Is the Foreclosure Crisis Making Us Sick?

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Abstract

We investigate the relationship between foreclosure activity and health using zip code level longitudinal data from Arizona, California, Florida, and New Jersey, four states that have been among the hardest hit by the foreclosure crisis. We combine foreclosure data for 2005 to 2009 from RealtyTrac with data on the universe of emergency room visits and hospital discharges. Our zip code level quarterly data allow us to control for many potential confounding factors through the inclusion of fixed effects for each zip code as well as for each combination of county, quarter, and year. We find considerable evidence of an increase in non-elective hospitalizations and ER visits. We show that the estimated effects cannot be accounted for by increasing unemployment, by people switching from out-patient to hospital providers, or by people losing health insurance.

We find large increases in hospitalizations for conditions that are "Prevention Quality Indicators," that is conditions which should not result in hospital or ER visits if patients receive proper preventive care. Foreclosure is also associated with significant increases in suicide attempts, heart attacks, and stroke as well as non-elective visits (i.e. unscheduled visits for urgent or emergency care) for conditions such as urinary tract infections, gastro-intestinal problems, chest pain and dysrhythmias. These effects are particularly pronounced for Hispanics, and we find the largest estimated effects on heart attack and stroke among blacks. We do not find evidence of any effects of foreclosure activity on visits for cancer, a condition that is likely to be less affected by stress, at least in the short term. These findings lead us to conclude that the foreclosure crisis is making Americans sick.

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I. Introduction

The expansion of mortgage credit over the last decade was followed by a sharp decline in housing prices, which has caused foreclosure rates to reach historically high levels in the United States. According to Realtytrac, a leading firm that monitors and markets foreclosed homes, a record 2.82 million homes faced foreclosure in 2009, a 21 percent rise from 2008 and a huge 120 percent jump from 2007. One in 45 homes (2.23 percent of all housing units in the U.S.) received at least one foreclosure filing during 2010. As policymakers have debated measures to stabilize the housing market and minimize the damage to the U.S. economy (e.g., the Making Home Affordable Program launched in March 2009), researchers have turned their attention to understanding the consequences of rising foreclosures.

While a number of studies have investigated the effect of the foreclosure crisis on outcomes such as home prices and sales, residential investment, and durable consumption (e.g., Immergluck and Smith, 2006a; Calomiris, Longhofer, and Miles, 2008; Rogers and Winter, 2009; Harding, Rosenblatt, and Yao, 2009; Mian, Sufi, and Trebbi, 2010), there has been no large-scale investigation of the effect of the crisis on health. Currently, the public and political debate over the crisis mostly focuses on the damage caused to the housing market and the overall U.S. economy and any potential toll on public health has been largely ignored. If the foreclosure crisis is having harmful effects on the public health, then policymakers need to factor such a finding into account as they evaluate the costs and benefits of policy responses designed to stabilize the housing market.

Foreclosures might be expected to influence health through several mechanisms. First, for the individuals directly involved, a home foreclosure is an intensely stressful life event. A growing literature suggests that stress can have harmful consequences through psychological

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responses such as depression or higher levels of hormones such as cortisol, and that stressful life experiences are associated with both physical and mental illnesses (Goldberger and Breznitz, 1993; McEwen, 1998; Cooper, 2005; Schneiderman, Ironson, and Siegel, 2005). Second, a high rate of foreclosure in a neighborhood also may also have negative impacts on those who do not lose their homes as homeowners see the value of their properties fall. Third, financial problems and stress may cause changes in health behaviors, which in turn may have negative health consequences. For example, people may smoke or drink more, stop taking medications because they cannot afford them, or stop going to the doctor for preventive care.

The goal of this paper is to investigate whether the foreclosure crisis is having an adverse effect on health. This investigation constitutes the first comprehensive analysis of the impact of foreclosures on health. In order to investigate these health effects, we assemble quarterly data on all foreclosures, Emergency Room (ER) visits, and hospitalizations from four states (Arizona, California, Florida, and New Jersey) which are among the 10 states that have been hardest hit by the crisis. Data on foreclosure activity is linked to data on ER visits and hospital discharges at the zip code level. We control for zip code fixed effects so that our effects are identified by changes within zip codes (rather than comparisons of, for example, rich and poor neighborhoods). We also control for interactions of county, quarter, and year in order to control for time-varying features of local labor markets such as unemployment rates. Hence, we take advantage of the fact that some zip codes were much more heavily impacted than others even within a county.

We find considerable evidence of an increase in non-elective (i.e. urgent and unscheduled) hospitalizations and ER visits. An increase in visits does not necessarily indicate that people are becoming sicker because of the foreclosure crisis. Therefore, we consider and reject a number of

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other possible explanations for this relationship. Specifically, we show that the estimated effects cannot be completely accounted for by increasing unemployment, by people switching from out-patient to hospital providers, or by people losing health insurance.

We find large increases in hospitalizations for conditions that are "Prevention Quality Indicators," (PQIs) i.e. conditions which should not result in hospital or ER visits if patients receive proper preventive care. For example, an increase of 100 foreclosures, which is approximately the increase experienced in the average zip code in our sample, raises admissions for hypertension by 7.1% among 50-64 year olds.

Foreclosure is associated with significant increases in suicide attempts, heart attacks, and stroke, diagnoses that are not usually treated in an outpatient setting. Foreclosure is also associated with increases in non-elective visits (i.e. unscheduled visits for urgent or emergency care) for conditions such as urinary tract infections, gastro-intestinal problems, and heart problems such as chest pain and dysrhythmias. These effects are particularly pronounced for Hispanics, and we find the largest estimated effects on heart attack and stroke among blacks. It is notable that we do not find evidence of any effects of foreclosure activity on visits for cancer, a condition that is likely to be less affected by stress, at least in the short term. These findings lead us to conclude that the foreclosure crisis is making Americans sick.

The rest of the paper is laid out as follows. In Section II, we provide some background information about the foreclosure crisis, and previous work on the relationship between economic activity and health. We then discuss our data in Section III and methods in Section IV, followed by the results in Section V, and a brief conclusion in Section VI.

II. Background

An array of explanations have been offered for the foreclosure crisis including a relaxation in underwriting standards and the expansion of mortgage credit to subprime borrowers (e.g., U.S. Department of Housing and Urban Development, 2009; Dell'Ariccia, Igan, and Laeven, 2008; Demyanyk and Van Hemert, 2011), mortgage securitization having an adverse affect on the screening practices of lenders (e.g., Keys et al., 2010), widespread negative equity caused by the willingness of mortgage lenders to issue mortgage-debt on homes in which the owners had little or no equity (e.g., Gerardi, Ross, and Willen, 2009, 2011), and a rapid increase in interest rates after a period of historically low levels that fueled a housing bubble (e.g., Mayer and Hubbard, 2008). A related literature has focused on the economic consequences of foreclosures on a number of economic outcomes, such as home prices, sales, and property values (e.g., Campbell, Giglio, and Pathak, 2009; Calomiris, Longhofer, and Miles, 2008, Harding, Rosenblatt, and Yao, 2009, Lin, Rosenblatt, and Yao, 2009; Immergluck and Smith, 2006a) and the overall economy (e.g., Green, 1997; Leamer, 2007; Gauger and Snyder, 2003).

The implications of the crisis for non-economic domains such as health have been mostly ignored.[1] Home ownership has usually been shown to be positively associated with better physical and mental health (e.g., Dietz and Haurin, 2003; Dunn and Hayes, 2000; Searle, Smith, and Cook, 2009; Fogelman, Fox, and Power, 1989; Pollack, Knesebeck, and Siegrist, 2004) though this may be in part because richer individuals are both in better health and more likely to own homes on average. However, individuals experiencing difficulty making their mortgage payments experience lower levels of psychological well-being and are more likely to have doctor visits, conditional on measures of financial hardship (Nettleton and Burrows, 1998; Taylor,

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[1] One exception is Immergluck and Smith (2006b) who show that higher levels of foreclosures are associated with increased violent crime, using data from Chicago. However, this study uses data from 2000, which predates the beginning of the current foreclosure crisis.

Pevalin, and Todd, 2007). Thus, it is possible that foreclosure places demands on a homeowner's health both mentally and physically (Bennett, Scharoun-Lee, and Tucker Seeley, 2009; Fields, Libman, and Saegert, 2010; Bowdler, Quercia, and Smith, 2010). These concerns have also been voiced in the media with stories highlighting the rising rates of depression, anxiety, and even suicide in high foreclosure communities (Ablow, 2008; Butts, 2010; Sundaram, 2010).

While there have been some qualitative descriptions of the disruption caused by foreclosure on people's lives (e.g., Nettleton and Burrows, 2000; Ross and Squires, 2011), there is little quantitative evidence about the existence or size of these potential impacts. In fact, a recent article by Bennett, Scharoun-Lee, and Tucker-Seeley (2009) points to the urgent need for credible research investigating the health effects of foreclosures.

Pollack and Lynch (2009) compared the health status of individuals enrolled in mortgage counseling in Philadelphia with respondents of a community health survey in Pennsylvania between July and October 2008. Members of the foreclosure sample were significantly more likely to have hypertension, heart disease, and a clinician-diagnosed psychiatric condition than those of the community sample. However, it is possible that in their sample poor health caused foreclosure rather than vice-versa since over a quarter of their foreclosure group owed money to medical creditors, and there may be unobserved differences between individuals going through foreclosure and the population at large.   Moreover, the treatment group in Pollack and Lynch (2009) were self-selected individuals who were seeking mortgage counseling and might not be representative of those entering foreclosure, especially since Philadelphia also had substantially lower rates of foreclosures than the hardest hit areas in the U.S., ranking 77th among metropolitan areas in foreclosures in 2008.

There is an extensive literature linking stressful life events like unemployment, job loss,

financial strain, and poverty with increased risk for a number of mental and physical health conditions (e.g., Catalano, 2009; Currie, 2009; Currie and Lin, 2007; Dooley, Fielding, and Levi, 1996; Gallo et al., 2000; Strully, 2009, Belkic et al., 2004, Kahn and Pearlin, 2006, Woolf, Johnson, and Geiger, 2006, Bosma et al., 1998; Kuhn, Lalive, and Zweimuller, 2009; Sullivan and Wachter, 2009) and it is possible that foreclosure acts in a similar way. The Sullivan and Wachter (2009) paper is especially notable since they were able to follow a large sample of individuals who had lost their jobs in mass layoffs. They find significantly higher death rates due to accidents and heart conditions in this group, both immediately and in the longer term. Moreover, there is evidence linking economic crisis to reductions in utilization of medical care (e.g., Lusardi, Schneider, and Tufano, 2010; Williams and Collins, 1995; Feinstein, 1993).

On the other hand, there are a number of studies suggesting that recessions are associated with reductions in deaths due to several conditions including heart attacks and accidents (e.g., Ruhm, 2000, 2003, 2008; Ruhm and Black, 2002; Neumayer, 2004; Gerdtham and Ruhm, 2006), and with improvements in infant health (Dehejia and Lleras-Muney, 2004). These studies use state-level data. These patterns have been attributed to recession-induced changes in health behaviors. A key difference between unemployment and foreclosure is that while becoming unemployed may lead to stress and loss of income, lack of employment can also allow more time for self-care including exercise, visits to the doctor, and so on. In contrast foreclosure is a more wholly negative event.

For example, Xu and Kaestner (2010) study a group of low income individuals and find that higher employment is associated with more cigarette smoking and fewer visits to doctors for preventive care. However, Deb et al. (2009) examine a sample of older workers and find that some of them experience increases in body mass index and alcohol consumption in response to

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job loss.

