



Future of Banking Study

Rural Depopulation: What Does It Mean for the Future Economic Health of Rural Areas and the Community Banks that Support Them?

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RURAL DEPOPULATION: WHAT DOES IT MEAN FOR THE FUTURE ECONOMIC HEALTH OF RURAL AREAS AND THE COMMUNITY BANKS THAT SUPPORT THEM?

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The United States is currently in the midst of a major demographic event: the depopulation of a significant portion of its rural counties. Importantly, there are significant differences across rural counties in terms of population growth and future economic viability. While the population in many rural counties grew after World War II, a large number of counties exhibit a persistent pattern of decline. This paper identifies the areas where depopulation is occurring, quantifies the extent of depopulation, explains the causes, and examines the implications of this trend.

Specifically, this paper examines differences between rural depopulation in four major areas of the United States – the Great Plains, the Corn Belt, the Delta-South, and Appalachia-East – and demonstrates that while populations have declined for many decades in each region, the potential for continued economic viability differs considerably. Our research concludes that the continued economic viability of the rural counties of the Great Plains is the most vulnerable, and therefore, we focus our analysis in this geographic area.

More than 1,400 insured financial institutions with total assets of more than \$131 billion are based in counties with declining populations. Therefore, rural depopulation has significant implications for the U.S. banking industry, especially with regard to the long-term health of rural community banks. Declining populations will challenge many banks on both sides of the balance sheet, as funding becomes increasingly difficult and the demand for loans continues to wane. As such, this paper also compares the performance of banks located in rural counties with growing populations with those located in depopulating counties. And finally, this paper attempts to identify strategies that some banks in depopulating areas have used to remain successful.

RURAL DEPOPULATION – THE DEMOGRAPHIC STORY

While the U.S. population continues to increase overall, many rural areas are experiencing continued problems with population outflows. The 2000 U.S. Census reported a population of 282 million people, compared to 203 million in 1970, an average annual increase of 1.1 percent. However, our analysis of Census data at the county level shows that this increase was not evenly distributed across the country. Rather, 779 of the nation's 3,141 counties lost population between 1970 and 2000. Importantly, the rate of population decline actually increased during the 1990s in 232 of the “depopulating” counties.

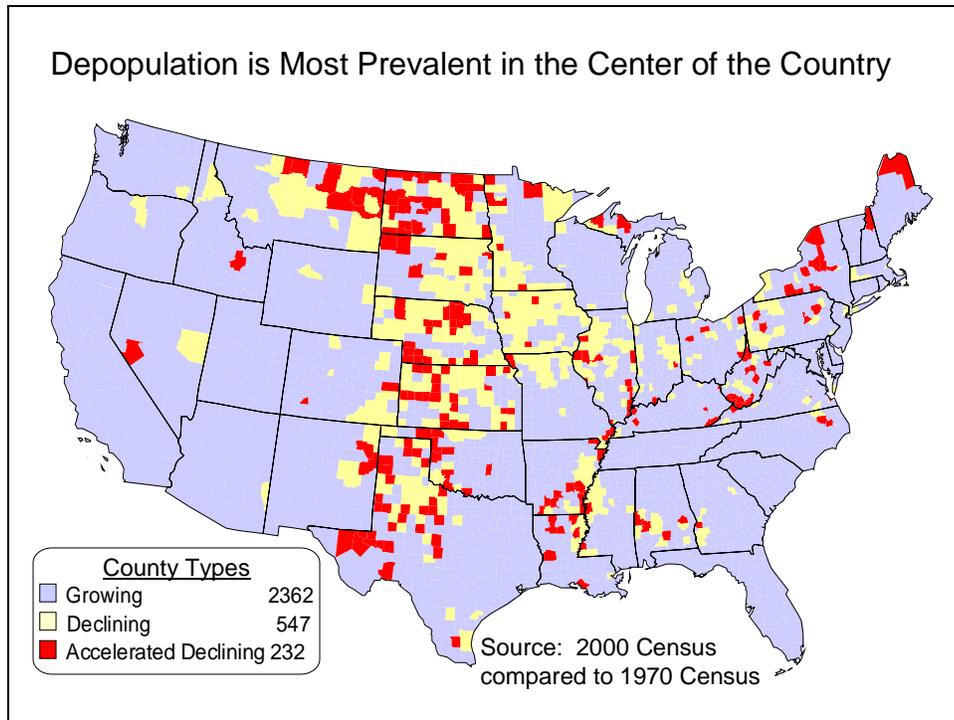
* The following DIR staff contributed to this paper: Jeffrey Walser, John Anderlik, Richard Cofer, Shelly Yeager, and Rae-Ann Miller.

For analysis purposes, this paper employs a method we developed where counties are divided into categories, depending on their rurality and population trends between 1970 and 2000. First, we separate metropolitan counties which in large part, added population during that thirty-year time span.* The remaining counties are considered rural, and are classified according to the nature and extent of population growth as follows:

- “Growing” rural counties added population between 1970 and 2000.
- ”Declining” rural counties lost population between 1970 and 2000, but not at an increasing rate during the 1990s.
- “Accelerated Declining” rural counties not only experienced a population decline between 1970 and 2000, but these counties also lost population more rapidly in the 1990s than in the prior two decades.

Map 1 illustrates these different types of rural counties and their locations. These definitions are important to remember as much of the analysis in this paper hinges on comparisons between the county types.

Map 1

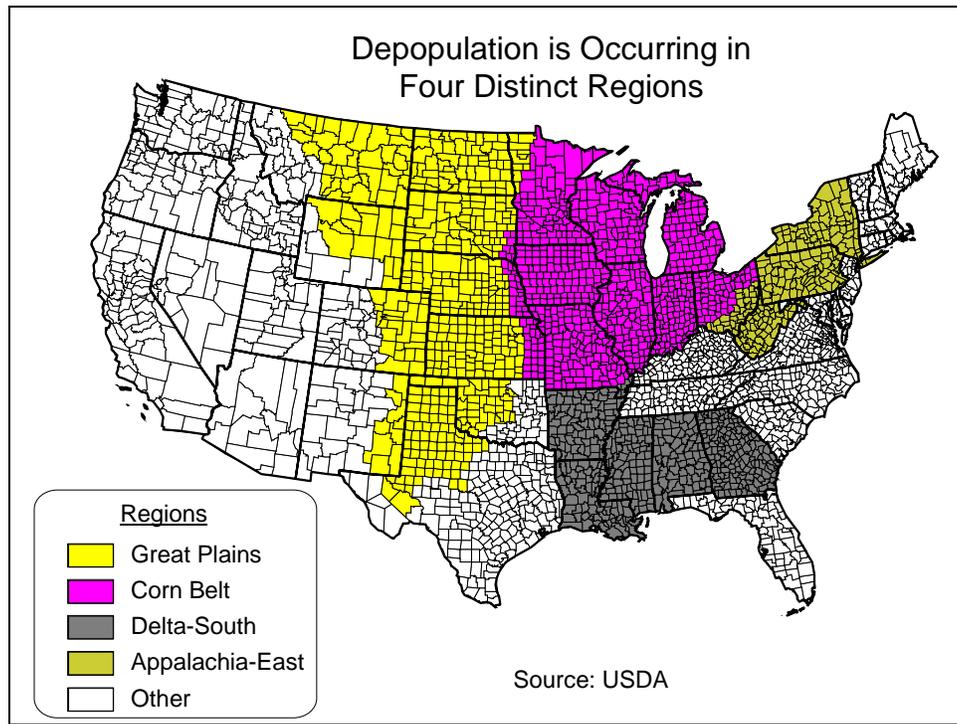


*Metropolitan counties were identified by using the United States Department of Agriculture’s “Rural-Urban Continuum Codes,” a typology developed in the 1970s and updated after each decennial census. The most recent version of the codes was released in August, 2003.

Where Have Depopulation Trends Occurred?

As Map 1 indicates, while depopulation has occurred around the country, it is centered in the middle of the country, the South, and the Northeast. For analysis purposes, we have identified four regions where significant depopulation has occurred during the past thirty years – the Great Plains, the Corn Belt, the Delta-South, and Appalachia-East (see Map 2). These regions capture just under two-thirds of all rural counties in the nation, and 91 percent of all depopulating rural counties. While each of these regions has experienced depopulation during the past three decades, the nature, severity, and causes of depopulation vary.

Map 2



The Great Plains

The Great Plains is defined as the continental slope of the west central United States, bounded on the north by Canada and on the west by the Rocky Mountains.¹ The Great Plains is the most rural of the depopulating regions – only 11 percent of the counties are metropolitan – and is experiencing the most significant rural depopulation trends. Of its rural counties, 72 percent have lost population since 1970, and more than one-third of those experienced increasing outflows during the 1990s (see Table 1). Populations in rural counties in the Great Plains are significantly smaller, and there are substantially fewer people per square mile than in the other depopulating regions.

¹ Great Plains Region definition: Thomas D. Rowley, “Sustaining the Great Plains,” *Rural Development Perspectives* (United States Department of Agriculture) 13, no. 1 (June 1998), 5.

Table 1

The Great Plains Has the Greatest Number of Depopulating Counties					
	Rural Counties			Metro Counties	Total
	Growing Counties	Declining Counties	AD Counties		
Great Plains					
Counties	120	189	115	53	477
Average population	19,250	6,093	5,849	135,805	23,756
Density (People per Sq. mile)	11.6	5.2	4.8	97.4	17.8
Corn Belt					
Counties	292	166	28	263	749
Average population	30,343	17,609	17,025	179,700	79,468
Density (People per Sq. mile)	46.7	30.3	26.5	324.3	132.3
Delta-South					
Counties	213	49	25	164	451
Average population	26,185	16,673	24,049	95,801	50,348
Density (People per Sq. mile)	46.6	28.4	33.4	181.1	89.6
Appalachia-East					
Counties	87	12	18	96	213
Average population	44,312	61,470	38,392	304,555	162,071
Density (People per Sq. mile)	65.0	99.5	62.4	556.4	264.8
Other					
Counties	678	36	24	513	1251
Average population	32,082	9,359	14,466	255,176	122,574
Density (People per Sq. mile)	14.9	8.4	10.6	243.1	74.1
Total					
Counties	1,390	452	210	1,089	3,141
Average population	30,471	13,199	13,280	211,490	89,596
Density (People per Sq. mile)	20.9	15.1	12.7	256.6	79.6

Note: "AD" counties refers to accelerated declining counties.
Source: U.S. Census

One pair of researchers aptly summarizes the demographic and economic predicament of the Great Plains as a “patterned movement of people” in response to structural changes in agriculture, the predominant industry in the region. They point out that decades of technological advances and globalization have reduced the need for agricultural labor, resulting in massive migration of agricultural laborers and those in the retail and service sectors that once served farmers. Additional problems related to out-migration include populations with disproportionately older populations and lower educational levels than the general population.²

The Great Plains is the area where depopulation has been most prevalent, the most severe, and has posed the greatest threat to local communities’ economic viability. The low population densities and relative isolation of communities in this area significantly exacerbate the effects of depopulation. As a result, we focus on the Great Plains Region later in this paper and provide more detailed analysis of why it has experienced such severe depopulation trends.

² Richard Rathage and Paula Highman, “Population Change in the Great Plains Since 1950 and the Consequences of Selective Migration,” *Research in Rural Sociology and Development* 7 (1998), 85.

The Corn Belt

The Corn Belt consists of the states identified by the USDA as major producers of that product across the central-eastern part of the country.³ As Table 1 indicates, 40 percent of the Corn Belt's rural counties lost population between 1970 and 2000; however, unlike the Great Plains, few counties lost population at an accelerating rate in the 1990s. The Corn Belt is similar to the Great Plains in that agriculture is an important industry, with farmland accounting for 60 percent of total land area.

However, because of differences in topography and weather, the types of agriculture practiced in the Corn Belt differ from those practiced in the Great Plains. Over time, these differences have translated into smaller, more prosperous farms, higher population densities, and a more dense and extensive network of cities and towns. As a result, while portions of the Corn Belt are vulnerable to the effects of ongoing rural depopulation, the risks tend to be less severe and more localized than those observed in the Great Plains.

Consider, for instance, the data presented in Table 1, which compares the various categories of counties across the four Regions of interest. It is significant that the depopulating counties of the Great Plains average just over 6,000 in population, while those in the Corn Belt average more than 17,500. As we will show later, the qualitative difference between counties of these comparative sizes in terms of economic complexity and future viability is highly significant.

The Delta-South

The Delta-South includes Arkansas, Louisiana, and Mississippi – encompassing the Mississippi Delta in those states – and Alabama and Georgia.⁴ As Map 1 shows, a great deal of depopulation has occurred in the Mississippi Delta area – more than a quarter of the region's rural counties have lost population since 1970 – but depopulating counties are scattered through the region. This region differs from the Great Plains and the Corn Belt in that population trends have actually improved overall during the past 30 years. In fact, much more of the Delta-South region was depopulating in the 30 years beginning with the start of World War II (see Map 3).

As the mechanization of agriculture and the consequent consolidation of farms displaced farm workers, many migrated to the growing urban industrial centers in the Midwest and West.⁵ However, following the industrial resurgence of the South that began in the 1970s, much of the region began to experience sustained economic and population growth. Despite the overall improvement in this region, some clusters of counties, including much of the Mississippi Delta, were unable to compete with other southern areas due to the extreme poverty and low levels of educational attainment – conditions that still exist. These counties continued to be highly dependent on the agricultural sector over the last 30 years.⁶ The growing prosperity of many other areas in the South has attracted workers from the Delta region and contributed to its persistent decline in population.

