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ABSTRACT

Data from 100 farming-dependent counties in the U.S. are used to measure the impact of acreage reduction programs on the level of the rural nonfarm population. Results of a simultaneous equation model suggest that the programs had a negative influence on the number of rural nonfarm people, reducing the rural nonfarm population in these counties by an estimated 15 to 22 percent over the 1960-90 period.

Key words: cropland diversion programs, farming-dependent counties, rural nonfarm population change.

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Cropland Diversion Programs and Rural Nonfarm Population Change

Evert Van der Sluis and Willis L. Peterson**

Acreage reduction programs have been used in the United States since the 1930s to reduce commodity production and improve the environment. This study tests the impact of cropland diversion programs on the change in the rural nonfarm population. We hypothesize that acreage reduction programs hastened out-migration of rural nonfarm people.

Since the late 1950s set asides, acreage reductions, and paid diversions have been used as short-term commodity supply controlling instruments. Set-asides and acreage limitation programs require the farmer not to plant a specified proportion of the acreage base (a five year moving average of acres planted or considered planted) of a specific crop; and paid diversions are tied to either the planted acres or the crop acreage base. Unlike the former two programs, farmers' participation in paid diversion programs are not tied to price supports. Additional supply control measures are the long-term conservation programs. While additional supply-controlling measures have been used, these are the major supply controlling instruments that have diverted cropland out of production into land used for conservation purposes and towards non-use. For the purpose of this study the program instruments are used interchangeably, and are defined here as government programs which take cropland out of agricultural production in return for a payment, and include short and long-term programs.

Efforts to reduce commodity supplies by reducing crop acreage in return for payments to farmers have been in effect since the implementation of the Agricultural Adjustment Act in 1933. Major supply controlling measures took effect with the Agricultural Act of 1956, which established the Soil Bank with an annual Acreage Reserve Program (ARP) and a long term (up to 10 years) Conservation Reserve Program (CRP). Since then, annual acreage reduction and long-

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term general land conservation programs, such as the Cropland Adjustment Program, have been established.

In the 1970s increased export demand led to an emphasis on market-oriented agriculture with limited supply controls and small government payments, turning most set-aside land into cropland again. However, by the early 1980s foreign demand declined, prices weakened, stocks increased, and program costs increased. A combination of large acreage reductions by the Payment In Kind (PIK) program and a nationwide drought in 1983 only temporarily reduced the surpluses. In 1985 a new (10 year) CRP was established, while annual acreage set aside requirements were left in effect. In 1990 the CRP was revised to further emphasize cropland conservation. In 1994 11.1 percent (49 million acres) of total U.S. cropland was taken out of production, of which almost three-quarters was enrolled in the CRP.

Effects of cropland reduction programs on rural areas

Cropland diversion programs affect the rural nonfarm population in two offsetting ways. On the negative side the removal of cropland from production decreases demand for purchased inputs that otherwise would have been applied to this land. This has been confirmed by studies on the Soil Bank which have linked acreage reduction to job loss in agriculture itself (Christensen and Micka; McArthur; and Schmid), and in rural communities at large (Barr et al.; Butler and Lanham; and Taylor et al.). Studies on the PIK program (U.S. Department of Agriculture, b) and on the present CRP (Young and Osborn; Martin et al., Mortensen et al., and Standaert and Smith) reaffirm this conclusion. Farm input industries are particularly affected (Ericksen and Collins). This causes communities which serve as trade centers of agricultural inputs and products, and those with much diverted cropland, to be most adversely affected.

A further problem is that the tax status of CRP land may be lowered, decreasing property value assessments, lowering county tax revenues, and increasing the tax burden on other local inhabitants, and further stimulating rural out-migration (Carlson and Bedell). These negative impacts may in part be reflected in the fact that for the last half-century the population of small rural communities declined as a percent of the total (figure 1). Towns of less than 1,000 lost population in both absolute and relative terms.

