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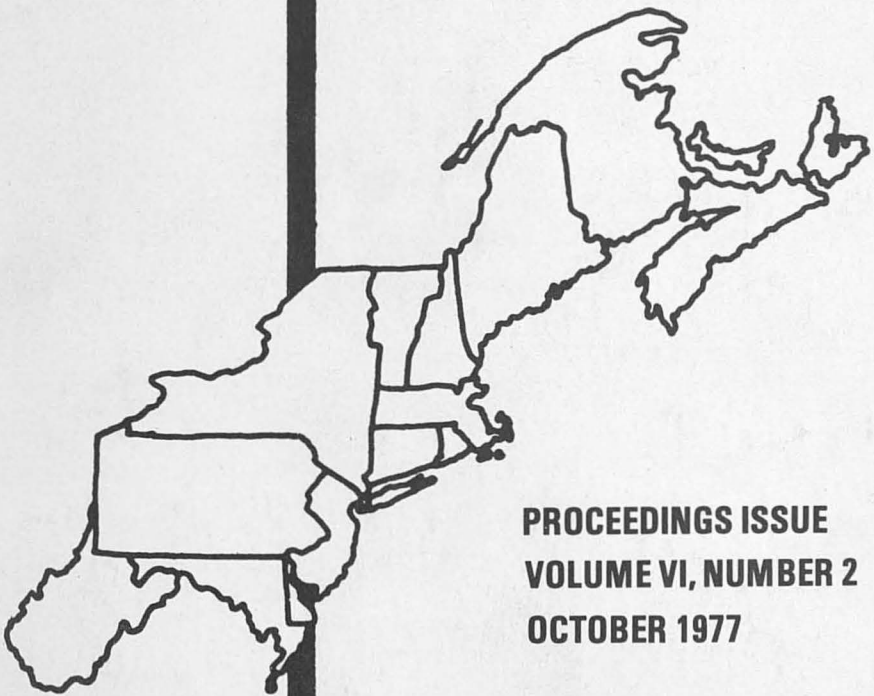

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THE RELATIONSHIP BETWEEN ECONOMIC AND DEMOGRAPHIC VARIABLES FOR NONMETROPOLITAN NORTHEASTERN COUNTIES, 1970-1974

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Introduction

This study analyzes the performance of Northeastern nonmetropolitan counties [1/] regarding income, employment, population growth, and net migration, 1970-1974. By comparing these data with comparable data for other Census regions, an economic and demographic picture of the Northeast in a national setting is presented. This comparison shows that Northeast nonmetropolitan counties had smaller income gains than any other nonmetropolitan area, yet, many of the counties experienced high rates of population growth and net migration. This observation runs opposite to contemporary theories that indicate a positive relationship between income and population growth [3, 6, 7, 8]. The final sections of this paper develop criteria for analyzing these observations and offer an explanation for their existence.

Procedures

Bureau of Economic Analysis (BEA) [10] data were used to calculate income and employment growth. [2/] The Current Population Reports [9] provided the basic migration and population data.

A system for classifying counties by income, employment, population growth, and net migration was devised for this study. Income growth was defined as the percentage change in per capita income for a county between 1970 and 1974. Employment growth was defined as the percentage change in employment in a county between 1970 and 1974. Population growth was defined as the percentage change in population in a county between 1970 and 1974, and net migration was expressed as a percent for the same time period.

1/ The Northeast Census region contains the States of Conn., Me., Mass., N.H., N.J., N.Y., Pa., R.I., and Vt.

2/ This data source has its shortcomings, but it is the only known source that presents annual income and employment data by county, place of residence, and region.

Given these definitions, all 2,494 nonmetropolitan counties in the U.S. were ranked from highest to lowest for growth in employment, income, population, and net migration. These national rankings were then divided into thirds with top third counties classified as high growth, middle third as average growth, and bottom third counties as low growth. Specific ranking designations for rates of growth in the variables are given in Table 1.

