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INTRA-REGIONAL MIGRATION PATTERNS IN RURAL UNITED STATES, 1950-1975

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Résumé — On a examiné dans cette étude les tendances d'accroissement intra-régional en Amérique non-métropolitaine pour la période 1950-1975 et on a identifié et discuté trois modèles. Avant 1960, la forme dominante de changement était la centralisation de la population (l'accroissement des centres métropolitains plus grands et le décroissement des communes rurales) à l'intérieur des régions déclinantes. Pendant les années 1960, des silhouettes claires de changement déclinant par rapport à la distance, ont fait jour se concentrant sur les points métropolitains qui ont renversé le processus de centralisation en dedans des sphères d'influence urbaines et on créé un accroissement rapide des régions riches en commodités en dedans des camps de travail. Des données récentes suggèrent qu'une troisième période d'accroissement intra-régional a commencé et elle est caractérisée par un accroissement total dans l'Amérique non-métropolitaine, élargissant les effets de l'expansion métropolitaine et augmentant l'influence des commodités.

Abstract — Intra-regional growth trends in non-metropolitan America are examined for the 1950-1975 period, and three successive patterns are identified and discussed. Prior to 1960 the dominant form of change was population centralization (growth of larger metropolitan urban centres and decline of rural areas) within declining regions. During the sixties clear distance-decay profiles of change emerged centring upon metropolitan foci that reversed the centralization process within urban spheres of influence and created rapid growth of rural amenity-rich locations within urban labor sheds. Recent data suggest that a third phase of intra-regional growth has begun characterized by overall growth in non-metropolitan America, widening metropolitan spread effects and increasing influence of amenities.

Key Words — **migration; rural; amenities**

Demographic data from the early seventies reveal a marked improvement in the overall viability of non-metropolitan America, the salient point being that for the first time in decades net migration flow has been directed away from metropolitan areas to their hinterlands. However, within the context of renewed vitality within rural America there appear to be considerable differences among county growth rates arising from location, economic base, physical attributes, social characteristics of the population, highway access, and other factors (Beale, 1975). In a broader sense three major patterns of non-metropolitan population change can be hypothesized: (a) growth due to metropolitan spread effects which vary in intensity with distance to urban foci, (b) a hierarchical component of change manifested in differential growth rates among size levels of the urban hierarchy, and (c) growth related to natural amenity endowment. Roseman (1977:38) similarly identifies three major patterns that characterize metropolitan out-migration fields as "hinterland, urban and recreation/amenity migration." This paper examines change in the non-metropolitan United States during the past two and one-half decades with respect to the three aforementioned components.

Since regional growth rates, measured by change in nearest metropolitan area, are held constant throughout the analysis, the title of the paper refers to patterns of intra-regional change.

The analysis is based on a stratified random sample of 192 non-metropolitan counties selected throughout the continential United States, stratified by census regions, size of largest non-metropolitan urban centres, and locations inside or outside metropolitan commuting fields (as defined in 1960). A metropolis, in this paper, refers to only those urban centres classified as metropolitan in a multivariate classification by Berry (1973:117), and includes only the larger SMSA's. Distance to nearest metropolis is measured from city centre. Urban centre size refers to the population of the largest urban place within sample counties. Definition of amenity endowment presents the most difficult operational problem because of the multitude of factors, both natural and man-made, which may create a pleasing environment. In this analysis a combination of surrogates is used, whereby "amenity-rich" counties are defined as those with (a) at least 5 per cent of the housing stock in seasonal homes (in 1970), and (b) at least 10 per cent of all selected service firms consisting of hotels, motels, trailer parks and camps (in 1972). Counties are thereby selected that have sufficient amenity appeal to have attracted both seasonal home occupants and resort-recreation trade. Checking reveals that "amenity-rich" counties defined by this criteria tend to possess the expected physical attractions of water bodies, scenic mountains, and so forth. Retirement counties, located in Florida and elsewhere, which according to Beale (1975) grew at a rate substantially higher than the national average during the seventies, also tend to be selected.

