Exploring the Empirical Relationship Between Inner-City Blight and Urban Sprawl in the United States

Eric Fesselmeyer
Monmouth University

Kiat Ying Seah
National University of Singapore

Abstract

Urban blight has been found to cause a variety of problems, including negatively affecting the value of surrounding properties and increasing neighborhood crime rates. If the same externalities that give rise to urban sprawl also contribute to urban blight, as is suggested by Brueckner and Helsley (2011), city center vacancy rates—an indication of blight—would increase with the extent of urban sprawl. This study adds to the sparse literature on the empirical relationship between urban sprawl and blight by finding that the city-center census tract vacancy rate is higher in more sprawling cities. The results of this article, therefore, provide support for the argument that policies designed to contain urban sprawl could have the advantage of also mitigating urban blight.

Introduction

Urban blight, a term used to describe the unacceptable condition of older central-city properties due to deficient reinvestment, is akin to a poverty magnet. It is associated with a variety of unfavorable outcomes, including negatively affecting the value of surrounding properties and neighborhood vitality; decreasing tax revenue and increasing costs for local government; and increasing crime rates, including violent crime, arson, and vandalism (Accordino and Johnson, 2000; HUD PD&R, 2014). Often, municipalities attempt to reverse urban blight using methods such as eminent domain, code enforcement, and tax foreclosure to reclaim vacant housing and properties and sell them to new owners (HUD PD&R, 2014). In some cities, such as Detroit and Buffalo, vacant properties have deteriorated to the point that the government has turned to demolition (Lyons, 2009; Schilling and Pinzón, 2016).

A more preemptive approach is to rectify policies that discourage maintaining and investing in properties in certain areas of a city, thereby creating blight. For example, Brueckner and Helsley (2011) developed a theoretical model to illustrate that the same externalities that cause urban sprawl, such as unpriced traffic congestion and the failure to account for open-space amenities in development decisions, also contribute to inner-city blight. Such externalities increase the payoff to building on the city edge while simultaneously decreasing the payoffs to investing in the city center. This conclusion suggests that policies designed to mitigate urban sprawl also mitigate urban blight. Little empirical work, however, examines whether a relationship between urban sprawl and blight holds empirically.[1] This article attempts to answer that question by collecting and combining several different datasets, including geographic data on Census-defined urbanized areas, census tracts, and city centers; residential vacancy rates; and Hamidi and Ewing's (2014) compactness/sprawl index. With vacancy rate as the indicator of blight, this article estimates how a city's compactness/sprawl affects the vacancy rate of census tracts near the city center relative to the vacancy rate of census tracts away from the center. Findings reveal that the vacancy rate of city-center census tracts is relatively higher in more sprawling cities. The empirical result presented in this article provides evidence supporting Brueckner and Helsley's (2011) theory that externalities that cause sprawl also cause blight.

Data

This section describes the data used in this analysis. Summary statistics are reported in exhibit 1, which is referred to in the following discussion on the various data sources.

Exhibit 1

Summary Statistics

Variable	Mean	St. Dev.
Vacancy rate (%)	8.02	7.45
Compactness index, 2000 and 2010	106.90	27.22
Compactness index, 2000	106.52	26.65
Compactness index, 2010	107.31	27.69
Distance to city center, miles	12.45	10.38
Census tract within 2 miles of city center	0.07	0.25
Census tract within 4 miles of city center	0.18	0.39
Census tract within 6 miles of city center	0.30	0.46
Observations	81,907	

St. Dev. = standard deviation.
Source: Author calculations

[1] A notable exception is an interesting study by Hortas-Rico (2015) that finds that urban containment policies reduce central-city blight. That study and this article display several key differences in approach; the following are the most important ones. First, this article focuses on vacancy rates as the measure of blight, whereas Hortas-Rico focused on building conditions. Second, whereas Hortas-Rico focused solely on the central-city comparisons, this article considers the amount of blight in the city center relative to outside the city center, which should provide a more informative picture of whether investment differs by location within an area. Finally, rather than an indicator variable of whether the area has implemented an urban containment policy, as used by Hortas-Rico, this article uses a direct measure of sprawl in the analysis, which should more directly account for the amount of sprawl within an area.

