AN EMPIRICAL INVESTIGATION OF THE IMPACT OF AMENITIES ON COUNTY-LEVEL MIGRATION WITHIN THE EAST SOUTH CENTRAL REGION: AN INTRA-MSA STUDY

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ABSTRACT

The existing literature tends to focus on regional migration and the impact of wages, rents, and amenities on location patterns. This study examines inter-county migration within metropolitan statistical areas (MSAs) with a special focus on the role of amenities. In order to examine whether amenities are a driving force behind spatial housing patterns, household migration patterns are analyzed using allocation rates and the spatial equilibrium approach. Contiguous counties within Kentucky, Tennessee, Mississippi, and Alabama MSAs are analyzed. The parameters of an inter-county allocation model are estimated with 1995-2000 migration data from the 2000 Census of Population and Housing and a spatial equilibrium amenity index. The results indicate that the residual-based amenity measure explains county-to-county migration within MSAs and that urbanization is more dominant than suburbanization.

Keywords: Metropolitan statistical areas; amenities, migration; urbanization, suburbanization, spatial equilibrium; allocation rates.

JEL classification: R13, R23, I31

INTRODUCTION

CNN Money.com annually reports the ten fastest growing U.S. counties. Not surprisingly, amenities[1] are consistently among the factors used to explain such growth. In a similar report, American City Business Journal uses twenty statistical indicators to rank 3,141 counties and independent cities across the Unites States. Mobile American households, seeking a better quality of life, are increasingly referring to such reports when assessing potential relocation destinations. Their choice of destination has implications for both origin and destination counties since large population shifts and their associated problems can generate economic and political concerns for many metropolitan statistical areas (MSAs)[2]. A study by Frumkin (2002) discusses urban sprawl and its impact on health (such as mental health, air

pollution, vehicle crashes and fatalities, etc.) in metropolitan areas. The aforementioned issues can negatively impact counties when local governments are unable to effectively plan to accommodate such large population shifts.

In this study, two general forms of within MSA migration are of particular concern, suburbanization – migration from urban counties to suburban counties, and urban gentrification – migration from suburban counties to urban counties. Both forms are garnering national attention, as a stable population base is an indicator of economic stability in an area. Suburbanization and urban gentrification have public policy implications. Both can cause population instability, which results in tax base volatility and strongly affects a county's ability to plan for and provide public services, and to attract and retain residents and businesses.

Previous studies have focused on the relationship between amenities and regional migration decisions (Treyz, Rickman, Hunt, and Greenwood, 1993; Gale, Pack, and Potter, 2001). However, there exists a scarcity of research on the relationship between amenities and county-level migration patterns. Allocation models of migration have been developed for use in regional and state level migration analysis. However, to our knowledge there is no known study that has developed an allocation migration model with a spatial equilibrium measure for valuing amenities appropriate for county level migration analysis. Developing a county level allocation model will broaden our knowledge of migration between counties and thus has implications for households, entrepreneurs, local governments, city planners and businesses. Households may gain better insight for relocation decisions and entrepreneurs for business location decisions. Local governments, city planners and businesses can better assess the future needs of an area to mitigate political, social and economic issues.

The purpose of this study is to gain a better understanding of county-level migration issues such as suburbanization and urban gentrification. The data obtained in this study were collected from the *2000 Census of Population and Housing, U.S. Census Bureau, and State and Metropolitan Area Databooks*. We investigate the relationship between amenities and inter-county migration within an MSA. We analyze the causal relationship between amenities and migration decisions using 1995-2000 migration data from the *2000 Census of Population and Housing* and a spatial equilibrium amenity index. We develop an amenity-based index in order to investigate the causal link between county level amenities and inter-county migration decisions within U.S. MSAs, and address the following question: Do amenities affect inter-county migration decisions within an MSA?

This study contributes to migration literature by providing empirical evidence on the impact of amenities on county-level migration within MSAs located in the East South Central region of the U.S. The results indicate that the effect of amenities on migration is increased when the move is to an urban county. Also, the parameter estimates suggest that the residual-based amenity measure does explain county-to-county migration within MSAs and that urbanization is more dominant than suburbanization in the East South Central region of the U.S. In addition, high amenity counties tend to attract a disproportionate number of migrants within

this region's metropolitan statistical areas. Overall, the results of this study suggest that amenities significantly influence county-level migration as they do regional migration. The results can assist county officials, households, businesses and other stakeholders in planning for inter-county moves within MSAs.

