Urban Sprawl and the Transition to First-Time Homeownership

Casey J. Dawkins
Virginia Center for Housing Research, Metropolitan Institute,
Virginia Polytechnic Institute and State University

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Abstract

This article relies on data from the Panel Study of Income Dynamics matched to U.S. census data to explain the factors contributing to homeownership transitions for a sample of renters who first left their parents' homes during the years 1978 through 1987. The article employs continuous time duration models to explain first-time homeownership transitions as a function of various individual and household-level variables, along with measures of urban sprawl. The article finds that for the average renter in the sample, first-time homeownership occurs sooner in areas with lower urban densities, increased local government fragmentation, and the presence of a regional urban growth boundary (UGB). The effects of UGB presence and local government fragmentation are largest among suburban low-income households.

Introduction

In a recent issue of *Housing Policy Debate*, Matthew Kahn (2001) empirically documented a negative relationship between urban sprawl and the "black/white" homeownership gap (among other measures of housing consumption). His explanation for this finding is that urban sprawl is associated with increased housing affordability in both the central city and suburbs. According to Kahn (2001: 84), "One reason sprawl reduces the black/white gap in unit size and ownership rates is that increased fringe urbanization leads to a greater supply of land for development, which increases affordability. A second explanation is that, as jobs move to the fringe in older sprawling metropolitan areas such as Detroit and Philadelphia, the durable inner-city housing stock becomes even cheaper."

This article extends Kahn's (2001) findings by investigating the effect of sprawl on the timing of first-time homeownership transitions. If sprawl influences regional housing affordability, then prospective first-time homebuyers may be able to move into homeownership sooner than they would otherwise in metropolitan areas exhibiting lower levels of urban sprawl. As with African-American households, first-time homebuyers as a group tend to exhibit lower incomes and lower levels of accumulated wealth (Boehm, 1993; Haurin, Hendershott, and Wachter, 1997). Thus, one might expect that, just as homeownership becomes more likely among all African Americans living in more sprawled metropolitan areas, homeownership may also occur sooner for those purchasing their first home in more sprawled metropolitan areas, if income increases monotonically over the course of the household life cycle.

This article also examines the homeownership effects of three alternative measures of sprawl not considered by Kahn (2001): (1) a measure of the density of the urban settlement pattern, (2) a measure of local government fragmentation, and (3) a measure of the presence or absence of regional urban growth boundaries (UGBs). It also examines variability in the effects of each measure across central city and suburban locations.

The investigation of this issue relied on data from the Panel Study of Income Dynamics (PSID) matched to U.S. census data to explain the factors contributing to homeownership transitions for a sample of renters who first left their parents' homes during the years 1978 through 1987. Continuous time duration models are employed to explain first-time homeownership transitions as a function of various individual, household, and location-specific variables, including measures of urban sprawl.

Findings show that for the average renter in the sample, first-time homeownership occurs sooner in areas with lower urban densities, increased local government fragmentation, and the presence of a regional UGB. The effects of UGB presence and local government fragmentation are largest among suburban low-income households. These results provide new insights into the dimensions of sprawl that are most important to first-time homebuyers.

Urban Sprawl and the Timing of First-Time Home Purchase

Urban sprawl has been defined as any development pattern exhibiting an excessively large development footprint for a given metropolitan resident population (Brueckner, 2000; Nechyba and

Walsh, 2004). Urban economic theory points to three primary ways in which large development footprints may affect the timing of first-time homeownership transitions. First, as suggested by Kahn (2001), urban sprawl may affect the user cost of owner occupancy. In the traditional monocentric model of urban land use (Alonso, 1964; Mills, 1972; Muth, 1969), housing that is located farther from the region's employment center commands a lower price, due to the capitalization of reduced accessibility into the price of housing. Thus, holding population constant, an increase in the outer extent of a given urban development pattern and a concomitant increase in the total development footprint would tend to drive housing prices downward throughout the metropolitan area as more households occupy housing located farther from the region's employment center. Facing lower user costs of owner occupancy, renters residing in more sprawling cities should enter homeownership sooner than otherwise equivalent renters searching for housing in more compact cities.

Filtering models of housing supply suggest another explanation for the link between urban sprawl and housing affordability. As metropolitan areas expand and new housing is built at the fringe of the metropolitan area, existing housing located closer to the central business district ages and depreciates in value, thus opening up affordable housing opportunities near the central city (Sweeney, 1974). Again, facing lower user costs of owner occupancy near the central city, renters in metropolitan areas that have an increased supply of older central city housing may accelerate entry into homeownership, provided the cost of maintaining older central city housing is not prohibitively high.