The study's measure of sprawl comes from Hamidi and Ewing (2014), who developed a *compactness index* for 2000 and 2010 for the 162 largest urbanized areas with a population of 200,000 or more in 2010.[2] The index measures how compact an area is, which is simply another way of measuring the sprawl of an area—that is, the larger the value of the compactness index, the more compact the area is, which means that the area is less sprawling.

Hamidi and Ewing chose Census-defined urbanized areas as the unit of analysis over other census geographies, such as metropolitan areas or counties, because urbanized areas are the only census geographies that expand over time as rural areas are converted to urban areas. By contrast, metropolitan areas and counties generally have fixed geographic boundaries that do not change often, and, when they do, the changes tend to be more discrete.

To compute their compactness index, Hamidi and Ewing used principal component analysis applied to 15 variables in four dimensions of sprawl: (1) development density, (2) land use mix, (3) activity centering, and (4) street accessibility. The raw compactness index values were transformed, so the final index reported by the authors has a mean of 100 and a standard deviation of 25. They found that the most compact (or the least sprawling) urbanized area in 2010 was San Francisco, with a value of 180.94, and the least compact (or the most sprawling) urbanized area was Atlanta, with a value of 37.45. An overview of the method used to construct the index, including a list of the 15 variables used with descriptions, can be found in appendix A.1, and the 10 most compact and the 10 most sprawling urbanized areas in 2010, along with their compactness index value, can be found in exhibit A.1. Further details of the method can be found in Hamidi and Ewing (2014).

The vacancy rate is the dependent variable in the model, as it is a commonly used measure of blight, although vacancy and blight refer to slightly different concepts. Blight does not have a precise definition but often refers to properties in disrepair, vacant, or abandoned (Schilling and Pinzón, 2016). Vacancy refers to unoccupied properties that may or may not be maintained. Some vacant properties are vacant due to normal market turnover, whereas others have been abandoned and are no longer maintained. As such, data on abandonment is ideal, but such data are not usually available, particularly on a granular level, and researchers often use vacancy in its place. Including geographic and temporal fixed effects should help control for the natural market turnover, so the relationship between the vacancy rate arising from abandonment and how it correlates with distance to the central business district and sprawl is captured.

The 162 urbanized areas in the sample (listed in exhibit A.2) contained 38,223 census tracts in 2000 and 43,122 census tracts in 2010. For each census tract, the vacancy rate was computed from the number of housing units and the number of vacant units reported in the 100-percent data of Summary File 1 of the 2000 and 2010 U.S. Censuses. The average census-tract vacancy rate is 8 percent in the sample.

[2] The index can be downloaded from http://dx.doi.org/10.1016/j.landurbplan.2014.04.021.

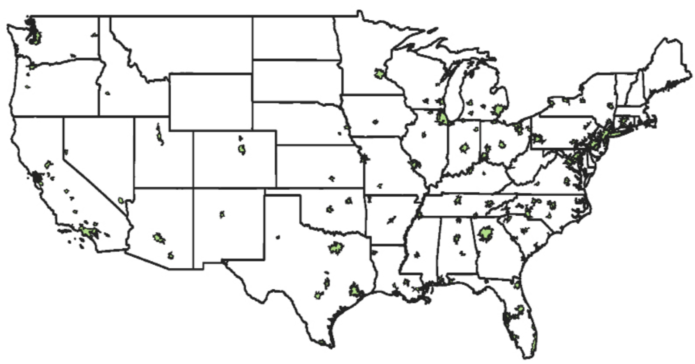
Before classifying census tracts as being *in* the center or *away* from the center of the urbanized area, the term *city center* must first be defined.[3] Neither the U.S. Census Bureau nor any other institution formally identifies city centers, however. This article follows the guidelines provided by Holian (2019), who compares a number of different estimates of city-center location. Holian suggests that the 1982 identification of Central Business Districts for 455 cities in *Central Business Districts: 1982 Census of Retail Trade* is still the most reliable measure of city centers today. This article used the geolocations from the Census study from Fee and Hartley (2013), which supplied the coordinates of the centroid of the census tracts of each identified Central Business District. If a city was not included in the 1982 Census study, the city hall coordinates in the dataset created by Wilson et al. (2012) were used. Finally, if a city did not appear in either of the two previous datasets, the location of the city hall was geocoded using Google Maps.

