sociological science

Neighborhood and Network Disadvantage among Urban Renters

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Abstract: Drawing on novel survey data, this study maps the distribution of neighborhood and network disadvantage in a population of Milwaukee renters and evaluates the relationship between each disadvantage and multiple social and health outcomes. We find that many families live in neighborhoods with above average disadvantage but are embedded in networks with below average disadvantage, and vice versa. Neighborhood (but not network) disadvantage is associated with lower levels of neighborly trust but also with higher levels of community support (e.g., providing neighbors with food). Network (but not neighborhood) disadvantage is associated with lower levels of civic engagement. Asthma and diabetes are associated exclusively with neighborhood disadvantage, but depression is associated exclusively with network disadvantage. These findings imply that some social problems may be better addressed by neighborhood interventions and others by network interventions.

Keywords: neighborhood effects; social networks; poverty; urban sociology

RESEARCH programs on neighborhoods and networks are now well established in the social sciences. Each program has witnessed exciting advances in recent years, but each is also relatively isolated from the other. Previous work has shown neighborhoods (Sampson 2012; Sharkey 2013) and networks (Christakis and Fowler 2007; Granovetter 1995) to influence social and health disparities, but research on neighborhood effects typically does not account for network effects, and research on network effects typically does not account for neighborhood effects (Small and Newman 2001; Harding et al. 2011). Consequently, little is known about the degree to which each effect is mediated by, or reducible to, the other.

Because neighborhoods and networks have become the foundations upon which much social and medical research is based, comparing the importance of neighborhoods and social networks is fundamental to uncovering the root causes of social and health disparities. Moreover, identifying how neighborhood and network disadvantage are linked to different problems would help policymakers develop effective initiatives. Drawing on novel survey data of over a thousand Milwaukee renters, this article develops a new method of measuring network disadvantage. It then maps the distribution of neighborhood and network disadvantage within our sample of urban renters and evaluates the relationship between each disadvantage and multiple social and health outcomes. We find notable misalignment between the two disadvantages: some families live in neighborhoods with above average disadvantage but are embedded in networks with below average disadvantage, and vice versa. Unexpectedly, neighborhood (but not network) disadvantage is associated with lower levels of trust but also with higher levels of community support (e.g., providing neighbors with food). Network (but not neighborhood)

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disadvantage is associated with lower levels of civic engagement. Asthma and diabetes are associated exclusively with neighborhood disadvantage, but depression is associated exclusively with network disadvantage.

Poverty and Social Isolation

Sociologists long have believed citizens living in our cities' poorest regions are cut off from the rest of society. Wilson (1987:60) stated that inner-city residents "not only infrequently interact with those individuals or families who have had a stable work history and have had little involvement with welfare or public assistance, they also seldom have sustained contact with friends or relatives in the more stable areas of the city or in the suburbs." Similarly, Massey and Denton (1993:161) argued that residents of inner-city neighborhoods "necessarily live within a very circumscribed and limited social world."

The relatively few studies lending empirical backing to these claims have evaluated the effect of neighborhood poverty on the number of ties one has as well as one's connection to college educated and employed kin and friends. By and large, these studies have found that families living in poor neighborhoods have fewer social ties to stably employed workers and college graduates and more ties to those receiving public assistance (Fernandez and Harris 1992; Rankin and Quane 2000; Small 2007). Yet they also reveal—importantly and intriguingly—that some residents of high-poverty neighborhoods have much more disadvantaged networks than others. For example, Tigges, Browne, and Green (1998) find that two thirds of poor African Americans have no ties to college-educated kin or friends, which means that one third does. Similarly, urban ethnographers have observed that some families living in high-poverty neighborhoods are connected to better-off kin and friends while others are not (Desmond 2012a; Stack 1974).

These considerations indicate that old questions regarding the relationship between urban poverty and social isolation are far from settled. To the best of our knowledge, however, the last study directly assessing that relationship appeared over a decade ago and relied on data from the early 1990s (Rankin and Quane 2000). But over the last two decades, much has changed not only with respect to the concentration of poverty but also with respect to how people organize and actuate their social networks. After increasing at a rapid pace between 1970 and 1990, the U.S population living in high-poverty neighborhoods declined dramatically throughout the 1990s (Dwyer 2012; Jargowsky 2003), only to increase again in recent years, especially in small to mid-sized metropolitan areas (Jargowsky 2013). Moreover, advances in communication and transportation technology have made it easier to stay in touch with friends and kin who live across town (or across the country) (Wellman 2001). These sweeping and consequential changes lead us to wonder if the urban poor are socially isolated from the wider community today, if they ever were. *Are neighborhood and network disadvantage strongly correlated?*

"Neighborhood disadvantage" refers to the spatial concentration of poverty, violence, and other forms of social disadvantage in a relatively compact residential area (Sampson 2012). "Network disadvantage" refers to the degree to which a person is connected to kin and friends who are socially marginalized, economically

deprived, and psychologically compromised in relation to her or his ties to kin and friends who are not.

Neighborhoods and Networks

Researchers have postulated that social networks may be the transmitters of neighborhood effects and that neighborhoods are crucial incubators of social networks (Mayer and Jencks 1989; Wilson 1987). However, because many studies of neighborhood effects do not incorporate information about social networks, and vice versa, much is unknown about how neighborhood and network effects mediate, moderate, or overpower one another. Sampson, Morenoff, and Gannon-Rowley (2002:474) have recognized that a "limitation of neighborhood-effects research has been its lack of attention to measuring peer networks," a limitation that has led some critics to wonder if what sometimes passes for neighborhood effects is in actuality network effects (Small 2013). In a similar vein, because studies of network effects are often confined to the boundaries of a small geographic area (Christakis and Fowler 2007), critics have wondered if what sometimes passes for network effects is in actuality neighborhood effects (Bulte and Lilien 2001).

