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Economic Development: Future Employment Opportunities

In Neighborhoods of Low Socioeconomic Status

As with most metropolitan areas, Tacoma is home to many residents of low

socio-economic status (SES). Socio-economic status is a term that reflects an individual's social

position based on a number of factors besides poverty or income (Adler, 2003). This analysis has

been done in an effort to address unemployment for residents of low SES by finding access to

jobs that do not require long-distance commuting. By creating jobs within or adjacent to a

neighborhood we can create job opportunities that utilize land already available and build

sustainable neighborhoods with employment opportunities for residents. Finding job

opportunities within a distressed neighborhood can increase an individual's mobility, which

could lead to a shift into higher SES. I chose to find parcels within walking and biking distance

to advocate walking, biking, and to decrease our dependency on individual cars in order to have

a job. This analysis considers that individuals in low SES may not have access to reliable

transportation, therefore may need employment closer to home.

My project began as a research question that asked whether areas in Tacoma with high

unemployment and/or poverty rates are under-served by access to transportation and

employment. I planned to research specific neighborhoods in Tacoma with high unemployment

and/or poverty and identify commercial zones with empty parcels within walking/biking distance

of these neighborhoods that can be developed to create jobs. My goal was to alleviate high

unemployment and advocate walking and biking to work, especially by those who live in areas

of concentrated poverty and unemployment. Once I began researching these urban issues more, I

decided to shift my focus from poverty and unemployment to several variables that make up an individual's socio-economic status.

I started this project wanting to address unemployment and poverty because it can often become concentrated in an area due to a lack of employment opportunities and lack of individual mobility (Wilson, 1994). Wilson argues that lack of employment opportunity in a poor neighborhood also exacerbates social and economic problems that go beyond the singular neighborhood (Wilson, 1997). This project is meant to intervene with urban issues that can drive a neighborhood into decline and concentrated poverty by bringing employment opportunities into those neighborhoods. These areas of concentrated poverty and joblessness that Wilson wrote about are mainly in the inner-city, not in the suburbs. One reason these areas have no jobs is because the "American Car Culture" has increased mobility for individuals and "decentralized" jobs into areas outside of the city (Jackson, 1985). Human dependency of a car has grown over the last several decades, and it is useful but can often only be accessed by individuals who are in the middle or upper class. Individuals in poverty or low SES cannot always access a car therefore they cannot easily access jobs that are outside of their neighborhood. Suburban sprawl has created neighborhoods that are declining more into low-income neighborhoods with little resources (Steuteville, 2004).

Some solutions to urban issues of concentrated poverty and joblessness are mixed use, urbanization, and New Urbanism. New Urbanism is an urban planning method that focuses on keeping a neighborhood "walkable" so that residents can access all of their needs on foot (Calthorpe, 1993). Calthorpe argues that suburban sprawl does not align with American culture anymore and creates dysfunctional growth patterns. New Urbanism is his answer to sustaining

ecology, affordability, equity, and technology in a neighborhood. Huber argues for dense,

compact, urban cities that are walkable because they are environmentally sound and sustainable

(Huber, 2000). During the final planning stages of my project I found articles and theory that

suggested New Urbanism could gentrify an area (Curran, 2007). This led me to also identify

industrial parcels in my analysis in order to bring some light industrial work to distressed

neighborhoods. Aside from theory on New Urbanism there are scholars who promote

walkability of a neighborhood through mixed use development. Kelly argues for mixed use

development because it promotes walkability of a place, which can increase commercial success

and community-building through more social interaction (Kelly, 2004).

Wang & Minor conducted a GIS study of the spatial mismatch of jobs and people (2002).

They found that there are many factors affecting an individual's ability to access jobs, such as

education, discrimination, and distance that affect one's choice whether to take and keep a

legitimate job. These findings led me to shift my focus from individuals in poverty and high

unemployment to individuals affected by several variables that make up one's socio-economic

status. I gathered 2000 Census data on eight variables: poverty, unemployment, race, education

(high school diploma attainment rate), linguistic isolation (non-English speaking

residents/households), single mother households, and plumbing and kitchen facilities.