Exhibit 2 contains two maps. Exhibit 2a maps the 162 urbanized areas in the study. One can see that the urbanized areas in the sample appear throughout the continental United States but are more common in California, Florida, and the Northeast. As an example, exhibit 2b zooms in to show the detail of the urbanized areas in Florida along with their city centers.

Exhibit 2

Maps of Urbanized Areas Used in the Study, 2010 (1 of 2)

A.



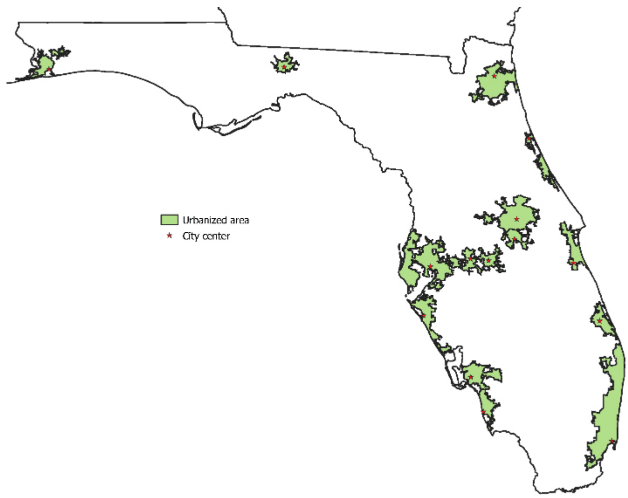
Urbanized Areas

[3] By not making any distinction between city centers and urbanized-area centers, one essentially assumes that the center of the city or metropolitan area in each urbanized area is also the center of the urbanized area, which the authors believe is an innocuous assumption.

Exhibit 2

Maps of Urbanized Areas Used in the Study, 2010 (2 of 2)

B.



Urbanized Areas in Florida with City Centers
Source: Authors

Because the location of each city center is approximate and somewhat subjective, and the definition of how close a census tract needs to be to the city center to be considered a "city-center census tract" is arbitrary, three different definitions were used to ensure that the results are robust. The first definition assumes that any census tract within 2 miles of a city center is a city-center census tract (7 percent of the census tracts in the sample). The second definition uses a radius of 4 miles (18 percent of the census tracts in the sample). The third definition uses a radius of 6 miles (30 percent of the census tracts in the sample). The study's results show that the estimated effects are similar for each of the three definitions.

Empirical Model

The goal of this study was to test whether less compact/more sprawling urbanized areas have more inner-city blight. This theory was tested using three linear regression models. The first two models measured how the relative vacancy rates of city-center census tracts and those of census tracts away from the city center vary with city sprawl. Census-tract-level data were used in one model and urbanized-area-level data in the other. The third model compares how city-center census-tract vacancy rates vary with the amount of sprawl in an urbanized area. All models include urbanized-area fixed effects that control for fundamental differences in vacancy rates across urbanized areas. These differences are caused by time-constant unobserved factors, such as regulations and vacancy levels that differ across areas and would otherwise cause endogeneity issues. Also included is a census-year-2010 fixed effect that controls unobserved factors that affect vacancy rates nationally and over time.