Neighborhoods and networks have become the foundations upon which much sociological research is based, but sociologists only recently have begun to incorporate neighborhood and network effects into their empirical pursuits (e.g., Grannis 2009; Sampson 2012; Papachristos, Hureau, and Braga 2013). To use Wellman and Leighton's (1979) terminology, we are interested in the relationship between "the neighborhood" and "the community," the latter a web of interpersonal ties providing sociability and support. *How do neighborhood and network disadvantage matter for the life chances of low income families?*

Understanding the relationship between neighborhood and network disadvantage is fundamental not only to theories of poverty and community life but also to social policies based on those very theories. Neighborhood relocation programs, such as Moving to Opportunity (MTO), were in part designed to connect low income families to more "prosocial and affluent social networks." As one government report (U.S. Department of Housing and Urban Development 2011:1, 23) on the MTO program explains:

> [Once low-income families relocate to low-poverty neighborhoods], ties to old social networks will diminish, whereas social ties to new communities and use of new neighborhood institutional resources will increase. . . . The benefits of greater exposure to more prosocial and affluent social networks may improve if families become more socially integrated into their new communities, more attuned to local social norms, and thus more responsive to the peer and adult social influences that are central to the epidemic and collective socialization models."

Large scale initiatives designed to promote mixed income housing also operate under the assumption that families living in distressed neighborhoods lack connections to kin and friends who are gainfully employed, college educated, and homeowners. In theory, mixed income housing "provides low-income residents

with exposure to employment opportunities and social role models" (U.S. Department of Housing and Urban Development 2003:4).

Consequential and costly policy decisions have been made based on the collective belief among social scientists that families living in disadvantaged neighborhoods also are connected to disadvantaged networks. This study puts that belief to the empirical test and investigates the relationship between both neighborhood and network disadvantage and multiple social and health outcomes.

Data and Methods

Milwaukee Area Renters Study

The *Milwaukee Area Renters Study* (MARS) is 250-item in-person survey of 1,086 households in Milwaukee. The MARS sample was limited to renters. Nationwide, the majority of low income families live in rental housing, and most receive no federal housing assistance (Schwartz 2010). Except in exceptional cities with very high housing costs (e.g., New York, San Francisco), the rental population comprises some upper- and middle-class households that prefer renting and most of the city's low-income households, which are excluded from both public housing and homeownership.[1] To focus on urban renters in the private market, then, is to focus on the lived experience of *most low income families living in cities*.[2]

Households were selected through a multi-stage stratified probability sampling. Milwaukee census block groups were sorted into three strata based on racial composition; they were classified as white, black, or Hispanic if at least two thirds of their residents were identified as such. We then subdivided each of these strata into high- and moderate-poverty census blocks based on the overall income distribution of each racial or ethnic group in the city. Blocks were randomly selected from each of these six strata. Interviewers visited every household in selected blocks, saturating target areas (Desmond, Gershenson, Kiviat 2015). One person per household, usually an adult leaseholder, was interviewed. The University of Wisconsin Survey Center supervised data collection, which took place between 2009 and 2011. After data collection, the full sample was weighted to facilitate estimates generalizable to Milwaukee's rental population. After data collection, custom design weights for the regular sample and oversample were calculated to reflect the inverse of selection probability, facilitated by a Lahiri (1951) procedure, based on the demographic characteristics of Milwaukee's rental population and adjusted to MARS's sample size. We use these custom weights throughout in our descriptive statistics to facilitate estimates generalizable to Milwaukee's rental population.

To bolster response rate and data quality, surveys were administered in person in English and Spanish by professional interviewers at tenants' place of residence According to the most conservative calculation, MARS has a response rate of 83.4 percent.

Table 1: Neighborhood Disadvantage Scale Factor Loading (weighted)

	Mean	SD	Min	Max	Factor Loadings
Median Household Income ($)	43,839	15,190	14,412	71,976	-0.80
Population Under 18 (%)	0.24	0.11	0	0.73	0.63
Population with Less than High School (%)	0.15	0.13	0	0.70	0.68
Vacant Housing Units (%)	0.08	0.07	0	0.30	0.52
Families Below the Poverty Line (%)	0.11	0.14	0	0.64	0.82
Households Receiving Public Assistance (%)	0.02	0.04	0	0.14	0.66
Violent Crime Rate (per 100 people)	0.12	0.12	0	0.53	0.77

Note: Data for all variables come from the 2010 U.S. Census with the exception of violent crime, data for which was provided by the City of Milwaukee Police Department. A neighborhood's violent crime rate reflects the sum of all counts of homicide, kidnapping, assault, arson, robbery, and weapon-related incidents (these categories being based on Incident Based Reporting codes), per 100 people.

Neighborhood Disadvantage Scale

All households in our sample were assigned to a census block group, our neighborhood metric. In Milwaukee, the population of the average block group was 1,135 in 2010. Each block group was then linked to aggregate data from the 2010 U.S. Census and crime records from the Milwaukee Police Department.

We created a neighborhood disadvantage scale via factor analysis to measure neighborhood quality. In line with prior research (Sampson, Morenoff, and Gannon-Rowley 2002), we loaded seven neighborhood characteristics onto this single scale, including: median household income, violent crime rate, and the percentages of families below the poverty line, of the population under 18, of residents with less than a high school education, of residents receiving public assistance, and of vacant housing units. Table 1 displays the factor loading and summary statistics of aggregate variables used to construct our neighborhood disadvantage scale. The scale is standardized within our sample with a zero mean and a unit standard deviation. It ranges from -1.57 to 2.92 and shows considerable variation.

The MARS sampling strategy resulted in renter households from across Milwaukee being included in the study. Plotting the location of households that participated in the study, Figure 1 shows that households from multiple parts of the city, and located in neighborhoods with widely varying amounts of disadvantage, were sampled.

