

THE IMPACT OF NET MIGRATION RATE ON
LEVELS OF LIVING IN UNITED STATES SMSAs, 1970-1980

by

Judith A. Deinhardt

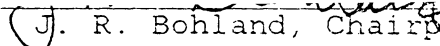
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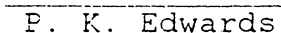
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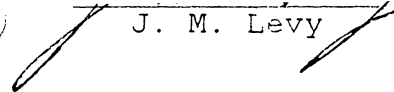
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(ABSTRACT)

The purpose of this paper is to analyze changes in selected social indicators through life and relate these changes to the population dynamics of SMSAs. The research examined the relationship between changes in levels of living in the 1970s and net migration rates. United States Census data on Standard Metropolitan Statistical Areas (SMSAs) were used in the analysis. The findings indicated that net migration rates were statistically related to variations in levels of living for SMSAs along with other demographic variables. Levels of living increased more in smaller SMSAs that had positive net migration rates and lower levels of living in 1970.

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RESEARCH PROBLEM STATEMENT

Studies measuring some aspect of the quality of life in cities at one point in time are common (e.g., Wilson, 1970; Berendt, 1972; Wingo, 1973; Torres, 1974; Tunstall, 1974; Bullard & Stith, 1974; Louis, 1975; Macy, 1975; Liu, 1973, 1974, 1975; Nathan et al., 1979). Most of these describe one specific geographical area or rank a group of areas relative to each other for the purposes of assessing social progress, national goal-setting, program evaluation, and priority ranking (Liu, 1975:329). However, few researchers have attempted to analyze relative changes in quality of life over time for geographical areas, an exception being the work of Knox in England (1982). This gap in the literature is unfortunate since only longitudinal studies can reveal the dynamics of social factors which contribute to our understanding of an area's quality of life.

The objective of this paper is to analyze changes in selected social indicators through life and relate these changes to the population dynamics of areas. Specifically, it is proposed that changes in population composition resulting from net migration may be a factor influencing changes in quality of life. Since migration is selective, a significant change in net migration can radically alter the social character of an area which can alter the quality of

life of the area, at least as measured by some traditional measures. No previous research has considered the linkage between net migration and quality of life. To investigate the relationship between net migration and quality of life, changes in the quality of life in SMSAs in 1970 and in 1980 are examined.

The results of this research may have important implications for the United States, especially in light of current regional population shifts. If population redistribution changes the character of the quality of life in an area, it can have profound effects on the character of future development. This research should contribute to our understanding of the dynamics of a city's quality of life, such that we will better understand the implications of current redistributational trends.

LITERATURE REVIEW

Use of Social Indicators to Monitor Social Conditions

Dunn (1981:286) defined policy monitoring as, "the process of obtaining policy-relevant information to measure changes in goal-focused social conditions, both objective and subjective, among various target groups and beneficiaries." Social systems accounting is a means of monitoring social change that involves the use of both subjective and objective social measures.

Social indicators are a special type of statistic used to measure and describe social conditions...the primary function of social indicators is to provide an assessment of the 'health' of some aspect of the society...When they are available over a period of time, social indicators can provide a measure of the degree of improvement or decline in the level of well-being of some part of society (U.S. Commission on Civil Rights, 1978).

Two types of social indicator measures are used:

1. Objective measures are based on aggregate data and are usually derived from standard reporting units such as the census.
2. Subjective measures are usually disaggregated data obtained from surveys and focus on attitudinal or perceptual aspects of quality of life.

Level of Living Measures

Under the general heading of social indicators are several specific types of measures. Therefore, it is

helpful to distinguish between them. In the literature terms are often used interchangeably and without regard for their uniqueness; however, for purposes of clarity and precision, they should be differentiated.

Quality of life (QOL) is the term that is most commonly used in research. While it is generally agreed that quality of life is an important dimension of a meaningful life, no agreement on a common definition of quality of life exists. It has come to be used widely in assessments of both an individual's and a community's quality of existence. The lack of agreement is, in part, because of the subjective, personal nature of the concept. This makes common definition and measurement difficult. As Liu (1975:329) stated:

QOL varies not only from person-to-person, but also from place-to-place and from time-to-time...developing reliable indicators is particularly complicated and controversial...

