Using PNCIS Data to Model Vacancy, Crime, and Property Taxes in the CONNECT Region

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About this Report

This report was created by: Matthew Cmar, Timothy DiSalvio, Keith Dougall, and Jennifer Knapp Rioja as a final capstone project for the Graduate School of Public and International Affairs (GSPIA) at the University of Pittsburgh.

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Introduction:
The Effects of Vacancy in the CONNECT Municipalities

One of the primary challenges facing local officials in the Pittsburgh region is that of vacant property. Unattended residential and commercial lots, unclaimed parcels, and undervalued sites strain the revenue stream for local governments and school districts. The CONNECT communities, which are those that share a municipal border with the City of Pittsburgh, are certainly not immune to challenges related to vacancy.

This analysis of vacancy rates in the CONNECT communities examines the effects of unattended property on a community and its neighboring municipalities through two key indicators. Through examining the relationship between vacancy and crime, as well as vacancy and local property tax millage rates, this report attempts to uncover some of the negative effects that vacancy has within CONNECT municipalities. Furthermore, using the information obtained through vacancy data rates, vacancy challenges are also examined between municipalities, in addition to within. These two indicators, along with the question of whether high vacancy rates have a tendency to cross municipal borders into neighboring communities, three hypotheses have been formulated:

1. A positive, statistically significant relationship exists between total vacancy rates and violent crime rates within municipal borders.

2. A positive, statistically significant relationship exists between total vacancy rates and local property tax rates measured in total tax mills.

3. High vacancy rates are evident across municipal borders; both between borders shared with the City of Pittsburgh, as well as between CONNECT communities. Thus, areas of high vacancy are likely to be clustered together in pockets.

Through the application of a literature review, visual analysis through GIS mapping, a thorough explanation of data obtained and a rigid statistical analysis of variables, this report aims to attribute a causal relationship between vacancy and other municipal challenges.

Literature Review

Vacant property is easily described, but hard to define exactly. As site visits were not practical for the scope of this assignment, the study group defined a vacant property as one which is uninhabited and exhibits at least one of the following additional factors:

- Disconnected utilities
- Owed back taxes or property liens
- Suspension of U.S. Mail deliveries

In a report which details the costs of vacant properties to communities, the National Vacant Properties Campaign (NVPC) noted vacancy can include (National Vacant Properties Campaign, 2005):

> boarded-up buildings; unused lots that attract trash and debris; vacant or under-performing commercial properties known as greyfields (such as under-leased shopping malls and strip commercial properties); and neglected industrial properties with environmental contamination known as brownfields. The NVPC also monitors deteriorating single-family homes, apartments with significant housing code violations, and housing that remains vacant for long periods of time, as these are indicators of future vacancy and abandonment.

Academic research confirmed that vacant property has significant detrimental effects on the community, including "lowering property values, creating serious environmental hazards, draining our inadequate police and fire services, and pulling apart the social networks of our neighborhoods." (National Vacant Properties Campaign) While these issues would be problematic in any community, they seem especially serious in many of the CONNECT communities; many of these municipalities lack both the manpower and resources to adequately address the issues raised by vacant and abandoned property. Thus, the literature

review was conducted to determine the worst effects of vacancy and possible solutions being employed by other cities and regions in the United States.

Effects of Vacancy

Perhaps the easiest-understood detrimental effect of vacancy is lowered property values: no homeowner wishes to live next-door to a structure which has fallen into disrepair, or is surrounded by weeds and trash (or worse.) Yet, thousands of homeowners deal with this situation daily; in Pittsburgh alone, the 2000 Census counted over 19,600 vacant homes in the City (City of Pittsburgh). Uncertainty over what will happen with a vacant or abandoned structure discourages in-migration to a neighborhood, while unauthorized uses (for crime or by squatters) attract the attention of police and serve to further destabilize communities. In a 2005 report, the National Vacant Properties Campaign wrote that "[i]n a 2001 study, researchers from Philadelphia found that houses within 150 feet of a vacant or abandoned property experienced a net loss of $7,627 in value," (National Vacant Properties Campaign, 2005). Effects were also noted to houses as far away as 450 feet from the vacant property. As the numbers of vacant properties increase, values continue to fall, until a point is reached that "the cost of maintenance and operation exceeds the apparent value of the property" and the majority of homes on a block become vacant (National Vacant Properties Campaign, 2005).

Vacant blocks affect a city's bottom line: lower property values decrease the amount that can be collected through property taxes. This problem (high abandonment, low revenues) is perhaps the most significant problem for many of the formerly manufacturing-dependent CONNECT communities; without high-wage employment, homes remain abandoned with little hope of their return to full occupancy. Acquisition of abandoned properties by municipalities

would allow for these structures to be rehabilitated and returned to the tax rolls, but the process is difficult; the condemnation process and title acquisition typically require a formal court process and can take years to complete. In addition, few private contractors are interested in rehabilitation of properties that are unlikely to gain significant value (National Vacant Properties Campaign, 2005).

Another major detriment of property vacancy and abandonment noted in the literature is increased taxpayer costs. These costs manifest themselves in several ways, from the cost of supplies for "securing buildings against criminal activity," to proactive maintenance which "prevent[s] a buildup of trash, illegal dumping, and rodent infestations," (National Vacant Properties Campaign, 2005). Additionally, services such as building inspections or police response to illegal activity at an abandoned property come from taxpayer dollars. Meanwhile, the National Vacant Properties Campaign report found that over 12,000 fires in vacant structures are reported each year, resulting in $73 million in property damage. The main causes of fires in these structures are poor maintenance, faulty wiring, and debris. It is estimated that 6,000 firefighters are injured each year responding to fires in vacant buildings (National Vacant Properties Campaign, 2005).

Solutions to Vacancy

Finding workable solutions to the problems of vacancy has been difficult. In looking at ways to address vacancy, John Accordino and Gary Johnson found that "[m]ost cities lack adequate economic incentives for ensuring that properties are maintained or improved." Further, they find that (Accordino & Johnson, 2002):

> Most state laws severely constrict local government action and thus, protect the individual property owner at the expense of the surrounding community… In many states, the acquisition and sale process for tax delinquent properties is long and tortuous. Localities generally cannot initiate the tax sale process until a property has been tax delinquent for a number of years (two in some states; four or more in others)."