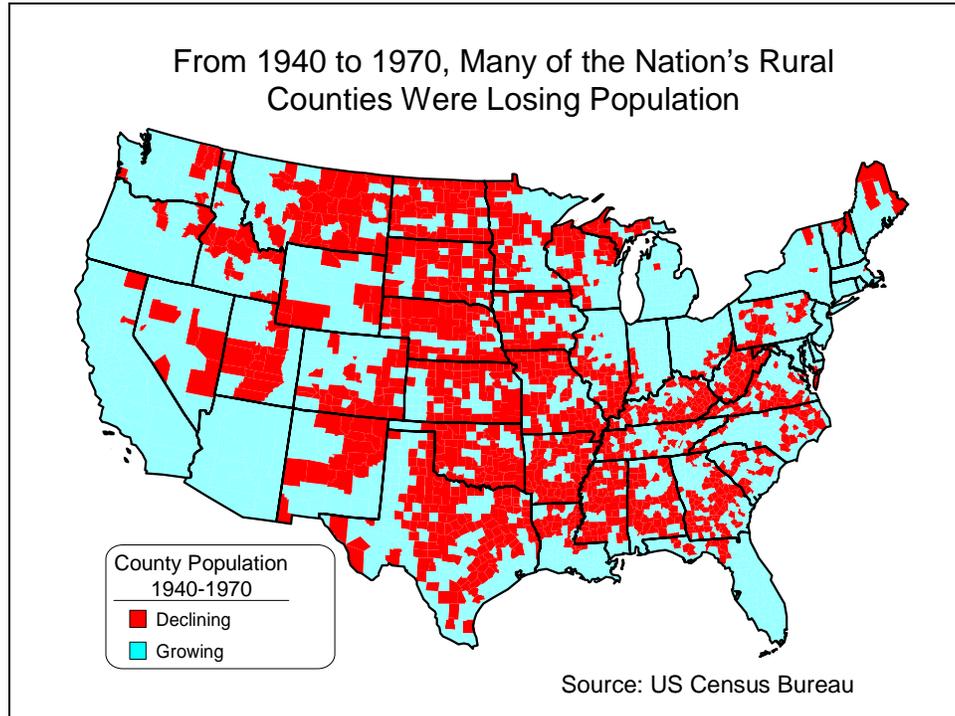
³ Corn Belt Region definition: Adapted from the USDA's Cost and Returns Regions for corn production. <http://www.ers.usda.gov/Data/CostsAndReturns/oldregions.htm#corn>

⁴ Delta-South Region definition: Construction based on distribution of declining counties, per 1970 and 2000 Censuses.

⁵ Arthur C. Cosby, et al., *A Social and Economic Portrait of the Mississippi Delta*. (Mississippi State University, December, 1992), 47.

⁶ Ibid, 284.

Map 3



Appalachia-East

The Appalachia-East region includes West Virginia, Pennsylvania, and the state of New York.⁷ Just over a quarter of the rural counties in this region lost population between 1970 and 2000. However, unlike the other regions, depopulation in this area was not driven primarily by an exodus from farming. Rather, depopulation reflects ongoing declines in the coal-mining industry caused by technological advances and the restructuring of the steel industry that occurred in the 1970s.⁸ Map 3 shows that coal-intensive Appalachia, including Kentucky, West Virginia, southern Ohio, and western Pennsylvania, experienced widespread out-migration between 1940 and 1970. Population in West Virginia, for example, peaked in 1950;⁹ the number of coal miners employed in the state declined from 150,000 in 1945 to fewer than 19,000 in 2002.¹⁰

⁷ Appalachia-East Region definition: Constructed from definition of Appalachia appearing in Richard A. Couto, *An American Challenge – A Report on Economic Trends and Social Issues in Appalachia*. (Dubuque, Iowa: Kendall Hunt Publishing, 1994), 5. Distribution of declining counties, per 1970 and 2000 censuses.

⁸ Global Insight historical labor force database.

⁹ United States Bureau of the Census, *Population of States and Counties of the United States: 1790 to 1990 From the Twenty-One Decennial Censuses*. (Washington, D.C.: Bureau of the Census, March 1996)

¹⁰ John Alexander Williams, *Appalachia: A History*. (Chapel Hill: University of North Carolina Press, 2002), 345 and Global Insight historical labor force database.

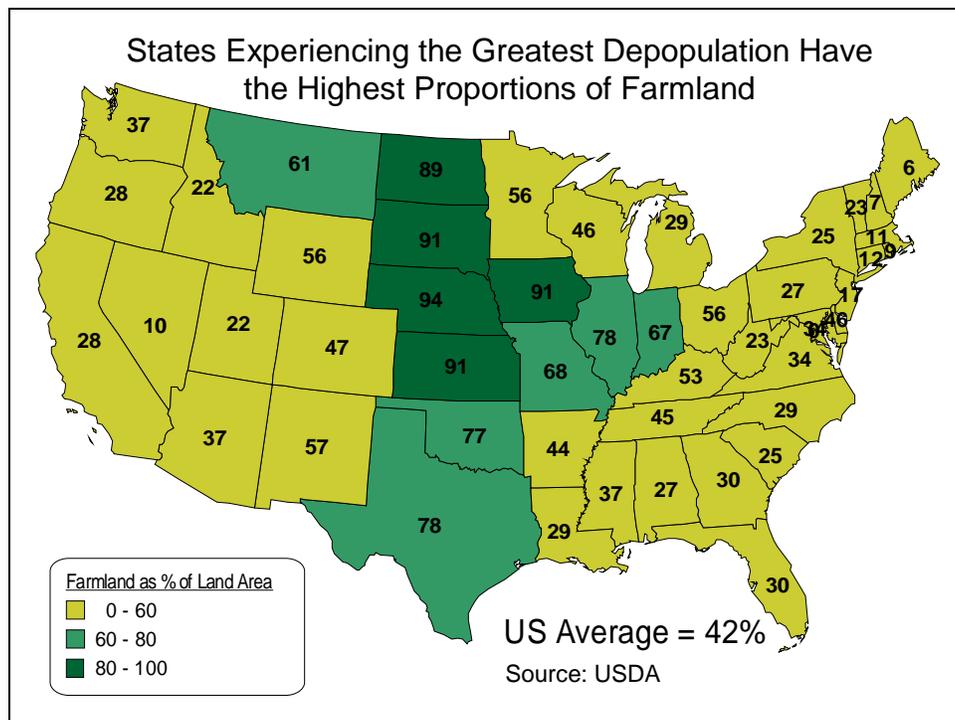
WHY HAVE SO MANY COUNTIES LOST POPULATION IN THE PAST 30 YEARS?

Since the rise of cities and towns during the Renaissance, rural-to-urban migration has been commonplace throughout history and around the world. At least since the end of the 19th century, farm populations in industrialized nations have declined to a minority of total populations. Analysis of the geographic importance of agriculture in the United States suggests a clear connection between the prevalence of agriculture and the tendency toward rural depopulation. Analysis of population densities that result from agricultural dependence shows that the Great Plains is the most at risk from rural depopulation, largely because the Great Plains has the largest geographical area devoted to agriculture. As shown in Table 1, the Great Plains is home to 304 of the country's 662 depopulating rural counties

Farm Size Depends on the Desirability and Suitability of the Underlying Land

States that have a significant concentration of farmland correspond with the distribution of rural depopulation (see Map 4). In fact, the states with the greatest shares of farmland – North Dakota, South Dakota, Nebraska, Kansas, and Iowa – are those that have experienced the most extensive depopulation in the past 30 years.

Map 4



Agriculture tends to be a land-extensive enterprise, requiring substantial tracts of land for field crops and cattle-raising. The result is relatively low population densities, a characteristic of rural counties. However, population densities vary widely, depending largely upon topographical conditions the type of agriculture practiced and differences in per acre production. As can be expected, these differences translate into corresponding differences in the typical size of farms or

ranches across the depopulating regions, with farm size varying inversely with productivity (see Table 2).

Table 2

Agricultural Output Per Acre is Significantly Lower in the Great Plains					
	Agricultural Cash Receipts Per Acre (\$)				
	Growing	Declining	AD	Metro	Total
Great Plains	132	106	105	123	115
Crops	120	95	86	126	102
Livestock	134	116	121	120	124
Corn Belt	299	338	272	332	320
Crops	187	218	219	242	216
Livestock	624	977	500	716	726
Delta-South	395	279	312	373	361
Crops	210	298	304	216	242
Livestock	599	214	342	571	538
Appalachia-East	297	278	197	498	368
Crops	116	149	77	309	199
Livestock	545	474	343	888	639
Other	134	71	72	421	226
Crops	220	138	278	709	425
Livestock	98	40	31	234	135
U.S. Total	178	174	124	350	213
Crops	183	157	122	399	228
Livestock	171	194	126	293	197
Source: 1997 Agricultural Census					

Compare for instance, the examples of Iowa and North Dakota, both of which are highly dependent on agriculture (see Table 3). Annual per acre cash receipts (agricultural revenue) in Iowa are almost five times greater than those earned in North Dakota. The commodities produced in Iowa – corn, soybeans, and hogs – typically generate comparatively high returns per acre. In North Dakota, however, the land is not as fertile and rainfall is less plentiful, so wheat and cattle are the predominant products, and returns per acre are much lower. In areas with relatively low productivity per acre, farmers and ranchers require larger operations to make a living; consequently, farms in North Dakota are four times the size of those in Iowa. This difference is the result of the overwhelming importance of wheat production in the Great Plains. Because wheat is tolerant to a wide variety of natural conditions, including low rainfall and less-than-ideal soil conditions, it can be grown on land that is unsuitable for higher-yielding crops such as corn and soybeans.

Table 3

Population Densities Are Influenced by the Type of Agriculture Practiced							
selected states:	Great Plains			Corn Belt			U.S.
	N.Dakota	S.Dakota	Nebraska	Iowa	Minnesota	Missouri	
Population/Sq Mile	9.3	9.9	22.3	52.4	61.8	81.2	79.6
Cash Receipts/Acre	76	93	204	353	284	161	215
Farm Size in Acres	1,300	1,354	875	350	361	277	437
% Land in Farms	89%	91%	94%	91%	56%	68%	42%

Source: 2000 Census; USDA

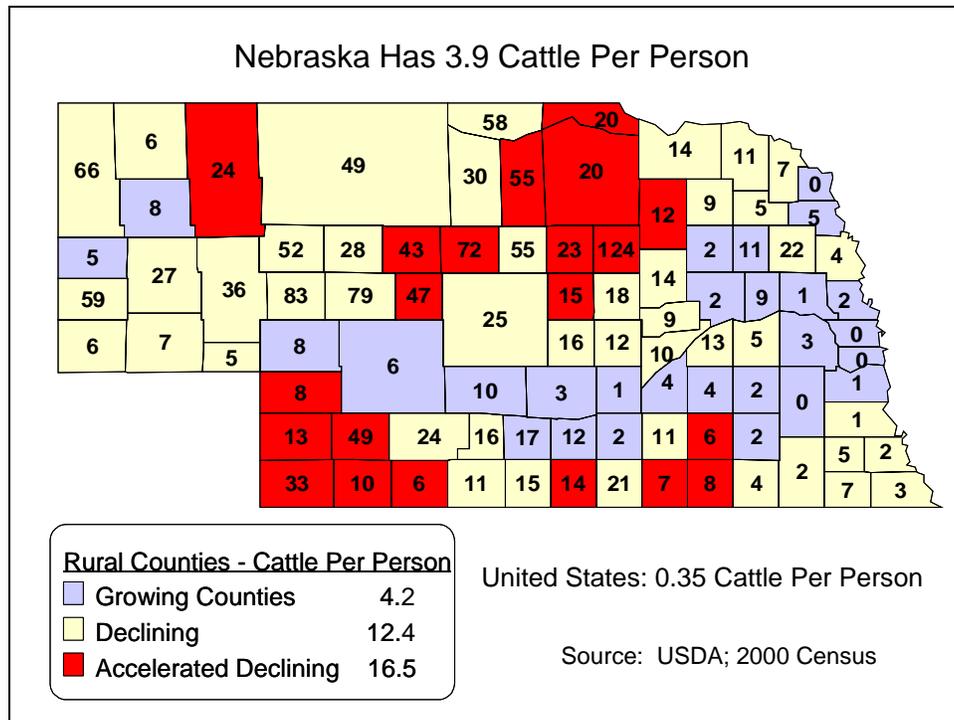
Similarly, the relatively low values per acre for livestock production in the Great Plains reflect the importance of the cattle-grazing sector in that region. The vast grasslands of the Great Plains are converted to meat by the cattle that graze extensively over them. The cattle-grazing industry of the region, as it developed after the Civil War, represents an ingenious use of otherwise low-valued land, requiring little labor or other inputs as cattle graze over extensive areas of short grasslands unsuitable for other purposes. In contrast, the value of livestock produced per acre in the Corn Belt is nearly six times as great as in the Great Plains. This is because the greatest proportions of the cattle in the Corn Belt are in the finishing sector, where they are fed locally grown corn and soybean products in confined feedlots.

The demographic importance of cattle-raising in the Great Plains may be illustrated by observing Nebraska (see Map 5). Nebraska has the second-largest population of cattle among the fifty states, with 6.7 million head of cattle in 2000; in comparison, the state only had 1.7 million people in the same period.¹¹ As the legend in Map 5 indicates, the proportion of cattle to people depends on the county type: in declining rural counties, the ratio is 12.4, in accelerated declining counties, the ratio grows to 16.5. The pattern of ratios suggests the association of very low and declining populations in counties with concentrations of cattle-raising.

Farms in the Delta-South are even larger than those in the Plains, reflecting the economies of scale associated with rice and cotton production that is practiced there. However, recall from Map 4 that the states in Delta-South are near or below the national average for the relative importance of farmland, so the linkage to population density is less direct.

¹¹ United States Department of Agriculture, "Cattle and Calves: Number by Class, State and United States" *Cattle* report. (Washington, DC.: United States Department of Agriculture, January 26, 2001), 4.

Map 5



Differences in Agriculture Lead to Disparities in Population Density

The larger farms and ranches result in lower population densities in two ways: the population density of agricultural workers is obviously lower, and the towns that support them are fewer and smaller. Businesses require a minimum number of customers to remain viable; as a result, these businesses must draw customers from a wider area in less densely populated areas. Low-density counties are those most at risk of losing economic viability, a phenomenon that will be discussed later in this paper.¹² Effects of low population density are greatest in the Great Plains, where 16.1 percent of the population lived in declining or accelerated declining counties in 2000. By comparison, just 5.7 percent of the Corn Belt’s population lived in depopulating counties. Consequently, the risks posed by depopulation in the Great Plains counties are more severe, as its depopulating counties face an increased threat of losing access to critical governmental, medical, and commercial services.

A way of portraying the difference between the Great Plains and the other regions with declining populations is to compare the distribution of county sizes (see Table 4). The data indicate that more than 85 percent of the Great Plains’ depopulating counties had populations of fewer than 10,000 in 2000, compared to 32 percent in the Corn Belt, 25 percent in the Delta-South, and 17 percent in Appalachia-East. Many analysts consider a county population of 10,000 the minimum threshold of long-term economic viability; as a result, the economic risk appears to be greatest in Great Plains.

¹² David McGranahan and Calvin Beale, “Understanding Rural Population Loss,” *Rural America*, (United States Department of Agriculture) 17, no. 4 (Winter 2002), 2.