A final hypothesized link between sprawl and first-time homeownership comes from Charles Tiebout (1956). Sprawled metropolitan areas tend to exhibit higher degrees of local government fragmentation. As the population decentralizes, new suburban communities are often created to satisfy the local public service demands of new residents. The proliferation of local governments within sprawled metropolitan areas increases the range of local public service options available to prospective homeowners. Facing increased "Tiebout choice," (Hoxby, 2000) first-time homebuyers may move into homeownership sooner, because they may be more likely to find a housing service package that includes, as part of the bundle, their ideal quantity and mix of local public services.

To date, no study has examined the effects of these three dimensions of urban sprawl on the dynamics of first-time homeownership transitions. First-time homebuyers are an interesting group to consider because, although affordability constraints are most likely to affect this group, they are among those most likely to value the accessibility provided by more compact cities. Consider exhibit 1, which describes the characteristics of first-time homebuyers compared to other recent homebuyers using the 2001 American Housing Survey (AHS) as summarized in the U.S. Department of Housing and Urban Development's (HUD's) fourth quarter 2003 *U.S. Housing Market Conditions* report (HUD, 2004).

Compared with other homebuyers who moved into their homes within the year preceding the 2001 AHS, first-time homebuyers were more likely to be non-White and belong to single-parent family or nonfamily households with a combined household income of about $12,000 less than the income earned by other recent homebuyers. The average first-time homebuyer household head is also approximately 12 years younger than other recent homebuyers.

Exhibit 1

Demographic and Housing Stock Characteristics of First-Time Homebuyers and Other Recent Buyers

	First-Time Homebuyers		Other Recent Buyers	
	Number	Percent	Number	Percent
Demographic characteristics				
Race and ethnicity				
White, non-Hispanic	1,568,866	68	2,689,900	83
Black, non-Hispanic	258,036	11	176,148	5
Other, non-Hispanic	171,979	7	132,899	4
Hispanic	297,248	13	256,467	8
Family and household type				
Husband-wife families	1,245,991	54	2,147,071	66
Other families	402,086	18	380,937	12
Nonfamily households	648,052	28	727,406	22
Median age of householder	31		43	
Median household income[a]	49,300		61,648	
Housing stock characteristics				
Location in central city	598,975	26	657,634	20
Single-family, detached	1,615,226	70	2,528,880	78
Condominium/cooperative ownership	251,716	26	244,188	15
Built in 1990 or later	710,405	31	1,436,076	44
Median number of rooms	6.2		6.8	
Median value of home[a]	113,200		151,500	

[a] *In dollars.*

Source: 2001 American Housing Survey, summarized in HUD (2003)

These characteristics imply that first-time homebuyers may exhibit unique housing preferences. Consider the tradeoff between housing costs and savings in leisure time predicted by the monocentric model. In this case, first-time homebuyers, who are more likely to be young, single, and childless, may exhibit stronger tastes for leisure time and interactions with other young adults relative to households with children. If this is the case, then these individuals may be willing to pay more for housing that is accessible to the region's central business district. Because a greater supply of accessible housing exists within more compact metropolitan areas, first-time homebuyers may be more willing to move into these units sooner. Similarly, given that the existing housing stock in the central city likely filters down to lower quality submarkets more slowly in more compact metropolitan areas, first-time homebuyers may perceive central city housing to be of higher quality in more compact metropolitan areas relative to sprawled metropolitan areas. Finally, the increased number of suburban government choices available in more fragmented metropolitan areas may be less appealing to those who do not value suburban amenities such as the high quality of local public schools.

The differences in housing characteristics of first-time homebuyers and other recent homebuyers shown at the bottom of exhibit 1 provide some support for these arguments. Note that first-time homebuyers are more likely to reside in accessible central city locations. First-time homebuyers

also are more likely to reside in housing types (older, non-single-family detached, condominium) that are more commonly found in areas within close proximity to central business districts.

To conclude, the theoretical link between urban sprawl and the timing of first-time homeownership transitions is ambiguous. Although first-time homebuyers typically earn lower incomes and consume less expensive housing than those purchasing their second or third home, first-time homebuyers may exhibit unique preferences for accessible housing found only in more compact urban areas. The following sections examine this issue empirically, using data from a national sample of renters.