One initiative that has seen some success in fighting vacancy and its effects is the Neighborhoods in Bloom program in Richmond, Virginia. Designed to combat high crime rates in targeted city neighborhoods, Neighborhoods in Bloom brought together various stakeholder groups, including community development corporations, code enforcement agents, city council and the police department to reduce crime. **"**In the first three years of the initiative, the targeted neighborhoods experienced a 19 percent reduction in crime compared to a 6 percent reduction citywide," (National Vacant Properties Campaign, 2005).

Another policy solution that has been used successfully in Michigan is reformed foreclosure law. As stated previously, in most jurisdictions foreclosure and property acquisition is a drawn-out process; Public Act 123, passed in 1999, "enables county and state governments to reclaim properties in two years with a clear title judgment." Prior to Public Act 123, the property acquisition process could take up to six years in Michigan (National Vacant Properties Campaign, 2005). The idea behind the act is that municipalities would be able to intervene more quickly to address issues of deterioration and blight, preempting vacancy from occurring.

It is clear from the literature that no one policy or program will cure vacancy and stop its spread. Cheap, undeveloped land in the suburbs will likely always be less expensive than a comparable amount of land in an urban area; thus the "hollowing-out" of urban areas is likely to continue, at least in the near future. The solution to addressing vacancy is creativity and

cooperation: municipalities must work with neighbors, as well as higher levels of government, in order to pool resources toward this issue. In report for the Brookings Institution, Michael A. Pagano and Ann O'M. Bowman state (Pagano & Bowman, 2000):

> In sum, if urban areas are going to attract major development, they must recognize the need for innovative policy options for assembling and improving parcels of land and making these parcels available to responsible users. Cities need to consider a range of aggressive and entrepreneurial policies, including governance reform, foreclosure and eminent domain, state and local tax reform, urban renewal designations, special redevelopment institutions, subsidies for brownfield redevelopment, information improvements and systems development, local planning, and annexation and growth management policies.

Visual Analysis

In an effort to obtain a complete picture of housing and crime conditions within the CONNECT community, a variety of sources had to be consulted and multiple tests were conducted.

Vacancy

Our source for vacancy data was the Pittsburgh Neighborhood and Community Information System (PNCIS). The initial data was of vacancies from the third quarter of 2009. The data lists vacant properties as being either vacant or no-stat addresses. Vacant addresses are those that have not been collecting mail for at least 90 days. No-stat addresses could mean a variety of different things. For the purposes of this study, however, we can safely assume it is for one of two reasons due to the urban nature of the region:

- Address of a business or home under construction and not yet occupied;
- Address in an urban area identified by the postal carrier as not likely to be active for some time.

From there, we narrowed the data down into our definition of vacancy. For the purposes of this study, vacant properties are defined as those listed by the United States Postal Service (USPS) as being either vacant or no-stat addresses for one year or more. By doing this, we eliminate short term vacancies and can get a clearer picture about areas that are struggling with vacancies.

When looking at Allegheny County as a whole, there is no clear picture painted by the combination of both vacant and no-stat addresses. The average vacancy plus no-stat rate for the County as a whole was approximately 7%.

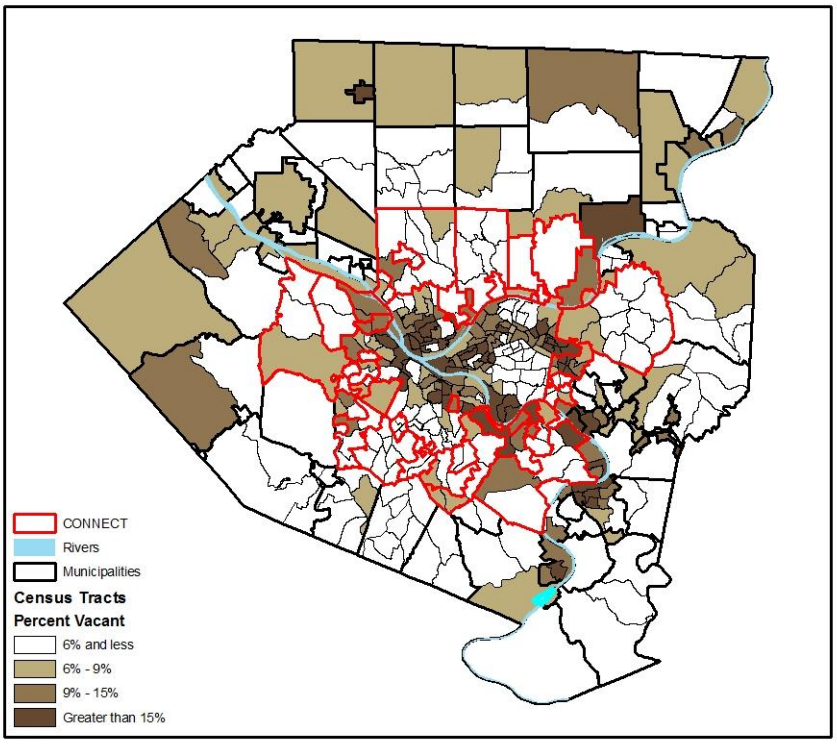

Figure 1: Vacancy plus No-Stat Rates for Allegheny County

Using the average rate as a baseline, we split the County into four categories: low (0-6%), average (6-9%), above average (9-15%), and high (greater than 15%). Examining Figure 1, it becomes apparent that the highest figures for vacancy plus no-stats are mostly concentrated within the City of Pittsburgh.

However, several issues arise when examining the map and the vacancy distribution. The inclusion of no-stat addresses means different things in different areas of the County. While it is true that in the City of Pittsburgh a no-stat is more likely to be a truly vacant property. In the outer ring municipalities such as North Fayette, these are much more likely to include new construction that does not fit into the category of a “problem” vacancy.

If we are to remove no-stat addresses from the equation, we begin to see a different picture emerge. The average vacancy rate for the County as a whole drops to 3.7%. With this change, we must also recalibrate the scale. Our categories for vacancy rates now become low (0-2.5%), average (2.5-5.0%), above average (5-10%), and high (greater than 10%).