Miller et al. (2009) find that cyclical changes in mortality among working-age adults result primarily from additional vehicle accidents and are not typically associated with conditions that are sensitive to stress levels or health behaviors among these individuals. Therefore, the authors argue that it is unlikely that changes in health behaviors are the key determinants of aggregate mortality changes over the business cycle. Furthermore, they find that declines in mortality with recessions are concentrated among the elderly (and to a lesser extent among children), so that they may reflect reductions in the amount of time working-age people have to care for elderly relatives rather than poorer health behaviors among working-aged people.

Browning et al. (2006) examine the effects of job loss in a 10 percent sample of the population of Denmark and find no effect on hospitalizations for circulatory or digestive ailments. Eliason and Storrie (2009a) examine data from plant closings in Sweden in 1987 and 1988 and find that mortality rises by 44 percent in the four years following job loss. In particular, they find a 2 fold increase in suicide. Eliason and Storrie (2009b) also find increases in hospitalizations due to self harm, accidents, and alcohol-related causes in the 12 years following displacement.

Deaton (2011) examines data on self-reported well-being from the Gallup organization and finds that self-reported levels of worry and stress rose after the fall of 2008 (the beginning of his sample period) and stayed high until the spring of 2009. It is striking that he finds higher levels of stress among younger adults. However, he also cautions that the answers to such self-reported questions are sensitive to various aspects of questionnaire design.

In summary, the previous literature has largely ignored the possible relationship between the foreclosure crisis and population health, though it does suggest that such a relationship could

exist.   Ours is the first comprehensive effort to consider this potential relationship. As such, the findings from this paper constitute an important baseline for future research by providing estimates of the impact of foreclosures on a range of important health problems.   Our paper also makes a contribution to the broader literature on the impact of stressful life events on health. Studies of this relationship often suffer from the same limitations as those in Pollack and Lynch. However, the recent foreclosure crisis is unusual in the sense that overall economic weakness did not play a major role in producing delinquencies and foreclosures in most areas - at least initially (U.S. Department of Housing and Urban Development, 2009). These characteristics along with the fact that the crisis was sharp and unforeseen and has had very different impacts on different areas, even within the same county, makes this crisis an ideal "natural experiment" for examining the effects of a stress event like foreclosure on health.

To further address the econometric challenges involved in identifying the effect of foreclosures on health, we rely on our detailed longitudinal zip code level data, which allow us to control for many potential confounders that might create a relationship between neighborhood foreclosure rates and the incidence of morbidity. We control for unobserved characteristics of neighborhoods by estimating models that include zip code level fixed effects as well as interactions of each county, quarter, and year. We examine visits for conditions that would almost always result in an ER visit and/or hospital admission such as heart attacks and stroke, as well as a "control" condition, cancer, that should be less impacted by immediate changes in stress, and we distinguish between elective procedures which might well be delayed given financial problems, and visits for non-elective procedures which are more likely to correspond to real health emergencies. Finally, our analyses are based on all patients and all neighborhoods with any foreclosures in the four states, rather than on selected samples of patients or

neighborhoods.

III. Data

We focus on the states of Arizona, California, Florida and New Jersey for several reasons. First, we wish to focus on states that have recently had extremely high levels of foreclosures. Together these four states comprised almost 50 percent of all the foreclosure filings in 2008 (RealtyTrac Press Release, January 15, 2009). They were all in the top 10, posting the 3rd, 1st, 2nd, and 10th largest totals of foreclosures in the country in 2010, respectively. Second, we wish to use hospital discharge and emergency room data for entire states, rather than from a sample of hospitals.[2] It is important to include ER visits in addition to hospitalizations, because financial constraints can affect whether the person first presents at the ER, as well as the probability that someone on the margin is admitted to hospital if they do appear at the ER. Not all states provide public access to these kinds of data, and not all of those that do also release information about the patient's zip code and/or county.

Foreclosure data are available at the zip code level monthly between April 2005 through December 2009 from RealtyTrac.[3] RealtyTrac is a leading foreclosure monitoring and marketing company, which collects data from public records at the local level, which is where legal documents for foreclosures are recorded, posted, and published. With coverage that accounts for more than 90 percent of the U.S. population, the RealtyTrac data have been widely used by the media as well as researchers studying foreclosures (e.g., Mian, Sufi, and Trebbi, 2011; Hernandez, 2009; Pettit et al., 2009; Gaffney, 2009).

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[2] For example, the National Inpatient Database has a 20 percent sample of hospitals and it is not possible to tell if changes in hospitalizations or ER visits at hospitals in the sample might be counter-balanced by changes in these outcomes at other hospitals outside the sample.

[3] We appreciate the help of Tyler White from RealtyTrac in acquiring and understanding the foreclosure data.

The foreclosure data that RealtyTrac includes information about both notice of trustee sales (NTS) and/or a notice of foreclosure sale (NFS). Following instructions from RealtyTrac, we construct measures of foreclosures as NTS+NFS.[4]   The RealtyTrac data also includes information about real-estate owned (REO) properties, which are properties that have gone back to the mortgage lender after an unsuccessful foreclosure auction, and remain unsold. We include REOs as an additional control for neighborhood conditions in our regressions.

We include two additional measures of local housing market conditions in some of our specifications. Zip code level data on housing prices in each quarter comes from Zillow.   Zillow does not compile data for every zip code, so the use of this variable reduces our sample size somewhat. Data on vacancies in each quarter comes from the U.S. postal service.   Vacancies may serve as a proxy for neighborhood disinvestment, lower property values, reduced local services, and crime that may negatively influence both the psychological and physical well-being of individuals living in these neighborhoods (e.g., Mallach, 2009; Schuetz, Been, and Gould, 2008; Immergluck and Smith, 2006b). The postal service asks mail carriers to report addresses that have been vacant 90 days or more.   These data do not start until the fourth quarter of 2005, so including them also causes some loss of data.

Our health measures come from two databases covering emergency room (ER) visits and hospital admissions respectively. These data are collected by state governments in order to oversee hospitals. The Healthcare Cost and Utilization Project (HCUP), collects these data from participating states and releases them in a standard form.[5] Data on ER visits, comes from the State

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[4] A state generally has either NTS or NFS and this depends on whether the state uses a judicial or a non-judicial process in foreclosures. The main difference between a judicial process and a non-judicial process is that the former procedure requires court action on a foreclosed home. In general, NTS is available only for non-judicial states, while NFS is only available for judicial states. Some states use both procedures. Among our sample states, AZ and CA conduct both judicial and non-judicial foreclosures, while FL and NJ only conduct judicial foreclosures.
[5] Visit http://www.ahrq.gov/data/hcup/ for more information on HCUP databases.

Emergency Department Databases (SEDD), which capture discharge information on all

emergency department visits that do not result in an admission. Our hospitalization data come

from the State Inpatient Databases (SID), which hold the universe of inpatient discharge

abstracts. In order for a discharge record to exist, the patient must have been admitted to hospital;

hence the SID contains records of patients who require more intensive treatment or for whom

treatment cannot be provided on an out-patient basis. The smallest level of aggregation in both

databases is the zip code.[6]

In order to match the hospitalization data and the foreclosure data, we calculate the total

number of hospitalizations in each category for each zip code and quarter. Similarly, we calculate

the total number of foreclosures and REOs for each zip code and quarter. We impute zeros for

zip codes that appear in RealtyTrac but have no hospitalizations. The result is a balanced panel of

3,525 zip codes with 19 time periods for a total of 66,975 observations.

In what follows, we devote most of our attention to a combined data set of ER visits that

did not result in hospitalizations, plus all hospitalizations other than those for childbirth,

contraception, and abortion. We excluded these procedures because we felt that fertility responses

to foreclosure could be quite complex, and because indigent women are covered by public insurance

for prenatal care and child birth. We treat ER visits and hospital admissions together, because

changes in health insurance status might be correlated with the decision to admit a patient

presenting at the ER, at the margin.

We also look separately at elective procedures (which never occur in ERs). Elective

procedures are coded by HCUP, and involve visits that are not urgent, not emergencies, and not

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[6] We restrict the sample to Zip Code Tabulation Areas (ZCTAs) as these are the units reported by the Census. Zip codes are constructed by the postal service and frequently change. ZCTAs are constructed by Census and remain consistent between Censuses. Using ZCTAs allows us to merge population estimates to our data. We drop about 10% of our sample that could not be matched to ZCTAs. The final number of ZCTAs in our analysis sample is 3,525. For ease of understanding we use the term zip code throughout.

trauma care. Typically, these visits are scheduled. To say that they are not urgent does not imply that they are unimportant. Elective visits might include regularly scheduled visits for chemotherapy, for example.

Figures 1 and 2 show changes in foreclosure rates and changes in non-elective visits (both hospitalizations and ER) for zip codes in New Jersey, one of our sample states.[7] Rates are calculated using zip code population data from the 2000 Census. That is, these rates can be interpreted as the number of foreclosures or hospitalizations per person (rather than per property). We calculate the rate this way since we look at person-level medical data. The figures show that there is considerable variation across zip codes in both types of changes. They also suggest that areas that experienced the sharpest increases in foreclosures also tended to experience the largest increases in hospitalizations.

Table 1 shows means for all zip codes, as well as for those that were in the top and bottom fifths of the distribution of the rate of foreclosures in 2009. While the average zip code in our sample had 90.8 foreclosures in 2009, zip codes in the top fifth had 201foreclosures compared to only 4.74 foreclosures in the least impacted zip codes. The table shows that the number of foreclosures increased 15 fold in the most highly impacted zip codes, but less than 4 fold in the least impacted zip codes. Housing prices also fell more precipitously in the most impacted zip codes, and vacancies soared.

The ER and hospitalization data is explored in Table 2. HCUP data sets classify diagnoses using a tool called Clinical Classification Software (CCS).[8] This software takes thousands of International Classification of Disease (ICD) codes and groups them into clinically meaningful categories. We use the single level diagnosis codes, and group them into larger aggregates using

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[7] The pattern is similar for the other three sample states.
[8] More information is available at http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp#download.

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information from the multi-level diagnosis codes. For example, single codes 122 (Pneumonia), 123 (Influenza), 124 (Acute and Chronic Tonsilitis), 125 (Acute Bronchitis), and 126 (other Upper Respiratory Tract Infections) are grouped together in a category we call "Upper Respiratory Tract Infections". More information about our aggregates is in the Appendix.

An additional hospitalization category that we consider is an index of "Prevention Quality Indicators" (PQIs). These indicators are published by the Agency for Healthcare Research and Quality (AHRQ) and are based on ICD-9-CM diagnosis codes.   PQIs are index conditions for which good outpatient care can prevent the need for hospitalizations or ER visits, or for which early intervention can prevent complications or more severe diseases. Hospitalizations and ER visits for many other conditions may also be preventable to some extent, but PQIs are those which can almost always be prevented with appropriate care. To the extent that individuals stressed by the foreclosure process have fewer preventive doctor visits, stop adhering to prescription medicine regimes, or reduce self care (e.g., Sterk, Theall, Elifson, 2002; Virtanen et al., 2006; Cobaugh et al., 2008), underlying health problems may be exacerbated by foreclosure activity. The PQI category includes short and long-term complications of diabetes, amputations due to diabetes, and uncontrolled diabetes, perforated appendix, chronic obstructive pulmonary disease, hypertension, congestive heart failure, dehydration, bacterial pneumonia, urinary tract infection, angina without procedure, and adult asthma.

Table 2 shows the number of hospitalizations of different types overall, and for high and low foreclosure zip codes. The first two rows show that the number of visits for elective procedures is small relative to the number of non-elective visits. Less than half of elective visits are covered by private health insurance, which reflects the importance of Medicare and Medicaid. If we look at persons of working age who are unlikely to be eligible for public health insurance (patients 20 to 49

or 50 to 64), about 2/3 of elective visits are covered.   Comparing elective visits in high and low foreclosure zip codes, we see that people in high foreclosure zip codes have 46 percent more visits for elective procedures than those in low foreclosure zip codes.

