

# Urban Revival Trends in North Portland Neighborhoods City of Portland, Oregon

## Database Management for Census Data Analysis

By: Steph Fritts  
Daniel Ashney  
Anne Gire

## Interstate Corridor Urban Renewal Area (ICURA) est. 2000

Portland's largest urban renewal area  
3,744 acres of mixed historic communities and  
residential neighborhoods, interconnected by commercial  
corridors and large scale industrial centers

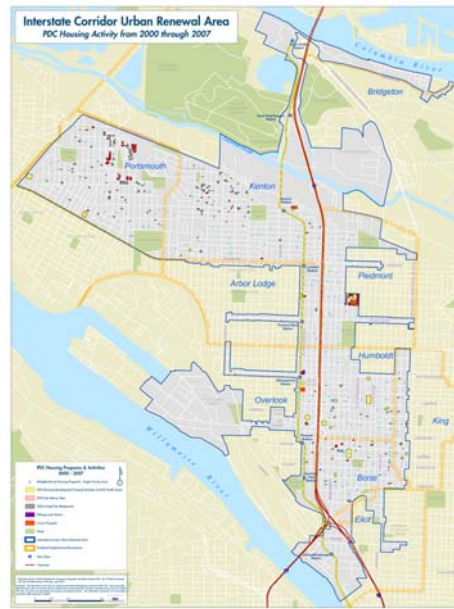
PDC assesses data to ultimately benefit urban renewal  
decision-making

### ICURA stated goals

- Revitalization and expansion of housing
- Creation of business and job opportunities
- Protection from threats posed by gentrification and displacement

## Completed ICURA projects-to-date:

- 4500 N. Albina Triangle
- Bridgeton Trail Planning Study
- Historic Home Paint Project
- Interstate Firehouse Cultural Center Renovation
- New Columbia



North/Northeast Portland Neighborhoods Project Region



## Initial Research Question

What is the effectiveness of the PDC project in relation to demographic and standard of living indicators (2000 – current)?

Complete census data unavailable for current project period

## Our Project Goals

Access/assess 1990 – 2000 census data to identify comparable variables

Identify trends in demographics and standard of living indicators

Establish a baseline for urban revival policy and future assessments  
(e.g. 2010 ICURA data assessment)

## Project Hypotheses

Statistical correlation will be used to identify areas of potential gentrification

**Null Hypothesis:** Demographics and Standard of Living Indicators will not be significantly correlated

**Alternative Hypothesis:** Demographics and Standard of Living Indicators will be significantly correlated

Higher rates of change will be clustered

## Data

United States Census Bureau-1990  
-2000

Data organization/development- Excel  
- Access

Variables

- Demographics: Population, Race
- Occupied housing units (Years owned/rented)
- Median Income
- Median Property Value
- Public Assistance

## Database Download -Demographics

OBJECTID	Geography	FIPS	Geographic Geography	Persons_Total	Households_Total	Persons_White	Persons_Black	Housing_units_Total
1	15000US41051	411E+11	150 BG 2, Tract 33.01, Multi	885	241	272	489	330
2	15000US41051	411E+11	150 BG 3, Tract 33.01, Multi	714	263	313	278	342
3	15000US41051	411E+11	150 BG 1, Tract 33.02, Multi	1326	423	524	366	499
4	15000US41051	411E+11	150 BG 2, Tract 33.02, Multi	1275	424	340	852	558
5	15000US41051	411E+11	150 BG 1, Tract 36.01, Multi	530	217	245	285	214
6	15000US41051	411E+11	150 BG 2, Tract 36.01, Multi	884	306	338	498	369
7	15000US41051	411E+11	150 BG 3, Tract 36.01, Multi	995	375	329	586	433
8	15000US41051	411E+11	150 BG 4, Tract 36.01, Multi	841	297	175	613	400

Occupied housing units: Owner occupied	Owners as percent of total median units	Occupied housing units: Renter occupied	Renters as percent of total median units	Occupied housing units: Owner occupied; 1989 to March 1990	Occupied housing units: Owner occupied; 1985 to 1988	Occupied housing units: Owner occupied; 1980 to 1984
49	14	12	3	0	0	0
0	0	14	4	0	0	0
0	0	62	17	0	0	0

