Class 10 - Neighborhoods - social environment
Agenda

• Lingering thoughts/questions
• Neighborhoods and health research
• Social environment characteristics
• Just Cause for Eviction hearing
• Logistics of site visits
Interpreting neighborhood differences in health

- Social environment factors predict health

- Associated with heart disease, respiratory disease, cancer, all-cause mortality, low birth weight, infant mortality, victimization, smoking, mental health

- Composition? Context? Reverse causation?
Neighborhood Effects on Health

- Institutions and resources
- Environmental and physical risks
- Social risks
- Social networks

Primary social exposures
- Segregation
- Violence
- Poverty
- Social capital
Figure 2. Black-white segregation trends, 1940-2010

Source: American Communities Project, Brown University

Courtesy of US2010 Census Project. This data is in the public domain.

Figure 1. Diversity Experienced in Each Group's Typical Neighborhood - National Metropolitan Average, 2010 Census

Source: American Communities Project, Brown University

Courtesy of US2010 Census Project. This data is in the public domain.

Figure 3. Black-White Segregation, 1980 to 2010

![Graph showing black-white segregation from 1980 to 2010.](image)

Source: American Communities Project, Brown University

Courtesy of US2010 Census Project. This data is in the public domain.

Figure 4. Hispanic-White Segregation, 1980 to 2010

Source: American Communities Project, Brown University

Figure 5. Asian-White Segregation, 1980 to 2010

Dissimilarity Index

<table>
<thead>
<tr>
<th>% Asian in metropolitan area</th>
<th>1980</th>
<th>1990</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>All areas</td>
<td>41</td>
<td>36</td>
<td>40</td>
<td>44</td>
</tr>
<tr>
<td>&lt;5%</td>
<td>41</td>
<td>36</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>5-10%</td>
<td>36</td>
<td>38</td>
<td>40</td>
<td>43</td>
</tr>
<tr>
<td>10-20%</td>
<td>41</td>
<td>40</td>
<td>45</td>
<td>43</td>
</tr>
<tr>
<td>20%+</td>
<td>41</td>
<td>42</td>
<td>45</td>
<td>43</td>
</tr>
</tbody>
</table>

Source: American Communities Project, Brown University

Courtesy of US2010 Census Project. This data is in the public domain.

Causal mechanisms

- Institutions and resources
- Environmental and physical risks
- Social risks
- Social networks
Institutions and resources

High neighborhood socioeconomic status results in shorter system response intervals and transport intervals for patients with chest pain.

Patients with chest pain originating from the highest income neighborhoods have system response intervals and transport intervals that are 5% and 12% shorter, respectively, than those experienced by patients from other neighborhoods.

The reasons for these differences are unclear but might include a number of system factors, including the distribution of ambulances in the city, neighborhood structure (including road design and traffic patterns), and proximity of high socioeconomic status neighborhoods to hospitals.

Figures 2, 3, and Table 1 from Friedman, Michael S., Kenneth E. Powell, Lori Hutwagner, LeRoy M. Graham, and W. Gerald Teague. "Impact of Changes in Transportation and Commuting Behaviors During the 1996 Summer Olympic Games in Atlanta on Air Quality and Childhood Asthma." *Jama* 285, no. 7 (2001): 897-905 removed due to copyright restrictions.
Networks

- Gun violence is severely concentrated within social networks.

- Boston, MA, Papachristos et al. (2012) found that 85% of all fatal and non-fatal gunshot injuries occurred in a social network of \( N = 763 \) individuals, that is, in less than 6% of the community’s population (see figure on left).

- Likewise, in a study of one high-crime Chicago community, Papachristos and Wildeman (2014) found that 41% of all gun homicides occurred in a single network containing less than 4% of the community’s population.

Co-Offending network of high-risk individuals in a Boston community, 2008. Each of the nodes represents a unique individual (\( N = 763 \)). Each of the ties represents an observation of the individuals engaging in criminal behavior. Red nodes represent the victims of fatal or non-fatal gunshot injuries, and these are clustered within the network.