The second section of the table shows that there are a relatively large number of PQI visits (i.e. visits that should not have occurred if the patient had received adequate preventive care). Three CCS categories fall wholly under the PQI rubric (diabetes, hypertension, and asthma) and visits in these categories are broken out separately. Comparing high and low foreclosure zip codes suggests that people in high foreclosure zip codes are 140% more likely to have visits for conditions that were preventable.

The rest of the table shows total non-elective visits and non-elective visits by category. Non-elective conditions are quite skewed towards a few diagnoses. For example, injuries, malaise, gastrointestinal problems, and upper respiratory tract infections together account for almost half of all visits. In what follows, we focus on the top 10 diagnoses, as well as on the PQI, cancer, and mental health diagnoses. The latter are of independent interest given the strong connection between stress and mental health.

The second and third columns of Table 2 show types of visits for people in zip codes in the top and bottom fifths of foreclosure activity (as of 2009).   It is remarkable that while the difference in population is about 45 percent, people in these areas experience more than double the number of non-elective visits in most categories of visits.   Visits for suicide attempts stand out since, while rare, they are 4.4 times more prevalent in high foreclosure areas.

IV. Research Design and Methods

We estimate a series of models that relate changes in the number of hospitalizations or ER visits to the number of foreclosures:

$$(1) \qquad H_{zqt} = \alpha_0 + \alpha_1 \, F_{zqt\text{-}1} + \alpha_2 \, REO_{zqt\text{-}1} + \mu_z + \lambda_{cqt} + \varepsilon_{zqt},$$

where H_{zqt} is an outcome measure such as the number of ER visits in zip code z in quarter q in year t. The variable of interest in equation (1) is $F_{zqt\text{-}1}$, the number of foreclosures in the zip code last quarter. We also control for the number of REOs last quarter. Neighborhoods with large numbers of foreclosed properties which have not been sold may be different than other neighborhoods with similar levels of foreclosure activity. Indicators for each zip code, μ_z, are included to control for any time-invariant zip code level factors that may be correlated with both foreclosures and health. To adjust for correlations within a zip code, standard errors are clustered at the zip code level. The unit of analysis in equation (1) is a zip code, quarter, and year.[9]

The vector λ_{cqt} includes an indicator for each county, quarter, and year. These indicators control for any time varying county level factors that are correlated with both foreclosures and health. For example, they would serve as controls for unemployment in a particular county, year, and quarter, as well as for seasonality in foreclosures which may be different in different areas. To the extent that most local responses to the foreclosure crisis are made at the county or state level rather than at the zip code level, these fixed effects would also account for the changes in health services for the needy. The vector ε_{zqt} represents an idiosyncratic random error term.

We estimate separate models by age, focusing on those to 19, 20 to 49, 5 to 64, and 65 plus. One reason is that people in different age groups suffer from different types of medical

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[9] Note that we have specified equation (1) in terms of levels. It might be more natural to think of specifying the equation in terms of rates; that is, the rate of hospitalization would be regressed on the rate of foreclosures. However, accurate data on population is only available at the zip code level from the decennial Census. If the measure of population used to construct the rates is a constant, then equation (1) is equivalent to a model specified in rates (since both sides would be divided by the same constant to get the rate). Moreover, including the zip code fixed effect accounts for the fact that some zip codes are much larger than others, and we also weight using zip code population for the relevant demographic group in 2000.

conditions. For example, people younger than 50 have few heart attacks. A second reason is that people in different age groups may have been more or less impacted by the foreclosure crisis. While overall levels of financial literacy are poor (e.g., Lusardi and Tufano, 2009), financial decision making usually improves with age (e.g. Agarwal et al., 2007) and older people are less likely to borrow on the equity in their homes (e.g., Duca and Kumar, 2010). But there is also some evidence that senior citizens have been disproportionately targeted by lenders for predatory lending purposes (Government Accountability Office, 2004, Delgadillo, Erickson, and Piercy, 2008; Collins, 2009). Cunningham and Capone (1990), and Anderson and VanderHoff (1999) find that foreclosure rates decrease with age, but these studies are based on data at least 20 years old. Ludy and Herlitz (2009) note that the largest increases in homeownership from 1995 to 2004 were among those between 20 and 44. Perhaps the most useful study is by Shelton (2008) who analyzed a random sample of 2.5 million persons from Experian, the credit rating agency. She finds that three quarters of foreclosures in the second half of 2007 were among homeowners less than 50. These figures suggest that the effects of foreclosure may be stronger among younger individuals.

We also estimate separate models by race and ethnicity. Minority groups are thought to have been particularly hit hard by the foreclosure crisis (Rugh and Massey, 2010) in part because lending agencies targeted low-income minority neighborhoods for risky loans (Avery, Brevoort, and Canner, 2007; Bocian, Ernst, and Li, 2008; Squires, 2008). These groups may also have had a more difficult time with the crisis given lower savings, poorer labor market prospects, lower rates of private health insurance coverage, and poorer baseline health than other groups.

We will show robust and consistent evidence of a strong association between foreclosure and increases in visits. However, to answer the question of the title, which is whether

foreclosures are making us sick, it is necessary to investigate the mechanisms underlying this association.

One possibility is that it is not foreclosure per se, but increases in unemployment that are driving the increases in hospitalizations and ER visits.   As discussed above, we are controlling for unemployment in each year and quarter. But it is conceivable (and indeed likely) that unemployment varies at the zip code level within counties, though official unemployment rates are not computed at the zip code level (and therefore no zip code level measure is available). However, it is important to recall that while high levels of unemployment may be currently causing foreclosures (Schmidt, 2011), this was not the case during much of our sample period, when the main cause of foreclosure was questionable mortgage practices and the resulting collapse of the housing market. Also if unemployment is indeed associated with positive health outcomes as some previous work has suggested, then any effect obtained here could be interpreted as a lower bound for the true effect of foreclosures on health.[10]

In order to address the role of unemployment, we estimate models using only data from 2005 to 2007, before the climb in unemployment began. We also estimate models interacting county-level unemployment measures with foreclosure rates.   With also estimate models aggregated to the county level that include both foreclosures and the unemployment rate. Both sets of models suggest that high levels of foreclosure are associated with increases in hospitalizations.

A second issue is that health problems might lead to foreclosure rather than vice-versa. While some individuals have always wound up in foreclosure, the spike in foreclosures between 2006 and 2009 was due to loose lending standards and questionable banking practices rather than

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[10] While becoming unemployed is stressful and may cause financial hardship, it also increases the individual's leisure time which may improve health outcomes. In contrast, there would seem to be little evidence of a "silver lining" to foreclosure.

to changes in the health of individual homeowners. Moreover, while in hindsight many commentators have said that a crash was inevitable, the timing and severity of it were certainly a surprise to almost all observers (Mian and Sufi, 2010; Calomiris, Longhofer, and Miles, 2008; Demyanyk and Van Hemert, 2011). Hence, there is no reason to suppose that the spike in foreclosures was caused by a sudden epidemic of health problems on the part of homeowners, and any relationship between the increase in foreclosures and increased health problems is likely to represent a relationship running from foreclosure to health rather than vice versa.

Chart 1 lists several additional explanations of the relationship between foreclosures and visits and lays out what one would expect to see for different types of visits in each scenario. The first explanation is that foreclosure makes people sick. Stress has been linked to increased inflammation and depressed immune function. Stress is also closely linked to mental health problems such as depression and anxiety as well as to circulatory problems. Thus we might expect to see larger increases in these conditions relative to conditions such as cancer, which might take longer to develop. Moreover, financial distress due to foreclosure could have both a direct effect on health, and an indirect effect through reductions in ability to pay for needed medications and medical care. We are able to identify the latter effect by examining PQI visits.

Stress due to foreclosure should affect both the elderly and the privately insured though the effects may well be smaller for these groups than for others given that the elderly were less impacted than prime age workers by foreclosure, and the privately insured are relatively well off. Finally, since Hispanics and blacks were especially impacted by the foreclosure crisis, we might expect to see larger increases in the number of visits in these groups.

The second explanation is that foreclosure may be correlated with the loss of health insurance, and those who have lost their health insurance have switched from out-patient

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providers to the hospital or ER. This hypothesis implies several testable implications. First, if people are switching out of out-patient settings and into hospitals, then we should see bigger increases for elective than for non-elective procedures given that non-elective procedures are less to have been administered outside of hospitals and ERs to begin with. Second, we should see no change in visits among the elderly (since they are covered by Medicare and do not lose insurance), and also no increase in visits among the privately insured.[11] Third, we should not see increases in visits for conditions like suicide attempts or heart attacks where people always go to the hospital or ER rather than to an out-patient provider. Fourth, to the extent that blacks and especially Hispanics are less likely to have private insurance to begin with, we should see smaller increases among these groups than among others. As is shown below, all of these predictions are violated in our data suggesting that the increase in visits that we find cannot be due simply to patients switching providers.

Two other scenarios are explored in Chart 1. The third row investigates the idea that foreclosures cause people to lose health insurance, which in turn causes them to become sick. Under this scenario, one would not expect to find effects on visits among the elderly, or among those who retained private health insurance since these groups did not lose insurance. One might also expect to see a decrease in elective procedures if the newly uninsured are less able to pay for them. Given that blacks and Hispanics are less likely to have private health insurance to begin with, one would expect smaller increases in visits in these groups.

A fourth scenario focuses on those who were initially uninsured. If they are most likely to be impacted by foreclosure, one would expect increases in visits for preventable conditions and index conditions such as suicide and heart attack, but one would not expect increases among

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[11] Granted, the composition of the privately insured may be changing over time, but if those losing insurance are likely to be sicker in any case (at least within age categories) then we might see decreases in privately insured visits but should not see increases.

the elderly or the privately insured (since they were not initially uninsured). And since Hispanics and blacks are more likely to fall into this category, one might expect to see larger increases in visits in these groups.

In what follows, we will explore these scenarios by examining effects of foreclosure on different types of visits, and different groups of people.   We argue that our results are most consistent with the first scenario in Chart 1; that is, that the foreclosure crisis is making us sick.

V. Results

Table 3 provides an overview of our results by age.   Each entry of the table is from a separate regression and shows the coefficient α_1 on foreclosures in the last period.   These coefficients are not directly comparable with each other given different baseline numbers of visits in each category and demographic group. Hence, we also show the baseline number of visits, and the percent change in visits implied by the coefficient estimate. If the coefficient is statistically significant at least the 95% level of confidence, then we show the implied percent change in bold type.

A comparison of the first and second columns shows that foreclosure had relatively little impact on elective procedures compared to their impact on non-elective procedures. There are large and statistically significant increases in non-elective procedures for all age groups, although the effects are smallest for the elderly and largest for children. The estimates imply that an increase of 100 foreclosures would increase non-elective visits by 8.2% among children, 4.3% among those 20-49, 5.9% among those 50-64 and by 1.1% among the elderly. The large estimated effects on children complement recent evidence that the foreclosure crisis is having negative effects on children's educational attainment (Lovell and Issacs, 2008; Comey and

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Grosz, 2011).

The third column of Table 3 shows that there are large and significant impacts on preventable visits for all age groups, though again, the increases are smaller for the elderly than for other groups. There are also significant increases in visits for the specific types of preventable conditions we investigate, diabetes, hypertension, and asthma, though these increases are not statistically significant among the elderly.

Table 4 shows estimates of the effects of foreclosure on mental health. There appears to be no significant impact on those aged 65 and over, but large effects on the other age groups. For example, an increase of 100 foreclosures would be associated with increases of 14.6%, 9.2%, and 12.8% in visits for anxiety among those 50-64, 20-49, and 0-19, respectively. The increases in visits related to suicide attempts are particularly striking, though they must be interpreted with some caution given the small baseline numbers of such visits. Given that not every person with a mental health crisis presents at an ER or hospital, it appears that the foreclosure crisis may be taking a particularly heavy toll in terms of mental health.