The first model is a census-tract-level fixed effects model:

$$vacancy\ rate_{ist} = \alpha_s + \beta_1\ center_{is} + \beta_2\ CI_{st} + \beta_3\ center_{is} \times CI_{st} + \delta_{2010} + u_{ist}\ (1)$$

where $vacancy\ rate_{ist}$ is the vacancy rate of a particular census tract in an urbanized area in a census year, indexed by the subscripts i, s, and t. Here, for a particular observation, subscript i identifies the census tract of the observation, subscript s identifies the urbanized area in which the census tract is located, and subscript t identifies whether the observation is the census year 2000 or 2010. The fixed effect α_s is indexed by urbanized area and allows the regression intercept to differ by urbanized area, which controls for unobserved, time-constant factors that differ across urbanized areas. The fixed effect for 2010, δ_{2010}, allows the regression intercept to differ by year and controls for unobserved factors that affect all urbanized areas similarly in a given year but vary from 2000 to 2010. The dummy variable $center_{is}$ equals 1 if the census tract indexed by i in urbanized area s is within the city center and equals 0 if it is outside the city center. CI_{st} is the compactness index for urbanized area s in census year t. Finally, u_{ist} is an idiosyncratic error term that contains other factors that affect the vacancy rate but are not captured by the variables in the model.

The coefficient β_3 on the interaction term, $center_{is} \times CI_{st}$ is the main parameter of interest. It measures how the city center vacancy rate varies with the amount of sprawl in the urbanized area. This can be seen mathematically by taking the partial derivative of the vacancy rate with respect to the compactness index, which yields the following:

$$\frac{\partial vacancy\ rate_{ist}}{\partial CI_{st}} = \beta_1 + \beta_3 center_{is}$$

If a less sprawling (more compact) city experiences lower vacancy rates in the city center, then $\beta_3 < 0$ supports Brueckner and Helsley's (2011) theory.

The second model is estimated using urbanized-area-level data:

$$\frac{vacancy\ rate_{near,st}}{vacancy\ rate_{far,st}} = \alpha_s + \beta_1 CI_{st} + \delta_{2010} + u_{ist}\ (2)$$

where $vacancy\ rate_{near,st}$ is the average vacancy rate of census tracts near the city center in urbanized area s in census year t = 2000 or 2010; $vacancy\ rate_{far,st}$ is defined similarly for census tracts away from the city center. When estimating this regression, observations are weighted by the number of housing units in the urbanized area. $\beta_1 < 0$ supports Brueckner and Helsley's (2011) theory that a more compact/less sprawling city has lower vacancy rates near the city center.

The final model is a census-tract-level fixed effects model that includes only city-center census tracts instead of all census tracts, as in model (1), which allows a cross-urbanized-area comparison of the vacancy rate and the compactness index:

$$vacancy\ rate_{ist} = \alpha_s + \beta_1 CI_{st} + \delta_{2010} + u_{ist}\ (3)$$

where vacancy $rate_{ist}$ is the vacancy rate of census tract i in urbanized area s in census year t = 2000 or 2010. As in model (2), $\beta_1 < 0$ supports Brueckner and Helsley's (2011) theory because it means that a more compact/less sprawling city has lower vacancy rates near the city center.

Results

Exhibits 3, 4, and 5 contain estimates of the various models. The three columns of estimates in each exhibit differ by the definition of the city center, which is varied to show that the results do not rely on using any particular definition. In column (1), the city-center census tracts are defined as census tracts within 2 miles of the city center. In column (2), the city-center census tracts are within 4 miles of the city center. In column (3), the city-center census tracts are within 6 miles of the city center. All regressions support Brueckner and Helsley's (2011) theory: more compact/less sprawling urbanized areas experience less urban blight.