In general, the measurement of quality of life includes both subjective and objective social indicators. As Flax (1972:7) noted:

We wanted to include a wide cross-section of urban quality considerations, some relatively objective and some more subjective in nature. For example, we used income and unemployment as well as community concern and citizen participation. (Operationalization of QOL) would require at least some measurements of numerous 'amenities' and of how people perceive the conditions under which they live (1972:11). (Further,) the manner in which people perceive the conditions around them

is also a legitimate aspect of the 'quality of life.' We hope to investigate means of combining measures of citizens' perceptions with measures of existing conditions...(1972:14).

A concept that pre-dates much of the literature on social indicators and quality of life is level of living (LOL). Drewnowski and Scott (1968) defined LOL as the distribution of the level of satisfaction of the quantifiable needs among the population. In other words, LOL is a concept that measures the extent to which the amenities available to a population represent the level where needs are fully satisfied. In the concept basic human needs (necessities) are distinguished from higher needs (comforts) with the former measured in physical units and the latter measured in monetary units. This is because higher needs are defined in terms of the surplus of income remaining after all necessities have been purchased. Basic needs are divided into physical ones (nutrition, shelter, and health) and cultural ones (education, leisure and recreation, and security). Three indicators are chosen for each of these six sub-categories.

With its emphasis on needs and the use of monitoring units for measure, LOL has a much stronger economic interpretation than some social indicators and does not incorporate subjective measures into its scheme. However, many of the LOL measures suggested and used by Drewnowski

and Scott have been adopted by others in measuring quality of life.

Flax (1972), for example, in his QOL study of urban life used a number of LOL measures including percent unemployed, percent of occupied households lacking some or all plumbing, percent of occupied households with 1.01 or more persons per room, and infant mortality. Flax commented on the use of infant mortality (p. 70):

Infant mortality is a commonly accepted measure of community health. It does not explicitly measure the health of the adult population, but it does relate to maternal health, and has been found to correlate with income which is associated with many other health factors.

Knox has used these LOL measures in his studies in the United Kingdom and found them to be a good means of assessing regional differences in social well-being (1982). In selecting his LOL indicators he stressed that:

These have have shown to be highly diagnostic of a wide range of social and economic conditions in previous studies...they are only weakly correlated with one another at the regional level, thus allowing the combination of the four measures in a simple aggregate index of level of living (1982:324).

Thus, the use of a limited number of LOL indicators can be justified on the grounds that they measure a number of conditions relevant to QOL. It is, therefore, redundant, confusing, and unnecessary to include all the others.

The four indicators which are normally used are listed below.

1. INFANT MORTALITY (deaths under 1 year old/1,000 births) is associated with spatial variations in living conditions, incidence of morbidity from infectious diseases, family instability, and poverty.
2. OVERCROWDING (% households with >1 person/room) is associated with material affluence (car and home ownership) and measures of social stability.
3. MALE UNEMPLOYMENT RATE is associated with local prosperity, educational attainment, female participation in labor force, and provision of social amenities.
4. SUBSTANDARD HOUSING, measured by physical condition of the dwelling unit, is associated with racial segregation, social pathology, and age dependency (Knox, 1982:325).

Because of their parsimoniousness and their aggregate nature, these four measures of level of living are appropriate to the objectives of this study. While subjective indicators are an important part of QOL, the unit of analysis used in this study makes such measures beyond the scope of this analysis. The search for valid and reliable indicators which allow quantitative analysis and

replication necessitates the use of indicators such as those that Knox chose for LOL. Moreover, the objectives of this study most closely correspond with those of the Knox (1982) study.

RESEARCH RATIONALE AND HYPOTHESES

Significant changes in quality of life among cities may be, in part, the result of public policies aimed at reducing regional disparities. If these efforts are accomplishing their goals, the results will be evident in a reduction of the disparities among regions, resulting in a "convergence" rather than a "divergence" in spatial inequity. Convergence among regions could also be caused by the selective migration of a segment of the population with above-average quality of life to an area where the population has a below-average quality of life. In such a case, quality of life would show an improvement in the receiving areas.