THEORETICAL MODEL

The rationale for migration being influenced by amenities follows directly from the household utility maximization model. In our model, we assume that a household's expected utility is driven by consumption of housing, wages, and location specific amenities. Here, both housing and wages are implicitly influenced by amenities. When contemplating a move, the household weighs the cost of relocating against the benefits of the amenities in the alternate location. If the benefits exceed the costs, it is expected that the household will migrate.

As in Roback (1982), we formally assume identical households across locations, with indirect individual utility given by $V(r, p, s)$, and the cost function *C(w,r,s),* where *r* is the rental cost of land, *p* is the cost of housing (*h*), *s* is the quantity of the location-specific amenity bundle, and *w* is the wage rate. In spatial equilibrium, individual consumers' wages and rents equalize utility. Let V_s be the partial derivative of the indirect utility function with respect to a change in location-specific amenities ($V_s \succ 0$), and V_w be the partial derivative of the indirect utility function with respect to a change in the wage rate ($V_w \succ 0$), in equilibrium the demand for location-specific amenities is P_s^* , which via Roy's identity is:

$$P_s^* = V_s \big/ V_W = h(dp/ds) - (dw/ds) \qquad (1)$$

where: $h(dp/ds)$ is the housing premium induced by the location-specific amenities, and dw/ds is the wage premium induced by the location-specific amenities.

Thus, in spatial equilibrium, the value of all amenities for an individual in a given location is the difference between amenity-adjusted housing prices and amenity-adjusted wages/incomes. As noted, the rationale for migrating depends on the effect of amenities on equation (1), which is indeterminate a priori. If the household perceives that expected utility, given the cost of moving, is higher in the new location than in the current location, the household will migrate. Equation (1) indicates that the value assigned to amenities, depends on both the income opportunity and housing cost in the new location. However, before the migration decision can be made, the cost of moving must be considered. The relocation/moving cost is assumed to be proportional to distance between the current location and the new location.

Assume that in a given MSA, the difference between a household's expected utility in the potential new county l^1 and the current county l^0 and can be expressed as follows where M represents the net utility value of the new county:

$$M = V^1(r, p, s) - C^1 - V^0(r, p, s) \qquad (2)$$

If $M > 0$, the household would be better off migrating, i.e., moving from l^0 to l^1. Alternatively, if $M \leq 0$ then the household would be better off in its current location. It follows that an aggregate migration model which analyzes differences in the amenity bundles of contiguous counties within an MSA, and wages and/or housing cost, given the cost related to moving, is plausible. If $M_{0,1}^h$, where h = migrating households, reflects the number of households that migrate from the county of origin l^0 to destination county l^1. We would expect $M_{0,1}^h$ to vary directly with the destination county characteristics and inversely with origin county characteristics. Hence, locations with higher associated amenity levels should experience disproportionate levels of in-migration (Cushing 2005).

Since this study is limited to migration within an MSA, distance between counties is an important consideration in the location decision as it constrains the location choice. Thus, only contiguous counties within an MSA are included in our study and distance between counties has been included as an explanatory variable for allocation rates. In the model, we consider conditions in only the destination counties, and only those residents that migrate. As in the allocation models used by Greenwood (1969), Wadycki (1974), Kau and Sirmans (1976), Goss and Chang (1983), and Cushing (2005), we calculate the number of migrants leaving the central city county $M_{S^l}^{CC}$ and moving to each suburban county. We then divide the number of migrants that moved to each suburban county $M_{S^l}^{j}$ by the total number of out-migrants from the central city county. The resulting ratio $M_{S^l}^{j} / M_{S^l}^{CC}$ comprises the left side of the allocation flow model:

$$M_{S^l}^{j} / M_{S^l}^{CC} = \beta_1(s) + \beta_2(\phi(w, r)) + \beta_3(C) + e_j \qquad (3)$$