Table 1
Income, Employment, Population, and Net Migration Ranking Designations for U.S. Nonmetropolitan Counties, 1970-1974

Item	Ranking Designation		
	Top Third-High	Middle Third-Average	Bottom Third-Low
	(Percent)		
Income Growth	48.48 and higher	36.74 to 48.47	Less than 36.74
Employment Growth	11.97 and higher	5.42 to 11.96	Less than 5.42
Population Growth	6.30 and higher	1.00 to 6.29	Less than 1.00
Net Migration	4.40 and higher	-0.40 to 4.39	Less than -0.40

Relative Income Performance of Northeastern Nonmetropolitan Counties

The conventional wisdom in past decades concerning income growth by place of residence has generally espoused the belief that incomes in metropolitan areas grow at a faster pace and from a higher initial level than incomes in nonmetropolitan areas. This superiority of metropolitan areas in terms of income growth is questionable in light of the most recently available data. Table 2 presents changes in total personal, wage and salary, transfer, proprietors', and property incomes by place of residence and by region, 1970-1974.

Nonmetropolitan wage and salary income grew at a faster pace than its metropolitan counterpart in each region between 1970 and 1974 (Table 2, Column 2). Since wage and salary income is the major component of personal income, the faster growth in nonmetropolitan wage and salary income translates into more rapid growth in nonmetropolitan total personal income (Column 1). Yet, while these occurrences speak to gains made in achieving the national rural development income goal, which seeks

Table 2
Percent Changes in Total Personal Income and Its Components, 1970-1974, and Components as a Percent of Personal Income, 1970 and 1974

Place of residence and region	1970-1974 Percent Change				
	Total Personal Income	Wage and Salary Income [a]	Proprietors' Income	Property Income	Transfer Income
United States	42.5	40.9	31.0	40.4	77.1
Metro [b]	40.6	39.4	21.7	39.9	76.1
Nonmetro [c]	49.7	47.7	46.4	42.1	79.8
Northeast	33.6	32.1	7.9	33.1	70.9
Metro	32.6	31.3	6.2	32.1	69.8
Nonmetro	42.1	39.6	18.2	41.6	78.2
North Central	41.1	39.7	35.2	37.5	74.2
Metro	39.1	38.3	21.4	37.7	75.7
Nonmetro	47.1	45.4	49.6	37.2	71.2
South	51.0	29.6	34.8	49.4	89.2
Metro	50.1	49.5	30.5	51.4	91.0
Nonmetro	51.3	50.0	39.5	44.6	86.3
West	45.4	43.1	44.7	44.1	72.9
Metro	42.9	41.3	33.5	43.1	70.8
Nonmetro	58.5	53.9	72.7	49.6	82.3

Source: Department of Commerce, Bureau of Economic Analysis, unpublished data.

[a] Wage and salary income includes the "other labor income" category.

[b] Metropolitan place of residence considers all persons living in a Standard Metropolitan Statistical Area.

[c] Nonmetropolitan place of residence considers all persons living outside of a Standard Metropolitan Statistical Area.

Table 2--Continued

Wage and Salary Income as a Percent of Total Personal Income		Proprietors' Income as a Percent of Total Personal Income		Property Income as a Percent of Total Personal Income		Transfer Income as a Percent of Total Personal Income	
1970	1974	1970	1974	1970	1974	1970	1974
67.0	65.7	12.2	12.0	14.3	14.1	9.7	12.1
69.5	68.3	10.6	10.2	14.3	14.2	9.1	11.3
57.6	56.4	18.4	18.4	14.5	13.8	12.4	14.9
67.3	66.1	10.4	9.5	15.5	15.4	10.0	12.8
68.0	66.9	10.1	9.3	15.5	15.4	9.6	12.3
61.3	59.7	12.9	11.7	15.4	15.3	13.4	16.8
66.5	65.1	13.8	14.1	14.1	13.8	8.8	10.9
70.7	69.5	11.3	11.3	13.5	13.3	7.9	10.0
53.8	52.7	21.2	22.0	16.1	15.0	11.7	13.6
67.0	65.9	12.7	12.2	13.5	13.4	9.9	12.5
70.5	69.4	10.4	10.0	13.7	13.8	8.7	11.0
59.0	58.0	18.0	17.3	13.1	12.5	12.9	15.7
67.3	65.7	11.7	12.1	14.1	13.9	10.4	12.4
68.7	67.4	17.6	19.1	13.9	13.1	12.1	13.9
59.6	57.5	17.6	19.1	13.9	13.1	12.1	13.9

to insure that rural workers receive incomes adequate to sustain their households at levels of comfort not less than those levels enjoyed by metropolitan workers, the data in Table 2 also point out the sluggish pace at which the Northeast region is expanding in relation to other regions and national metropolitan and nonmetropolitan averages.

