Net Migration in Nonmetropolitan Counties in 1990-2000: A Test of Perspectives (Extended Abstract)

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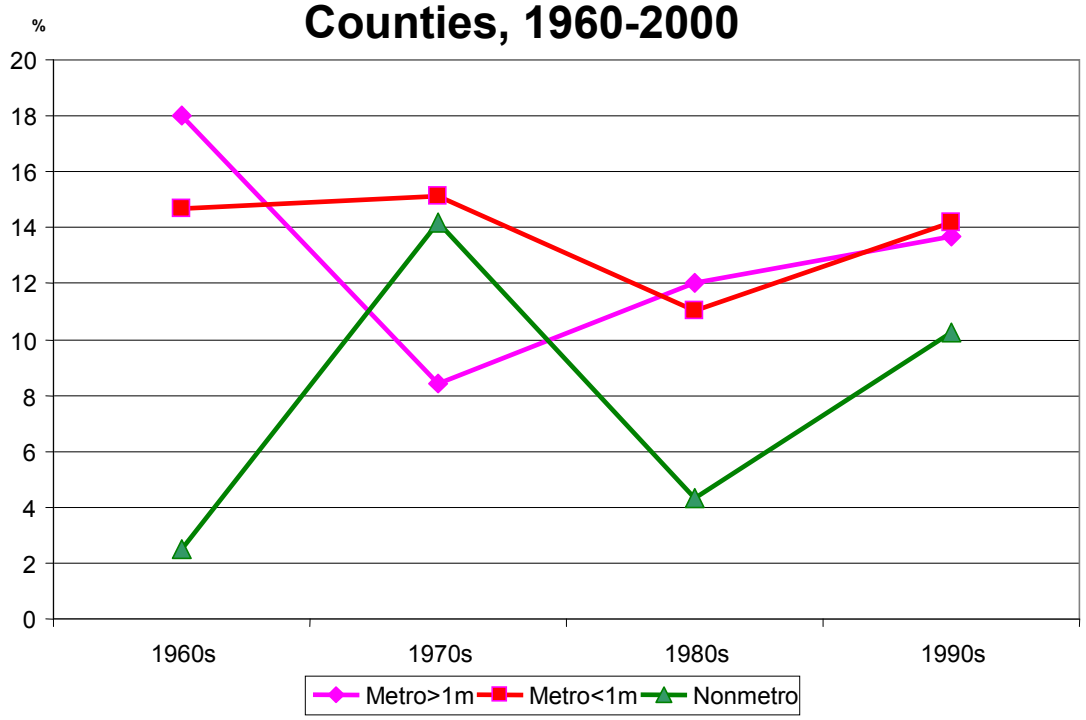
Introduction

According to the historical data, Nonmetro counties, the green line in Figure 1, experienced dramatic changes. It had a **high growth period in 1970s** from only 2% to 14%. But declined in 1980s to 4%, which was still a much higher growth than the 1960s. Between 1990-2000, the nonmetro areas resumed a high growth rate of 10%.

In contrast, growth rates of metro areas slowed down as a general trend. The most striking change happened in 1970s when the large metro counties with more than 1 million population, **the purple line**, slowed down to a much lower speed than its nonmetro counterpart.

To further understand the causes of population growth, we need to decompose the growth patterns into natural increase and migration.

Figure 1: Population Growth Rates of US Counties, 1960-2000

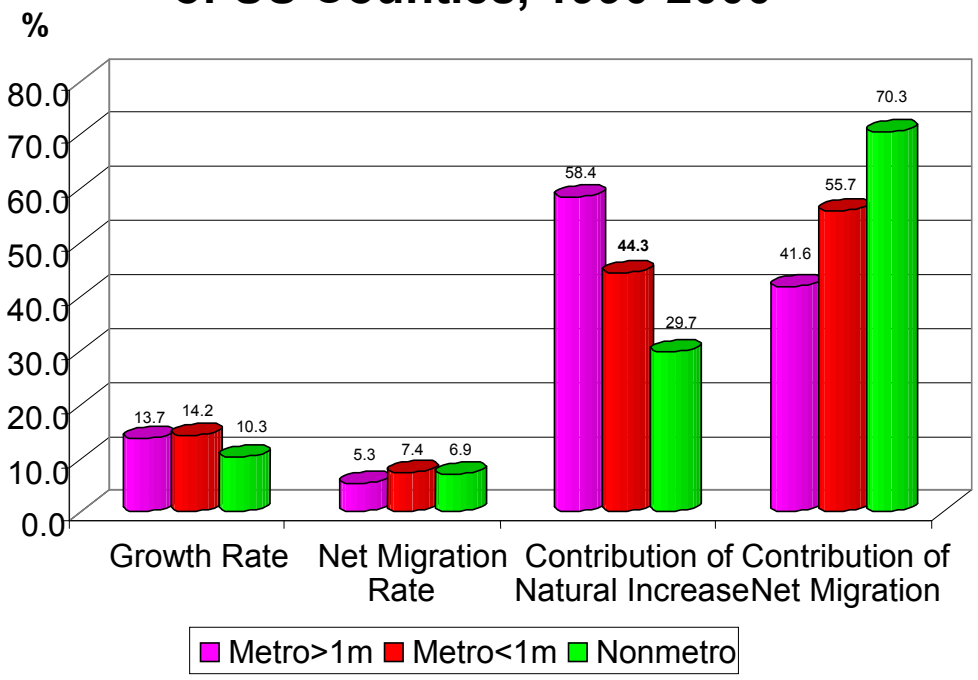


As illustrated at Figure 2, smaller metro counties with less than 1 million population, the red bar, still ranks first on net migration rate. But the 2nd place is taken by nonmetro counties, which is very close to the highest. The large metro counties have a lower net migration rate than the other 2 categories.