Overview

Table 1 indicates that the migration experience of sample counties parallels that for the non-metropolitan U.S.A. on a whole, showing substantial net out-migration during the fifties, slight net out-migration in the sixties, and net in-migration in the seventies. Two of the hypothesized major components of change, metropolitan spread effects and the pull of natural amenities, appear to have generated considerable differences in viability during all decades. Annual migration rates by size of largest non-metropolitan urban centre, however, suggest a fundamental change in the pattern of change. During

TABLE 1. MEAN ANNUAL PERCENTAGE RATE OF NET-MIGRATION, SAMPLE COUNTIES

	1950-1960	1960-1970	1970-1975
Total Sample (N = 192)	-1.25%	-0.35%	1.09%
Position inside or outside of Metropolitan commuting fields			
Inside (N = 96)	-0.99	-0.01	1.45
Outside (N = 96)	-1.51	-0.69	0.74
Natural Amenity Endowment			
Amenity-rich (N = 54)	-0.61	0.31	2.23
Amenity-poor (N = 138)	-1.50	- .61	0.64
Population Size of Largest Non-metropolitan Urban Center			
10,000+ (N = 64)	-0.50	- .20	0.97
2500-9999 (N = 64)	-1.35	- .64	0.73
under 2500 (N = 64)	-1.90	- .21	1.57

the fifties, and presumably in earlier decades as well, the dominant pattern was population centralization, or relative stability of larger non-metropolitan urban places combined with substantial losses in the smaller urban centres and rural locations. The traditional reasons given for this pattern have been the decline of rural farm population together with agglomeration economies of larger urban centres which gave them a competitive advantage in attracting and retaining industry. But, during the sixties the size ordering of migration rates became obscure, and by the seventies the pattern had reversed with the smallest, most rural counties experiencing the most rapid rates of in-migration. Hypotheses to explain the reversal are numerous. Bottoming-out of the rural farm population, residential preferences for rural or small town environments, and an increasingly foot-loose population consisting of retired persons and others may well be the critical factors (Beale, 1975; Lamb, 1975; Zuiches and Fuguitt, 1972). Other reasons include an increasingly service oriented economy and change in traditional industrial location factors.

Since the sample means in Table 1 are only meaningful when tests of statistical significance are used, an analysis of variance procedure which sorts out the importance of the factors, and their interactions, is therefore appropriate. Table 2 presents a summary where the F-values can be viewed as indicative of the explanatory strength of the independent variables, and it shows clear differences between the decades of the fifties and the sixties. Population centralization had been the dominant force during the fifties supplemented by amenity effects; but, during the sixties the size ordering of growth rates ceased to be significant and was replaced by metropolitan spread effects and the increasing importance of amenity endowment. Interactions were also significant and will be discussed later. No clear changes between the sixties and seventies are revealed by the results.

Metropolitan Impacts

A discussion of metropolitan impacts is now in order. Without going into considerable detail let it simply be stated that metropolitan spread effects, which vary in intensity according to distance to an urban area, are created by much more than mere decentralization of population and industry from city and suburb into immediately

TABLE 2. ANALYSIS OF VARIANCE SUMMARY

Dependent variable = Log (Annual county population change minus annual population change of nearest metropolis)

	Table of Significant F-Values		
	1950-1960	1960-1970	1970-1975
Main Effects			
Size	16.7	-	-
Distance	-	8.6	9.7
Amenities	9.9	23.3	17.0
Interactions			
Size-Distance	-	4.7	-
Size-Amenities	-	7.7	-
Distance-Amenities	-	-	-
Size-Distance-Amenities	-	3.4	4.0
Multiple R	.42	.37	.35

surrounding hinterlands. Spread effects are created by recreational use of a much broader hinterland, by the tendency to migrate to relatively closer and more familiar areas, by proximity to market and supplies for industry, by the distance-decay implications of innovation diffusion, and by relative proximity of a surrounding population to the cultural, recreational, and services of the metropolis (Lamb, 1975:6-16). The sum of all such influences, theoretically, results in a distance-decay pattern of growth surrounding the metropolis that may extend well beyond the intensive commuting zone.

To chart the actual distance-decay functions from nearest metropolis using the previously described data sample a multiple regression procedure is employed. A cubic function of distance together with a series of other variables is regressed against mean annual rates of migration. (A cubic function of distance is employed because it can provide a fit to a wider variety of curvilinear forms than negative exponential, log-normal, reciprocal, or other frequently used functional forms.)

> Mean Annual Rate of Net Migration = f (Distance, Distance^2, Distance^3, size of nearest metropolis, size of largest non-metropolitan urban centre, amenity endowment (dummy variable), and mean annual growth rate of nearest SMSA).