The negative side effects of the programs may be partially offset by higher crop prices, program payments, and the incentive to substitute purchased inputs for land. Nevertheless, these payments are less likely to spur investment, given the decreased demand for capital due to the acreage decrease. Whether the positive or the negative forces dominate is an empirical question.

Conceptual Model

The model employed in this paper is similar to the labor push-pull model constructed by Peterson and Kislev (P-K). The object of the P-K study is to measure the relative forces that caused labor to move away from agriculture. These relative forces are, on the one hand, that labor is pushed out of agriculture by a decrease in the price of machine services and, on the other, that labor is pulled out of agriculture by higher earnings in the nonfarm sector. The relative strengths of these forces are measured by shifts in the demand for and supply of farm labor. The two-equation model of supply of and demand for cotton-picking labor was estimated using Two-Stage Least Squares. In this study we do essentially the same thing for rural nonfarm labor, except that here we are mainly interested in the effect of cropland changes on the demand for this labor. Additional demand and supply shifters are incorporated in our model to acknowledge that in addition to cropland diversion programs, there are other forces that have caused changes in the rural nonfarm population.

The demand for rural nonfarm labor is a derived demand, derived from the demand for farm inputs and consumer goods and services purchased by farm people. Shifts in the demand for farm inputs and consumer goods in turn shift the demand for rural nonfarm labor (people). The assumption underlying input demand estimation is profit maximization. The general profit function is represented as follows.

$$\pi = p_y f(x_1, \ldots, x_n) - p_1 x_1 - \ldots - p_n x_n,$$

where $x_1, \ldots, x_n$ are the inputs used in the production of output y, at input prices $p_1, \ldots, p_n$, and output price p_y. Under standard neoclassical behavioral conditions, the first order conditions for profit maximization yield:

$$p_y \frac{\partial f(x_1, \ldots, x_n)}{\partial x_i} = p_i \qquad for \quad i = 1, \ldots, n. \tag{1}$$

Equation (1) states that the profit maximizing quantity of each input corresponds to the point where the input price equals the value of the marginal physical product of input x_i (VMP_i) in the production of output y, where VMP_i is defined as the product of the output price and the marginal physical product MPP_i. Solving equation (1) yields the input demands as a function of input and output prices and demand shifters:

$$x_i = \psi(p_y, p_1, \ldots, p_n, \mathrm{T}),$$

where T = a vector of demand shifters. Changes in the MPP_i are the result of changes in quantities of complements or substitutes of input x_i. The market input demand function X_i is found by summing each farm's demand for x_i over the number of farms, m:

$$X_i = \sum_{j=1}^{m} x_{ij} = \psi(p_y, p_1, \ldots, p_n, \mathrm{T}) \qquad for \ i = 1, \ldots, n \ and \ j = 1, \ldots, m.$$

In this study land is viewed as a complement to purchased inputs, i.e. an increase in cropland is associated with an increase in purchased inputs, ceteris paribus. This implies that a decrease in the cropland input shifts the MPP curves of purchased inputs to the left. In other words, a decrease in cropland use in turn decreases the demand for purchased inputs.

The supply of services provided by the rural nonfarm population, and hence the supply of the rural nonfarm population is derived from a utility maximization problem which incorporates leisure and consumer goods. Rural nonfarm consumers are assumed to maximize their utility function, U(.) subject to their budget constraint:

$$\max \ U(c,r) \quad s.t. \quad wl + I_0 - p_c c,$$

where:

c = vector of consumption goods,

p_c = price vector of c,

r = leisure,

l = quantity of labor,

w = wage rate of l, and

I_0 = other income.