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Moving to Opportunity

- Experimental mobility program in five cities
- Tenant-based rental assistance with housing counseling
- Randomly assigned participants to one of three study groups
  - control
  - traditional Section 8 housing voucher
  - low-poverty neighborhood
Moving to Opportunity and Health

“moving from a high-poverty to lower-poverty neighborhood leads to long-term (10- to 15-year) improvements in adult physical and mental health and subjective well-being, despite not affecting economic self-sufficiency.”

- lower prevalence of diabetes, lower prevalence of extreme obesity (BMI >35), depression and psychological distress

- improved mental health for girls (mood disorders, panic attacks, serious emotional/behavioral difficulties)

Courtesy of the New York Academy of Medicine. Used with permission.

Urban penalty or urban sprawl model

- Thoughts?
Housing instability/displacement

- What does Desmond find?
- Why?
Explore the effects of residential context on health

- Assessing the effect of localized foreclosure activity on health
  - Dated and geocoded foreclosure deeds across MA, 1987-2008 – Federal Reserve Bank of Boston
  - Dated and geocoded physical examination data on a cohort of residents – Framingham Heart Study

- Outcomes included reported alcohol consumption, measured BMI and blood pressure
Proximate foreclosure and blood pressure

Foreclosure

• What did McLaughlin find?
• Why?
Other measures of social fabric

- Social capital - neighborhood
- Social cohesion – neighborhood
- Collective efficacy - neighborhood
- Social support – individual
- Civic engagement – individual
HIA example - Small Business Technical Assistance program funding

- Small businesses enhance economic growth, more likely to reinvest profits locally, create informal social networks, attract foot-traffic ->

- Social capital: social control, collective efficacy, diffusion of social norms ->

- Improves self-rated health, associated with lower all-cause mortality, infant mortality, violent injuries, mental health problems
Figure 1. Flowchart for Study Selection

7,140 publications identified on initial search (Jan 1, 1995—Dec 1, 2014)
- 2,385 PubMed
- 2,390 Embase
- 1,452 PsycINFO
- 913 Sociological Abstracts

2,964 duplicates removed

4,176 publications screened based on title and abstract

3,806 publications excluded for not meeting the inclusion criteria:
- 1,082 not related to neighborhood effects
- 637 not related to health- or health behavior outcomes
- 358 not multilevel
- 235 reviews, editorials, dissertations, etc.
- 5 not in English
- 1,428 not U.S.-based
- 54 published prior to 1995

7 duplicates

370 publications were assessed based on full-text and their references were reviewed for additional publications

141 publications excluded:
- 51 not related to neighborhood effects
- 32 not related to health- or health behavior outcomes
- 12 not multilevel
- 36 reviews, editorials, dissertations, etc.
- 10 not accessible

30 publications included from examining reference lists of the relevant reviews and identified studies

259 publications included in systematic review

Cumulative trend of neighborhood effects publications for the top five most common health outcomes over time (1997-2014)

