As Goes the City? Older Americans' Home Upkeep in the Aftermath of the Great Recession

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ABSTRACT

The private home is a crucial site in the aging process, yet the upkeep of this physical space often poses a challenge for community-dwelling older adults. Previous efforts to explain variation in disorderly household conditions have relied on individual-level characteristics, but ecological perspectives propose that home environments are inescapably nested within the dynamic socioeconomic circumstances of surrounding spatial contexts, such as the metro area. We address this ecological embeddedness in the context of the Great Recession, an event in which some U.S. cities saw pronounced and persistent declines across multiple economic indicators while other areas rebounded more rapidly. Panel data (2005–6 and 2010–11) from a national survey of older adults were linked to interviewer home evaluations and city-level economic data. Results from fixed-effects regression support the hypothesis that older adults dwelling in struggling cities experienced an uptick in disorderly household conditions. Findings emphasize the importance of city-specificity when probing effects of a downturn. Observing changes in home upkeep also underscores the myriad ways in which a city's most vulnerable residents—older adults, in particular—are affected by its economic fortunes.

KEYWORDS: Great Recession; cities; aging; household conditions; economic decline.

The developed world is experiencing pronounced and irreversible changes in population aging. Longer life spans imply that older men and women may live longer periods of time with chronic conditions and some functional impairment (Crimmins and Beltran-Sanchez 2011), yet many older adults are able to live independently or with minimal assistance, foregoing full institutionalization until very late ages. Concurrent to this demographic change and in line with older adults' preferences,

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the United States and other industrialized countries have made aging-in-place an explicit social policy objective (Cutchin 2003; Lui et al. 2009). Indeed, besides its role as a “component of ontological security” and a “constant space where routines are performed” (Downing 2016:91), the private home is becoming an integral site for support provision and chronic disease management for an aging population.

Still, among the many older adults aging in place in U.S. communities, a significant number face considerable difficulty keeping their living space in desirable order and repair (Peace, Holland, and Kellaher 2011). Social workers use terms such as *squalor* or *environmental self-neglect* to identify cases where clutter, odor, structural decay, or other forms of household disarray are extreme enough to warrant professional intervention (Burnett et al. 2014; McDermott, Linahan, and Squires 2009). Other social scientists refer to this complex of problems as *household disorder*, noting that home upkeep conditions exist along a continuum that transcends some discrete endpoint established by a clinical designation (Cornwell 2014; Schafer, Upenieks, and MacNeil 2018). Whatever the label assigned, an unruly home environment is no benefit to older adults. Older adults living amidst residential disorder are at heightened risk for functional decline (Wahl et al. 2009), relationship conflict and social isolation (Cornwell 2016), and mortality (Dong et al. 2009). Moreover, many such older adults are subjected to social control in the form of medicalized labelling (e.g., Diogenes syndrome; Clark, Mankikar, and Gray 1975) and involuntary nursing home institutionalization (Leyland, Scott, and Dawson 2016).

Though the varied consequences of household disorder are coming into clearer focus, *causes* of this phenomenon are still primarily understood from an individualistic framework—as a function, for instance, of older adults’ gender, race/ethnicity, educational attainment, or mental health (Burnett et al. 2014; Cornwell 2014). Deploying a broader sociological vision, the present article situates U.S. household (dis)order within the unstable conditions of late capitalism. Do older adults’ home environments suffer alongside declines in their surrounding economic environment?

The 2007–2008 financial crisis was the worst downturn since the Great Depression, leading to nearly unmatched spikes in job loss, asset depletion, and home foreclosure. The crisis—itself ignited, in part, by the outsized significance of the American home and the financial institutions profiting from it (Baker 2008; Forrest and Yip 2011)—has been linked to diverse downstream problems, including depression and suicide (Cagney et al. 2014; Modrek et al. 2013), metabolic disorder and weight gain (Arcaya et al. 2013), and spikes in domestic violence and child maltreatment (Lersch, Sellers, and Cromwell 2015; Wood et al. 2012). As we recount below, there is a rationale for expecting that household environments would be similarly responsive to recession-related economic shocks. Nevertheless, the impact of the Great Recession was not felt evenly across the United States. Despite the fact that few Americans emerged from the crisis completely unscathed, cities varied widely in their susceptibility to the downturn’s effects and in their post-recession recovery (Arias, Gascon, and Rapach 2016; Hyra and Rugh 2016). We therefore consider variability in older adults’ exposure to the economic downturn, hypothesizing that localized, city-specific signs of decline are associated with higher levels of household disorder.

Foregrounding the role of the city in the disordering of older adults’ homes captures an important macro-micro link between broad economic forces and the quality of the lived environment. It also seizes an opportunity to “recover the urban in gerontology” (Phillipson 2004:969), illustrating how the precarious fortunes of the global city impinge on some of its most vulnerable citizens. In the following sections, we first provide a brief theoretical account of our guiding environmental gerontology framework and offer the case for a more city-centric approach. We next articulate a series of mechanisms that connect cities’ economic struggles to household disorder. Finally, we proceed to an empirical analysis which integrates longitudinal survey data from the National Social Life, Health, and Aging Project (NSHAP) with economic indicator and foreclosure data from 57 metropolitan statistical areas (MSAs) in the United States.

BACKGROUND AND THEORY

According to the perspective of environmental gerontology—often referred to as an ecological theory of aging—aging in place is “a transaction between an aging individual and his or her residential environment that is characterized by changes in both person and environment over time” (Lawton 1990:288). This dynamic, interactive model of aging and context proposes that well-being is optimized when the demandingness of one’s environment fits a person’s physical and cognitive ability (Lawton and Nahemow 1973). Older adults are typically understood to be more susceptible to the effects of chronic contextual stressors and acute environmental shocks than are younger people (Cohen-Mansfield, Shmotkin, and Hazan 2010; Glass and Balfour 2003). An ecological approach also recognizes the multilayered configuration of contextual entities, arguing that environments—from nation state to living room—should be “conceived as a set of nested structures, each inside the next, like a set of Russian dolls” (Bronfenbrenner 1979:3).

The city is an environmental unit of ascendant importance in late modernity. In a prescient essay written just before the Great Recession, Phillipson (2004) calls for a “new environmental gerontology” that recovers an explicit urbanism and prioritizes the transaction between older adults and metropolitan context. This is necessary because of the “urban turn” in recent history; more than 80.7 percent of the U.S. population—and 66 percent of people age 65 and over—will be city dwellers by 2030 (United States Census 2010; United Nations World Population Report 2015). What is more, cities themselves are becoming increasingly unequal; the forces of globalization portend rapid capital accumulation and urban renewal for some metro areas, but stagnation and decline for many others. Aging-in-place in the contemporary city means confronting the risks and opportunities tied to the trajectory of that locale (Phillipson 2004).

The weight of the city becomes unmistakable in light of the recent economic downturn. In the aftermath of the 2007–2008 crisis,¹ metro housing markets faltered to different degrees, as did corresponding declines in property values, tax revenues, and changes to municipal tax bases (Brown, Webb, and Chung 2013). This contributed to fiscal stress in a number of American cities, even as others quickly rebounded (Justice and Scorsone 2013). And in reaction to the recession, city municipalities initiated policy responses that would be obscured in a less granular, state-level analysis (e.g., see Chernick and Reschovsky 2017; Kim 2017). Putting the Great Recession in the context of other downturns, a recent study of business cycles spanning 1990–2016 finds that MSAs in the United States fared differently during each national economic slump—some metro areas even escaping virtually untouched (Arias, Gascon, and Rapach 2016). This variation is linked to city-level traits, such as elasticity of housing supply and human capital of the populace.