Table 4

Counties with Population Less than 10,000 Occur Most Frequently in the Great Plains							
	County Population						Grand Total
	<1000	<5000	<10000	<15000	<20000	>20000	
Great Plains							
Growing	0	15	34	19	10	42	120
Declining	12	90	64	14	2	7	189
AD	9	62	24	11	5	4	115
Metro	0	1	6	1	3	42	53
	21	168	128	45	20	95	477
Corn Belt							
Growing	0	4	26	32	43	187	292
Declining	0	9	43	42	29	43	166
AD	0	2	8	7	4	7	28
Metro	0	0	9	15	16	223	263
	0	15	86	96	92	460	749
Delta-South							
Growing	0	4	25	34	34	116	213
Declining	0	3	10	18	3	15	49
AD	0	0	4	3	6	12	25
Metro	0	2	6	18	12	126	164
	0	9	45	73	55	269	451
Appalachia-East							
Growing	0	1	6	9	6	65	87
Declining	0	1	0	1	0	10	12
AD	0	0	4	1	3	10	18
Metro	0	0	2	2	0	92	96
	0	2	12	13	9	177	213
Other							
Growing	6	48	90	100	87	347	678
Declining	3	10	13	2	3	5	36
AD	1	7	6	2	2	6	24
Metro	0	3	23	26	27	434	513
	10	68	132	130	119	792	1,251
Total	31	262	403	357	295	1,793	3,141

Source: 2000 Census

Population Density Problems Are Exacerbated by Out-migration

Table 5 displays the change in population in the 1990s for the depopulating regions, broken down into changes because of migration and because of natural increase (defined as the difference between births and deaths). The data show that in all regions, the categories of counties that lost population since 1970 continued to lose population in the decade of the 1990s.

First, notice the difference in growth rates between the depopulating rural counties and the growing and metropolitan counties across the board. Much of the difference in growth rates occurs because people that leave depopulating counties tend to migrate to growing rural counties and metropolitan counties. In addition, metropolitan counties are more likely to attract migrants from outside the state as their larger economies are more completely integrated into regional and national labor markets.

Table 5

Depopulating Counties in the Great Plains Have the Highest Outmigration Patterns					
	Rate of Population Growth, 1990s (%)				
	Rural Counties			Metro	Total
	Growing	Declining	AD		
Great Plains					
Migration	-1.3	-3.1	-9.6	6.2	2.4
Natural Increase	5.7	-0.1	1.1	8.2	6.2
Total	4.4	-3.2	-8.5	14.4	8.6
Corn Belt					
Migration	5.1	-1.5	-4.3	-0.4	0.3
Natural Increase	2.7	0.3	0.6	6.3	5.4
Total	7.8	-1.1	-3.7	5.9	5.7
Delta-South					
Migration	5.0	-5.9	-10.2	6.5	5.1
Natural Increase	3.8	3.9	4.1	7.2	6.1
Total	8.8	-1.9	-6.1	13.7	11.2
Appalachia-East					
Migration	2.0	-1.7	-3.7	-3.1	-2.6
Natural Increase	2.4	-0.2	0.7	4.5	4.1
Total	4.3	-1.9	-3.0	1.4	1.5
Other					
Migration	8.5	-0.6	-9.0	5.3	5.7
Natural Increase	3.8	1.2	1.3	8.1	7.4
Total	12.2	0.6	-7.7	13.4	13.1
United States					
Migration	6.1	-2.4	-7.3	3.0	3.2
Natural Increase	3.5	0.7	1.6	7.2	6.4
Total	9.6	-1.7	-5.7	10.2	9.6

Note: "AD" counties refers to accelerated declining counties.
Source: U.S. Census

Also, the rates of natural increase are often highly correlated with rates of migration for two reasons. First, because out-migrants are usually young people in their prime child-bearing stages of life, birth rates in counties experiencing out-migration tend to be lower than average. Also, as will be discussed in a subsequent section, counties that experience out-migration typically have larger proportions of the elderly, resulting in higher than average death rates. The combination of lower birth rates and high death rates results in negative rates of natural increase in declining and accelerated declining counties.

Notice, also, that the Great Plains exhibits the highest rate of population decrease in both its declining and accelerated declining categories when compared to the other regions. Combine this with the data displayed in Table 4, which showed the Great Plains to have significantly less-populated counties to begin with, and it is clear that depopulation poses the greatest risks that region's counties.

Remoteness and Lack of Amenities Also Affect Populations

Researchers at the USDA recently identified three factors that characterize nonmetropolitan counties that have lost population in the 1990s: (1) location away from metropolitan areas, (2) low population densities, and (3) a low level of natural amenities (as measured by climate, topography, and presence of lakes and ponds).¹³

These researchers argue that a 10.1 person per square mile density cutoff is a meaningful measure of economic activity (this cutoff represents the lowest population quartile of non-metropolitan counties).¹⁴ This measure is superior in most respects to the size of the largest town in the county, as community boundaries have become increasingly diffuse, living in one town, shopping in another, and working in yet another has become more common. Service providers, such as governmental units and retailers, tend to locate their branches based on population densities rather than the size of specific towns.

It follows that a large number of Great Plains counties are characterized not only by low population densities but also remoteness from urban areas, as a consequence of the large average size of their farms and ranches. A visual comparison of a road map of Iowa, a typical Corn Belt state, and of Kansas, a typical Great Plains state, is suggestive of the difference. Iowa comprises seven metropolitan areas and hundreds of small cities and towns spread across its landscape, while Kansas only encompasses four metropolitan areas, with its smaller communities spread much more thinly over the landscape.

Agriculturally dependent counties also tend to be those least endowed with natural amenities. One USDA researcher notes:

Population change in rural counties since the 1970s has been strongly related to their attractiveness as places to live. Natural aspects of attractiveness can be summarized in three types of amenities: mild climate, varied topography, and proximity to surface water – ponds, lake, and shoreline. Counties scoring high in a scale of these amenities had substantial population growth in the last 25 years. High-scoring counties tended to double their population, while the average gain for the low-scoring counties was only 1 percent, and over half lost population.¹⁵

Unfortunately, the characteristics that distinguish areas covered by extensive farms are not those that define high-amenity areas. The best cropland tends to be in areas lowest in natural amenities

¹³ Ibid.

¹⁴ Ibid., 4.

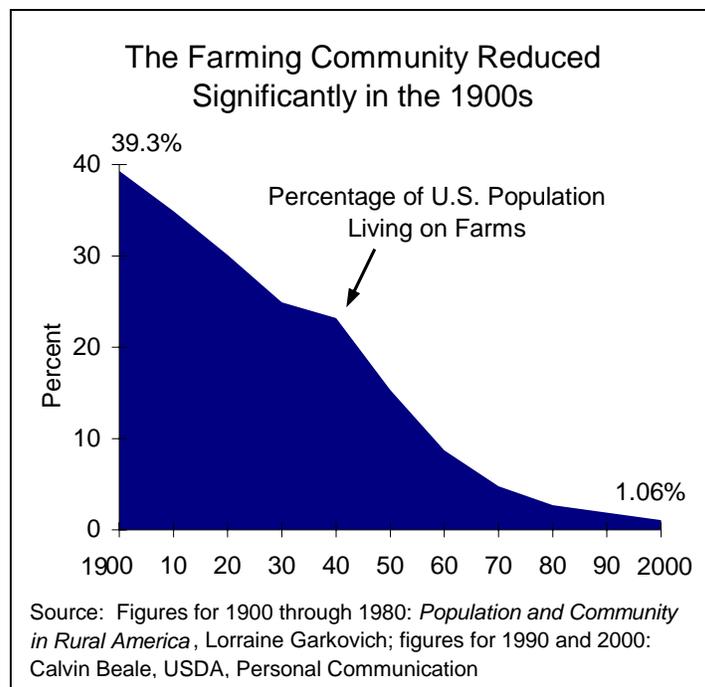
¹⁵ David A. McGranahan, "Natural Amenities Drive Rural Population Change." *Agricultural Economic Report No. 781*. (Washington, DC.: United States Department of Agriculture, September 1999), (iii).

– where the land is flattest and least broken up by ponds and lakes, where the winters are the wettest, and where the summers are the hottest and the most humid. In general, the lower a county’s score on the natural amenities scale, the higher the proportion of land in crops and less likely that it is classified as a recreationally oriented county.¹⁶ Much of the Great Plains receives very low amenity scores.

The Role of Technological Change in Rural Depopulation

During the 20th century, the decline in the U.S. farm population has been dramatic. At the beginning of the century, nearly 40 percent of the population lived and worked on farms; by the close of the century, that proportion had declined to just over 1 percent (see Chart 1). During this period, the population of the United States grew from 76 million persons to 281 million.¹⁷ An ever-increasing population was provided food and fiber by a continuously shrinking number of farmers because of ongoing improvements in the technology of agriculture. One agricultural economist points out the radical changes in agricultural technology, especially since 1950 in mechanization; chemicals such as herbicides and insecticides; and the availability of genetically improved crops and animals have allowed production techniques that economize on labor.¹⁸

Chart 1



The technological progress of agriculture is also apparent when we observe the related trends of fewer and larger farms that have characterized the U.S. agricultural sector. The number of farms has declined from 5.7 million in 1950 to 2.2 million in 2000, while correspondingly, the average

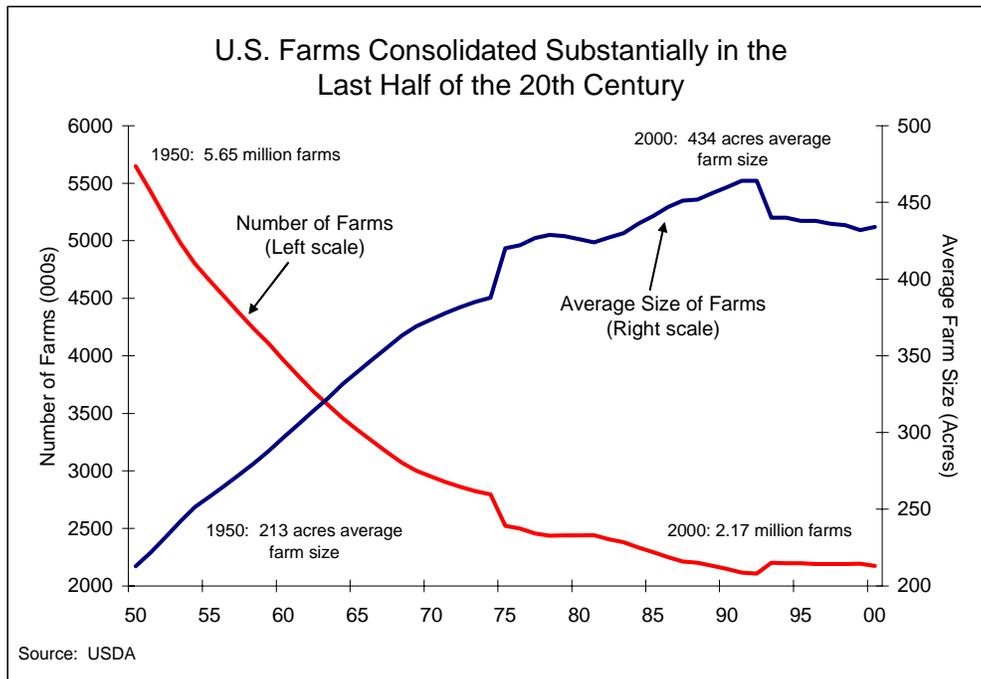
¹⁶ McGranahan and Beale, “Understanding Rural Depopulation Loss,” 6.

¹⁷ United States Bureau of the Census, *Statistical Abstract of the United States: 2002* (Washington, D.C.: Bureau of the Census, 2003), Table 1.

¹⁸ Wallace E. Huffman, “The Labor Intensity and Technology of Agriculture: California vs. The Other States, 1960-1996.” (Iowa State University working paper, September 1999), 1.

size has more than doubled, from 213 acres to 434 acres (see Chart 2).^{*} As farmers adopt improved technologies that require greater capital investment, the optimal farm size increases.¹⁹ Farmers who are first to adopt new technologies are able to achieve lower costs of production by applying new methods to larger land areas. Looking forward, technological change in agriculture will likely persist, if not accelerate, reflecting the payoff of ongoing research in both the public and private sectors.

Chart 2



Tractors and other machinery continue to become larger, more complex, and more specialized. Crop yields continue to increase steadily over time, reflecting improvements in seed quality and the efficacy of fertilizers, insecticides, and herbicides.²⁰ Recent advances in genetic engineering of plants hold the potential for enormous advances in agricultural productivity in the near future, if they can gain public acceptance.²¹

Organizational innovations in agriculture are also driving continuing consolidation in many agricultural operations, especially regarding integration of supply chains.²² Supply chains

^{*} The aggregate statistics presented in Chart 2 actually understate the degree of consolidation in U.S. agriculture, as they are based on the USDA's extremely broad definition as a farm, which includes all operations with more than \$1,000 in annual sales. The number of commercially viable farms, or those with more than \$100,000 in annual sales, has seen a much greater proportional decline in numbers.

¹⁹ Bruce L. Gardner, *American Agriculture in the Twentieth Century – How it Flourished and What It Cost* (Cambridge, Mass.: Harvard University Press, 2002), 15.

²⁰ *Ibid.*, 11, 12, 19, 22, 24.

²¹ J.R. Wordie, "Agriculture: Technological Change," *The Oxford Encyclopedia of Economic History*, ed. Joel Mokyr (Oxford, England: Oxford University Press, 2003), Volume 1, 80.

²² Mark Drabenstott, "Consolidation in U.S. Agriculture: The New Rural Landscape and Public Policy," *Economic Review*. (Federal Reserve Bank of Kansas City. First Quarter, 1999), 66, 68.

usually consist of contractual alliances between specialized businesses at successive stages of the production process, a business model that was especially successful in the chicken industry in the 1960s and 1970s. In that industry, chicken processors contract with growers who typically provide the labor and facilities to raise chickens.

The processors own the chickens throughout their lifetime and provide feed, veterinary care and management to their network of growers. This arrangement, also known as vertical integration, has resulted in rapid and sustained productivity improvements in the industry, resulting in declining costs of production that have allowed chicken to dominate the meat menu of the U.S. consumer.²³ This business model has led to significant consolidation in this sector; in 2002, 42 firms accounted for more than 99 percent of the chickens produced in the United States.²⁴

As other sectors emulate the poultry industry, organizational innovation, together with the long-term trend of technological innovation, will likely drive continuing and perhaps accelerating consolidation of agriculture. This will dramatically reduce the demand for agricultural labor for the foreseeable future, and areas with the greatest farm populations stand to lose the most workers. As Table 6 shows, the Great Plains, despite already experiencing the most severe rural depopulation, still has the highest proportion of farm workers, increasing its risk from continuing technological and organizational change in agriculture.