1. BMI/obesity
2. Mental health
3. Pregnancy and birth outcomes
4. Cancer screening, diagnosis, and survival
5. Self-rated health
Figure 5 from Arcaya, M. C., Tucker-Seeley, R. D., Kim, R., Schnake-Mahl, A., So, M., & Subramanian, S. V. (2016). "Research on neighborhood effects on health in the United States: A systematic review of study characteristics." Social Science & Medicine, 168, 16-29 removed due to copyright restrictions.
<table>
<thead>
<tr>
<th>Author</th>
<th>Review / Meta</th>
<th>Exposure definition</th>
<th>Outcome definition</th>
<th>Country</th>
<th>Participants</th>
<th># of studies</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ding et al, 2011</td>
<td>Review</td>
<td>Environmental attributes</td>
<td>Physical activity</td>
<td>Global</td>
<td>Youth (3-18 years)</td>
<td>103</td>
<td>The strongest correlates for children were walkability, traffic speed/volume, access/proximity to recreation facilities, land-use mix, and residential density. The most supported correlates for adolescents were land-use mix and residential density.</td>
</tr>
<tr>
<td>Foster &amp; Giles-Corti, 2008</td>
<td>Review</td>
<td>Real and perceived neighborhood safety</td>
<td>Physical activity</td>
<td>Global</td>
<td>Adults</td>
<td>41</td>
<td>Results are inconsistent because much of the research relies on inadequate conceptualization and operationalization of safety.</td>
</tr>
<tr>
<td>Koohsari, et al 2015</td>
<td>Review</td>
<td>Neighborhood environmental attributes: walkability-related, urban/regional, social/crime, aesthetics, destination-related, route-related</td>
<td>Sedentary behaviors</td>
<td>Global</td>
<td>Adults</td>
<td>17</td>
<td>There is modest, but mixed evidence: 28% of the analyses found significant associations between environmental attributes with sedentary behaviors. The most consistent association was for lower levels of sedentary behavior among residents of urban compared to regional areas.</td>
</tr>
<tr>
<td>Bancroft et al 2015</td>
<td>Review</td>
<td>Parks or trails</td>
<td>Objectively measured physical activity</td>
<td>USA</td>
<td>No restriction</td>
<td>20</td>
<td>There is inconsistency even among studies with objectively measured physical activity: 5 out of 20 articles reported a significant positive association between parks and physical activity; 9 found no association; and 6 had mixed findings.</td>
</tr>
<tr>
<td>Owen et al 2004</td>
<td>Review</td>
<td>Objectively assessed and perceived environmental attributes</td>
<td>Walking</td>
<td>Global</td>
<td>No restriction</td>
<td>18</td>
<td>Aesthetic attributes, convenience of facilities for walking (sidewalks, trails); accessibility of destinations (stores, park, beach); and perceptions about traffic and busy roads were found to be associated with walking for particular purposes.</td>
</tr>
<tr>
<td>Feng et al, 2010</td>
<td>Review</td>
<td>Built environment; land use/transportation environment; food environment</td>
<td>Obesity</td>
<td>Global</td>
<td>No restriction</td>
<td>63</td>
<td>Of 80 relations, 38 relations did not achieve statistical significance. Of the 15 buffer papers that have evaluated 40 relations, 24 relations did not achieve statistical significance.</td>
</tr>
<tr>
<td>Corral et al, 2015</td>
<td>Review</td>
<td>Residential segregation</td>
<td>Overweight/obesity</td>
<td>USA</td>
<td>African American adults</td>
<td>11</td>
<td>Only 4 of the 11 studies used valid measures of both; those 4 studies suggested that segregation contributes to overweight and obesity among African American adults.</td>
</tr>
<tr>
<td>Black &amp; Macinko 2006</td>
<td>Review</td>
<td>Neighborhood level factors</td>
<td>Obesity</td>
<td>Global</td>
<td>No restriction</td>
<td>37</td>
<td>In 15 studies, neighborhood-level measures of economic resources were associated with obesity. features that discourage physical activity were associated with increased BMI. Inconsistent results for neighborhood income inequality, racial composition, and availability of healthy food.</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Year</td>
<td>Study Type</td>
<td>Environment/Characteristics</td>
<td>Health Behaviors</td>
<td>Setting</td>
<td>Sample Size</td>
<td>Findings</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------</td>
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<td>------------------------------</td>
<td>------------------</td>
<td>------------------</td>
<td>-------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>de Vet et al</td>
<td>2011</td>
<td>Umbrella review</td>
<td>Environmental factors</td>
<td>Physical activity and dietary behaviors</td>
<td>Global</td>
<td>Children and adolescents</td>
<td>18 reviews (671 studies) - Consistent evidence supporting the associations between school and neighborhood characteristics and physical activity, but not for dietary behaviors.</td>
</tr>
<tr>
<td>Safron et al, Umbrella review</td>
<td>2011</td>
<td>Social and physical micro-environmental characteristics</td>
<td>Diet, physical activity, and body weight</td>
<td>Global</td>
<td>Children and adolescents</td>
<td>8 reviews (132 studies) - Stronger support for several neighborhood and school characteristics (e.g., community opportunities to exercise, lower costs of physical activity facilities, physical activity built environment, low crime level) and adolescent physical activity.</td>
<td></td>
</tr>
<tr>
<td>Kramer and Hogue, 2009</td>
<td>Review</td>
<td>Black-white residential segregation</td>
<td>Health outcomes</td>
<td>USA</td>
<td>African Americans</td>
<td>39</td>
<td>- The health effects of segregation are relatively consistent: isolation segregation is associated with poor pregnancy outcomes and increased mortality, but clustered segregation (black neighborhoods) seemed to have health-protective effects.</td>
</tr>
<tr>
<td>Pickett and Pearl, 2001</td>
<td>Review</td>
<td>Local area social characteristics</td>
<td>Health outcomes</td>
<td>Developed countries</td>
<td>No restriction</td>
<td>25 studies</td>
<td>- Consistent evidence modest neighborhood effects on health.</td>
</tr>
<tr>
<td>Casagrande et al. 2009</td>
<td>Review</td>
<td>Built environment</td>
<td>Health behaviors</td>
<td>USA</td>
<td>African American adults</td>
<td>17</td>
<td>- Inconsistent relationships found between physical activity and light traffic, presence of sidewalks, and safety from crime. - Perceived barriers to physical activity were associated with obesity.</td>
</tr>
<tr>
<td>Yen et al 2009</td>
<td>Review</td>
<td>Objective and perceived neighborhood environment</td>
<td>Health outcomes</td>
<td>Global</td>
<td>Older adults</td>
<td>33</td>
<td>- Neighborhood level socioeconomic status was the strongest and most consistent predictor for elderly’s mortality and morbidity, self-reported health or quality of life, mental health, cognition, disability, and physical activity/body mass index.</td>
</tr>
<tr>
<td>Kim, 2008</td>
<td>Review</td>
<td>Neighborhood characteristics</td>
<td>Depression</td>
<td>Global</td>
<td>Adults</td>
<td>28</td>
<td>- In general, studies support for harmful effects of social disorder and, to a lesser extent, protective effects for neighborhood socioeconomic status.</td>
</tr>
<tr>
<td>Mair et al, 2008</td>
<td>Review</td>
<td>Neighborhood characteristics</td>
<td>Depression/depressive symptoms</td>
<td>Global</td>
<td>No restriction</td>
<td>45</td>
<td>- 37 studies reported associations of at least one neighborhood characteristic with depression/depressive symptoms. - depressive symptoms/depression with structural features (socioeconomic and racial composition, stability and built environment) were less consistent, smaller in number of studies, than with social processes (disorder, social interactions, violence).</td>
</tr>
<tr>
<td>Reference</td>
<td>Type</td>
<td>Neighborhood characteristics</td>
<td>Mental health</td>
<td>Developed countries</td>
<td>Adults</td>
<td>Count</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>------</td>
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<td>---------------</td>
<td>---------------------</td>
<td>-------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Truong &amp; Ma 2006</td>
<td>Review</td>
<td>Neighborhood characteristics</td>
<td>Mental health</td>
<td>Developed countries</td>
<td>Adults</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Christian et al, 2015</td>
<td>Review</td>
<td>Neighborhood built environment, green spaces, and the home outdoor area</td>
<td>Child health outcomes</td>
<td>Global</td>
<td>Children</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Sellstrom &amp; Bremberg 2006</td>
<td>Review</td>
<td>Neighborhood context</td>
<td>Child health outcomes</td>
<td>High-income countries</td>
<td>Children and adolescent</td>
<td>13 ML studies</td>
<td></td>
</tr>
<tr>
<td>Vos et al 2014</td>
<td>Review and meta-analysis</td>
<td>Neighborhood deprivation</td>
<td>Birth outcomes</td>
<td>Global</td>
<td>Birth outcomes</td>
<td>24 in review; 7 in meta-analysis</td>
<td></td>
</tr>
<tr>
<td>Meijer et al, 2012</td>
<td>Review and meta-analysis</td>
<td>Area-level socioeconomic status</td>
<td>All-cause mortality</td>
<td>Global</td>
<td>No restriction</td>
<td>40 in review; 18 in meta-analysis</td>
<td></td>
</tr>
<tr>
<td>Jackson et al, 2014</td>
<td>Review</td>
<td>Neighborhood environment</td>
<td>Alcohol use</td>
<td>Global</td>
<td>Adolescents</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Beyer et al, 2015</td>
<td>Review</td>
<td>Neighborhood environment</td>
<td>Intimate partner violence</td>
<td>Global</td>
<td>Adults</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