The allocation rate is a function of county specific amenities $\beta_1(s)$, income/earning opportunities measured by median household income, $\beta_2(\phi(w, r))$, and cost related to moving, measured by distance between counties $\beta_3(C)$. Origin county-specific factors are no longer considered in the model because our focus is on the destination choice of migrants. Cushing (1989) shows that once an individual has made the decision to move, origin characteristics alone are no longer relevant, only destination characteristics and distance from the origin. The allocation rate is a conditional migration rate which only focuses on the subset of the population

that actually migrates during the defined time period. The model is based on the theoretical work of Sjaastad (1962), Glantz (1975), Goss & Chang (1983), Odland and Ellis (1988) and Cushing (1989, 2005) among others who have asserted that household migration follows a form of utility maximization behavior and thus can be explained using allocation rates which indicate that the household expects to be better off in the new location than in the original one.

DATA, THEORY, AND EMPIRICAL MODEL

The sample includes householders age 23 and older, living in one of the U.S. Census defined East South Central MSAs in both 1995 and 2000. Only persons who moved within MSAs during the specified time period are included in the analysis. The dependent variable in the allocation model is an allocation rate of migration. The allocation rate reflects the percentage of all out-migrants from origin county *c* who chose county *c'* as their destination within the metropolitan area from 1995 to 2000. The explanatory variables include distance, direction of move, and an amenity valuation based on the spatial equilibrium approach as used by Glaeser, Kolko, & Saiz (2001). The empirical analysis includes county level migration and amenity value data for U.S. metropolitan statistical areas (MSAs). Data was collected from the *2000 Census of Population and Housing, U.S. Census Bureau, and State and Metropolitan Area Databooks.*

Recall that the objective of this study is to extend our knowledge of migration decisions by developing an allocation model of county level U.S. migration that uses the spatial equilibrium approach to measure amenity values for county level analysis of East South Central MSAs. The allocation rate is most commonly defined as the number of persons moving from the origin county indicated by *c* to destination county *c'* during the time period divided by the total number of out-migrants from origin county *c* during the period (Cushing 2005). The allocation model attempts to explain the migration of households among alternative areas based on amenity values. Allocation models of migration have been developed for use in regional and state level analysis. However, as of today there is no known study that has developed an allocation migration model with a spatial equilibrium measure for valuing amenities appropriate for county level migration analysis. Developing a county level allocation model will broaden our knowledge of migration between counties and thus has implications for households, entrepreneurs, local governments, city planners and businesses.

Empirical Methodology

Econometrically, regression analysis is employed to examine the effect of amenities on allocation rates in 23 East South Central U.S. MSAs. To the extent that the allocation rates are subject to unobserved heterogeneity, perhaps due to omitted variables, regression-based parameter estimates that do not account for unobserved heterogeneity produce biased parameter **estimates** (Abdulai and Tietje, 2007). As such, we estimate both conventional OLS and fixed

effects parameters. The fixed effects parameter estimates are identified under the assumed form of heterogeneity and measure casual effects. A comparison of OLS and fixed effects parameter estimates provides a better determination of the robustness of a particular model specification. With respect to migration, it is likely that there is considerable heterogeneity among individuals regarding how they optimize with respect to amenities, introducing some bias in parameter estimates. Thus, a comparison of OLS and fixed effects parameter estimates enable a determination as to how important amenities are for the within MSA migration decision, as well as their magnitude and significance in the presence of heterogeneity.

The Amenity Variable

The main parameter of interest in this study is the effect of amenities, as measured using the spatial equilibrium approach, on inter-county migration within East South Central metropolitan statistical areas. The spatial equilibrium approach to measuring amenities as used by Glaeser, Kolko, and Saiz (2001) was employed in this study to develop an amenity index. Glaeser et al. demonstrate that in urban metropolitan areas, the residuals that result from an OLS regression of median housing prices on median incomes reflects demand for local amenities and exhibit a positive correlation with population growth and likewise a negative correlation with population reduction. We expect a similar relationship with net migration which is a key component of population change. Roback (1982), Glaeser et. al. (2001), and Granger and Price (2006) assert that the amenities valued by an individual in a particular location in equilibrium can be captured by the residuals of an amenity-adjusted housing price and an amenity adjusted wage OLS regression analysis. U.S. Census data was used to determine county-level median housing prices and income. The residuals from the OLS regression of median housing prices on median household income levels were used to measure amenity values for each county within an MSA. Data from the National Association of Counties and Geobytes, Inc. was used to determine the distance between the central cities in each county. The amenity values and distance are used as explanatory variables in our allocation rate model. The allocation rate is used as the measure of migration between counties.