Data and Empirical Strategy

The empirical analysis relies on data from the PSID from waves 1978 through 1997. The sample used to estimate the determinants of first-time homeownership includes all individuals who were children or grandchildren of PSID families in 1977 and who subsequently moved out of their parents' home for the first time during the period 1978 through 1987. This sample follows these individuals from their initial "splitoff" (move out of the parents' residence) until the year in which an individual purchased his or her first home. Individuals who did not reside in metropolitan areas during any portion of the study period were omitted from the analysis. Individuals who moved into homeownership within a metropolitan area that was different from their rental neighborhood were also omitted from the analysis, because, for those households, the metropolitan characteristics while renting would not accurately describe the metropolitan characteristics they faced at the time they made a tenure transition.

For this sample, estimated regression models explain the duration of time from splitoff until transition to first-time homeownership. Several parametric duration models with time-varying covariates are examined. In previous investigations of first-time homeownership, Boehm (1993) has examined the exponential model extensively. This article examines this model and three other more flexible functional forms that allow for heterogeneous survival distributions across individuals' (exponential with gamma heterogeneity) duration dependence (Weibull) and nonmonotonicity in the estimated duration dependence parameter (log-logistic). The log-likelihood functions for all estimated models are adjusted to account for right-censoring resulting from uncompleted rental tenure duration spells. See Dawkins (2005a) for a more detailed description of the empirical approach employed.

To explain rental tenure durations, the article relies on traditional variables used in previous tenure choice studies. Descriptive statistics and variable definitions are shown in exhibit 2.

The estimated models include information on a variety of personal and household characteristics, including gender, age, marital status, and number of children in the individual's household that have been shown to be correlated with housing demand. Of those characteristics, marital status and number of children vary with rental tenure duration, while gender and age are measured at the time of splitoff and do not vary with time. Two measures of education are included: (1) a time-varying measure of the number of years of education attained by time t and (2) a dummy variable

Exhibit 2

Descriptive Statistics[a] (1 of 2)

Variable	Definition	Mean	Std. Dev.
Rental tenure duration	Years from splitoff until first-time homeownership transition	8.662	5.362
Splitoff indicators			
Splitoff in 1978	Dummy variable equal to 1 if the individual left their parents' home in 1978, 0 otherwise	0.100	0.301
Splitoff in 1979	Dummy variable equal to 1 if the individual left their parents' home in 1979, 0 otherwise	0.131	0.338
Splitoff in 1980	Dummy variable equal to 1 if the individual left their parents' home in 1980, 0 otherwise	0.118	0.322
Splitoff in 1981	Dummy variable equal to 1 if the individual left their parents' home in 1981, 0 otherwise	0.089	0.285
Splitoff in 1982	Dummy variable equal to 1 if the individual left their parents' home in 1982, 0 otherwise	0.090	0.287
Splitoff in 1983	Dummy variable equal to 1 if the individual left their parents' home in 1983, 0 otherwise	0.093	0.291
Splitoff in 1984	Dummy variable equal to 1 if the individual left their parents' home in 1984, 0 otherwise	0.087	0.282
Splitoff in 1985	Dummy variable equal to 1 if the individual left their parents' home in 1985, 0 otherwise	0.111	0.314
Splitoff in 1986	Dummy variable equal to 1 if the individual left their parents' home in 1986, 0 otherwise	0.085	0.279
Splitoff in 1987	Dummy variable equal to 1 if the individual left their parents' home in 1987, 0 otherwise	0.095	0.293
Personal and household characteristics			
Black	Dummy variable equal to 1 if the individual is Black, 0 otherwise	0.548	0.498
Age at splitoff	Age of individual at time of splitoff	22.337	3.328
Male	Dummy variable equal to 1 if the individual is male, 0 otherwise	0.552	0.498
Student at splitoff	Dummy variable equal to 1 if the individual is a student at splitoff, 0 otherwise	0.051	0.220
Years of education	Individual's years of education completed at time t	12.355	2.966
Marital status	Dummy variable equal to 1 if the individual is married at time t, 0 otherwise	0.430	0.495
Number of children	Number of children in household at time t	0.947	1.283
Parents' ownership status	Dummy variable equal to 1 if the parents of the individual are owner occupants at time of splitoff, 0 otherwise	0.610	0.488
Parents' nonhousing wealth[b]	Parents' income from nonhousing wealth at time of splitoff	0.991	7.799
Permanent income[b]	Predicted value from an equation where current income is regressed on various human capital variables at time t	20.183	8.540
Transitory income[b]	Residual of current family income and expected income at time t	7.331	21.223
Nonhousing wealth[b]	Value of nonhousing assets at time t	2.226	44.791
Employment status	Dummy variable equal to 1 if the individual is employed at time t, 0 otherwise	0.502	0.500