Taken as a whole, the Northeast region ranked last in total personal income growth, a full 9 percentage points behind the U.S. average of 42.5 percent. This sluggish performance in terms of total personal income growth can be attributed basically to the poor performance of metropolitan counties in the Northeast region. These metropolitan counties demonstrated the smallest gains in every component of personal income. Nonmetropolitan Northeastern counties, on the other hand, have experienced larger changes in transfer, wage and salary, and, hence, personal income than metropolitan counties in the same region. These income gains of 42.1 percent of the 1970 level approach the national average for all persons. Yet, the percent change in per capita income for the nonmetropolitan Northeast was significantly lower than the nonmetropolitan component of any other region (Table 3). Also, while Northeastern nonmetropolitan counties once maintained the highest nonmetropolitan per capita income (1970), by 1974 that region had slipped to third. Although the record of Northeastern nonmetropolitan counties indicates superior performance as compared to metropolitan counties in the same region, inferior performance occurred when compared to other nonmetropolitan areas.

To demonstrate more clearly the below-normal income gains made by Northeastern nonmetropolitan counties, the position of these 116 counties was identified in a national income growth ranking (Table 4). Over 61 percent of the Northeast nonmetropolitan counties under study fell into the bottom third of the national ranking, i.e., the majority had per capita income growth of less than 36.74 percent (the U.S. nonmetropolitan average was 42 percent, Table 3).

Interrelationships Among Income Changes, Employment Changes, and Demographic Variables

Studies by Goodrich [7], Kuznets and Thomas [8], Easterlin [6], and others have all contributed to the thesis that demographic variables, especially migration, are highly responsive to changes in economic opportunities with large outflows from areas of economic hardship and submarginal income. Bogue's study [3] of nonmetropolitan areas in the 1940-1950 decade also found a high degree of positive correlation between factors such as income, employment, total population, and net migration.

Since the major concern here is the interaction of economic variables, income and employment, with selected demographic variables, population growth and net migration, for nonmetropolitan counties in the Northeast region, it should be noted that the pattern of net migration is the leading component in accounting for differential population growth. Therefore, any interaction between economic variables and demographic variables will have a primary impact on net migration.

Table 3

Per Capita Income [a/] and Absolute and Percent Changes, by Place of Residence and Region, 1970-1974

Region and Place of Residence	1970	1974	Absolute Change	Percent Change
		(Dollars)		
United States	3,966	5,449	1,483	37.4
Metro	4,276	5,829	1,553	36.3
Nonmetro	3,134	4,449	1,315	42.0
Northeast	4,433	5,889	1,456	32.8
Metro	4,576	6,080	1,504	32.9
Nonmetro	3,513	4,773	1,260	35.9
North Central	4,024	5,594	1,570	39.0
Metro	4,324	5,970	1,646	38.1
Nonmetro	3,361	4,781	1,420	42.2
South	3,423	4,849	1,426	41.7
Metro	3,812	5,360	1,548	40.6
Nonmetro	2,797	4,014	1.217	43.5
West	4,194	5,721	1,527	36.4
Metro	4,400	5,945	1,545	35.1
Nonmetro	3,367	4,849	1,482	44.0

Source: Department of Commerce, Bureau of Economic Analysis.

[a/] Per capita income equals residence adjusted total personal income divided by population.

Table 4
Position of Northeastern Nonmetropolitan Counties in a National Ranking of Counties According to Percentage Change in Per Capita Income [a] by County, 1970-1974

Classification	Number	Percent
Top Third (High Growth)	2	1.7
Middle Third (Average Growth)	43	37.1
Bottom Third (Low Growth)	71	61.2
Total	116	100.0

[a] Percent changes in per capita income were calculated using Bureau of Economic Analysis data.

If the theories mentioned above are accepted, then recent subnormal income increases should not be accompanied by above-normal employment and/or population gains. Therefore, since 61 percent of these counties have experienced less than average income growth (Table 4), a majority of the counties should be expected to have below-normal employment, net migration, and population gains.

Net Internal Migration, Population Growth, and Employment Growth in Northeastern Nonmetropolitan Counties

Table 5 lists all nonmetropolitan Northeastern counties according to income, employment, population, and migration characteristics using the procedures outlined above. The consistency of the above-mentioned theories will be examined by classifying the data in Table 4 according to levels of income growth (Figure 1) and net migration (Figure 2). [3]

[3] The population growth variable is left out of Figure 1 and 2 because there is almost perfect conformity between levels of net migration and population growth (see Table 7). Therefore, it can generally be assumed that counties having a certain net migration designation have the same population growth designation.

