14872.00	25	23817.982
Hamlin Park	48333.33	3	14502.873
Hopkins-Tifft	108000.00	2	94752.309
Kaisertown	900.00	2	565.685
Kenfield	25716.67	6	21155.653
Kensington-Bailey	21466.67	12	24279.596
Lovejoy	10011.11	9	13530.285
Masten Park	11288.89	9	25371.019
MLK Park	2966.67	15	7177.511
Pratt-Willert	20000.00	1	.
Riverside	5875.00	4	10750.000
Schiller Park	19277.78	9	23920.586
Seneca Babcock	2942.86	14	6415.092
Seneca-Cazenovia	63000.00	1	.
University Heights	38000.00	2	5656.854
Upper West Side	138000.00	1	.
West Side	1600.00	1	.
Total	20973.30	176	72515.962

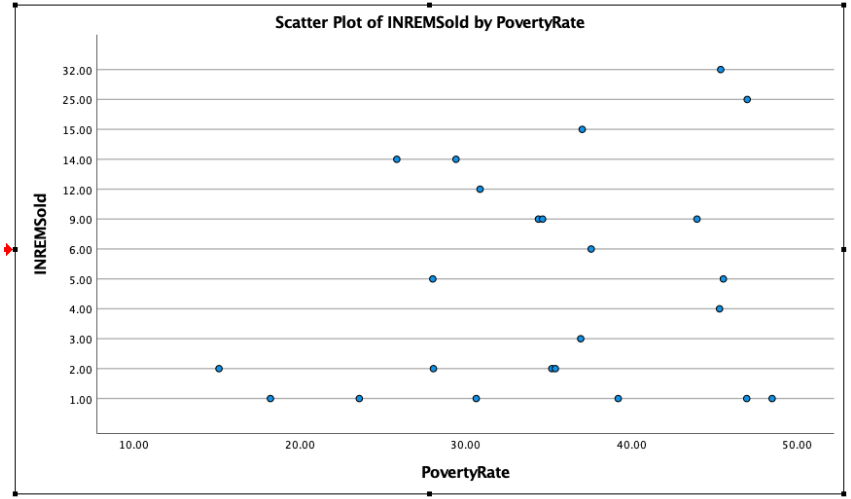
Q3: Does the poverty rate of a neighborhood correlate to the number of properties that go up for sale at the In Rem auction?

Procedure: Correlation

- Analyze> Correlate> Bivariate>
  Variables: Poverty Rate, InRem Sold

Correlations

		PovertyRate	INREMSold
PovertyRate	Pearson Correlation	1	.282
	Sig. (2-tailed)		.182
	N	35	24
INREMSold	Pearson Correlation	.282	1
	Sig. (2-tailed)	.182	
	N	24	24



Answer: There is no correlation.

Q3(Part 2): Does the percent of black residents of a neighborhood correlate to the number of properties that go up for sale at the In Rem auction?

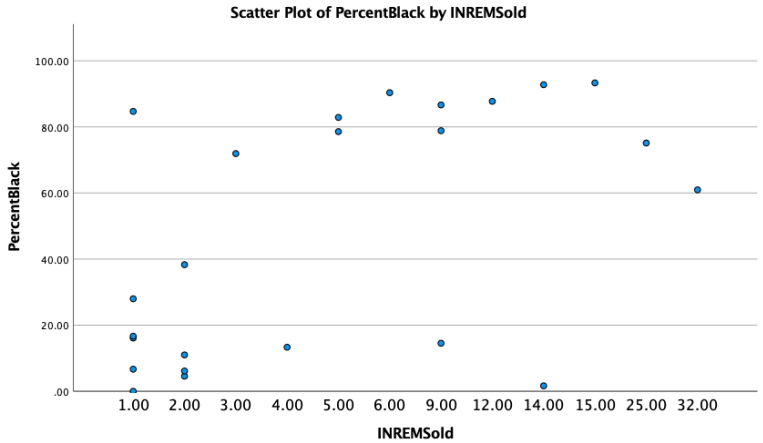
Procedure: Correlation

- Analyze> Correlate> Bivariate>
  Variables: Percent Black, InRem Sold

Correlations

		INREMSold	PercentBlack
INREMSold	Pearson Correlation	1	.405*
	Sig. (2-tailed)		.050
	N	24	24
PercentBlack	Pearson Correlation	.405*	1
	Sig. (2-tailed)	.050	
	N	24	35

*. Correlation is significant at the 0.05 level (2-tailed).



Answer: There is a medium correlation.

Q4: Does employment rate and median income of a neighborhood affect the number of sold properties at the In Rem auction?