Furthermore, the amount of labor provided by the rural nonfarm population is constrained by a constant, restricting the sum of the time available for leisure and work to be limited to the number of hours available, i.e. $a = r + l$. The interior solution to the first order conditions yields the labor supply curve as a function of the wage rate, other income, and the prices of consumer goods:

$$l = \phi(w, I_0, p_c).$$

Again, summing the individual supply equations yields the market supply of services provided by the rural nonfarm population, and thus the market supply of the rural nonfarm population.

$$L = \sum_{k=1}^{h} l_{ik} = \phi(w, I_0, p_c, \Phi) \qquad for\ i = 1,\ldots,n\ and\ k = 1,\ldots,m,$$

where: Φ = a vector of supply shifters.

Empirical Model

Demand

As will be explained more fully in the following section, county level cross-sectional data are used to estimate the model. Consequently, demand shifts that occur over time as a result of changes in relative prices, technology, and infrastructure do not have to be explicitly incorporated into the model. These changes are assumed to occur equally across different locations from one point in time to another.

The quantity demanded of goods and services produced by the rural nonfarm population is measured by the number of rural nonfarm people (NFP^d). This quantity is a function of wage rates plus exogenous county specific demand shifters. Although wages for given skill levels are established in a national market, there can be differences across counties depending on their proximity to urban labor markets. Because county level wage rates are not available for rural nonfarm people, their per capita real income (Y) is used as a proxy.

The main demand shifter of interest in this study is acres of diverted cropland (DL). Large counties will, of course, have more diverted acres than small ones. To account for differences in county size as well as differences among counties in land quality and population density, three additional demand shifters are included: total cropland (CL), value of land in farms (VL), and farm population (FP). The land value variable is used as a measure of land quality. Population pressures are assumed to have relatively little influence on land values because the data in this study are drawn from agriculturally dependent counties. While it has been documented that farm programs payments tend to favor relatively large farms, there is no indication cropland diversions in particular affect farm size. Hence, we assume that the size of the farm population is not directly affected by cropland retirement programs, allowing us to treat the farm population variable as exogenous. Although farmers may seek additional off-farm income due to the decreased labor requirement on their farms, we assume that there is no increased incentive for off-farm migration.

The model is estimated for three periods: 1960-70, 1970-80, and 1980-90. The reference period is 1960-70. Shift dummies are included for the latter two periods to capture the effects of changes over time in such factors as relative prices, technology, and infrastructure.

The demand equation is specified as:

$$(2) \quad NFP_i^{d*} = \alpha_0 + \alpha_1 Y_i^* + \alpha_2 DL_i + \alpha_3 CL_i + \alpha_4 VL_i + \alpha_5 FP_i + \alpha_6 T7 + \alpha_7 T8 + \mu_i,$$

where:

NFP_i^{d*} = rural nonfarm population in county i (number of people),

Y_i^* = per capita real income, a proxy for price of labor in county i (dollars/person),

DL_i = diverted cropland in county i (number of acres/year),

CL_i = cropland in county i (1000 acres),

VL_i = average land value per acre in county i (dollars/acre),

FP_i = farm population in county i (number of people),

T7 and T8 = shift dummies for 1970-80 and 1980-90 respectively,

and "*" denotes the endogeneity of a variable.

Supply

Labor supply by the rural nonfarm population in each county is taken to be a function of wages plus exogenous county specific supply shifters. As in demand, quantity supplied of labor is measured by the number of rural nonfarm people in each county (NFP^s). Per capita real income (Y) is again a proxy for wages. To account for differences in county size and population density, the urban population in each county is inserted as a supply shifter (UP).

Annual earnings in manufacturing (MW) in nearby urban labor markets are inserted as a second supply shifter. Higher than average levels of these earnings are hypothesized to decrease the supply of rural nonfarm labor, other things equal.

Employment opportunities in urban labor markets depend also on the educational level of job seekers. Hence the percent of the population age 25 and above in each county with at least a high school education (ED) is inserted as a supply shifter. The average unemployment rate (NM) in each county also is included in the supply equation. Other things equal, above average schooling should decrease the rural nonfarm labor supply, while a relatively high unemployment rate, indicating greater difficulty of finding work in the urban sector, should increase supply. The supply equation also contains time dummies, T7 and T8, to account for changes in supply that occurred over time.

