Does urban sprawl hold down upward mobility?

Reid Ewing, Shima Hamidi, James B. Grace & Yehua Dennis Wei

Presented by:

Reid Ewing
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1997
The Debate

“Classic” Articles


Are Compact Cities a Desirable Planning Goal?

Peter Gordon and Harry W. Richardson

The revolution in information processing and telecommunications is accelerating the growth and dispersion of both economic activities and population, possibly moving towards the point where “geography is irrelevant.” Yet, at the same time, many planners (and policymakers) advocate “compact cities” as an ideal, in contrast to the reality of increasingly spread-out metropolitan development. The term “compact cities” is in increasingly common use in planning discussions, conferences and other similar venues. It can take on different meanings, each with different planning implications. To mention merely three possibilities: (1) a macro approach, based on high average densities at the city-wide or even metropolitan level, but more likely to be applied to a freestanding small town; (2) a micro approach, reflecting high densities at the neighborhood or community level; and (3) a spatial structure approach, emphasizing a pattern oriented to downtown or the central city versus a polycentric (or dispersed) spatial pattern, with obvious density consequences. All three meanings are touched upon in this paper, although the micro approach is the one that has received most attention in the literature. An alternative classification is to distinguish among low-density, strip, scattered, and leapfrog development as forms of “sprawl,” sometimes used as an antonym for “compactness” (Ewing 1995).

In this paper, we revisit several issues relevant to the compact cities discussion. Although the analysis is probably general enough to apply to most of the developed world’s major cities, we restrict our remarks to the United States. However, the effects of the differences between the United
Is Los Angeles-Style Sprawl Desirable?

Reid Ewing

Peter Gordon and Harry Richardson (G & R) have made a cottage industry out of challenging, time and again, planners’ steadfast belief in compact development (Gordon and Wong 1985; Gordon et al. 1986; Gordon et al. 1988; H. W. Richardson 1988; Gordon and Richardson 1989; Gordon et al. 1989a; Gordon et al. 1989b; Richardson and Gordon 1989; Richardson et al. 1990; Gordon et al. 1991; Gordon et al. 1992; Bae and Richardson 1993; Richardson and Gordon 1993; Gordon and Richardson 1994a; Gordon and Richardson 1994b; Gordon and Richardson 1996a; Gordon and Richardson 1996b; Gordon and Richardson 1997). Their articles tend to counterbalance inflated claims by some on the other side of the issue. Their arguments are thought-provoking and, at least superficially, credible.

Yet, like most planners, I remain convinced that sprawl is undesirable. As background to the drafting of Florida’s anti-sprawl rule (part of Florida’s growth management apparatus), I wrote an article some time ago titled “Characteristics, Causes, and Effects of Sprawl” (Ewing 1994). It was all negative. Where did I go wrong, or where did Gordon and Richardson?

Asked to respond to G & R’s latest, I have at last taken the time to compare our definitions, premises, logic, and empirical claims. Our differences become clearer when the alternative to compact cities is iden-
Disagreed About Almost Everything

- Characteristics of Sprawl
- Causes of Sprawl
- Costs (and Benefits) of Sprawl
- Cures for Sprawl
To Study Something ...
Around 2000
Early Sprawl Indices

**DENSITY**

Pendall 1999; Fulton et al. 2001; Lopez and Hynes 2003; Anthony, 2004; Lang, 2003; Pendall and Carruthers, 2003

**FRAGMENTATION**

Besussi and Chin 2003; Burchfield et al., 2006; Irwin and Bockstael 2007; Malpezzi and Guo 2001; Torrens and Alberti 2000; Huang, 2007; Martellozzo & Clarke, 2011;

Failure to define sprawl in all its complexity;
The wildly different sprawl ratings given to different metros by different analysts
The majority of these research studies on measuring sprawl and its impacts have been done in the period of 1995-2005 when sprawl became one of the hot topics on the front page of USA Today (February 21, 2001).
What you don't know about sprawl
Controlling development a big concern, but analysis has unexpected findings

By Haya El Nasser

and

Paul Overberg

USA TODAY

Limiting sprawl a growing issue. So is defining it. It is a matter of perception

Los Angeles, whose legendary traffic congestion and spread-out development have epitomized suburban sprawl for decades, isn't so sprawling after all.

In fact, Portland, Ore., the metropolitan area that enacted the nation's toughest anti-growth laws, sprawls more.