Network Disadvantage Scale

Measuring neighborhood disadvantage is standard in sociology; measuring network disadvantage is not. We developed a new method to do so. Respondents were handed a half sheet of paper and asked to write down their close friends and family members who were adults.[3] After listing their closest kin and friends, respondents were asked how many of their listed ties: (1) own their home; (2) graduated from college; (3) have a full-time job; and (4) have a part-time job. Responses to these questions were pooled via factor analysis to create a measure of "upward

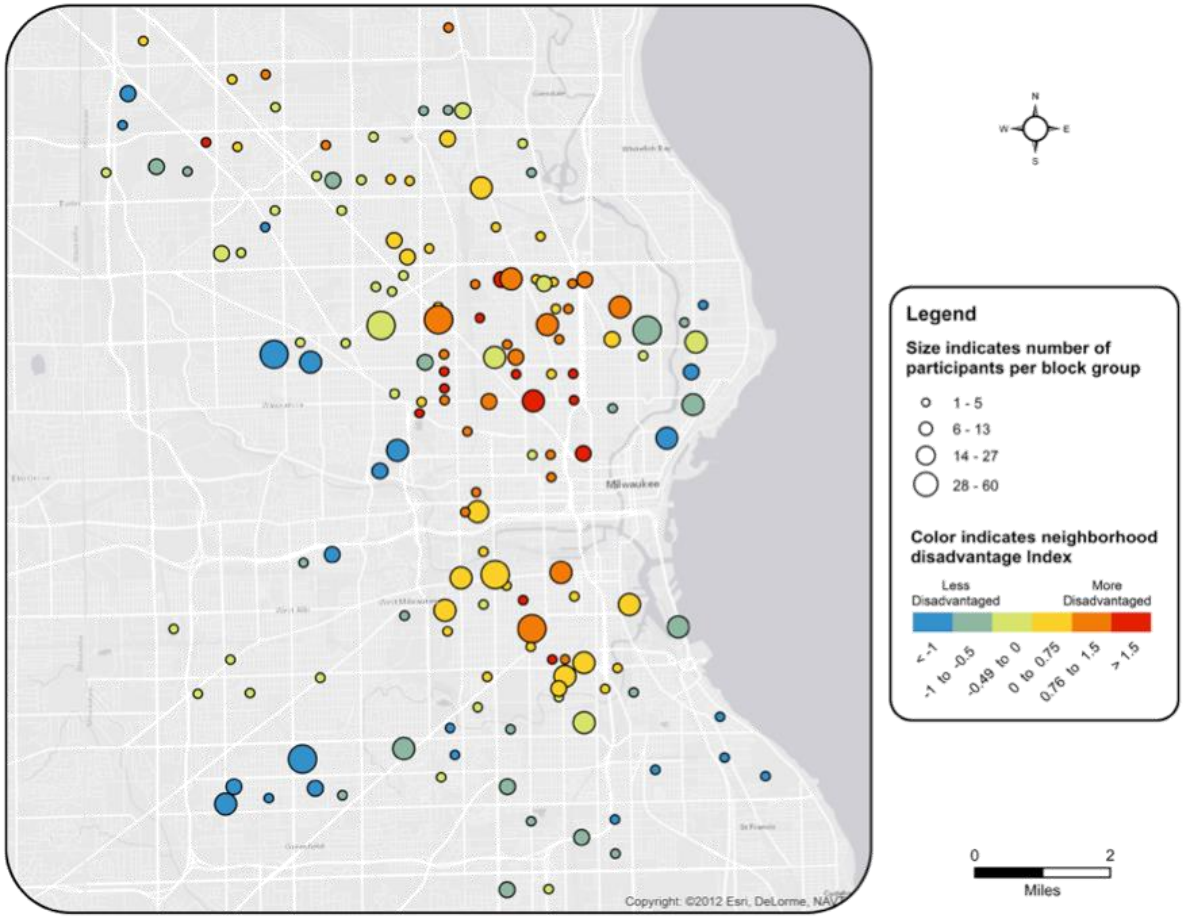

Figure 1: Location and neighborhood disadvantage of households that participated in the Milwaukee Area Renters Study.

connections." Tenants were also asked how many of their listed ties: (1) had a child before they were 18; (2) receive public assistance; (3) have a criminal record; (4) have had a child removed from their custody; (5) have been evicted; (6) have been to jail or prison; (7) are currently in an abusive relationship; and (8) are currently addicted to drugs (Desmond 2012b; Sampson 2012; Western 2006). The responses to these questions were combined via factor analysis into a measure of "downward connections." We then combined the two measures using factor analysis into a single scale for network disadvantage. Table 2 displays the summary statistics of the variables used to create the network disadvantage scale.

The questions we asked respondents about resources within their networks collected more detail than previous studies, which typically focus on "upward" connections (cf. Tigges, Browne, and Green 1998). And unlike previous research comparing neighborhood and network effects, our social network data are not confined to the boundaries of a neighborhood or even a city. We did ask each of our respondents how many of their ties lived in Milwaukee and how many lived

Table 2: Components of Network Disadvantage Scale (weighted)

	Mean	SD	Min	Max
Upward Connections	0.36	0.15	0	1
% Close Kin who Own Home	0.41	0.34	0	1
% Close Kin who Graduated College	0.30	0.33	0	1
% Close Kin with Full-Time Jobs	0.61	0.33	0	1
% Close Kin with Part-Times Jobs	0.13	0.21	0	1
% Close Friends who Own Home	0.32	0.36	0	1
% Close Friends who Graduated College	0.35	0.38	0	1
% Close Friends with Full-Time Jobs	0.68	0.37	0	1
% Close Friends with Part-Times Jobs	0.11	0.22	0	1
Downward Connections	0.06	0.07	0	1
% Close Kin who Had Child Before 18	0.16	0.28	0	1
% Close Kin who Receive Public Assistance	0.09	0.19	0	1
% Close Kin who Have Criminal Record	0.06	0.15	0	1
% Close Kin who Had Child Removed	0.01	0.06	0	0.67
% Close Kin who Have Been Evicted	0.03	0.11	0	1
% Close Kin who Have Been to Jail or Prison	0.08	0.16	0	1
% Close Kin who are in an Abusive Relationship	0.03	0.12	0	1
% Close Kin who are Addicted to Drugs	0.02	0.08	0	1
% Close Friends who Had Child Before 18	0.16	0.30	0	1
% Close Friends who Receive Public Assistance	0.08	0.20	0	1
% Close Friends who Have Criminal Record	0.08	0.20	0	1
% Close Friends who Had Child Removed	0.01	0.07	0	1
% Close Friends who Have Been Evicted	0.03	0.13	0	1
% Close Friends who Have Been to Jail or Prison	0.08	0.19	0	1
% Close Friends who are in an Abusive Relationship	0.03	0.12	0	1
% Close Friends who are Addicted to Drugs	0.02	0.10	0	1
Network Disadvantage Index	*Factor Loading*			
Upward Connections	−0.80			
Downward Connections	0.80			