Exhibit 2

Descriptive Statistics[a] (2 of 2)

Variable	Definition	Mean	Std. Dev.
Regional controls			
Northeast Region	Dummy variable equal to 1 if the individual resides in the Northeast, 0 otherwise	0.130	0.336
Midwest Region	Dummy variable equal to 1 if the individual resides in the Midwest, 0 otherwise	0.261	0.439
South Region	Dummy variable equal to 1 if the individual resides in the South, 0 otherwise	0.434	0.496
West Region	Dummy variable equal to 1 if the individual resides in the West, 0 otherwise	0.175	0.380
MSA controls			
Central city	Dummy variable equal to 1 if the household resides in the central city, 0 otherwise	0.418	0.493
Log MSA population	Log of total MSA population, 1980	14.203	1.093
MSA population growth, 1980–90	Log (1990 MSA population/1980 MSA population)	0.093	0.204
Percent MSA owner occupant	Percent of MSA occupied housing that is owned, 1980	0.679	0.306
MSA average owner-occupied housing value[b]	Average value of MSA owner-occupied housing, 1980	64.712	19.747
Urban density	Total MSA population/total MSA urbanized land area	5.637	2.684
Local government fragmentation	MSA Herfindahl index (see text)	0.472	0.285
UGB	Dummy variable equal to 1 if the household resides in an MSA surrounded by a regionwide UGB, 0 otherwise	0.074	0.261
N		1,494	

MSA = metropolitan statistical area. UGB = urban growth boundary.

[a] All descriptive statistics are evaluated at time of homeownership transition.

[b] In thousands of dollars.

equal to 1 if the individual became a student at the time of splitoff. Finally, the models include a time-varying measure of employment status.

The models also include several measures of income and wealth. Permanent income is estimated as the predicted value of family income in a regression of income on various human capital controls. Estimates from the auxiliary regression used to estimate permanent income are included in appendix A. Transitory income is the residual of current family income and expected family income at time *t*. Both of these measures vary with time. A time-varying measure of nonhousing wealth is calculated as the total value of nonhousing assets, including rent, interest, dividends, trust funds, and royalties. This measure, along with a dummy variable indicating the parents' homeownership status, is also calculated for each individual's parents by matching the individual to his or her original 1977 PSID family and extracting the value of the household head's nonhousing wealth and homeownership status. All monetary values are adjusted to 1997 values using the Consumer Price Index deflator.

The models use three different measures of urban sprawl. The first is a measure of urban density, measured as the total 1980 metropolitan statistical area (MSA) population divided by the total 1980 urbanized land area for the metropolitan area. This measure is discussed extensively in Fulton et al. (2001). The advantage of this measure, as opposed to most traditional measures of urban density, is that the denominator (urbanized land area) is based on the total area of urbanized land rather than the commonly used Census "urbanized area," which does not consider actual land use. The data on urbanized land area were constructed from satellite imagery information available from the National Resources Inventory. Rolf Pendall from the Fulton et al. (2001) team kindly provided these measures for use in this analysis.

The second measure of urban sprawl is an index of local government fragmentation based on the Herfindahl index. This index is calculated as $1-\Sigma_i h_i^2$, where h_i is the ith municipality's share of total 1980 MSA population. A value of 0 for this index implies that all of the MSA population resides in one municipality, while 1 implies that the population is evenly distributed across many equal-sized districts. This measure has been used extensively in other similar studies of local government fragmentation (Dawkins, 2005b; Hoxby, 2000).

The final measure of urban sprawl is a dummy variable equal to 1 if the household resides in a metropolitan area surrounded by a regional UGB and equal to 0 otherwise. Values of 1 are assigned to those households that reside in a region that adopted a UGB before the households' move from their parents' residence. UGBs are designed to contain the extent of fringe urbanization through a mix of policies designed to encourage urbanization within a defined boundary and discourage urbanization outside the boundary. Such policies include urban service area boundaries, mixed-use urban zoning, restrictions on rural lot subdivisions, large-lot rural zoning, and rural land acquisition, among others. The data on UGB presence were obtained as part of ongoing research examining the effects of urban containment policies, initiated with a nationwide survey of metropolitan planning organizations. This survey instrument is described in Nelson, Dawkins, and Sanchez (2004).