Table 5
Economic and Demographic Growth Rates for Nonmetropolitan Counties in the Northeast, 1970-1974 [a]

State, County	Employment Growth	Income Growth	Population Growth	Net Migration
NH Carroll	H	L	H	H
NJ Sussex	H	L	H	H
MA Dukes	H	L	H	H
NJ Ocean	H	L	H	H
NJ Cape May	H	L	H	H
PA Pike	H	L	H	H
NY Wyoming	H	A	L	L
PA Union	H	A	H	H
MA Barnstable	H	L	H	H
MA Nantucket	H	L	H	H
VT Essex	H	L	H	H
NJ Hunterdon	H	L	H	H
NH Merrimack	H	L	H	H
ME Hancock	H	A	H	H
NH Belknap	H	A	H	H
PA Juniata	H	L	A	H
PA Clearfield	H	A	A	A
PA Jefferson	H	A	A	H
VT Lamoille	H	L	H	H
NY Cortland	H	A	A	A
PA Clinton	H	A	L	A
PA Wayne	H	L	H	H
NY Greene	H	L	H	H
PA Columbia	H	A	A	H
NH Sullivan	H	A	A	A
NH Grafton	H	L	H	H
NH Coos	H	A	A	L
NH Cheshire	H	L	H	H
PA Tioga	A	L	A	A
PA Indiana	A	A	A	A
NY Clinton	A	L	H	H
VT Orange	A	L	H	H
NY Hamilton	A	A	H	H
VT Addison	A	L	H	A
PA Centre	A	L	H	A
PA Butler	A	A	A	A
NY Orange	A	L	H	H
PA Franklin	A	A	A	A
PA Venango	A	A	A	A

[a] Growth rates for high (H), average (A), and low (L) are given in Table 1.

Table 5--Continued

State, County	Employ-ment Growth	Income Growth	Popu-lation Growth	Net Migra-tion
ME Washington	A	A	H	H
PA Bradford	A	A	A	A
PA Clarion	A	A	A	A
VT Orleans	A	L	A	A
NY Yates	A	A	A	A
NY Otsego	A	L	A	A
NY Schuyler	A	L	A	A
MA Franklin	A	L	A	A
VT Rutland	A	L	A	A
ME Knox	A	L	H	H
NY Delaware	A	L	A	A
NY Steuben	A	A	L	L
NY Tompkins	A	L	H	H
PA Elk	A	A	L	L
CT Litchfield	A	L	A	A
NH Strafford	A	L	H	H
VT Windsor	A	A	A	A
NY Columbia	A	L	H	H
VT Bennington	A	A	A	A
PA Crawford	A	L	A	A
NY Schoharie	A	L	H	H
NY Lewis	A	L	A	A
ME Oxford	A	A	A	A
NY Genesee	A	L	A	L
NY Chenango	A	L	A	A
VT Washington	A	L	A	A
PA Wyoming	A	L	H	H
NY Sullivan	A	L	H	H
PA Armstrong	A	A	L	L
PA Fayette	A	A	L	A
NY Ulster	A	L	H	H
ME Penobscot	A	A	A	A
PA Greene	A	A	A	A
PA Potter	A	A	A	A
PA Montour	A	A	A	L
ME Kennebec	A	A	A	A
NY Allegany	A	L	H	H
NY St. Lawrence	A	L	A	A
PA Warren	A	A	L	L
VT Franklin	L	L	A	A
PA Fulton	L	A	H	A
NY Cayuga	L	A	L	L
PA Mc Kean	L	L	L	L
PA Lebanon	L	L	A	A

Table 5--Continued

State, County	Employment Growth	Income Growth	Population Growth	Net Migration
VT Caledonia	L	L	A	H
NY Warren	L	L	A	H
NY Chautauqua	L	L	L	L
ME Somerset	L	A	A	A
NY Cataraugus	L	L	A	A
PA Mercer	L	A	L	L
PA Snyder	L	L	A	H
CT Windham	L	L	A	A
PA Forest	L	A	A	A
PA Lawrence	L	A	L	L
NY Jefferson	L	L	A	A
ME Franklin	L	A	H	A
ME Waldo	L	L	H	H
VT Windham	L	L	A	A
NY Franklin	L	L	L	A
ME Piscataquis	L	A	A	A
NY Washington	L	L	A	A
ME Aroostook	L	H	A	L
PA Sullivan	L	H	L	L
NY Seneca	L	A	L	L
VT Chittenden	L	L	A	A
PA Huntingdon	L	L	A	A
NY Fulton	L	L	A	H
PA Bedford	L	L	A	A
PA Schuylkill	L	A	L	A
PA Northumberland	L	L	A	A
ME York	L	L	H	A
NY Essex	L	L	A	A
PA Mifflin	L	L	L	L
VT Grand Isle	L	L	H	H
PA Cameron	L	L	L	L
ME Lincoln	L	L	H	H
RI Newport	L	L	L	L