in their neighborhood. This information was incorporated into supplementary analyses (see the online appendix).

To assess how well the MARS survey encouraged respondents to recall their close friends and family members, we compare our data to social network data collected through the General Social Survey's (GSS) name generator (information displayed in McPherson, Smith-Lovin, and Brashears 2006). As shown in the online appendix (Table A1), on average MARS respondents reported significantly more ties than GSS respondents, and there is more variation in network size in MARS. These differences may be attributed to different samples or to different instruments. Whatever the case may be, that the MARS name generator collected information about more ties that the GSS—the standard-bearer for nationally representative data on social networks (Marsden 2005)—increases our confidence in the effectiveness of our survey instrument to encourage the reporting of strong ties.

Outcomes

We examine the associations between neighborhood disadvantage, network disadvantage, and six outcomes related to neighborhood trust, community support, civic participation, and health. As we explain below, previous research has indicated that *both* neighborhood and network attributes influence these outcomes, which is why they were selected for our study. In the online appendix (Table A2) we present the weighted summary statistics of these outcomes for our sample.

Neighborhood Trust and Community Support

Peoples' perceptions of their neighborhood not only speak to their quality of life but can in themselves be a strong predictor of residential mobility and crime (Sampson 2012). We asked respondents, "How much do you trust people in your neighborhood?" Responses were recorded on a five-point scale ranging from "not at all" to "a great deal." We also investigate how neighborhood and network disadvantage are related to *community support,* or the degree to which respondents assist their neighbors. To measure community support, we asked respondents if they ever have helped someone in their current neighborhood: (1) pay bills or buy groceries; (2) get a job; (3) fix their housing or car; (4) by supporting them emotionally; and (5) by watching their children. Answers were summed to create a measure of community support (min $= 0$, max $= 5$). Among residents of disadvantaged neighborhoods, we might expect those embedded in relatively advantaged social networks to participate in reciprocal exchanges with their resource strong ties and thus to offer less support to their neighbors. On the other hand, ethnographic studies of network-based survival strategies in poor urban neighborhoods have found that low income families sometimes receive little help from their better-off kin and friends (Desmond 2012a; Stack 1974), which would imply that network disadvantage would be weakly related to community support.

Civic Engagement

Neighborhood and network quality have been thought to influence the extent to which one strives to improve one's community or nation by participating in politics (Sampson 2012). To assess civic participation, we asked each respondent if she or he has ever: (1) picketed or protested something; (2) volunteered in their community (excluding compulsory work); (3) voted in a national election; (4) voted in a local election; or (5) called or written a political leader. Answers were summed to create a measure of civic engagement (min $= 0$, max $= 5$). A large body of research has shown that civic engagement is higher among those with more resources (e.g., Brady, Verba, and Schlozman 1995). It may be the case, then, that people with strong ties to homeowners and the college educated will also be more politically active, even after conditioning on the person's socioeconomic status, education, and neighborhood quality. On the other hand, the influence of neighborhood disadvantage on civic engagement is well established, and this factor may be more strongly related to political participation than are network characteristics.

Health

The characteristics of one's neighborhood (Sharkey 2010) and network (Christakis and Fowler 2007) have been linked to health disparities. We asked respondents if "a professional [has] ever diagnosed" them with asthma, diabetes, or depression—health conditions disproportionately observed in low income populations. The response to each of these conditions is coded as a dummy variable (Yes = 1, No = 0). Because asthma has been linked to environmental conditions (Landrigan et al. 2002), we might expect to find a link between it and neighborhood disadvantage that is unmediated by network characteristics. However, medical research has also linked asthma to psychosocial stress, which can be influenced by the degree to which one is embedded in prosocial networks (Wright, Rodriguez, and Cohen 1998). Similarly, both neighborhood and network characteristics have been associated with diabetes (Christakis and Fowler 2007) and depression (Rosenquist, Fowler, and Christakis 2011), but few studies have investigated the degree to which one association is mediated by or overpowers the other. An important exception is an article by Haines, Beggs, and Hurlbert (2011) that finds that network social capital can mediate neighborhood effects on depressive symptoms.

Control Variables

Our models account for a number of factors previous research has associated with our outcomes. Neighborhood perceptions, civic engagement, and health vary widely across white, black, and Hispanic populations (Williams and Mohammed 2009); accordingly, we account for respondents' race and ethnicity as well as for whether respondents were born in the United States. Because our outcomes may shift over the life course, we control for age. We control, too, for gender, number of children, and marital status, as previous research has linked these attributes to our outcomes (e.g., Burns, Schlozman, and Verba 2001).

Because one's socioeconomic status can affect one's neighborhood perceptions, civic engagement, and health (e.g., Braveman et al. 2005), we account for respondents' education and their household income. We also observe if respondents have a full-time job or receive welfare (TANF) (Chase-Lansdale et al. 2003). The experiences of incarceration and eviction could affect one's perceptions of neighborhood trust, civic engagement, and health (Desmond 2012b; Western 2006). Thus we assign to respondents the value of 1 if they ever have been convicted of a felony or if they ever have been evicted.