Note that regional growth differences are held constant by the inclusion of SMSA growth rates in the independent variable list. Curves showing migration rates by distance to

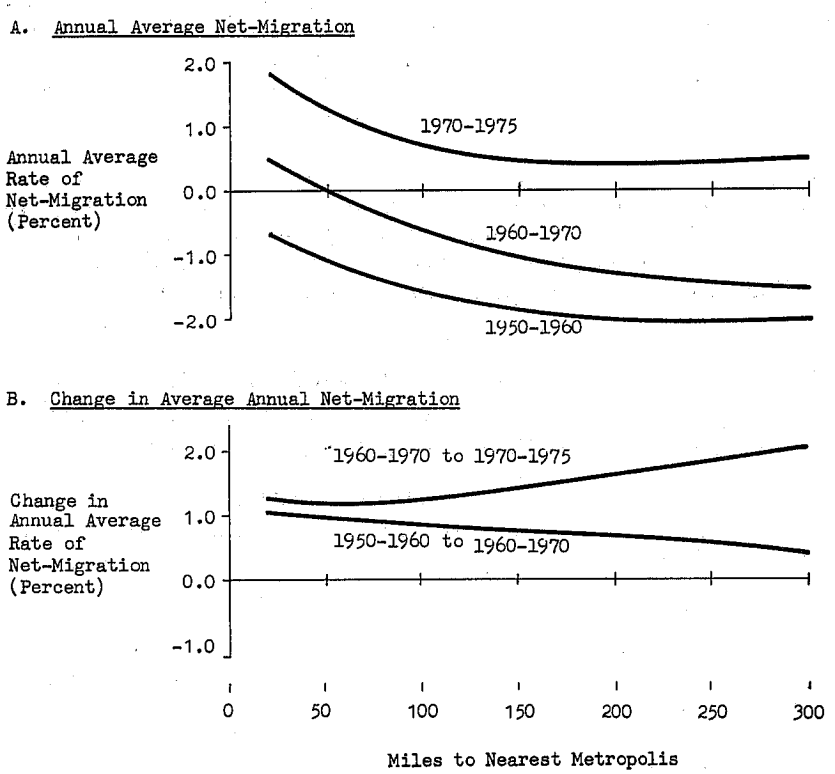


FIGURE 1. PARTIAL EFFECT OF DISTANCE TO NEAREST METROPOLIS UPON RATE OF NET-MIGRATION

metropolis are fitted using the partial betas derived from regression, substituting the mean values for all independent variables except distance into the regression equation, and solving for migration rates at each distance. The fitted distances functions thus show the partial effect of distance upon migration rates, other factors constant.

The fitted curves in Figure 1(A) reveal that distinct, and very similar, distance-decay gradients of net-migration surrounded metropolitan centres in all decades, the only real difference being the height of the curves. The zone of influence extended well beyond an immediate 40- to 50-mile radius. However, standardized beta coefficients from the multiple regression indicate that the explanatory power of distance to metropolis was significant but slight during the fifties, reached a peak during the sixties, then declined somewhat during the seventies. Such results can be interpreted as an intensification of metropolitan spread effects during the sixties, and a subsequent widening and dilution of metropolitan influence in recent years. The change in change graphs in Figure 1(B), which examine the differences in county migration rates from one decade to the next, tell a similar story. The graph for change of trend from the 1950-60 to 1960-1970 periods shows an intensification of metropolitan spread effects, while the 1960-70 to 1970-75 curve shows the interesting result that the more remote counties displayed the most substantial turn-around in their growth trend.

Natural Amenity Endowment

What, then, is behind the turn-around, or recovery, in the more removed locations? Considerable insight into the phenomenon can be gained by examining the influence of amenities in the context of distance to metropolitan centres. Figure 2 shows the appropriate distance functions fitted for amenity-rich counties ($N=54$) and amenity-poor counties ($N=138$). During both the fifties and sixties locations defined as amenity-rich and amenity-poor each displayed distance decay, with the close amenity-rich counties growing at a far greater rate than others. Much of the in-migration that occurred in rural America during these decades could be attributed to proximity to urban areas interacting with amenity appeal, or the exurbanization from metro areas to nearby attractive residential settings. During the seventies, however, migration to amenity-rich counties appears to have been freed from traditional distance constraints while other counties, less well endowed with natural attractions, continued to respond to metropolitan spread effects that vary according to distance.