Potential Mechanisms and Study Hypothesis

For an ecological theory of aging, city-specific declines in the wake of economic recession deserve a place in the explanation of changes to older adults’ immediate lived environments. Prior research suggests several mechanisms that link outcomes of the financial crisis to the upkeep of older Americans’ homes. We highlight four of these potential pathways.

First, the Great Recession had obvious implications for Americans’ household assets. Housing values comprise a large share of adults’ net worth (De Nardi, French, and Benson 2012), so people living in cities where the housing market was hardest hit experienced a sizable wealth shock. Evidence from the Health and Retirement Survey suggests that wealth declines are associated with lowered household expenditures (Christelis, Georgarakos, and Japelli 2015), which likely includes spending on home maintenance and renovation, home cleaning services, and other assistance or work that

1 The importance of city specificity is made clear in the fallout of the Great Recession, but major U.S. metro areas were also relevant entities in its run-up. Housing markets, though globally interconnected, exhibit localized conditions of supply and demand and bear city-specific patterns of valuation and leverage (Lucy 2017). In aggregate, these major metropolitan housing markets played an outsized role in the increasing financialization of the U.S. economy (e.g., through innovations such as mortgage-backed securities and collateralized debt obligations).

would otherwise improve home upkeep or forestall disorder. When declining house values create risk of default, people cut back investments in their homes (Melzer 2017). That said, some evidence suggests that sensitivity to wealth shocks is weaker for adults 66 and over relative to those aged 51-65 (Angrisani, Hurd, and Rohwedder 2015).

Second, economic recessions are stress-inducing and linked to mental health problems. Older adults living in areas marked by high foreclosure rates during the Great Recession, for instance, were at increased risk of depression (Cagney et al. 2014). Prior research, moreover, has linked distress to increases in household disorder, suggesting that mental health problems undercut people's energy, ability, or motivation to maintain orderliness in the home (Cornwell 2014; Upenieks, Schafer, and Iveniuk 2016). It is important to note that financial strains linked to a recession need not be experienced firsthand to be consequential. Incidents such as joblessness, foreclosure, or income loss in the lives of neighbours, friends, and family members often spill into the lived experience of older adults via network stress, ultimately challenging people's own adaptive psychosocial resources (Aldwin 1990; Thoits 1995).

Third, the Great Recession brought on a spike in multi-family housing units and residential crowding (Eggers and Mouman 2013). Though we are not aware of any studies that differentiate these patterns by municipality, it is likely that the hardest hit cities were those where household consolidation was most pronounced. Cornwell (2014), moreover, finds that older adults residing with two or more other persons are more likely to live amidst disorderly conditions than are their counterparts dwelling alone or with a partner. It is possible that larger households are more unstable and have a less defined set of roles for home upkeep than smaller ones; overcrowding may also make it harder to keep things clean and free of clutter.

Fourth, processes sometimes associated with social disorganization theory may afflict cities hardest hit by the Great Recession. There is some evidence that areas affected by an economic recession tend to show an uptick in undesirable social behavior (e.g., more complaints of public drunkenness, harassment), domestic disputes, and crime (Schneider, Harknett, and McLanahan 2016; Lersch, Sellers, and Cromwell 2015; Wolff, Cochran, and Baumer 2014). Foreclosures, in particular, destabilize communities by fomenting residential turnover and by dotting the landscape with untended vacant homes (Teasdale, Clark, and Hinkle 2012; Wolff et al. 2014). Social disorganization theory suggests that economic breakdowns corrode social bonds (Shaw and McKay 1942), undermining exchanges of support and the community's ability to regulate behavior "according to desired principles and values" (Janowitz 1975:82). Diminished solidarity and informal control may, in turn, have implications for the social distribution of environmental self-neglect. Living in a residential area marked by mounting disorder could hamper people's ability to secure help with home maintenance or other forms of practical support. And older adults in such declining communities may not anticipate frequent visits from those outside their household—effectively lowering the stakes of violating common norms of home upkeep (e.g., keeping things "presentable").

Not all of the above explanations can be directly tested with our data. But taken together, past findings lead to the hypothesis that *city-level economic decline (increases in unemployment and home foreclosures, declining home prices and incomes) is associated with greater levels of household disorder*. A positive association between decline and disorder would suggest that household upkeep is among the many social processes touched by recession-era economic unrest.

METHOD

Data and Sample

We use survey data from the two available waves of National Social Life, Health, and Ageing Project (NSHAP) linked to records from the U.S. Census Bureau, the U.S. Bureau of Labor Statistics, and the National Realty Association. The NSHAP was launched in 2005–2006 as a nationally-representative study of 3,005 adults aged 57-85, including an over-sample of African Americans and

Latinos. The NSHAP's multi-stage area probability sampling frame includes 57 Metropolitan Statistical Areas (MSAs). Additional details about the sampling design are available in [Suzman \(2009\)](#) and [O'Muircheartaigh, Eckman, and Smith \(2009\)](#). Given our interest in changing city conditions, we restrict our analyses to the 2,073 NSHAP respondents who lived in MSAs. The overall initial response rate was 75.5 percent, and 75.2 percent of the total sample who completed baseline interviews participated at the second wave (W2) in 2010–2011. Retention rates were similar for NSHAP respondents initially residing in MSAs (76.0 percent). Our analyses focus on MSA-dwelling participants who remained in the same city between W1 and W2 (only 16 percent of retained respondents moved out of their initial MSA), bringing our final sample to 1,323 persons.

In several respects, respondents who remained in their initial MSA were similar in baseline measures to those who departed; there was no statistical difference by gender, marital status, employment status, household assets, mental health, depression, stress, and household disorder. On the other hand, those who left their MSA tended to be younger, whiter, more educated, in better physical health, and in larger households. The cities they lived in tended to have higher median home prices and household incomes as well as higher foreclosure rates. There were also some sample differences according to attrition. Compared to those remaining in the sample, people not successfully followed up tended to be older, less healthy, less educated, less wealthy, less likely to be partnered and working, and to have higher baseline household disorder. There were no detectable differences by attrition status in baseline MSA conditions.

The NSHAP offers two advantages for the present analysis. First, the survey includes unique field interviewer environmental reports which comprise a novel household disorder scale ([Cornwell 2014](#)). This scale provides an ideal way to capture the dependent variable because it is a continuous measure—not a dichotomous diagnostic tool—applicable to all community-dwelling U.S. older adults. Second, the survey's timing brackets the 2007–2008 financial crisis, each wave essentially equidistant from the crest of the crisis.

Measures

The NSHAP's household disorder scale was obtained by trained observers following the principles of systematic social observation developed by [Sampson and Raudenbush \(1999\)](#). At the end of the in-home NSHAP survey at both waves, interviewers completed a Field Interviewer Questionnaire (FIQ) to report on the environmental context of the interview. Interviewers were asked "How well-kept is the building in which the respondent lives?" Response options ranged from (1) "very poorly kept (needs major repairs)" to (4) "very well kept." Responses were reverse-coded so that higher scores indicate more disorder. Next, interviewers evaluated a series of four contrasts anchored by antonymous adjectives describing the room(s) in which the interview occurred. The four contrasts, each measured on a five-point scale, included: [A] (1) quiet → (5) noisy; [B] (1) no smell/pleasant smell → unpleasant smell; [C] (1) clean → (5) dirty; [D] (1) neat and tidy → (5) messy. [Cornwell \(2014\)](#) derived the household disorder scale by averaging the interviewer-standardized response to each of these five evaluations ($\alpha = 0.84$ at W1 and $\alpha = 0.83$ at W2). Interviewer-standardization controls for unobserved heterogeneity between field interviewers, recognizing that particular observers may have distinct evaluation styles despite their extensive training. As [Cornwell and Cagney \(2014\)](#) note, this approach necessarily trims some of the variability in the scale items, but it is necessary to reduce potential bias. Standardization is particularly important when cities are a focus of the analysis. Failing to nest FIQ reports within the unique evaluator would overlook two features of the survey design: (a) MSAs varied in the number of interviewers deployed to respondent homes (eight MSAs at W1 and nine at W2 featured a lone interviewer, while nearly a quarter at each wave had five or more interviewers; full frequency distribution of interviewers per MSA is shown in Appendix 1) and (b) a sizeable minority of interviewers conducted interviews across multiple MSAs (full frequency distribution of MSAs per interviewer is shown in Appendix 2). In the end, standardization effectively creates

a fixed-effect for each interviewer to disentangle MSA patterns from particular evaluator tendencies. Preliminary analyses revealed that 78.6 percent and 87.1 percent of the total variance for the unstandardized household disorder scale is within interviewers at W1 and W2, respectively. This indicates that interviewers used a range of scores to evaluate the homes to which they were assigned; interviewers did not lock in on a narrow set of scores and evaluate their homes identically.