Table 6

Depopulating Counties in the Great Plains Have the Highest Proportion of Farm Population					
	Percent of Population Living on Farms				
	Rural Counties			Metro	Total
	Growing	Declining	AD		
Great Plains	5.5	13.8	11.0	1.2	4.3
Corn Belt	7.2	12.6	8.2	1.3	2.9
Delta-South	3.1	3.6	2.4	0.8	1.5
Appalachia-East	3.1	1.6	1.9	0.5	0.8
Other	3.6	4.0	2.3	0.6	1.0
United States Total	4.4	9.8	5.4	0.8	1.6

Note: "AD" counties refers to accelerated declining counties.
Source: U.S. Census 1990 (the most recent data available, as the Census discontinued county-level enumerations of farm populations after that).

²³ Gardner, *American Agriculture in the Twentieth Century*, 70.

²⁴ William Roenigk, Staff Economist, National Chicken Council, telephone conversation with author, January 15, 2004.

Fertility of Farm and Urban Families Has Converged Over Time

Yet another reason why population declines in agriculturally dependent counties have accelerated in the past generation is that fertility rates, and the number of children per family, have declined significantly, and now are only slightly higher than those observed in urban areas. Families on farms in small towns traditionally had many more children per family than their urban counterparts. The higher number of children born into rural families served to partially offset the steady departure of working-age migrants to employment opportunities in the cities.

After World War II, however, rural women began to bear fewer children, as technology evolved, requiring fewer farm workers. Plus, rural women became affected by the same trends that reduced fertility among urban women, including rising levels of education, greater participation in the labor force, and delayed marriage.²⁵ This effect is quantified by a noted agricultural economist: “In 1990 there were 2.1 persons per farm household. In 1940 there had been 5.2. The major reduction in household size did not begin until 1940, but after that, change came quickly.”²⁶

THE EFFECTS OF RURAL-TO-URBAN MIGRATION ON THE POPULATION LEFT BEHIND: AGE STRUCTURE AND THE “BRAIN DRAIN”

Depopulating counties, especially those in the Great Plains, are losing an important demographic battle on two fronts. First, they have a disproportionate number of elderly people. Second, they are losing, at a rapid rate, well-educated people of working age.

Rural Age Structure: Depopulating Counties Are Home to a Larger Proportion of Elderly

One of the key predictions of human capital theory is that young people are more likely to invest in education or migration because present income forgone is less for the young and they are able to benefit from improved earnings over a longer time period.²⁷ This prediction has been validated many times throughout history, including the instance we are considering presently: rural-to-urban migration in post-World War II United States. The migration observed in this instance has overwhelmingly consisted of young people seeking either advanced education or improved employment opportunities.²⁸

Those who have retired are, by definition, no longer part of the workforce, and are largely indifferent to the quantity and quality of employment opportunities. This behavior suggests that those areas that have experienced significant out-migration of the young will tend to have

²⁵ Kenneth Johnson, “The Rural Rebound,” *Population Reference Bureau’s Reports on America*, (Population Reference Bureau) 1, no. 3 (September 1999), 7.

²⁶ Gardner, *American Agriculture in the Twentieth Century*, 94.

²⁷ Dudley Baines, “Internal Migration,” *The Oxford Encyclopedia of Economic History*, ed. Joel Mokyr (Oxford, England: Oxford University Press, 2003), Volume 3, 116.

²⁸ Don E. Albrecht and Steve H. Murdock, *The Sociology of Agriculture – An Ecological Perspective*. (Ames, Iowa: Iowa State University Press, 1990), 153.

disproportionate numbers of elderly people in their populations.²⁹ In addition, there is evidence that a significant number of the “oldest elderly,” or those over age 85, return to their home rural communities to take advantage of support by their families, after spending their early retirement years in high-amenity areas far from home.³⁰

Data from the 2000 Census are consistent with these predictions (see Table 7). The Great Plains, the depopulating region with the most significant out-migration in the 1990s, shows both the greatest proportion of elderly and very elderly in its depopulating counties, as well as the greatest difference in proportion of the elderly between the other county types.

Table 7

The Great Plains Has the Highest Proportion of Elderly and Very Elderly					
Elderly as Proportion of Total Population (%)					
Age	<u>Rural Counties</u>			Metro	Total
	Growing	Declining	AD		
Great Plains					
>65	13.3	19.0	18.3	10.5	12.4
>85	1.9	3.0	2.8	1.2	1.7
Corn Belt					
>65	14.8	17.8	16.7	11.8	12.7
>85	2.0	2.8	2.3	1.5	1.6
Delta-South					
>65	13.2	13.9	14.0	10.4	11.5
>85	1.6	1.9	1.9	1.2	1.3
Appalachia-East					
>65	14.3	18.0	16.0	13.9	14.0
>85	1.7	2.3	1.9	1.7	1.7
Other					
>65	14.2	15.7	15.7	11.7	12.1
>85	1.6	2.0	1.9	1.4	1.4
United States					
>65	14.5	17.3	16.2	11.9	12.4
>85	1.8	2.6	2.2	1.4	1.5

Source: US Census 2000

²⁹ Harley E. Johansen, “The Small Town in Urbanized Society,” *The Demography of Rural Life*, ed. David L. Brown, et al. (Ithaca, New York: Cornell University Press, 1993), 59.

³⁰ Eric G. Moore and Donald L. McGuiness, “Geographic Dimensions of Aging,” *Migration and Restructuring in the United States – A Geographic Perspective*, ed. By Kavita Pandit and Suzanne Davies Withers. (Lanham, Md.: Roman and Littlefield, 1999), 149.

Conversely, the relatively low proportions of the elderly in Great Plains metropolitan and growing rural counties at least partially reflect the large inflows of young migrants into those areas. Depopulating counties in the Great Plains also have the largest proportion of “eldest elderly.” The most serious outcome of a disproportionate level of older population is that the high number of retired elderly diminishes the productive capacity in the communities where they live, relative to counties with fewer elderly, a category that is expected to grow substantially in the next 20 years.³¹

The dramatic difference in age structures among counties can be seen in “age pyramids,” which represent a graphical technique used by demographers to portray the joint distribution of ages and sexes in a given population. We constructed three such pyramids, using 2000 Census data, by dividing the population into 5-year intervals and dividing the populations in each of those intervals by total population, graphing the male populations on the left and female population on the right, consistent with traditional practice (see Chart 3).³² These pyramids contrast the age structures of three counties in Nebraska:

- Douglas County (population 464,000), the metropolitan county where Omaha is located;
- Hall County (population 62,000), a growing rural county in south-central Nebraska; and
- Holt County (population 12,000), an accelerated declining county in north-central Nebraska.

Visually, the differences in the age structures between the three counties are striking, and are largely typical of the differences across categories, most closely corresponding to the data in the Great Plains region.

The shape of the Douglas County age pyramid is typical of those associated with moderately growing metropolitan areas.³³ The proportions of population in the 0-35 range is rather uniform, as differences in birth rates across the cohorts are masked by net positive in-migration, both from rural areas in the state and, in this case, rural areas in neighboring states. A metropolitan area the size of Omaha will have an economy large and complex enough to draw a variety of migrants from relatively great distances.³⁴ The cohorts in the 35-44 year range are the largest in the population, representing the end of the post-World War II “Baby Boom” phenomenon that has been extensively documented.³⁵ After age 55, the decline in the relative size of the age cohorts results from death and out-migration of retirees. The proportion of the population older than 65 is 11.0 percent, and older than 85 is 1.4 percent.

³¹ Hendrik Van den Berg, *Economic Growth and Development* (New York: McGraw-Hill, 2001), 267.

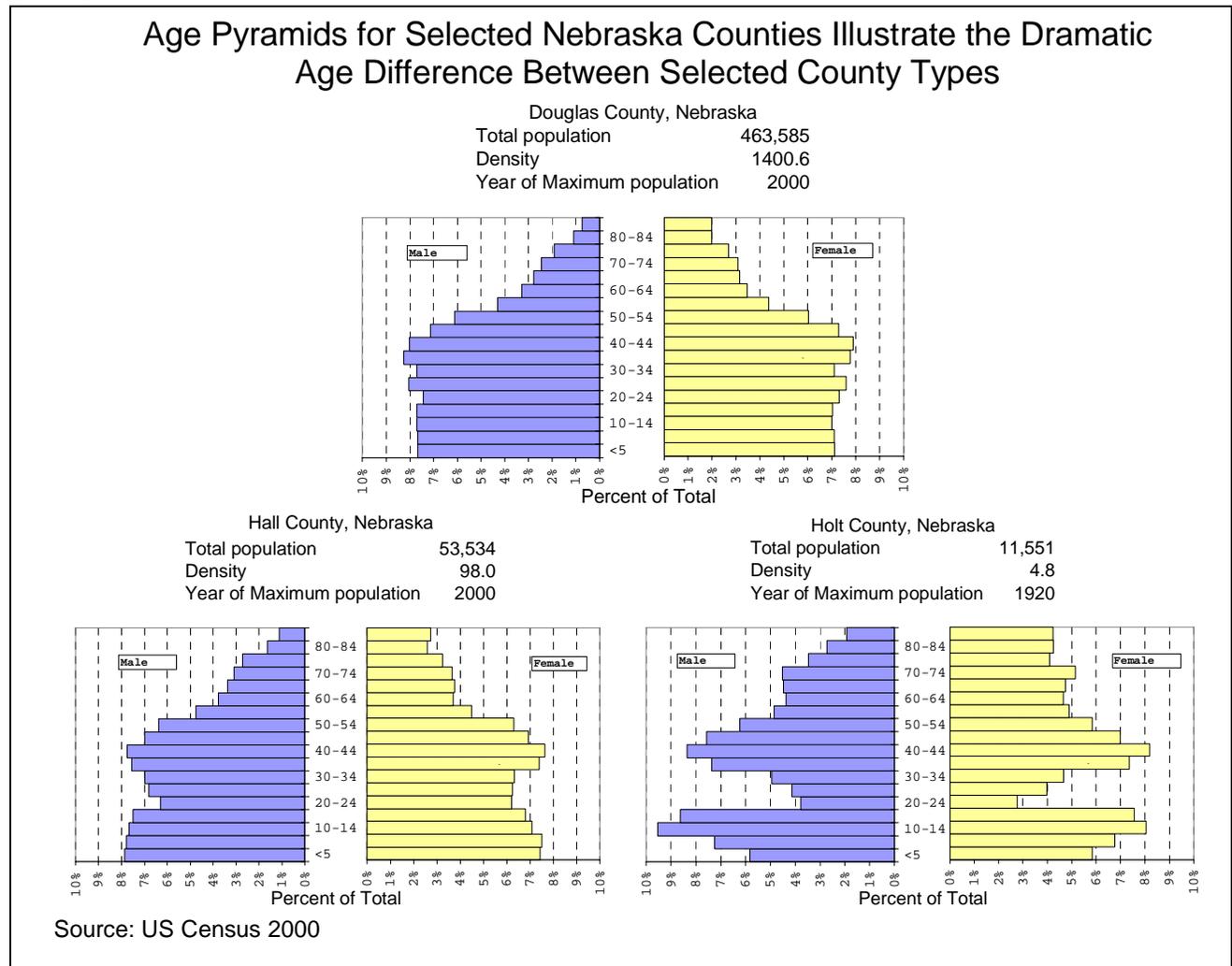
³² Steve H. Murdock and David R. Ellis, *Applied Demography – An Introduction to Basic Concepts, Methods, and Data* (Boulder, Co.: Westview Press, 1991), 152.

³³ Van den Berg, *Economic Growth and Development*, 263-4.

³⁴ United States Bureau of the Census, *Statistical Abstract of the United States: 2002* (Washington, D.C.: Bureau of the Census, 2003), Table 30.

³⁵ Gary S. Becker, *A Treatise on the Family*. (Cambridge, Mass.: Harvard University Press, 1991), 169.

Chart 3



The shape of the age pyramid of Hall County is similar to Douglas County, except that the 20-30 age cohort is noticeably smaller, reflecting a small net out-migration of these groups. While growing rural counties tend to lose some young people to larger urban areas, they also tend to be destinations for young migrants from more rural counties. As stated by an agricultural economist, “It is noteworthy that the heaviest off-farm migration is to rural nonfarm or smaller urban areas rather than to large central cities.”³⁶ Hall County, where Grand Island is located, is home to a community college, a satellite campus of the University of Nebraska, several farm equipment manufacturers, and a meat-packing plant. Notably, Interstate Highway 80 passes through Hall County, a defining characteristic of many growing rural counties in Nebraska.

The shape of the age pyramid of Holt County is typical of many accelerated declining counties. Its most distinctive attribute is its “pinched waist” in the 20-34 age cohorts, representing the significant out-migration of high school graduates, presumably seeking higher education or employment opportunities in other counties. In addition, the relatively narrow 0-5 age cohort

³⁶ Gardner, *American Agriculture in the Twentieth Century*, 102.

likely results from the out-migration of fertile young people, illustrating the linkage between out-migration and natural population increase, discussed previously. Also apparent here are the relatively high values in the over 65 cohorts, as just discussed. Note that Holt County reached its maximum population in 1920, while Douglas and Hall counties continue to reach new highs.*

Small-population counties face a disadvantage from their small workforces, which limit the scale of businesses that can locate in their communities. Even if labor quality is assumed to be homogenous, the small populations typical of rural counties in the Great Plains face only a short list of industries able to locate in those markets. For example, in May of 2003, we met with bankers from small-population rural counties in western Kansas. One banker from a county of fewer than 5,000 people discussed his county's experience in trying to recruit a telemarketing operation to relocate. Technological advances in communication technology are sometimes touted as a way for rural communities to compete and diversify away from dependence on agriculture. Telemarketers, for example, may be able to conduct their operations far away from urban centers. The banker told us that the community, despite offering tax incentives and offering a building appropriate for the telemarketer, was unable to lure the company. The firm opted instead to relocate in a larger community, citing concerns about housing relocated workers and the small size of the available labor force.