In 1965, Friedmann and Miller coined the phrase "urban field" to describe the emerging pattern of spatial organizations within the United States (Friedmann and Miller, 1965). The "urban field," the area dominated by metropolitan cones of influence, could be contrasted with the interstices, the areas beyond the reach of urban influence that have been characterized by chronic stagnation and decline. That contrast is no longer entirely valid. For those areas possessing no unique natural attractions there are urban cones of influence and interstices, and growth rates do respond. However, in terms of amenity-oriented migration the urban field now appears to encompass the entire continental United States with interstices, if they can be referred to as such, being defined by physical attributes rather than distance to urban areas. A more comprehensive examination of particular physical attributes and the relationships to migration awaits future research.

Urban Centre Size

A final phase of the present analysis investigates the influence of urban centre size together with distance to metropolis. The appropriate fitted distance functions are

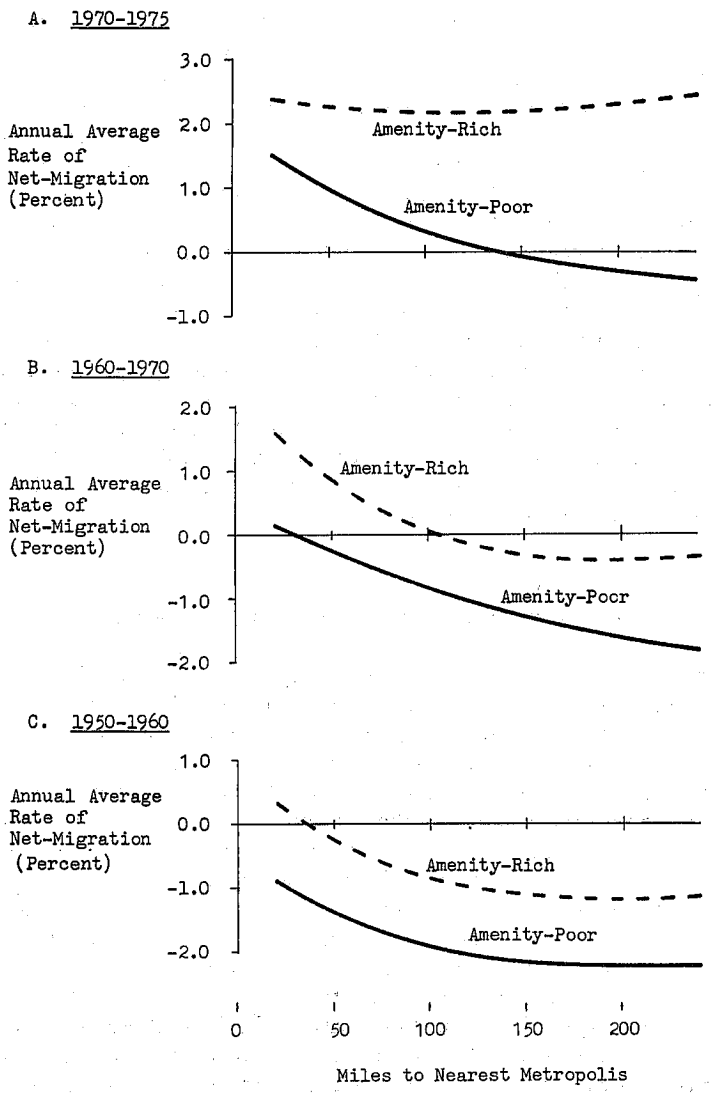


FIGURE 2. RATE OF NET-MIGRATION BY DISTANCE TO NEAREST METROPOLIS AND NATURAL AMENITY ENDOWMENT

shown in Figure 3. The 1950-60 graphs demonstrate the predominant population centralization tendency of earlier years and reveal that the phenomenon prevailed at all distances from metropolitan centres. Moreover, multiple regression results indicate that size of largest non-metropolitan urban centre, of all independent variables itemized earlier, was by far the single most powerful explanatory variable during this decade. It was the dominant force. But, during the following decade the size ordering of migration rates reversed within commuting fields of metropolitan centres, with centralization still predominating in more removed regions. This implies a fundamental change in the pattern of change as successively more distant areas are drawn into the sphere of