Because the sprawl measures are likely highly correlated with one another, each measure is entered separately into each regression model. Each measure of urban sprawl is also allowed to vary with the central city—suburban location status of the renter—to determine if the effects of sprawl vary based on the intrametropolitan location of renters. All models also include several MSA location controls, including log of MSA population, MSA population growth rate, MSA average value of owner-occupied housing, and percentage of MSA occupied housing that is owned. A dummy variable measuring the renter's residential location relative to the central city is also included to control for the direct effect of central city location. Finally, regional controls are entered to account for region-specific heterogeneity. Each location-specific control is time varying in the following sense: Each time that an individual moves from his or her initial residence following splitoff, the location measures are updated to accurately describe the individual's new residence.

Results

Exhibit 3 reports the results from the baseline rental tenure duration model. Although all estimated models include controls for year of splitoff and Census Bureau region of residence, these coefficient

Exhibit 3

Baseline Log-Logistic Rental Tenure Duration Model

Variable	Coef.	Sig.
Personal and household characteristics		
Constant	4.344	***
Black	0.294	**
Age at splitoff	– 0.051	***
Male	0.003	
Student at splitoff	0.291	
Years of education	– 0.036	
Marital status	– 0.308	***
Number of children	– 0.020	
Parents' ownership status	– 0.382	***
Parents' nonhousing wealth[a]	0.013	
Permanent income[a]	– 0.009	
Transitory income[a]	– 0.030	***
Nonhousing wealth[a]	– 0.039	
Employment status	– 0.186	
Location controls		
Central city	0.499	***
Log MSA population	0.006	
MSA population growth, 1980–90	0.051	
Percent MSA owner occupant	– 0.199	
MSA average owner-occupied housing value[a]	0.011	**
Urban density	0.037	
Sigma	0.654	***
Log-likelihood	– 1,445.780	
LR test of model significance	341.382	***
N*T	10,350	

MSA = metropolitan statistical area.

[a] In thousands of dollars.

** p < .10.*

*** p < .05.*

**** p < .01.*

Note: All models also include controls for year of splitoff and U.S. census region.

estimates are suppressed for brevity. The baseline model and all subsequent models rely on the log-logistic parameterization. Initial examinations of the Akaike Information Criterion (AIC) suggest that this model provides the best fit to the data, with an AIC of 2991 compared to 3053 for the exponential model, 3019 for the exponential model with gamma heterogeneity, and 3017 for the Weibull model. The likelihood ratio test statistic is also significant at a better than .01 level.

The results from the baseline model suggest that the amount of time until first-time homeownership becomes shorter with non-African-American household head status, age at time of splitoff, marital status, parents' ownership status, and increases in transitory income. Consistent with Cooperstein (1989), transitory income, but not permanent income, influences the transition to first-time homeownership. Regarding the effect of location controls, residence in the central city and higher MSA housing values both increase the time until first-time homeownership transition.

Controlling for the full set of location controls, urban density is not statistically significant at conventional levels.

Exhibit 4 reports the estimated coefficients and the exponentiated coefficients from six different specifications of the baseline model, each employing different measures of urban sprawl. The estimates shown in the bottom three models (4 through 6) omit MSA housing values to determine whether controls for housing costs influence the magnitude of the effect of urban sprawl. The exponentiated coefficients, often described as "time ratios" in duration analysis, are similar to odds ratios in the traditional logit model and give an estimate of the percentage increase in rental tenure duration resulting from a 1-unit increase in a given covariate. Values above 1 imply percentage increases in rental tenure duration, while values below 1 imply percentage decreases in rental tenure duration.

Exhibit 4 suggests that, with controls for MSA housing values, local government fragmentation and the presence of a UGB significantly influence the timing of first-time homeownership transitions. The coefficient for urban density becomes statistically significant only after controls for MSA housing values are omitted. This finding suggests that urban density likely influences the timing of homeownership transitions indirectly by reducing metropolitan housing affordability. The negative coefficient for UGB suggests that first-time homeownership occurs sooner in metropolitan areas surrounded by a UGB, a result that is somewhat unexpected. The next section explores this finding further.

The coefficient estimates shown in the table in exhibit 5 reflect measures of sprawl that vary with the central city/suburban status of the household. This table shows that the effects of local government fragmentation and UGB presence are significant only for suburban households. Furthermore, these effects are larger in magnitude than those reported in exhibit 4.

An examination of the coefficients from the same model specifications shown in exhibits 4 and 5 shows estimates for a subsample of low-income households, defined as those households below the median income of the sample renters at the time of homeownership transition ($22,000). These estimates are displayed in exhibit 6.