We use four economic variables to acknowledge the multi-dimensionality of city-level decline following the Great Recession. Following the precedent of prior scholars studying the impact of this event (e.g., Cagney et al. 2014; Chatterjee and Eyigungor 2015; Katz, Wallace, and Hedberg 2013; Modrek et al. 2013; Zivin, Paczkowski, and Galea 2011), our MSA-level variables include unemployment rate, median home price, median household income, and total foreclosure rate. Unemployment data were obtained from the U.S. Bureau of Labor Statistics. Median home prices and median household income were obtained from the United States Census Bureau.² Foreclosure data were obtained from ATTOM Data Solutions and reflect total foreclosure activity across numerous stages of the foreclosure process.³ Initial analyses demonstrated that unemployment, home prices, income, and foreclosure did not consistently load on a single factor before and after the crisis (e.g., inter-item reliability of the four-item index was only 0.52 at W1 and 0.56 at W2). Nevertheless, *changes* in these city-level conditions between W1 and W2 were tightly in tandem (e.g., the four change scores manifested an inter-item reliability score of 0.79).

Four variables will be considered as possible mechanisms linking city-level decline to household disorder. *Total household assets* were measured by self-report and logged to reduce skew. Respondents were asked to provide a dollar value, and those who initially refused to answer or did not know the amount were given a series of categories from which to select and were assigned either an estimated value or the mid-point between two dollar amounts.^{4,5} Unfortunately, self-reported assets were based on a single summative measure (all sources of wealth minus all debt) at both waves, so measurement error could inflate standard errors when estimating the effects of wealth change. *Psychological distress* was measured by the Center for Epidemiological Studies-Depression scale (11 items, $\alpha=.78$ at W1 and $\alpha=.79$ at W2), which asked how frequently on a 4-point scale (1="rarely or none of the time" to 4="most of the time") respondents faced depressive systems such as feeling "sadness" and "loneliness." *Perceived stress* was measured on the same four-point frequency scale as psychological distress and includes the following items: "I was unable to control important things in my life"; "I felt confident about my ability to handle personal problems" (reverse-coded); "I felt that things are going my way" (reverse-coded); "I felt difficulties were piling up so high that I could not overcome them" ($\alpha=.65$ at W1 and $\alpha=.60$ at W2). In contrast to a feeling of distress, the perceived stress scale is intended to capture the perception of external stressors and people's ability to cope (see, e.g., Sbarra 2009). Both mental health scales averaged responses across their respective items. Finally, *household size* was measured at both waves through a question ascertaining which people shared a home with the respondent. We assessed at each wave whether a respondent was living in a home with a total of four or more people (1=yes, 0=no). Initial analyses considered household

2 Wave 1 median home prices and median household incomes were adjusted for inflation to ensure comparability with wave 2 values. In accordance with the United States Bureau of Labor Statistics (CPI Inflation Calculator) we multiplied wave 1 monetary amounts by 1.11652.

3 Foreclosure activity can be divided into three stages: "pre-foreclosure," "auction," and "bank owned (REO)." Though main analyses combined all three stages into a single measure, supplementary analyses investigated each separate form. Results for the stages of "auction" and "bank owned (REO)" were consistent with those using the summary measure.

4 Follow-up categories include the following: less than \$10,000; about \$10,000; more than \$10,000, but less than \$50,000; about \$50,000; more than \$50,000, but less than \$100,000; about \$100,000; more than \$100,000, but less than \$500,000; about \$500,000; more than \$500,000. Twenty-two percent refused or did not know their assets, of whom 23 percent provided an estimated value (about \$10,000, \$50,000, \$100,000, or \$500,000), and 77 percent were assigned a midpoint value between categories.

5 Prior to being logged, we added a small constant value to avoid losing cases with scores of 0 and wave 1 total household assets were multiplied by 1.11652 to adjust inflation (see note 2).

size as a raw count and with categorical variables of varying cut-points (3+ and 5+); results were not sensitive to these coding decisions.

Analyses adjust for several other time-varying covariates which may influence changes in household disorder. We include a count of six possible chronic diseases as diagnosed by a physician (cancer [excluding skin cancer], arthritis, stroke, diabetes, heart disease, and dementia), self-reported subjective social class score (relative to other American families, scored from 1= "far below average" to 5= "far above average"), and indicators of whether respondent was currently working for pay, currently married or cohabiting ("partnered"), and had moved homes between W1 and W2. No time-constant demographic variables are included, as our fixed-effects regression models control for such potential confounders.

Analysis

The purpose of the analysis was to learn whether exposure to city-level economic decline is associated with an increase in household disorder. We used fixed-effects linear regression to account for the fact that the differential vulnerability of American MSAs to effects of the Great Recession is partially a function of a city's population composition (Arias et al. 2016; Florida 2016; Gray and Scardamalia 2014), and to account for unmeasured individual traits that could cause homes to appear disorderly. We restrict our analyses to NSHAP respondents who remain in the same MSA between 2005–6 and 2010–11, so person-level fixed effects carry along the invariant traits of the cities in which respondents lived (e.g., educational and health care infrastructure, regional culture and climatic characteristics).⁶ Standard errors were adjusted for city-level clustering, and multiple imputation by chained equations ($m=10$) was used to restore missing values of cases which were missing on one or more study variables. Variables that had 10 percent or more cases missing include household assets, subjective social class, and the perceived stress index.⁷ Values of the dependent variable were used to impute covariate values, but cases missing on the household disorder scale were not included in the fixed effects regression analysis (Von Hippel 2007). This removed 12 respondents from our analysis, bringing the final sample to 2,622 person-observations.

It was also necessary to consider potential selection bias in our regression estimates. Sources of selection include lack of follow-up at W2 (due to death, institutionalization, or inability to locate) as well as moving out of an MSA between waves. To address this issue, we used the inverse probability weighting technique recommended by Hawkey et al. (2014) for these NSHAP panel data. Specifically, a host of W1 health and demographic variables were used to predict inclusion at W2. Inverse predicted probability scores from that logistic regression model were then multiplied by the standard weights and applied in the regression analysis. Effectively, those W1 MSA residents least likely to be included in our analytical sample were assigned higher weights to minimize the possibility of selection effects driving observed associations. It is important to note that the two forms of sample selection appear to have varied implications for our sample composition (e.g., those who died were initially less educated and in poorer physical health than those in the sample; the opposite is true of those leaving their MSA). The inverse weighting approach, therefore, attempts to correct for the net bias resulting from two processes that are, in some ways, potentially countervailing. Still, more participants were subject to attrition than moved out of an MSA (497 vs. 253 of the MSA-dwelling sample from Wave 1, respectively), and so, despite our remedial efforts, sample selection could lead to underestimates, particularly if those at highest risk of increased household disorder were most likely to drop out of the study.