### Table 1: Dense Employment Metros:

<table>
<thead>
<tr>
<th>Name</th>
<th>Total employment within 25 miles</th>
<th>3-mile employment share</th>
<th>10-mile employment share</th>
<th>Share outside 10-mile ring</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York, NY PMSA</td>
<td>3,078,507</td>
<td>45.2%</td>
<td>77.4%</td>
<td>22.5%</td>
</tr>
<tr>
<td>Boston, MA-NH PMSA</td>
<td>1,536,970</td>
<td>25.6%</td>
<td>55.0%</td>
<td>44.9%</td>
</tr>
<tr>
<td>San Francisco, CA PMSA</td>
<td>829,775</td>
<td>44.5%</td>
<td>61.0%</td>
<td>58.9%</td>
</tr>
<tr>
<td>Pittsburgh, PA MSA</td>
<td>724,518</td>
<td>25.1%</td>
<td>63.3%</td>
<td>36.7%</td>
</tr>
<tr>
<td>Portland-Vancouver, OR-WA PMSA</td>
<td>645,904</td>
<td>30.2%</td>
<td>81.2%</td>
<td>18.7%</td>
</tr>
<tr>
<td>Salt Lake City-Ogden, UT MSA</td>
<td>483,332</td>
<td>27.9%</td>
<td>67.0%</td>
<td>32.9%</td>
</tr>
<tr>
<td>Louisville, KY-IN MSA</td>
<td>434,263</td>
<td>28.4%</td>
<td>78.0%</td>
<td>21.9%</td>
</tr>
<tr>
<td>New Orleans, LA MSA</td>
<td>431,649</td>
<td>32.0%</td>
<td>81.6%</td>
<td>18.3%</td>
</tr>
<tr>
<td>Rochester, NY MSA</td>
<td>376,649</td>
<td>26.9%</td>
<td>83.7%</td>
<td>16.2%</td>
</tr>
<tr>
<td>Jacksonville, FL MSA</td>
<td>364,110</td>
<td>29.4%</td>
<td>69.3%</td>
<td>30.6%</td>
</tr>
<tr>
<td>Akron, OH PMSA</td>
<td>310,597</td>
<td>27.6%</td>
<td>66.3%</td>
<td>33.6%</td>
</tr>
<tr>
<td>Honolulu, HI MSA</td>
<td>306,376</td>
<td>59.0%</td>
<td>87.5%</td>
<td>12.4%</td>
</tr>
<tr>
<td>Greenville-Spartanburg-Anderson, SC MSA</td>
<td>296,088</td>
<td>34.8%</td>
<td>56.9%</td>
<td>43.0%</td>
</tr>
<tr>
<td>Harrisburg-Lebanon-Carlisle, PA MSA</td>
<td>281,957</td>
<td>28.3%</td>
<td>59.4%</td>
<td>40.5%</td>
</tr>
<tr>
<td>Providence-Fall River-Warwick, RI-MA MSA</td>
<td>278,204</td>
<td>44.8%</td>
<td>79.8%</td>
<td>20.1%</td>
</tr>
<tr>
<td>Wilmington-Newark, DE-MD PMSA</td>
<td>262,210</td>
<td>27.4%</td>
<td>72.9%</td>
<td>27.0%</td>
</tr>
<tr>
<td>Syracuse, NY MSA</td>
<td>229,375</td>
<td>35.2%</td>
<td>78.4%</td>
<td>21.6%</td>
</tr>
<tr>
<td>York, PA MSA</td>
<td>214,839</td>
<td>39.1%</td>
<td>45.9%</td>
<td>54.0%</td>
</tr>
<tr>
<td>Des Moines, IA MSA</td>
<td>199,842</td>
<td>32.8%</td>
<td>93.1%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Jersey City, NJ PMSA</td>
<td>199,010</td>
<td>41.7%</td>
<td>100.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Wichita, KS MSA</td>
<td>193,042</td>
<td>40.8%</td>
<td>87.3%</td>
<td>12.6%</td>
</tr>
<tr>
<td>Fort Wayne, IN MSA</td>
<td>185,359</td>
<td>43.7%</td>
<td>81.8%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Bridgeport, CT MSA</td>
<td>184,402</td>
<td>26.3%</td>
<td>82.3%</td>
<td>17.7%</td>
</tr>
<tr>
<td>Springfield, MA MSA</td>
<td>183,003</td>
<td>42.0%</td>
<td>86.4%</td>
<td>13.6%</td>
</tr>
<tr>
<td>Fresno, CA MSA</td>
<td>182,728</td>
<td>25.0%</td>
<td>86.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Columbus, SC MSA</td>
<td>178,756</td>
<td>35.1%</td>
<td>84.0%</td>
<td>16.0%</td>
</tr>
<tr>
<td>Lancaster, PA MSA</td>
<td>177,276</td>
<td>43.6%</td>
<td>60.0%</td>
<td>39.0%</td>
</tr>
<tr>
<td>Worcester, MA-CT MSA</td>
<td>177,036</td>
<td>43.6%</td>
<td>82.5%</td>
<td>17.4%</td>
</tr>
<tr>
<td>Lexington, KY MSA</td>
<td>175,871</td>
<td>48.8%</td>
<td>74.3%</td>
<td>25.7%</td>
</tr>
<tr>
<td>Chattanooga, TN-GA MSA</td>
<td>169,233</td>
<td>30.6%</td>
<td>84.9%</td>
<td>15.1%</td>
</tr>
<tr>
<td>Lawrence, MA-NH PMSA</td>
<td>160,186</td>
<td>28.6%</td>
<td>70.5%</td>
<td>29.5%</td>
</tr>
</tbody>
</table>
SPRAWL IS A MULTIDIMENSIONAL PHENOMENON