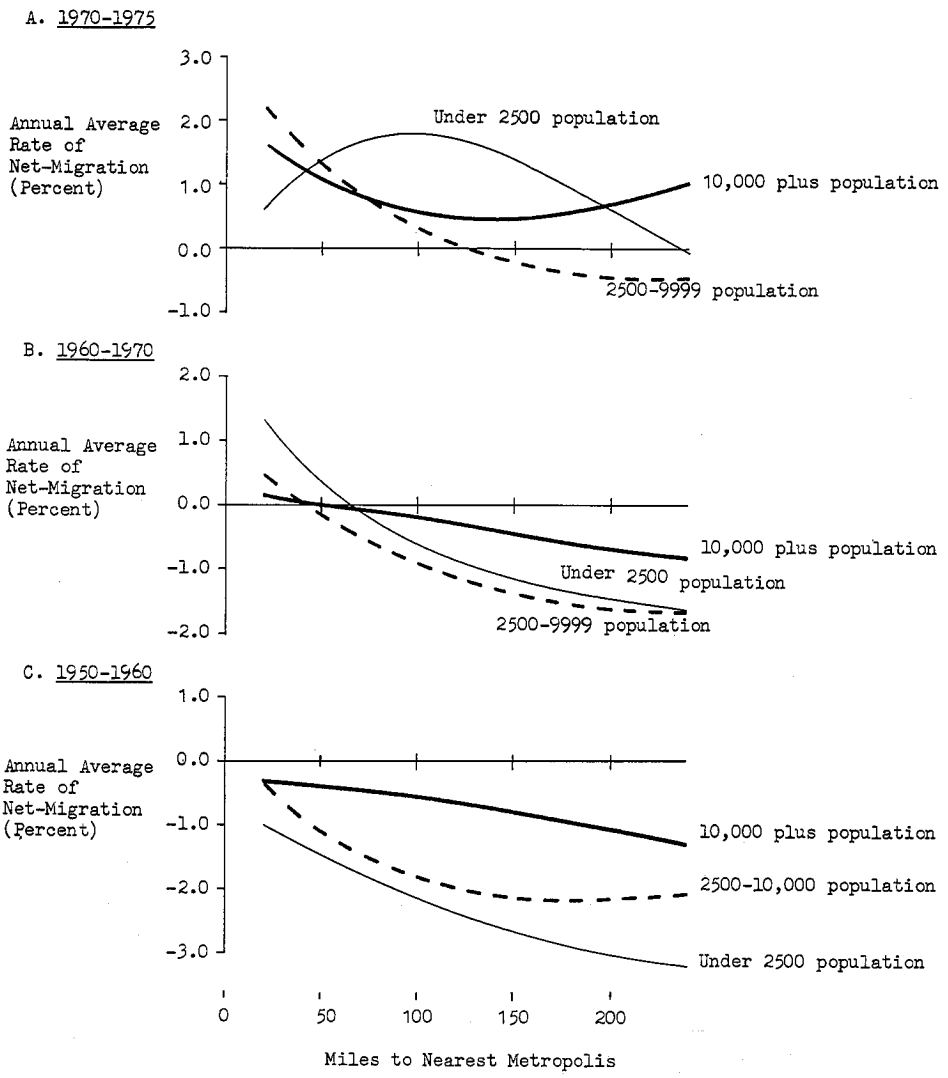


FIGURE 3. RATE OF NET-MIGRATION BY DISTANCE TO NEAREST METROPOLIS AND SIZE OF LARGEST URBAN CENTRE IN COUNTY

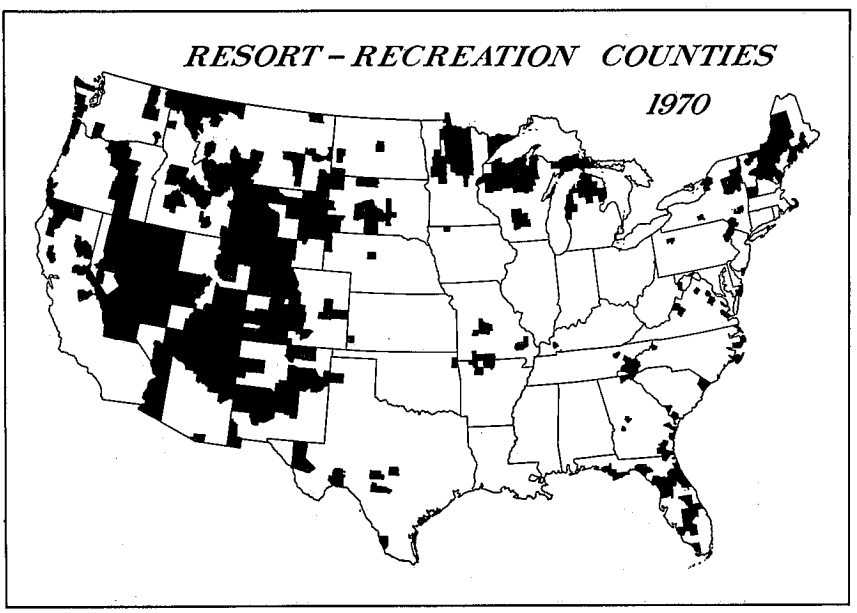
metropolitan influence. The key attributes for growth within the widening urban field are no longer agglomeration economies of the larger urban places but residential preferences for small town and rural environments and amenities. The 1970-75 graph shows the logical extension of the two preceding time periods, with the size ordering of growth rates obscured in all but the most remote locations.