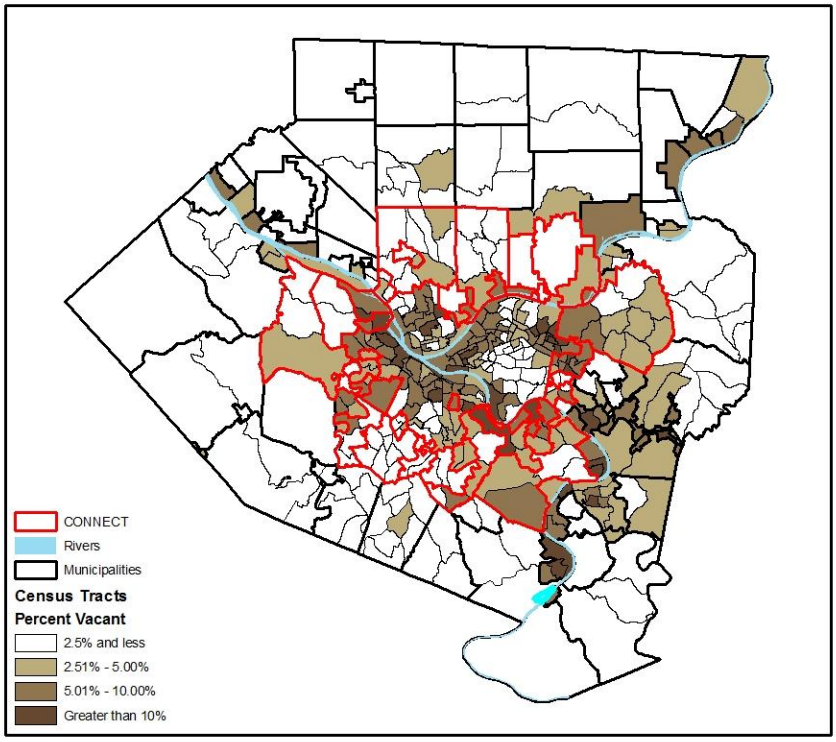

Figure 2: Vacancy Rates without No-Stat Addresses for Allegheny County

Once this adjustment is made, a very different pattern of vacancy emerges of the vacancy problem. By removing the no-stat addresses, the vacancy problem appears to be centered around the City of Pittsburgh and extending into the inner-ring suburbs (as well

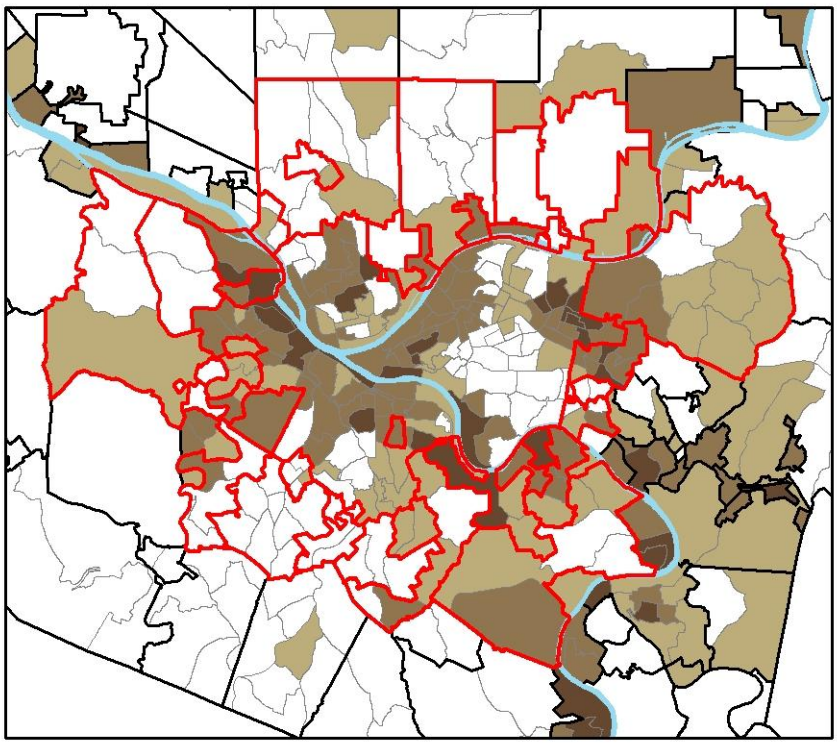

Figure 3: CONNECT Vacancy Rates

as continuing along the rivers and to the eastern suburbs).

Figure 3 shows the same map and vacancy rate scale as Figure 2, but zoomed in to the CONNECT communities to provide a closer look at the vacancy picture within the study area. What becomes apparent from this view is that there are areas where the vacancy problem seems to move across municipal boundaries.

Several areas show this possible cross-border problem. One such region is the intersection of the City of Pittsburgh, Penn Hills, and Wilkinsburg. Every census tract along the border of those three areas is ranked as having at least above average vacancies. Several tracts in the City of Pittsburgh and Wilkinsburg also rank as high. However, within Penn Hills, the eastern half of the municipality all ranks as either low or average. A similar pattern can also be seen on the opposite side of the CONNECT region within the west end of the City of Pittsburgh, McKees Rocks, and Stowe Township.

Foreclosures

Using PNCIS foreclosure data for 2008, we get a very similar picture of the vacancy problem in Allegheny County and the CONNECT municipalities. With ArcGIS's Spatial Analyst Tools, we are able to generate a "heat map" showing where the greatest concentrations of foreclosures have been. Figure 4 shows the results. The original PNCIS data was a point map showing all foreclosures that occurred in 2008. The resulting map shows the density of those points.

We can see that the highest concentrations of foreclosures are all within the City. However, we again see that the problem areas can extend across municipal borders. In the City of Pittsburgh/Wilkinsburg/Penn Hills border region, we again observe a trend across all three municipalities. As with the vacancies by census tract, we again observe the concentration decreasing in Penn Hills the further one gets away from the border region. The same trend is again observed in the west end neighborhoods of Pittsburgh and extending into McKees Rocks and Stowe.

