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Linking Social Capital to Disaster Recovery

by

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I. Introduction

Natural disasters like hurricanes, tornadoes, tsunamis and earthquakes cause a great deal of damage wherever they strike. Entire neighborhoods and communities can be destroyed in their wake. Buildings can fall to the ground; streets can become disfigured and ruined; and in more rural places, arable farmland can be destroyed. In many cases, these communities cannot be inhabited for many months after a disaster happens. The degree of destruction oftentimes makes it very difficult to have a successful rebuilding plan. Reconstructing houses, businesses, churches and supermarkets requires a lot of planning, physical resources and financial resources. Sometimes, the destruction is so great a community cannot be rebuilt. The damage to the infrastructure requires resources that the people who lived there cannot acquire to rebuild, so they just move away and relocate. These problems are usually seen as the major hurdles people must face when rebuilding their lives after a natural disaster (Yasui, 2007). The ability of a community to raise enough funds to rebuild its homes, businesses and other necessary infrastructure is mainly thought to be the deciding factor of whether a community has the ability to recover from a disaster that would cause the type of widespread destruction described above.

New research is emerging that suggests that another factor, a possibly stronger factor, could influence why and how a community rebuilds after a natural disaster. The question becomes not how many resources a community can pull in to solve their problems, but how do those people feel about the importance of their community. This sense of community and the desire to rebuild may be a major factor in the recovery of communities after a terrible natural disaster. This idea describes a new measuring tool for communities facing recovery after a natural disaster, and that tool is called social capital. Recent research on social capital and

disaster recovery claims that the physical damage done to a community does not affect its recovery rate as much as the people's feelings toward that community affect it. New research in this field of social capital is starting to provide evidence that a community recovers from a storm better if they have a higher social capital regardless of the actual physical damage done to that community.

This paper will delve into this new framework of research to determine if different neighboring communities affected by the same disaster recover differently from each other, based on varying levels of social capital. Parish-wide data will be examined in parishes in south Louisiana that were declared disaster areas following the landfall of Hurricanes Katrina and Rita and their after effects. Although studies have been done on social capital and disaster recovery before, they have either been focused on qualitative data (Hawkins & Maurer, 2010) which do not give strong statistical evidence of a community's level of social capital; have used quantitative methods but have used individual data (Chamlee-Wright & Storr, 2009) which do not represent community-level social capital; or have not studied this particular region and circumstance.

II. Literature Review

Social capital is a different way of looking at possible solutions to disaster recovery. Social capital is the networks and resources available to people (Aldrich, 2010). Comparing social capital to more well-known ideas of human and physical capital, which are tools and training to help individual productivity, "social" capital refers to social organization such as networks and social trust that allow people to coordinate and cooperate with each other for mutual benefit (Putnam, 1995). Networks can be described as how close are people in a

community to each other. Neighbors, who talk with each other, such as those who form neighborhood organizations and those citizens who actively participate in local elections, represent ways of measuring social networks in a community. Social resources can be measured by the level of trust in other citizens and government, the amount of time people spend on civic duties like voting and attending town hall meetings, and how much they participate in collective action like demonstrations, rallies and clean-up days (Aldrich, 2008). Social networks and social resources often blend together, but they describe the same basic idea of social capital. Robert Putnam, a leader on the theory of social capital, says that normal-working communities are much more productive and efficient in their duties to civilian welfare when there are high levels of social capital (Putnam, 1995). It would follow then that the same mechanisms that make regular communities better under normal situations would also make communities suffering after a disaster better able to recover. Daniel Aldrich, a pioneer in social capital research, has stated that communities with these stronger social ties can better bounce back after a disaster than isolated, fragmented ones (Aldrich, 2011).