Thus, the net flows of population may be an important factor associated with quality of life improvement, deterioration, or stabilization. It is proposed that a linear association between net migration rate and change in quality of life exists. Moreover, because of the selective nature of migration, it is hypothesized that the linear relationship is positive rather than inverse.

The positive association is hypothesized because of a tendency toward selective migration in which in-migrants are ones with above-average income, education, and social status. The well-to-do have a greater opportunity to leave areas experiencing negative migration, while the dependent and poor stay (Blair & Nachmias, 1979:35).

In fact, there may be a "self-perpetuating downward trend of depressed regions due to emigration of their most active and productive inhabitants" (Blumenfeld, 1979:140). It is the immobile poor and elderly who bear the burdens in increased taxes or reduced services (Inman, 1979:310). Such cities face "various problems because of the out-migration of capital, deteriorating tax bases, and slow economic growth" (Mieszkowski, 1979:3). Local government revenues decrease at a faster rate than population decreases because local taxes are assessed on bases that are positively correlated with income. Local government expenditures decrease at a slower rate than population decreases because of fixed costs and publicly-provided goods (Oakland, 1979:330).

While the overall effect of positive migration will be improved quality of life according to these arguments, it is possible that increased population growth due to migration could reduce the quality of life of an area if growth

exceeds the capacity of the area to provide services. As Rogers (1977:8) has noted:

Rapid urban growth increases the difficulties of providing a population with the necessary sustenance, employment, services, and infrastructure. A rapidly burgeoning urban population strains health and education budgets, complicates the reduction of unemployment levels, and exacerbates problems connected with provision of adequate housing, food, energy supplies, transport, water, and sanitary facilities.

However, this author believes that while some negative effects on quality of life may accrue from population growth, overall, the effect of positive net migration is to improve quality of life.

The specific hypothesis to be tested in this research is that there is a positive, linear relationship between net migration rate and LOL change for SMSAs in the United States between 1970 and 1980, i.e., SMSAs which have significantly raised LOL scores are those that had a positive rate of immigration between 1970 and 1980. Conversely, those SMSAs which have experienced a negative rate of net migration will have had a reduction in LOL.

Because of the nature of the raw data, each indicator of LOL measures a social condition in such a manner that an SMSA with a high value actually has a low LOL. In order to test the hypothesis stated above, the LOL indices for each SMSA can be multiplied by -1.0 to develop a scale where the

direction of the index indicates the direction of the change, i.e., positive numbers indicates higher LOL.

Net migration, however, is not the only variable influencing changes in LOL. A change in LOL is also expected to depend, in part, on the size of the population and LOL in the base year t . A higher LOL and a larger size in the earlier census period should result in increased net migration which in turn should result in greater probabilities of increased LOL and vice versa. This is because, in absolute terms, larger SMSAs with higher LOL scores in 1970 have a greater capacity to attract more migrants than smaller SMSAs. Therefore, size and LOL in the base year will not only influence migration, but should also be directly associated with LOL change.

Considerable research has demonstrated that the QOL of a place has an influence on migration in the subsequent decade. However, most of these studies have been concerned with absolute migration amounts and use economic variables to measure quality of life (e.g., Blanco, 1963; Greenwood, 1969; Miller, 1973). They conclude that employment or income considerations influence absolute amounts of migration.

These investigations have been criticized for their lack of attention to net migration rates. Liu (1975:329) asserts

that, "...it is the rate of net migration. . .that directly affects the rate of labor force growth and, consequently, regional growth." He found that quality of life explains a fair amount of the variation in net migration (8%).

However, as pointed out earlier, Liu used a static index based only on 1970 data; this does not take into account changes that may have occurred over time.

Clark and Robey (1981) reported the results of a regression analysis which included 16 possible determinants of net migration. The findings show that average January temperature has the strongest impact on migration. Other consistently highly correlated variables are percent over age 65 (positively) and percent manufacturing employment and percent black (negatively).

Similarly, Cebula (1979) analyzed a multiple least-squares regression to test the hypothesis that four quality of life and two economic variables have power in explaining net migration. The analysis shows that climate, proportion of doctors, and welfare levels are important variables; while air pollution and income levels are not.

The relationships described above are illustrated by the simple diagram in Figure 1 in which change in LOL is directly determined by LOL_t , $size_t$, and net migration $_{t,t+10}$. Net migration, in turn is influenced by LOL_t and $size_t$ but

these relationships are not considered in this analysis.