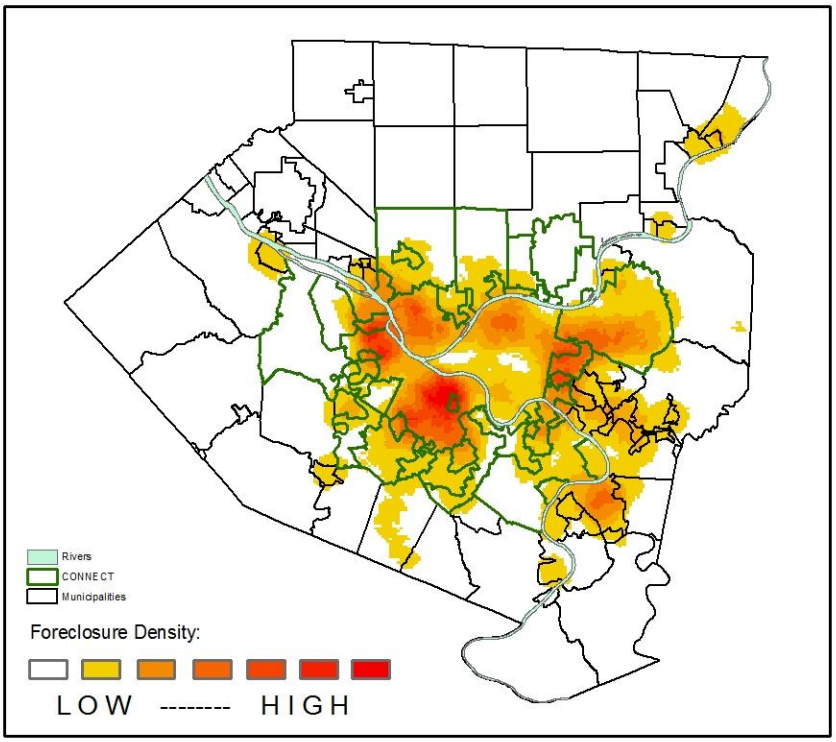

Figure 4: 2008 Foreclosure Density in Allegheny County

Foreclosures, much like vacancies, seem to be more of a problem in the inner-ring suburbs and the City of Pittsburgh. While there are isolated pockets outside of these communities, foreclosures are more prevalent in the CONNECT communities than the surrounding municipalities.

Crime and Vacancy

In examining our hypothesis that high vacancy rates are correlated with high rates of violent crime, it was important to obtain a visual representation of these two data points. The same scale was used for vacancy rates in the CONNECT municipalities as was used previously.

Crime statistics were gathered at the municipal level from the Pennsylvania Uniform Crime Reporting System. Without access to actual police records or data, it is not possible to ascertain block level data for violent crimes.

Using the Pennsylvania 2008 average violent crime rate per 1,000 persons of 4.1 as our baseline (Federal Bureau of Investigations, 2009), we established a three-tiered ranking system. The municipal crime rates are low (3.0 and less), average (3.1 – 5.0), and high (5.1 and greater).

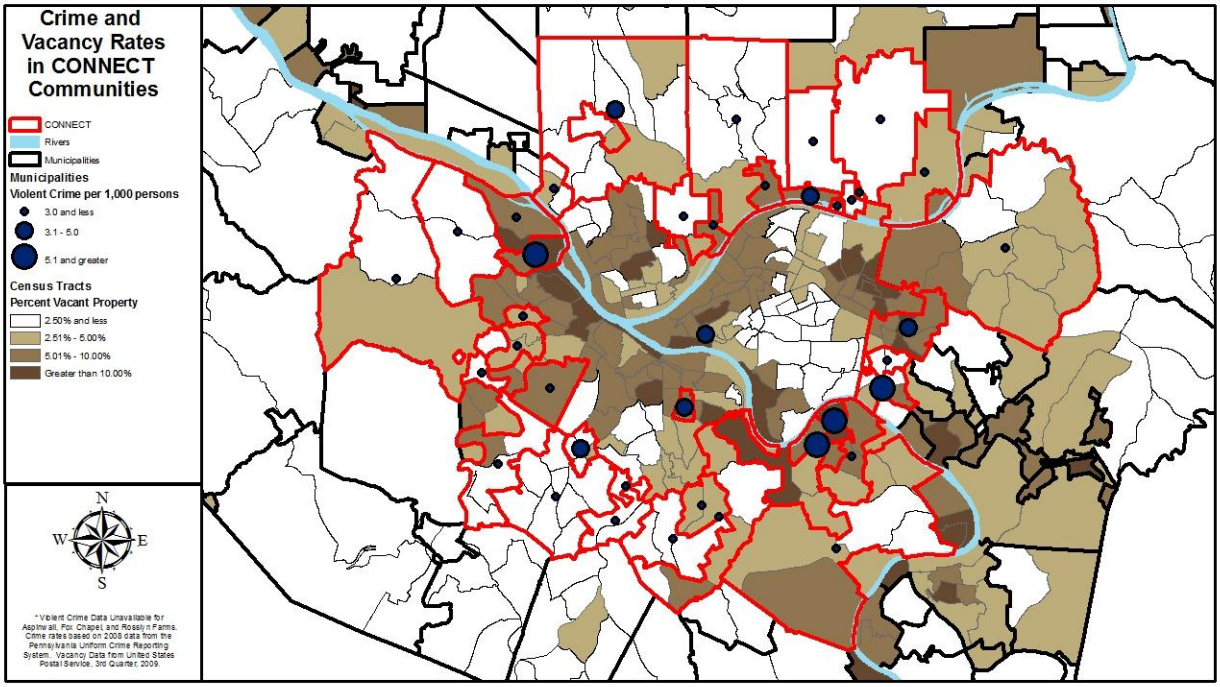

Figure 5: Crime and Vacancy Rates

Using this analysis, we can see that only 4 municipalities rank as "high" in violent crime: Homestead, McKees Rocks, Swissvale, and West Homestead. When the tract level vacancy data is aggregated to the municipality level, only Homestead (12.0%) and McKees Rocks (10.5%) rank

as “high” in that category in addition to violent crime. West Homestead (5.9%) ranks as “above average,” while Swissvale (3.8%) ranks as “average.”