Figure 1--Characteristics of Northeastern Nonmetropolitan Counties by Income Growth, 1970-1974

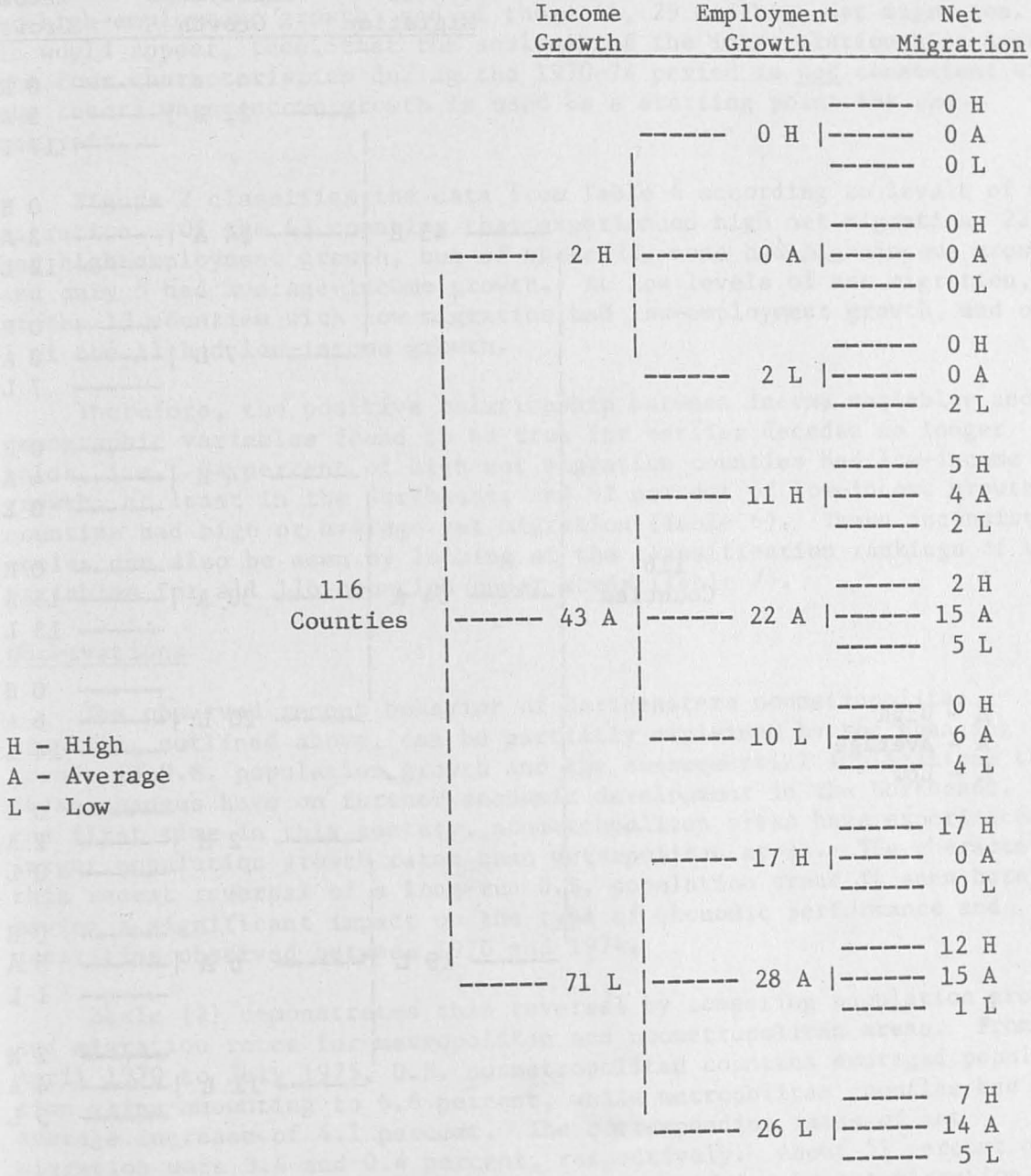
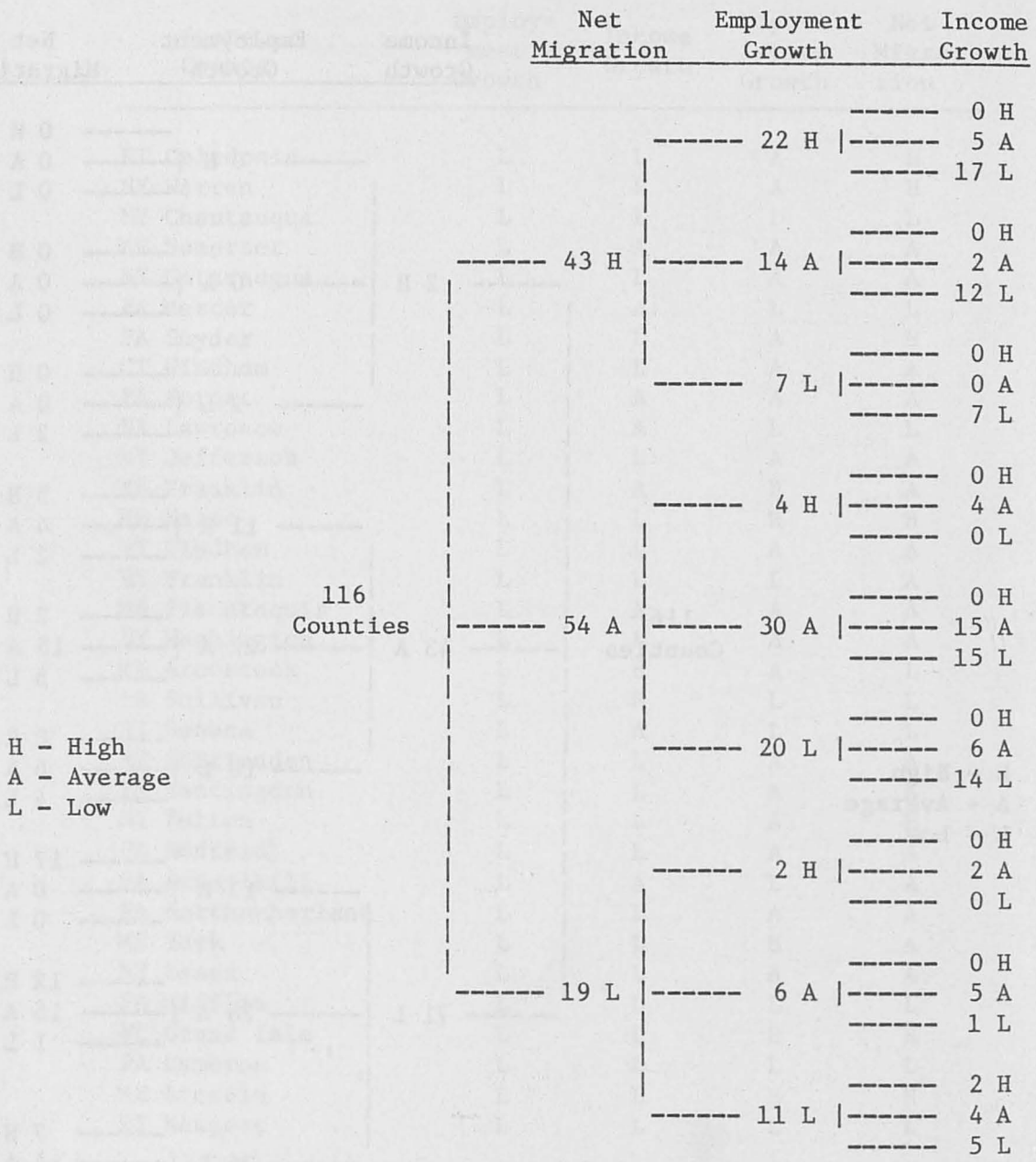


Figure 2--Characteristics of Northeastern Nonmetropolitan Counties by Net Migration, 1970-1974



Of the two counties that demonstrated high-income growth (Figure 1), neither had high-employment growth or net migration. [4/] There were 71 counties listed as having low-income growth, yet 45 of them had average or high-employment growth, and of those 45, 29 had high net migration. It would appear, then, that the analysis of the interrelationships among the four characteristics during the 1970-74 period is not consistent with the theory when income growth is used as a starting point for the analysis.