Taken collectively, the evidence presented above suggests that a major transition in the pattern of change within the non-metropolitan U.S.A. has been, and is, taking place commensurate with, first, the intensification and then the widening of metropolitan spread effects. The traditional pattern of change can best be described as population

centralization within declining regions. Phase 1 of the transition reflects the initial impacts of metro-spread effects resulting in the growth of amenity-rich locations within commuting distance of metro areas. In Phase 2, intensification of spread effects creates clear distance-decay profiles of change centred on metropolitan foci generating growth within the commuting zone in general. In the more remote locations the traditional centralization pattern prevails. Phase 3 of the suggested transition marks the widening of metro-spread effects resulting in population stability within the rural U.S.A. as a whole and the emergence of natural-amenity endowment as perhaps the major formative factor underlying population distribution shifts. Recent data place the early seventies somewhere between Phases 2 and 3 of the above scheme.

Conclusions

Some implications of the foregoing analysis can now be discussed. First, although the evidence presented here is not conclusive, it does suggest that the goals of economic growth and environment preservation are not incompatible. Quite the contrary: preservation of natural assets appears to be one key to *long-term* viability. If the implications are correct — that amenities will continue to exert a strong pull on migration patterns — then the logic can be reversed to state that short-term strategies that create economic growth but that also degrade environmental quality will, in the long run, be counter-productive. The classic example would be unregulated strip mining; although creating new jobs for the relatively short term, it might doom the locality to chronic stagnation and decline in future years. Another example is unregulated land development in scenic mountainous areas. In short, all the strategies that can be used at



MAP 1. AMENITY ENDOWMENT (SHOWN IN DARK ARE THOSE COUNTIES FOR WHICH AT LEAST 20 PER CENT OF ALL SELECTED SERVICE FIRMS WERE HOTELS, MOTELS, TRAILER PARKS OR CAMPS IN 1972.)

the state, regional, and local levels of land-use planning to preserve the natural character of rural communities might well be to their long-term benefit in an economic sense.

Another implication concerns the much-debated and probably overly modelled, but little-used, growth-centre strategy for enhancing the vitality of declining regions. The premises of growth-centre strategy are based on the old rule of growth: the larger non-metropolitan centres, with agglomeration economies not found in smaller places, can attract enough industry, given governmental assistance, to bolster the economy of a surrounding area. The suggestion is not that growth-centre strategy does not, or will not, be productive in particular cases, but that more research should be directed to the role of amenities in inducing growth. Enhancement of natural amenities, provision of water-based recreation, preservation of rural character, and publicity of natural attractions may be equally as important as industrial incentives for the long-term vitality of declining regions.

Finally, it is irresistible to speculate upon scenarios of future population distribution. The old scenarios are predicated on the expansion and merging of metropolitan areas to form corridors of growth stretching between major population nodes. Recent data, however, suggest a decentralization into amenity-rich clumpings in the hinterlands. Map 1 shows one feasible operational definition of amenity endowment as an initial attempt to identify such clumpings. It shows in dark those counties for which at least 20 per cent of all selected service industries were hotels, motels, trailer parks, or camps in 1972. Forty-one per cent of these counties experienced rapid population growth of 10 per cent or more in the 1970-1975 period, while only 11 per cent of the remaining counties experienced rapid population growth during the same years. Given the prospect of rising standards of living, economic constraints in the migration decision should decrease with a commensurate increase in quality-of-life factors. This, together with a continuing stream of retired persons and other locationally foot-loose individuals implies a continued population shift to amenity-rich locations. The unanswered questions revolve around the definition of amenities. A scenic rural environment ceases to be scenic and rural with population growth and unregulated land development.

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