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MIGRATION WITH A COMPOSITE AMENITY: THE ROLE OF RENTS*

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1. INTRODUCTION

It is becoming increasingly apparent that attempts to dichotomize the migration phenomenon into job-related moves and housing-related moves are fraught with difficulties [see Graves and Linneman (1979) or, especially, Linneman and Graves (forthcoming), for a full discussion]. In particular, there is neither theoretical nor empirical justification for believing that interregional moves are primarily job-related, while intraurban moves are largely housing-related. Many long-distance moves occur to consume site-specific residential traits, and many short-distance moves are related to job change.

In several earlier efforts to explore the impact of site-specific amenities on long-distance migration, progressively longer lists of amenities were examined [see Graves (1976, 1979, 1980) and Graves and Regulska (1982)]. The difficulty with this approach is that there is virtually no limit to the number of amenities which may enter preference functions. Moreover, many amenities are correlated (as, for example, presence of an ocean and moderated temperatures or mountains and low humidity), and one is forced to choose between imprecisely estimated amenity impacts and omitted variable bias.

The natural question becomes: Can a single variable serve as a proxy for the host of amenities which might affect migration? From urban economic theory, rent emerges as the obvious candidate for such a proxy [see Diamond and Tolley (1982) for a lucid general discussion of the economics of urban amenities]. In a world of groupwise similar people, rents will tend to capitalize otherwise unpriced amenity variation within a region. That capitalization will result in different average rents in different regions. Homes located in nicer regions will rent and sell for more than those in less desirable regions.

The preceding notion represents an extension of migration analysis akin to the recent recognition that much of the variation in income across regions represents compensation for amenities. Just as one would not expect movement to high income areas if the higher income represents compensation for disamenities, one would not expect movement to low rent areas if undesirable amenities were the cause of those low rents.

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Section 2 provides a more detailed theoretical treatment of the implications of rent capitalization for migration. Empirical results which indicate the usefulness of the approach are presented in Section 3, prior to closing the paper with more general conclusions.

2. MIGRATION, AMENITIES, AND RENTS: THE MODEL

It has long been recognized among economists that migration is expected to occur when the present value of the benefits of movement exceed the associated costs [see Sjaastad (1962)]. But what are those benefits? At the most general level, they are the variations in utility that result from occupying alternative locations. The preceding, apparently tautological, statement is actually instructive: traditional models taking income and unemployment differentials as representing the important variations in spatial utility are increasingly dubious, in that such models exhibit low explanatory power and frequent "wrong" signs.

In the work cited in the Introduction, additional amenity variables are examined under the notion that expected income differentials will only represent variation in real utility if they are noncompensatory in nature. Inclusion of the amenity variables reveals a strong impact of (noncompensating) income differentials upon migration, greatly increases the explanatory power of the regressions, and uncovers important new variables affecting migration. The importance of the amenity variables in affecting ongoing migration can be rationalized in two ways.[1] First, they could be interpreted (like the noncompensatory portion of income variation) as disequilibrium variables, with households only slowly perceiving and acting on them. Second, and more plausibly, migration is necessary any time the household has changed demands for location-fixed amenities [see, e.g., Graves (1979) or Graves and Linneman (1979), the latter being the more formal presentation]. In brief, as household incomes change over time, amenities are like hamburger or caviar in that some are inferior and some superior. With average incomes rising, one would expect net movement to locations offering a normal or superior bundle of amenities.[2]

There are, then, two conflicting sign expectations of the rent variable on migration flows, and the net effect will depend on whether the world is best characterized as being in equilibrium or disequilibrium. If the latter were the case, one would expect, holding income and unemployment constant, that rent search (like job search) should lead to movement toward *lower* rent locations.

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[1]One's initial reaction would be that amenities should not exert a continuing impact on migration. After some initial scrambling, according to the tastes of the population, these effects should disappear.