Exhibit 4

Impact of Sprawl on Rental Tenure Duration, Alternative Specifications

Model	Variable	Coef.	Exp. (Coef.)	Sig.
Baseline model, alternative measures of urban sprawl				
(1)	Urban density	0.037	1.037	
(2)	Local government fragmentation	– 0.481	0.618	**
(3)	UGB	– 0.537	0.584	***
Baseline model, alternative measures of urban sprawl, MSA average housing value omitted				
(4)	Urban density	0.066	1.068	**
(5)	Local government fragmentation	– 0.399	0.671	*
(6)	UGB	– 0.477	0.621	***

MSA = metropolitan statistical area. UGB = urban growth boundary.

** p < .10.*

*** p < .05.*

**** p < .01.*

Exhibit 5

Impact of Sprawl on Rental Tenure Duration, Stratified by Central City/Suburban Location

Model	Variable	Coef.	Exp. (Coef.)	Sig.
(1)	Urban density (central city households)	0.065	1.067	
	Urban density (suburban households)	0.019	1.020	
(2)	Local government fragmentation (central city households)	– 0.093	0.911	
	Local government fragmentation (suburban households)	– 0.676	0.508	***
(3)	UGB (central city households)	– 0.094	0.911	
	UGB (suburban households)	– 0.684	0.504	***

UGB = urban growth boundary.

** p < .10.*

*** p < .05.*

**** p < .01.*

Note: All models above also include full set of baseline controls.

Exhibit 6

Impact of Sprawl on Rental Tenure Duration (Low-Income Households Only)

Model	Variable	Coef.	Exp. (Coef.)	Sig.
Models ignoring central city-suburban interaction				
(1)	Urban density	0.060	1.061	
(2)	Local government fragmentation	– 1.130	0.323	***
(3)	UGB	– 0.589	0.555	*
Models incorporating urban sprawl-central city/suburban interaction				
(4)	Urban density (central city households)	0.146	1.158	
	Urban density (suburban households)	0.017	1.017	
(5)	Local government fragmentation (central city households)	– 0.689	0.502	
	Local government fragmentation (suburban households)	– 1.314	0.269	***
(6)	UGB (central city households)	0.178	1.194	
	UGB (suburban households)	– 0.819	0.441	**

UGB = urban growth boundary.

** p < .10.*

*** p < .05.*

**** p < .01.*

Note: All models above also include full set of baseline controls.

A comparison of the table in exhibit 6 with the two previous tables shows that the effect of local government fragmentation and UGB presence is larger in magnitude for low-income renters. The differences in magnitude are particularly large for suburban low-income renters. Compared to the baseline model, the effect of local government fragmentation is nearly 3 times larger for suburban low-income households, while the effect of UGB presence is approximately 1.5 times larger.

Discussion

These results shed light on the hypothesized effects of sprawl on affordability and first-time homeownership transitions. First, the estimated relationship between urban density and first-time

homeownership transitions for the full sample of renters suggests that, despite their unique characteristics, first-time homebuyers do not seem to express stronger tastes for housing located in denser urban areas. Rather, the most significant dimension of urban form attracting renters to homeownership is the affordability that is found in less dense areas. After controlling for average MSA housing values, the effect of density disappears.

The significant and negative relationship between local government fragmentation and the amount of time until first-time homeownership transition is consistent with the hypothesis that sprawled cities provide more options for housing consumers. Differences in the effect of Tiebout choice for central city and suburban renters suggest, however, that suburban choices are the choices that matter. This finding is expected, given the significant differences in fiscal capacity and local government service packages typically provided by central city governments relative to suburban governments.

The relatively stronger relationship between local government fragmentation and first-time homeownership transitions among low-income renters is an interesting finding but one with ambiguous policy implications. On the one hand, this finding suggests that increased local public service choice is important to those low-income renters who have been successful in locating residential locations within the suburbs. On the other hand, if suburban governments also adopt fiscal zoning measures designed to exclude low-income residents from suburban jurisdictions, low-income renters may not be able to benefit from increased choice in many metropolitan areas. Furthermore, given the monocentric model's assumption that the income elasticity of housing exceeds the income elasticity of leisure-time savings, most low-income residents will still tend to reside in or near the central city. To the extent that this tendency is the case, it is not clear that expanding suburban public service choices would necessarily lead to widespread increases in low-income homeownership.

Perhaps the most surprising finding is that renters move into first-time homeownership more quickly within regions that are contained by a UGB. Furthermore, this effect is strongest among low-income suburban homebuyers. To determine if this result holds, controlling for measures of urban sprawl, additional models that included controls for urban density and presence or absence of a UGB were estimated. The results are largely comparable to those reported above, which suggest that, even conditioning on measures of urban form, which UGBs should influence, UGBs exert an independent influence on the timing of first-time homeownership transitions.