## Poverty Indicators

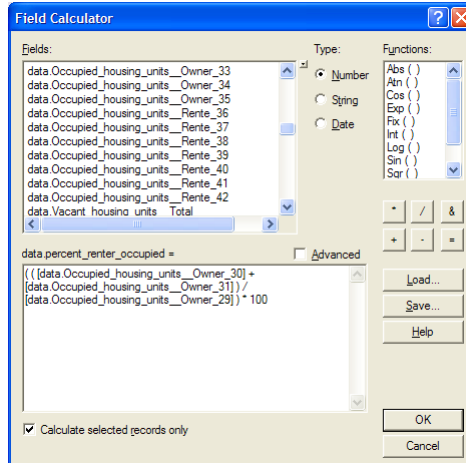
OBJECTID	Geography	FIPS	Geographic Geography	Households_Total	Households_With_public_assist_6	Households_No_public_assistan_7	Persons_for_whom_poverty_stat_0	Persons
1	15000US411	411E+11	150 BG 2, Tract	241	87	154	114	110
2	15000US411	411E+11	150 BG 3, Tract	261	54	207	199	89
3	15000US411	411E+11	150 BG 1, Tract	428	73	355	165	40

## Economics

OBJECTID	Geography	Field2	Geographic Geography	Median_Prop_Value	Median_HH_income	Percent_Median_Income	Percent_Median_Prop_Value
1	15000US4105	411E+11	150 BG 1, Tract 22.01, Multirace	24400	7814	37	61
2	15000US4105	411E+11	150 BG 2, Tract 22.01, Multirace	0	5360	26	0
3	15000US4105	411E+11	150 BG 3, Tract 22.01, Multirace	0	14811	22	0
4	15000US4105	411E+11	150 BG 1, Tract 22.02, Multirace	35300	15750	76	80
5	15000US4105	411E+11	150 BG 2, Tract 22.02, Multirace	0	0	0	0
6	15000US4105	411E+11	150 BG 3, Tract 22.02, Multirace	16100	16100	76	87

# GIS Calculator

- Regional Ratios used to standardize data
- Percentage of regional median =  $\frac{\text{Regional Median}}{\text{Block Group Field Value}} * 100$
- Rate of Change Calculation = 2000 ratio – 1990 ratio



## Ratios/Rate Of Change

A	B	C	D	E	F	G	H	
1	0700B.ECTID	07Geo_ID	07Geographic_Geography	07Percent_Regional_Income	07percent_owner_occupied	07percent_owner_moved_5yrs	07percent_renter_occupied	07percent_renter_moved
2	138	410510022011	150 Block Group	39	14	6	23	
4	133	410510022021	150 Block Group	55	7	2	32	
4	140	410510022011	150 Block Group	86	37	22	28	
5	141	410510023012	150 Block Group	82	51	29	50	
6	142	410510023013	150 Block Group	50	33	21	91	
7	143	410510023021	150 Block Group	76	27	21	162	
8	149	410510024022	150 Block Group	102	62	51	114	
9	150	410510024023	150 Block Group	89	40	34	113	
10	204	410510034011	150 Block Group	126	33	18	25	

U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	
1	Percent_Median	percent_median_Wt	percent_total	ROC_assistance	ROC_prop_value	ROC_income	ROC_tenure_renter_10yr	ROC_tenure_owner	ROC_renters	ROC_owners	ROC_black	ROC_white
2	60.62111801	101	0	7.532467532	8	40	28	12	-58	12	6	10
3	87.20186326	109	0	0	21	21	20	-61	-10	-61	-9	8
4	87.2456264	110	18	13116881117	-15	22	23	32	4	-144	4	-12
5	118.02484407	124	35	12.48753247	-22	8	8	36	17	-33	17	-14
6	101.3644596	121	42	14.02597403	-28	20	20	76	33	75	33	-19
7	98.3869317	116	8.1	2.222322723	-31	17	17	130	3	42	3	-11
8	173.41614931	189	4	0	-4	16	16	104	31	82	31	-2
9	113.0434783	0	177	0	6.23376234	-6	177	103	2	71	2	10
10	80.48693441	118	13	5.194895196	-8	5	5	13	14	-63	14	-11
11	102.40669937	97	15	5.454545455	-10	17	17	18	20	-16	20	-24
12	70.31059301	83	28	16.88311688	-8	11	11	-11	11	11	11	-8
13					-12	13	13	67	-8	47	-8	-19

# Methods of Data Analysis

## SPSS 12.0

-Test how two variables are linearly related

### Pearson Correlation Coefficient

-Identifies correlation from -1 (perfect negative correlation) to +1 (perfect positive correlation)

### R Squared Fit Line

-Coefficient of determination shows the percent of shared variation between the two variables

## ArcGIS 9.2

### Moran's I and Local Moran's I

-Test spatial autocorrelation between rates of change within our region to identify potential clustering