Exhibit 3 contains the results of model (1), which are estimated using vacancy rates at the census-tract level and including urbanized-area fixed effects. The estimates indicate that city-center census tracts have higher vacancy rates, ranging from 3.5 to 6 percentage points, with the more restrictive definition of *city center* in column (1) having the highest estimate and the least restrictive definition of *city center* in column (3) having the lowest estimate. This result was expected because vacancy rates tend to be highest around the city center and then fall as the distance from the city center increases. More compact cities have lower vacancy rates: a 1-standard-deviation increase in compactness decreases the average vacancy rate by about 2 percentage points. The estimate of the interaction on the city center dummy and the compactness index suggests that more compact cities see lower relative vacancy rates at the city center: a 1-standard-deviation increase in the compactness index is associated with a lower average city center vacancy rate of one-half a percentage point or more relative to vacancy rates outside the city center.

Exhibit 3

Vacancy Rate Census-Tract-Level Regressions

	(1) Within 2 Miles	(2) Within 4 Miles	(3) Within 6 Miles
City Center Dummy	6.096*** (0.118)	4.388*** (0.070)	3.579*** (0.058)
Compactness Index (Standardized)	-1.973*** (0.192)	-1.842*** (0.192)	-1.769*** (0.193)
City Center Dummy × Compactness Index (Std.)	-0.469*** (0.114)	-0.829*** (0.070)	-0.684*** (0.058)
Year 2010 Fixed Effect	2.584*** (0.047)	2.612*** (0.047)	2.614*** (0.047)
Observations	81,907	81,907	81,907

Std. = standardized.

*Notes: ***p<0.01, **p<0.05, *p<0.1. The dependent variable is the vacancy rate. An observation is a census tract in 2000 or 2010. Regressions differ by the definition of the city center. Column (1) defines a city center census tract as within 2 miles of the city center, column (2) uses a 4-mile definition, and column (3) uses a 6-mile definition. Robust standard errors are in parentheses.*

Source: Author estimates

Exhibit 4 contains the results of model (2), which are estimated using the ratio of the average vacancy rate of city-center census tracts and the vacancy rate of the areas away from city-center census tracts for each urbanized area, including urbanized-area fixed effects. The average city-center vacancy rates are about one-third lower than the vacancy rates for areas away from the city-center census tracts for a 1-standard-deviation increase in the compactness index.

Exhibit 4

Relative Vacancy Rate Urbanized Area-Level Regressions

	(1) Within 2 Miles	(2) Within 4 Miles	(3) Within 6 Miles
Compactness Index (Standardized)	-0.292***	-0.361***	-0.369***
	(0.000)	(0.000)	(0.000)
Year 2010 Fixed Effect	-0.275***	-0.168***	-0.131***
	(0.000)	(0.000)	(0.000)
Urbanized-Area Fixed Effects	Yes	Yes	Yes
Observations	324	324	324

*Notes: ***p<0.01, **p<0.05, *p<0.1. The dependent variable is the relative vacancy rate of census tracts near the city center and census tract away from the city center. An observation is an urbanized area in either 2000 or 2010. Regressions differ by the definition of the city center. Column (1) defines a city center census tract as within 2 miles of the city center, column (2) uses a 4-mile definition, and column (3) uses a 6-mile definition. Robust standard errors are in parentheses.*

Source: Author estimates

Finally, exhibit 5 contains the results of model (3), which are estimated using vacancy rates at the census-tract level only for the census tracts in the city center, including urbanized-area fixed effects. Here, we see again that more compact/less sprawling urbanized areas have lower vacancy rates near the city center: a one standard deviation increase in the compactness index results in a decrease in the vacancy rate of around 3 to 4 percentage points.

Exhibit 5

Vacancy Rate Census-Tract-Level Regressions of City-Center Census Tracts

	(1) Within 2 Miles	(2) Within 4 Miles	(3) Within 6 Miles
Compactness Index (Standardized)	-3.768***	-3.783***	-3.292***
	(0.680)	(0.389)	(0.313)
Year 2010 Fixed Effect	2.758***	3.035***	2.975***
	(0.203)	(0.114)	(0.089)
Urbanized-Area Fixed Effects	Yes	Yes	Yes
Observations	5,539	14,993	24,681