One's neighborhood perceptions, political participation, and health could also be affected by one's residential instability (Larson, Bell, and Young 2004). Accordingly, we observe if respondents moved at least once in the previous two years. And because our outcomes could be related to recent trauma or shocks (Corman et al. 2011), we observe whether respondents had experienced in the previous two years: (1) a forced move (e.g., eviction); (2) the dissolution of a (self-defined) "serious relationship;" (3) a sudden stoppage of their public benefits (e.g., welfare sanction); or (4) being laid off or fired from a job.

Because research has found housing quality to have strong effects on our outcomes, particularly health (Shaw 2004), we control for the number of lasting housing

problems a tenant has experienced since moving into her or his unit. Tenants were asked if they had experienced nine types of problems: broken appliance; broken window; broken door or lock to the outside; pests; exposed wires or electrical problems; no hot water; no heat because the main heating equipment broke; no running water; and stopped-up plumbing. A problem was classified as "lasting" if it lasted more than three days or, in the case of no heat, water, or plumbing, more than 24 hours.

Last, we observe if a respondent owns a car and control for self-rated health when estimating outcomes related to neighborhood perceptions, community support, and civic involvement (Marschall and Stolle 2004). We present summary statistics of our control variables in the online appendix (Table A3).

Analytic Strategy

We use regressions to examine the relationships between neighborhood and network disadvantage and multiple social and health conditions: perceptions of neighborhood trust (ordinal variable, 1–5); community support and civic participation (count variables, 0–5); and the health conditions of asthma, diabetes, and depression (binary variables, 0/1). The general model can be written as:

$$F(Y_{ik}) = b_0 + b_1 NB_i + b_2 Net_i + b_3 X_i,$$

where Y_{ik} refers to the i^{th} respondent's k^{th} outcome, NB_i to neighborhood disadvantage, Net_i to network disadvantage, and X_i to the covariates. F represents a link function that linearly transforms the relationship between the dependent variable and covariates. The link function is ordered logit for ordinal outcomes, Poisson for count outcomes, and logit for binary outcomes.[4] We are primarily interested in examining the patterns of network and neighborhood disadvantage and their associations with different outcomes. In the Online Supplement, we present additional sensitivity analyses to examine possible interaction effects of network and neighborhood disadvantage and the influence of network location and size. Our findings are robust to these tests.

Results

Mapping Neighborhood and Network Disadvantage

Among Milwaukee renters, we find that network and neighborhood disadvantage are correlated (corr. $= 0.26$, $P < 0.05$), but not to an especially high degree. We also correlate the average network disadvantage of each neighborhood with the neighborhood disadvantage; that correlation is slightly higher, at 0.35 ($P < 0.05$). In addition, we calculate the standard deviation of the network disadvantage within each neighborhood (i.e., block group), generated for the 81 neighborhoods that include more than one observation. The average of the standard deviations of the network disadvantage across these neighborhoods is as high as 0.84, indicating that even for people living in the same neighborhood, there is a great deal of variation in network disadvantage.

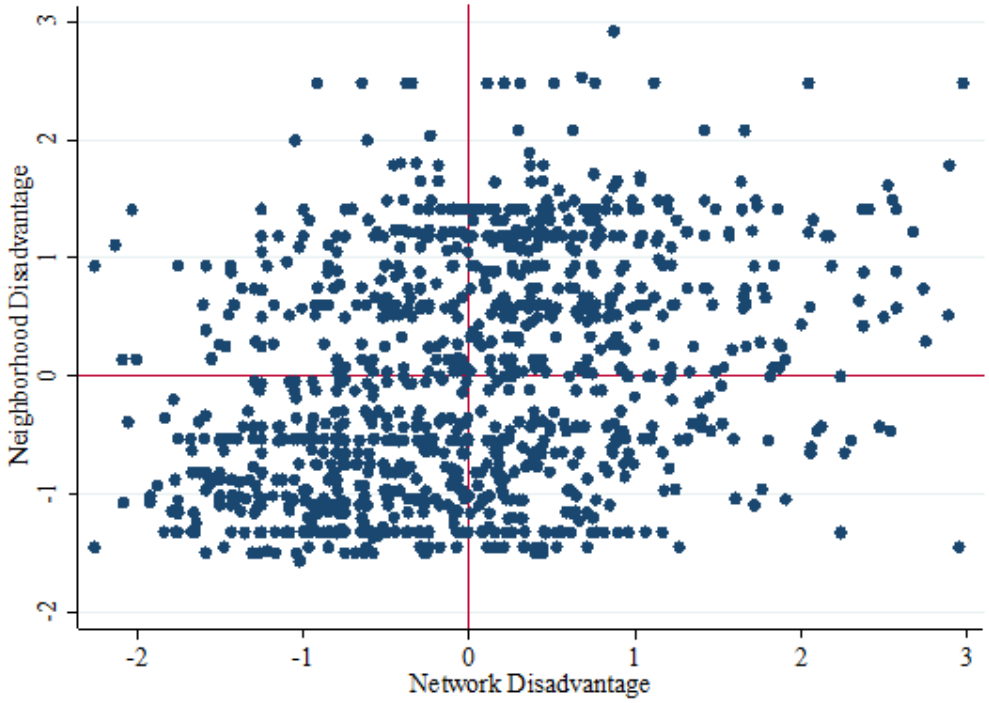

Figure 2: Distribution of respondents by standardized network and neighborhood disadvantage (N = 1,048). Higher numbers indicate more disadvantage. The middle of the plot, where the lines cross, finds the means of the two standardized measures (0, 0). The figure displays respondents who experience both above average network and neighborhood disadvantage (N = 316); who experience below average network disadvantage but above average neighborhood disadvantage (N = 180); who experience both below average network and neighborhood disadvantage (N = 365); and who have above average network disadvantage but below average neighborhood disadvantage (N = 187).