6 We acknowledge that over the long term, these characteristics of cities do undergo change, but they are approximately invariant over the time scale considered in this study.

7 Subjective social class and perceived stress index questions were asked in NSHAP's Leave-Behind-Questionnaire (LBQ), which were mailed after completion. This accounts for the higher number of missing values for these variables relative to others in the study.

Table 1. Descriptive Statistics, National Social Life, Health, and Aging Project Waves 1 and 2 (n=1323)

	Variable Range	Wave 1 (2005-2006)			Wave 2 (2010-2011)	
		Mean/ Proportion	SD	Variable Range	Mean/ Proportion	SD
<i>Dependent Variable</i>						
Household Disorder (standardized)	−1.46 – 3.11	−0.05	0.71	−1.45 – 3.63	0.00	0.76
Household Disorder (unstandardized)	1.0 – 4.8	1.65	0.81	1 – 5	1.71	0.80
<i>MSA-Level Variables</i>						
Unemployment (%)	3.50 – 9.00	5.23	1.26	5.80 – 16.70	9.79	2.19
Median Home Price (in \$10,000)	6.83 – 73.17	23.9	13.47	8.04 – 58.83	21.5	10.04
Median Home Income (in \$10,000)	2.74 – 8.34	5.33	0.98	3.37 – 8.45	5.14	0.92
Total Foreclosure Rate (%)	0.002 – 0.242	0.07	0.05	0.020 – 0.770	0.24	0.18
<i>Potential Mechanisms</i>						
Total Household Assets (logged)	0.12 – 16.92	11.97	2.31	−4.61 – 16.81	11.35	3.75
Psychological Distress	1.00 – 3.64	1.47	0.14	1 – 3.50	1.46	0.45
Perceived Stress	1 – 4	0.42	0.56	1 – 4	1.83	0.68
Household Size of at least Four	0, 1	0.07		0, 1	0.09	
<i>Other Covariates</i>						
Chronic Diseases	0 – 5	1.03	0.95	0 – 5	1.08	1.02
Subjective Social Class						
Far below average		0.09			0.08	
Below average		0.22			0.26	
Average		0.41			0.44	
Above average		0.23			0.19	
Far above average		0.05			0.24	
Working	0, 1	0.39			0.24	
Partnered	0, 1	0.66			0.61	
Moved between waves	0, 1	n/a			0.18	

Note: SD = standard deviation

RESULTS

Descriptive results reveal a slight increase in the mean level of household disorder between waves (see Table 1), a pattern accompanied by higher variance in household disorder scores at W2 relative to W1 (standard deviation increased by 7 percent, from 0.71 to 0.76). As we would expect in the aftermath of the Great Recession, MSAs showed a decline, on average, across all four economic indicators. That said, the 57 metro areas showed considerable variation in their adaptation to the crisis; so while the average unemployment rate change for the MSAs in which NSHAP respondents live increased by over 4.5 percent, the rate fell by as much as 0.2 percent, while soaring to close to 8 percent in several other MSAs. Similarly, median home prices tumbled by as much as \$140,000 in three MSAs, while actually improving by as much as \$80,696.63 in another.

Table 2 considers how the potential mechanisms linking MSA-level economic change to household disorder (plus other covariates) are distributed according to cities' shifts in unemployment, median home prices, median household income, and foreclosure rates. We differentiate NSHAP respondents according to the top and bottom quartiles of change in each of the four economic indicators and compare mean and standard deviation values for the change in each covariate. Change in household assets shows the clearest patterning according to economic decline. Respondents living in MSAs in the top quartile of each indicator (i.e., least decline or economic improvement) showed substantial average wealth gains, while those in the hardest-hit MSAs tended to face asset loss (all differences were significant at least $p < .1$ in two-tailed tests). Changes in psychological distress, perceived stress, and household size were less robustly patterned by the economic fate of the MSA, suggesting that these three variables are less plausible mechanisms for the linkage of city and household conditions than are household asset values (e.g., only for median home price was there a significant difference in psychological distress between top and bottom quartile of city-level decline.). Physical health problems, however, did tend to fluctuate in line with city-level change; people living in the hardest-hit MSAs (with the exception of unemployment) gained more chronic diseases over six years than did those in the least-troubled metro areas.

Regression coefficients from the fixed effects analysis are shown in Table 3. We begin by estimating reduced models which leave out the potential intervening mechanisms (models A). Each of the four models focus on one particular dimension of economic decline. From these models, we see that changes to an MSA's unemployment, median household income, and foreclosure rate were each significantly associated with changes to NSHAP respondents' household disorder. Note that unemployment and foreclosure have positive signs, the opposite of household income, but each association fits the overall hypothesis. City home prices, though falling, on average, across MSAs, were not significantly associated with changes to household disorder for its inhabitants. In all, the fixed-effects coefficients were modest in size and account for a relatively small portion of the overall variance in home conditions between waves. But this is not unexpected, given that the estimate isolates the contribution of macro-contextual change over a relatively short period of time while netting out all time-stable traits of people and their city of residence. Results suggest that each 2.2 percent uptick in city unemployment rates (the standard deviation of that variable at W2) corresponded to an approximately 3 percent increase, on average, in standardized disorder scores. Median household income and the total foreclosure rate have relatively wider ranges from city to city, and the coefficients for these variables were somewhat larger in magnitude. For instance, a drop of \$10,000 in median household income for a given MSA (approximately 1.1 standard deviations at W2) would predict a 0.16 unit increase in the standardized household disorder scale of one of its residents.

Adjusting for potential mechanisms and other covariates (models B) did little to change the unadjusted estimates. In fact, individual-level changes experienced between 2005–6 and 2010–11 did a very poor job accounting for any change in household disorder. The only variable that had any association with the outcome was perceived stress, and this in the unexpected direction.

Though three of the four economic indicators predicted household disorder on their own (models 1–4), including all of them simultaneously (model not shown) effectively washes out any statistical significance for any given predictor. This makes sense, as each of the four dimensions of a city's post-recession economic climate track so closely in their rate of change between waves. It is, therefore, difficult to decipher the effect of say, increasing foreclosures, *net of* falling home prices, surging unemployment, and dwindling incomes. Indeed, change in each of these four indicators is moderately to strongly correlated, confirming that they capture the same underlying economic woes.

It is important to note that our fixed-effects models in Table 3 estimate only that change in household disorder that transpires *within* individuals and their city of dwelling. There is no estimate, for instance, of how household disorder changes between respondents of different race/ethnicity groups or genders. To explore these topics, we used a random effects approach in initial model estimation (the results are available upon request). The random effects models have the disadvantage of not

Table 2. Change in Variables between the two Waves based on Quartiles of MSA Economic Decline, National Social Life, Health, and Aging Project Waves 1 and 2 (n=1323)

