AN ANALYSIS OF OKLAHOMA POPULATION MIGRATION FROM 1970 TO 1974*

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INTRODUCTION

During the past eleven years Oklahoma's population has increased by approximately 12 percent. Several counties located in the central and southeastern parts of the state have increased from 12 to 40 percent. Since the rate of natural increase during this period approximated three percent, much population increase was due to in-migration from other states and abroad.

Given the fact that Oklahoma is gaining in population, and specific areas are growing quite rapidly while others are declining, the purpose of this study is to determine why Oklahoma is relatively popular and why certain counties are gaining population while others are losing.[1] Emphasis will be on human and economic characteristics of Oklahoma counties assuming a neoclassical economic framework of mobility.

THEORETICAL CONSIDERATIONS

According to neoclassical labor mobility theory, migration results from regional wage differences. These wage differences are assumed to reflect productivity differences due to different capital-labor combinations.

Labor mobility theory is based on the following conditions:

(1) workers have full information regarding labor market conditions;
(2) labor is homogeneous;
(3) migration costs are zero;
(4) laborers are rational and have no aesthetic locational preferences;
(5) workers and employers are maximizers;
(6) neither unemployment nor labor unions exist in the market.

Given these assumptions, necessary conditions for regional equilibrium in the market place are: (1) full employment of the labor force at a common wage rate and (2) wage paid must equal the value of the marginal product of labor.

Thus, in equilibrium the labor force will be fully employed with wage rates identical and common to all regions. Any disturbances in this equilibrium will lead to adjustments to re-establish new wage rates and/or new regional distributions of labor. A worker moves only when the value of his product is larger at a potential destination than at his origin. Such moves by local workers make those at the origin who do not migrate better off. The diminished number of workers induces employers to compete with one another for limited resources, and as a consequence, wages rise. Migration thus has a beneficial effect on the overall welfare of the economy.

Given the previous assumptions, it is hypothesized that Oklahoma has become a net attractor of people because the state has available jobs. Such a demand for labor raises, on the average, the value of the marginal product of labor. The fact that migrations are not evenly distributed across Oklahoma led us to believe that counties attracting the most people offer relatively more economic opportunities than declining or slower growing counties. However, we

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[1]The authors are suggesting that Oklahoma is more popular than other states in the nation—probably northeastern states—and are not implying that Oklahoma is more popular than its neighbors and or testing any hypotheses of this sort.

also assumed that non-income factors may have played a role in the uneven settlement pattern across the state. Neoclassical approaches of the sort described here have been presented in the literature. For example, Brennan [1], Lianos [3], Rogers [5] and Stone [6] are recent works which examine traditional income and opportunity motives. Studies including nontraditional variables (psychic or aesthetic) are more limited. Recent work by Greenwood [2] and Wadycki [10] consider noneconomic motives. In this study, however, previously untested hypotheses will be advanced.

THE STUDY

As stated in the introduction of this paper, Oklahoma has experienced a net population inflow of 12 percent from 1965 to 1974. Since 1970 the state's population increased by approximately six percent. Figure 1 shows the fastest-growing counties in the state and the amount of growth due to migration. In almost all cases, migration accounts for most of the population increase. Counties experiencing the greatest percentage population increases are those adjacent to the Tulsa and Oklahoma City SMSA's (Figure 2).[2] The recreation, retirement and forest industry counties of the southeast are also growing rapidly.

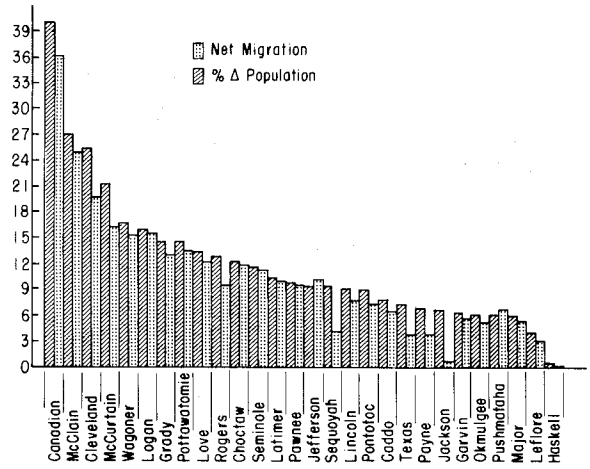

FIGURE 1. PERCENTAGE CHANGE IN POPULATION AND NET MIGRATION FOR MAJOR GROWTH COUNTIES IN OKLAHOMA, 1970-1974

Our first hypothesis is that urban areas are growing faster than other counties of the state because of higher wages, more job opportunities and generally higher standards of living. This is based on the neoclassical theory conditions that migration results primarily from regional wage differences and on assumptions that workers are maximizers and