[2]This will not necessarily be true for all individual households since some will be experiencing declines in income. This can account for results in Graves (1979) indicating that people are moving to both warm and cold locations ceteris paribus, although the former dominates since more people have income increases than decreases. There are, however, other interpretations for such observations (e.g., taste variation for superior outdoor activities such as golfing vs. skiing). Similarly, it is not merely income changes that lead to changed demands for locations, but also relative spatial price changes (e.g., invention of air conditioning, the interstate highway system, refrigerator cars allowing fresh fruit in northern cities in winter, and the like). These latter influences are, however, difficult to model and may have little systematic ongoing influence on regional growth and decline.

If, on the other hand, an equilibrium framework is appropriate then the situation is more complex. Suppose for a moment that high-priced amenity bundles (locations with unusually high rents) are also superior. Then, in a world of typically rising incomes, one would anticipate movement toward *higher* rent locations.

Is there any reason to expect, a priori, that high-rent locations should be normal or superior? Fairly convincing arguments can be made to support such an expectation. First, there is the general budget constraint implication that all goods collectively have unitary income elasticities, and amenities are not obviously atypical goods. Second, since equilibrium rents are themselves determined by the highest bidders for various exogenously supplied locations, one would expect the most attractive locations to be occupied by the higher income groups.[3] The essentially fixed supply of attractive locations would suggest greater and greater demands for them as the general level of income rises over time—more and more households will wish to sort into the relatively restricted supply of desirable locations.

The equilibrium notion was the preferred explanation of the empirical results of Graves (1979). However, in that and related efforts, the argument may have seemed unconvincing to some readers: people could, for example, be moving toward warmth and away from temperature variance and humidity for either disequilibrium or equilibrium reasons. The equilibrium case becomes more convincing in the rent analysis presented in the section to follow.

3. MIGRATION WITH SUPERIOR AMENITIES: EMPIRICAL RESULTS

In Table 1 OLS regressions of 1960–1970 white net inmigration among 137 Standard Metropolitan Statistical Areas (SMSA's) are presented.[4] The results are disaggregated by age to reveal the marked life-cycle effects found in earlier work. Unemployment rates, median income, and gross contract rent are the independent variables. The unemployment coefficient was not significant except for the very young and (inexplicably) the 70–74 age group. The coefficient on the income variable was insignificant and of the "wrong" sign for the 20–24 age group, but higher income significantly induced net inmigration for those 25–49. The effect of income was not significant for those 50–59 and that effect is seen to be negative and significant for retirees. This latter finding is not surprising in light of the theoretical work of Tolley (1974): SMSA's with higher incomes will also be expected to have higher local price levels; hence, fixed-income retirees obtain greater utility by moving to low price (income) locations.

The novel and theoretically interesting results of Table 1 are the findings with respect to rents. For all age groups, locations offering high rents are experiencing

[3]This is certainly true in this author's experience: 1982 rents in Malibu, California range from $1,000 to $10,000+ per month, the former figure applying to small one-bedroom apartments on the ocean. Similar, but perhaps less dramatic, effects are observed in Aspen, Colorado, and to a lesser extent even in Boulder.

[4]These regressions employ the same SMSA's as in Graves (1979, 1982) in order to meaningfully compare the empirical results. All variables are defined as of the beginning-of-period to avoid downward bias in the estimated coefficients [see Greenwood and Sweetland (1972)].

TABLE 1: Regressions of White Net Migration, By Age (Ordinary Least Squares on Untransformed Variables)[a]