The recovery of communities after Hurricane Katrina offers an excellent opportunity to study the role of social capital in recovery. On the morning of August 29, 2005, Hurricane Katrina made landfall in southern Louisiana. The category 3 hurricane, which was downgraded from a category 5 shortly before landfall, brought with it severe winds, record rainfall (14 in. within 24 hours), and floodwalls, which flooded 80 percent of the city of New Orleans with up to 5 meters of water (Kates, 2006). Just days later, Hurricane Rita hit, roaring through basically the same area, and compounding the damage and destruction. There is an estimated death toll of 1,570, most of whom were New Orleans residents. In Orleans Parish alone, there is an estimated aggregated money loss of around \$40-\$50 billion, which includes property loss, economic losses

because of closures, and emergency assistance (Kates, 2006). Because of these two storms, every parish in the state of Louisiana was declared a disaster area by the governor. Besides money, large populations were lost in many parishes in Louisiana. Immediately following the storm, the numbers were quite large with Orleans Parish losing 68 percent of its population and St. Bernard Parish losing 95 percent of its population (Frey and Singer, 2006). Although some residents returned in the later years following the storm, there are still significant losses in population in the areas of southern Louisiana because of Hurricanes Katrina and Rita.

The makeup of the various populations before and after the storms in Orleans Parish and surrounding areas makes studying the recovery process very interesting. In the damaged sections of the city of New Orleans, the population was 75 percent black and 29 percent that lived below the poverty line. In contrast to that, suburbs of New Orleans that were also affected by the hurricanes had populations that were 9 percent black and 10 percent living below the poverty line (Logan, 2006). This set of circumstances can lead to rigorous testing of arguments. The opportunity is there to study how social capital affects recovery while controlling for factors such as socioeconomic status that also are likely to influence rates of recovery.

Social science researchers have been quick to take advantage of the research opportunities provided by Hurricanes Katrina and Rita in order to more fully develop the understanding of social capital. Research by Chamlee-Wright and Storr (2009) examined the question of why people chose to come back to the New Orleans area. They asked the question of people in Jefferson Parish, Orleans Parish, and St. Bernard Parish. They found that 84 percent of respondents claimed that the reason they returned was because New Orleans has a set of unique characteristics not found anywhere else. Popular choices to these specific characteristics included the neighborhood, the people, the places and the food (Chamlee-Wright & Storr, 2009). They

also sent surveys out to displaced New Orleans citizens who remained in Houston following Hurricane Katrina. They found that just over half of those respondents claimed the reason they did not return was because New Orleans was just not the same as it was before the destruction of Hurricane Katrina. The researchers were able to make a strong case for social capital as the reason people came back to New Orleans. Displaced residents who returned did so because of the strength of the community relationship. The people who came back were found to believe that they had a special connection to the culture of New Orleans, and if they were living somewhere else, that part of them that linked them to the culture of New Orleans would not be filled.

These surveys are examples of the quantitative methods that have been used to measure social capital in some of the affected areas following Hurricane Katrina. While these studies provide an important starting point in examinations of how social capital functions in the post Katrina recovery, they do not paint a complete picture. Research, such as the work done by Chamlee-Wright and Storr (2009), is limited in its ability to be generalized in other various circumstances. The very uniqueness of the New Orleans culture makes generalizing its findings to other communities risky. What is needed is an examination of the role of social capital in communities across a broader geographical area.

A study done by Hawkins and Maurer (2010) uses face to face interviews to detail the role of social capital in the recovery of New Orleans. They used in-depth interviews of people who returned to New Orleans post-Katrina. Interviews were at first administered as life-history interviews, detailing what the family was like up to Katrina. After six months, another interview was administered to see if any changes had been made, how the recovery process was going, and if the family was offered any help or if they were helping others (Hawkins & Maurer, 2010). The

researchers mainly wanted to find out how different types of social capital were used by residents of New Orleans following Hurricane Katrina. They found that three types of social capital were instrumental in helping people recover after the storm. These three types are bonding social capital, bridging social capital and linking social capital.