*Notes: ***p<0.01, **p<0.05, *p<0.1. The dependent variable is the vacancy rate. An observation is a census tract near the city center in 2000 or 2010. Regressions differ by the definition of the city center. Column (1) defines a city center census tract as within 2 miles of the city center, column (2) uses a 4-mile definition, and column (3) uses a 6-mile definition. Robust standard errors are in parentheses.*

Source: Author estimates

Conclusion

Blight is a serious problem in many American cities. Removing blight by expropriating abandoned properties and renovating them for habitation or demolishing them requires extensive resources. This article finds empirical support for the notion that cities with less sprawl have lower vacancy rates in the city centers, suggesting an alternative approach.

The hypothesized link between urban sprawl and blight comes from the theory that externalities commonly associated with inefficient urban sprawl, such as unpriced traffic congestion or underpriced suburban development, also cause deficient reinvestment and maintenance of properties in the city centers. In this vein, anti-sprawl policies and policies that promote compact city living, such as infrastructure reinvestment in the city center, will mitigate the incidence of central-city blight. The benefits of policies that curb urban sprawl may be underestimated if they do not include the positive spillovers enjoyed in city centers.

Appendix

A.1 Compactness Index

Hamidi and Ewing (2014) include the following 15 variables over four dimensions in the calculation of their compactness index:

1. ***Density factors:***
   - gross population density of urban and suburban census tracts
   - gross employment density of urban and suburban census tracts
   - percentage of the population living at low suburban densities
   - percentage of the population living at medium to high urban densities
   - net population density of urban lands
2. ***Mix-use factors:***
   - job-population balance
   - degree of job mixing (entropy)
3. ***Centering factors:***
   - percentage of the urbanized-area population in the central business district (CBD) or subcenters
   - percentage of the urbanized-area employment in the CBD or subcenters
   - coefficient of variation in census-block-group population densities
   - coefficient of variation in census-block-group employment densities
4. ***Street factors:***
   - percentage of small urban blocks of less than one-hundredth of a square mile
   - average block size
   - intersection density
   - percentage of four-or-more-way intersections

Hamidi and Ewing (2014) summarized those variables in each dimension using a principal components analysis, a statistical method that reduces a set of variables to a small number of factors that contain most of the information in the original variables. The authors applied principal components analysis separately to each of the four dimensions, keeping the most informative principal factor of each dimension. The four factors were then summed into a single variable.

To account for differences in metropolitan size, the authors regressed the sum of the sprawl factors on the natural logarithm of population. The standardized residuals from that regression were normalized to have a mean value of 100 and a standard deviation of 25 for easier interpretation. The result of that transformation is the compactness index.

Exhibit A.1.

Compactness/Sprawl Scores for the 10 Most Compact and the 10 Most Sprawling Urbanized Areas in 2010

Rank	Compactness Index
10 Most Compact Urbanized Areas	
1. San Francisco–Oakland, CA	180.94
2. Reading, PA	169.32
3. Madison, WI	152.87
4. Eugene, OR	152.54
5. Laredo, TX	151.80
6. Oxnard, CA	146.19
7. Atlantic City, NJ	144.25
8. Los Angeles–Long Beach–Anaheim, CA	143.42
9. Lincoln, NE	143.38
10. New York–Newark, NY–NJ–CT	142.71
10 Most Sprawling Urbanized Areas	
153. Baton Rouge, LA	64.38
154. Fayetteville, NC	61.05
155. Chattanooga, TN–GA	60.96
156. Greenville, SC	60.57
157. Nashville–Davidson, TN	60.27
158. Charlotte, NC–SC	57.41
159. Winston–Salem, NC	55.56
160. Victorville–Hesperia, CA	54.15
161. Hickory, NC	48.64
162. Atlanta, GA	37.45

Source: Table 3 of Hamidi and Ewing (2014)

Exhibit A.2.