As argued in the article from which the following quote appears, some believe that successive improvements in transportation and communication have not been a boon to rural areas, but have served to increasingly integrate rural economies into larger labor markets. Therefore, small communities face the prospect of increasingly losing their home-grown laborers to larger communities:

Others have argued that these innovations [the automobile, telephone and rural electrification] actually *increased* the pace of rural-to-urban migration. The automobile allowed farmers to visit cities more often and more conveniently; the telephone allowed them to maintain commercial and personal relationships with a wider circle of urban people; and rural electrification allowed them to experience the conveniences already common to city-dwellers. While each of these advances improved the quality of life in the country, they also increased the flow of information between the two sectors, perhaps motivating more country people to seek their fortunes in the cities.³⁷

The high proportion of elderly in small communities, typically lacking both the economic motivation and the skills needed to work, exacerbate an already unfavorable labor-force situation. In addition, the elderly are characterized by a disproportionate demand for medical services, but these areas are often distant from the specialized care centers, which tend to

* "Maximum populations" were measured every 10 years on the decade mark.

³⁷ Federal Deposit Insurance Corporation, "The Information Superhighway: Panacea or Threat for Rural America," *Kansas City Regional Outlook*. (Washington, D.C.: Federal Deposit Insurance Corporation, Third Quarter, 2002), 6.

concentrate in urban areas.³⁸ Such needs tend to strain local and state taxing jurisdictions, also reducing their relative attractiveness as locations for new businesses.

Are Depopulating Counties Experiencing a “Brain Drain?”

There is another significant impact of out-migration in depopulating rural counties. Development economists, those who study differences in economic growth between countries, have long identified a phenomenon that they refer to as the “brain drain:”

Immigrants are often different from the natural citizens of a country in terms of their skills, motivation, education, and social behavior. It has often been noted that immigration has not been undertaken by the average person. Rather, groups of immigrants tend to be especially ambitious, more willing to take risks, harder working, more open to new ideas, and more willing to innovate. This is so because the act of moving from one country to another generally involves risks, temporary hardship, and a willingness to experience major changes in lifestyle . . . immigrants are seldom “average” compared to the population they left behind or the one they join. . . . The emigration of educated people from developing countries, to the most developed economies is often referred to as the **brain drain**. This is not by any means a minor phenomenon: the number of well-educated emigrants from developing countries to developed economies is large.³⁹

As the existence of the “brain drain” is well-established on the international level, it is reasonable to suggest an analogous effect associated with rural-to-urban migration within the United States. This effect is difficult to quantify on the county level as data are usually not available. However, a study conducted by the Federal Reserve Bank of Minneapolis at the state level suggests that this is the case.⁴⁰ The researchers used Census data to estimate the number of people, older than age 25, holding bachelor’s degrees in 1989 and 1999 in each of the states in the Minneapolis Federal Reserve Bank district. They then subtracted the total number of bachelor’s degrees granted by all degree-granting institutions, resulting in an estimate for each state’s net brain drain or gain (see Table 8).⁴¹ The data suggest that Minnesota, the most urbanized of the states studied, is the destination of many migrants leaving the Dakotas and northern Wisconsin, while it is likely many migrants from Wisconsin may also move to the Chicago metropolitan area.

North Dakota’s problem with out-migrating educated people is becoming critical. According to Roger Johnson, North Dakota’s commissioner of agriculture, who led a task force that examined this issue, 60 percent of those earning bachelor’s degrees or higher leave North Dakota within

³⁸ Carolyn C. Rogers, “Changes in the Older Population and Implications for Rural Areas.” *ERS-DDR-90*. (Washington, D.C.: United States Department of Agriculture December 1999), 1.

³⁹ Hendrik Van den Berg, *Economic Growth and Development*. (New York, N.Y.: McGraw-Hill. New York, 2001), 270, 400.

⁴⁰ Ronald Wirtz, “Plugging the Brain Drain.” *Fedgazette*. (Minneapolis, Minn.: Federal Reserve Bank of Minneapolis, January 2003), 1.

⁴¹ *Ibid.*, 4.

one year of graduation. “One thing is clear: A lot of people leave. No other state faces the [brain drain] problem to the degree that North Dakota does. There’s nobody that’s worse off than us.”⁴²

Table 8

Migration of College Students Shows the "Brain Drain" in the Upper Great Plains					
State	Estimated Number of Persons Over 25 Years Old with a Bachelor's Degree		Estimated Change in Bachelor's Degree 1989-1999	Number of Bachelor's Degrees Produced 1989-1999	Estimated Net Brain Drain or Net Gain 1989-1999
	1989	1999			
Minnesota	577,920	953,920	376,000	234,945	141,055
Montana*	106,977	134,160	27,183	42,976	-15,793
North Dakota	89,244	89,200	-44	45,022	-45,066
South Dakota	79,672	110,848	31,176	40,669	-9,493
Wisconsin	571,725	790,600	218,875	269,647	-50,772

Note: Population data were revised by the Federal Reserve Bank of Minneapolis.
Source: Postsecondary Education Opportunity

Further research into North Dakota’s brain drain suggests that the state’s highest achievers are the most likely to leave. A 1995 survey of North Dakota graduating high school students that took college entrance examinations found that high scorers were the most likely to leave the state; five years after graduating from high school, only one in four remained in the state.⁴³

At the state level, much of the concern with the brain drain is fiscal, as rural states such as North Dakota subsidize the education of its young citizens, only to see them leave. Here the correspondence with the international brain drain is nearly exact: low-population, rural states such as North Dakota already face comparatively high per capita costs for university-level education, but are able to capture only a small fraction of the benefits for their local economies.

However, the outflow of the college-educated also suggests a broader policy issue, as most development experts consider the supply of highly educated workers to be a key contributor to the future prosperity of a state or region. Such workers are necessary to provide leadership in the local economy and to attract outside investment.⁴⁴ The depopulating counties most in need of economic and policy leadership may have populations least likely to supply these skills, and least likely to attract outside investment. Just as the small size of the labor forces in many depopulating counties shortens the list of companies willing to locate in their communities, concerns about the quality of the labor force may well exacerbate the problem.

⁴² Ibid., 2-3.

⁴³ Ronald Wirtz “Patterns of the Young and Restless” *Fedgazette*. (Minneapolis, Minn.: Federal Reserve Bank of Minneapolis, January 2003), 2.

⁴⁴ Edward Feser and Stuart Sweeney. “Out-migration, Depopulation, and the Geography of U.S. Economic Distress,” *International Regional Science Review*, 26, no. 1 (January 2003), 39.

THE COMMERCIAL STRUCTURE OF RURAL COUNTIES – TRENDS AND CHALLENGES

Earlier in this paper, we discussed the relationship between persistent declines in population and advances in agricultural technology. We also examined how variations in agricultural practices influence differences in population density. While agricultural practices are a useful starting point for understanding these changes and differences, it is at least as important to understand how trends in commercial activity are related to population in rural counties.

Economic geographers have developed a model known as “central place theory” that provides insights into the distribution of commercial activity across the landscape. Central place theory holds that:

1. Towns and cities (central places) in a region may be organized into a hierarchy;
2. The greater the number and complexity of goods and services available in a central place, the higher its rank;
3. Lower-order places offer convenience goods, such as groceries or gasoline, that are consumed frequently, and provided by small-scale businesses that are viable with a small number of customers; and
4. Higher-order places are fewer and farther apart, and are the home to larger-scale businesses that require more customers to survive.⁴⁵

Central place theory also holds that businesses require a minimum number of customers to be viable. In the Great Plains, where the farms are few and far apart, the towns that support them are also fewer and smaller, and are able to support only the simplest businesses. Consequently, those who live in rural areas on the Great Plains have access to only a restricted range of goods and services.

Over time, businesses in many rural areas have declined because, as the number of farms has dwindled, fewer customers are available to shop in the grocery stores, hardware stores, and agricultural supply facilities that are common in small rural towns.⁴⁶ Since the Great Plains has the largest and fewest farms, the commercial decline there has been most profound. In addition, as farms have become larger, they often outgrow the ability of local small town businesses to serve their needs. According to recent research by the USDA, more than 40 percent of farmers have Internet access, and increasing numbers of them are using it to access supplies from regional or national providers, bypassing local businesses.⁴⁷

As the number of farm customers declines, the number and complexity of businesses in lower order central places also decline. Such lower-order central places become less important as destinations for those who live in the surrounding countryside, and in many cases are only able to support businesses that provide just the most basic needs of those who live in them.

⁴⁵ Brian J. L. Berry, Edgar C. Conkling, and D. Michael Ray. *The Geography of Economic Systems*. (Englewood Cliffs, N.J.: Prentice-Hall, 1976), 228.

⁴⁶ Bruce L. Gardner, *American Agriculture in the Twentieth Century*, 125.

⁴⁷ Economic Research Service, “Farms, the Internet, and E-Commerce: Adoption and Implications. *Agricultural Outlook* (Washington, D.C.: United States Department of Agriculture, November 2001), 19.

In addition to the declining demand from the countryside, the lower-order central places have also faced increasing competition from businesses in larger towns. Much of this can be ascribed to increased availability of inexpensive and reliable automobiles and vastly improved networks of roads, allowing residents of both the countryside and smaller towns to commute to larger central places to purchase a wider variety of goods and services. More broadly, increasing convergence between rural and urban cultures because of the effects of education and mass media has stimulated the demand for a greater variety and volume of consumer goods and services in the larger towns.⁴⁸

The Consolidation of Retail Activity – “The Wal-Mart” Effect

In addition to dealing with smaller customer bases, businesses in the rural Great Plains, and in smaller towns elsewhere, have faced strong and increasing competition from national retail chain stores. The result has been that smaller retail stores have succumbed in great numbers to competitors that offer a larger variety of goods and services at lower prices. Residents of smaller towns are willing to drive great distances to shop in larger market areas. This phenomenon has been dubbed, by many sources, as the “Wal-Mart effect” because that chain offers the most prominent example.

Professor Ken Stone of Iowa State University, an economist who studies rural retail activity, declares:

There is strong evidence that rural communities in the United States have been adversely impacted by the discount mass merchandiser (sometime referred to as the Wal-Mart phenomenon) than by any other factors of recent times. Studies of Iowa have shown that some small towns lose up to 47 percent of their retail trade after 10 years of Wal-Mart stores nearby.⁴⁹ (see Chart 4)

Professor Stone’s findings are summarized in Chart 4, which shows that the communities with the smallest populations are the most impacted by the opening of nearby Wal-Mart stores. While local businesses have lost revenues to national chains since Sears and Montgomery Ward began mailing catalogues early in the century, the effect has accelerated since 1970 with the massive proliferation of discount merchandisers, such as Wal-Mart.⁵⁰ While Wal-Mart and other stores like it have been criticized for generating stiff competition for hundreds of Main Street competitors, comparative surveys have shown that traditional retailers are only 60 percent as productive as mass retailers, of which Wal-Mart is the leading, though not the only, example.⁵¹

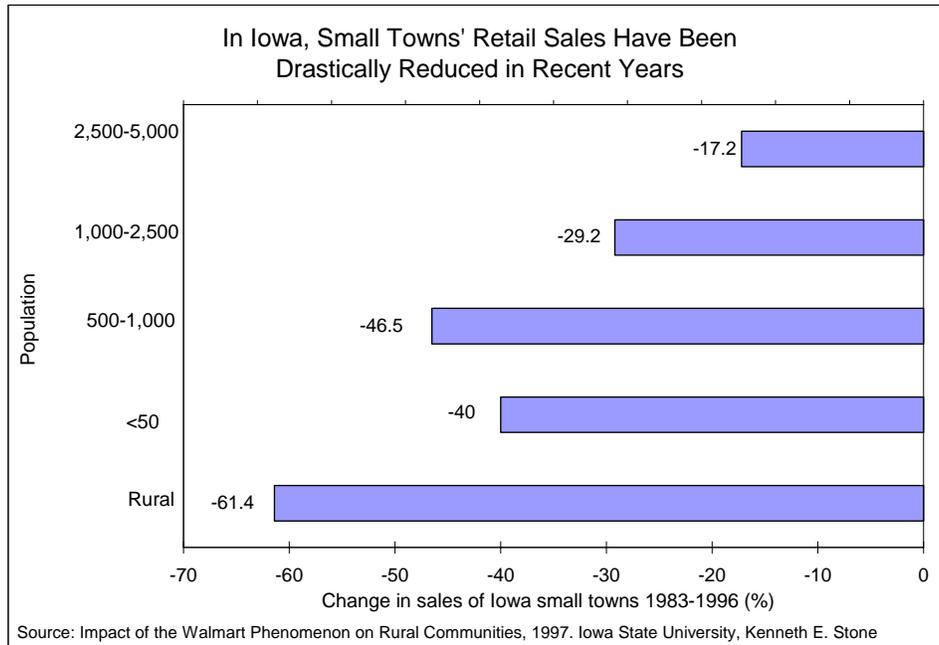
⁴⁸ Bruce L. Gardner, **American Agriculture in the Twentieth Century**, 125.

⁴⁹ Kenneth Stone, “Impact of the Wal-Mart Phenomenon on Rural Communities.” *Increasing Understanding of Public Problems and Policies – 1997*. (Oak Brook, Ill.: Farm Foundation, January 1998), 189.

⁵⁰ *Ibid.*, 199

⁵¹ Emele Basker, “Job Creation or Destruction? Labor Market Effects of Wal-Mart Expansion.” (Federal Reserve Bank of St. Louis working paper, November, 2002), 4.

Chart 4



Wal-Mart stores have tended to be built in larger counties. Our analysis of 247 rural counties in 13 states where Wal-Marts have been built since 1968 shows that these counties had an average population of 30,218 and an average population density of 27.9 as of the 2000 Census. By contrast, the rural counties in the same 13 states that did not have a Wal-Mart averaged a population of 8,215 and a density of 6.9 people.⁵²

The consolidation of retail activity in larger towns has been accompanied by consolidation of other businesses in higher-order central places. Agricultural suppliers, such as machinery dealers and fertilizer and chemical suppliers, have also consolidated to achieve economies of scale and serve fewer customers.

Central-place theory also predicts that the increasing importance of “multi-purpose shopping trips” leads to a self-reinforcing trend of consolidation of commercial activity.⁵³ The more activities of all kinds that concentrate in larger towns, the more willing small town and rural residents are to make the trip to the larger towns. For example, if small town residents travel to a nearby large town once a week to buy the agricultural goods and services available there, they may begin buying groceries at the large supermarket as well, bypassing the local store. The proliferation of mass discount stores that carry thousands of items increases the opportunity for multi-purpose shopping trips, consequently increasing the traffic to larger central places.