Procedure: Multiple Regression

- Analyze> Regression> Linear Regression> Dependent Variable: InRemSold, Independent Variables: Employment Rate, Median Income

Correlations

		INREMSold	Employment Rate	MedianIncome
Pearson Correlation	INREMSold	1.000	-.713	-.413
	EmploymentRate	-.713	1.000	.573
	MedianIncome	-.413	.573	1.000
Sig. (1-tailed)	INREMSold	.	<.001	.022
	EmploymentRate	.000	.	.002
	MedianIncome	.022	.002	.
N	INREMSold	24	24	24
	EmploymentRate	24	24	24
	MedianIncome	24	24	24

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.713[a]	.508	.461	5.91750

a. Predictors: (Constant), MedianIncome, EmploymentRate

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	759.982	2	379.991	10.852	<.001[b]
	Residual	735.352	21	35.017		
	Total	1495.333	23			

a. Dependent Variable: INREMSold

b. Predictors: (Constant), MedianIncome, EmploymentRate

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	118.619	26.743		4.436	<.001
	EmploymentRate	-1.269	.334	-.709	-3.797	.001
	MedianIncome	-5.956E-6	.000	-.007	-.035	.972

a. Dependent Variable: INREMSold

Answer: Neighborhood employment rate and median income have a statistically significant negative relationship with the amount of In Rem properties that are sold at auction. The lower the employment rate and median income are, the higher the number of properties that appear.

Q5: Is there a statistically significant difference between the five neighborhoods with the most properties in the In Rem auction in terms of sale price?

Procedure: One-way ANOVA

- Data> Select cases> Status = "Sold" and (NeighborhoodNumber = 2 or NeighborhoodNumber = 3 or NeighborhoodNumber = 8 or NeighborhoodNumber = 16 or NeighborhoodNumber = 20)
- Analyze> Compare Means> One-way ANOVA> Dependent Variable: WinningBid, Factor: NeighborhoodNumber

Descriptives

WinningBid

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Broadway Fillmore	32	7946.88	11459.916	2025.846	3815.13	12078.62	500	37000
Delavan Grider	14	25771.43	21727.169	5806.830	13226.53	38316.32	500	64000
Genesee-Moselle	25	14872.00	23817.982	4763.596	5040.42	24703.58	500	87000
MLK Park	15	2966.67	7177.511	1853.225	-1008.11	6941.44	500	27000
Seneca Babcock	14	2942.86	6415.092	1714.505	-761.11	6646.82	500	22000
Total	100	10726.00	17602.988	1760.299	7233.19	14218.81	500	87000

ANOVA

WinningBid

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.597E+9	4	1.399E+9	5.300	<.001
Within Groups	2.508E+10	95	263994382		
Total	3.068E+10	99			

Multiple Comparisons

Dependent Variable: WinningBid

Scheffe

(I) NeighborhoodNumber	(J) NeighborhoodNumber	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Broadway Fillmore	Delavan Grider	-17824.55*	5206.397	.025	-34181.24	-1467.87
	Genesee-Moselle	-6925.125	4337.004	.637	-20550.48	6700.23
	MLK Park	4980.208	5084.235	.915	-10992.69	20953.10
	Seneca Babcock	5004.018	5206.397	.920	-11352.67	21360.70
Delavan Grider	Broadway Fillmore	17824.554*	5206.397	.025	1467.87	34181.24
	Genesee-Moselle	10899.429	5423.700	.407	-6139.95	27938.80
	MLK Park	22804.762*	6037.911	.009	3835.75	41773.77
	Seneca Babcock	22828.571*	6141.130	.011	3535.28	42121.86
Genesee-Moselle	Broadway Fillmore	6925.125	4337.004	.637	-6700.23	20550.48
	Delavan Grider	-10899.429	5423.700	.407	-27938.80	6139.95
	MLK Park	11905.333	5306.543	.292	-4765.98	28576.64
	Seneca Babcock	11929.143	5423.700	.312	-5110.23	28968.52
MLK Park	Broadway Fillmore	-4980.208	5084.235	.915	-20953.10	10992.69
	Delavan Grider	-22804.76*	6037.911	.009	-41773.77	-3835.75
	Genesee-Moselle	-11905.333	5306.543	.292	-28576.64	4765.98
	Seneca Babcock	23.810	6037.911	1.000	-18945.20	18992.82
Seneca Babcock	Broadway Fillmore	-5004.018	5206.397	.920	-21360.70	11352.67
	Delavan Grider	-22828.57*	6141.130	.011	-42121.86	-3535.28
	Genesee-Moselle	-11929.143	5423.700	.312	-28968.52	5110.23
	MLK Park	-23.810	6037.911	1.000	-18992.82	18945.20

*. The mean difference is significant at the 0.05 level.

There are significant differences between sale prices among some of the neighborhoods.

Most notably, Delavan Grider has significant differences with every neighborhood except Genesee-Moselle.

Conclusion:

There are many factors that play into In Rem auction property distribution between neighborhoods and sale prices. Through my data analysis, I discovered a few factors that affect the number of properties that appear - employment rate, median income, and percent black residents.

I would think it's in the best interest of the city to identify where these In Rem hot sports are and what factors are causing them so that more can be done to keep citizens from losing their homes. During the 2021 Mayoral election in Buffalo, fair and equitable treatment of neighborhoods was a main topic. This data analysis case study definitely highlights some disparities in equitable city practices, but alternatively highlights the opportunity for outreach into communities that may be struggling.

For instance: Broadway Fillmore has the most In Rem total properties, the most struck to city properties as seen in crosstabs procedure and was lower in mean sale price during one-way anova. Median income - $18940 (second lowest), Employment rate - 79.11 (lowest), Percent Black - 61% (Above the mean of 39%)