Table 5 breaks non-elective visits for physical health problems down by CCS category, focusing on the most quantitatively important categories, and on cancer, which, as discussed above, can be viewed as a "control" category that should be less impacted by stress than some of the others.

As expected, there is no impact of foreclosure on cancer visits. There is an impact on heart attack and stroke, but only among those 50-64. It is not surprising that younger age groups are unaffected given the concentration of these visits among older people. However, all groups less than 65 see an increase in milder heart problems such as chest pain and dysrhythmias. We also see significant increases in gastro-intestinal problems, UI tract problems, and respiratory

infections (both upper respiratory and other) which are plausibly stress-related. Finally, we see large increases in a category we have labeled "malaise" which includes people presenting with symptoms such as "fever of unknown origin," nausea, abdominal pain, and so on.

Table 6 shows alternative specifications for a representative group of the conditions discussed above, and for two age groups, those 20-49 and 50-64.   Panels 1 and 6 shows estimates from models that add zip code level measures of housing prices and vacancies. Adding these variables reduces the estimated impact of foreclosure only slightly. For example, among 20-49 year olds the implied percent change in non-elective visits with an additional 100 foreclosures falls from 4.3% to 4.1%.   We also show the estimated effects of real-estate owned properties. More real-estate owned properties, and more vacant properties are both predictive of higher visit levels across the board.   Similarly, higher housing prices have generally negative effects on the number of visits.

Panels 2 and 7 of Table 6 show estimates for 2005 through 2007 only.   As discussed above, unemployment did not start to rise in until 2008. Unemployment was actually falling throughout most of 2005 and 2006. Table 6 shows that we still find large increases in visits in this part of the sample, though some of our estimates are less precisely estimated.

Panels 3 and 8 of Table 6 include interactions between the unemployment rate and the number of foreclosures. Because unemployment is available only at the county level, the main effect of unemployment is absorbed by the county*year*quarter effects included in all of our models.   The implied percent change in visits is shown for two different levels of unemployment that roughly bracket the range of our data: 5% and 10%. The percent changes are positive (except for suicide when unemployment is 5%), and the estimated percent change when unemployment is 10% is strikingly similar to what we see in our main specifications. Thus,

these estimates suggest that the impact of foreclosure is worse when unemployment is high.

Panels 4 and 9 present estimates of the effect of foreclosure using county level data. The models include county fixed effects and an indicator for each year*quarter as well as the unemployment rate. A striking finding is that while we find positive effects of foreclosures on visits, the implied percentage changes are an order of magnitude smaller than in the zip code level models. Hence, using county level data appears to significantly attenuate the estimated effects of foreclosure. Higher unemployment rates are associated with higher visits levels for elective procedures and preventable conditions in the 20-49 year old group, and with visits for hypertension (a preventable condition) in the 50-64 year old group. However, in general, we find little evidence that higher unemployment rates increase visits for non-elective procedures.

Panels 5 and 10 present estimates using the sample of privately insured visits only. We still find significant positive effects on visits for suicide attempts, malaise, and upper respiratory infections in the 20-49 year old group. In the 50-64 year old group, we find positive effects on non-elective visits, preventable visits, and on GI problems, malaise, and upper respiratory infections. These estimates suggest that even those who retain private health insurance are not immune from the negative health effects of the foreclosure crisis.

As discussed above, there is good reason to expect larger effects of the foreclosure crisis on the health of blacks and Hispanics. Hence, we have estimated all of our models by age, race, and ethnicity. These estimates are shown in Appendix Tables 1 and 2, but given the length of these tables, the major findings are summarized in Figures 3 to 6.

Figure 1 shows the percent change in non-elective visits for everyone, for blacks, and for Hispanics, for each age group. The most striking finding is a much larger increase in visits for Hispanics than for everyone else. The difference is particularly pronounced among the elderly.

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The figure also illustrates the age profile noted above, with larger effects for the youngest people.   This is however, not true for blacks, where visits for children seem to be relatively unaffected by the crisis. It is possible that black children have been largely cushioned from the medical effects of the crisis by eligibility for the Medicaid program.

Figure 2 presents similar data for preventable visits. Again, the most striking finding is the much larger estimated impacts for Hispanics. Figure 3 shows an extremely similar profile for suicide attempts. One difference is that among blacks, suicide attempts are much more common among younger people than among the elderly, where they are negligible.

Figure 4 shows a similar plot for heart attack and stroke.   The 0-19 year old group are omitted since they are much less likely than other groups to have visits for these conditions. This figure is strikingly different than the others because it shows higher impacts for blacks as well as for Hispanics. In fact, blacks 50-64 have the highest estimated percent change in heart attack and stroke with foreclosures: Our estimates imply than an additional 100 foreclosures would be associated with a 7.9% increase in heart attack or stroke in this group. This analysis suggests that minorities, and especially Hispanics, really have been at double jeopardy in the foreclosure crisis – both more likely to live in highly impacted zip codes, and more likely to suffer ill health as a result.

Finally, we have estimated county-level models of the effects of foreclosure on mortality. Mortality data are available from the National Center for Health Statistics only at the county level. We do not find consistent evidence of an effect of foreclosure on mortality. However, we show above that the estimated effects of foreclosure on visits are an order of magnitude smaller in county-level models than they are in zip code level models. Since mortality is a rare event relative to hospital and ER visits, our results suggest that it might be possible to detect effects on

mortality were zip code level data to be made available, but that it is not surprising that we find

no effect in the county-level data that is available to us.

VI. Conclusions

This study represents a first look at the question of whether the foreclosure crisis has been

making Americans sick. The results suggest that it is having negative consequences not only the

health of the U.S. economy, but also on the health of millions of individuals going through

foreclosure. We find that there are significant effects on visits mental health, preventable

conditions, and on a wide range of physical conditions that are susceptible to stress including

suicide attempts, heart attack, and stroke.   However, effects differ strongly by race and by age.

The results suggest that the foreclosure crisis is having its most harmful effects on those younger

than age 65 and on minorities, especially Hispanics. Taken together, these results highlight an

important implication of the foreclosure crisis that has not received much attention from the

policy-makers.

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Appendix: Aggregating CCS Single-Diagnosis Codes

We Exclude Induced abortion (178), Normal pregnancy and delivery (196), Live born (218), and Contraception, complications of pregnancy/abortion (codes 176-195).

1) Infectious Disease – codes 1-10
2) Cancer and Benign Neoplasms– codes 11-45, 46-47
3) Diabetes-codes 49,50
4) Other Endocrine/Metabolic disorders – codes 48, 51-58
5) Hematologic Disorders, disorders of veins -- codes 59-64, 188-121
6) Anxiety related Mental Health-codes 651, 657, 660-661
7) Suicide-code 662
8) All other mental health-codes 650, 652-656, 658, 659, 663, 670
9) Headache-code 84
10) Other Central Nervous System-codes 76-83, 85, 95
11) Eye and Ear-code 86-94
12) Heart Attack and Stroke-code 97, 100, 101, 103, 104, 107-117
13) Heart valve disorders, Nonspecific Chest Pain, Conduction Disorders, Dysrhthmias– code 96, 102, 105, 106
14) Hypertension – code 98, 99
15) Upper Resp. Infection (Pneumonia, Influenza, Tonsillitis, Bronchitis, Other)-code 122-126
16) Other Resp. excluding Asthma-code 127, 129-134
17) Asthma-code 128
18) Gastrointestinal including appendicitis-code 135-155
19) Kidney and Urinary Tract (including urinary tract infections)-code 156-163
20) Genital disorders (including inflammation and menstrual disorders)-code 164-175
21) Skin infections, inflammatory conditions, ulcers, other skin-code 197-200
22) Bone disease and musculoskeletal disease (including arthritis, lupus)-code 201-212
23) Injuries-code 225-244
24) Malaise (Miscellaneous symptoms including Fever of unknown origin, lymphadenitis, nausea, abdominal pain, malaise, allergic reactions)-code 245-253
25) Other (including rehabilitation care, social admissions, medical evaluation, unclassified)-code 254-259

See http://www.hcup-us.ahrq.gov/toolssoftware/ccs/AppendixASingleDX.txt for a complete list of CCS codes and their mapping into ICD codes.

Figure 1: Change in Rates of Foreclosure in New Jersey 2005-2009

Legend

- -0.015748 - 0.000046
- 0.000047 - 0.000143
- 0.000144 - 0.000263
- 0.000264 - 0.000427
- 0.000428 - 0.006662
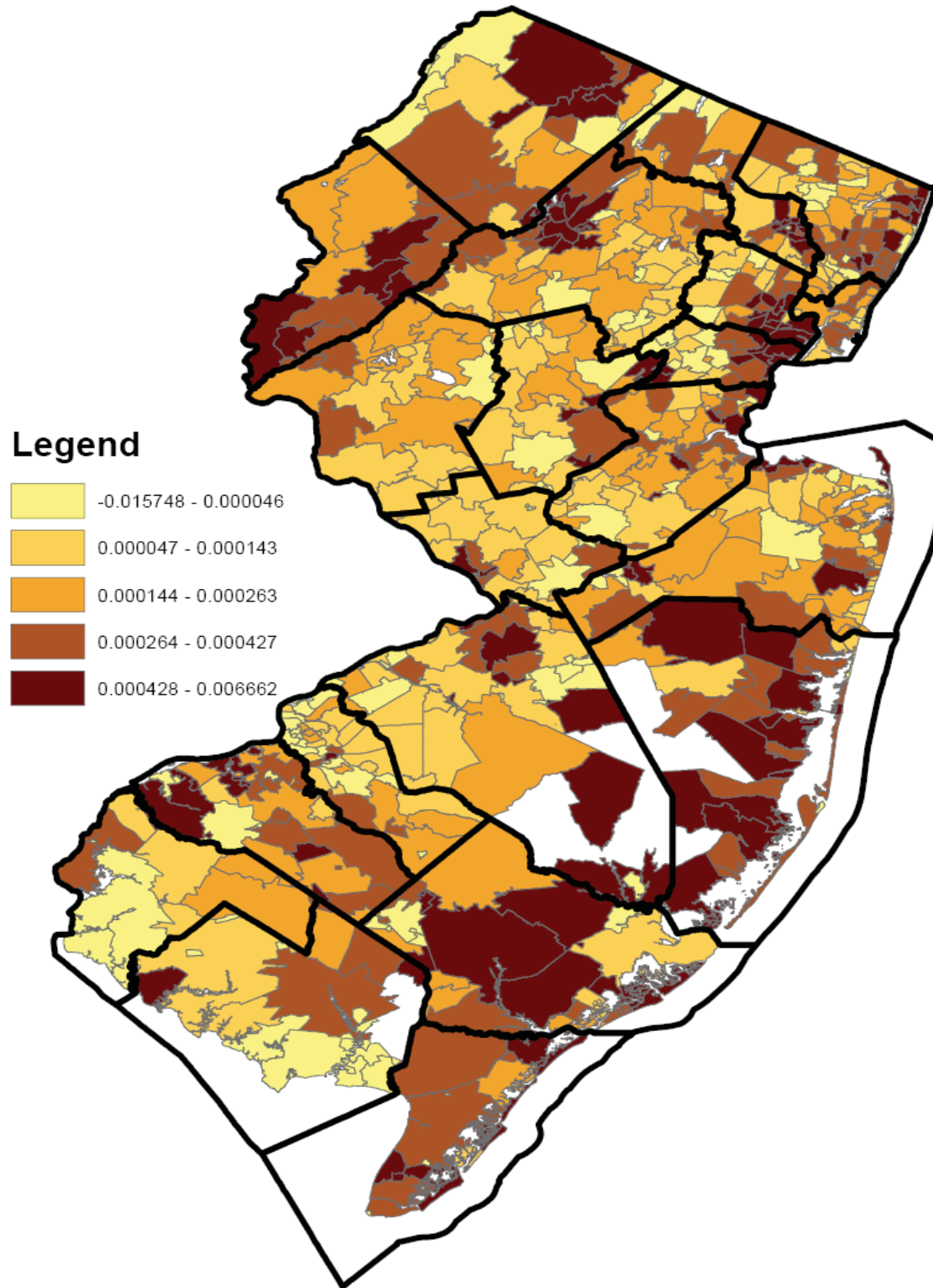
Figure 2: Change in Rates of Hospitalization and ER Visits in New Jersey, 2005-2009