Interestingly, this loss of retail activity can be quantified. One measure of the loss of business in rural counties to nearby larger counties is a trade “pull-factor,” a statistic which measures the

⁵² Rand McNally Road Atlas with Wal-Mart and Sam’s Club Store Directory, 2003 Edition. States included are Colorado, Iowa, Idaho, Kansas, Minnesota, Missouri, Montana, North Dakota, Nebraska, Oklahoma, South Dakota, Wisconsin, and Wyoming.

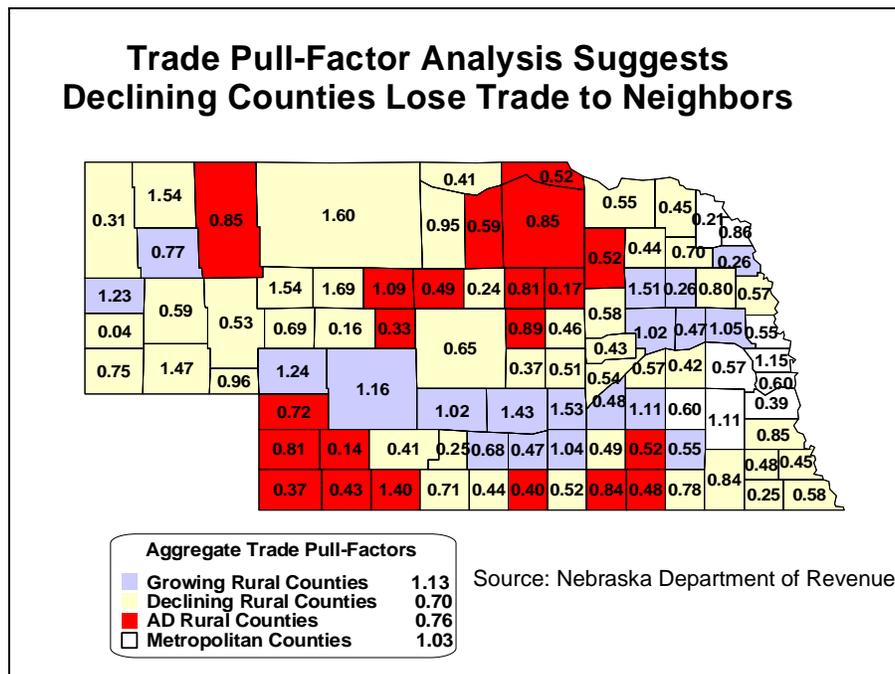
⁵³ Richard L. Morrill, *The Spatial Organization of Society*. (Belmont, CA: Wordsworth Publishing, 1970), 76.

retail activity of a county in relation to the activity in nearby counties.⁵⁴ Trade pull-factors are calculated by dividing a county's per capita retail sales for a given year by the state average per capita sales. This calculation is then adjusted to take into account differences in per capita income between the counties.⁵⁵

A pull factor of 1.0 implies that the county's sales tax revenue is proportional to the income of its residents, or that its residents are spending their dollars in their home county. A pull factor greater than 1.0 suggests that a county is drawing business from adjoining counties, as its retail sales figures are higher than its population and per-capita income levels would suggest. On the other hand, a pull-factor of less than 1.0 suggests that a county is losing business to neighboring counties.

To illustrate county pull-factors, we chose Nebraska as an example (see Map 6). As expected, metropolitan and growing rural counties have aggregate pull-factors greater than 1.0, suggesting that they are attracting business from nearby counties. Conversely, depopulating counties have aggregate pull-factors of less than 1.0, suggesting that they lose business to nearby counties. The band of counties with pull-factors greater than 1.0 across the southern third of the state corresponds to the path of highway Interstate 80, suggesting spending by tourists or travelers on the highway. Some depopulating counties that have unexpectedly high pull-factors also tend to reflect special circumstances, such as very small populations on heavily traveled roads.

Map 6



Pull-factors are greatly influenced by discounters such as Wal-Mart, especially in rural counties. Map 7 shows the location of Wal-Mart stores in Nebraska, a distribution that is typical in

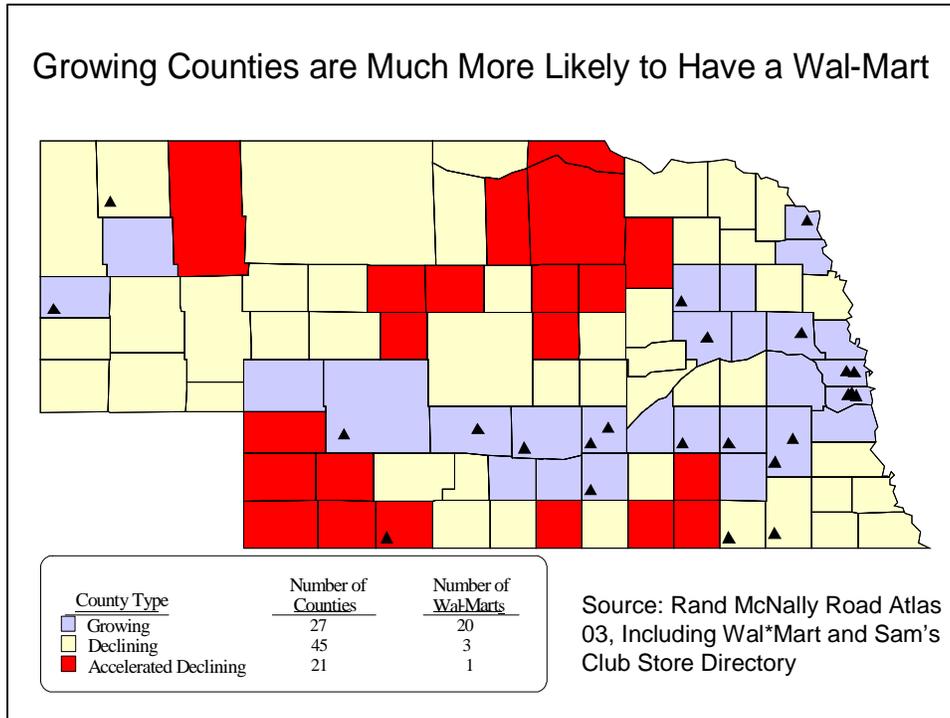
⁵⁴ David Broomhall and Eric King. "Retail Sales Trends in Indiana Counties." *Agricultural Economics*. E-690. (West Lafayette, IN: Purdue University Cooperative Extension Service), 2.

<<http://www.agecon.purdue.edu/AgCom/EC/EC-690.html>>

⁵⁵ Ibid.

Midwestern states. Note that a majority of growing rural counties have a Wal-Mart, and Map 6 indicated that these counties had the highest aggregate pull-factor, at 1.09. While Wal-Mart is not the only reason for the favorable pull-factors in their counties, they are emblematic of concentrations of retail activity.

Map 7



DEMOGRAPHIC CONCLUSION: THE THREAT TO VIABILITY AND THE “VICIOUS CIRCLE OF DECLINE”

Many demographers argue that communities whose populations fall below a critical mass are destined for irreversible decline because the local communities no longer have sufficient resources to maintain economic viability. Given their low populations and densities, many rural counties, especially those in the Great Plains, face difficulties providing and maintaining:

- governmental services such as law enforcement;
- infrastructure such as road and bridges;
- educational services of quality comparable to more populated areas; and
- health care of a quality commensurate to the needs of a disproportionately elderly population.⁵⁶

The per-capita costs of providing such services is high in areas of low population densities, where relatively few people must share the fixed costs associated with such investments. As a consequence, low-population counties not only find it difficult to maintain the existing level of

⁵⁶ Thomas D. Rowley, “Sustaining the Great Plains.” *Rural Development Perspective*, 1, no. 13 (June 1998), 4.

services, they also lack the resources to improve their infrastructures to the point where they can attract new businesses. In addition, adjoining small counties often find that they are maintaining redundant public resources as they struggle to provide a full menu of governmental services.⁵⁷ Despite the apparent problems facing depopulating counties, efforts to consolidate or share services that are frequently proposed typically face strong political opposition, as residents of small-population counties are reluctant to surrender their separate identities.

As such, many counties may face a self-reinforcing cycle of decline: declining populations lead to higher per-capita costs, providing incentives for continued out-migration. As the quality of life and supporting infrastructure in these counties continues on a downward spiral, it becomes increasingly difficult to attract new businesses to the area.⁵⁸ Counties with accelerating population declines may already be experiencing this phenomenon.

⁵⁷ Mark Drabentott, Mark Henry, Lynn Gibson. "Rural Economic Policy Choice", *Economic Review*. (Kansas City, Mo.: Federal Reserve Bank of Kansas City, January 1987), 41.

⁵⁸ *Ibid.*, 44.

RURAL DEPOPULATION - BANKING IMPLICATIONS

Rural depopulation is a long term and continuing phenomenon with serious consequences. The issue is also significant for the banking industry and its insurer, the FDIC. At year-end 2003, 1,451 banks and thrifts were headquartered in rural counties with declining populations (see Table 9). While these institutions represent a very small percentage of total industry assets, they constitute 16 percent of the total insured financial institutions in the nation. Importantly, for financial institutions, declining populations equate to declining customer bases.

Based on sheer numbers, most institutions headquartered in depopulating rural counties are located in the Corn Belt (48 percent) or the Great Plains (35 percent). The rest of the country, including the other two depopulating areas, has significantly fewer institutions headquartered in depopulating rural counties. The Great Plains stands out even more, however, when looking at the proportion of institutions that are located in depopulating counties. Approximately 46 percent of all banks that are headquartered in the Great Plains are in declining or accelerated declining counties. This is far higher than any other depopulating region. Also note the high number of accelerated declining county banks – 17 percent of all Great Plains institutions are located in counties experiencing increasingly rapid depopulation.

The relative size of institutions also indicates that Great Plains institutions have a disadvantage over banks in more vibrant areas in the ability to grow their businesses. The median asset size of a bank in the Great Plains is only \$56 million, and only about \$39 million in rural counties with declining populations. Institutions in other regions are significantly larger – even the Corn Belt’s median bank holds \$89 million in assets – reflecting the fact that although these areas also may be experiencing depopulation, they have much larger beginning customer bases.

Demographic data, discussed in the first section of this paper, clearly indicate that the Great Plains is far more vulnerable to depopulation trends than other regions, and the banking data reinforce this vulnerability. Therefore, the remainder of this section will analyze the prospects of insured institutions headquartered in the Great Plains. We will focus on “community banks,” which we define in this paper as banks and thrifts that hold less than \$250 million in assets.⁵⁹

⁵⁹ We chose \$250 million for two reasons: 1) The vast majority of institutions in the Great Plains – 88 percent – have less than \$250 million in assets; and 2) our analysis shows that for institutions this size, most of the banking activity, in terms of location of bank offices, occur in the same county as the headquarters location. In fact, as of June 30, 2003, Great Plains institutions with less than \$250 million in assets had 70 percent of their banking offices located within the same county as the headquarters. By contrast, the figure falls to 38 percent of banking offices in institutions between \$250 million and \$1 billion. When analyzing bank performance by its headquarters county, it is important for the bank activity to be concentrated in that county to the extent possible.

TABLE 9

**More than 1,400 Banks and Thrifts
Are Headquartered in Depopulating Counties**

	<u>Rural Counties</u>			Metro Counties	Total
	Growing Counties	Declining Counties	AD Counties		
Great Plains					
Number of Institutions	306	323	184	286	1,099
Total Assets (in billions)	37.9	20.1	12.1	91.1	161.2
Median Assets (in millions)	70.8	39.3	39.0	106.9	55.6
Corn Belt					
Number of Institutions	862	610	85	1,649	3,206
Total Assets (in billions)	108.0	52.6	7.9	1,843.1	2,011.5
Median Assets (in millions)	84.0	57.3	53.1	118.0	88.5
Delta-South					
Number of Institutions	386	81	58	438	963
Total Assets (in billions)	74.5	10.8	5.9	470.7	561.9
Median Assets (in millions)	106.3	78.4	79.4	128.2	111.1
Appalachia-East					
Number of Institutions	147	18	34	429	628
Total Assets (in billions)	58.4	8.7	8.0	1,998.7	2,073.8
Median Assets (in millions)	150.6	96.1	84.2	246.5	193.4
Other					
Number of Institutions	991	29	29	2,219	3,268
Total Assets (in billions)	212.0	1.7	4.0	3,971.3	4,188.9
Median Assets (in millions)	105.5	53.3	72.2	169.8	139.8
Total					
Number of Institutions	2,692	1,061	390	5,021	9,164
Total Assets (in billions)	490.8	93.9	37.9	8,374.8	8,997.4
Median Assets (in millions)	94.9	52.7	50.6	147.9	105.8
Note: "AD" counties refers to accelerated declining counties.					
Source: Bank and Thrift Call Reports, December 31, 2003					

Great Plains Community Banks Are Performing Similarly to Others

The Great Plains is characterized by a significant share of depopulating counties, and this depopulation has been occurring for decades. Therefore, it would seem reasonable to assume that the condition of insured institutions based there would be less favorable than the condition of banks headquartered in other rural counties. Surprisingly, when we compare financial ratios of community banks in the Great Plains with those headquartered outside the Great Plains, evidence of depopulation-induced deterioration does not emerge (see Table 10). During the past five years, rural community banks in the Great Plains have reported similar overall earnings, net interest margins, and asset quality ratios as community banks headquartered outside the Great Plains. A notable difference is in the loan-to-asset ratio; community banks based in the Great Plains report lower ratios than their counterparts across the country. This is likely explained by a comparative lack of lending opportunities in their market areas.

TABLE 10

Great Plains Rural Banks Continue to Perform Similarly to Rural Banks in the Rest of the Nation					
	2003	2002	2001	2000	1999
GP - Pretax ROA	1.44	1.49	1.42	1.59	1.55
Nation - Pretax ROA	1.44	1.51	1.39	1.50	1.54
GP - Net Interest Margin	4.12	4.25	4.17	4.34	4.24
Nation - Net Interest Margin	4.05	4.24	4.08	4.24	4.23
GP - Loans-to-Assets Ratio	58.51	59.59	58.92	59.25	57.45
Nation - Loans-to-Assets Ratio	61.94	62.39	63.02	64.52	63.04
GP - Total PD Loan Ratio	2.59	2.89	2.86	2.53	2.50
Nation - Total PD Loan Ratio	2.59	2.82	2.92	2.62	2.29
GP - Net Charged-off Loans	0.31	0.34	0.46	0.30	0.30
Nation - Net Charged-off Loans	0.30	0.33	0.31	0.23	0.22
GP - Equity Capital	10.97	11.19	10.95	10.81	10.16
Nation - Equity Capital	10.52	10.59	10.25	10.34	10.05
GP - Ag Loans/Total Loans	40.33	40.68	40.84	40.35	40.81
Nation - Ag Loans/Total Loans	13.76	13.68	13.27	13.22	13.42
GP - Ag Inst./Total Inst.	79.97	80.08	80.44	81.22	82.21
Nation - Ag Inst./Total Inst.	28.46	28.55	28.07	28.62	29.03

Notes:
 "GP" refers to banks and thrifts with less than \$250 million in assets in rural counties in the Great Plains.
 "Nation" refers to banks and thrifts with less than \$250 million in assets in rural counties in the Nation, excluding the Great Plains.