This finding is consistent with other recent studies that found, in contrast to traditional land use regulatory regimes, jurisdictions adopting UGBs tend to be more proactive in accommodating affordable housing supply within areas designated for urbanization. Nelson, Dawkins, and Sanchez (2005) found that jurisdictions surrounded by a UGB saw increased retention of the existing affordable housing stock over time. Pendall (2000) found that UGBs did not have the same exclusionary effects as did other more traditional forms of land use regulation.

There are several possible explanations for why regulatory regimes pursuing a strategy of urban containment, compared with other types of local regulatory regimes, may actually serve to improve access to affordable owner-occupied housing. One possible explanation is that most of the UGBs in the sample (see exhibit 7) are located within states that require local governments to adopt afford-

Exhibit 7

UGBs in the Sample

Tucson, AZ	Bradenton, FL
San Diego, CA	Minneapolis-St. Paul, MN-WI
San Francisco-Oakland, CA	Wilmington, NC
Riverside-San Bernardino-Ontario, CA	Lincoln, NE
Sacramento, CA	Atlantic City, NJ
Fresno, CA	Eugene-Springfield, OR
Greeley, CO	Medford, OR
Miami, FL	Salem, OR
Orlando, FL	Portland-Vancouver, OR-WA

UGB = urban growth boundary.

able housing strategies as part of the local planning process. Most jurisdictions with UGBs in this sample are located in California. Since 1969, California has required local governments to include within their local comprehensive plans an affordable housing element that identifies strategies for accommodating the jurisdiction's share of projected regional housing demand. Other states represented in the sample (Oregon, New Jersey, Florida) have also adopted similar provisions requiring local governments to include affordable housing elements within their local comprehensive plans. One possible test of this hypothesis is an examination of the effect of UGB presence in models that also include a measure of the state's stance toward such affordable housing mandates. In regressions that include a dummy variable indicating that the surrounding state requires an affordable housing element to be included in the local comprehensive plan,[1] UGB presence is still statistically significant, while the state housing mandate dummy variable is not significant.

Another possible explanation is that regulatory regimes based on a philosophy of urban containment may include more local regulatory tools that facilitate affordable housing provision than do other more traditional regulatory regimes. Such tools include mixed-use zoning ordinances, flexible zoning for affordable housing, and more aggressive monitoring of regional land supply. Nelson and Dawkins (2004) examined more than 100 urban containment plans nationwide and found that those jurisdictions with the strongest antisprawl measures tended also to adopt more flexible zoning programs and more aggressive affordable housing strategies. The inclusion of such affordable housing policies within an aggressive urban containment program may help to ensure political acceptability of antisprawl measures by the local citizenry and building community.

A final explanation is that the regional land use planning organizations responsible for adopting and implementing a UGB program may also have regulatory authority to override suburban efforts to enact exclusionary zoning ordinances. New Jersey, for example, empowers county governments to adopt regional fair-share affordable housing strategies, which limit the ability of local governments to pursue exclusionary zoning strategies. This argument is supported by our finding that the effects of UGB presence are largest and most significant among suburban low-income residents.

[1] According to a recent report published by the American Planning Association (2002), these states include California, Florida, Georgia, Hawaii, Idaho, New Jersey, Oregon, and Washington.

To determine which of these two latter hypotheses is more plausible, additional regressions, which allowed the UGB variable to vary by MSA, were run. All UGB MSAs with fewer than 20 observations were grouped into a single category to ensure sufficient degrees of freedom to estimate the UGB effect. Because of high multicollinearity between the MSA-stratified measures of UGB presence and many MSA-level covariates, only a limited number of location controls in these models (regional controls, central city of residence, and log of MSA population) were included. These results are reported in exhibit 8.

From Model 1 in exhibit 8, we find that three metropolitan areas account for most of the UGB effect: Riverside, California; Miami, Florida; and Twin Cities, Minnesota. One unique characteristic of each of these metropolitan areas is their relatively strong form of regional governance. Riverside is a metropolitan area surrounded by a single county government, Miami is a city-county consolidated government, and Twin Cities is governed by one of the nation's only regional governments with leaders appointed by the state of Minnesota. In each of these metropolitan areas, strong regional governments possibly curb the exclusionary practices of suburban municipalities within the region.