The supply equation is specified as:

$$(3) \quad NFP_i^{s*} = \beta_0 + \beta_1 Y_i^* + \beta_2 MW_i + \beta_3 UP_i + \beta_4 ED_i + \beta_5 NM_i + \beta_6 T7 + \beta_7 T8 + \nu_i,$$

where:

NFP_i^{s*} = rural nonfarm population in county i (number of people),

MW_i = manufacturing annual earnings in county i's labor market (dollars/capita),

UP_i = urban population in county i (number of people),

ED_i = percent of over age 25 population with high school in county i,

NM_i = unemployment rate in county i (percent).

Imposing equilibrium conditions implies: $NFP^{d*} = NFP^{s*} = NFP$. The equations are estimated in a simultaneous demand and supply model, in which rural nonfarm population and real per capita personal income are endogenous variables and the remaining variables are exogenous.

The Data

The data are drawn from 100 cluster-wise randomly selected farming-dependent counties, encompassing the three decades from 1960 to 1990. Farming-dependent counties are defined as those to which farming contributed a weighted annual average of 20 percent or more of total labor and proprietor income over the five years from 1975 to 1979 (Bender et al.). The sample counties are spread throughout the United States, but are heavily concentrated in the Great Plains from North Dakota to Texas. Figure 2 shows the location of the 710 farming dependent counties, as defined by Bender et al., and shows the population losses these counties underwent between 1960 and 1990. Note that the negative numbers indicate population increases in the figure. While population losses occurred in most of the farming-dependent counties, the greatest population losses occurred in northern Texas (south of the Panhandle) and the Dakotas. Of the 710 farming-dependent counties, 36 counties lost more than 40 percent of their total population, 267 counties lost between 40 and 20 percent, and 212 counties lost less than 20 percent of their total population between 1960 and 1990. The remaining farming-dependent counties gained population.

In spite of changes in the farming-dependency status of some of the counties over the study period, the sample of counties remained identical for the three decades, because the objective of the study is to quantify the impact of cropland diversion on rural nonfarm outmigration. Although these impacts could have been measured using a random set of all counties, the impacts are most pronounced in farming-dependent counties, and are therefore easiest to measure, because these counties rely more than most on federal subsidies and lack economic alternatives to agriculture.

Table 1 lists summary statistics by decade of the variables included in the analysis, and also includes the percentage of U.S. cropland diverted. Agricultural data were obtained from Censuses of Agriculture, with the exception of cropland diversion data prior to 1978, which were taken from the U.S. Department of Agriculture (a). The remaining data were acquired from County and City Data Books, except those of 1990, which were taken from the Census of Population and Housing, and the State and Metropolitan Data Book.

Since cropland diversion data for the counties are not available for every year, averages for the early and later parts of each decade are used to obtain one representative observation per decade. Data for the 1960-70 decade are averages of 1962, 1963, 1967, and 1968; those of 1970-80 are averages of the mean of the 1972 and 1973 observations, and the 1978 Census observation; and those of the period 1980-90 are the mean of the 1982 and 1987 Census observations. For a small number of counties the cropland diversion data were not available for those years. In this case, a preceding or following year's observation was used. The same years were used to represent the U.S. diverted cropland data listed in table 1. The panel data set of 100 counties for three decades contains 300 observations.

The earnings in manufacturing variable was constructed as the average of earnings in manufacturing in urban regions surrounding a county weighted by city population size. For most counties a state-wide average of prevailing manufacturing earnings in a state's urban centers was used, but for those close to a major urban center in a neighboring state the earnings in manufacturing in that city was also included in the average. For example, the average manufacturing wage of Buffalo, WI, includes that of Minneapolis-St. Paul, MN. Also, counties for which no earnings in manufacturing data were available due to the nonexistence of nearby urban centers, the average of manufacturing earnings in urban areas in nearby states was used. A further description of details related to the data is listed in Van der Sluis.