Galster et al, 2001; Ewing et al, 2002; Ewing et al., 2003; Cutsinger et al, 2005; Wolman et al., 2005; Frenkel and Ashkenazi, 2008; Torrens, 2008; Jaeger et al., 2010; Mubareka et al., 2011; Sarzynski et al., (forthcoming)
Measuring Sprawl and Its Impacts

- Low Density
- Segregation of Uses
- Lack of Strong Centers
- Sparse Street Network

Released October 2002
Suburbia USA: Fat of the Land?

Report Links Sprawl, Weight Gain

By Rob Stein
Washington Post Staff Writer

Suburban sprawl appears to be contributing to the nation's obesity epidemic, making people less likely to walk and more likely to be overweight, researchers reported yesterday.

In the first comprehensive examination of whether suburbs spreading across the U.S. landscape are affecting Americans' health, the researchers studied more than 200,000 people in 448 counties, producing the first concrete evidence supporting suspicions that sprawl is aggravating the nation's growing weight crisis.

People who live in the most spread-out areas spend fewer minutes each month walking and weigh about six pounds more on average than those who live in the most densely populated places, probably as a result, they are almost as prone to high blood pressure as cigarette smokers, the researchers found.

"There are lots of other reasons why we should work to contain sprawl," said Reid Ewing of the University of Maryland's National Center for Smart Growth, who led the study. People who live in the least sprawling areas were also more likely to have a lower body mass index (BMI), a common measure of weight. A 10-point increase in the degree of sprawl was associated with an average weight gain of a little more than one pound per person, researchers found.

While researchers found no association between sprawl and diabetes or heart disease, they did find that people who live in the least sprawling areas had a 60 percent lower risk of developing high blood pressure than those in the most sprawling areas. People who live in the most sprawled areas were more likely to have a higher body mass index (BMI), a standard measure of weight. A 10-point increase in the ratio of sprawl was associated with an average weight gain of a little more than one pound per person, researchers found.

The study also found that heart disease and diabetes, but didn't find any statistically relevant relationship between sprawl and these diseases.

The study did find that the 25 densest counties were the most likely to have a higher body mass index (BMI), a standard measure of weight. A 10-point increase in the degree of sprawl was associated with an average weight gain of a little more than one pound per person, researchers found.

People who live in the most sprawled areas were more likely to have a higher body mass index (BMI), a standard measure of weight. A 10-point increase in the degree of sprawl was associated with an average weight gain of a little more than one pound per person, researchers found.

Sprawl and Obesity

New research links suburban sprawl to obesity. You are more likely to be overweight live in an area with low population density and a more expansive street grid.