Statistical Analysis – Crime and Vacancy

Is crime higher in places where there is higher vacancy?
No; in CONNECT municipalities, violent crime rates and vacancy rates are not correlated in a statistically significant way.

Definitions

Crime Data

The crime data came from the Pennsylvania Uniform Crime Reporting System (UCRS), a statewide database of reported crimes. The UCRS is administered and maintained by the Pennsylvania State Police. Individual police jurisdictions across the state are responsible for reporting their own data to the UCRS through the standardized reporting system (Pennsylvania State Police, 2010). Crime data for each of the CONNECT municipalities for the year 2008 was obtained from the UCRS for analysis.

Crimes Analyzed

In our analysis, we utilized the criteria set forth in the National Neighborhood Indicators Project and Local Initiatives Support Corporation Webinar on "Indicators of Neighborhood Quality" held on February 25, 2010. Violent crime statistics for the CONNECT communities, including street robberies, commercial robberies, homicides, and gun assaults from the Pennsylvania Uniform Crime Reporting System were analyzed. These crime statistics were

chosen for analysis given their perceptibility; that is, these types of crimes affect perceptions about a neighborhood (Walker, 2010).[1]

Crime data from the Uniform Crime Reporting System were only available at the municipality level. Further research could be completed if crime data could be disaggregated to specific building or block locations. At this smaller level, the crime data could be compared against vacancy data to create a hotspot/kernel analysis using geographic information system (GIS) software. Partnerships with individual police departments are needed to gain access to this type of specific, street-level data.

Police Spending

The amount that each municipality spent on funding their respective police departments was obtained through Dr. George Dougherty's analysis of municipal fiscal health. This data is from 2007 and while it provides an interesting analysis, given that the crime and vacancy data utilized comes from 2008, a far-reaching analysis is not possible. Further studies of crime, vacancy, and budgetary spending on public safety should be conducted with better-matched data. A better analysis would include data from a span of years, allowing for a more robust analysis.

[1] There were no crime statistics reported for the municipalities of Aspinwall, Fox Chapel, or Rosslyn Farms and so they were not included in the analysis.

Analysis

The violent crime numbers were matched with vacancy data for each CONNECT municipality and run through a regression analysis. Vacancy served as the independent variable with crime as the dependent variable. The regression analysis determined that there is no evidence suggesting that crime increases because of vacancy. The correlation between increased vacancy and increased crime is weak (r = 0.327). 10.7% of variance in crime can be explained by an increase in vacancy. The P-value for vacancy is 0.067 further proving that there is no evidence that higher vacancy is tied to higher crime.

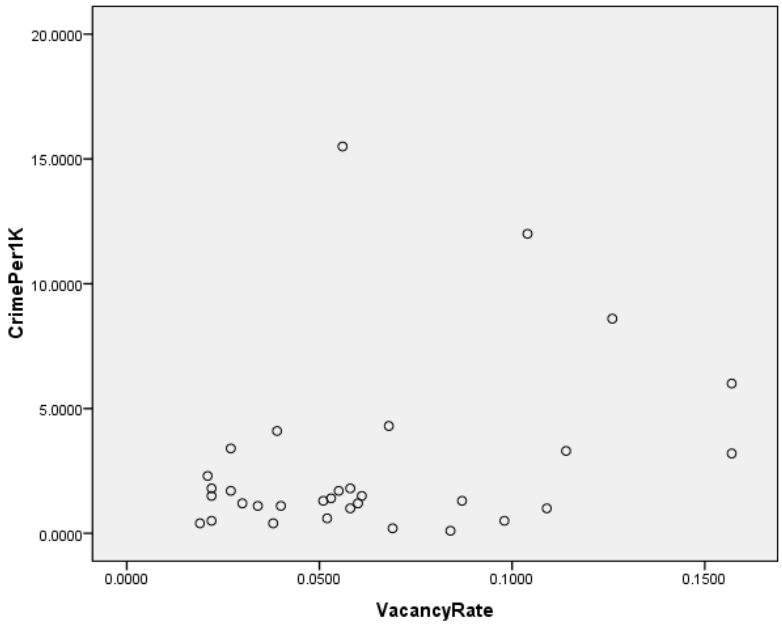

Figure 6: Scatter Plot of Crime and Vacancy Rates

Removing the "no-stat" addresses from the data and running a regression analysis again, however yields somewhat different results. In this analysis, higher crime rates and higher vacancy rates are weakly correlated (r = 0.369). 13.6% of the

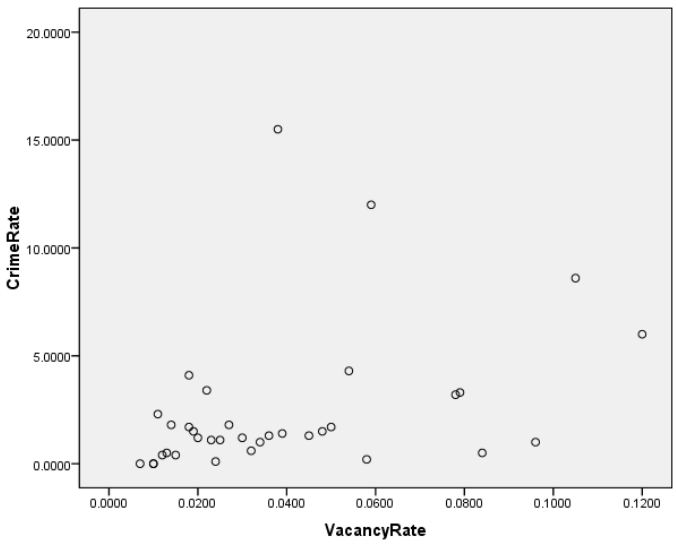

Figure 7: Scatter plot showing the lack of relationship between vacancy and crime without no-stat addresses included.

variance in crime can be explained by an increase in vacancy while the P value for vacancy is 0.029 showing that the relationship is significant at the 0.05 level.