In the present study, The dependent variable will be measured both in absolute terms and as percent change in LOL. In both cases, it is assumed to be a function of the independent variables, LOL_t , NM , and $size_t$; thus,

$$LOL_{t,t+10} = f(LOL_t; NM_{t,t+10}; S_t) \quad (1)$$

where $LOL_{t,t+10}$ = change in level of living, 1970 to 1980;

LOL_t = level of living in 1970;

$NM_{t,t+10}$ = net migration rate, 1970 to 1980; and

S_t = size of SMSA in 1970.

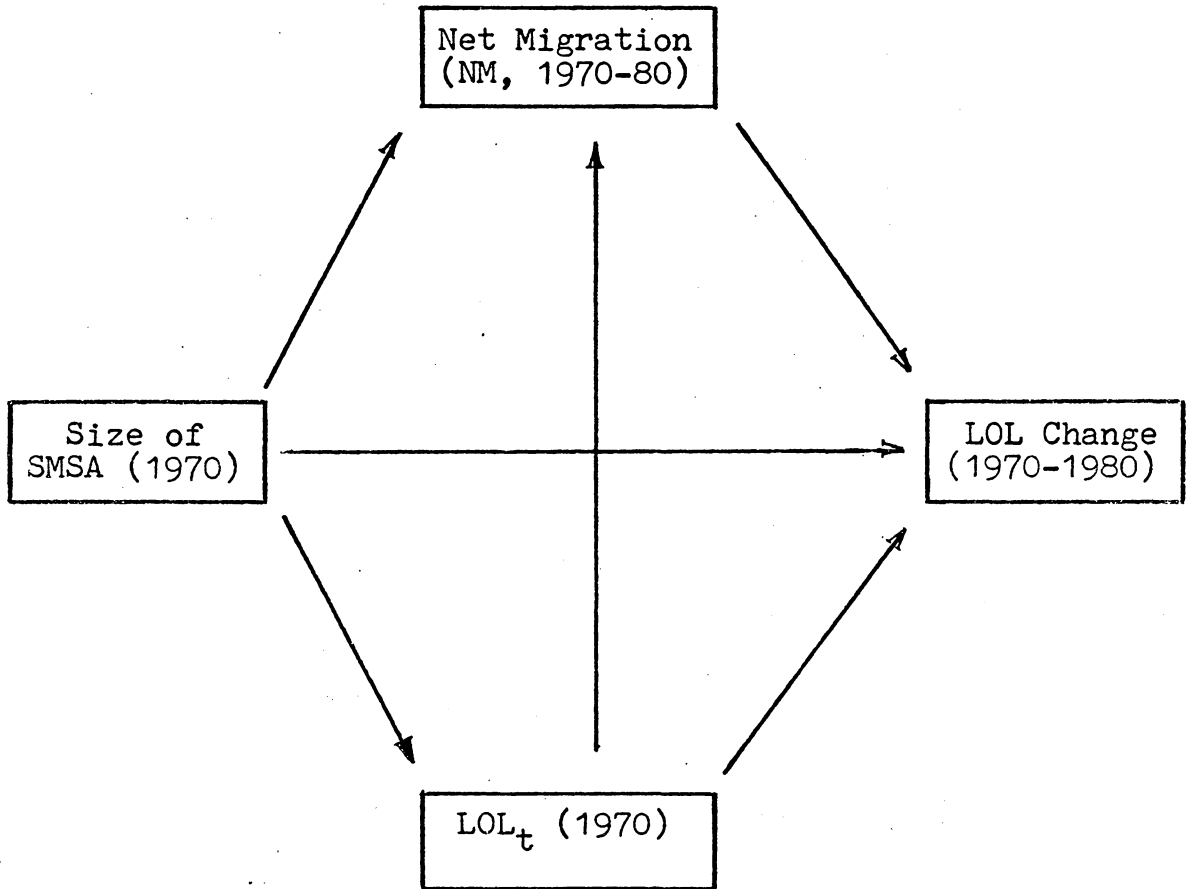


Figure 1

Hypothesized Model of Change in Level of Living

METHODOLOGY

The four indicators of LOL used in this analysis are similar to those in the Knox (1982) study.