<table>
<thead>
<tr>
<th>County</th>
<th>Sprawl Score</th>
<th>Expected BMI</th>
<th>Expected Weight</th>
<th>Percent Difference from Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frederick County</td>
<td>10.97</td>
<td>26.02</td>
<td>166.97</td>
<td>-5.9%</td>
</tr>
<tr>
<td>Washington County</td>
<td>12.04</td>
<td>26.18</td>
<td>167.35</td>
<td>-6.5%</td>
</tr>
<tr>
<td>Rockville, Md</td>
<td>12.59</td>
<td>26.31</td>
<td>167.56</td>
<td>-7.2%</td>
</tr>
<tr>
<td>Prince George, Md</td>
<td>13.78</td>
<td>26.49</td>
<td>167.71</td>
<td>-7.5%</td>
</tr>
<tr>
<td>Loudoun, Va</td>
<td>14.00</td>
<td>26.53</td>
<td>167.76</td>
<td>-7.6%</td>
</tr>
<tr>
<td>Prince William, Va</td>
<td>14.22</td>
<td>26.58</td>
<td>167.81</td>
<td>-7.6%</td>
</tr>
<tr>
<td>Fairfax, Va</td>
<td>14.94</td>
<td>26.74</td>
<td>168.07</td>
<td>-7.9%</td>
</tr>
<tr>
<td>Arlington, Va</td>
<td>15.17</td>
<td>26.77</td>
<td>168.11</td>
<td>-8.0%</td>
</tr>
<tr>
<td>Montgomery, Md</td>
<td>15.29</td>
<td>26.80</td>
<td>168.15</td>
<td>-8.0%</td>
</tr>
<tr>
<td>Howard, Md</td>
<td>15.42</td>
<td>26.83</td>
<td>168.19</td>
<td>-8.1%</td>
</tr>
<tr>
<td>Prince George, Va</td>
<td>15.82</td>
<td>26.88</td>
<td>168.24</td>
<td>-8.1%</td>
</tr>
</tbody>
</table>

Source: Smart Growth America's Transportation Policy Project.
Between 2003 and 2014

**Physical activity, obesity** (Ewing et al, 2003; Kelly-Schwartz et al, 2004; Sturm and Cohen, 2004; Doyle et al, 2006; Fan and Song, 2009; Plantinga and Bernell, 2007; Lee et al, 2009)

**Traffic fatalities** (Ewing et al, 2003)

**Air quality** (Kahn, 2006; Stone et al, 2010; Schweitzer and Zhou, 2010)

**Residential energy use** (Ewing and Rong, 2008)

**Emergency response times** (Trowbridge et al, 2009)

**Teenage driving** (Trowbridge and McDonald, 2008; McDonald and Trowbridge, 2009)

**Social capital** (Kim et al, 2006; Nguyen, 2010)

**Private-vehicle commute distances and times** (Ewing et al, 2003; Zolnik, 2011; Holcombe and Williams, 2012)
National Press Release: more than 100 national and regional newspapers and magazines

One Book

8 journal articles

MEASURING URBAN SPRAWL AND VALIDATING SPRAWL MEASURES

Reid Ewing and Shima Hamidi

Prepared for:
National Cancer Institute, National Institutes of Health
Ford Foundation
Smart Growth America

http://www.smartgrowthamerica.org/measuring-sprawl
We Have Developed Indices for Counties, Metropolitan Areas, Urbanized Areas, and Census Tracts
Principal Component Analysis

- popden
- empden
- lt1500
- gt12500
- urbden
- jobpop
- jobmix
- wlkscore
- popcen
- empcen
- varpop
- varemp
- smlblk
- avgblk
- intden
- pct4wy

DENSITY

MIX USE

CENTERING

STREET

COMPACTNESS
Compactness Scores for 221 Metropolitan Areas and Divisions in the U.S.
Most Sprawling vs. Most Compact MSAs

New York-White Plains-Wayne, NY-NJ

Hickory-Lenoir-Morganton, NC
Urban sprawl as a risk factor in motor vehicle crashes

Reid Ewing
University of Utah, USA

Shima Hamidi
University of Utah, USA

James B Grace
US Geological Survey, USA

Abstract
A decade ago, compactness/sprawl indices were developed for metropolitan areas and counties which have been widely used in health and other research. In this study, we first update the original county index to 2010, then develop a refined index that accounts for more relevant factors, and finally seek to test the relationship between sprawl and traffic crash rates using structural equation modelling. Controlling for covariates, we find that sprawl is associated with significantly higher direct and indirect effects on fatal crash rates. The direct effect is likely due to the higher traffic speeds in sprawling areas, and the indirect effect is due to greater vehicle miles driven in such areas. Conversely, sprawl has negative direct relationships with total crashes and non-fatal injury crashes, and these offset (and sometimes overwhelm) the positive indirect effects of sprawl on both types of crashes through the mediating effect of increased vehicle miles driven. The most likely explanation is the greater prevalence of fender benders and other minor accidents in the low speed, high conflict traffic environments of compact areas, negating the lower vehicle miles travelled per capita in such areas.
Is Sprawl Affordable for Americans?
Exploring the Association Between Housing and Transportation Affordability and Urban Sprawl