Variables (Change Between Waves)	Unemployment		Median Home Price		Median Household Income		Total Foreclosure Rate	
	Lowest Quartile of Decline (<= 3.3%)	Highest Quartile of Decline (>= 5.7%)	Lowest Quartile of Decline (>= \$9513.92)	Highest Quartile of Decline (<= -\$41545.19)	Lowest Quartile of Decline (>= -\$732.10)	Highest Quartile of Decline (<= -\$3675.93)	Lowest Quartile of decline (<= 0.05%)	Highest Quartile of Decline (>= 0.25%)
Dependent Variable								
Household Disorder (standardized)	.00 (.71)	.10 (.74)	-.01 (.70)	.08 (.70)	-.04 (.72)	.07 (.75)	.02 (.70)	.10 (.72)
Potential Mechanisms								
Total Household Assets	29,230.47 (1,425,690)	-343,759.6 (2,125,679)	72,533.34 (1,373,657)	-331,287 (2,020,082)	105,926.5 (1,232,430)	-125,630 (1,764,199)	11,311.91 (1,305,292)	-342,470.5 (1,958,188)
Psychological Distress	.02 (.39)	.04 (.43)	-.06 (.46)	.05 (.44)	-.04 (.42)	-.01 (.41)	-.03 (.46)	.02 (.44)
Perceived Stress	.45 (.74)	.43 (.73)	.38 (.84)	.40 (.71)	.48 (.79)	.37 (.80)	.48 (.79)	.40 (.74)
Household Size of at least Four	.00 (.31)	.02 (.29)	.03 (.33)	.02 (.27)	.04 (.33)	.04 (.27)	.01 (.31)	.03 (.27)
Other Covariates								
Chronic Diseases	.13 (.90)	.10 (.85)	.06 (.88)	.13 (.86)	.05 (.89)	.11 (.89)	-.02 (.97)	.10 (.86)
Subjective Social Class	-.05 (.93)	-.15 (.82)	-.13 (.84)	-.13 (.83)	-.08 (.99)	-.10 (.77)	-.04 (.78)	-.17 (.83)
Working	-.10 (.42)	-.19 (.46)	-.15 (.43)	-.20 (.47)	-.16 (.42)	-.16 (.43)	-.16 (.46)	-.21 (.47)
Partnered	-.05 (.29)	-.07 (.30)	-.05 (.31)	-.06 (.34)	-.06 (.32)	-.05 (.27)	-.07 (.30)	-.07 (.34)
Moved between waves	.16 (.37)	.17 (.38)	.19 (.40)	.20 (.40)	.22 (.41)	.22 (.41)	.20 (.40)	.21 (.41)

Note: Table presents mean values, standard deviations in parentheses.

Table 3. Fixed Effects Regression Coefficients: Is Economic Decline Associated with Household Disorder? (National Social Life, Health, and Aging Project, Waves 1 and 2)

	<i>Model 1a</i>	<i>Model 1b</i>	<i>Model 2a</i>	<i>Model 2b</i>	<i>Model 3a</i>	<i>Model 3b</i>	<i>Model 4a</i>	<i>Model 4b</i>
MSA-level Variables								
Unemployment (%)	0.012*	0.016*						
	(0.005)	(0.007)						
Median Home Price (in \$10,000s)			−0.005	−0.004				
			(0.004)	(0.004)				
Median Household Income (in \$10,000s)					−0.158*	−0.159*		
					(0.076)	(0.073)		
Total Foreclosure Rate (%)							0.238*	0.242†
							(0.108)	(0.122)
Potential Mechanisms								
Total Household Assets (logged)		−0.007		−0.009		−0.008		−0.008
		(0.011)		(0.010)		(0.010)		(0.010)
Psychological Distress		0.081		0.069		0.070		0.066
		(0.056)		(0.058)		(0.056)		(0.057)
Perceived Stress		−0.078*		−0.050		−0.059†		−0.061†
		(0.034)		(0.031)		(0.030)		(0.031)
Household Size of at least Four		0.101		0.104		0.104		0.104
		(0.070)		(0.071)		(0.069)		(0.069)
Other Covariates								
Chronic Diseases		0.021		0.025		0.022		0.023
		(0.030)		(0.031)		(0.030)		(0.030)
Subjective Social Class (ref. far below average)								
Below Average		−0.040		−0.036		−0.045		−0.036
		(0.094)		(0.094)		(0.094)		(0.093)
Average		−0.117		−0.113		−0.121		−0.108
		(0.111)		(0.109)		(0.110)		(0.110)
Above Average		−0.106		−0.117		−0.118		−0.102
		(0.109)		(0.110)		(0.109)		(0.109)
Far Above Average		−0.024		−0.049		−0.049		−0.027
		(0.117)		(0.116)		(0.116)		(0.118)
Working		0.033		0.001		0.008		0.018
		(0.053)		(0.054)		(0.052)		(0.053)
Partnered		0.086		0.058		0.066		0.071
		(0.063)		(0.066)		(0.065)		(0.064)
Moved between Waves		0.042		0.092		0.079		0.060
		(0.061)		(0.059)		(0.055)		(0.059)
Constant	−0.148***	−0.113	0.063	0.113	0.765†	0.865†	−0.098***	−0.020
	(0.040)	(0.221)	(0.088)	(0.225)	(0.398)	(0.459)	(0.017)	(0.218)
R-Square Within	0.006	0.023	0.002	0.017	0.006	0.021	0.007	0.021
Number of Observations	2,622	2,622	2,622	2,622	2,622	2,622	2,622	2,622
Number of Respondents	1,311	1,311	1,311	1,311	1,311	1,311	1,311	1,311

Note: *** p<0.001, ** p<0.01, *p<0.05, † p<0.10; robust standard errors in parentheses (two-tailed tests)

accounting for stable traits of people and cities, and they are, thus, not ideal for our research questions. Still, they help reveal that several individual-level traits are associated with lower household disorder, including being a woman and having higher levels of education, while being black was associated with more disorder. As for stable traits of cities, the random effects models did not indicate that the four census regions (Northeast, South, Midwest, and West) differed with respect to household disorder scores.

We conducted several additional sensitivity analyses with fixed-effects models to ensure the robustness of our findings. First, we reduced the longitudinal sample to only those respondents living in MSAs where there were at least two interviewers conducting in-home surveys and producing the FIQ reports ($n = 1,230$). This was to ensure that a single interviewer could not be responsible for all evaluations of household disorder in any given city. Coefficients based on this more stringent sample were essentially unchanged from those in the main analysis. Second, we re-estimated the models only among respondents who lived in the same home at W1 and W2 (main analyses allowed subjects to move, if within the same MSA). Results were again unchanged. Third, we re-estimated the models including the 16 percent of the retained baseline sample who moved out of their initial MSA by Wave 2 (assigning movers a Wave 2 MSA scores on the basis of their baseline MSA). Results were again consistent with those presented in Table 3, but allowing the effect of MSA to vary according to movement behavior (with interaction terms comparing movers within an MSA, movers to new MSA, and movers to non-MSA to non-movers) suggested that people moving out of their MSA into a non-MSA setting were marginally less affected by MSA-level unemployment and foreclosure than were those who stayed put.⁸ Finally, we examined whether factors such as gender, living alone, social network size, whether the respondent had moved between waves, neighborhood poverty (proportion of census tract population with income below poverty level as per the 2000 Census), and region of the country moderated the main associations presented in Table 3. Only one of these exploratory interactions was statistically significant; the poorer one's neighborhood pre-recession, the stronger the association between city-level median income and household disorder.

DISCUSSION

Global economic shocks are arguably an inevitable experience of modern life, and the recent downturn of 2007–2008 provides a compelling historical context in which to understand vulnerability and adaptation to adverse events. This study joins a growing body of literature documenting threats to individual and community well-being in the wake of the Great Recession. We turned our attention to the condition of older adults' homes and placed these lived environments in the context of major American metro areas. In so doing, we make several key contributions to existing literature.

First, this study widens the scope of outcomes considered in studies of the Great Recession. Building on studies which examine the downturn's consequences for people's physical and mental health (Cagney et al. 2014; Currie and Tekin 2011) and for localities' levels of crime and deviance (Baumer, Arnio, and Wolff 2013), the present findings uniquely address the transaction between person and place. Home conditions are an essential resource for aging and well-being because they are inextricably intertwined with day-to-day life for older adults (Krantz-Kent and Stewart 2007; Peace, Holland and Kellaher 2011). Existing research links disorderly household conditions to an array of negative outcomes, including disablement (Wahl et al. 2009), involuntary relocation (Leyland et al. 2016), and death (Dong et al. 2009), so understanding the precursors of such deterioration with prospective, representative national data is a vital area of ongoing research. Results from the present study indicate that a bundle of economic woes tied to economic decline are associated with concomitant declines in household order. The associations were modest, a pattern not unexpected given the

8 We thank an anonymous reviewer for suggesting this analysis. We note, however, that the interactions in this model are likely underpowered due to the relatively low number of cases in each category. Another interpretive complication is that timing of move between waves is unknown.

stringent fixed-effects estimation which holds constant all time-invariant city- and person-level characteristics. Nevertheless, associations were consistent across measures of unemployment, median household income, and foreclosure (but not median home price).