Urbanized Areas Included in the Study (1 of 2)	
1. Aberdeen–Bel Air South–Bel Air North, MD	47. Evansville, IN–KY
2. Akron, OH	48. Fayetteville, NC
3. Albany–Schenectady, NY	49. Fayetteville–Springdale–Rogers, AR–MO
4. Albuquerque, NM	50. Fort Collins, CO
5. Allentown, PA–NJ	51. Fort Wayne, IN
6. Ann Arbor, MI	52. Fresno, CA
7. Antioch, CA	53. Grand Rapids, MI
8. Appleton, WI	54. Green Bay, WI
9. Asheville, NC	55. Greensboro, NC
10. Atlanta, GA	56. Greenville, SC
11. Atlantic City, NJ	57. Gulfport, MS
12. Augusta–Richmond County, GA–SC	58. Harrisburg, PA
13. Austin, TX	59. Hartford, CT
14. Bakersfield, CA	60. Hickory, NC
15. Baltimore, MD	61. Houston, TX
16. Baton Rouge, LA	62. Huntington, WV–KY–OH
17. Birmingham, AL	63. Huntsville, AL
18. Boise City, ID	64. Indianapolis, IN
19. Bonita Springs, FL	65. Indio–Cathedral City, CA
20. Brownsville, TX	66. Jackson, MS
21. Buffalo, NY	67. Jacksonville, FL
22. Canton, OH	68. Kalamazoo, MI
23. Cape Coral, FL	69. Kansas City, MO–KS
24. Charleston–North Charleston, SC	70. Kennewick–Pasco, WA
25. Charlotte, NC–SC	71. Killeen, TX
26. Chattanooga, TN–GA	72. Kissimmee, FL
27. Chicago, IL–IN	73. Knoxville, TN
28. Cincinnati, OH–KY–IN	74. Lafayette, LA
29. Cleveland, OH	75. Lakeland, FL
30. Columbia, SC	76. Lancaster, PA
31. Columbus, GA–AL	77. Lancaster–Palmdale, CA
32. Columbus, OH	78. Lansing, MI
33. Concord, CA	79. Laredo, TX
34. Concord, NC	80. Las Vegas–Henderson, NV
35. Conroe–The Woodlands, TX	81. Lexington–Fayette, KY
36. Corpus Christi, TX	82. Lincoln, NE
37. Dallas–Fort Worth–Arlington, TX	83. Little Rock, AR
38. Davenport, IA–IL	84. Los Angeles–Long Beach–Anaheim, CA
39. Dayton, OH	85. Louisville–Jefferson County, KY–IN
40. Denton–Lewisville, TX	86. Lubbock, TX
41. Denver–Aurora, CO	87. Madison, WI
42. Des Moines, IA	88. McAllen, TX
43. Detroit, MI	89. Memphis, TN–MS–AR
44. Durham, NC	90. Miami, FL
45. El Paso, TX–NM	91. Milwaukee, WI
46. Eugene, OR	92. Minneapolis–St. Paul, MN–WI

Exhibit A.2.