Shima Hamidi and Reid Ewing

Housing affordability has been one of the most persistent national concerns in the United States, mainly because housing costs are the biggest item in most household budgets. Urban sprawl has been proved by previous studies to be a driver of housing affordability. Previous studies, however, were structurally flawed because they considered only costs directly related to housing and ignored the transportation costs associated with a remote location. This study sought to determine whether, after transportation costs were taken into account, urban sprawl was still affordable for Americans. Multilevel modeling and the recently released location affordability indexes (LAIs) and metropolitan compactness indexes tested the relationship between sprawl and housing affordability. By controlling for covariates, this study found that in compact areas, the portion of household income spent on housing was greater but the portion of income spent on transportation was lower. Each 10% increase in a compactness score was associated with a 1.1% increase in housing costs and a 3.5% decrease in transportation costs relative to income. The combined cost of housing and transportation declined as the compactness score rose. As metropolitan compactness increased, transportation costs decreased faster than housing costs increased, creating a net decline in household costs. This is a novel finding, conditioned only on the quality of the data on which the LAI is based.

One result was the mortgage crisis and ensuing wave of foreclosures that swept the United States in the late 2000s and directly helped precipitate the global financial crisis (the Great Recession). Under traditional metrics of affordability, lenders granted loans to families who were unable to maintain mortgage payments, in many cases because of the crushing costs of transportation in an environment with record high prices for motor vehicle fuel. Foreclosures were centered in the Sunbelt states of Arizona and Nevada, where rapid suburban and exurban development occurred in automobile-dependent areas with virtually no transit access and no ability to walk to anything.

The recent foreclosure crisis raises the question of whether, after transportation costs are taken into account, urban sprawl is still affordable for Americans. This study seeks to answer this question and test the relationship between metropolitan sprawl and housing affordability by using the recently released location affordability indexes (LAIs) (funded by the U.S. Departments of Transportation and of Housing and Urban Development) and compactness indexes funded by the National Institutes of Health and the Ford Foundation. LAIs consider both housing and transportation costs, accounting for locational advantages and disadvantages usually ignored in housing affordability studies.
Does urban sprawl hold down upward mobility?

Reid Ewing, Shima Hamidi, James B. Grace, Yehua Dennis Wei

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3 Department of Civil and Environmental Engineering, University of Utah, Salt Lake City, UT 84112, United States
4 College of Architecture and Planning, University of Michigan, Ann Arbor, MI 48109, United States

Rising income inequality, and associated lack of upward mobility, have emerged among the most important issues of our time, prompting concern and commentary from top world leaders, including President Obama and Pope Francis, and world class scholars, such as Nobel Laureate Stiglitz (2012), New York columnist and Nobel Laureate Paul Krugman, and Thomas Piketty (2014), and many others.
Upward mobility refers to one’s ability to move to a higher income bracket and social status and is often tied to one’s opportunities.

In the United States, 39% of children born to parents in the top fifth of the income distribution will remain in the top fifth for life, while 42% of children born to parents in the bottom fifth income distribution will stay in that bottom fifth.
While inequality often makes headlines, **upward mobility** or intergenerational mobility, concerned with the relationship between the socio-economic status of parents and the socio-economic outcomes of their children as adults (Blanden, 2013), is **barely** on the radar of the urban planning profession.
Upward Mobility for Counties in the U.S.

The chance a child raised in the bottom fifth rose to the top fifth

- 35%
- 20%
- 15%
- 10%
- 4%

The top fifth is equal to family income of more than $70,000 for the child by age 30, or more than $100,000 by age 45.

In areas like Atlanta, upward mobility appears to be substantially lower than in any other rich country.
Compactness Score for 994 Metropolitan Counties in the U.S
Upward Mobility