One key difference between rural community banks in the Great Plains and rural banks elsewhere can be seen in balance sheet growth rates. During the past decade, rural county institutions outside the Great Plains have consistently grown total assets, loans, deposits, and core deposits at a greater rate than Great Plains community banks. The cumulative effect of the growth rate disparity is striking: community banks based outside the Great Plains have grown assets by an aggregate 85 percent in the 10 years ending December 31, 2003; over the same time frame Great Plains community banks have reported cumulative growth of only 53 percent.⁶⁰ These figures help to explain the significant difference in median asset size between community banks in the Great Plains region and those in other depopulating regions. Similar disparities exist in growth rates for total loans and total deposits.

However, despite the lack of strong demand for loans and deposits, community banking performance is similar across the nation. How have community banks in the Great Plains been able to report similar operating results when such a large number of them are located in dwindling markets? One possible answer is that, to date, depopulation has been occurring very slowly, and bankers have been able to capably adjust to their economic environments. Anecdotal evidence from our outreach meetings with rural bankers suggests that this is the case.

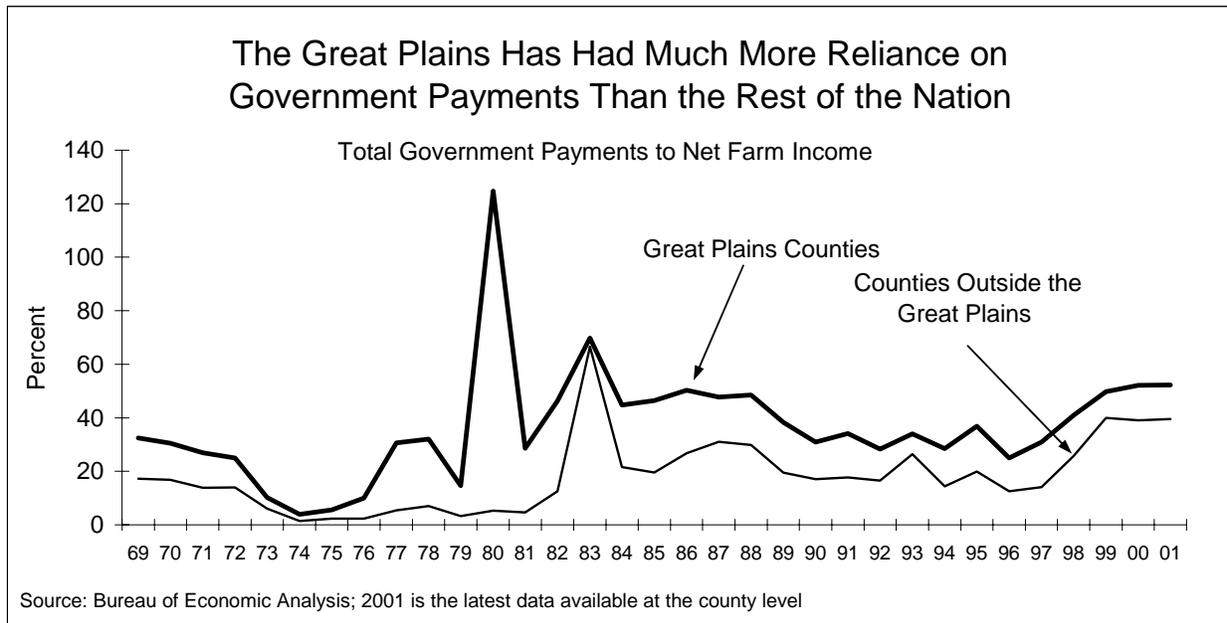
However, an additional, quantitative answer can be found in the final figures in Table 10. Note that community banks in the Great Plains have nearly three times the exposure to agricultural lending than community banks in the rest of the nation. In fact, 80 percent of community banks in the Great Plains are considered farm banks, compared to just 28 percent elsewhere.⁶¹ This is a key point, especially when considering government assistance to farmers, and, by extension, their lending institutions, during the past three decades.

Farming has been, and continues to be, one of the most heavily subsidized industries in the country. In fact, government payments nationally averaged \$19 billion per year from 1999 through 2003, representing about 40 percent of net farm income over that time span. While not all farm products nationwide are subsidized, the primary crops of the Great Plains – wheat, corn, and soybeans – tend to be more generously supported than products grown outside the region. As a result, farms in the Great Plains have received higher subsidies, as a proportion of net farm income, than farms elsewhere in the nation (see Chart 5). Such support has certainly helped farmers repay their farm loans and has helped to offset any negative consequences that farm banks would have otherwise experienced because of adverse demographic trends.

⁶⁰ All growth rates cited in this article were adjusted to negate the influence of mergers on the figures.

⁶¹ Farm banks are defined by the FDIC as institutions with at least 25 percent of total loans made for production agriculture or are secured by farm real estate.

CHART 5



Although Bank Performance is Similar, Great Plains Depopulating Counties Are Showing Adverse Effects of Population Declines Through Lower Growth Rates

As rural bank performance data are similar for rural banks in the Great Plains and rural banks located elsewhere, performance within the Great Plains is also relatively similar. Table 11, which shows community bank performance broken down by growing, declining, and accelerated declining county types, indicates that banks in depopulating areas continue to perform well. Growing county institutions have earned a bit more pre-tax revenue, largely through higher sources of noninterest income, but declining and accelerated declining county institutions have not fared poorly. Net interest margins are similar, as declining and accelerated declining county banks have offset lower loan yields with lower funding costs. Loan quality measures tend to modestly favor growing county institutions, but the other institutions offset this with higher levels of equity capital.

However, significant disparities exist in lending activity among institutions in the three county types. Growing counties, which are likely adding to their populations through non-agricultural job growth, tend to offer community banks more diversified lending opportunities. While continuing to hold concentrations in farm lending, growing county community banks make significantly fewer farm loans than their declining or accelerated declining county counterparts, and they have fewer institutions that have enough farm lending to be labeled farm banks. The ability to diversify out of agriculture offers benefits, such as spreading risk across various industries and reducing dependence on federal farm assistance, which may not always be as generous as it has been in the recent past.

TABLE 11

Despite County Differences, Community Banks Throughout the Rural Great Plains Report Similar Operating Results					
	2003	2002	2001	2000	1999
Growing - Pretax ROA	1.46	1.57	1.43	1.61	1.60
Declining - Pretax ROA	1.46	1.45	1.41	1.56	1.51
Acc. Declining - Pretax ROA	1.39	1.41	1.42	1.58	1.51
Growing - Net Interest Margin	4.04	4.23	4.19	4.36	4.26
Declining - Net Interest Margin	4.20	4.27	4.17	4.32	4.23
Acc. Declining - Net Interest Margin	4.15	4.27	4.15	4.32	4.22
Growing - Loans-to-Assets Ratio	58.94	60.23	59.93	60.80	59.21
Declining - Loans-to-Assets Ratio	57.30	58.65	57.99	58.14	56.27
Acc. Declining - Loans-to-Assets Ratio	59.75	59.79	58.31	57.64	55.36
Growing - Total PD Loan Ratio	2.63	2.76	2.80	2.54	2.41
Declining - Total PD Loan Ratio	2.63	2.99	2.79	2.42	2.45
Acc. Declining - Total PD Loan Ratio	2.43	3.02	3.13	2.68	2.83
Growing - Net Charged-off Loans	0.29	0.32	0.63	0.36	0.30
Declining - Net Charged-off Loans	0.38	0.38	0.32	0.25	0.29
Acc. Declining - Net Charged-off Loans	0.26	0.34	0.34	0.25	0.32
Growing - Equity Capital	10.51	10.74	10.51	10.32	9.54
Declining - Equity Capital	11.30	11.57	11.36	11.23	10.72
Acc. Declining - Equity Capital	11.37	11.54	11.21	11.17	10.66
Growing - Ag Loans/Total Loans	30.41	30.88	30.54	29.62	30.58
Declining - Ag Loans/Total Loans	48.04	48.08	48.29	49.14	49.95
Acc. Declining - Ag Loans/Total Loans	48.43	50.31	51.42	50.85	50.79
Growing - Ag Inst./Total Inst.	66.54	65.84	64.58	65.20	66.67
Declining - Ag Inst./Total Inst.	86.48	86.81	87.72	89.21	90.78
Acc. Declining - Ag Inst./Total Inst.	88.70	90.06	91.62	91.37	91.04
Notes:					
Uses only banks and thrifts with less than \$250 million in assets in the Great Plains.					

Beyond performance issues, overall asset growth rates indicate that depopulating rural counties have adversely affected community banks. Declining populations translate into dwindling borrower and depositor bases, and growth rates for total assets, loans, and deposits in declining and accelerated declining county community banks have been lower than in growing county institutions. Table 12 shows annualized growth rates for Great Plains community bank balance sheet accounts for the 10 years ending December 31, 2003. The first thing to note is the tremendous difference between community banks based in metropolitan areas and those based in rural areas. Across the board, the economic vibrancy of metropolitan areas has contributed to higher growth rates, even when compared to rural counties with increasing populations.

TABLE 12

Great Plains Metro Community Banks Have Grown Balance Sheets Far More Quickly than Rural Banks				
Great Plains County Type	Annualized Growth Rate (%) Between Year-End 1993 and Year-End 2003			
	Total Assets	Total Loans	Total Deposits	Core Deposits
Metropolitan	8.87	11.16	8.61	7.87
Rural	4.37	6.77	3.84	3.04
<u>Rural County Breakdown:</u>				
Growing	4.78	6.96	4.28	3.47
Declining	4.04	6.32	3.45	2.64
Accelerated Declining	4.10	7.16	3.61	2.84
Source: Bank and Thrift Call Reports, "community banks" as defined in this article. Note: All growth rates are merger-adjusted.				

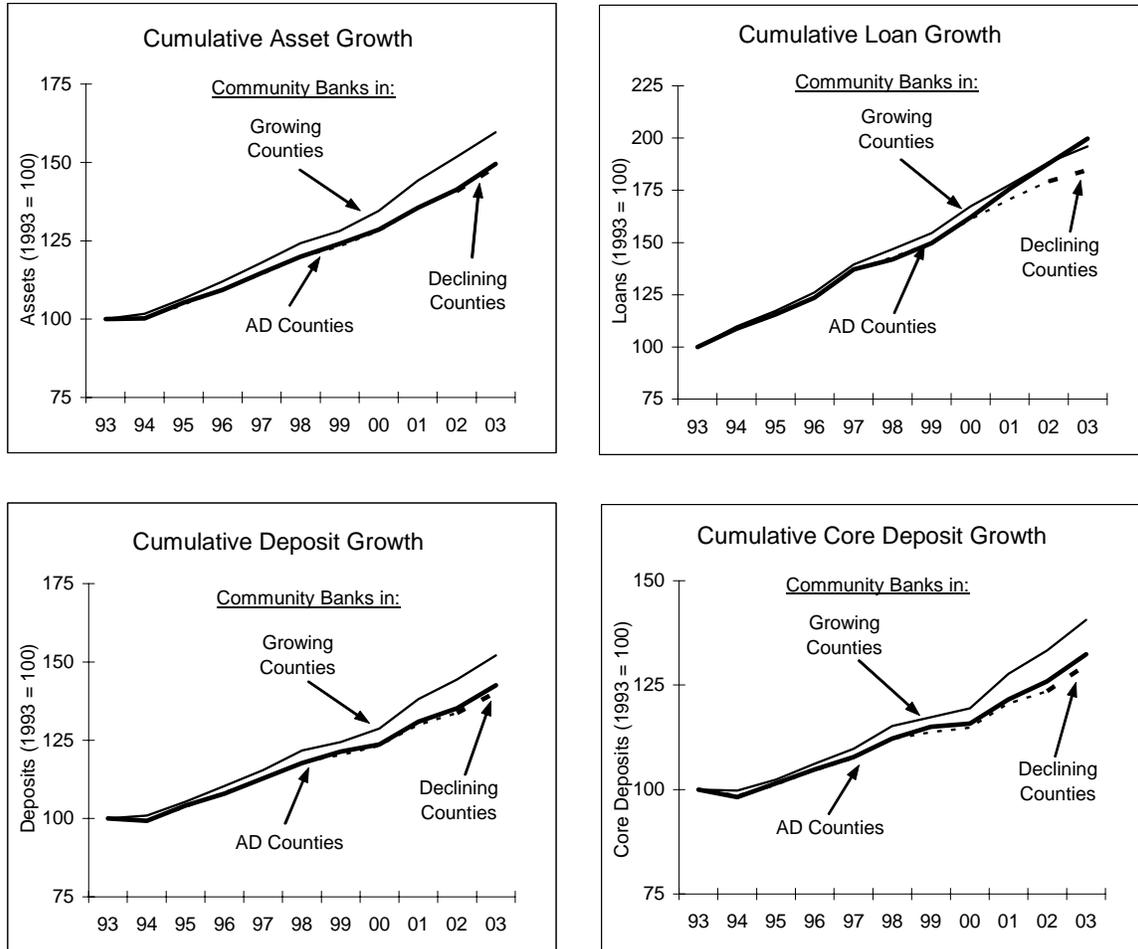
Turning to the rural counties in the Great Plains, the differences are evident but not nearly as striking as the metro-rural disparity. Not surprisingly, community banks in growing counties reported the greatest asset growth during the past decade, in line with their expanding communities. Annualized asset growth was over two-thirds of a percentage point higher in growing county community banks than in banks in declining or accelerated declining counties. While this does not appear significant at first glance, the cumulative effect of this annual disparity is more striking (see Chart 6). Growing county community banks expanded aggregate assets by 60 percent over the decade, compared to 49 percent for declining and accelerated declining county banks.