1. Infant Mortality--deaths under one year of age per 1,000 live births. Due to data unavailability this variable was measured for 1970 and 1978 (U. S. Department of Health, Education, and Welfare, 1975; U. S. Bureau of the Census, 1982a).
2. Overcrowding--percent of occupied housing units with 1.01 or more persons per room (U. S. Bureau of the Census, 1980;1982a).
3. Unemployment--percent of civilian labor force unemployed (U. S. Bureau of the Census, 1977;1982a).
4. Substandard Housing--percent of all year-round housing units lacking plumbing facilities. Because of changes in census reporting procedures this variable has to be defined somewhat differently for the two dates. While the 1970 data is for percent of all year-round housing units lacking some or all plumbing facilities, the 1980 data is for those units lacking complete plumbing for exclusive use. This does not preclude comparison of standardized Z-scores, but it does preclude analysis of absolute change and comparison of raw data (U. S. Bureau of the Census, 1980;1982b).

Level of living change was defined both as the absolute and the percent of change in LOL between 1970 and 1980. It was computed by adding the Z-scores for each of the four indicators for each SMSA in 1970 and in 1980 to form a single indicator for all data in each year. The single indicator in each year was multiplied by -1.0 to convert to a scale where positive numbers indicated higher levels of living. The 1970 score was subtracted from the 1980 score to compute the absolute change. This was divided by the 1970 score to determine the percent change. Percentage change was used in order to control for the effects of size in the dependent variable.

Net migration rate was defined as the difference of in-migration and out-migration divided by total 1970 population. It too was standardized to Z-scores. Because of unavailability of 1980 statistics, the data collected were for the period April 1, 1970 and July 1, 1977, based on 1970 population (U. S. Bureau of the Census, 1980).

The unit of analysis for the study was all SMSAs in the U.S. in 1970 which continued to be classified as SMSAs in 1980. The Statistical Abstract of the United States, 1970 (U. S. Bureau of the Census, 1970) lists 230 SMSAs as of July 1, 1970. Because of changes in 1980 SMSA eligibility, only 217 are examined in this analysis. Specifically, 14 of

the 1970 SMSAs were deleted because they were merged with others, and one 1970 SMSA was divided into two.

In order to determine how much of the variation in the change in LOL between 1970 and 1980 could be attributed to net migration, the model in Figure 1 was tested by the use of multiple regression analysis.

Two regression models were calculated. They differed only in their treatment of the dependent variable. The first analysis examined the absolute amount of change between 1970 LOL Z-score and 1980 LOL. The second examined the percent change in LOL between those two periods. In this manner, both absolute and relative changes could be evaluated.

FINDINGS

In absolute terms important differences existed in net migration rates and LOL indicators between 1970 and 1980 for the SMSAs. The mean net migration rate for SMSAs between 1970 and 1977 was 2.2 percent with a standard deviation of 7.7. Almost 60 percent of the SMSAs had negative values as out-migrants outnumbered in-migrants in 130 SMSAs. The large number of SMSAs with negative net migration indicated a process in which population flowed from a large number of SMSAs into a smaller set.

Data for the individual indicators showed a general improvement from 1970 to 1980 (see Table 1). Unemployment was the only one to show a worsening condition. In 1970, 95 percent of the SMSAs fell between an unemployment range of 1.9 and 7.0 percent. However, in 1980, 95 percent fell between 2.4 and 12.0 percent. This was not unexpected given the overall decline in national economic conditions at this time. Not only was unemployment higher in 1980, but variation in unemployment among SMSAs was greater in 1980. Again, this was not unexpected, for spatial variability in economic conditions tends to increase with a decline in economic conditions at the national level.

In contrast to the trends in unemployment comparison of the remaining three indicators showed improvement in the

decade. Particularly noteworthy was the improvement in housing conditions. The percent of substandard housing units declined by over 76 percent in the decade, while the measure of overcrowding declined by almost 50 percent. In addition to the overall improvement in LOL condition, the variability among SMSAs was reduced, as indicated by the lower standard deviation in 1980. SMSAs experienced the most dramatic improvement in the percent of housing units lacking plumbing facilities. In fact, in 1970, 68 percent of SMSAs fell between a substandard housing range of 1.4 and 8.8 percent; while in 1980, 68 percent fell between 0.7 and 3.1 percent. Not only did SMSAs improve in social condition over the decade on the average, but they also became more similar to each other in LOL. The decade of the 1970s appeared to have been one of convergence among SMSAs on these conditions.