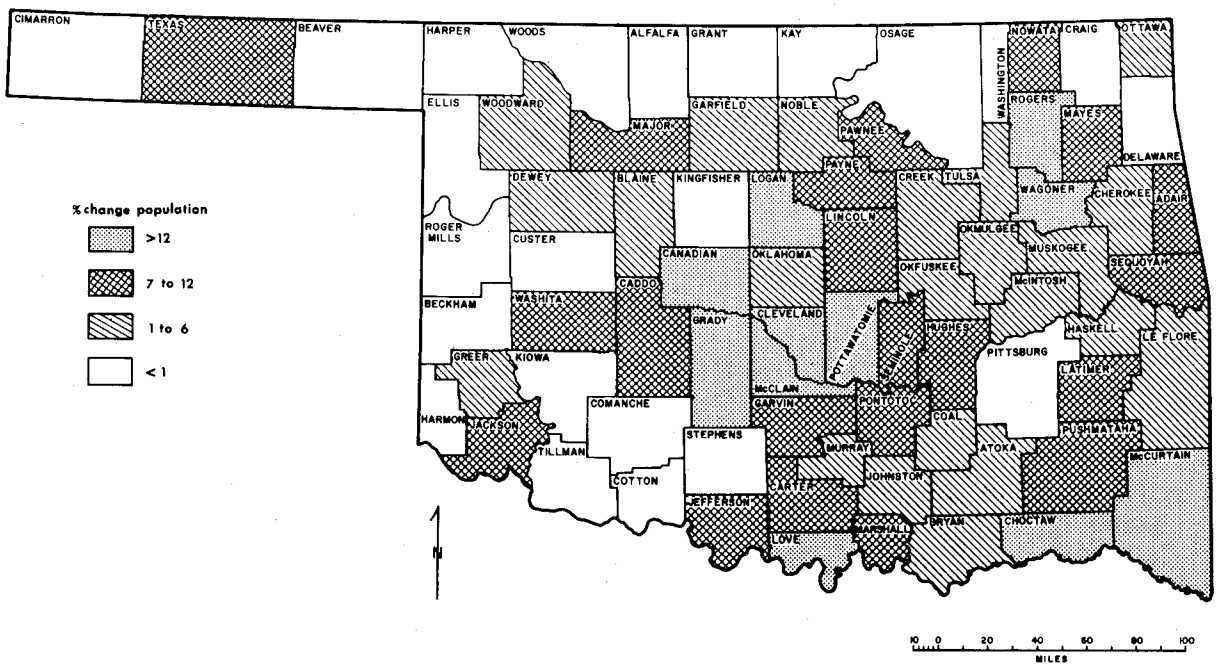

FIGURE 2. PERCENT CHANGE IN POPULATION, 1970-1974

[2]Economists on the Economic Planning Staff in the state of Oklahoma have hypothesized that these counties are forming an "industrial corridor." Possible ramifications of the corridor are an imbalance in the distribution of state resources and a skewed distribution of public and private services.

possess information about wage differences across the state.

To test the importance of regional wage differences in determining net migration, county income levels are weighted by county education levels and correlation between this weighted wage measure and net migration is examined. It is assumed that the better, higher paying jobs go to the better educated. So county wages are adjusted (weighted) by skill levels to allow for the fact that general skill levels required of area labor forces vary from area to area within the state.[3]

County mean incomes divided by mean education levels are shown on a growth map of Oklahoma in Figure 3. Generally, the largest ratios are associated with the fastest growing regions, most of which are in the industrial corridor. The ratios for Cleveland, Tulsa, Oklahoma, Canadian and Rogers counties, for example, are high. Generally, there is a high degree of correlation between growth and income level adjusted by educational achievement. A few unexplainable situations result, however, including Pittsburg county, which lost population during the 1970-74 period but had a very large income to education ratio. Other contradictions of expectations occurred in the Panhandle area, where counties losing population maintained high income to education ratios. These contradictions may have resulted from the fact that income levels, even when adjusted by education levels, do not necessarily represent job opportunities.

The second hypothesis is that many people have moved to southeastern Oklahoma because it is a desirable area in which to retire. The area is a "nice place to live" and has an abundance of recreational opportunities. Introduction of this hypothesis forces relaxation of the fourth neoclassical assumption (no aesthetic location preferences) and requires a loose interpretation of the fifth (workers are maximizers). In this case, workers are hypothesized to maximize leisure.