Legend

	-0.195432 - -0.003557
	-0.003556 - 0.000396
	0.000397 - 0.003321
	0.003322 - 0.008502
	0.008503 - 0.457471
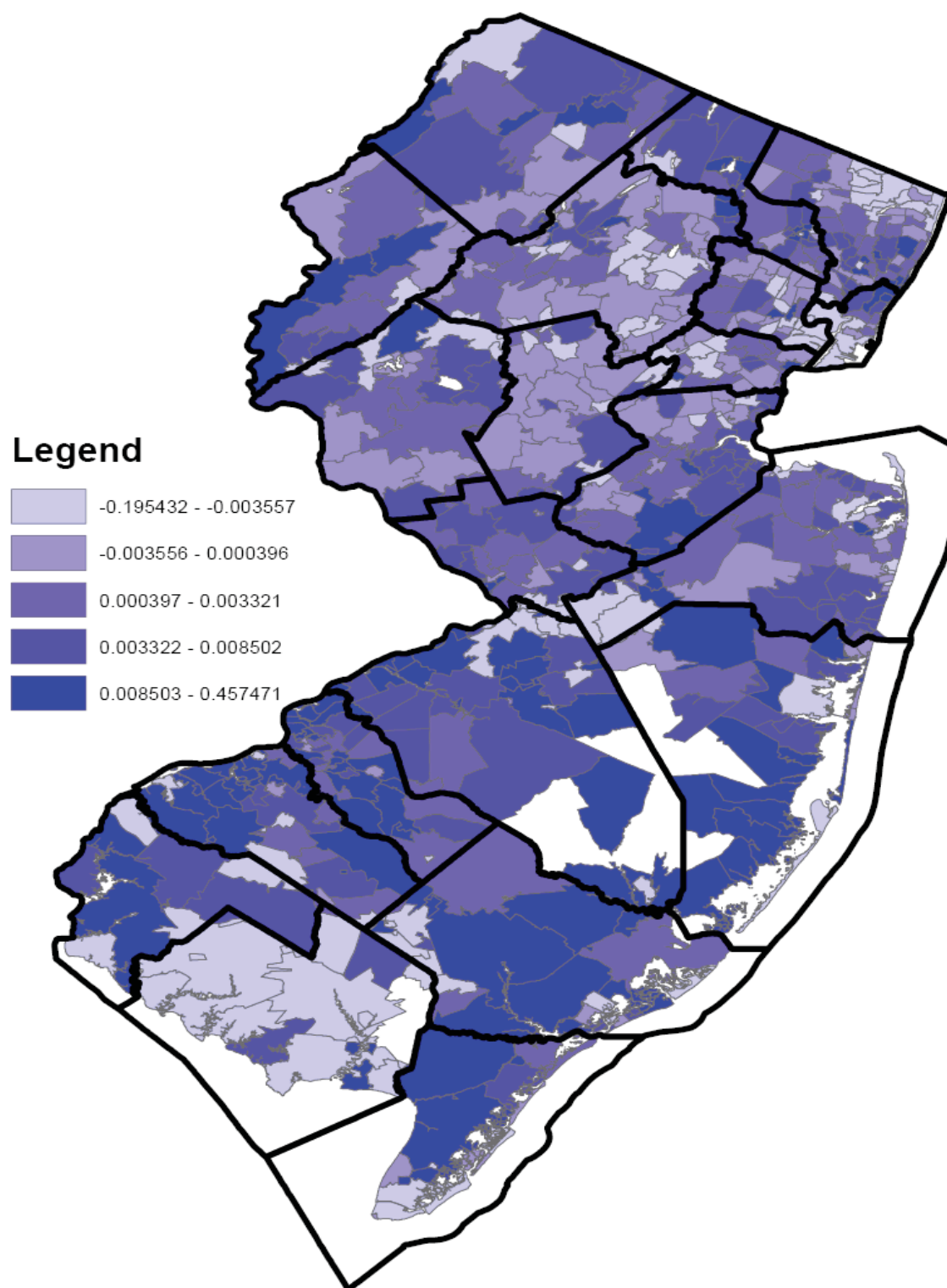
Figure 3: %Change in Non-Elective Conditions with Foreclosure by Age, Race, and Ethnicity
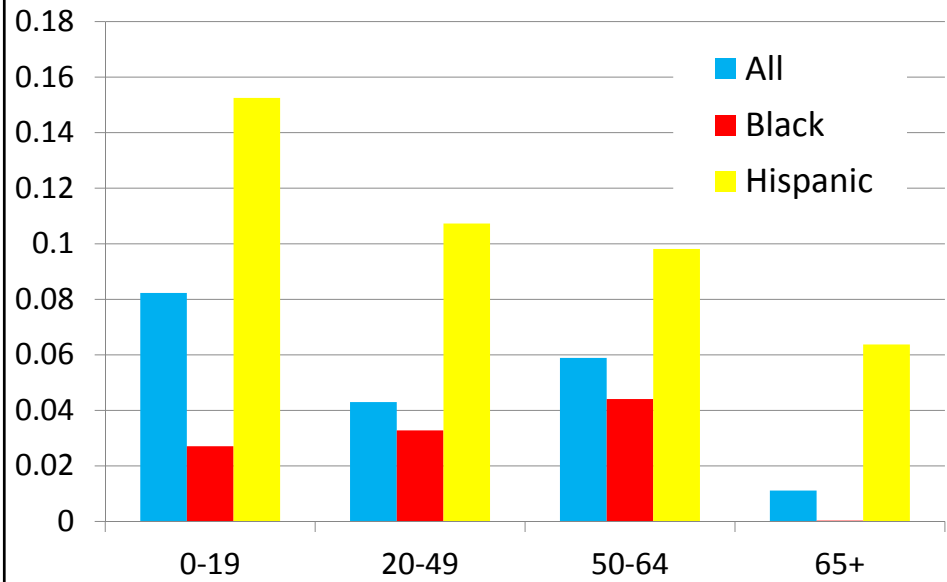
Figure 4: %Change in Preventable Conditions with Foreclosure by Age, Race, and Ethnicity

Figure 5: %Change in Suicide Attempts with Foreclosure by Age, Race, and Ethnicity

Figure 6: %Change in Heart Attack or Stroke with Foreclosure by Age, Race, and Ethnicity
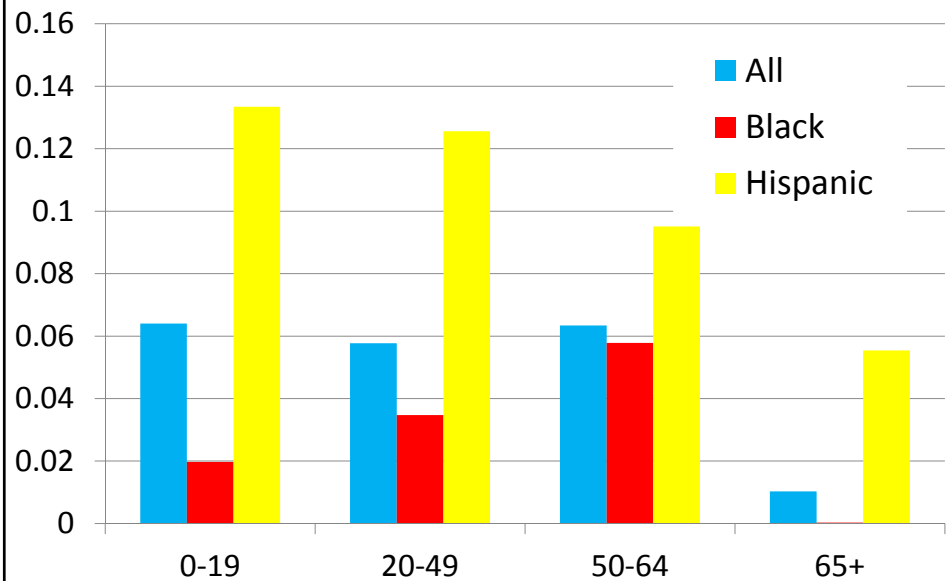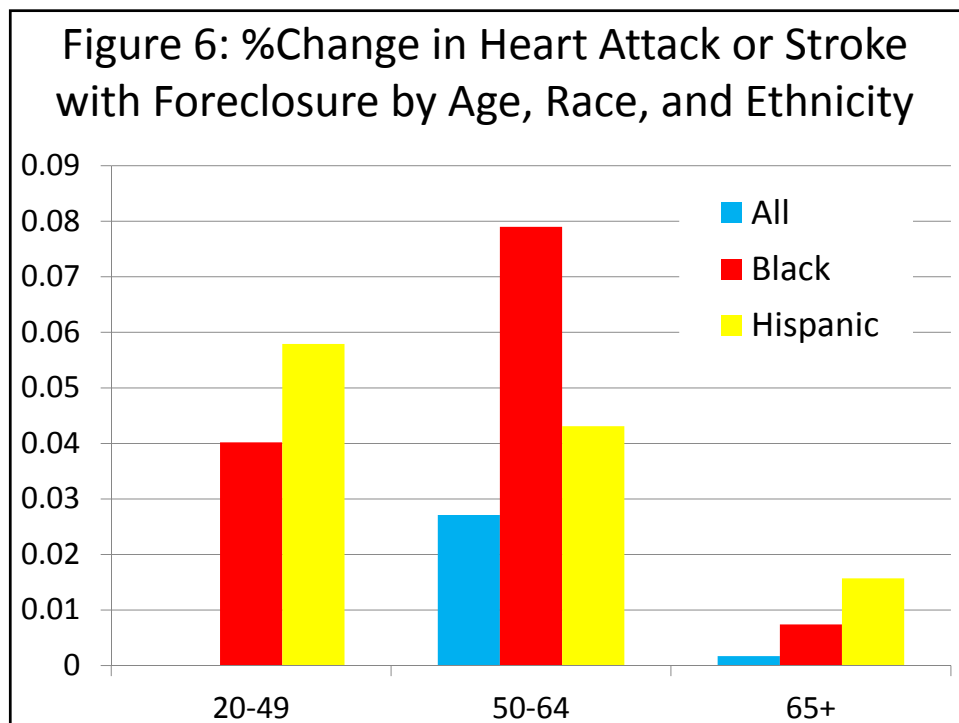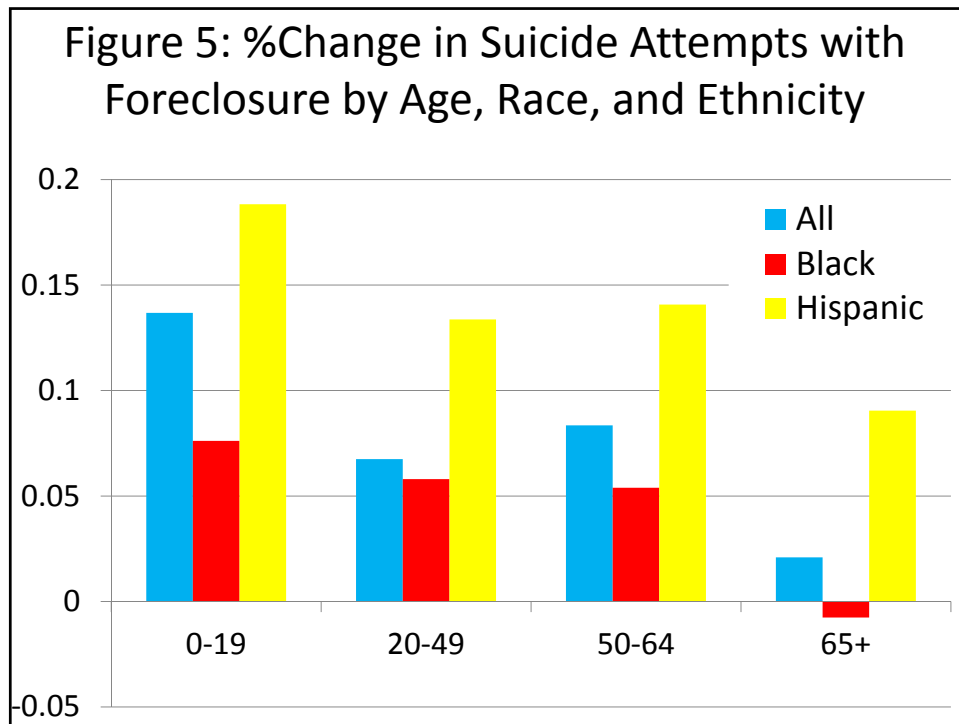
Chart 1: Implications of Alternative Scenarios for Changes in Different Types of Visits