For the rest of my analysis I needed spatial data, tabular data, shapefiles and rasters. I

obtained Pierce County block group polygons from www.census.gov in order to create a

geography of SES across Tacoma. In order to find how far an individual could travel on bike to

reach a job I obtained shapefiles of bike paths and bike ways from the City of Tacoma. For a

walking analysis I obtained a Tacoma street shapefile from WAGDA (Washington Geospatial

Data Archive). I also downloaded Tacoma tax parcel polygons and land use attributes from

WAGDA. A classmate in the GIS Certificate program shared Tacoma zoning polygon data with

me for further parcel analyses. The final two pieces of data needed were a Pierce County base

map and a City of Tacoma boundary, both obtained from previous labs in the GIS program.

All of my data was contained in a geodatabase and feature datasets set to 'NAD 1983

HARN StatePlane Washington South FIPS 4602 Feet' coordinate system. I started my map with

Pierce County block groups and clipped them down to the Tacoma boundary. All data was

clipped to Tacoma, except for the Pierce County base map which was used for 3D visualization.

Census SES data was joined to block groups in ArcMap and turned into an index of SES by

standardizing each variable into a standard score (z-score). Each z-score was created by first

calculating the rate of each variable (occurrence divided by population), then calculating the

mean and standard deviation of each variable. Using these three calculations I performed the

following formula to find each variable's z-score: ((Rate – Mean) / Standard Deviation). Once

each z-score was calculated, a new field was created called "SES Index". Using the field

calculator, each variable's z-score was added to create a final SES score for each block group.

At this point I had an SES Index of Tacoma that could be visualized in several ways.

The original goal of this project was to perform a Hot Spot Cluster Analysis in order to

find neighborhoods of the lowest SES in Tacoma. However, I found that the cluster analysis did

not provide much insight into clusters of neighborhoods with low SES. I discovered that in

creating a field for each block group's SES Index score I had done the work of the Hot Spot

Analysis. Because the SES Index was created I decided to do an interpolation of the block group

scores. First I converted the block groups into points using the Feature to Point tool. I then

performed an IDW Interpolation from the Spatial Analyst toolbox. The interpolation created a raster surface that classified SES in Tacoma into 6 classes. Using the Re-Classify tool I set the classification to only two classes based on their SES Index score; high (-4 to 4.9) and low (4.9 to 12.99). In this analysis the positive score indicates low SES, 12.99 being the lowest. I now had a raster of Tacoma classified into either highest or lowest SES. I used the Raster to Polygon tool in order to extract polygons of the two neighborhoods with the lowest SES in Tacoma. These two neighborhoods are Hilltop and Salishan.

The next step was finding parcels that could be developed into jobs that are within walking and biking distance of these two neighborhoods. Using the Create Random Points tool I created 10 points that I designated as start points for a resident's journey to work. I built two network datasets, one walking network and one biking, by creating a few fields to calculate "WalkTimeMinutes" and "BikeTimeMinutes". I then used Network Analyst to create a walking service area for each neighborhood to see where a resident could walk in 10, 15, and 20 minutes, and a biking service area for 10 minutes. These service areas were exported so they could be saved as polygons, a necessary component to perform parcel analyses of each neighborhood.

Using several SQL queries I found vacant industrial and commercial parcels within each neighborhood's walking and biking networks. This was made easier by first adding three fields to the parcel attributes table; "Commercial", "Industrial", and "Vacant". Each field was filled with a "0", meaning no, or a "1" meaning yes. The parcel analysis of Hilltop found many vacant parcels, however analysis of Salishan found very few vacant parcels. At this point I decided to perform another parcel analysis to identify under-utilized parcels within Salishan's biking and walking network. This was done by obtaining zoning polygons from a classmate, importing

them into my feature dataset, and adding them to my map. Again using SQL queries I found

parcels that were within specific zoning polygons but were being used for another purpose. Here

the fields marked "0" and "1" were again helpful in finding parcels that were in a commercial

zone but were not being used commercially.

The results of this GIS analysis identified Hilltop and Salishan as the two neighborhoods

with the lowest SES in Tacoma. Parcel analysis of Hilltop found many vacant commercial and

industrial parcels that can be developed into potential job opportunities for residents. Parcel

analysis of Salishan found hardly any vacant parcels, however there are many parcels that are

zoned for commercial or industrial use but are being used in other ways. These parcels could be

re-purposed and developed into employment opportunities for residents.

