Analysis of Patterns of Gentrification in Baltimore City, Maryland Sam Wilson, GES 462, Department of Geography and Environmental Systems, University of Maryland, Baltimore County

Introduction:

Displacement within urban areas occurs as a result of a process known as gentrification. This process occurs as a result of the changing socio-economic status of the neighborhood in question, where there are decreases in property values and increases in poverty levels followed by increases in property values and decreases in poverty levels. A possible reason for the change in these variables might be the characteristics of the adjacent area, including such entities as recreational parks, bodies of water, and factories/sources of pollution. This study seeks to explain the relationship between gentrification and the influence of environmental characteristics.

Objectives:

- **Create an index that reflects the variables of** gentrification
- Relate these gentrification indices to environmental amenities and environmental disamenities using buffers and zonal statistics
- Determine why particular areas are gentrifying and others are not gentrifying (or remaining the same) between 1990 and 2000

Buffer Zones



Buffer Zones

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Calculating the Index of Well-Being: The variables used to calculate the index included:

- Median house income in 1999
- Median house value in 1999 (owneroccupied units)
- Total # vacant homes (normalized by total housing units)
- **Total # people living below poverty** level (normalized by total population)

To generate the final index of well-being, an index for each variable was first calculated. For total # vacant homes and total # people living below poverty level, the indices were calculated as follows:

Index = PopBG / MAX(PopBG) Where PopBG is the value for the individual block group and MAX(PopBG) is the maximum value for all the block groups in Baltimore City. In calculating the individual indices for median house income and house value, a different approach was used after Cutter et al. (2000):

Block Group ID	Mean House Value (\$) in Block Group	Mean House Value (\$) in Baltimore City	Value Difference (\$) of City and Block Group (X)	X + Absolute Value of Maximum X (Y)	Mean House Value Vulnerability Score (Absolute value Y/maximum Y)
245101010100	78,000	69,381.12	-9,318.87	60,062.25	0.72
245102010100	95.000	69.381.12	-25.618.88	43.762.25	0.66
245103010100	153.300	69.381.12	-83.918.88	-14.537.75	0.45
245101010200	50.200	69.381.12	19.181.12	88.562.25	0.82

Finally, by finding the average of the sum of the individual indices, the index of wellbeing was found for both 1990 and 2000. These indices were imported into ArcGIS, joined with the block group shapefiles for the respective year, and the 1990 indices were subtracted from the 2000 indices to generate the final gentrification index.

Results:



(open water polygons for 1992 and 2001, parks/ recreational areas), as well as areas with their respective gentrification indices in the background.

and 2008 facilities, RCRAInfo 2007 facilities), as well as areas with their respective gentrification indices in the background.

value of 3 have remained constant in socio-economic

Layers	🖬 100 Meter Buffer 🖬	500 Meter Buffer 🖬	1000 Meter Buffer 🖬	Average for Layers
Parks/Recreational Areas	3.457086747	3.428167135	3.421381289	3.435545057
1992 Open Water Areas	3.459605426	3.437626283	3.419710756	3.438980822
2001 Open Water Areas	3.462664162	3.467567756	3.449602464	3.459944794
				Average for Environmental Amenities
Average for Buffer Areas	3.459785445	3.444453725	3.430231503	3.444823558

Layers	🖬 100 Meter Buffer 🖬	500 Meter Buffer 🖬	1000 Meter Buffer 🖬	Average for Layers
TRI 2008 Facilities	3.501037469	3.51427681	3.497518924	3.504277734
TRI 2007 Facilities	3.54100028	3.530981347	3.504910728	3.525630785
RCRAInfo 2007 Facilities	3.344498182	3.354138171	3.409186003	3.369274119
				Average for Environmental Disamenities
Average for Buffer Areas	3.462178644	3.466465443	3.470538552	3.466394213

less of a gentrifying effect. Areas closer to the evironmental amenities had values higher than those further away, but the difference was not significant. In regards to environmental disamenities, the average gentrification indices generally decreased for TRI facilities and increased for RCRAInfo facilities as the buffer zone was increased. This pattern signifies that areas closer to TRI facilities and areas further away from RCRAInfo facilities experienced more of a gentrifying effect, which did not follow the expected pattern for the disamenities. Further research will look at average age of housing units as a possible driver of gentrification and will involve more statistical analysis.

References:

- Background picture taken from http://media.photobucket.com/image/baltimore/ Virginie_Katz/Baltimore/923768f1.jpg?o=380
- Cutter, S. L., Mitchell, J. T., & Scott, M. S. (2000). Revealing the Vulnerability of People and Places: A Case Study of Georgetown County, South Carolina. Malden, MA: Blackwell Publishers
- Parks/Recreational shapefile for Baltimore obtained from CUERE (Center for Urban **Environmental Research and Education) at UMBC**