To test this hypothesis we examine correlation between net migration and mean social security payments, and between net migration and percent of county populations receiving social security payments. Both of these social security-related variables are indicative of retirement age middle class Americans moving from job sites to retirement areas. To the extent that an area (southeastern Oklahoma) possesses an abundance of people receiving social security, it is assumed the area would be seen as a retirement area and attract mobile retirees who are expected to receive higher than average social security

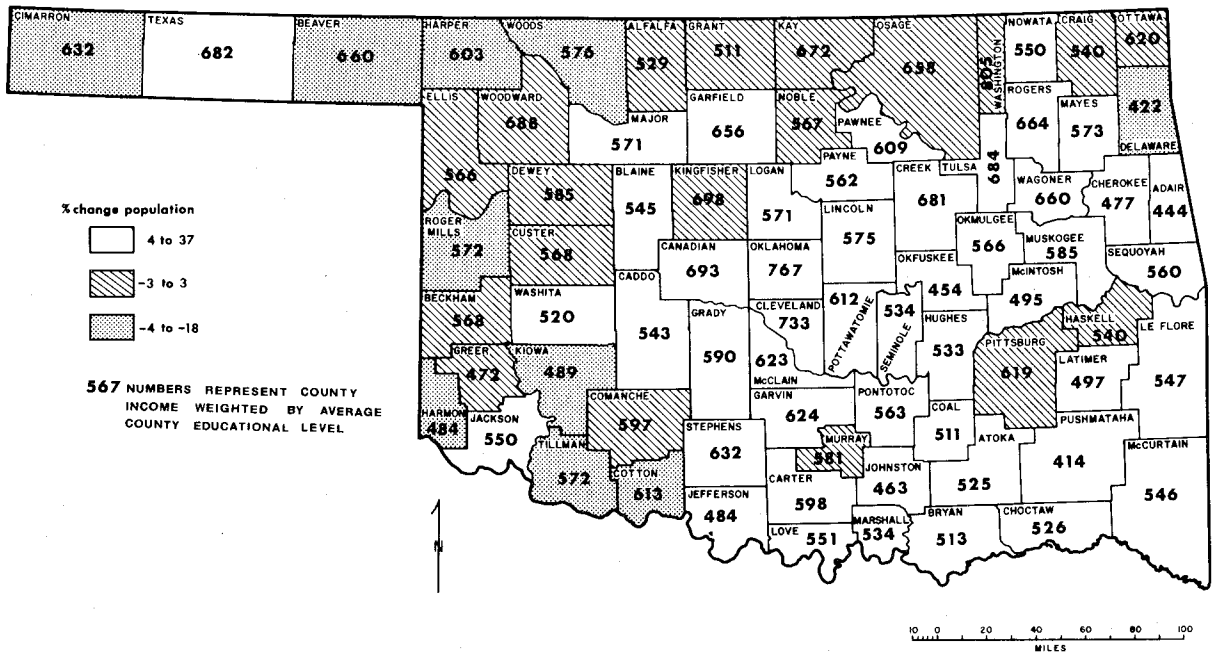

FIGURE 3. PERCENT CHANGE IN POPULATION, 1970-1974

[3]Clearly the neoclassical implied assumption of an equal distribution of wages across the state due to labor homogeneity (assumption 2) is not realistic. The authors make the less restrictive assumption that equivalent wages are paid for equivalent educational skills and tested the hypothesis that unequal wages paid for equal educational skills across areas would affect migration. It is realized that a test of the implications of the assumption of equal wages for equal tasks would be preferable, but in the absence of wage data for different jobs in different areas, such a test could not be conducted.

payments. Hence, area net migration should be positive.

Finally, the authors hypothesize that some people moving to the growing counties in Oklahoma do so because welfare systems in these counties are easily accessible or relatively lucrative when tapped. This could occur if state or federal rules are not enforced closely. To test this idea, mean county public assistance payments, percent of people on welfare by county and a compound variable equal to the product of the other two variables were examined. The first variable was employed to look at the distribution of average payment size across the state. It is assumed *a priori* that the counties with the largest averages would, *ceteris paribus*, be most attractive. Mean annual assistance payment per recipient family ranged from $776 to $1,341 with $1,208 being average. The other two variables were introduced to measure both probability of receiving welfare and expected magnitude of such receipts. They represent indications of how attractive, in a welfare sense, the county might be as a place to live. The hypothesis is that for all three variables positive values would induce positive net migration.

RESULTS

To test the above three hypotheses, data were collected from 1970 census information [8, 9] and from the Oklahoma Employment Security Commission [4]. Given these hypotheses and time series data on the specified variables, a correlation analysis was performed. Table 1 presents the simple correlation coefficients between the variables.