Bonding social capital is when people were helped by others in their network of friends and family. Working together, people in similar situations can become stronger, especially knowing that they are not alone in their problems. The 40 families that were interviewed during this study pointed out that because everyone had similar problems, they were able work together to solve their problems, overcome obstacles, and rebuild their lives. Receiving support emotionally and financially from friends and family was very important for those people rebuilding after Hurricane Katrina.

Bridging social capital deals with assistance that was given across social, geographic and racial lines. Charities, non-profit organizations and other volunteers who helped those families rebuild were very important as well. Those types of connections were shown to provide essential resources for families. “This type of bridging social capital is common and indispensable following disasters, both natural and manmade. In addition to aid and support proffered within New Orleans, as evacuees left the city, some for the first time ever, they were introduced to new ideas, people and ways of life” (Hawkins & Maurer, 2010).

The third type of social capital Hawkins and Maurer find is linking social capital. This is where people in charge and in control use their influence, advantage and connections to assist others, sometimes unexpectedly. The use of linking was seen as local government officials stretching laws and regulations to help citizens receive more resources to help build. Businessmen in the area were also cited as giving large donations of money and supplies to

citizens during the time following the disaster. These connections certainly were crucial to many people looking to rebuild their lives after the storm. Apart from these three specific types of social capital, this study also showed the researchers that residents display a connection to New Orleans that transcends mere geography and represents a peace of mind that is centered within the people and communities...Social capital helps to maintain this security and operates within a social-psychological manner consistent with the context of disaster research (Hawkins & Maurer, 2010).

Hawkins and Maurer's study gives great detail to the types of social capital that can be useful following a natural disaster and is an excellent example of qualitative research. Unfortunately, the process of in-depth interview usually limits researchers to a very small number of observations and once again leaves researchers wondering about generalizability. Hawkins and Maurer's research leave scholars wondering how much social capital is prevalent in New Orleans, do the other communities that were affected by Hurricane Katrina possess similar levels of social capital, and whether there is variation in social capital within a single city. This study is an example of how qualitative data, while useful, can fall short of giving public policy makers the tools to assist communities in building social capital in order to maximize recovery efforts.

III. Theory and Hypotheses

Quantitative data can be collected parish-wide across multiple parishes, and statistical analyses can be made to link social capital and recovery. This data can be used to show that focusing on infrastructure and financial rebuilding is not what most public policy makers should focus on when facing a post-disaster situation. Instead, the social capital of the community and

the people within that community should be the focus of policy toward disaster recovery and preparedness. Oftentimes governments and other helpful people are focusing on helping residents by rebuilding the infrastructure, their homes and businesses. Although this is important, many researchers of social capital point out that there is a need to focus on developing the social capital of these people prior to and after the disaster. There are many policy initiatives that can be passed to enhance and build local networks, so people can feel more secure before a disaster, and so they can have more available resources after a disaster. Policies can create incentives for local community participation. Aldrich points out that encouraging citizens to work at homeless shelters, build new housing projects, and volunteer at elderly homes can increase social capital. Local-level organizations can also be created that would merge low-and-higher-income children together, creating bonds with their families. These organizations could include athletic recreational parks, community theater centers, and other types of playgrounds and parks where children and families can gather together to have fun. The development of mixed-housing communities and the intentional merging of different income earners in the same neighborhood by using zoning laws could also strengthen the ties between the poor and the more affluent people in society. All of these programs could increase the social capital of poor people and greatly help them in post-disaster recovery (Aldrich, 2010).

In order to measure if social capital helps recovery, Aldrich's study on the earthquake disaster in Japan, entitled "The Power of the People," is used as a blueprint for this study. In that study, Aldrich studies nine different wards or neighborhoods in Kobe Japan. He examines several different variables that could affect recovery including social capital. Obviously the need for controls is important in trying to isolate social capital's specific role in disaster recovery. The amount of physical damage done in neighborhoods has an impact on recovery; the population

density in one area can cause more or less irreparable damage depending on how many people are crammed into an area of space; and finally the socioeconomic status of the population coupled with economic inequality are ways recovery can be unbalanced among different neighborhoods suffering from the same disaster.