RESULTS

Migrants between counties within the 23 East South Central United States metropolitan statistical areas (MSAs) as defined by the 2000 U.S. Census constitute the sample for the empirical analysis. Migration data were constructed using the 2000 Census of Population County-to-County Migration file. Data on county-level median housing prices and median household income were also gathered from the U.S. Census. Distance between counties was calculated using data published by the National Association of Counties and the City Distance Tool provided by Geobytes, Inc. The study excludes small metropolitan areas comprised of only

one county. The model focuses on the destination choice of migrants within each MSA. As such, the sample consists of all combinations of possible moves between 93 counties resulting in 416 observations.

Table 1 provides the measurement of the variables and the data source, while Table 2 provides a summary of the statistical data. The dependent variable, ALLRATE equals the number of persons five years of age and over, residing in county c' (destination county) on April 1, 2000, who resided in county c (origin county) on April 1, 1995, divided by the total number of persons, five years of age and over who resided in county c on April 1, 1995 or another county within the MSA on April 1st 2000. The independent variables employed in the model are:

$AMENITY_{c'}$ = Amenity value calculated for county c', the destination county
DISTANCE = Mileage between the county seat of county c and that of c'
URBANMV = Dummy variable to indicate a move to an urban county
SUBURBANMV = Dummy variable to indicate a move to a suburban county

An amenity index was developed using the spatial equilibrium approach as used by Glaeser, Kolko, and Saiz (2001) and discussed above. We include dummy variables, URBANMV and SUBURBANMV to indicate the effect of the type of move on allocation rates. The model includes each of the contingent counties within a particular East South Central U.S. MSA as a possible destination. The gross migration from each of the other MSA counties was analyzed using the allocation rate as a dependent variable and the calculated amenity values, distance, and type of move as explanatory variables.

Table 1 – Variable Definitions and Data Sources

Variable Name	Description	Source
ALLRATE	The number of persons moving from origin county *c* to destination *c'* between 1995 and 2000 divided by the total number of out-migrants from origin *c* to another MSA county during the period	U.S. Bureau of the Census 2000 U.S. Census of Population and Housing
AMENITY	The residuals that result from an OLS regression of median housing prices on median incomes	U.S. Bureau of the Census
DISTANCE	Mileage between the county seat of county c and that of c'	National Association of Counties and Geobytes, Inc. City Distance Tool
URBANMV	Dummy variable = 1 if the move is to an urban county; 0 = otherwise	U.S. Bureau of the Census 2000 U.S. Census of Population and Housing and National Association of Counties
SUBURBANMV	Dummy variable = 1 if the move is to a suburban county; 0 = otherwise	U.S. Bureau of the Census 2000 U.S. Census of Population and Housing and National Association of Counties

Table 2 – Variable Statistics					
Variable	Observations	Mean	Standard Deviation	Minimum Value	Maximum Value
ALLRATE	416	.209	.265	0	.986
AMENITY	416	1323.961	11324.18	-35009.93	25595.92
DISTANCE	416	33.849	18.534	8	101
URBANMV	416	.231	.422	0	1
SUBURBANMV	416	.769	.422	0	1

Table 2, which contains the variable summary statistics, reveals that approximately 20.9% of migrants moved to counties within the same MSA during the period of 1995-2000. The average distance between counties within an MSA is 33.85 miles. The variable of interest for this study, AMENITY, which examines the value that household which migrate place on the alternate county location has a mean value of $1323.96. The variable URBANMV indicates that 23.1% of the moves were to an urban county and the variable SUBURBANMV indicates that 76.9% of the moves were to a suburban county.