Urbanized Areas Included in the Study (2 of 2)	
93. Mission Viejo–Lake Forest–San Clemente, CA	128. Rockford, IL
94. Mobile, AL	129. Round Lake Beach–McHenry–Grayslake, IL–WI
95. Modesto, CA	130. Sacramento, CA
96. Montgomery, AL	131. Salem, OR
97. Murrieta–Temecula–Menifee, CA	132. Salt Lake City–West Valley City, UT
98. Myrtle Beach–Socastee, SC–NC	133. San Antonio, TX
99. Nashville–Davidson, TN	134. San Francisco–Oakland, CA
100. New Haven, CT	135. San Jose, CA
101. New Orleans, LA	136. Santa Clarita, CA
102. New York–Newark, NY–NJ–CT	137. Sarasota–Bradenton, FL
103. Norwich–New London, CT–RI	138. Savannah, GA
104. Ogden–Layton, UT	139. Scranton, PA
105. Oklahoma City, OK	140. Seattle, WA
106. Omaha, NE–IA	141. Shreveport, LA
107. Orlando, FL	142. South Bend, IN–MI
108. Oxnard, CA	143. Spokane, WA
109. Palm Bay–Melbourne, FL	144. Springfield, MO
110. Palm Coast–Daytona Beach– Port Orange, FL	145. St. Louis, MO–IL
111. Pensacola, FL–AL	146. Stockton, CA
112. Peoria, IL	147. Syracuse, NY
113. Philadelphia, PA–NJ–DE–MD	148. Tallahassee, FL
114. Phoenix–Mesa, AZ	149. Tampa–St. Petersburg, FL
115. Pittsburgh, PA	150. Toledo, OH–MI
116. Port St. Lucie, FL	151. Trenton, NJ
117. Portland, ME	152. Tucson, AZ
118. Portland, OR–WA	153. Tulsa, OK
119. Poughkeepsie–Newburgh, NY–NJ	154. Victorville–Hesperia, CA
120. Provo–Orem, UT	155. Visalia, CA
121. Raleigh, NC	156. Washington, DC–VA–MD
122. Reading, PA	157. Wichita, KS
123. Reno, NV–CA	158. Wilmington, NC
124. Richmond, VA	159. Winston–Salem, NC
125. Riverside–San Bernardino, CA	160. Winter Haven, FL
126. Roanoke, VA	161. York, PA
127. Rochester, NY	162. Youngstown, OH–PA

Acknowledgments

The authors thank the editor and two referees for helpful comments.

Authors

Eric Fesselmeyer is an associate professor in the Department of Economics, Finance, and Real Estate at Monmouth University, NJ, and may be contacted at 400 Cedar Avenue West, Long Branch, NJ, 07764, USA, or at efesselm@monmouth.edu. Kiat Ying Seah is a senior lecturer in the Department of Real Estate at the National University of Singapore and may be contacted at 15 Kent Ridge Drive, Singapore, 119245, or at sky@nus.edu.sg.

References

Accordino, John, and Gary T. Johnson. 2000. "Addressing the Vacant and Abandoned Property Problem," *Journal of Urban Affairs* 22 (3): 301–315.

Brueckner, Jan Keith, and Robert W. Helsley. 2011. "Sprawl and Blight," *Journal of Urban Economics* 69: 205–213.

Fee, Kyle, and Daniel Hartley. 2013. "The Relationship Between City Center Density and Urban Growth or Decline." In *Revitalizing American Cities*, edited by Susan M. Wachter and Kimberly A. Zeuli. Philadelphia: University of Pennsylvania Press: 45–64.

Hamidi, Shima, and Reid Ewing. 2014. "A Longitudinal Study of Changes in Urban Sprawl Between 2000 and 2010 in the United States," *Landscape and Urban Planning* 128: 72–82.

Holian, Matthew J. 2019. "Where is the City's Center? Five Measures of Central Location," *Cityscape* 21 (2): 213–226.

Hortas-Rico, Miriam. 2015. "Sprawl, Blight, and the Role of Urban Containment Policies: Evidence from U.S. Cities," *Journal of Regional Science* 55 (2): 298–323.

Lyons, Sarah. 2009. *Buffalo's Demolition Strategy.* Buffalo, NY: Partnership for the Public Good.

Schilling, Joseph, and Jimena Pinzón. 2016. "The Basics of Blight," *Vacant Property Research Network's Research & Policy Brief*, No. 2. https://vacantpropertyresearch.com/translation-briefs/blight/

U.S. Department of Housing and Urban Development (HUD) Office of Policy Development and Research (PD&R). 2014. "Vacant and Abandoned Properties: Turning Liabilities into Assets," *Evidence Matters*, Winter.

Wilson, Steven G., David A. Plane, Paul J. Mackun, Thomas R. Fischetti, and Justyna Goworowska. 2012. *Patterns of Metropolitan and Micropolitan Population Change: 2000 to 2010*. Prepared for the U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau. Washington, DC: U.S. Census Bureau.