Many argue that the physical damage done to a neighborhood is the single most important factor in recovery. Dacy and Kunreuther (1969) argued that “it just seems reasonable to assume that the speed of recovery following a disaster will be determined primarily by the magnitude of the physical damage.” This sentiment is shared by many in the field of disaster recovery. That study is one of many that public policy makers point to when making decisions on how to help a community recover. They stress infrastructure first, people later.

Population density is also a major factor in recovery. Areas that have more population are likely to lose more people in a disaster, making it harder for that community to recover after a storm. This is especially seen in urban areas as opposed to rural areas (Tobin and Montz, 1997).

Even with careful planning, people who live in a low socioeconomic status have more damage done to them than more affluent people (Fothergill and Peek, 2003). Physically, low-cost housing will have more damage done to it because of lower quality construction and maintenance. Mobile homes are also very dangerous to be in during a tornado or hurricane if people are not able to evacuate. Most mobile homes are occupied by low-income families or individuals. Because people might stay in these types of housing projects during a storm because of the inability to evacuate, Fothergill and Peek find that most deaths that occur during certain natural disasters are people with low or fixed incomes. They also find that there are key differences in psychological effects following a disaster. Lower income individuals suffer more psychological effects than higher-income earners. They may feel more depressed over their

losses following a disaster. Poor people may think that they cannot recover or regain their property because of a lack of resources. Lower-income people have much higher stress following disasters because they are afraid they might not be able to get their jobs back, transport themselves when public transportation may be down following a disaster, and just be able to survive in a post-disaster setting. Hopelessness is a bigger problem in lower-income individuals because they are overwhelmed by negatives, such as a temporary loss of income, loss of transportation, and even a temporary loss of housing. They feel as if they cannot ever get back to life before the disaster, and oftentimes that mindset does actually keep them from recovering as quickly as higher-income individuals do (Fothergill and Peek, 2003).

In Aldrich's (2011) work examining the role of social capital on recovery in Japan after the Kobe earthquake, Aldrich measures social capital using the number of nonprofit organizations that were created in the aftermath of the earthquake in the various neighborhoods he studied. These were civil-based neighborhood organizations formulated to get neighbors to work together to solve their problems following the destruction of the Kobe earthquake in 1995. His model also controls for those generally favored factors of recovery discussed earlier: amount of damage caused by the disaster, population density, and economic inequality. He finds that social capital plays a major role in recovery. Not only is social capital positively affecting recovery rates, Aldrich finds that its effect is actually the strongest factor of recovery that he measured. This is a clear example of how a lesser-known and mostly untested factor of social capital actually positively influences disaster recovery in a significant way.

Using Aldrich's (2011) model as a guide, this thesis assesses the role of social capital on recovery after Hurricanes Katrina and Rita. Specifically, the role of bridging social capital is examined. Hawkins and Maurer (2010) conclude that bridging social capital is an indispensable

part of recovery, yet they are unable to assess the magnitude of its effect because of the qualitative nature of their study. Their finding leads me to hypothesize that increases in bridging social capital will be associated with greater recovery. In addition, the tests described in this paper will look at a new region and a new disaster that has received this type data analysis before. It can further strengthen the idea that social capital and disaster recovery are linked, and that more focus needs to be placed on building social capital both before and after a natural disaster.

H1: The higher level of social capital in a community, the higher the recovery rate in that community will be.