To further explore the configuration of neighborhood and network disadvantage, we placed each renter in a plot with the standardized network disadvantage scale on the x-axis and the standardized neighborhood disadvantage scale on the y-axis. The resulting Figure 2 reveals that about one third of the respondents have high levels of both network and neighborhood disadvantage, and another one third enjoy low levels of both disadvantages. However, 17 percent live in relatively more distressed neighborhoods but are embedded in relatively more resourced networks, and the remaining 18 percent experience low neighborhood disadvantage but high network disadvantage. Although both disadvantages advance together somewhat, there appears to be significant misalignment between the disadvantages as well. This presents a revised picture of the relationship between neighborhood and network disadvantage among urban renters, one that is more complicated and intriguing than previously believed.

Regression Results

We now document through regression analyses the relationships between neighborhood and network disadvantage and six conditions related to neighborhood perceptions, civic engagement, and health. If renters were embedded primarily in local networks, that could muddy our distinction between neighborhood and network disadvantage (Mayer and Jencks 1989). However, we find that the majority of renters' ties live outside their neighborhoods. Respondents were asked how many of their close friends and family members lived in "their neighborhood," subjectively defined. The modal respondent reported that none of their close friends and none of their close family members lived in their neighborhood. Most renters separated their social network, made up of close kin and friends, from their local network composed of neighbors (to the extent a local network even existed).

All models account for a large number of factors that previous research has associated with these conditions; the full models are presented in the online appendix. Table 3 displays the results. To evaluate unconditional associations, models 1 and 2 include neighborhood disadvantage and network disadvantage separately. Model 3 includes both disadvantages.

Neighborhood Trust and Community Support

We find that among Milwaukee renters, neighborhood disadvantage is negatively associated with perceptions of neighborly trust (odds ratio $= 0.67$, $P < 0.001$), but network disadvantage has no significant association with this outcome, even when neighborhood disadvantage is excluded from the model. While we were not surprised that neighborhood disadvantage is strongly associated with perceptions of neighborly trust, we were surprised that network disadvantage was not associated with this outcome. This finding speaks to the power of one's immediate context over one's social ties in determining neighborhood trust.[5]

Additionally, neighborhood (but not network) disadvantage is associated with higher levels of community support. All else equal, renters in distressed Milwaukee neighborhoods were more likely to have helped their neighbors financially, emotionally, or with in-kind support than their peers in less disadvantaged neighborhoods (odds ratio $= 1.16$, $P < 0.01$). Although one might attribute this finding to social isolation—residents in disadvantaged neighborhoods must help one another because they are disconnected from "the mainstream"—we found this effect to be unmediated by network disadvantage. Residents in disadvantaged neighborhoods with strong ties to homeowners and the college educated were just as likely to offer support to their neighbors as those who lacked such ties or who were connected to resource-poor kin and friends. This suggests a heightened presence of local gift exchange in distressed neighborhoods, one relatively unaffected by the composition of one's extended network.

Civic Engagement

Network—but not neighborhood—disadvantage is associated with lower levels of civic engagement in all models (odds ratio $= 0.92$, $P < 0.001$). If neighborhood

Table 3: Regression Models of the Relationship between Neighborhood and Network Disadvantage and Six Social and Health Outcomes

	Model 1 Neighborhood Disadvantage Only			Model 2 Network Disadvantage Only			Model 3 Neighborhood Disadvantage		Network Disadvantage		
	Est.	SE	N	Est.	SE	N	Est.	SE	Est.	SE	N
Trust	0.66†	0.06	858	0.86	0.07	855	0.67†	0.06	0.91	0.08	845
Community Support	1.15†	0.05	860	1.02	0.04	857	1.16†	0.05	1.00	0.04	847
Civic Participation	0.99	0.02	860	0.92†	0.02	857	1.00	0.02	0.92†	0.02	847
Asthma	1.18*	0.10	864	1.09	0.10	861	1.19*	0.10	1.07	0.11	851
Diabetes	1.31*	0.17	863	0.92	0.13	860	1.31*	0.17	0.88	0.13	850
Depression	0.90	0.12	862	1.38†	0.16	859	0.87	0.11	1.43†	0.17	849

Note: Logit models are used for binary outcomes (health outcomes); Poisson models are used for count outcomes (civic participation, community support), and ordered Logit models are used for the remaining outcomes. Shown coefficients are odds ratios for Logit and ordered Logit models or incidence rate ratios for Poisson models. These models include but do not display all control variables; for full models, see the online appendix. The variable of self-rated health is excluded when we model health outcomes. Standard errors are clustered at the block group level and are shown beside the coefficients. Sample sizes are shown after the standard errors.

$* p < .05$; † $p < 0.01$ (two-tailed test).

disadvantage is more important for explaining perceptions of trust as well as variation in community support, network disadvantage is more important for explaining political participation. This finding is surprising in light of previous research identifying neighborhood context as an important influence on political participation (e.g., Cohen and Dawson 1993).

Network disadvantage remained significantly associated with civic engagement not only after we conditioned on neighborhood disadvantage but also after we conditioned on a suite of relevant individual characteristics. This finding opens up possibilities for future research to investigate the mechanisms driving network effects on politics. Supplementary analyses (displayed in the online appendix) found renters' upward connections to the middle class to be significantly and positively correlated with civic participation (odds ratio $= 1.15$, $P < 0.001$), but downward connections induce little civic participation (odds ratio $= 1.04$, $P > 0.05$). The association, in other words, is driven primarily by ties to homeowners, college graduates, and employed workers. Downward ties do not suppress civil engagement as much as upward ties encourage it.

Health

Interestingly, we find that each disadvantage is associated with different health outcomes among Milwaukee renters. Asthma and diabetes are associated exclusively with neighborhood disadvantage (odds ratio $= 1.19$, $P < 0.05$ and odds ratio $= 1.31$, $P < 0.05$, respectively), but depression is associated exclusively with network disadvantage (odds ratio $= 1.43$, $P < 0.01$).