Twin Cities is an interesting case in point. During the 1970s, this region adopted one of the nation's first regional fair-share housing strategies, which required all local governments within the region to accommodate their fair share of the region's affordable housing needs. According to Goetz, Chapple, and Lukermann (2005), the efficacy of this program has varied over time. During the 1980s, changes in regional and state political leadership, combined with shifting national political tides, led to a significant weakening of the region's fair-share requirements. Model 2 in exhibit 8

Exhibit 8

UGB Effect, Stratified by MSA

Variable	Model 1			Model 2		
	Coef.	Exp. (Coef.)	Sig.	Coef.	Exp. (Coef.)	Sig.
San Diego, CA	0.295	1.344		0.285	1.330	
San Francisco-Oakland, CA	1.183	3.264		1.175	3.237	
Riverside-San Bernardino-Ontario, CA	– 1.305	0.271	***	– 1.283	0.277	***
Sacramento, CA	1.107	3.025		1.093	2.984	
Fresno, CA	– 0.522	0.594		– 0.514	0.598	
Miami, FL	– 0.863	0.422	**	– 0.840	0.432	**
Orlando, FL	– 0.288	0.750		– 0.274	0.760	
Minneapolis-St. Paul, MN-WI	– 0.567	0.567	*	—	—	
Minneapolis-St. Paul, MN-WI (1978–81)	—	—		– 1.467	0.231	***
Minneapolis-St. Paul, MN-WI (1982–97)	—	—		– 0.137	0.872	
Atlantic City, NJ	7.524	1,852.660		7.912	2,730.452	
Eugene-Springfield, OR	– 0.215	0.806		– 0.200	0.819	
Portland-Vancouver, OR-WA	– 0.578	0.561		– 0.558	0.572	
Remaining UGBs	– 0.245	0.783		– 0.231	0.794	

MSA = metropolitan statistical area. UGB = urban growth boundary.

** p < .10.*

*** p < .05.*

**** p < .01.*

Note: Model includes full set of baseline controls, excluding MSA housing value, MSA population change, and MSA owner-occupied percentage.

allows the effect of the Twin Cities variable to vary by the date at which this political shift began (1982). As shown in Model 2, Twin Cities influenced homeownership transitions only during the period when the regional fair-share program was at its strongest. After 1982, the Twin Cities effect was not statistically significant.

Conclusion

This article examined the relationship between various dimensions of urban sprawl and the timing of first-time homeownership transitions. The article found that, for the average renter in the sample, first-time homeownership occurs sooner in areas with lower urban densities, increased local government fragmentation, and the presence of a regional urban growth boundary. Urban density influences homeownership transitions indirectly through effects on housing affordability. The effects of UGB presence and local government fragmentation are largest among suburban low-income households. These results suggest that increased urban sprawl accelerates the transition to first-time homeownership, primarily by influencing housing affordability and local public service choice.

No evidence supports the claim that UGBs restrict housing choices for first-time homebuyers. In fact, the results suggest the opposite: first-time homeownership is enhanced in regions with regional UGB programs in place. The overall pattern of results suggests that the most likely explanation for the offsetting effects of UGBs is that such metropolitan areas are likely governed by stronger regional institutions with authority to override, or at least discourage, local exclusionary zoning practices. The results point to an important challenge facing regional policymakers seeking to promote first-time homeownership: enhancing local public service choice through increased decentralization of local public services while maintaining centralized regional control over land use regulation.

Appendix A

Permanent Income Regression Results

Variable	Coef.	Sig.
Constant	– 19.412	***
Black	– 5.650	***
Age	2.173	***
Age squared	– 0.039	***
Male	3.075	***
Nonhousing wealth[a]	0.034	***
Years of education	0.729	***
Employment status	– 0.294	
Professional occupation	13.964	***
Manager/administrator occupation	11.908	***
Sales occupation	3.054	***
Clerical occupation	4.593	***
Craftsman occupation	9.878	***
Operative occupation	5.759	***
Transport occupation	7.524	***
Laborer occupation	3.691	***
Farmer occupation	10.100	**
Midwest Region	– 3.146	***
South Region	– 2.566	***
West Region	– 0.345	
Adj-R^2	0.220	
N*T	10,350	

[a] *In thousands of dollars.*

** $p < .10$.*

*** $p < .05$.*

**** $p < .01$.*

Notes: Omitted occupation category: service occupation. Omitted regional control: Northeast.

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Author

Casey J. Dawkins is associate professor of urban affairs and planning, the director of the Virginia Center for Housing Research, and the co-director of the Metropolitan Institute at Virginia Polytechnic Institute and State University.

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