The OLS parameter estimates reported in Table 3 assume a log-linear functional form. This model specification is appropriate for the data because only the dependent variable, ALLRATE, has a theoretical range of zero to 100 (Cushing 2005). All explanatory variables appear in linear form. No violations were found in tests for use of the Classic Linear Regression Model (CLRM). A plot of the observed versus predicted values reflected a symmetrical pattern, thus non-linearity was not evident. Serial (auto) correlation was not an issue as the study uses cross-sectional rather than time series data. Robust standard errors were generated to correct for the presence of heteroskedasticity in the data. Econometric theory shows that robust standard errors are unbiased and efficient when used on relatively large (greater than 50 observations) datasets. Normal probability plots of the residuals confirm normal distribution with no skewness or kurtosis. Thus, we have sufficient support for the log-linear functional form employed in the study.

Due to migration flows of zero in many instances, we eliminated 27 observations from the original 416, in order to use the log linear form, resulting in a final sample of 389 observations. Table 3 shows the parameter estimates for four model specifications (with standard errors and t-statistics in parentheses). All models include the log of allocation rates as the dependent variable.

Specification 1 includes only AMENITY as an explanatory variable, which indicates that the value assigned to amenities, depends both on the income opportunity and housing cost in the new location. The R^2 statistic indicates that the model explains only 1% of the variation in allocation rates. The amenity coefficient is significant at the .001 level and has the expected sign. Although, the results indicate that amenity is significant, the low R^2 indicates that this is not the only variable that a household considers when contemplating a move from one county to another county in a MSA.

Table 3 – Ordinary Least Squares Regression – Metropolitan Counties Dependent Variable: Log Allocation Rate				
Variable	Model 1	Model 2	Model 3	Model 4
CONSTANT				
Coefficient	-2.475	-.634	-.1.152	.170
Robust HC3 s.e.	(.082)	(.135)	(.139)	(.146)
t-stat	(-30.07)	(-4.70)	(-8.27)	(1.17)
Prob >|t|	.000	.000	.000	.244
AMENITY				
Coefficient	.000015	.000019	9.92e-06	9.92e-06
Robust HC3 s.e.	(6.20e-06)	(5.14e-06)	(4.86e-06)	(4.86e-06)
t-stat	(2.43)	(3.64)	(2.04)	(2.04)
Prob >|t|	.016	.000	.042	.042
DISTANCE				
Coefficient		-.057	-.051	-.051
Robust HC3 s.e.		(.004)	(.004)	(.004)
t-stat		(-14.41)	(-13.22)	(-13.22)
Prob >|t|		.000	.000	.000
URBANMV				
Coefficient			1.322	
Robust HC3 s.e.			(.118)	
t-stat			(11.18)	
Prob >|t|			.000	
SUBURBANMV				
Coefficient				-1.322
Robust HC3 s.e.				(.118)
t-stat				(-11.18)
Prob >|t|				.000
R^2	.011	.380	.495	.495
F-stat	5.89	115.90	116.98	116.98
Prob>F	.016	.000	.000	.000
Number of Observations	389	389	389	389

Specification 2 includes AMENITY and DISTANCE as explanatory variables. The R^2 statistic indicates that the model explains 38% of the variation in allocation rates. Both AMENITY and DISTANCE are significant at the .001 level. Both variables exhibit the expected sign. The model indicates that a one unit increase in amenity value results in a .0019% increase in allocation rate, which means that as the amenities in a particular area increase, a household is more willing to leave its origin county and relocate to a destination (new) county where amenities are greater. Allocation rates vary inversely with DISTANCE. The results indicate that a one mile increase in distance between origin and destination counties results in a 5.7% decrease in allocation rates. Recall, if the household perceives that expected utility, given the cost of moving, is higher in the new location than in the current location, the household will migrate.

Equation (1) tells us that the value assigned to amenities, depends both on the income opportunity and housing cost in the new location. However, before a household decides to migrate, the cost of moving must also be taken into consideration. The DISTANCE variable serves as a proxy for relocation cost, which is assumed to be proportional to distance between the current location and the new location.