Our findings support previous work on the influence of the social environment on asthma and diabetes. Surprisingly, this connection was not mediated by the characteristics of one's social network. Both conditions—diabetes in particular—can be prevented and treated with lifestyle adjustments in diet and risk behaviors, adjustments that in expectation could be encouraged to varying degrees by social ties occupying different positions on the socioeconomic ladder. However, we found no evidence that network disadvantage was related to asthma or diabetes diagnoses. Here, the neighborhood trumped the network.

With respect to depression, however, the network trumped the neighborhood. Unlike previous research (e.g., Haines, Beggs, and Hurlbert 2011), we found no significant association between neighborhood disadvantage and depression. It is important to recognize that this finding does not imply (preposterously) that renters living in neighborhoods with high crime and poverty rates are just as happy as those living in safer and more prosperous areas of the city, only that there is no detectable variation in self-reported depression diagnoses across neighborhood contexts. Our finding linking network disadvantage to depression could reflect the influence of network characteristics on one's mental health *per se*, or it could reflect the influence of network characteristics on one's likelihood of seeking treatment for depressive symptoms.

To give a sense of the magnitude of these associations, Figure 3 displays the predicted probabilities or counts based on model 3, holding all other variables at their means. A standard deviation increase in neighborhood disadvantage roughly corresponds to a 30 percent drop in trusting one's neighbors a great deal (**A**), but it

also is associated with a 16 percent increase in community support (**B**). A standard deviation increase in neighborhood disadvantage also corresponds to a 15 percent increase in the probability of reporting asthma (**C**) and a 28 percent increase in the probability of reporting diabetes (**D**). A standard deviation increase in network disadvantage is associated with an eight percent decrease in civic engagement (**E**) and a 34 percent increase in the probability of reporting depression (**F**).

Surprisingly, for all outcomes the estimated coefficients for both neighborhood and network disadvantage are consistent across models that include and exclude the other form of disadvantage. To examine whether the effects of the two forms of disadvantage moderate each other, we added an interaction term between neighborhood and network disadvantage to model 3 and refitted the regressions (see the online appendix). In no model did the interaction between neighborhood and network disadvantage rise to significance. Additionally, in these models the estimated coefficients for neighborhood and network disadvantage are almost identical to those reported in Table 3. Our findings suggest that the effects of neighborhood and network disadvantage appear to be relatively exclusive and independent from one another.

Limitations

This article does not claim to identify universal causal effects of neighborhood or network disadvantage on our outcomes. Future research could incorporate our methodological approach to provide causal specificity to the broad patterns described herein. However, by developing a new method to capture network disadvantage, describing the relationship between neighborhood and network disadvantage, and identifying the conditional associations between those two disadvantages on a number of social and health conditions, this article has opened up new avenues for future research having to do with the specific mechanisms through which neighborhood and network effects are made manifest. Why might city dwellers' participation in neighborhood-based support systems be related to the quality of their neighborhood and unaffected by the kinds of people to which they are strongly tied? How, precisely, does one's social network influence one's participation in local politics or community affairs? Questions such as these are raised but unanswered by our analyses. This article encourages a line of research that investigates the complicated and unsuspected ways in which network and neighborhood disadvantage matter for determining peoples' life chances.

Future research could also go beyond our sample's limitations, examining the interplay of neighborhood and network dynamics in other cities, in rural settings, and among homeowners. Because we were interested neighborhood and network effects among a predominantly low income population, our sample was appropriate for our research. However, the exclusion of homeowners means that this article's findings are limited to Milwaukee's rental population and are ill suited to representing the experiences of more financially privileged households. The exclusion of homeowners, who in general may have a different relationship to their neighborhood than renters, raises some important considerations for this research. Namely, there is reason to suspect that neighborhood effects are more acute among