Urban Sprawl

Inaccessibility to jobs
Social capital
Income segregation
Racial segregation
In this study, we ask whether another variable - metropolitan sprawl - contributes to the low rate of upward mobility for lower-income residents.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Variables used to explain upward mobility (variables log transformed).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
<td>Data sources</td>
</tr>
<tr>
<td><strong>Endogenous variables</strong></td>
<td></td>
</tr>
<tr>
<td>upward</td>
<td>The probability that a child born to a family in the bottom quintile of the national income distribution in 1980–1982 reaches the top quintile of the national income distribution in 2010–2011</td>
</tr>
<tr>
<td>socialcap</td>
<td>Index of social capital that aggregates various measures identified by Putnam and collaborators including combining measures of voter turnout rates, the fraction of people who return their census forms, and measures of participation in community organizations</td>
</tr>
<tr>
<td>racialseg</td>
<td>Measure of how minorities are distributed across census tracts within a CZ. This is Thiel’s H measure for the four groups: White alone, Black alone, Hispanic, and Other</td>
</tr>
<tr>
<td>segpov</td>
<td>Measure of how evenly those in the lower income quartile are distributed across census tracts within a CZ</td>
</tr>
<tr>
<td><strong>Exogenous variables</strong></td>
<td></td>
</tr>
<tr>
<td>gini</td>
<td>Computed by EOP team using parents of children in the core sample, with income top coded at $100 million in 2012 dollars</td>
</tr>
<tr>
<td>femkid</td>
<td>Share of families with kids with a female householder and no husband</td>
</tr>
<tr>
<td>stratio</td>
<td>Average student-teacher ratio in public schools</td>
</tr>
<tr>
<td>index</td>
<td>Metropolitan compactness index for 2010</td>
</tr>
</tbody>
</table>
Our measure of upward mobility is the likelihood that a child born into the bottom fifth of the national income distribution reached the top fifth by age 30.
• Income growth is also positively related to upward mobility, while the share of female headed households with kids is negatively related to upward mobility.

• The Gini coefficient is unrelated to upward mobility.

• The student–teacher ratio is positively related to upward mobility.

• The net indirect effect of compactness on upward mobility is negative due to the increase in income segregation that accompanies compactness. However, the indirect effect of compactness through the mediating variable is small compared to the direct effect of compactness on upward mobility.
Our most important finding is that the metropolitan compactness index has a strong direct relationship to upward mobility.

Table 3
Standardized direct, indirect, and total effects of the metropolitan compactness index and other variables on upward mobility.

<table>
<thead>
<tr>
<th></th>
<th>racialseg</th>
<th>segpov</th>
<th>incgrowth</th>
<th>femkid</th>
<th>socialcap</th>
<th>stratio</th>
<th>gini</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct effect</td>
<td>-0.04</td>
<td>-0.156</td>
<td>0.345</td>
<td>-0.467</td>
<td>-0.032</td>
<td>0.146</td>
<td>0.003</td>
<td>0.308</td>
</tr>
<tr>
<td>Indirect effect</td>
<td>0</td>
<td>0</td>
<td>0.009</td>
<td>-0.066</td>
<td>0</td>
<td>0.007</td>
<td>0.004</td>
<td>-0.035</td>
</tr>
<tr>
<td>Total effect</td>
<td>-0.04</td>
<td>-0.156</td>
<td>0.353</td>
<td>-0.533</td>
<td>-0.032</td>
<td>0.153</td>
<td>0.007</td>
<td>0.273</td>
</tr>
</tbody>
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- The point elasticity of upward mobility with respect to compactness is 0.41, meaning the likelihood that a child born into the bottom fifth of the national income distribution will reach the top fifth by age 30 increases by about 41% as the compactness index doubles (increases by 100%).

- For the average poor kid in our sample – with an 8% chance of moving up into the top quintile – this represents an increase of 3.2% in absolute terms, well within the range of upward mobility differences from metropolitan area to metropolitan area. The extreme values in our sample are a 2.6% chance of upward mobility in Memphis, Tenn. and 14.0% in Provo, Utah.
The strong direct relationship to the compactness index carries important consequences for planners and development strategies.

**Compactness score:** 41  
**Upward mobility:** 4%  
*Atlanta, GA*

Higher density/mixed-use development has been shown to generate incrementally more jobs, higher wages, economic resilience, and lower unemployment rates, all of which advance upward mobility.

**Compactness score:** 128  
**Upward mobility:** 11%  
*San Jose, CA*
While aiming directly for upward mobility can appear as a distant target, the management of the built environment is at heart of planners’ everyday agenda. Policies proposed to improve intergenerational mobility tend to emphasize education and health care, rarely considering neighborhood and urban form.

Our study invites planners and policymakers to adopt a comprehensive framework of action in investing in urban form as a venue to enhance upward mobility.

Such efforts are particularly important in affordable housing allocation and transportation investments. The imperative is to ensure a sound spatial coordination of land-uses and transportation infrastructures to create an “enabling” physical environment for low incomes to improve their social and income status. Planners and policymakers could ensure that the development/extension of a transit line is best leveraged by supporting policies for mixed-use development and not furthering sprawl.