Results

Equations (2) and (3) were estimated using limited information Two-Stage Least Squares (2SLS) and Three-Stage Least Squares (3SLS). The two procedures show similar results, with some exceptions (Table 2). The endogenous wage variable has the expected signs, with statistically significant results at the $p = 0.005$ level in both structural equations. The estimates result in a downward sloping demand curve with respect to wage (proxied by per capita income) and an upward sloping supply curve. In the demand equation, the diverted cropland acres parameter estimate is negative and with a coefficient-standard error ratio greater than two, supporting the hypothesis that cropland diversion has contributed to a decline in the demand for the services provided by the rural nonfarm population. The remaining exogenous variables in the demand equation have their expected signs and have coefficient-standard error ratios greater than two.

In the supply equation, the real earnings in manufacturing parameter estimate is as expected negative, but coefficient-standard error ratios are less than two. These result suggests that the prevailing earnings in manufacturing provides only a minor pull effect to the rural nonfarm population. It may be that earnings in manufacturing in the regions do not reflect the true opportunity earnings for the respective rural nonfarm population. Also, the small cross sectional variability of earnings in manufacturing among counties may not be sufficient to obtain a reliable estimate of their impact.

The remaining parameters of the exogenous variables in the supply specification have their expected signs and have coefficients more than twice their standard errors. The number of people living in urban areas is an important shifter of the supply of the rural nonfarm population. Also, the supply of rural nonfarm people shifts to the left as the number of people having a high school diploma increases, and as county unemployment levels increase.

The model was also analyzed with the inclusion of slope dummy variables to account for time-wise differences in the change in rural nonfarm population levels due to cropland diversions. The slope dummies for both the 1970-80, and 1980-90 periods were found to be smaller than twice their standard error, suggesting that the change in the nonfarm population due to acreage diversions remains the same over the three time periods. Comparing the effect of the T7 and T8 variables in the demand and supply equations suggests that since the decade of the 1960s the demand for the rural nonfarm population increased in the 1970s, and more so in the 1980s. However, according to these results, the supply of the rural nonfarm population remained unchanged from the 1960s to the 1970s, followed by an increase in the 1980s, suggesting that the supply of the rural nonfarm population has not kept up with the increase in the demand for rural nonfarm people during this thirty-year period. These results are consistent with the increase in their real wages over this period.

Predicting impacts from the reduced-form equations

The equilibrium values of the endogenous variables are found by solving the corresponding reduced forms of structural equations (2) and (3). Thus,

$$Y = \frac{1}{(\alpha_1 - \beta_1)} [B - A],$$

and

$$NFP = \frac{\alpha_1}{(\alpha_1 - \beta_1)} B - \frac{\beta_1}{(\alpha_1 - \beta_1)} A,$$

where:

$$A = \alpha_0 + \alpha_2 DL + \alpha_3 CL + \alpha_4 VL + \alpha_5 FP + \alpha_6 T7 + \alpha_7 T8 + \mu,$$

and

$$B = \beta_0 + \beta_2 W + \beta_3 UP + \beta_4 ED + \beta_5 NM + \beta_6 T7 + \beta_7 T8 + \nu.$$

The reduced form equations are used to compute the effects of changes in the number of cropland acres diverted on the rural nonfarm population. To obtain the average per decade shift in the equilibrium rural nonfarm population level due to changes in cropland diversions acreage, we take the partial derivative of the rural nonfarm population variable with respect to the diverted cropland variable

(4) $$\frac{\partial NFP}{\partial DL} = \frac{\beta_1}{(\alpha_1 - \beta_1)} \alpha_2$$