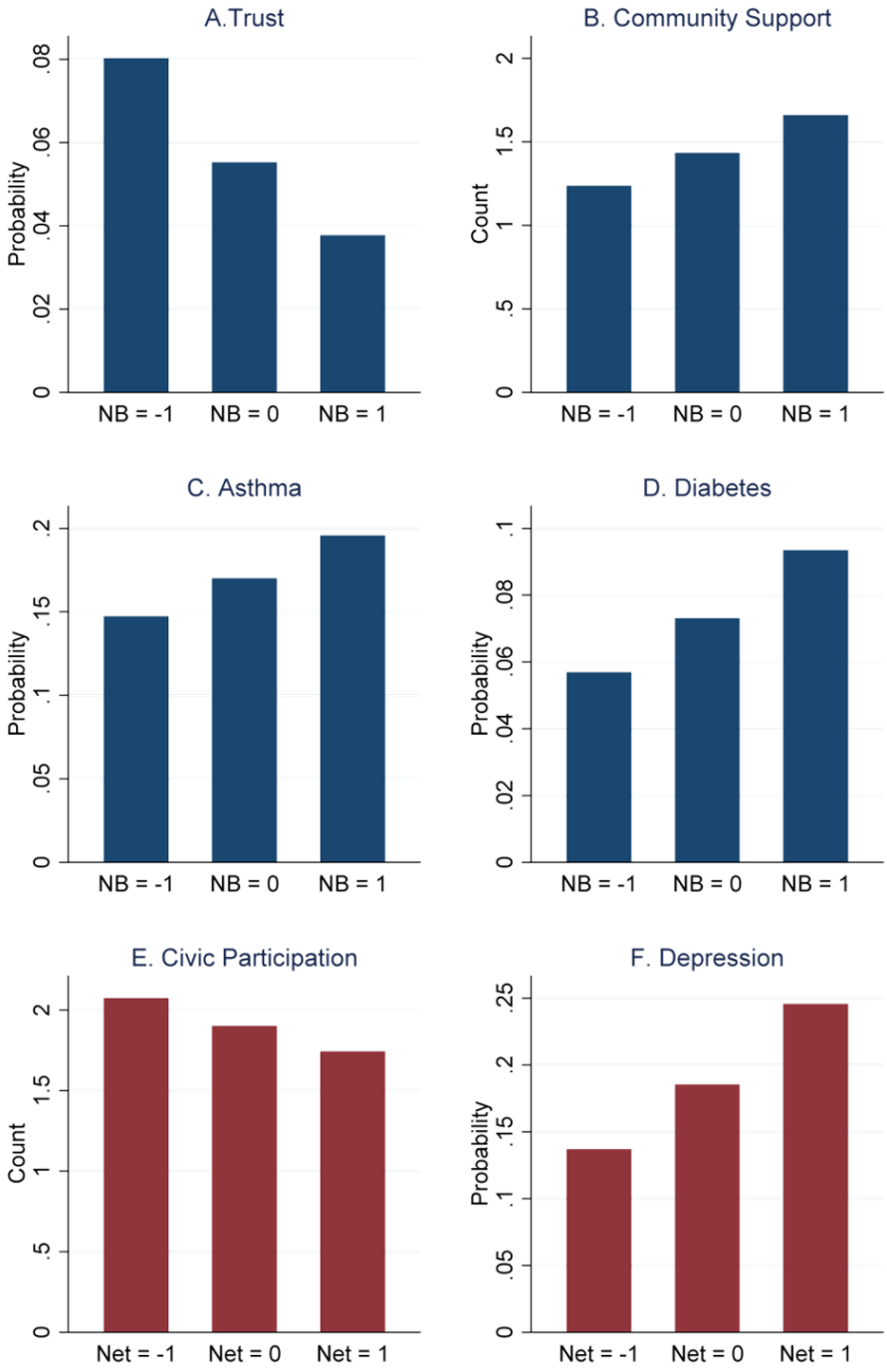

Figure 3: (A to F). Predicted outcomes based on Model 3 of Table 3. A to D display estimates of outcomes associated with neighborhood disadvantage (NB). E to F display estimates of outcomes associated with network disadvantage (Net). For each outcome, predictions are shown for average neighborhood or network disadvantage (NB/Net=0) as well as for one standard deviation below and above the mean (NB/Net =-1,1). All control variables are held at their mean.

homeowners because of their lower rates of residential turnover. However, our findings are robust to controlling for residential tenure.[6]

Discussion

This article has yielded two important and surprising findings, each of which holds implications for both social science and social policy. First, we find that for a sizable minority of urban renters, network disadvantage and neighborhood disadvantage are not strongly correlated. While some low income families suffer from "double disadvantage," living in distressed neighborhoods and being embedded in impoverished networks, others live in relatively bad neighborhoods but have good networks or live in relatively good neighborhoods but have bad networks. For many renters, spatial isolation (residential ghettoization) does not bring about social isolation (network ghettoization). In revealing the relationship between neighborhood and network disadvantage to be much more complicated and intriguing than previously believed, our article revises how we think about poverty, networks, and neighborhoods, thereby expanding avenues for future research.[7]

This finding has important implications for social policy. The belief that citizens living in our cities' poorest regions experience extreme levels of social isolation has motivated several sweeping and costly social policies, including neighborhood relocation programs and mixed income housing initiatives. Our study revises the picture of poverty and social isolation upon which these initiatives are based. If many families living in distressed neighborhoods already have strong ties to the middle class, then federal initiatives designed to enhance or diversify poor families' social networks could be improved to be much more targeted, and therefore perhaps more effective.

Second, this article finds that neighborhood and network disadvantage are associated with different social and health outcomes. Perceptions of neighborhood trust as well as community support are associated with neighborhood (but not network) disadvantage. Civic engagement is associated with network (but not neighborhood) disadvantage. Neighborhood disadvantage is associated exclusively with some health problems (asthma, diabetes), while network disadvantage is associated exclusively with others (depression). The fact that the associations between each disadvantage and our outcomes remain virtually unchanged regardless of whether we condition on the other disadvantage or include an interaction term between the two suggests that the two disadvantages operate through independent channels.

This set of findings also has important implications for both research and policy. With respect to research, if which disadvantage is more consequential depends on the outcome, then a critical implication is that neither neighborhood nor network disadvantage can be judged *a priori* to be more fundamental to social life. The relative importance of each may depend on what one is trying to explain.

With respect to policy, our second finding presents preliminary evidence that establishing the relationship between neighborhood and network disadvantage and consequential outcomes should precede policy prescriptions. Because neighborhood and network disadvantage are exclusively associated with different outcomes, some social and health problems may require interventions focused on distressed

neighborhoods and others on disadvantaged networks. If neighborhood and network disadvantage are exclusively associated with different outcomes, a policy agenda focused singularly on improving low income families' neighborhoods or their networks likely may prove inefficient and partially effective at best.

Notes

1 Comparing the weighted MARS sample to 2010 U.S. Census data, we see that the median annual household income among Milwaukee renters is $30,398, lower than that of the city's population ($35,851).

2 The MARS sample excluded renters living in public housing but not renters in the private market who were in possession of a housing voucher.

3 This form was divided into two columns—one labeled "Family," the other, "Friends"—and designed to limit the number of people respondents reasonably could report without providing them with an explicitly stated limit.

4 Because ordered logit models are more parsimonious and interpretable than generalized ordered logit models, we displayed the results of the former. Supplementary analyses that employed the latter produced broadly similar results. Likewise, findings from negative binomial models for all count outcomes were found to be nearly identical to those of the Poisson models.

5 Although we found no evidence that network disadvantage was associated with neighborly trust, it could be associated with generalized trust. Likewise, although we found no evidence that neighborhood disadvantage was associated with generalized civic engagement, it could be associated with local civic engagement. These pursuits were beyond the scope of this article.

6 We reproduced our analyses on subsamples of renters who had lived in their neighborhoods for two years or longer and those who had not, finding broadly similar results for each subgroup.

7 E.g., what explains why some families living in poor, segregated neighborhoods are embedded in prosocial, relatively affluent networks while others are not?

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