- 27 studies found statistically significant associations between mental health and at least one measure of neighborhood characteristics (sociodemographic characteristics, physical environment). Though the effect estimates attenuated after adjusting for individual-level characteristics, they still remained significant.
- The presence of child relevant neighborhood destinations and services and parents’ perceptions of neighborhood safety were positively associated with general health and social-emotional development during early developmental periods.
- Neighborhood socioeconomic status and social climate were shown to have small to moderate effects on birth weight, injuries, behavioral problems, and child maltreatment.
- On average, 10% of variation in health outcomes was explained by neighborhood determinants, after controlling for important individual and family variables.
- Living in a deprived neighborhood was consistently associated with increased odds for preterm delivery (OR: 1.23, 95% CI: 1.18-1.28), small-for-gestational age (OR: 1.31, 95% CI: 1.28-1.34), and stillbirth (OR: 1.33, 95% CI: 1.21-1.45).
- No clear evidence to support the associations for area-level income inequality or social capital and all-cause mortality.
- There was a significantly higher risk of mortality for individuals living in neighborhoods with low socioeconomic status.
- The majority of studies found no associations with residential mobility, neighborhood disorder or crime, employment or job availability, neighborhood attitudes to drinking, social capital and collective efficacy.
- There were mixed results in studies examining neighborhood-level socio-economic disadvantage and alcohol use.
- 30 studies reported a positive association between one or more neighborhood characteristics and intimate partner violence. This was true for majority of the 17 studies that adequately adjusted for individual and neighborhood variables.
Displaced Hurricane Katrina Survivors