Age Group	Constant	Unemp	Medinc	Rent	$\bar{R}^2$
20–24	4.854	−5.129	−.0019	+1.252	.25
	(25.869)	(1.795)	(.0034)	(.245)	
		−.233	−.046	.425	
		−2.999	−1.305	4.731	
25–29	−110.445	−.2713	+.0145	+1.625	.43
	(21.196)	(1.470)	(.0028)	(.201)	
		−.131	.367	.587	
		−1.006	6.368	3.893	
30–34	−102.649	+1.160	+.0123	+1.019	.23
	(21.375)	(1.483)	(.0028)	(.202)	
		.065	.366	.424	
		.739	9.255	4.196	
35–39	−57.719	+.774	+.0053	+.799	.21
	(14.952)	(1.037)	(.0020)	(.141)	
		.062	.229	.479	
		1.309	10.639	8.736	
40–44	−41.882	+.365	+.0035	+.703	.25
	(11.807)	(.819)	(.0016)	(.112)	
		.036	.185	.523	
		.654	7.337	8.146	
45–49	−34.093	+.187	+.0027	+.617	.24
	(10.345)	(.718)	(.0014)	(.098)	
		.021	.163	.524	
		.390	6.639	8.339	
50–54	−26.069	+.071	+.0016	+.576	.28
	(8.918)	(.619)	(.0012)	(.084)	
		.009	.109	.555	
		.179	4.969	9.406	
55–59	−20.117	+.130	+.0004	+.579	.30
	(8.547)	(.593)	(.0011)	(.081)	
		.017	.028	.572	
		.447	1.623	12.919	
60–64	−8.668	+.354	−.0030	+.799	.36
	(11.382)	(.790)	(.0015)	(.108)	
		.034	−.151	.567	
		1.310	−12.962	19.122	
65–69	−2.405	+.647	−.0060	+1.107	.39
	(15.494)	(1.075)	(.0020)	(.147)	
		.044	−.219	.561	
		3.193	−35.109	35.311	
70–74	−5.681	+4.70	−.0049	+1.047	.46
	(12.649)	(.877)	(.0017)	(.120)	
		.037	−.208	.616	
		1.844	−22.911	26.564	
75 and over	−19.910	+.328	−.0011	+.879	.63
	(6.801)	(.472)	(.0009)	(.064)	
		.039	−.071	.789	
		.477	−1.898	8.265	

[a]Standard errors, beta coefficients, and elasticities at variable means appear, in order, beneath each coefficient. 137 observations.

net inmigration, ceteris paribus. Moreover, in all cases the rent coefficients are strongly significant, the beta coefficients suggest rents are by far the dominant determinant of net migration flows, and the rent elasticities are larger than the income elasticities for all but two age groups. If disequilibrium rent search behavior were to be dominant one would expect to find negative signs on the rent variable. The robust positive effect is difficult to rationalize apart from the equilibrium argument of Section 2.

Regarding the introductory discussion of using rent as a proxy for the host of amenities which would otherwise need to be considered, again the results are important: the explanatory power of the equations of Table 1 is vastly greater (more than five times as large on average) than the corresponding equations with rent omitted. The average ordinary R^2 of the equations in which rent was omitted was 0.065 while the average adjusted R^2 of the equations in Table 1 was 0.336. In Graves (1979) the ordinary R^2 for the specifications corresponding to those in Table 1, except that five important amenities were substituted for rent, was 0.382. In a recent effort to extend the list of amenities considered (including dummy variables for the presence of ocean, river, lake, or mountain, as well as population, population density, pollution [*TSP*}, violent and property crime, and regional dummies to capture remaining spatial amenity variation), Graves and Regulska (1982) found an ordinary R^2 of 0.432.[5] The adjusted R^2, comparable to results presented in Table 1, would not differ much from findings presented here.

As with earlier work with amenities, the affect of rents on nonwhite migration was not as important as was the case for whites [see Graves (1979)]. The rent variable was seldom significant and did not have an appreciable impact on the explanatory power of the nonwhite regressions.[6]

4. CONCLUSIONS

It appears that the moving equilibrium approach to observed migration flows is increasingly important relative to the approach based on arbitragible disequilibrium utility gains from movement. While it is surely the case that both approaches are relevant, the rent results presented here are impossible to interpret in a rent search framework. The very large impact of the rent variable suggests, moreover, that it may be an excellent surrogate for the large number of amenities that would otherwise need to be considered. The modeling advantages of employing this proxy include (a) greater degrees of freedom, (b) reduced omitted variable bias, and (c) reduced loss of precision, due to multicollinearity, of estimated coefficients of the many variables which should otherwise be included.

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[5]In writing this paper, it was discovered that the R^2s reported in Graves and Regulska (1982) are, in fact, multiple correlations and overstate the explanatory power of the regressions—the reported figures should be squared.

[6]The nonwhite results are not presented here in the interest of brevity; they are available upon request.

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