By substituting the parameter estimates in equation (4), the equilibrium rural nonfarm population would be decreased by - (4.0985 x 0.0566) / (-1.6332 - 4.0985), equaling more than 40 individuals per decade for each 1,000 acres of diverted cropland using the 2SLS parameter estimates, or more than 37 using the 3SLS estimates, respectively. Over the three ten-year periods, each of the 100 counties had on average 19,945 acres of cropland diverted annually. Hence, in the absence of diversions, it is estimated that the rural nonfarm population would have been on average 807 (743 using 3SLS) individuals larger per decade, respectively. This results in an average population loss of 5.4 (5.0 using 3SLS) percent per decade per county, based on the average population of the sample counties over the three-decade period of 14,875. Linearly extrapolating these results over the 1960-90 period encompassed by these data suggests that the rural nonfarm population is more than 15 percent smaller because of the cropland diversion programs in these counties. We multiply the per decade estimate by three to account for the entire period. If the crop diversion programs would have ceased in 1970 or 1980, the population loss would have been smaller. Also, it should be noted the coefficients represent a long run response because of the use of cross-section data.

Cropland diversion data are available for 62 of the sample counties for the 1950s. Fitting the model for the 62 county sample over the four decade period yields an estimated 7.4 percent rural nonfarm population loss per decade, or close to 30 percent from 1950 to 1990. This corresponds with a nonfarm population loss of about 22 percent over the three-decade period from 1960 to 1990 for these counties. The analysis using 1960-90 data represents a lower bound rural nonfarm population loss, since cropland diversion programs began in the second half of the 1950s.

Whether the programs had a similar effect across the entire country is hard to say. The higher percent of cropland diverted nation wide during the 1980s (table 1) suggests that the general effect may have been even greater than indicated from our sample data. On the other hand, where farming is less dominant, other industries can more readily provide alternative employment opportunities.

Conclusions and Implications

The results of the study show that cropland diversion programs have contributed to a relative decline in the number of rural nonfarm people. Fitting a simultaneous equation model to the data from 100 farming-dependent counties in the U.S., we found that the programs reduced the rural nonfarm people in these counties by an estimated 15 to 22 percent over the 1960-90 period.

The sample of the agriculturally-dependent counties used in the study is a representation of all counties that were classified as farming-dependent in the period 1975-79. Hence, the conclusions of this study are limited to counties that were classified as farm-dependent during that period. Yet, the study has relevant general policy implications. First, even though the hypothesis that the impact of cropland diversion programs on rural nonfarm population change is positively correlated with the degree of income dependence on farming was not formally tested, this relationship is likely to hold. Hence, extrapolating the study's results to rural counties in general would suggest that while the extent of the impact of cropland diversion programs on rural nonfarm population changes has likely been relatively small in rural counties with a relatively small dependency on the agricultural sector, the direction of the impacts are more than likely the same. This would further imply that as counties become less dependent on the agricultural sector over time, the impact of the cropland diversion programs on rural nonfarm population change also diminishes. Nevertheless, the introduction of time period dummy variables in this study did not show a significant differential impact between the three decades observed here.

Second, the results imply that although the cropland diversion programs' primary goals of supply reduction and land conservation may have been attained, they also appear to have contributed to the economic and demographic decline of rural America. Third, the results suggest that the reduction in the number of diverted cropland acres prescribed by the Federal Agriculture Improvement and Reform Act of 1996 (FAIR Act of 1996), will reduce the decrease in the rural nonfarm population in these farming-dependent counties, ceteris paribus. However, because of factors affecting the rural nonfarm population, this does not imply that the trend of a general reduction in the rural nonfarm population will be reversed due to the introduction of the 1996 FAIR Act.

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Table 1. Mean Values of the Variables, 100 Agriculturally Dependent Counties, by Period

Variable	1970	1980	1990
Nonfarm Population (%)[a]	50.2	56.5	64.9
Per Capita Income ($)[b]	6195.3	7644.0	8085.6
Diverted Cropland (%)[c]	11.5	6.1	7.5
U.S. Diverted Cropland (%)[c]	11.8	6.5	10.0
Value/Acre ($)[d]	529.9	902.5	695.9
Farm Population (%)[a]	30.0	22.4	15.2
Earnings in Manufacturing ($1000)[b]	17.2	18.2	20.3
Urban Population (%)[a]	19.3	21.2	19.8
Education (%)[e]	46.4	59.9	69.1
Unemployment (%)[f]	3.6	5.0	5.2

[a] Percent of the total population in 1970, 1980, and 1990, respectively

[b] Deflated by the CPI-W (1987=100), 1969, 1979, and 1989 data, respectively

[c] Percent of total cropland in sample years.