Table 1

Level of Living Indicators for SMSAs in 1970 and 1980

	1970		1980		Mean % Change
	Mean	Standard Dev.	Mean	Standard Dev.	
Infant Mortality Rate	19.5	3.1	13.6	2.6	-30.26
Overcrowding Rate	8.2	3.7	4.2	3.3	-49.78
Unemployment Rate	4.4	1.3	7.2	2.4	+45.45
Substandard Housing Rate	5.1	3.7	1.9	1.2	-76.47

Table 2 displays descriptive statistics for the 1970 and 1980 aggregated LOL scores. The means for the LOL indices approximated 0.0 because each index was a composite score created by addition of standardized scores on the four indicators of LOL. Since the mean of each indicator was zero by aggregating positive and negative indicators the aggregate measure summed to near zero. The change in LOL between 1970 and 1980 was minimal, indicating little overall change in the LOL in SMSAs. This is surprising because of the improvement in three of the four individual LOL measures. Because of the significant changes in LOL components, an improvement in the aggregated LOL was expected along with reduced variability in LOL, indicating convergence among SMSAs. The actual situation, however, suggested a random element in the change among individual LOL measures with no consistent pattern across SMSAs. The absence of any trend was supported by the similarity in standard deviation between 1970 and 1980 LOL.

Table 2

Standardized Level of Living Scores for SMSAs, 1970 and 1980

	1970 LOL	1980 LOL	Absolute Amount of Change in LOL	Percent Change in LOL
Mean	0.000	-0.001	-0.001	-0.093
% of SMSAs with Positive Scores	43.8	40.1	47.9	39.6
Standard Deviation	2.49	2.45	1.61	

The zero order correlations between variables are presented in Table 3. The correlations, while low, do suggest some trends in level of living.

1. The highest correlation between independent variables was for population size in 1970 and LOL in 1970. It was in the hypothesized direction, but was not particularly strong. Larger SMSAs had slightly higher levels of living in 1970 than smaller SMSAs. In 1970, larger urban areas had more favorable scores on the LOL index as compared to smaller areas.
2. The smallest correlation was between net migration rate and 1970 LOL. The finding that migration was negatively related to the LOL in the base year was not consistent with the literature showing the effect of quality of life variables on net migration (Liu, 1975). According to the zero-order coefficients migrants were relocating to areas that had lower LOL in 1970.
3. The correlation between size and LOL change was not in the hypothesized direction. Smaller SMSAs had significantly more improvement in LOL during the 1970s than larger SMSAs.
4. A significant correlation existed between net migration rate and LOL change and was in the

hypothesized direction. This finding was consistent with the hypothesis. In-migrants contributed to increases in LOL during the 1970s.

The results of multiple regression analysis with absolute change in LOL between 1970 and LOL 1980 supported the hypothesized relationship between LOL and net migration (Table 4). While only 23 percent of the variation in LOL change was explained by the three independent variables, all three partial regression coefficients were significant. The most significant variable was LOL 1970, while size was the least significant.

Positive net migration influenced LOL increase in SMSAs during the 1970s. The negative values for size and LOL in 1970 were contrary to the ones hypothesized. These coefficients indicated that LOL improved more in smaller SMSAs that had lower LOL in 1970 than in larger SMSAs with higher LOL in 1970. Migrants chose to relocate to smaller SMSAs, even though they faced decreased levels of living. The in-migration into these smaller areas seemed to have contributed to general improvement in levels of living there.