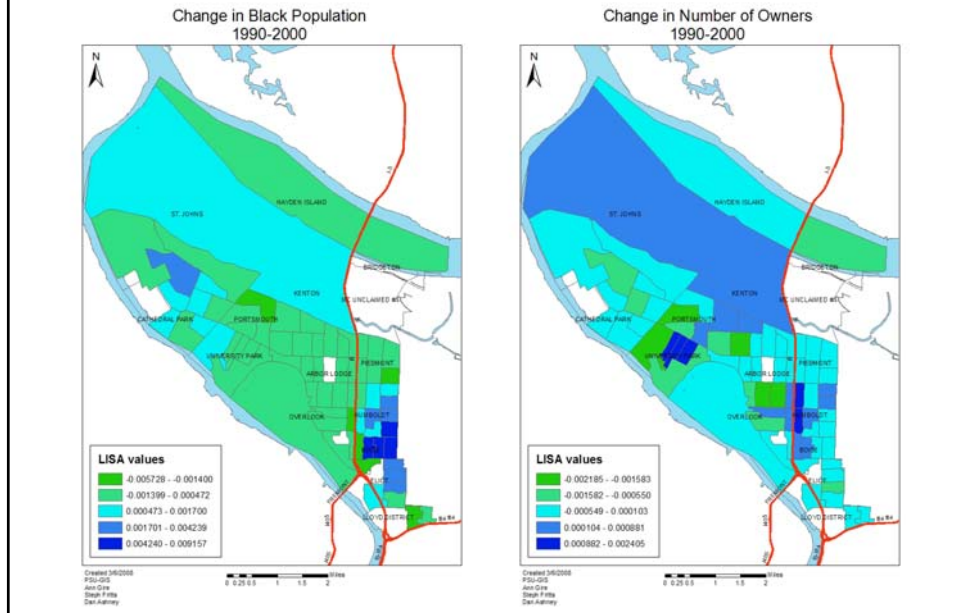
## Moran's I Results for Rates Of Change (Regional)

	Black	White	Renters	Owners	Median Income	Median Property Value	Same owner for last 10 yr
<b>Moran's I</b>	0.075666	0.060476	-0.011675	-0.012195	0.029758	0.029758	-0.012195
<b>Z score</b>	5.07	4.33	0.145	0.115	2.7	2.7	0.115

ROC Values for Black, White, Median Income and Median Property values show significant autocorrelation (z score >1)

ROC Values for Renters, Owners and Same Owner for Last 10 Years are not significantly clustered (z score <1)

# LISA Examples

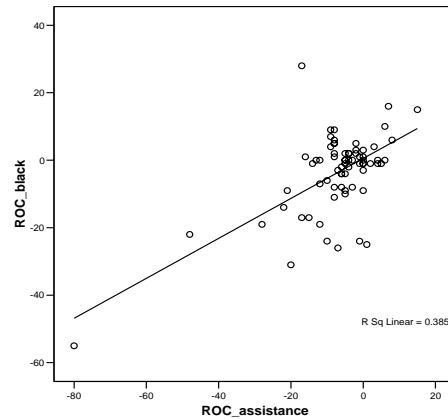
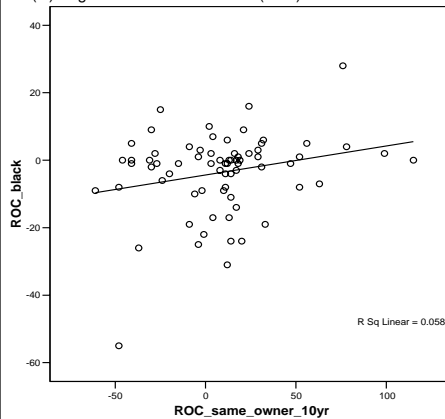


## SPSS Results

		ROC_same_owner_10yrs	ROC_public_assistance
<b>ROC_black</b>	Pearson Correlation	0.242*	0.621(**)
	Sig. (2-tailed)	0.042	0.000
	N	71	71

(\*) Significant at the 0.05 level (95%)

(\*\*) Significant at the 0.01 level (99%)





## Results

Positive, Significant Statistical Correlation  
(in order of statistical significance)

- Black/Public Assistance
- Black/Same Owner Last 10 Years
- Black/Owner
- White/Median Property Value
- White/Median Income
- White/Public Assistance

## Results

Spatial Autocorrelation (in order of z score)

Black Population ROC  
White Population ROC  
Median Property Value ROC  
Median Income ROC

## Discussion

- Variables are related but correlation does not imply causality
- LISA indicates ROC tends to occur near Interstate Ave
- Future use: compare results to available future data (2010 census)

## Issues

- Data sources inconsistent/unavailable (Census ACS, 1990-2000)
- Data type incompatibility (Text vs Numeric)
- Incompatible Tools (Getis-Ord General G)
- Results do not reflect current revitalization efforts – project adapted to data

# References

Clemmer, Gina, 2000. *Quantitative and Spatial Analysis Techniques for Analyzing Gentrification Patterns*. Case Study: Portland, Oregon. Independent Research Project, PSU (Center for New Urban Research).

Rogerson, Peter A., 2006. *Statistical Methods for Geography: A Student's Guide*. 2nd Edition.

Online source: *Statnotes: Topics in Multivariate Analysis*, by G. David Garson