## Neighborhood Poverty Change by Baseline Health Status

<table>
<thead>
<tr>
<th>Baseline health status measure</th>
<th>Reports problem</th>
<th>Does not report problem</th>
<th>T-test for difference in means with unequal variances, p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline (2003-2004) neighborhood poverty rate, mean (SE)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any health problem</td>
<td>26.9 (1.0)</td>
<td>25.1 (0.7)</td>
<td>.15</td>
</tr>
<tr>
<td>Diagnosis of physical health problem</td>
<td>24.9 (1.1)</td>
<td>26.2 (0.7)</td>
<td>.31</td>
</tr>
<tr>
<td>Somatic health complaint</td>
<td>27.3 (1.3)</td>
<td>25.3 (0.6)</td>
<td>.16</td>
</tr>
</tbody>
</table>

### Fully adjusted associations

<table>
<thead>
<tr>
<th></th>
<th>Any health problem</th>
<th>Diagnosed physical health problem only</th>
<th>Somatic health complaints only</th>
<th>Diagnosed physical health problem and somatic health complaints</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>β</strong></td>
<td>3.03**</td>
<td>2.90*</td>
<td>2.47*</td>
<td>2.21</td>
</tr>
<tr>
<td><strong>95% CI</strong></td>
<td>0.83, 5.24</td>
<td>0.39, 5.41</td>
<td>0.07, 4.86</td>
<td>0.15, 5.19</td>
</tr>
<tr>
<td><strong>p</strong></td>
<td>&lt;0.05, **p&lt;0.01, *<strong>p&lt;0.001</strong></td>
<td>**p&lt;0.05, **p&lt;0.01, *<strong>p&lt;0.001</strong></td>
<td>**p&lt;0.05, **p&lt;0.01, *<strong>p&lt;0.001</strong></td>
<td>**p&lt;0.05, **p&lt;0.01, *<strong>p&lt;0.001</strong></td>
</tr>
</tbody>
</table>

Models additionally adjusted for baseline neighborhood poverty rate, race/ethnicity, sex, age, marital status, income, number of children, welfare assistance, and food stamp assistance; bereavement and flood depth as a result of Hurricane Katrina; K6 score, social support, health insurance, and residence in the New Orleans metropolitan area in 2006-2007.