[d] Deflated by CPI-W (1987=100), 1964, 1969, 1974, 1978, 1982 and 1987 data, respectively

[e] Percent of individuals of age 25 and older with a high school diploma

[f] Percent of civilian labor force.

Table 2. Two-Stage and Three-Stage Least Squares Estimates of the Structural Model, Equations 2 and 3, 1960-90 (Rural Nonfarm Population and per Capita Income Variables Are Endogenous)

	2SLS		3SLS	
Variable	Demand	Supply	Demand	Supply
Constant	4963.000	-773.6600	6396.6000*	-2511.9000
	(2831.100)[a]	(3315.000)	(2786.800)	(3232.3)
Per Capita Income (Y)	-1.6332*	4.0985*	-1.7862*	5.2932*
	(0.487)	(1.068)	(0.479)	(1.049)
Diverted Land (DL)	-0.0566*		-0.0498*	
	(0.025)		(0.024)	
Cropland (CL)	0.0063*		0.0085*	
	(0.003)		(0.003)	
Value/Acre (VL)	6.0157*		6.4279*	
	(1.004)		(0.983)	
Farm Pop (FP)	2.4924*		2.0190*	
	(0.233)		(0.224)	
Mfg Earnings (MW)		-0.1627		-0.2808
		(0.202)		(0.194)
Urban Pop (UP)		0.3762*		0.3038*
		(0.026)		(0.025)
Education (ED)		-406.6300*		-480.7900*
		(77.757)		(76.103)
Unemplmnt (NM)		475.9700*		520.0700*
		(164.180)		(157.520)
T7	2966.4000*	20.1730	2673.7000*	-574.5800
	(1195.300)	(1228.300)	(1171.400)	(1205.100)
T8	8425.9000*	2715.6000*	7785.8000*	2559.7000
	(1292.600)	(1313.000)	(1269.200)	(1284.900)
df	292	292	292	292

[a] standard errors are in parentheses

* Coefficient more than twice the standard error.