IV. Data and Methods

To examine the effects of social capital on community recovery rates after a natural disaster, an ordinary least squares regression analysis is used. The unit of analysis is the federal zip code area, and all zip codes in federally declared disaster parishes declared as deferral disaster areas after Hurricanes Katrina and Rita are included in the sample. I use two dependent variables to capture the recovery rate of communities after a natural disaster. The first is the change in the number of housing units between 2000 and 2010. The second is the change in the percent of owner occupied homes between 2000 and 2010. Social capital will be operationalized as the number of 501 (c)(3) charitable, religious, and educational organizations per capita located in a zip code area. I will control for several factors that previous research has identified as contributors to recovery, such as the change in population density, the change in the number of vacant homes, the change in the percent of individuals living in poverty, the change in population, the change in the percent of the community comprised of minorities, and the percentage of homes in the zip code's parish that suffered major damage. For the variables that

capture changes over time, the change will be calculated using 2000 and 2010 data. The sources for these data can be found in Table 1. Descriptive statistics for each variable are found in Table 2.

The specific models estimated are represented by the equations below.

$$\text{Eq. 1} \quad \text{Housing Units} = \alpha + B_1 \Delta \text{Population} + B_2 \Delta \text{Population Density} + B_3 \Delta \text{Vacant Units} + B_4 \% \text{inPoverty} + B_5 \% \text{Black} + B_6 \% \text{HomesMajorDamage}$$

$$\text{Eq. 2} \quad \text{Owner Occupied Homes} = \alpha + B_1 \Delta \text{Population} + B_2 \Delta \text{Population Density} + B_3 \Delta \text{Vacant Units} + B_4 \% \text{inPoverty} + B_5 \% \text{Black} + B_6 \% \text{HomesMajorDamage}$$

The results from the ordinary least squares regression represented by equation 1 can be found in Table Three. The overall model is statistically significant with an $F(7, 239)$ value of 800.81 ($\text{Prob} > F = .0000$). The adjusted R^2 of .9579 indicates that the model accounts for very large amount of the variance in the change in housing units. The variable of interest used to capture social capital, the number of nonprofits per capita, is marginally statistically significant with a p value of .068 and in the hypothesized direction. An increase in the number of nonprofits per capita is associated with a positive change in the number of housing units in a zip code. Several of the control variables-- change in population, change in population density, change in vacant units, change in the poverty rate, and the overall damage to a community-- are also statistically significant. Since the average number of nonprofits per capita is quite small (.01), I calculated the predicted percent change in housing units when there are no nonprofits in zip code. When the number of nonprofits is 0 and all other variables in the model are set at their mean, the predicted percent change in housing units is negative (-80.16). When the number of nonprofits is at its mean (.01), the predicted percent change in housing units is still negative (-1.94). When the number of nonprofits increases to .02, the predicted percent change in housing units is positive (76.29).

The results from the ordinary least squares regression represented by equation 2 can be found in Table Four. The overall model is statistically significant with an $F(7, 239)$ value of 15.25

(Prob>F = .0000). The adjusted R-squared of .2885 indicates that the model accounts for a good deal of the variance in the change in owner occupied housing units. The variable of interest used to capture social capital, the number of nonprofits per capita, is statistically significant with a p value of .0000 and in the hypothesized direction. An increase in the number of nonprofits per capita is associated with a positive change in the number of housing units in a zip code. Of the control variables, only the change in population is statistically significant. Since the average number of nonprofits per capita is quite small (.01), I calculated the predicted percent change in owner occupied housing units when there are no nonprofits in zip code. When the number of nonprofits is 0 and all other variables in the model are set at their mean, the predicted percent change in owner occupied housing units is negative (-80.31). When the number of nonprofits is at its mean (.01), the predicted percent change in owner occupied housing units is still negative (-2.13). When the number of nonprofits increases to .02, the predicted percent change in owner occupied housing units is positive (70.06).

V. Conclusions

In both models showing social capital's influence on the percent change of housing units in a given zip code and then the percent change of owner occupied housing, my hypothesis was confirmed. Not only did social capital influence those changes, but it had a large influence above the other factors often thought to be more important by other researchers and public policy makers. By using two different measures to assess recovery, we are able to assess how social capital functions in two different dimensions of recovery.