Given our hypothesis, we expected to see the highest crime rate in Wilkinsburg Borough because it has the highest vacancy rate among the CONNECT communities under analysis. Wilkinsburg, however, did not have a crime rate high enough to rank even in the top five highest crime areas. Its crime rate put it at #9 out of 32[2] municipalities. Swissvale Borough is the municipality with the highest crime rate but ranks well outside the top five municipalities with the highest vacancy rates, coming in at #16. None of the municipalities with a high vacancy rate had a correspondingly noticeable high rate of crime.

CONNECT Municipalities with the Highest Crime Rate

Rank	Municipality
1.	Swissvale Borough
2.	West Homestead Borough
3.	McKees Rocks Borough
4.	Homestead Borough
5.	Sharpsburg Borough

CONNECT Municipalities with the Highest Vacancy

Rank	Municipality
1.	Wilkinsburg Borough Homestead Borough
2.	McKees Rocks Borough
3.	Mount Oliver Borough
4.	Stowe Township
5.	West Homestead Borough

Data Tables

Municipalities ranked in the top five of highest vacancy were matched with their actual crime ranks. Given our hypothesis, we expected to see the places with the highest vacancy at the top of the list of places with the highest crime rates. After running the regression analysis,

[2] The City of Pittsburgh was excluded from this analysis as our focus was on the CONNECT communities. The municipalities of Aspinwall, Fox Chapel, or Rosslyn Farms were also excluded because they did not report any crime data for 2008.

this proved untrue. Higher rates of crime and higher rates of vacancy are not correlated within the CONNECT municipalities.

CONNECT Places with the Highest Vacancy Rate with Actual Crime Rank and Police Spending Per Capita Included

Vacancy Rank	Municipality	Crime Rank	Police Spending Per Capita
1	Wilkinsburg Borough Homestead Borough	9 4	$143 $321
2	McKees Rocks Borough	3	$182
3	Mount Oliver Borough	8	$143
4	Stowe Township	24	$129
5	West Homestead Borough	2	$432

CONNECT Places with the Highest Crime Rate with Actual Vacancy Rate and Police Spending Per Capita Included

Crime Rate Rank	Municipality	Vacancy Rate	Police Spending Per Capita
1	Swissvale Borough	16	$125
2	West Homestead Borough	6	$432
3	McKees Rocks Borough	3	$182
4	Homestead Borough	2	$321
5	Sharpsburg Borough	11	$185

CONNECT Places with the Lowest Vacancy Rate with Police Spending Per Capita Included

Rank	Municipality	Police Spending Per Capita
1.	Mount Lebanon Township	$219
2.	Edgewood Borough	$317
3.	Shaler Township Kennedy Township Baldwin Township	$110 $81 $279
4.	Castle Shannon Borough Dormont Borough	$176 $185
5.	Ingram Borough	$118

CONNECT Municipalities with the Lowest Crime Rate with Police Spending Per Capita Included

Rank	Municipality	Police Spending Per Capita
1.	O'Hara Township	$166
2.	Greentree Borough	$305
3.	Mt. Lebanon Township; Whitehall Borough	$219; $154
4.	Shaler Township; Millvale Borough	$110; $101
5.	Baldwin Borough	$169

CONNECT Municipalities with the Highest Police Spending Per Capita with Actual Crime Rank Included

Rank	Municipality	Police Spending Per Capita	Crime Rank
1.	West Homestead Borough	$432	8
2.	Rosslyn Farms Borough	$395	[No Data]
3.	Homestead Borough	$321	9
4.	Edgewood Borough	$317	22
5.	Greentree Borough	$305	31

CONNECT Municipalities with the Lowest Police Spending Per Capita with Actual Crime Rank

Rank	Places with the Lowest Police Spending Per Capita:	Police Spending Per Capita:	Crime Rank
1.	Kennedy Township	$81	11
2.	Millvale Borough	$101	30
3.	Reserve Township	$103	28
4.	Shaler Township	$110	16
5.	Ingram Borough	$118	27

Include

Crime Analysis Conclusion

Given the regression analysis results, we find that there is no evidence to suggest that violent crime rates (incident of crime per 1,000 residents) are not correlated with vacancy rates in any of the CONNECT municipalities. The results were unexpected given that the body of literature regarding vacancy and crime suggests that other cities have found correlation between the two variables. Further, the literature suggests a vacancy reduction strategy as a method for combating crime; however, this does not appear to be a productive use of municipal resources. Nonetheless, our results reflect municipal definitions. Additional research is necessary to analyze sub-municipal levels (Census tract, neighborhoods) to determine if the relationship holds at smaller geographic levels.

Statistical Analysis – Vacancy and Property Tax Rates

Are property tax rates higher in places where there is higher vacancy?
No; in CONNECT municipalities, the relationship between vacancy and property tax rates is too weak to be considered statistically significant.

Definitions

Tax Data

Data relating to municipal revenues and local property tax rates in the CONNECT region was obtained from a municipal data set which was provided by Dr. George Dougherty. The data set contains extensive data on municipal revenue and expenditure sources in the CONNECT communities. For the data set, individual municipalities provided as much revenue and expenditure information as they could. Not all municipalities had available information for every data category. However, the 2007 total tax millage rates which are used in this analysis was a complete data set for all CONNECT municipalities.

Tax Information Analyzed

For the purposes of this analysis, local property taxes are defined as total tax millage rates for the year 2007. Tax mills are a form of expressing local tax rate on individual properties. Specifically, a mill is represented by 1/1000 of one dollar. Therefore, each mill represents $1 of tax per $1,000 of property assessment. It is using a specific municipal millage rate that the property tax owed on an individual parcel is calculated. For example, in a municipality with a millage rate of 15 mills, a property assessed at $100,000 owes $1,500 in

local property tax. Tax millage rate is used in this analysis because it is the standard municipal form of calculating individual property taxes.

Since millage rates are a standard for property taxes on a municipal level, municipal level data is sufficient. Unlike the case with crime statistics, where analyzing crime data on a block level may identify "hotspots", tax millage rates do not fluctuate within municipal borders. While property assessments may be analyzed on a smaller level, actual millage rate variation is not applicable on a smaller-than-municipal level.