Figure 1. The relative decline of the rural nonfarm population

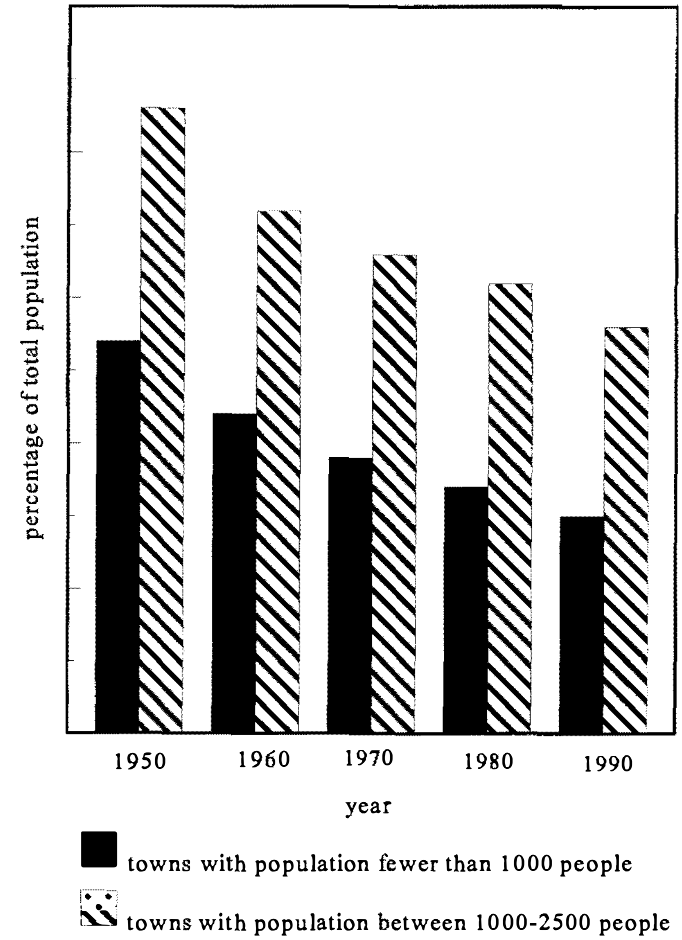
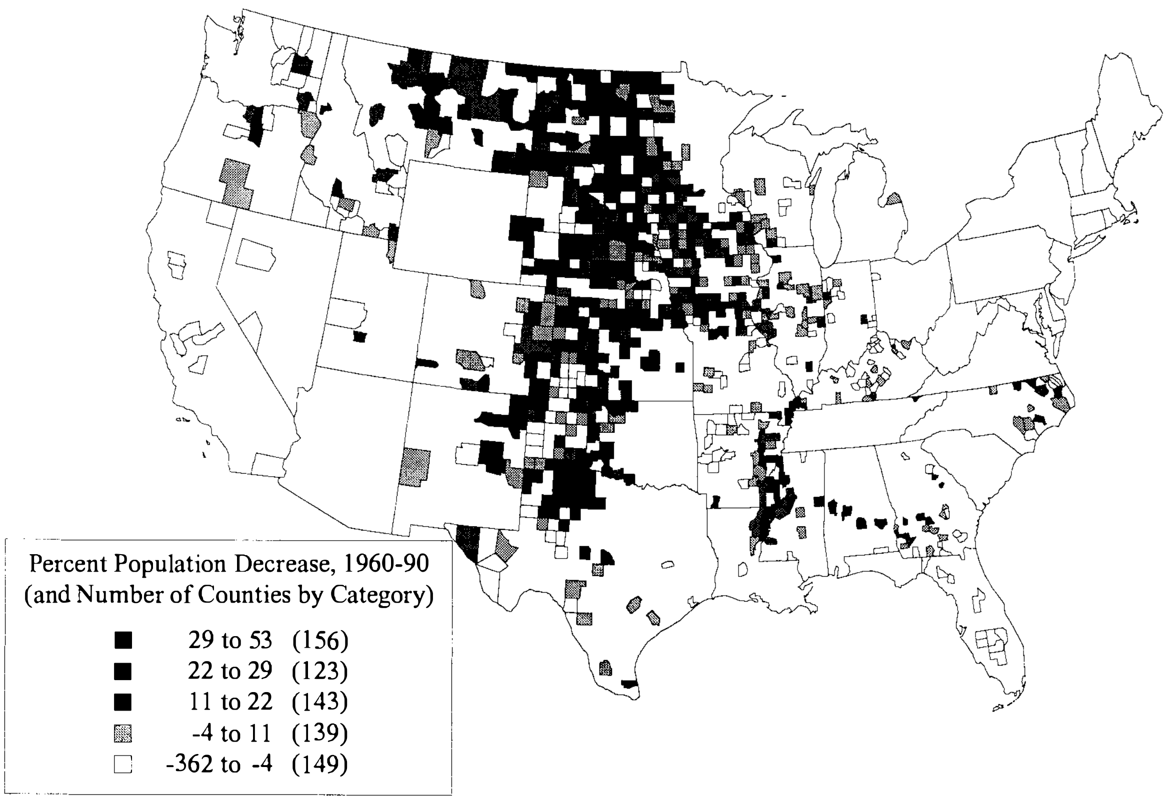


Figure 2. Population decrease in farming-dependent counties, 1960-1990[1]



[1]Sources: Bender, et al., and Forstall.
Note: Negative numbers indicate population increase.