The dependent variable percent change in housing units does a good job of capturing actual conditions in a neighborhood because it accounts for housing destruction. By controlling

for vacancy rates in the community, I am able to get a picture of how bridging social capital contributes to recovery. In communities with no nonprofit organizations available, the housing declines after a disaster. Bridging social capital in the form of nonprofits is crucial to community recovery. The dependent variable percent change in owner occupied housing allows me to assess how bridging social capital influences recovery for communities where citizens are likely to have deeper roots because of their property ownership. Once again, I find that bridging social capital in the form of nonprofits is essential to recovery. Interestingly, in this model the damage to the community is not statistically significant, supporting arguments made by some researchers that social capital is more important than the level of destruction (Yasui, 2007).

The information gleaned from this study should be used by public policy makers and various other decision makers when it comes to natural disaster preparedness and recovery. Preparedness can be the best tool. Building the networks among residents of a neighborhood will better prepare those people to not only help themselves but help others in a post-disaster situation. These relationships are much harder to build after a disaster has already occurred. With a healthy amount of social capital in a community, the recovery effort does not have to depend so heavily on the government. People would be more willing to help others by attempting manual labor, pooling finances, and sharing ideas to help the recovery process.

After the disaster hits, policies should be implemented that help with not only the rebuilding of the infrastructure but those bonds among neighborhood residents as well. Securing the trust and supporting interaction among people will help foster a speedier recovery. These increased interactions could lead to the development of groups, especially non-profit groups that could assist neighborhoods in recovery. Without a tight bond, those types of groups might not be formed, and their potential would never be reached. As Aldrich points out in his study, there is

great power in the people. Governments can try as hard as they can, and they can be effective in many circumstances, but the potential to have a substantial recovery can be tapped if the people of a community believe in each other and work together to rebuild a community that was once lost to a natural disaster.

Although this study displays some interesting and substantial results, it is not perfect. Recovery is a difficult variable to measure. This study uses housing units and owner occupied homes to operationalize recovery, but there may be better ways of measuring it. Social capital is also a very difficult variable to make tangible because at its core, relationships among people is a very intangible idea. It is difficult to measure the bond between one human being and another. The number of non-profit organizations in each zip code is an imperfect measure, and future studies could enhance this measure to make it relate more directly to recovery. Although these measures are not perfect, they are a step in the right direction. The difficulty in operationalizing these variables is the main reason why there have been so much qualitative studies on this topic instead of quantitative ones. Future studies could build upon this one to use better variables to paint an even stronger picture of the role of social capital in recovery from a natural disaster.

Social capital is not just a measure of the bond between one person and another. As Hawkins and Maurer (2010) discuss, there are two other kinds of social capital that exist, and these can be further studied and tested as well. Bridging social capital deals with people helping each other across ethnic and socioeconomic lines. A key question could be raised over whether high levels of social capital coupled with high economic inequality is the best combination for recovery because people would want to “bridge” their help across otherwise tough boundaries of race and income. Linking social capital is also a sub set of social capital that can be studied in more detail. Linking social capital deals with how governments or people with power can use

their influence to help people in a post-disaster situation. Future studies could include factors like political efficacy and government approval to see if the lack of linking social capital—corruption-- hinders recovery more than necessary.

A big difference between this study and the one done by Aldrich is that he assesses changes over multiple decades in order to assess change over long periods of time. Because of the recent nature of the disasters under study, a study over multiple decades is not possible. Because of that relatively short amount of time, not all of the U.S. Census Data was in the perfect form because it had not all been released yet. Poverty data for 2010 had to be calculated using parish-level data, which is not as exact as census tract data at the zip code level. Including changes in income would have added to this study, but that data had not been released at the time this study was done. This is a problem that will be solved with time.