Second, though the home has long been central to ecological theories of aging (Gitlin 2003; Wahl, Iwarsson, and Oswald 2012), few studies have given systematic thought to the macro-level influences on the residential environment. The present analysis advances theories of environmental gerontology by expanding its explanatory focus, targeting broader social problems that transcend the individual level of analysis. We posited that city-level economic decline could affect home upkeep through a variety of pathways, recognizing that household (dis)order is produced—in part—by inhabitants susceptible to broad contextual changes that ripple from the macro environment into their daily lives. Interestingly, there was little evidence that mechanisms such as wealth erosion or an uptick in psychological distress could explain the link between city-level decline and household disorder. Unable to pinpoint an individual-level response mechanism that underlies our findings, we acknowledge that growth in household disorder could also be triggered by meso-level intervening variables. These include changes to neighborhood resources, norms, and social control practices; unfortunately, we did not have adequate data to assess such materialist explanations or social disorganization processes in the current study.

Third, our study draws special attention to the relevance of the modern city. Besides being the major economic drivers of the contemporary American (and global) economy (Glaeser 2011), major metro areas are differentially susceptible to economic shocks and recover from downturns at markedly different rates (Justice and Scorsone 2013). This fact was clearly displayed in our data, as MSAs differed by as much as \$245,000 in their median household price change and by over 8 percent in their unemployment rate change. Though it seems simplistic to assume that consequences of an economic crisis would be geographically invariant, many past studies on well-being and the recession contextually homogenize the U.S. population, in effect, by examining it as a single unit (e.g., Aguiar, Hurst, and Karabarbounis 2013). Other studies, particularly on topics such as crime and abuse, investigate only a single metro area or even a single district of a given city (e.g., Ellen, Lacoë, and Sharygin 2013; Stucky, Ottensmann, and Payton 2012; Teasdale, Clark, and Hinkle 2012; Wood et al. 2012). Failing to differentiate *where* downturns have their impact may account for some of the inconsistent findings from existing studies of the Great Recession (see Burgard and Kalousova 2015). Underscoring city-specificity also privileges a key insight about the nature of risk and aging in late modernity. Namely, when a city suffers entanglements of the global economy, it is the most vulnerable segments of its population (e.g., older adults) who feel most trapped or disadvantaged (Phillipson 2004). This point emphasizes the continued need for an urbanized environmental gerontology that accounts for how city- and person-level vulnerability are mutually intertwined (Phillipson 2004).

Several aspects of the study design should be kept in mind when interpreting our results. For one, our study focused only on older adults, so we are unable to compare effects of the recession across broad age groups. Traditional tenets of environmental gerontology assume that older adults have lower physiological and cognitive capacity than younger people to accommodate stressors in the built or social environment (Glass and Balfour 2003; Cohen-Mansfield et al. 2010). This may lead us to expect that older people's homes would be most susceptible to economic shocks. Yet, there may be mitigating factors associated with aging that offset some consequences of diminished personal competence. For instance, older adults tend to be more housebound than younger people, thus perhaps reducing the salience of community conditions. Older adults are also more likely to own their homes and tend to have fewer financial dependents living in the home compared to middle-age adults, so the effects of a wealth shock may be less consequential for the former.

Methodologically, our analysis dealt with the environmental observations of NSHAP survey staff, and not welfare system case reports or referrals. We opted for the former approach because the capacity to detect and respond to environmental self-neglect is strongly governed by municipal budgets and social service agency funding, factors that are themselves affected by the economic condition of

the city. Still, our findings suggest that living in a struggling metro area is associated with a disproportionate rise in home deterioration. Pushing the needle of this statistical distribution would not necessarily produce an avalanche of self-neglect diagnoses. Yet there is little doubt that many of the dwellings observed in the survey FIQ reports crossed thresholds that would have clinical significance—going for instance, from “the cusp” of squalor to genuinely inhospitable, or from impeccably-maintained to the initial onset of degradation. Research designs that bring social workers into the survey setting could shed light on the individual clinical implications embedded in the aggregate empirical trends. Observing longer-term trends in a household’s physical presentation would also provide stronger evidence for how two-wave changes documented in our data correspond to more complete trajectories of deterioration.

Along similar lines, capturing the correct time lag between economic shock and individual-level outcome is a perennial challenge for studies of the Great Recession. As Burgard and Kalousova (2015) mention in their recent overview of this literature, some effects of a downturn are acute and immediate, while others take time to fully unfold. Further, the relevant chain of mechanisms set in motion by a recession is complex and will vary from outcome to outcome. Home conditions, we believe, should shift gradually in response to contextual circumstances, and so a near-simultaneous measurement of household disorder and economic indicators would mis-specify the hypothesized processes. Even so, the progression of household disorder may take longer to transpire than we recognize. Though we were fortunate to have a two-to-three year lag between the height of the crisis and follow-up observation period, the full impact of the Great Recession may take longer to settle into the home. Assessing household conditions over several more survey waves might reveal further decline for houses that had only begun their descent in 2010–2011.

Finally, treating household deterioration as an outcome-in-itself risks losing sight of how disadvantage borne from economic shocks extends beyond a single domain and can accumulate in the lives of older adults (Burgard and Kalousova 2015). Homes are critical sites for dealing with age-related health limitations and represent a backdrop for the social connections which help older adults to thrive (Cornwell 2016). As such, growth in household disorder has the potential to precipitate further chains of risk and to undermine the very social support needed to cushion people from the fallout of the Great Recession. Further research should unpack how the home is implicated in these processes of cumulative disadvantage, but should also examine people’s adaptation and resilience in the aftermath of economic shocks.

REFERENCES

- Aguiar, Mark, Erik Hurst, and Loukas Karabarbounis. 2013. “Time Use during the Great Recession.” *The American Economic Review* 103(5):1664–96.
- Aldwin, Carolyn M. 1990. “The Elders Life Stress Inventory: Egocentric and Nonegocentric Stress.” Pp. 49–69 in *Stress and Coping in Later-Life Families*, edited by M. A. Stephens, J. H. Crowther, S. E. Hobfoll, and D. L. Tennenbaum. New York: Hemisphere.
- Angrisani, Marco, Michael D. Hurd, and Susann Rohwedder. 2015. “The Effect of Housing and Stock Wealth Losses on Spending in the Great Recession.” RAND Working Paper WR1101.
- Arcaya, Mariana, M. Maria Glymour, Prabal Chakrabarti, Nicholas A. Christakis, Ichiro Kawachi, and S. V. Subramanian. 2013. “Effects of Proximate Foreclosed Properties on Individuals’ Weight Gain in Massachusetts, 1987–2008.” *American Journal of Public Health* 103(9):e50–56.
- Arias, Maria A., Charles S. Gascon, and David E. Rapach. 2016. “Metro Business Cycles.” *Journal of Urban Economics* 94:90–108.
- Baker, Dean. 2008. “The Housing Bubble and the Financial Crisis.” *Real-World Economics Review* 46(20):73–8.
- Baumer, Eric P., Ashley N. Arnio, and Kevin T. Wolff. 2013. “Assessing the Role of Mortgage Fraud, Confluence, and Spillover in the Contemporary Foreclosure Crisis.” *Housing Policy Debate* 23(2):299–327.
- Bronfenbrenner, Urie. 1979. *The Ecology of Human Development: Experiments by Design and Nature*. Cambridge, MA: Harvard University Press.
- Brown, Lawrence A., Michael D. Webb, and Su-Yeul Chung. 2013. “Housing Foreclosure as a Geographically Contingent Event: Columbus Ohio 2003–2007.” *Urban Geography* 34(6):764–94.