Analysis

To test the relationship between vacancy rates and municipal tax millage rates, millage rates were analyzed with vacancy statistics for the entire CONNECT region. The data sets for each variable were examined through a simple regression, with vacancy rate serving as the independent variable and millage rate as the dependent variable. The results of the simple regression model indicate that the relationship between vacancy and millage rates is not statistically significant. While there is a weak, positive relationship between the variables, the P-value of .051 suggests a statistically

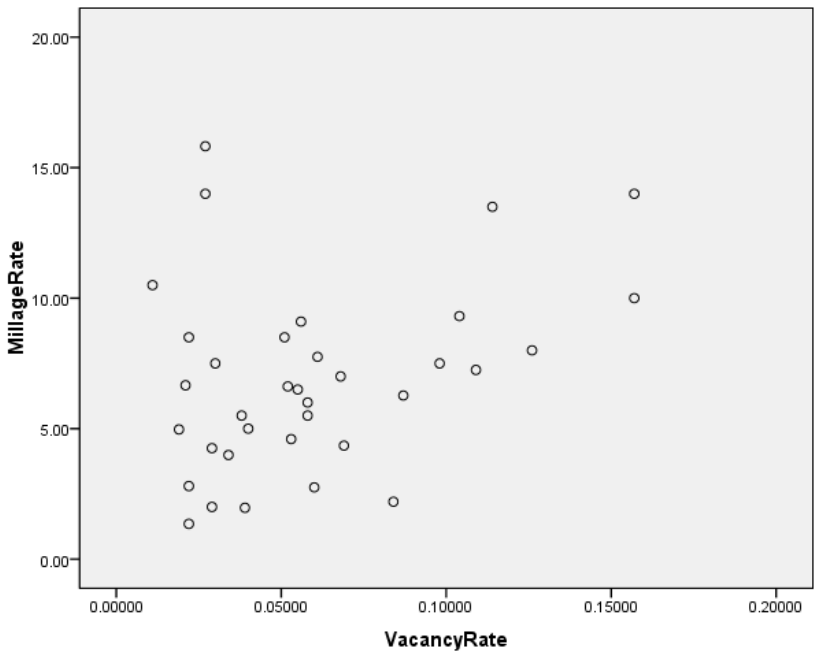

Figure 8: Scatter Plot of Millage and Vacancy Rates

insignificant relationship. However, it is important to note that despite the statistically insignificant relationship there is a very weak, positive correlation indicated by the scatter plot provided in Figure 8. Additionally, 11% of the variance in tax millage rate can be attributed to change in vacancy.

As was noted in the hypothesis, we expected to see the highest property tax millage rates in the municipalities with the highest residential and business vacancy rates. While the relationship has been found statistically insignificant, further examination provides more information. Interestingly, every municipality with a vacancy rate greater than 10% has a millage rate that is greater than or equal to 7.25. This would indicate that high vacancy does cause high property tax rates. However, there are select municipalities (Dormont Borough, Castle Shannon Borough and Rosslyn Farms) with vacancy rates below 3%, but millage rates greater than 10 mills. It is likely that these three municipalities greatly influenced the results of the regression analysis. Therefore, while none of the municipalities with the highest vacancy rates had comparatively low tax millage rates, select municipalities with very low vacancy rates have high tax millage rates. This is displayed in the following tables:

CONNECT Municipalities with the Highest Vacancy Rates

Rank	CONNECT Places with the Highest Vacancy Rates:
1.	Wilkinsburg/Homestead Borough
2.	McKees Rocks Borough
3.	Mount Oliver Borough
4.	Stowe Township
5.	West Homestead Borough

CONNECT Municipalities with the Highest Tax Millage Rates

Rank	CONNECT Places with the Highest Tax Millage Rates:
1.	Castle Shannon Borough
2.	Dormont/Wilkinsburg Boroughs
3.	Mount Oliver Borough
4.	Rosslyn Farms
5.	Homestead Borough

CONNECT Municipalities with the Lowest Vacancy Rates

Rank	Municipality
1.	Rosslyn Farms
2.	Mt. Lebanon Township
3.	Edgewood Borough
4.	Baldwin/Shaler/Kennedy Township
5.	Castle Shannon/Dormont Borough

CONNECT Municipalities with the Lowest Tax Millaae Rates

Rank	Municipality
1.	Kennedy Township
2.	Ross Township
3.	Fox Chapel
4.	O'Hara Township
5.	Robinson Township

CONNECT Municipalities with the Highest Vacancy Rates and Tax Millage Ranking

Vacancy Rank	Highest Vacancy Places	Actual Mills Rank
1	Wilkinsburg Borough	2
2	McKees Rocks Borough	11
3	Mount Oliver Borough	3
4	Stowe Township	15
5	West Homestead Borough	7

CONNECT Municipalities with the Highest Millage Rates and Actual Vacancy Ranking

Millage Rate Rank	Highest Millage Places	Actual Vacancy Rank
1	Castle Shannon Borough	28
2	Dormont/Wilkinsburg Borough	29/1
3	Mount Oliver Borough	4
4	Rosslyn Farms	35
5	Homestead Borough	1

When further analyzing the relationship between vacant property and tax millage rates, it becomes clear that differentiating between vacancy and "No Stat"