For **large metro counties**, almost 60% of the growth comes from natural increase while that of **nonmetro counties** is only 30%. In other words, 70% of the growth of nonmetro counties comes from net in-migration. This is a big contrast. However, this pattern has been in existence since 1970s.

Since net migration is the major part of nonmetro population growth, our research will focus on the determinants of net migration of nonmetro counties.

Figure 2: Population Growth/Net-migration Rates of US Counties, 1990-2000



Explanations for the "Nonmetro Turnaround" in 1970s

Many explanations have been put forward for the nonmetro turnaround in 1970s. Here are 4 of them that we are going to test.

Period explanation states that the "non-metro Turnaround" was caused by the unique economic/demographic conditions in 1970s. One of them is the overcrowded labor market b/c of baby-boomers.

Deconcentration Explanation states that Americans have a preference for rural, low density, high-amenity locations. But job location limited their choices of residence. However, technological advances loosened these constraints. People have more flexible choices in their residence. Therefore, those rural areas adjacent to metro centers gained population at a faster speed.

Regional restructuring Explanation says that American economy was restructuring its economy to adjust to a global economy. Heavy industries moved to rural area or foreign countries. The metro areas that are still growing are where more "advanced" industries are growing, such as finance, insurance, real estate and high tech industries.

Human ecology states that when the equilibrium of an ecological system is broken, migration is the fastest way to adjust to the environment through the interactions of population, organization, environment and technology, known as the POET model. Among these POET factors, organization is considered the most important one through which other variables exert their influence. In our models, we are going to test this hypothesis by looking at the standardized regression coefficients.

Data

- Dependent Variable: Net Migration Rate 1990-2000
  Population data: Census 1990 &2000
  Birth & Death: NCHS
  Net migration=P_{2k}-P_{90}-(Birth-Death)
- Independent Variables:
  Economic types: USDA Economic Research Center
  Others: 1990 & 2000 Census

Hypotheses

Theory	*Test Variables* (in 1990)	*Expected*	*POET?*
Period Effect	% of Youth 15-24	-	P
Deconcentration	Retirement county or not (1= yes)	+	O
	Water area per person	+	E
	Pop Density	-	P
	% households having 2+ cars	+	T
	Adjacency to Metro (1= yes)	+	E
Restructuring	% in Agriculture	-	O
	A mining dominant county? (1= yes)	-	O
	% in manufacturing	+	O
	% in modern industries (IT, finance)	+	O
Human Ecology	Index of industry differentiation (M1)	+	O
	Poverty rate	-	E
	Birth rate	-	P

Multivariate Regression Results of Net Migration Rates of Non-metro Counties of US, 1990-2000

All our hypotheses are correct except that % of youth and poverty rate are not significant. Period effect receives no support from this model.

The highest beta coefficient is the retirement variable. This confirms the deconcentration explanation that the rural growth was in a large part due to the in-migrants of elderly population who have retired and migrated to a place with more amenity.

The second largest beta is the % of workers in agriculture. This means that there is less the net migration in counties with higher proportion employed in agriculture. This confirms the restructuring explanation that the migrants moving to rural areas are not those who move to engage in agriculture.

3 of the 5 variables in deconcentration theory have high beta coefficients and they are very significant.

According to Human Ecology, organization variables are the most important ones. And the two largest beta coefficients, retirement and % in agriculture, are organizational variables in Human Ecology.

The whole model explained 37% of the variance of net migration rate.

Table 1: Multivariate Regression of Net Migration Rates of Non-metro Counties of US, 1990-2000

Theory	Variables in 1990	Coef.	P>|t|	Beta	POET?
Period Effect	% of Youth	0.138		0.041	**P**
Deconcentration	**A Retirement County? (1=Yes)**	**15.527**	***	**0.370**	**O**
	Water area per person (M^2)	0.000	*	0.035	**E**
	Density	**-0.120**	***	**-0.163**	**P**
	% of Households having 2+ cars	0.266	***	0.090	**T**
	Adjacency	**2.593**	***	**0.111**	**E**
Restructing	**% Employed in agriculture**	**-0.280**	***	**-0.238**	**O**
	% employed in manufacturing	**0.111**	***	**0.109**	**O**
	A mining county? (1=Yes)	-3.410	***	-0.072	**O**
	% employed in IT & Finance	0.649	***	0.081	**O**
Human Ecology	Index of Industry Differentiation (M1)	28.879	***	0.089	**O**
	Poverty rate	-0.022		-0.015	**E**
	CBR	-0.610	**	-0.049	**P**
Constant		-31.222	***		
Adj. R2		.37	***		

* P<.05 ** P<.01 *** P<.001

Conclusion

- The deconcentration explanation received some support from the model. Retirement counties received a lot of in-migrants. Non-metropolitan counties adjacent to metro areas received more net-migrants than those that are not adjacent.
- Restructuring and human ecology theories received moderate support from the model. They explained certain aspects of the net-migration to non-metro areas during 1990-2000.