I am pleased with the results of my project in total. My results represent a spatial

mismatch of low SES neighborhoods and jobs available within walking/biking distance. I'm

happy that I extended my parcel analysis to identify parcels that were under-utilized because it

allowed my project to provide more useful information. In my initial project plan I wanted to

digitize sidewalks within my two neighborhoods of low SES, but time constraints would not

allow it. I used Tacoma streets for my walking service area of each neighborhood; however the

walking network may not be accurate because there are many areas of Tacoma where there are

not complete sidewalks, especially in lower-income neighborhoods. I would have liked to focus

on more urban issues besides unemployment, such as access to education, healthcare, and state

assistance, but time constraints would not allow such analysis and some of this data is not

accessible. I had planned on including car ownership census data but was unable to find this

data. I would have liked to use 2010 Census data but this data is not available at the block group

scale yet. In the future I would like to update this analysis with more current data.

I designed this project to promote the idea of creating jobs within a city for economic revitalization, not developing outside of the city. I am also advocating less individual car use, more walking and more bicycling within the city. This project is intended to be used by transportation planning, housing authorities, economic development planning, community development, and unemployment offices in the city of Tacoma. My project is relevant to these audiences and utilized as a resource for determining what areas in Tacoma are in need of economic development. I am taking this resource a step further by then pinpointing future development sites based on vacant and under-utilized parcels being in or near areas of low SES.

Works Cited

Adler, Nancy E. and Alana Conner Snibbe. "The Role of Psychosocial Processes in Explaining the Gradient Between Socioeconomic Status and Health." *Current Directions in Psychological Science*, Vol. 12, No. 4 (Aug., 2003): 119-123.

Curran, Winifred (2007). 'From the Frying Pan to the Oven': Gentrification and the Experience of Industrial Displacement in Williamsburg, Brooklyn. *Urban Studies, Vol. 44, No. 8,* 1427-1440.

Calthorpe, Peter (1993). *The Next American Metropolis: Ecology, Community, and the American Dream*. New York, New York: Princeton Architectural Press, Inc.

Elliott, Donald L. (2008). A Better Way to Zone. In *A Better Way to Zone: Ten Principles to Create More Livable Cities* (pp. 137-211). Washington, DC: Island Press.

Hanson, Susan and Hanson, Perry (1981). The Travel-Activity Patterns of Urban Residents: Dimensions and Relationships to Sociodemographic Characteristcs. *Economic Geography, Vol. 57, No. 4,* 332-347. Retrieved from http://www.jstor.org

Huber, Peter (2000). How Cities Green the Planet. In Hallowell, Christopher & Levy, Walter (Eds.), *Listening to Earth* (pp. 53-63). New York: Pearson Longman.

Jackson, Kenneth T. (1985). The Drive-in Culture of Contemporary America. In *The Crabgrass Frontier: The Suburbanization of the United States* (pp. 246-271). New York: Oxford University Press, Inc.

Kelly, Stephanie B. (2004). *Community Planning: How to Solve Urban and Environmental Problems*. Lanham, Maryland: Rowman & Littlefield Publishers, Inc.

Steuteville, Robert (2004). New Urban Neighborhoods Make Big Gains. *New Urban News, 9(1): 1, 3-6.* Retreived from http://newurbannetwork.com

Wang, Fahui and Minor, W. William (2002). Where the Jobs Are: Employment Access and Crime Patterns in Cleveland. In *Annals of the Association of American Geographers, 92 (3),* 435-450. Retrieved from http://www.jstor.org

Wheeler, Stephen (1998). Planning Sustainable and Livable Cities. In LeGates, Richard T. & Stout, Frederic (Eds.), *The City Reader* (pp. 499-509). London and New York: Routledge.

Wilson, William Julius (1994). Citizenship and the Inner-City Ghetto Poor. In van Steenbergen, Bart (Ed.), *The Condition of Citizenship* (pp. 49-65). Thousand Oaks, CA: Sage Publications.

Wilson, William Julius (1997). From Institutional to Jobless Ghettos. In *When Work Disappears: The World of the New Urban Poor* (pp. 3-24). New York: Vintage Books.