Figure 2 classifies the data from Table 4 according to levels of net migration. Of the 43 counties that experienced high net migration, 22 had high-employment growth, but of those 22, none had high-income growth and only 5 had average-income growth. At low levels of net migration, 11 of the 19 counties with low migration had low-employment growth, and only 5 of the 11 had low-income growth.

Therefore, the positive relationship between income variables and demographic variables found to be true for earlier decades no longer holds, i.e., 84 percent of high net migration counties had low-income growth, at least in the Northeast, and 92 percent of low-income growth counties had high or average net migration (Table 6). These inconsistencies can also be seen by looking at the classification rankings of the variables for all 116 counties under study (Table 7).

Observations

The observed recent behavior of Northeastern nonmetropolitan counties, outlined above, can be partially explained by the changing trends in U.S. population growth and the consequential implications that these changes have on further economic development in the Northeast. For the first time in this century, nonmetropolitan areas have experienced larger population growth rates than metropolitan areas. The character of this recent reversal of a long-run U.S. population trend is seen here as having a significant impact on the type of economic performance and activities observed between 1970 and 1974.

Beale [2] demonstrates this reversal by comparing population growth and migration rates for metropolitan and nonmetropolitan areas. From April 1970 to July 1975, U.S. nonmetropolitan counties averaged population gains amounting to 6.6 percent, while metropolitan counties had an average increase of 4.1 percent. The corresponding rates of net migration were 3.4 and 0.4 percent, respectively. About 51 percent of nonmetropolitan population growth was accounted for by net migration,

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[4/] The two high-income growth counties were Aroostook, Maine, and Sullivan, Pennsylvania. Growth between 1970 and 1974, in the case of Aroostook, is probably due to the fluctuation in the price of potatoes (about a 60 percent increase), and in the case of Sullivan, the increase may have been partially influenced by a large increase in transfer payments over the period. In neither case is there a likelihood that large employment increases would have been generated.

Table 6
Summary of Interrelationships Between Net Migration and Income Growth, Northeastern Nonmetropolitan Counties, 1970-1974

Income Growth	Net Migration			
	High	Average	Low	Total
	(Percent)			
High	0/0	0/0	100/10	100/--
Average	16/16	56/45	28/60	100/--
Low	51/84	41/55	8/30	100/--
Total	--/100	--/100	--/100	--/--

Table 7
Classification of Northeastern Nonmetropolitan Counties in a National Ranking of Counties According to Percentage Changes in all Variables, 1970-1974

Classification	Income Growth	Employment Growth	Population Growth	Net Migration
Top Third (High Growth)	2	28	41	43
Middle Third (Average Growth)	43	50	56	54
Bottom Third (Low Growth)	71	38	19	19
Total	116	116	116	116

while the corresponding figure for metropolitan areas was 10 percent. [5] Therefore, not only did nonmetropolitan counties have higher population growth rates than their metropolitan counterparts, in general, but net migration was more important in determining nonmetropolitan growth than in metropolitan areas.

This changing place-of-residence phenomenon in population trends was also well represented in the 116 counties of the nonmetropolitan Northeast. Fifty-nine counties experienced net inmigration greater than the national nonmetropolitan average, and 50 counties grew in population at a faster rate than that same average. By analyzing some of the basic characteristics of these particular high-population growth counties in the Northeast, the inconsistencies that exist between economic variables and demographic variables can be better understood.

Beale's basic approach to drawing inferences from population data "has been to classify counties by certain basic functional characteristics and examine the trend in those that are dominated by some feature or function" [1, p. 955]. Some of these dominant features for nonmetropolitan counties are retirement, location of a senior state college, and manufacturing employment.

From 1970 to 1975, the nonmetropolitan counties that showed the most rapid population growth were retirement counties. [6] Three hundred and sixty nonmetropolitan counties of this type existed nationally with average population growth of 17.1 percent and net inmigration of 14.4 percent. There were 11 retirement counties located in the nonmetropolitan Northeast as of 1970, and the economic characteristics of these counties are highly relevant to this particular study.