- Baseline health problems associated with a 3 point higher neighborhood poverty rate after adjustment.
Moving to Opportunity (MTO)

• Federally funded housing mobility experiment that randomly assigned some families to receive housing assistance in low poverty neighborhoods

• Provided evidence that low poverty neighborhoods were protective against diabetes, morbid obesity, mental health problems in girls

• <50% assigned to the experimental condition moved to a low poverty neighborhood with MTO
Baseline child health information in MTO

- Does this child have any physical, emotional, or mental problems that...
  - 1) require medicine/equipment
  - 2) make it hard to go to school
  - 3) make it hard to play games

- Is there anyone living with you who has a health problem or mental problem that keeps him/her from doing normal activities like walking, getting dressed, housework, or working?”
Neighborhood outcomes for households with and without child health problems at baseline

<table>
<thead>
<tr>
<th></th>
<th>All households</th>
<th>Did not report baseline child health problems</th>
<th>Reported baseline child health problems</th>
<th>Health problem versus no health problem groups</th>
<th>Test of difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean/proportion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion that moved with the program</td>
<td>0.49</td>
<td>0.50</td>
<td>0.38</td>
<td>0.12**</td>
<td>.004</td>
</tr>
<tr>
<td>Poverty rate of neighborhood of take-upa</td>
<td>10.77</td>
<td>10.57</td>
<td>13.05</td>
<td>-2.48**</td>
<td>.004</td>
</tr>
<tr>
<td>Duration weighted poverty</td>
<td>0.32</td>
<td>0.32</td>
<td>0.35</td>
<td>-0.03*</td>
<td>.030</td>
</tr>
<tr>
<td>Proportion of time spent in neighborhoods &lt;10% poverty</td>
<td>0.17</td>
<td>0.18</td>
<td>0.12</td>
<td>0.06*</td>
<td>.011</td>
</tr>
<tr>
<td>Number of moves during the study</td>
<td>2.76</td>
<td>2.79</td>
<td>2.5</td>
<td>0.28*</td>
<td>.010</td>
</tr>
</tbody>
</table>

Notes: Differences are unadjusted. Values are weighted to account for changes over time in treatment assignment likelihood and for the follow-up survey sampling design. `wt-totcore` used, `svy` frame used to allow for weight in comparing group means. Diff by smx_Ch_schplayD_noms, conditional on valid data among the experimental group members. Unless otherwise noted, sample size is 1550, representing all experimental LPV households with valid data on child health problems. P values: * p<=.05, **p<=.01, *** p<.001

\( ^a \) n=747 complier households in the LPV (experimental) group.
### Adjusted associations between child health problems

<table>
<thead>
<tr>
<th>Outcome</th>
<th>β/OR</th>
<th>P&gt;t</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moved with the program (odds ratio)</td>
<td>0.62*</td>
<td>.015</td>
<td>0.42, 0.91</td>
</tr>
<tr>
<td>Poverty rate of neighborhood of take-up&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.49**</td>
<td>.002</td>
<td>0.94, 4.04</td>
</tr>
<tr>
<td>Proportion of time spent in neighborhoods &lt;10% poverty during study</td>
<td>-0.05*</td>
<td>.023</td>
<td>-0.1, -0.01</td>
</tr>
<tr>
<td>Duration weighted poverty</td>
<td>0.03*</td>
<td>.021</td>
<td>0.01, 0.06</td>
</tr>
<tr>
<td>Number of moves during the study</td>
<td>-0.26*</td>
<td>.017</td>
<td>-0.47, -0.05</td>
</tr>
</tbody>
</table>

Notes: All models incorporate weights and rely on robust standard errors. All models control for the full set of covariates listed below. Unless otherwise noted, sample size is 1716, representing all households in the experimental group. P values: * p<=.05, **p<=.01, *** p<.001  
<sup>a</sup> n=806 complier households in the LPV (experimental) group.  
Control variables: age, site, race/ethnicity, sex, household size baseline government benefit support, education, employment and employment history, possession of a car, neighborhood satisfaction and perception measures, reasons for moving, previous Section 8 applications.