Vists for:	Elective Procedures	Preventable Conditions	Elderly	Privately Insured	Hispanics and Blacks	Suicide	Heart Attack or Stroke	Cancer
1. Little change in access to care. Foreclosure makes people sicker.	Increase, but less than non-elective.	Increase	Increase	Increase	Larger increase given higher risk of foreclosure.	Increase	Increase	No Change
2. No change in sickness. Some formerly insured switch providers to hospitals and E.R.s	Larger increase in elective than non-elective.	Increase if preventive care less available at new venues.	No change	No change	Smaller increase given lower initial rates of private insurance.	No Change	No Change	Increase
3. People lose insurance and therefore become sicker.	Decrease	Increase	No change	No change	Smaller increase given lower initial rates of private insurance.	Increase	Increase	Decrease if uninsured less able to pay out of pocket.
4. The initially uninsured are most impacted by foreclosure and become sicker.	Decrease if uninsured less able to pay out of pocket.	Increase	No change	No change	Larger increase	Increase	Increase	Decrease if uninsured less able to pay out of pocket.

Table 1: Zipcode Means by Rate of Foreclosure in 2009

	All Zipcodes	Zips in Top 5th Foreclosures, 2009	Zips in Bottom 5th Foreclosures, 2009
Number of foreclosures 2009	90.83	201.01	4.74
	(92.92)	(108.95)	(4.19)
Number of foreclosures 2005	6.89	13.35	1.29
	(10.75)	(15.59)	(1.87)
Number REO 2009	44.38	103.67	2.50
	(49.44)	(61.99)	(2.31)
Number REO 2005	1.66	2.08	0.65
	(3.58)	(2.62)	(0.82)
Mean Housing Price, 2009	300340	179387	446468
	(224948)	(80372)	(287566)
Mean Housing Price, 2005 ($2009)	461,180	346,170	548,305
	(273,610)	(142,134)	(304,108)
Number Addresses Vacant>=1Quarter, 2009	2017.25	3035.81	923.12
	(2098.02)	(2742.75)	(954.04)
Number Addresses Vacant>=1Quarter, 2005	288.95	350.20	170.69
	(324.17)	(403.95)	(170.96)
Characteristics of Zip Code in 2000			
Mean population	35536.39	36384.89	24735.81
	(19637.08)	(18697.43)	(17974.38)
Median Income	48013.64	43608.43	63985.20
	(18845.12)	(13504.4)	(26638.31)
Percent Black	9.7	11.1	6.0
	(14.7)	(14.7)	(9.6)
Percent Hispanic	32.3	34.3	10.8
	(23.3)	(18.0)	(14.3)
Percent Over 65	12.9	11.7	13.5
	(7.9)	(7.7)	(7.7)
Poverty Rate	13.1	14.0	8.9
	(8.9)	(8.2)	(10.4)

Notes: All means are weighted using population from the 2000 U.S. Census. Characteristics of zip codes also come from the 2000 U.S. Census. Data on house prices comes from Zillow. Data on vacancie from the U.S. postal service and includes properties marked as vacant more than 90 days by mail carriers. N=3,525 zip codes (ZCTAs).
Standard deviations are in parentheses.

Table 2: Number of Hospitalizations and ER Visits by Type, High or Low Foreclosure Zip Code, and Age

	All Zips	Zips in Top 5th Fore. in 2009	Zips in Bottom 5th Fore. 2009
Visits for Elective Procedures	154.58	158.59	108.59
Privately Insured Visits for Elective Procedures	60.29	64.05	47.16
Preventable Visits	281.79	344.93	143.98
Diabetes	29.78	38.34	12.28
Hypertension	23.24	27.88	10.99
Asthma	50.85	64.50	22.51
Total Non-Elective	3020.75	3637.57	1590.00
Privately Insured Visits for Non-Elective Procedures	1015.71	1020.44	742.83
Categories of Non-Elective Visits			
Infectious Disease	80.36	91.25	43.58
Cancer and Neoplasms	25.11	26.45	15.79
Other Endocrine Disorders (not Diabetes)	33.70	40.00	19.72
Hematologic and Vein	29.75	34.61	16.05
Anxiety	79.86	86.53	45.38
Suicide Attempt	0.87	1.19	0.27
Other Mental Health	37.25	41.19	16.35
Headache	61.52	78.38	26.79
Other Central Nervous System	64.69	81.93	28.87
Eye and Ear	121.67	149.82	53.93
Heart Attack and Stroke	105.45	115.64	69.64
Chest Pain, Dysrythmias, and Conduction Disorders	127.17	151.34	73.09
Upper Respiratory Infection (Includes Flu, Pneumonia)	228.72	295.94	94.78
Other Respiratory (not Asthma)	121.24	150.41	64.45
Gastrointestinal	241.29	288.08	126.13
UI Tract	126.87	154.11	66.19
Reproductive Disorders	54.60	71.34	22.81
Skin Infection	105.20	130.88	47.52
Skelatal Disorders (including Arthritis)	157.89	193.27	91.65
Injuries	640.76	741.89	398.59
Malaise (Fever, Nausea, Abdominal Pain, etc.)	275.50	336.31	137.54
Other	101.51	121.41	42.52

Notes: "Other" includes rehabilitation, social admissions, admission for medical evaluation or screenings, and u
Newborns and deliveries are excluded from the sample. Means are weighted by zip code population in 2000.
There are 66975 zip code level observations, (3525 zip codes * 19 quarters).

Table 3: Effects of Foreclosures on Elective, Non-Elective, and Preventable (PQI) Visits

Age: 65+	Elective	Non-Elective	PQI	Diabetes	Hypertension	Asthma
Effect of	0.0122*	0.0719*	0.0103*	0.0020	0.0018	0.0018
Foreclosures	(0.006)	(0.023)	(0.006)	(0.002)	(0.002)	(0.001)
Number Visits	84.49	647.78	99.97	8.87	10.2	5.13
% Change	**0.0144%**	**0.0111%**	**0.0103%**	0.0225%	0.0176%	0.0351%
Age: 50-64						
Effect of	0.0058*	0.2390*	0.0273*	0.0077*	0.0044*	0.0027*
Foreclosures	(0.003)	(0.024)	(0.004)	(0.001)	(0.001)	(0.001)
Number Visits	37.1	405.55	43.09	7.31	6.24	5.47
% Change	**0.0156%**	**0.0589%**	**0.0634%**	**0.1053%**	**0.0705%**	**0.0494%**
Age: 20-49						
Effect of	-0.0052*	0.5275*	0.0471*	0.0090*	0.0039*	0.0081*
Foreclosures	(0.003)	(0.052)	(0.006)	(0.002)	(0.001)	(0.002)
Number Visits	35.57	1227.05	81.69	10.88	6.88	17.7
% Change	**-0.0141%**	**0.0430%**	**0.0577%**	**0.0827%**	**0.0567%**	**0.0458%**
Age 0-19						
Effect of	-0.0014	0.7193*	0.0437*	0.0014*	-0.0003	0.0136*
Foreclosures	(0.001)	(0.072)	(0.009)	(0.001)	(0.000)	(0.004)
Number Visits	7.73	874.01	68.32	1.75	0.19	24.76
% Change	-0.0129%	**0.0823%**	**0.0640%**	**0.0800%**	0.0000%	**0.0549%**

Notes:

Standard errors are clustered at the zip code level and shown in parentheses. An asterisk indicates statistical significance at the 95% level of confidence.

Bold type indicates that the estimated effect used to compute the percent change is statistically significant.

All regressions control for zip code fixed effects, number of real-estate owned properties, and for county*quarter*year effects.

Regressions are weighted using 2000 zip code population.

Table 4: Effects of Foreclosure on Mental Health

Age: 65+	Anxiety	Suicide	Other Mental
Effect of	0.0006	-0.0002	-0.0015
Foreclosures	(0.002)	(0.000)	(0.002)
Number Visits	9.56	0.05	7.29
% Change	0.0063%	0.0000%	-0.0137%
Age: 50-64			
Effect of	0.0193*	0.0004*	0.0036*
Foreclosures	(0.003)	(0.000)	(0.002)
Number Visits	13.25	0.12	5.77
% Change	**0.1457%**	**0.3333%**	**0.0624%**
Age: 20-49			
Effect of	0.0428*	0.0021*	0.0123*
Foreclosures	(0.006)	(0.000)	(0.004)
Number Visits	46.76	0.52	19.48
% Change	**0.0915%**	**0.4038%**	**0.0631%**
Age 0-19			
Effect of	0.0138*	0.0008*	0.0056*
Foreclosures	(0.002)	(0.000)	(0.002)
Number Visits	10.76	0.20	4.61
% Change	**0.1283%**	**0.4000%**	**0.1215%**

Notes:
Standard errors are clustered at the zip code level and shown in parentheses. An asterisk indicates
statistical significance at the 95% level of confidence.
Bold type indicates that the estimated effect used to compute the percent change is statistically significant.
All regressions control for zip code fixed effects, number of real-estate owned properties, and for county*quarter*year effects.
Regressions are weighted using 2000 zip code population.

Table 5: Effects of Foreclosure on Non-Elective Visits, by Category

Age: 65+	Cancer	Injuries	Malaise	Gastro-Intestinal	UI Tract	Heart Attack or Stroke	Chest pain, etc.	Upper Resp. Inf.	Other Respiratory
Effect of	0.0013	-0.0055	0.0088*	0.0033	0.0047	0.0013	0.0030	0.0083*	0.0122*
Foreclosures	(0.002)	(0.007)	(0.003)	(0.004)	(0.003)	(0.004)	(0.004)	(0.005)	(0.005)
Number Visits	12.84	118.06	42.01	57.58	39.39	75.59	44.13	27.03	42.76
% Change	0.0101%	-0.0042%	**0.0209%**	0.0057%	0.0119%	0.0017%	0.0068%	**0.0307%**	**0.0285%**
Age: 50-64									
Effect of	0.0004	0.0230*	0.0240*	0.0174*	0.0122*	0.0066*	0.0189*	0.0180*	0.0135*
Foreclosures	(0.001)	(0.005)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Number Visits	6.22	74.49	28.75	34.47	18.87	24.38	29.77	14.81	19.86
% Change	0.0064%	**0.0309%**	**0.0835%**	**0.0505%**	**0.0647%**	**0.0271%**	**0.0635%**	**0.1215%**	**0.0680%**
Age: 20-49									
Effect of	0.0001	-0.0117	0.0731*	0.0505*	0.0251*	-0.0005	0.0306*	0.0921*	0.0248*
Foreclosures	(0.001)	(0.014)	(0.008)	(0.006)	(0.005)	(0.002)	(0.005)	(0.013)	(0.005)
Number Visits	5.77	258.37	108.22	97.77	53.82	12.57	51.46	62.39	35.96
% Change	0.0017%	-0.0043%	**0.0675%**	**0.0517%**	**0.0466%**	0.0000%	**0.0595%**	**0.1476%**	**0.0690%**
Age 0-19									
Effect of	0.0006	0.0513*	0.1517*	0.0062	0.0133*	-0.0001	0.0042*	0.2580*	0.0433*
Foreclosures	(0.001)	(0.013)	(0.014)	(0.006)	(0.003)	(0.000)	(0.001)	(0.037)	(0.007)
Number Visits	1.45	221.91	110.89	62.58	20.43	1.01	6.77	140.6	28.87
% Change	0.0414%	**0.0231%**	**0.1368%**	0.0099%	**0.0651%**	0.0000%	**0.0620%**	**0.1835%**	**0.1500%**

Notes:

Standard errors are clustered at the zip code level. T-statistics shown in parentheses. An asterisk indicates statistical significance at the 95% level of confidence.