Specification 3 includes URBANMV as an additional explanatory variable. The R^2 statistic indicates that the model explains 49.5% of the variation in allocation rates. All explanatory variables are significant at the .05 level and have the expected sign. The model indicates that amenities have a small but positive effect on allocation rates between counties. Additionally, a one mile increase in distance between counties results in a 5.1% decrease in the allocation rate, and that moves to urban counties occur at approximately a 132% higher rate than alternate moves between MSA counties. Consistent with expectations, amenities positively impact allocation rates, as well, an increase in distance results in a decrease in the allocation rate. These results indicate that the further the distance the less likely a household will move unless the expected utility is greater in the new location. Also, migration to urban counties occurs at a much higher rate than those to suburban counties with an MSA.

Specification 4 includes SUBURBANMV rather than URBANMV as an additional explanatory variable for model comparison purposes. The R^2 statistic is consistent with Model 1 and indicates that the model explains 49.5% of the variation in allocation rate. All explanatory variables were found to be significant and have the expected sign. The regression results indicate that the AMENITY variable is significant at the .05 level, DISTANCE and SUBURBANMV are significant at the .001 level. The results indicate that amenities have a positive effect on migration rates between counties within an MSA. A one mile increase in distance between counties results in a 5.1% decrease in allocation rate. Additionally, moves to suburban areas occur at approximately a 132% lower rate than other moves between MSA counties. When used for comparison purposes, the results are consistent and the coefficients for URBANMV and SUBURBANMV have opposite signs, which confirm that for this sample, migration to urban counties occurs at a much higher rate than alternative moves between counties in this sample.

The R^2, F-statistics, t-statistics, and coefficient signs indicate that Model 3 and Model 4 provide the best fit and show the most significant results for the data. The results for these models indicate that all of the explanatory variables are significant predictors of allocation rates at the .05 level or better between counties within East South Central MSAs. Additionally the models indicate that the effect of amenities on migration is not the only variable that a household considers when moving between counties. In this context, the parameter estimates in Models 3 and 4 are compelling, and suggest that the residual-based amenity measure does explain a large percentage of variation (R^2 = 49.5%) in county-to-county migration within MSAs and that urbanization is more dominant than suburbanization in the East South Central region of the U.S.

Fixed Effects Regression Models

The OLS parameter estimates of the allocation model are identified only if the error term is orthogonal to the regressors. This is unlikely to be the case if; for example, migrants differ in how they optimize on particular amenities across MSAs. It is also possible that each MSA has some amenity, observable by individuals, but not by the econometrician, that matters. In either case, the regressors are not orthogonal to the error term, which undermines identification of the effect that amenities have on within MSA migration.

To account for unobserved heterogeneity in the uniqueness of each MSA, we estimate the parameters of a fixed effects specification of the allocation model. To capture spatial variations in the uniqueness of each MSA, we allow the intercept to vary but assume that the slope coefficients for the remaining variables are constant across MSAs. The Fixed Effects version of the allocation model is specified as:

$$Y_i = B_{0i} + B_1 X_{1i} + B_2 X_{2i} + B_3 D_{3i} + B_4 D_{4i} + u_i$$

The inclusion of the subscript on the intercept term suggests that the intercepts of the 23 MSAs may be different. The differences in each MSA may be due to spatial variations in social, economic, or environmental factors.

Table 4 reports the parameter estimates for the fixed effects allocation rate model with individual MSA effects. The fixed effects specifications assume fixed MSA effects with a log-linear functional form. This model specification is appropriate for the data because only the dependent variable, ALLRATE has a theoretical range of zero to 100. All explanatory variables appear in linear form.

The models were estimated based on the specifications in Table 4. All specifications include the log of allocation rates as the dependent variable. The sample size consists of 389 observations and 23 MSA groups. Again, we note that 27 county-to-county combinations reflected zero migrants and were therefore eliminated from the sample. The fixed-effect parameter estimates in Model 3 and Model 4 suggest that amenities in urban areas are important. When compared to the OLS parameter estimates which do not control for unobserved heterogeneity, the fixed effects parameter estimates are quite similar, thereby confirming that the residual-based amenity measure explains county-to-county migration within East South Central MSAs and that urbanization is dominant in this region.