- Burgard, Sarah A., and Lucie Kalousova. 2015. "Effects of the Great Recession: Health and Well-Being." *Annual Review of Sociology* 41:181–201.
- Burnett, Jason, Carmel B. Dyer, John M. Halphen, W. A. Achenbaum, Charles E. Green, James G. Booker, and Pamela M. Diamond. 2014. "Four Subtypes of Self-Neglect in Older Adults: Results of a Latent Class Analysis." *Journal of the American Geriatrics Society* 62(6):1127–32.
- Cagney, Kathleen A., Christopher R. Browning, James Iveniuk, and Ned English. 2014. "The Onset of Depression during the Great Recession: Foreclosure and Older Adult Mental Health." *American Journal of Public Health* 104(3):498–505.
- Chatterjee, Satyajit, and Burcu Eyigungor. 2015. "A Quantitative Analysis of the U.S. Housing and Mortgage Markets and the Foreclosure Crisis." *Review of Economic Dynamics* 18(2):165–84.
- Chernick, Howard, and Andrew Reschovsky. 2017. "The Fiscal Condition of U.S. Cities: Revenues, Expenditures, and the 'Great Recession.'" *Journal of Urban Affairs* 39(4):488–505.
- Christelis, Dimitris, Dimitris Georgarakos, and Tullio Jappelli. 2015. "Wealth Shocks, Unemployment Shocks and Consumption in the Wake of the Great Recession." *Journal of Monetary Economics* 72:21–41.
- Clark, A. N., G. D. Mankikar, and Ian Gray. 1975. "Diogenes Syndrome: A Clinical Study of Gross Neglect in Old Age." *The Lancet* 305(7903):366–68.
- Cohen-Mansfield, Jiska, Dov Shmotkin, and Haim Hazan. 2010. "The Effect of Homebound Status on Older Persons." *Journal of the American Geriatrics Society* 58(12):2358–62.
- Cornwell, Erin York. 2014. "Social Resources and Disordered Living Conditions: Evidence from a National Sample of Community-Residing Older Adults." *Research on Aging* 36(4):399–430.
- Cornwell, Erin York. 2016. "Household Disorder, Network Ties, and Social Support in Later Life." *Journal of Marriage and Family* 78(4):871–89.
- Cornwell, Erin York, and Kathleen A. Cagney. 2014. "Assessment of Neighborhood Context in a Nationally Representative Study." *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences* 69(supplement 2):S51–S63.
- Crimmins, Eileen M., and Hiram Beltrán-Sánchez. 2011. "Mortality and Morbidity Trends: Is There Compression of Morbidity?" *The Journals of Gerontology: Series B* 66(1):75–86.
- Currie, Janet, and Erdal Tekin. 2011. *"Is the Foreclosure Crisis Making Us Sick?"* Cambridge, MA: National Bureau of Economic Research. NBER Working Paper #17310.
- Cutchin, Malcom P. 2003. "The Process of Mediated Aging-in-Place: A Theoretically and Empirically Based Model." *Social Science & Medicine* 57(6):1077–1090.
- De Nardi, Mariacristina, Eric French, and David Benson. 2012. "Consumption and the Great Recession." *Economic Perspectives*. Federal Reserve Bank of Chicago 1Q:1–16.
- Dong, Xin Qi, Melissa Simon, Carlos Mendes de Leon, Terry Fulmer, Todd Beck, Liesi Hebert, Carmel Dyer, Gregory Paveza, and Denis Evans. 2009. "Elder Self-Neglect and Abuse and Mortality Risk in a Community-Dwelling Population." *Journal of the American Medical Association* 302(5):517–26.
- Downing, Janelle. 2016. "The Health Effects of the Foreclosure Crisis and Unaffordable Housing: A Systematic Review and Explanation of Evidence." *Social Science & Medicine* 162 (2016):88–96.
- Eggers, Frederick J., and Fouad Moumen. 2013. "Analysis of Trends in Household Composition Using American Housing Survey Data." Washington, DC: U.S. Department of Housing and Urban Development. Retrieved May 20, 2019 (https://www.huduser.gov.myaccess.library.utoronto.ca/publications/pdf/AHS_HouseholdComposition_v2.pdf).
- Ellen, Ingrid Gould, Johanna Lacoe, and Claudia Ayanna Sharygin. 2013. "Do Foreclosures Cause Crime?" *Journal of Urban Economics* 74:59–70.
- Florida, Richard. 2016. "Which U.S. Cities Suffer the Most During a Recession?" *The Atlantic: Citylab*, June 9. Retrieved May 20, 2019 (<http://www.citylab.com/politics/2016/06/which-us-metros-suffer-the-most-during-a-recession/486263/>).
- Forrest, Ray, and Ngai Ming Yip, eds. 2011. *Housing Markets and the Global Financial Crisis: The Uneven Impact on Households*. Northampton, MA: Edward Elgar Publishing.
- Gitlin, Laura N. 2003. "Conducting Research on Home Environments: Lessons Learned and New Directions." *The Gerontologist* 43:628–37.
- Glaeser, Edward Ludwig. 2011. *Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier*. New York: Penguin Press.
- Glass, Thomas A., and Jennifer L. Balfour. 2003. "Neighborhoods, Aging, and Functional Limitations." Pp. 303–27 in *Neighborhoods and Health*, edited by I. Kawachi and L. F. Berkman. New York: University of Oxford Press.