Bold type indicates that the estimated effect used to compute the percent change is statistically significant.

All regressions control for zip code fixed effects, number of real-estate owned properties, and for county*quarter*year effects.

Regressions are weighted using 2000 zip code population.

Table 6: Alternative Specifications

Age 20-49	Elective	Non-Elective	PQI	Hyper-tension	Suicide	Malaise	Gastro-Intestinal	AMI or Stroke	Chest pain, etc.	Upper Resp. Inf.
Mean # Visits (Zip)	35.57	1227.05	81.69	6.88	0.52	108.22	97.77	12.57	51.46	62.39
Mean # Visits (County)	2382	72388	4942	418	30	6394	5604	769	3090	3700
Mean # Visits (Priv. In	21.84	456.71	29.21	2.38	0.166	46.07	37.54	5.17	24.71	22.59
1. Add Controls for Zip Level Housing Prices and Vacancies, Show Controls for REO										
Foreclosures	-0.0029	0.5005*	0.0463*	0.0029*	0.0017*	0.0655*	0.0441*	0.0001	0.0271*	0.0902*
	(0.003)	(0.050)	(0.006)	(0.001)	(0.000)	(0.007)	(0.006)	(0.002)	(0.005)	(0.013)
REO	-0.0001	0.1897*	0.0263*	0.0029	0.0000	0.0220*	0.0037	-0.0001	0.0087*	0.0798*
	(0.003)	(0.053)	(0.007)	(0.002)	(0.000)	(0.010)	(0.007)	(0.002)	(0.005)	(0.018)
Housing Price	0.0000*	0.0001*	-0.0000*	0.0000	0.0000*	-0.0000*	-0.0000	-0.0000	-0.0000	-0.0000*
	-0.024	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Vacancies	-0.0017*	0.0494*	0.0052*	0.0011*	0.0007*	0.0083*	0.0053*	0.0001	0.0033*	0.0081*
	(0.001)	(0.013)	(0.001)	(0.000)	(0.000)	(0.002)	(0.001)	(0.000)	(0.001)	(0.002)
% Change	-0.0056%	**0.0408%**	**0.0567%**	**0.0422%**	**0.3269%**	**0.0605%**	**0.0451%**	0.0008%	**0.0527%**	**0.1446%**
# Obs.	43,006	43,006	43,006	43,006	43,006	43,006	43,006	43,006	43,006	43,006
2. Include 2005 to 2007 Only										
Foreclosures	-0.0055	0.3687*	0.0260	0.0078*	0.0013*	0.0705*	0.0695*	-0.0025	0.0152	-0.0154
	(0.009)	(0.143)	(0.020)	(0.004)	(0.001)	(0.023)	(0.019)	(0.006)	(0.011)	(0.020)
% Change	-0.0155%	**0.0300%**	0.0318%	**0.1134%**	**0.2500%**	**0.0651%**	**0.0711%**	-0.0199%	0.0295%	-0.0247%
# Obs.	28,200	28,200	28,200	28,200	28,200	28,200	28,200	28,200	28,200	28,200
3. Include Interaction with Unemployment Rate										
Foreclosures * UR	-0.0008	0.0785*	0.0066*	0.0006*	0.0006*	0.0080*	0.0048*	-0.0000	0.0033*	0.0203*
	(0.001)	(0.012)	(0.001)	(0.000)	(0.000)	(0.002)	(0.001)	(0.000)	(0.001)	(0.002)
Foreclosures	0.0031	-0.2435*	-0.0179	-0.0021	-0.0036*	-0.0052	0.0032	-0.0005	-0.0014	-0.1072*
	(0.006)	(0.124)	(0.015)	(0.003)	(0.001)	(0.018)	(0.014)	(0.004)	(0.008)	(0.026)
%Change, UR=10	-0.0138%	**0.0441%**	**0.0589%**	**0.0567%**	**0.4615%**	**0.0691%**	**0.0524%**	-0.0040%	**0.0614%**	**0.1536%**
%Change, UR=5	-0.0025%	**0.0121%**	**0.0185%**	**0.0131%**	-0.1154%	**0.0322%**	**0.0278%**	-0.0040%	**0.0293%**	**0.0125%**
# Obs.	63,450	63,450	63,450	63,450	63,450	63,450	63,450	63,450	63,450	63,450
4. Estimate Model at County Level										
Foreclosures	-0.0423*	0.7334*	0.0656*	0.0047*	0.0110*	0.1236*	0.0707*	-0.0013	0.0499*	0.145*
	(0.019)	(0.199)	(0.014)	(0.001)	(0.000)	(0.014)	(0.008)	(0.002)	(0.015)	(0.064)

	Elective	Non-Elective	PQI	Hyper-tension	Suicide	Malaise	Gastro-Intestinal	Heart Attack or Stroke	Chest pain, etc.	Upper Resp. Inf.
Unemployment Rate	2382.458*	476.009	60.333*	5.7476*	-2.507	26.303	13.18	1.439	27.061	131.855
	(109.849)	(316.189)	(28.015)	(2.511)	(1.547)	(33.241)	(12.484)	(3.470)	(27.179)	(98.450)
% Change	-0.0018%	0.0010%	0.0013%	0.0011%	0.0367%	0.0019%	0.0013%	-0.0002%	0.0016%	0.0038%
# Obs.	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898

5. Include Privately Insured Visits Only

	Elective	Non-Elective	PQI	Hyper-tension	Suicide	Malaise	Gastro-Intestinal	Heart Attack or Stroke	Chest pain, etc.	Upper Resp. Inf.
Foreclosures	-0.0037*	-0.0229	-0.0023	0.0000	0.0004*	0.0077*	-0.0016	-0.0015	0.0012	0.0148*
	(0.002)	(0.025)	(0.003)	(0.001)	(0.000)	(0.004)	(0.003)	(0.001)	(0.002)	(0.004)
% Change	-0.0169%	-0.0050%	-0.0079%	0.0000%	0.2410%	0.0167%	-0.0043%	-0.0290%	0.0049%	0.0655%
# Obs.	63,450	63,450	63,450	63,450	63,450	63,450	63,450	63,450	63,450	63,450

Age 50-64	Elective	Non-Elective	PQI	Hyper-tension	Suicide	Malaise	Gastro-Intestinal	Heart Attack or Stroke	Chest pain, etc.	Upper Resp. Inf.
Mean # Visits (Zip)	37.1	405.55	43.09	6.24	0.12	28.75	34.47	24.38	29.77	14.82
Mean # Visits (County)	2164	23392	2600	403	6.96	1618	2000	1391	1634	865
Mean # Visits (Priv. In)	24.05	181.07	15.97	2.46	0.048	14.44	16.69	11.32	16.46	6.32

6. Add Controls for Zip Level Housing Prices and Vacancies, Show Controls for REO

	Elective	Non-Elective	PQI	Hyper-tension	Suicide	Malaise	Gastro-Intestinal	Heart Attack or Stroke	Chest pain, etc.	Upper Resp. Inf.
Foreclosures	0.0059*	0.2220*	0.0266*	0.0043*	0.0003	0.0218*	0.0143*	0.0075*	0.0176*	0.0180*
	(0.003)	(0.021)	(0.004)	(0.001)	(0.000)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)
REO	0.0036	0.1483*	0.0217*	0.0018	0.0003	0.0094*	0.0112*	-0.0044*	0.0128*	0.0185*
	(0.003)	(0.032)	(0.007)	(0.001)	(0.000)	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)
Housing Price ($1000)	0.0033	-0.0018	-0.0024	0.0015	0.0004*	0.0002	-0.0039	-0.0012*	-0.0024	0.0012
	(0.002)	(0.0017)	(0.002)	(.0008)	(0.0001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)
Vacancies	0.0007	0.0373*	0.0038*	0.0011*	0.0002*	0.0031*	0.0024*	-0.0004	0.0022*	0.0011*
	(0.001)	(0.005)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)
% Change	0.0159%	0.0547%	0.0617%	0.0689%	0.2500%	0.0758%	0.0415%	0.0308%	0.0591%	0.1215%
# Obs.	43,006	43,006	43,006	43,006	43,006	43,006	43,006	43,006	43,006	43,006

7. Include 2005 to 2007 Only

	Elective	Non-Elective	PQI	Hyper-tension	Suicide	Malaise	Gastro-Intestinal	Heart Attack or Stroke	Chest pain, etc.	Upper Resp. Inf.
Foreclosures	-0.0014	0.2009*	0.0236*	0.0023	0.0003	0.0260*	0.0160*	0.0041	0.0075	0.0099
	(0.009)	(0.049)	(0.013)	(0.005)	(0.000)	(0.008)	(0.009)	(0.007)	(0.007)	(0.006)
%Change	-0.0054%	0.0495%	0.0548%	0.0369%	0.2500%	0.0904%	0.0464%	0.0168%	0.0252%	0.0668%
# Obs.	28,184	28,184	28,184	28,184	28,184	28,184	28,184	28,184	28,184	28,184

8. Include Interactions with Unemployment Rate

	Elective	Non-Elective	PQI	Hyper-tension	Suicide	Malaise	Gastro-Intestinal	Heart Attack or Stroke	Chest pain, etc.	Upper Resp. Inf.
Foreclosures * UR	0.0006	0.0322*	0.0035*	0.0008*	0.0001*	0.0026*	0.0023*	-0.0006	0.0021*	0.0032*
	(0.001)	(0.005)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)

Foreclosures	-0.0003	-0.0780	-0.0071	-0.0033	-0.0010**	-0.0015	-0.0054	0.0124*	-0.0016	-0.0132*
	(0.006)	(0.052)	(0.009)	(0.002)	(0.000)	(0.006)	(0.007)	(0.004)	(0.007)	(0.007)
%Change, UR=10	0.0154%	**0.0602%**	**0.0647%**	**0.0753%**	**0.0000%**	**0.0852%**	**0.0511%**	0.0263%	**0.0652%**	**0.1269%**
%Change, UR=5	0.0073%	**0.0205%**	**0.0241%**	**0.0112%**	**-0.4167%**	**0.0400%**	**0.0177%**	0.0008%	**0.0299%**	**0.0189%**
# Obs.	63,450	63,450	63,450	63,450	63,450	63,450	63,450	63,450	63,450	63,450

9. Estimate Model at County Level

Foreclosures	-0.0249*	0.3712*	0.0374*	0.0077*	0.0027*	0.0386*	0.0235*	0.0010	0.0220	0.0240
	(0.011)	(0.124)	(0.017)	(0.002)	(0.000)	(0.010)	(0.008)	(0.005)	(0.014)	(0.017)
Unemployment Rate	-9.871	134.009	28.685	6.160*	-0.3813	7.59	9.289	5.757	16.153	21.825
	(11.377)	(186.747)	(21.157)	(2.851)	(0.455)	(15.969)	(14.582)	(5.060)	(20.936)	(21.632)
% Change	-0.0009%	**0.0016%**	**0.0014%**	**0.0019%**	**0.0388%**	**0.0024%**	**0.0012%**	0.0001%	0.0013%	0.0028%
# Obs.	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898

10. Include Privately Insured Visits Only

Foreclosures	0.0025	0.0356*	0.0051*	0.0005	0.0001	0.0042*	0.0034*	-0.0002	0.0011	0.0067*
	(0.002)	(0.010)	(0.002)	(0.001)	(0.000)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)
% Change	0.0104%	**0.0197%**	**0.0319%**	0.0203%	0.2083%	**0.0291%**	**0.0204%**	0.0000%	0.0067%	**0.1060%**
# Obs.	63,450	63,450	63,450	63,450	63,450	63,450	63,450	63,450	63,450	63,450

Notes: Standard errors are clustered at the zip code level and shown in parentheses. An asterisk indicates statistical significance at the 95% level of confidence.