Future research on this topic can use the updated U.S. Census data to get more accurate measures of these variables to get a more concrete analysis of the results. There might also be a way to combine qualitative measures of physical observation with these numerical results to form a comprehensive analysis of the state of recovery in these neighborhoods following Hurricanes Katrina and Rita. Hurricanes are not the only natural disaster that can affect the United States. Similar studies of communities devastated by recent tornado activities in the Mid-West can be done to see if there are any differences across different types of disasters.

The main goal of this study and future research in this field is to try to promote the idea that social capital is a critical component of disaster recovery. There should be great attempts at trying to narrow the focus on how social capital can be measured and applied in real-life-disaster circumstances. Only when the application of these ideas and policies is achieved can communities begin to recover at faster and faster rates. When communities can have strongly

developed relationships and social capital, they can not only recover from natural disasters, but be prepared when those disasters strike as well.

Table One: Variable Operationalization and Sources

VARIABLE DESCRIPTION	SOURCE
Housing Units: change in the number of housing units in the zip code	U.S Census 2000 and 2010
Owner Occupied Homes: change in the percent of homes occupied by owner in the zip code	U.S Census 2000 and 2010
Number of 503Bs per Capita: count of charitable, religious, and education 503Bs by zip code	www.TaxExemptWorld.com
Population: change in the population in the zip code	U.S Census 2000 and 2010
Population Density: change in the population per square mile in the zip code	U.S Census 2000 and 2010
Vacant Units: change in the number of vacant housing units in a zip code	U.S Census 2000 and 2010
Poverty: change in the percent of individuals in zip code living below the poverty rate ¹	U.S Census 2000 and 2010
Black: change in the percent of individuals in zip code who are black	U.S Census 2000 and 2010
HomesMajorDamage: % of homes in the parish who were determined by FEMA to have suffered major damage	Federal Emergency Management Agency

¹ The poverty rate for the 2010 Census is not yet available at the zip code level, but it is available at the parish level. A measure of zip code level poverty was calculated by 1) Using the 2000 Census, I calculated the difference between the zip code's poverty rate and the parish poverty rate. 2) Using the 2010 Census, I took the parish poverty rate and calculated a zip code level measure using the difference calculated from the 2000 Census.

Table Two: Descriptive Statistics

VARIABLE	Mean	Standard Deviation	Minimum	Maximum
Housing Units	56.87	676.89	-81.36	11052
Owner Occupied Homes	25.05	66.69	-63.80	754.93
Number of 503Bs per Capita	.01	.08	0	1.12
Population	147.88	2285.72	-91.32	37484.21
Population Density	83.27	873.11	-98.47	12235.4
Vacant Units	7.96	123.53	-88.6	1009.09
Poverty	3.89	32.96	-449.99	163.64
Black	54.21	366.38	-100	5650
HomesMajorDamage	12.56	20.33	.1	78.4

Table Three: Regression Results Predicting Change in Housing Units			
Number of Observations	247		
F (7, 239)	800.81		
Prob > F	0.0000		
Adjusted R-Square	0.9579		
	Coef.	Std. Error	P> t
Per Capita Non Profits	288.932	157.426	0.068
Change in Population	0.989	0.016	0.0000
Change in Density	0.003	0.001	0.054
Change in Black Population	-0.003	0.005	0.561
Change in Vacant Units	0.019	0.006	0.002
Change in Poverty	-0.101	0.019	0.0000
% Homes with Major Damage	0.07	0.038	0.065

Table Four: Regression Results Predicting Change in Owner Occupied Housng			
Number of Observations	247		
F (7, 239)	15.25		
Prob > F	0.0000		
Adjusted R-Square	0.2885		
	Coef.	Std. Error	P> t
Per Capita Non Profits	7821.997	819.547	0.0000
Change in Population	-0.454	0.085	0.0000
Change in Density	-0.004	0.007	0.578
Change in Black Population	-0.038	0.025	0.128
Change in Vacant Units	-0.051	0.031	0.106
Change in Poverty	-0.051	0.096	0.597
% Homes with Major Damage	0.187	0.0196	0.341

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