- Gray, Tom, and Robert Scardamalia. 2014. "America's Top Metros: Who's Leading the Recovery, and Why." *Civic Report* 89:1–41.
- Hawkey, Louise C., Masha Kocherginsky, Jaclyn Wong, Juyeon Kim, and Kathleen A. Cagney. 2014. "Missing Data in Wave 2 of NSHAP: Prevalence, Predictors, and Recommended Treatment." *Journals of Gerontology - Series B Psychological Sciences and Social Sciences* 69:S38–50.
- Hyra, Derek, and Jacob S. Rugh. 2016. "The U.S. Great Recession: Exploring Its Association with Black Neighborhood Rise, Decline and Recovery." *Urban Geography* 37(5):700–26.
- Janowitz, Morris. 1975. "Sociological Theory and Social Control." *American Journal of Sociology* 81:82–108.
- Justice, Jonathan B., and Eric A. Scorsone. 2013. "Measuring and Predicting Local Government Fiscal Stress: Theory and Practice." Pp. 43–75 in *Handbook of Local Government Fiscal Health*, edited by Helisse Levine, Jonathan B. Justice, and Eric A. Scorsone. Burlington, MA: Jones and Bartlett.
- Katz, Charles M., Danielle Wallace, and E. C. Hedberg. 2013. "A Longitudinal Assessment of the Impact of Foreclosure on Neighborhood Crime." *Journal of Research in Crime and Delinquency* 50(3):359–89.
- Kim, Yunji. 2017. "Limits of Property Taxes and Charges: City Revenue Structures after the Great Recession." *Urban Affairs Review* 55(2). doi: <https://doi.org/10.1177/1078087417697199>.
- Krantz-Kent, Rachel, and Jay Stewart. 2007. "How Do Older Americans Spend their Time?" *Monthly Labor Review* 130:8–26.
- Lawton, M. Powell. 1983. "Environment and Other Determinants of Well-Being in Older People." *The Gerontologist* 23(4):349–57.
- Lawton, M. Powell. 1990. "Aging and Performance of Home Tasks." *Human Factors: The Journal of the Human Factors and Ergonomics Society* 32(5):527–36.
- Lawton, M. Powell, and Lucille Nahemow. 1973. "Ecology and the Aging Process." Pp.619–74 in *The Psychology of Adult Development and Aging*, edited by C. Eisdorfer and M. P. Lawton. Washington, D.C.: American Psychological Association.
- Lersch, Kim, Christine Sellers, and Paul Cromwell. 2015. "Residential Foreclosure Rates and Calls for Service for Domestic Disputes: An Exploratory Analysis." *American Journal of Criminal Justice* 40(3):579–92.
- Leyland, Anna F., Jason Scott, and Pam Dawson. 2016. "Involuntary Relocation and Safe Transfer of Care Home Residents: A Model of Risks and Opportunities in Residents' Experiences." *Ageing & Society* 36(2):376–99.
- Lucy, William. 2017. *Foreclosing the Dream: How America's Housing Crisis Is Reshaping Our Cities and Suburbs*. New York: Routledge.
- Lui, Chi-Wai, Jo-Anne Everingham, Jeni Warburton, Michael Cuthill, and Helen Bartlett. 2009. "What Makes a Community Age-Friendly: A Review of International Literature." *Australasian Journal on Ageing* 28(3):116–21.
- McDermott, Shannon, Kathinka Linahan, and Barbara Jean Squires. 2009. "Older People Living in Squalor: Ethical and Practical Dilemmas." *Australian Social Work* 62(2):245–57.
- Melzer, Brian T. 2017. "Mortgage Debt Overhang: Reduced Investment by Homeowners at Risk of Default." *The Journal of Finance* 72(2):575–612.
- Modrek, Sepideh, David Stuckler, Martin McKee, Mark R. Cullen, and Sanjay Basu. 2013. "A Review of Health Consequences of Recessions Internationally and a Synthesis of the U.S. Response during the Great Recession." *Public Health Reviews* 35(1):1–33.
- O'Muircheartaigh, Colm, Stephanie Eckman, and Stephen Smith. 2009. "Statistical Design and Estimation for the National Social Life, Health, and Aging Project." *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences* 64(supplement 1): i12–i19.
- Peace, Sheila, Caroline Holland, and Leonie Kellaher. 2011. "Option Recognition' in Later Life: Variations in Ageing in Place." *Ageing & Society* 31(5):734–57.
- Phillipson, Chris. 2004. "Urbanisation and Ageing: Towards a New Environmental Gerontology." *Ageing & Society* 24(6):963–72.
- Sampson, Robert J., and Stephen W. Raudenbush. 1999. "Systematic Social Observation of Public Spaces: A New Look at Disorder in Urban Neighborhoods." *American Journal of Sociology* 105:603–51.
- Sbarra, David A. 2009. "Marriage Protects Men from Clinically Meaningful Elevations in C-Reactive Protein: Results from the National Social Life, Health, and Aging Project (NSHAP)." *Psychosomatic Medicine* 71(8):828–35.
- Schafer, Markus H., Laura Upenieks, and Andie MacNeil. 2018. "Disorderly Households, Self-Presentation, and Mortality: Evidence from a National Study of Older Adults." *Research on Aging* 40(8):762–790.
- Schneider, Daniel, Kristen Harknett, and Sara McLanahan. 2016. "Intimate Partner Violence in the Great Recession." *Demography* 53(2):471–505.
- Shaw, Clifford R., and Henry D. McKay. 1942. *Juvenile Delinquency and Urban Areas*. Chicago, IL: University of Chicago Press.

- Stucky, Thomas D., John R. Ottensmann, and Seth B. Payton. 2012. "The Effect of Foreclosures on Crime in Indianapolis, 2003–2008." *Social Science Quarterly* 93(3):602–24.
- Suzman, Richard. 2009. "The National Social Life, Health, and Aging Project: An Introduction." *Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 64(1):i5–11.
- Teasdale, Brent, Lynn M. Clark, and Joshua C. Hinkle. 2012. "Subprime Lending Foreclosures, Crime, and Neighborhood Disorganization: Beyond Internal Dynamics." *American Journal of Criminal Justice* 37(2):163–78.
- Thoits, Peggy A. 1995. "Stress, Coping, and Social support Processes: Where Are We? What Next?" *Journal of Health and Social Behavior* 53–79.
- United Nations Department of Economic and Social Affairs, Population Division. 2015. *World Population Ageing 2015* (ST/ESA/SER.A/390). Retrieved June 4, 2019 (https://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015_Report.pdf).
- United States Bureau of Labor Statistics. 2017. "CPI Inflation Calculator." Washington, DC. Retrieved July 11, 2017 (<https://data.bls.gov/cgi-bin/cpicalc.pl>).
- United States Census. 2010. "Growth in Urban Population Outpaces Rest of Nation, Census Bureau Reports." Washington, DC: United States Census Bureau. Retrieved May 20, 2019 (https://www.census.gov/newsroom/releases/archives/2010_census/cb12-50.html).
- Upenieks, Laura, Markus H. Schafer, and James Iveniuk. 2016. "Does Disorder Get 'Into the Head' and 'Under the Skin'? Layered Contexts and Bi-directional Associations." *Health & Place* 39(3):131–141.
- Von Hippel, Paul T. 2007. "Regression with Missing Ys: An Improved Strategy for Analyzing Multiply Imputed Data." *Sociological Methodology* 37(1):83–117.
- Wahl, Hans-Werner, Agneta Fänge, Frank Oswald, Laura N. Gitlin, and Susanne Iwarsson. 2009. "The Home Environment and Disability-Related Outcomes in Aging Individuals: What is the Empirical Evidence?" *The Gerontologist* 49(3):355–67.
- Wahl, Hans-Werner, Susanne Iwarsson, and Frank Oswald. 2012. "Aging Well and the Environment: Toward an Integrative Model and Research Agenda for the Future." *The Gerontologist* 52:306–16.
- Wolff, Kevin T., Joshua C. Cochran, and Eric P. Baumer. 2014. "Re-evaluating Foreclosure Effects on Crime During the 'Great Recession.'" *Journal of Contemporary Criminal Justice* 30(1):41–69.
- Wood, Joanne N., Sheyla P. Medina, Chris Feudtner, Xianqun Luan, Russell Localio, Evan S. Fieldston, and David M. Rubin. 2012. "Local Macroeconomic Trends and Hospital Admissions for Child Abuse, 2000–2009." *Pediatrics* 130(2):e358–64.
- Zivin, Kara, Magdalena Paczkowski, and Sandro Galea. 2011. "Economic Downturns and Population Mental Health: Research Findings, Gaps, Challenges and Priorities." *Psychological Medicine* 4(7):1343–48.

Appendix A. Frequency Distributions of MSAs by Numbers of Interviewers

<i>Wave 1</i>	
<i>Number of interviewers</i>	<i>MSA frequency</i>
1	8
2	12
3	10
4	15
5	3
6	2
7	3
8	2
9	1
10	1
<i>Wave 2</i>	
<i>Number of interviewers</i>	<i>MSA frequency</i>
1	9
2	15
3	13
4	8
5	4
6	4
7	1
8	1
9	1
10	0
11	1

Appendix B. Frequency Distributions of Interviewers by Numbers of MSAs

<i>Wave 1</i>	
<i>Number of MSAs</i>	<i>Interviewer Frequency</i>
1	74
2	14
3	13
4	2
5	4
6	0
7	2
8	1
9	0
10	1
<i>Wave 2</i>	
<i>Number of MSAs</i>	<i>Interviewer Frequency</i>
1	70
2	23
3	8
4	3
5	0
6	2
7	2
8	0
9	0
10	0