Bold type indicates that the estimated coefficient used to compute the percent change is statistically significant.

All regressions control for zip code fixed effects, number of real-estate owned properties, and for county*quarter*year effects.

Percent changes are calculated using most recently given means in all cases.

Regressions are weighted using 2000 zip code population.

Appendix 1: Effects of Foreclosure by Race and Ethnicity

	Elective	Non Elective	PQI	Diabetes	Hypertension	Asthma	Anxiety	Suicide	Other Mental
Black 65+									
Effect of	-0.0002	0.0006	0.0001	0.0030	0.0006	-0.0029	0.0011	0.0001	0.0013
Foreclosures	(0.004)	(0.026)	(0.013)	(0.003)	(0.004)	(0.002)	(0.001)	(0.000)	(0.001)
Number Visits	17.00	202.81	39.05	6.51	6.33	2.74	1.28	0.00	1.92
% Change	0.0000%	0.0003%	0.0003%	0.0461%	0.0095%	-0.0730%	0.0859%	…	0.0677%
Black 50-64									
Effect of	0.0027	0.1091*	0.0203*	0.0019	0.0068*	0.0039*	0.0045*	0.0002	0.0031
Foreclosures	(0.003)	(0.039)	(0.007)	(0.002)	(0.003)	(0.002)	(0.002)	(0.000)	(0.002)
Number Visits	13.14	247.6	35.12	6.97	7.8	6.01	5.08	0.05	4.17
% Change	0.0205%	**0.0441%**	**0.0578%**	0.0273%	**0.0872%**	**0.0649%**	**0.0886%**	0.4000%	0.0743%
Black 20-49									
Effect of	-0.0010	0.2267*	0.0190*	0.0039*	0.0033	0.0045	0.0177*	0.0011*	0.0061
Foreclosures	(0.003)	(0.064)	(0.007)	(0.002)	(0.002)	(0.003)	(0.006)	(0.000)	(0.006)
Number Visits	15.06	690.84	54.81	8.32	8.48	15.47	14.3	0.2	11.59
% Change	-0.0066%	**0.0328%**	**0.0347%**	**0.0469%**	0.0389%	0.0291%	**0.1238%**	**0.5500%**	0.0526%
Black 0-19									
Effect of	-0.0019*	0.1209*	0.0076	0.0002	-0.0000	0.0039	0.0050*	0.0003	0.0020
Foreclosures	(0.001)	(0.041)	(0.006)	(0.001)	(0.000)	(0.005)	(0.002)	(0.000)	(0.002)
Number Visits	3.2	445.49	38.55	0.91	0.17	21.24	2.97	0.06	2.72
% Change	**-0.0600%**	**0.0271%**	0.0197%	0.0220%	0.0000%	0.0184%	**0.1684%**	0.5000%	0.0735%
Hispanic 65+									
Effect of	0.0104*	0.1460*	0.0228*	0.0016	0.0040*	0.0021*	0.0021*	0.0001*	-0.0003
Foreclosures	(0.004)	(0.040)	(0.008)	(0.001)	(0.002)	(0.001)	(0.001)	(0.000)	(0.001)
Number Visits	23.4	229.02	41.13	5.05	5.08	2.35	1.98	0.01	1.99
% Change	**0.0444%**	**0.0637%**	**0.0554%**	0.0317%	**0.0787%**	**0.0894%**	**0.1061%**	**1.0000%**	0.0000%
Hispanic 50-64									
Effect of	0.0028*	0.1635*	0.0185*	0.0062*	0.0028*	0.0031*	0.0090*	0.0003*	-0.0004
Foreclosures	(0.002)	(0.020)	(0.003)	(0.001)	(0.001)	(0.001)	(0.002)	(0.000)	(0.001)
Number Visits	10.82	166.65	19.46	4.61	3.2	2.42	4.54	0.02	2.41
% Change	**0.0259%**	**0.0981%**	**0.0951%**	**0.1345%**	**0.0875%**	**0.1281%**	**0.1982%**	**1.5000%**	0.0000%

Hispanic 20-49

Effect of	0.0016	0.6224*	0.0506*	0.0066*	0.0037*	0.0087*	0.0228*	0.0009*	0.0076*
Foreclosures	(0.002)	(0.071)	(0.006)	(0.002)	(0.001)	(0.002)	(0.005)	(0.000)	(0.002)
Number Visits	12.57	579.81	40.3	6.29	2.87	7.77	20.69	0.15	8.61
% Change	0.0127%	**0.1073%**	**0.1256%**	**0.1049%**	**0.1289%**	**0.1120%**	**0.1102%**	**0.6000%**	**0.0883%**

Hispanic 0-19

Effect of	-0.0004	0.9825*	0.0680*	0.0018*	-0.0006*	0.0208*	0.0070*	0.0000	0.0024*
Foreclosures	(0.002)	(0.112)	(0.010)	(0.001)	(0.000)	(0.005)	(0.002)	(0.000)	(0.001)
Number Visits	4.35	644.15	50.96	0.88	0.13	16.33	5.97	0.09	2.25
% Change	0.0000%	**0.1525%**	**0.1334%**	**0.2045%**	**0.0000%**	**0.1274%**	**0.1173%**	0.0000%	**0.1067%**

Notes: Only zip codes for CA, NJ and FL are included. AZ does not identify race and ethnicity.
Standard errors are clustered at the zip code level and shown in parentheses. An asterisk indicates
statistical significance at the 95% level of confidence. Bold type indicates that the estimated
effect used to compute the percent change is statistically significant. All regressions control for
zip code fixed effects, number of real-estate owned properties, and for county*quarter*year effects.
Regressions are weighted using 2000 zip code population.

Appendix 2: Effects on Visits by Type, Race, and Ethnicity

	Cancer	Injuries	Malaise	Gastro-Intestinal	UI Tract	Heart Attack or Stroke	Chest pain, etc.	Upper Resp. Inf.	Other Respiratory
Black 65+									
Effect of	0.0006	-0.0012	-0.0017	0.0063*	0.0026	0.0019	0.0010	-0.0020	-0.0054*
Foreclosures	(0.002)	(0.004)	(0.003)	(0.003)	(0.003)	(0.006)	(0.003)	(0.003)	(0.003)
Number Visits	4.29	23.58	13.17	16.83	12.58	25.67	13.21	7.18	13.21
% Change	0.0140%	-0.0042%	-0.0076%	**0.0374%**	0.0207%	0.0074%	0.0076%	-0.0279%	**-0.0379%**
Black 50-64									
Effect of	0.0013	0.0105*	0.0083*	0.0072*	0.0050*	0.0131*	0.0063	0.0080*	0.0120*
Foreclosures	(0.001)	(0.005)	(0.004)	(0.004)	(0.003)	(0.004)	(0.006)	(0.004)	(0.005)
Number Visits	3.74	36.38	15.41	17.4	8.48	16.58	16.66	10.32	12.52
% Change	0.0348%	**0.0289%**	**0.0539%**	**0.0414%**	**0.0590%**	**0.0790%**	0.0378%	**0.0775%**	**0.0958%**
Black 20-49									
Effect of	0.0009	0.0122	0.0310*	0.0227*	0.0109*	0.0036	0.0157*	0.0190*	0.0069*
Foreclosures	(0.002)	(0.014)	(0.008)	(0.007)	(0.005)	(0.002)	(0.006)	(0.009)	(0.003)
Number Visits	3.78	117.39	53.43	46.99	25.65	8.95	29.5	42.03	21.75
% Change	0.0238%	0.0104%	**0.0580%**	**0.0483%**	**0.0425%**	0.0402%	**0.0532%**	**0.0452%**	**0.0317%**
Black 0-19									
Effect of	-0.0008	0.0069	0.0374*	-0.0082*	0.0011	-0.0005	-0.0014	0.0418*	0.0114*
Foreclosures	(0.001)	(0.010)	(0.009)	(0.004)	(0.002)	(0.000)	(0.001)	(0.016)	(0.004)
Number Visits	0.47	95.82	49.17	29.92	9.13	0.51	4.2	72.81	15.48
% Change	0.0000%	0.0072%	**0.0761%**	**-0.0267%**	0.0120%	0.0000%	-0.0238%	**0.0574%**	**0.0736%**
Hispanic 65+									
Effect of	0.0031*	0.0230*	0.0141*	0.0142*	0.0117*	0.0043	0.0099*	0.0081*	0.0129*
Foreclosures	(0.002)	(0.007)	(0.004)	(0.005)	(0.004)	(0.005)	(0.003)	(0.003)	(0.005)
Number Visits	4.93	31.12	15.58	23.9	15.34	27.43	14.39	9.86	15.24
% Change	**0.0629%**	**0.0739%**	**0.0905%**	**0.0594%**	**0.0763%**	0.0157%	**0.0688%**	**0.0822%**	**0.0846%**
Hispanic 50-64									
Effect of	0.0013	0.0151*	0.0183*	0.0122*	0.0087*	0.0040*	0.0107*	0.0123*	0.0089*
Foreclosures	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)
Number Visits	2.77	25.16	13	16.49	8.97	9.28	11.25	6.24	6.74
% Change	0.0469%	**0.0600%**	**0.1408%**	**0.0740%**	**0.0970%**	**0.0431%**	**0.0951%**	**0.1971%**	**0.1320%**

Hispanic 20-49

Effect of	0.0013	0.0403*	0.0722*	0.0430*	0.0338*	0.0027*	0.0230*	0.0882*	0.0263*
Foreclosures	(0.001)	(0.014)	(0.009)	(0.007)	(0.006)	(0.001)	(0.004)	(0.012)	(0.004)
Number Visits	3.34	106.94	54.02	51.7	28.32	4.66	22.79	28.43	15.66
% Change	0.0389%	**0.0377%**	**0.1337%**	**0.0832%**	**0.1194%**	**0.0579%**	**0.1009%**	**0.3102%**	**0.1679%**

Hispanic 0-19

Effect of	0.0008	0.1224*	0.1645*	0.0342*	0.0238*	0.0010*	0.0094*	0.2984*	0.0468*
Foreclosures	(0.001)	(0.019)	(0.020)	(0.009)	(0.004)	(0.001)	(0.002)	(0.049)	(0.009)
Number Visits	1.25	135.13	87.34	54.52	15.92	0.62	4.29	119.96	21.78
% Change	0.0640%	**0.0906%**	**0.1883%**	**0.0627%**	**0.1495%**	**0.1613%**	**0.2191%**	**0.2487%**	**0.2149%**

Notes: Only zip codes for CA, NJ and FL are included. AZ does not identify race and ethnicity.
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statistical significance at the 95% level of confidence. Bold type indicates that the estimated
effect used to compute the percent change is statistically significant. All regressions control for
zip code fixed effects, number of real-estate owned properties, and for county*quarter*year effects.
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