A test of the validity of the neoclassical hypothesis that wage differentials serve as a real motivating force behind the migration process was conclusive. The correlation coefficient between net migration (x_1) and weighted mean income (x_2) of .15 was positive and significant, but less than *a priori* hypothesis suggests. The most outstanding divergence from theory occurs from Oklahoma and Tulsa counties. Their income levels are very high, but neither experienced large net migrations. During the period 1970-74 Tulsa county net migration was 0.1 percent, while Oklahoma county net migration was minus 0.1 percent. Several with relatively large positive net migration can be thought of as suburbs of Oklahoma or Tulsa counties, since many of their residents work in Oklahoma City or Tulsa. Although none of these suburban counties have mean incomes as high as Tulsa or Oklahoma City, it is quite possible that people have moved there to take advantage of jobs and high incomes in the cities. The mean family incomes for most of the suburban counties are equal

TABLE 1. SIMPLE CORRELATION COEFFICIENTS BETWEEN NET MIGRATION AND CAUSAL FACTORS

	x_1	x_2	x_3	x_4	x_5	x_6	x_7
x_1	1						
x_2	.15	1					
x_3	-.05	-.67	1				
x_4	.10	.55	-.37	1			
x_5	.13	-.54	.53	-.38	1		
x_6	.04	.07	-.04	.18	-.15	1	
x_7	-.01	-.69	.96	-.40	.70	-.10	1

Where
- x_1 = net migration from 1970 to 1974
- x_2 = mean county income divided by county education levels 1970
- x_3 = percent of population receiving public assistance income, 1970
- x_4 = mean social security payments, 1970
- x_5 = mean public assistance payments, 1970
- x_6 = percent of population receiving social security, 1970 and
- x_7 = percent of population receiving public assistance times the mean payment, 1970.

to or slightly above the state average ($7,604 in 1970). Further, mean incomes for almost half of these counties have doubled from 1960 to 1970 (which approximates the state average increase). Hence, the rate of income increase and tendency to be equal to or higher than the state average is thought to attract people.

To test the retirement hypothesis, correlation between net migration and social security variables was examined. Small but positive correlations occurred between mean payment size (x_4) and net migration (x_1)(r_{41}=.10) and between percent of county population receiving payments (x_6) and net migration (r_{61}=.04). These relationships do not prove cause and effect, but do lend support to the idea that the retirement motive is behind some migration.

The relationship between net migration and public assistance was examined to test the welfare hypothesis. A negative but low correlation exists between net migration (x_1) and the percent of population on welfare (x_3)(r_{31}=—.05). The relationship between net migration and the compound welfare variable (x_7) was found to be small, negative and insignificant (r_{71}=—.01). Positive correlation was found between net migration and mean public assistance (x_5)(r_{51}=.13). Evidently in-migration does not accompany large welfare roles, and in fact, the reverse may be true. Our analysis does not show that welfare recipients move to counties where welfare systems may be easy to access. This could be true for either or

both of two reasons. (1) Potential welfare recipients do not seek opportunities to exploit county welfare systems in Oklahoma by moving to counties where they are more likely to qualify for public assistance, or (2) such opportunities do not exist. However, our analysis supports the hypothesis that welfare recipients will migrate to exercise a preference for more rather than less benefits.

CONCLUSIONS

Three major hypotheses were advanced as explanations for the large in-migration into some Oklahoma counties. The first, which was tentatively accepted, was that income differentials among the counties motivated human movement. Although migration and county income levels were positively correlated, a few contradictions resulted to leave the test less than totally conclusive. A better hypothesis, perhaps, would be that job opportunities and differentials in opportunities account for differences in migration.

The second hypothesis tested was that southeastern Oklahoma is attracting people because the area is a relatively desirable place in which to live, particularly in retirement. To test this hypothesis, the growth of southeastern Oklahoma was correlated with social security income payments. Correlation was sufficiently high that the hypothesis could not be rejected.

Finally, a welfare hypothesis was tested. That is, an attempt was made to test the willingness of people to move to areas offering large public assistance incomes to a large percentage of the population. The hypothesis was not accepted and there was some evidence of a reverse condition. Some positive correlation was found between mean county public assistance payments and net migration, indicating that if people are on welfare, they prefer more welfare to less. But preferences for wage income over welfare income were indicated by the fact that counties with above average numbers on welfare were losing rather than gaining population.

Classical economic motivations explain a portion of man's willingness to migrate. Evidence indicates that people will migrate to improve their economic well-being: That is, they will move to areas of higher income. But they also evaluate non-income quality of life factors at alternative locations as relevant variables affecting their migration decisions. Further research is needed to better specify and measure such factors so that they can be more effectively considered in research to explain migration patterns.

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