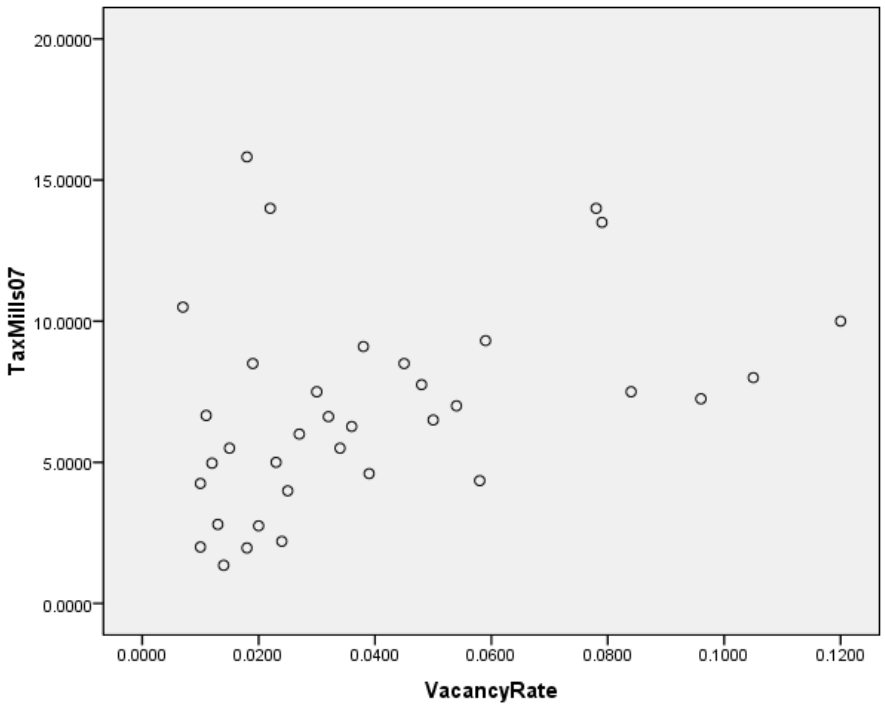

Figure 9: Scatter Plot of Millage and Vacancy Rates

properties changes the regression results. Upon running a simple regression using only "Vacant" property rates, rather than including "No-Stat" properties in the definition of vacancies, a statistically significant relationship was found. Specifically, the relationship was significant at the .05 level, with a P-value of .025. However, despite this higher correlation, only 14.3% of the variation in tax mills rates can be attributed to variation in vacancy rates when excluding "No-Stat" sites. This is denoted in Figure 9.

Property Tax Rates Analysis Conclusion

A simple regression model analyzing the relationship between total vacancy rates and property tax millage rates does show a very weak, positive relationship. However, it is imperative to note that the relationship is not statistically significant at the 5% significance level. While there are select municipalities that display low vacancy and high tax millage rates, the municipalities with the five highest vacancy rates all have millage rates that are higher than 7 mills. Statistically, since only 11% of the variation in tax millage rates can be attributed to changes in vacancy rates, vacancy percentages should not be considered one of the prime indicators of property tax rates in the CONNECT municipalities.

Recommendations

Crime

The crime data that we analyzed came from the Pennsylvania Uniform Crime Reporting System (UCRS) and was only available at the municipal level. For a more thorough analysis, further research should include more specific crime data. Partnerships with individual police departments should be cultivated so that crime data can include specific street-level data. This data would allow for a "hot spot" analysis of crime within communities and neighborhoods. A similar analysis was conducted by the National Neighborhood Indicators Project and Local Initiatives Support Corporation and presented in a webinar on "Indicators of Neighborhood Quality" held on February 25, 2010.

Property Acquisition Recommendation

Municipalities facing high vacancy rates which are straining tax revenue would be greater served by a streamlined property acquisition process. Streamlining the process of acquiring vacant parcels would aid municipal governments in combating the consequences of vacancy in a more timely and efficient manner. At the municipal level, having the ability to gain ownership of vacant property in a shorter timeframe with less administrative requirements will aid greatly in preventing further degradation of surrounding properties. However, it should be noted that the development and approval of such a process would need to take place on the state government level, in accordance with proper legal procedures.

Keystone Opportunity Zone Recommendation

Given that the relationship between higher millage rates in municipalities with higher vacancy rates exists, attracting economic development to these communities is a strategy to explore. One such existing program is the Keystone Opportunity Zone (KOZ) program. Distressed municipalities within the CONNECT region could investigate this program and assess whether or not it might beneficial to spurring development. Currently, no CONNECT municipalities with high millage rates contain a KOZ site.

The Keystone Opportunity Zone program is one that seeks to create an environment where business clamors to locate because of the development-friendly atmosphere. These zones are designed specifically to "induce firms to create jobs in particular areas by offering them relief from regulations and certain costs of doing business. Common tax incentives are property tax reduction, sales tax concessions, investment tax credits, and employer tax credits, but regulatory relief is rare," (Isserman, 1994). Needing to create a business-friendly atmosphere leads to lessened taxation and fewer regulations as the primary tools for economic development. The KOZ program was based on this model with the assumption that generally distressed neighborhoods and areas cannot attract necessary economic investment without incentives to the private sector (Legislative Budget and Finance Committee, 2009). Further, State Representative David Argall cites a 1982 survey in which business leaders regard regional taxes and the general tax burden as "very important" when deciding where to locate (Argall, 2006). KOZs are designated by the local community in which they are located and are approved by the state (Legislative Budget and Finance Committee, 2009).

The KOZ program legislation specifies that the sites are "defined-parcel-specific areas with greatly reduced or no tax burden for qualifying property-owners, residents, and businesses," (Legislative Budget and Finance Committee, 2009). The program is primarily administered by the Pennsylvania Department of Economic Development (DCED), which has final approval of the zone applications and is responsible for oversight (Legislative Budget and Finance Committee, 2009). Local governments and school districts must first give approval before a KOZ plan can be submitted to the state for final approval. Any tax benefits are time-limited; KOZ can receive them for up to twelve years (Argall, 2006). Municipalities considering KOZ sites should be cautious, however. KOZs can be successful engines for development but only with prior infrastructure development and adequate support of the developer.

Conclusion

Through an extensive examination of residential and commercial vacancies in the CONNECT region, we conclude that many of the municipalities with the highest vacancy rates are bordered by other municipalities or Pittsburgh neighborhoods that have a high percentage of vacant property. However, while a visual analysis of vacancy across municipal borders indicates a shared issue within certain pockets of the CONNECT region, violent crime and property tax rates do not correlate strongly with vacancy. Upon further statistical analysis we found that the removal of "No-Stat" properties from the statistical analysis of vacancy related to crime and property tax rates does display a stronger correlation. Utilization of available crime and municipal data, a literature review of related issues and a visual analysis of various factors related to vacancy have led us to these conclusions. Despite the fact that the removal of "No-Stat" properties from the simple regression models indicates a stronger correlation, further research is necessary to pinpoint factors that have the strongest causal relationship with the two dependent variables.

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