Of the 11 nonmetropolitan counties that attracted persons of retirement age in the Northeast as of 1970, 9 had low-income growth and high-population growth. Given this observation, it appears that communities having a retirement feature do not function according to the criterion observed by Bogue and others [3]. Since it seems likely that new retirement counties may have been developed in the Northeast since 1970, and it appears that the existence of retirement counties may lead to a partial explanation of the indirect behavior of income and population growth, identification of those Northeast nonmetropolitan counties believed to have recently taken on a retirement function is necessary.

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[5] The percentages in this sentence were attained by dividing net migration by population growth.

[6] This designation is made, as of 1970, if a county experienced 10 percent or more net inmigration for white persons 60 years and over between 1960 and 1970. For further information, see Bowles *et al.* [5].

Counties will be assigned a new retirement classification according to criteria based upon observations of the already defined retirement counties and national nonmetropolitan averages as follows:

(1) The percentage change in the 60 and older population is greater than 11 percent, 1970-1975. The national nonmetropolitan average percent change in population 60 and older was 10.6, and most established retirement communities were well above this figure [11];

(2) at least 32 percent of the change in personal income, 1970-1974, can be accounted for by the sum of transfer payments and dividends, interest, and rent. The national nonmetropolitan average for transfers and dividends, interest, and rent was 32.3 percent. Most established retirement counties were also above this number. This criterion is included because transfers, etc., are nonemployee-type remuneration and can be viewed as general sources of income for retired persons;

(3) net migration was positive and accounted for greater than 50 percent of population growth, 1970-1974. This criterion is added because 9 of the 11 established retirement communities demonstrated this behavior and because, when it is jointly considered with the first criterion, would indicate a net inflow of older persons.

When the decisionmaking rules were applied to the remaining 105 nonmetropolitan Northeastern counties, 18 were identified as new retirement counties [7/] (those that fit all 3 critera), and 4 counties were classified as aging counties [8/] (those that fit the first 2 criteria and experienced net outmigration, in general). Twelve of the 18 new retirement counties experienced the low-income growth-high-population growth phenomenon observed in a majority of the previously established retirement counties. The total number of retirement counties is estimated now at 29, and 21 of those counties experienced low-income growth, high-population growth, and high net migration. The increasing number of nonmetropolitan retirement counties in the Northeast is seen as a partial explanation of the contradictory relationship between income and population growth experienced by those counties in the 1970-1974 time period.

7/ New retirement counties are Centre, Snyder, Columbia, Northumberland, and Schuylkill in Pennsylvania; Tompkins, Greene, Columbia, Sullivan, and Essex in New York; Litchfield, Connecticut; Bennington, Vermont; Belknap, Strafford, and Cheshire in New Hampshire; and Hancock, Franklin, and York in Maine.

8/ Aging counties are Cameron, Mifflin, and Montour in Pennsylvania; and Newport, Rhode Island.

Two other dominant features of high nonmetropolitan population growth counties identified by Beale [1] are the presence of a senior state college in a county and manufacturing employment. Although not formally analyzed here, these functions may also contribute to the low-income growth-high-population growth question. In the case of counties with senior state colleges, heavy inmigration is not seen as generating large gains in income because the population there is education- and not job-oriented. Employment opportunities in manufacturing have generally been thought to motivate people to migrate into an area. Yet, 69 of the 116 nonmetropolitan counties in the Northeast had low or negative gains in manufacturing employment over the study period, and many of these 69 counties demonstrated high population growth.

Summary and Conclusions

This paper has demonstrated that nonmetropolitan Northeastern counties as a whole have had lower gains in per capita income than those of nonmetropolitan counties in any other region. Yet, at the same time, many counties in the Northeast have shown large gains in population, primarily through migration. These observations run counter to theories that suggest a positive correlation between income and population growth. By analyzing the the types of counties that have made substantial increases in population, a partial explanation for this contradictory behavior was developed. As the population has grown older and retirement benefits have become more generous and numerous, retired people who move ". . . go disproportionately to nonmetropolitan locations, especially areas accessible to water . . . scenery, or a favorable climate. They create business and employment, yet are not constrained by the need for employment themselves" [1, p. 955].

Therefore, it would appear that people were "pulled" into certain counties in the nonmetropolitan Northeast by a set of influences stronger than the past prevalent income or employment forces. Perhaps they seek preferable environment and living conditions or different activities and people. These migration motives play a significant role in explaining the inverse relationship between income and population growth.

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