Table 4 – Fixed Effects Allocation Rate Regression – Metropolitan Counties Dependent Variable: Log Allocation Rate, Group Variable: MSA				
Variable	Model 1	Model 2	Model 3	Model 4
CONSTANT : *Coefficient*	-2.534	-.788	-1.187	-.116
s.e.	(.072)	(.152)	(.151)	(.167)
t-stat	(-35.15)	(-5.17)	(-7.87)	(-0.70)
Prob >|t|	.000	.000	.000	.486
AMENITY : *Coefficient*	.00006	.00005	.00003	-.00003
s.e.	(8.9e-06)	(7.56e-06)	(7.32e-06)	(7.32e-06)
t-stat	(6.71)	(6.16)	(4.22)	(4.22)
Prob >|t|	.000	.000	.000	.000
DISTANCE : *Coefficient*		-.054	-.049	-.049
s.e.		(.004)	(.004)	(.004)
t-stat		(-12.49)	(-12.06)	(-12.06)
Prob >|t|		.000	.000	.000
URBANMV: *Coefficient*			1.070	
s.e.			(.140)	
t-stat			(7.65)	
Prob >|t|			.000	
SUBURBANMV : *Coefficient*				-1.070
s.e.				(.140)
t-stat				(-7.65)
Prob >|t|				.000
R^2*Within*	.110	.378	.463	.463
R^2*Between*	.001	.302	.534	.534
R^2*Overall*	.011	.342	.471	.471
F-stat	45.00	110.12	104.49	104.49
Prob>F	0.000	0.000	0.000	0.000
Number of Observations	389	389	389	389
Number of Groups	23	23	23	23

CONCLUSION

Cities, counties, and metropolitan areas are regularly being compared based on amenities that households presumably value. This study considered the extent to which household county-to-county migration decisions within MSAs can be explained by amenities. We estimated the parameters of a population and migration allocation model with data for household moves between 389 counties within East South Central U.S. metropolitan statistical areas. OLS and fixed effects parameter estimates revealed that urban amenities appear to be a major determinant of household migration decisions. As our amenity measure is based on how households value amenities in spatial equilibrium, our results are an improvement over traditional approaches to amenity measurement that attempt to itemize explicitly what amenities households desire. Our amenity measure captures the value of all amenities—whatever they are—with the idea that in

spatial equilibrium, housing price and incomes capitalize the value of whatever households desire in the location to which they are relocating.

Our parameter estimates suggest that amenities do indeed matter for within MSA county-to-county household migration decisions. In particular we find that for migration to urban counties, amenities are a particularly important determinant of migration. This effect also seems to be robust and well-identified in our parameter estimates, as it is positive and significant in OLS and fixed effects regression specifications of the migration allocation model under consideration.

Our results are potentially important to policy makers, entrepreneurs, and regional planners to the extent that preferences for amenities tend to drive household and firm migration decisions, thereby influencing local growth, economic opportunities, and economic development. We find for example, that for county-to-county within MSA migration, urban amenities are particularly important. To the extent that suburban counties desire to be viewed as livable places that are attractive to households, our results suggest that they should examine the amenity characteristics of their suburban counterparts. While our amenity measure does not itemize which specific amenities households desire, its construction suggests that households are willing to pay for them through some combination of higher home prices and/or lower wages/incomes. Thus, city planners and policymakers may determine what amenities matter for suburban migration decisions by simply estimating comparative suburban/urban hedonic home pricing and income models to determine what particular amenities (e.g, school quality, air quality, traffic congestion) are relatively important.

A notable limitation of this study is that the results are based on county-to-county migration within East South Central MSAs. Future research can explore migration using county-to-county data in other regions of the U. S. Furthermore, the recent economic downturn has affected migration patterns throughout the U.S. Examining the interaction between amenities and business cycles may provide additional insight into our understanding of household migration decisions.

ENDNOTES

1 Amenities represent the tangible and intangible features that increase the relative attractiveness and value of real estate and residential structures.

2 The National Association of Counties defines a metropolitan statistical area as a county or group of contiguous counties that contains at least one city with a population of 50,000 or more or a Census Bureau defined urbanized area of at least 50,000 with a metropolitan population of at least 100,000. In addition to the county or counties that contain all or part of the main city or urbanized area, an MSA may contain other counties that are metropolitan in character and are economically and socially integrated with the main city.

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