Table 3

Zero Order Correlation Matrix of Independent Variables
with Absolute Change in Level of Living

	Level of Living Change	Level of Living 1970	Net Migra- tion Rate 1970-1980	Size 1970
Level of Living Change	----			
Level of Living, 1970	-0.350	----		
Net Migration Rate, 1970-80	0.316	-0.033	----	
Size 1970	-0.229	0.159	-0.155	----

Table 4

Results of Multiple Regression
Analysis of Level of Living Changes

Independent Variable	Unstandardized B	Standardized Beta	T Value
LOL 1970	-0.20733	-0.31941	5.253*
Net Migration Rate	0.45990	0.28463	4.684*
Size in 1970	-0.00019	-0.13406	2.179*

Constant	0.12592		
Multiple R	0.48206		
R Square	0.23238		

*significant at the .05 level

The results of multiple regression analysis for percent change in LOL were unimpressive (Table 5). Only 10 percent of the variation in LOL percent change was explained by the independent variables, and the only significant partial regression coefficient was for the size variable. The coefficients for LOL 1970 and net migration rate were not significant at the .05 level. LOL increased more as a percent in smaller SMSAs, regardless of net migration rate or LOL in 1970. Smaller SMSAs improved to greater degree than larger SMSAs when LOL in the base year was controlled for. It is clear that relative measures of change in LOL were unrelated to migration patterns.

Table 5

Results of Multiple Regression
Analysis of Percent Changes in Level of Living

Independent Variable	Unstandardized B	Standardized Beta	T Value
LOL 1970	5.92143	0.05051	0.767
Net Migration Rate	17.27096	0.05918	0.900
Size in 1970	-0.07901	-0.30584	4.592*

Constant	5.92143		
Multiple R	0.31636		
R Square	0.10008		

*significant at the .05 level

DISCUSSION

The absolute change in LOL from 1970 to 1980 was significantly influenced by the independent variables as shown by the results of the first regression model. LOL increased more in smaller SMSAs that had positive net migration and a lower LOL in 1970. However, the second model indicated that relative LOL changes were not explained well by the model. The reasons for the poor performance in this model are not totally clear, but it is obvious that net migration is unrelated to rate of the change in LOL. Regardless of net migration rate or LOL in 1970, smaller SMSAs improved more than larger ones.

The model for absolute change does provide some insights into both the relationship between LOL and migration and the pattern of migration among SMSAs. Larger areas had higher levels of living in 1970 than smaller ones. During the decade, there was a decentralization of population from larger SMSAs to smaller ones. The influx of migrants into the smaller SMSAs contributed to greater LOL improvements in those areas compared to larger ones.

The patterns described above are in agreement with other researchers of population movements in the 1970s. Generally, the 1970s was a period of decentralization from areas of high population density to areas with lower

density. This observation is consistent with the process of counterurbanization during the 1970s, in which the larger metropolitan areas have decreased in size and rapid population growth has taken place in smaller metropolitan areas (Brunn and Williams, 1983).

While the results of the model are encouraging, several improvements in the model could prove to be useful. Future models may be improved through the use of other indicators. Indicators should be chosen on the basis of their ability to measure objective social conditions that are clearly influenced by population changes. For example, as population increases in an area, crime rates may increase because of higher population densities, or disposable income may decline because of greater costs for necessities.

On the other hand, population increases may result in stabilization of per capita tax rates because of greater economies of scale in local service provision, or in renovation of formerly vacant housing units. These indicators, and many others, may be influenced by net migration rates which may subsequently partially explain changes in levels of living.

The results of the model might also be improved by correlating the effects of net migration rates on the individual components of levels of living. By analyzing

individual measures the "averaging" effect of aggregating four separate indicators would be eliminated. It seems apparent that net migration will have greater effects on certain elements of LOL and less on others.

The model could also be improved by introducing a regional control variable in the model. Migration patterns vary significantly among regions, and this affect is lost when all SMSAs are considered together. The pattern of growth and migration among southern SMSAs is, for example, significantly different than that for northern areas. Some researchers have shown that the sunbelt region has been gaining population while the snowbelt has been losing population (Sternlieb et al., 1982). A breakdown of the SMSAs would determine if these regional differences also influence variations in levels of living. By introducing the regional variable greater specificity in the model could be achieved.

This research has provided a foundation for the assessment of the variables which influence differences in changes in levels of living. Net migration rates, along with size and levels of living in 1970 explained a moderate amount of the variation in changes in levels of living during the 1970s. Although some of the variation was explained by the model, examination of additional factors

associated with changes in levels of living is necessary to better understand recent social trends which affect differences in quality of life among regions in the United States.

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