The three county types are differentiated clearly in terms of deposit growth. Community banks in growing counties reported growth in deposits of 4.3 percent per year between 1993 and 2003, while declining and accelerated declining county institutions posted annual growth rates of 3.5 and 3.6 percent, respectively. Even more important than growth in total deposits, however, is growth in core deposits. These are stable funds that have traditionally provided the backbone of community bank funding sources and consist of non-interest bearing, savings, and money market deposit accounts, as well as time deposits of less than \$100,000.⁶²

⁶² As of December 31, 2003, community banks in the nation reported that 69.3 percent of their assets were funded by core deposits. By contrast, larger institutions (those with over \$1 billion in total assets), had core deposits totaling just 44.8 percent of total assets. While both of these ratios have declined over time, the differential has been relatively steady.

CHART 6

Growing Rural Community Banks Have Reported Higher Balance Sheet Growth Rates than Banks in Depopulating Counties



Source: Bank and Thrift Call Reports for "community banks" as defined in this article.

Note: All growth rates are merger adjusted.

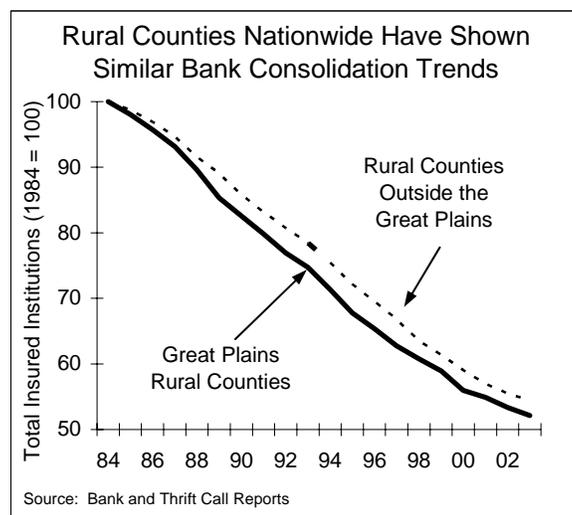
Core deposits are generally less expensive and less sensitive to interest rate movements than other funds such as large time deposits, brokered deposits, and other borrowings such as Federal Home Loan Bank advances. As shown in Chart 6, growing county community banks reported cumulative growth in core deposits of 41 percent, or 3.5 percent annually, from 1993 to 2003; by comparison, declining county community banks reported cumulative growth of 30 percent (or 2.6 percent annually), and accelerated declining county community banks reported 32 percent cumulative growth (or 2.8 percent annually).

While declining populations tend to indicate why depopulating county institutions have had difficulties raising core deposits during the past decade, the problem goes deeper. The massive aging of depopulating areas has caused significant problems for community banks. Many rural bankers tell the same story: an elderly depositor with large accounts in the bank passes away, and the deposits that had been used by the community bank to fund loans and other investments are withdrawn quickly by heirs who no longer live in the community, but have long since moved to more thriving, metropolitan counties. These funds are very difficult to replace, and the large population of elderly people in Great Plains rural counties suggests that this problem will only intensify in coming years.

Consolidation Has Not Disproportionately Impacted Great Plains Rural Counties

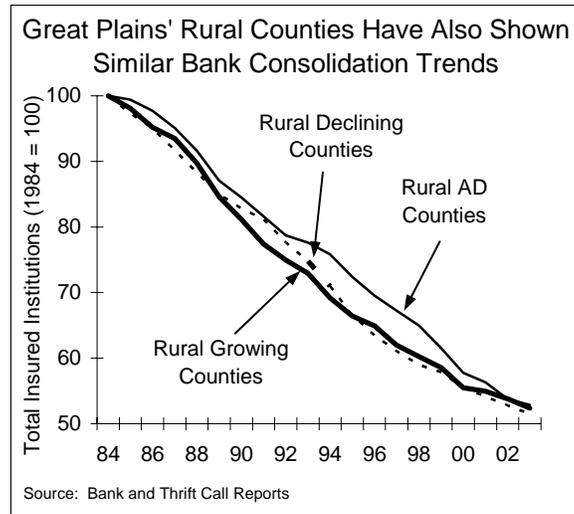
The number of insured banks and thrifts has been declining in the U.S. for two decades, due primarily to weakening (then eliminating) of states' unit-banking requirements, failures and mergers related to the banking and thrift crises in the 1980s, and also banks' desire to grow larger to achieve economies of scale. Between year-end 1984 and year-end 2003, the number of financial institutions in the nation was cut almost in half. Because of the large number of depopulating rural counties in the Great Plains, one might expect that bank consolidation would have been more robust in that region – after all, wouldn't fewer people require fewer banking institutions? However, reductions in bank numbers that have occurred in the Great Plains are similar to rural areas in the rest of the nation (see Chart 7). At year-end 1984, the Great Plains was headquarters to 1,559 rural banks and thrifts (of all sizes); this number declined to 813 by the end of 2003, or 52 percent of the total from 19 years prior.⁶³ By contrast, rural areas outside the Great Plains had 54 percent of the total from the beginning of the period. Interestingly, the reduction in insured institutions is consistent among the types of Great Plains rural counties – growing, declining, and accelerated declining (see Chart 8).

CHART 7



⁶³ 766 rural community banks were eliminated in the Great Plains between year-end 1984 and year-end 2003, of which 720 were acquired by other institutions (149 of those were failure-related) and 46 failed or voluntarily liquidated.

CHART 8



Where we do see differences is in the number of counties that are not home to the headquarters of a bank. Of the 424 rural counties in the Great Plains, 76 counties, or 18 percent of the total, do not have a headquartered bank or thrift. By contrast, 13 percent of the 890 rural counties in the other depopulating regions do not have a headquartered institution. Of the rural Great Plains counties that do not have headquartered banks, 18 counties did not have an institution headquartered there over the entire 19-year period we studied. The other counties had at least one institution at the beginning of the period, but those institutions failed or were purchased by other institutions in the succeeding years.

As one would expect, the vast majority of the counties without headquartered banks are experiencing population declines. While only 11 percent of Great Plains rural growing counties have no headquartered institutions, more than 20 percent of declining and accelerated declining counties have no headquartered institution. In the Great Plains, South Dakota has the most counties with no headquartered institution, or 32 percent of its 66 counties. Montana, with 11 counties without a headquartered bank, has the second highest proportion, at 20 percent.

Although many Great Plains rural counties lost the only bank headquarters since 1984, few actually lost a bank facility; rather, in most instances, what once was a main office became a branch office of an institution located in another county. Although this consolidation activity has had a relatively neutral effect on branch totals in most counties, a qualitative decline in bank service is possible. The conversion of a once main-office branch to a branch sometimes is accompanied by reductions in customer services, customer service hours, and managerial authority and decision-making.

The Preponderance of Elderly and Lack of Succession Plans Could Increase the Rate of Rural Bank Consolidation

Although consolidation trends in rural community banks in the Great Plains have been stable and representative of national figures, two pieces of evidence suggest that consolidation may increase rapidly in the future. First is the significant number of elderly people living in depopulating

counties. Recall Chart 3, which showed the “age pyramid” of a depopulating Nebraska county. The chart, representative of many Great Plains counties, showed that there is a large pocket of elderly people in these counties. At some point in the relatively near future, these people are going to pass away, and their banking business may move outside the area with the heirs.

The second factor that could increase consolidation trends is the lack of succession plans in many small community banks in the Great Plains. The typical profile of these institutions is that they are small – recall that the average size of a community bank in depopulating counties was only \$39 million – and owned and operated by the same individual. In many cases, the owner/operators do not have family members groomed to take their place when they retire because, like other young people, these individuals have migrated to counties with more economic opportunities.

And because of the “brain drain” that is occurring in rural areas, there may not be suitable non-family members to assume operations. In such cases, the typical, short-term plan is for owner/operators to prolong retirement, as other suitable options do not exist. The problem of succession plans has been a common theme during outreach meetings in the Great Plains, and bankers do not seem to have identified solutions. The most likely outcome when these bankers do retire is the sale of their institutions, which could dramatically increase the pace of rural bank consolidation.

Have Some Institutions in Depopulating Counties Found a Recipe For Success?

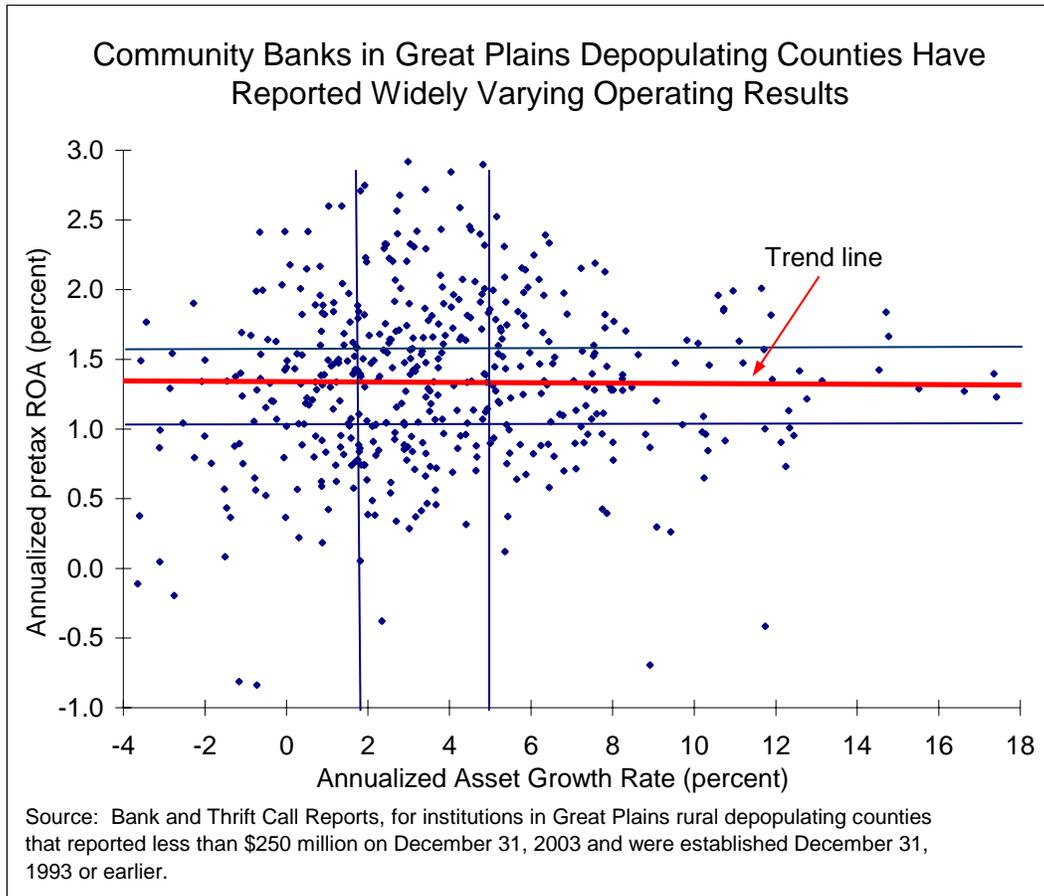
While many counties in the Great Plains face similar economic issues, community banks have responded differently and reported disparate operating results. Our goal in this analysis was to determine if some banks located in counties with declining population have identified successful techniques to overcome local economic problems. Defining success is a somewhat subjective exercise, but we chose two community bank metrics that tend to generally indicate banking success: profitability and asset growth.

Most analysts would agree that profitability is an appropriate measure of success, and we measured profitability by the five-year (1999 through 2003) pre-tax return on assets (ROA) ratio.⁶⁴ Asset growth also indicates success, though some banks may experience success in other variables (such as profitability) without achieving growth. We measured growth by the five year, annualized, merger-adjusted asset growth rate. We looked only at the 483 community banks located in Great Plains depopulating counties that have been established for at least 10 years, so that new banks would not distort the results.

The two banking metrics – profitability and growth – are shown in Chart 9, with each community bank’s performance shown by a single dot. The chart clearly shows the significant disparity in operating results; annualized profitability ranged from a low of -1.07 percent to a high of 3.53 percent, with the middle 80 percent of banks in the range of 0.62 percent to 2.10 percent. Only nine community banks were unprofitable over the five-year period.

⁶⁴ Pretax ROA is used in lieu of after-tax ROAs because some institutions have adopted Subchapter S status, in which they do not pay income taxes, and thus have much higher after-tax ROAs than non-Subchapter S institutions.

CHART 9



Annualized asset growth ranged from -11.71 percent to 79.65 percent, with the middle 80 percent of banks falling between -0.51 percent and 9.04 percent. Sixty-two institutions, or 12.8 percent, reported declining assets over the five-year period. The trend line is interesting; it is nearly flat, and slightly downward sloping, indicating a slight negative correlation between earnings and growth. Typically, healthy asset growth would be joined by strong earnings, but in this case the results raise the question as to whether some institutions are trading profitability for asset growth.

For further analysis, we divided each metric into thirds, creating a nine-cell matrix. For profitability, one-third of institutions reported annualized pretax ROA of less than 1.05 percent; the middle third between 1.05 percent and 1.57 percent; and the upper third at least 1.57 percent. For asset growth, the lower third of institutions reported annualized growth of less than 1.91 percent; the middle third 1.91 percent to 4.88 percent; and the upper third at least 4.88 percent. The lines on Chart 9 indicate these breakdowns, as well as the resulting matrix.

The corners of the matrix are of particular interest; for example, what is the secret of the 49 community banks in the upper right-hand corner (those that reported high asset growth and high profitability)? By contrast, why do the 61 institutions in the lower-left hand corner report both low growth and low profitability? The other corners indicate institutions that were able to

achieve high profits despite low growth, and those that reported high growth but low profits. We lump the 280 institutions in the matrix's other five cells into a single unit, which we term the "Middle Cross," to use as a control group for analysis. Chart 10 shows the same data as the scatter plot of Chart 9, in a simpler format.

CHART 10

Have Some Great Plains Community Banks Found a Recipe for Success?				
5-Year Annualized Pretax ROA Range	1.57% to 3.53%	Low Asset Growth/High Pretax ROA Number of Institutions 44 Median Total Assets \$41.2MM Asset Growth Rate 0.56% Pretax ROA 1.90%	High Asset Growth/High Pretax ROA Number of Institutions: 49 Median Total Assets \$54.8MM Asset Growth Rate 7.47% Pretax ROA 1.96%	
	1.05% to 1.57%	Middle Cross Number of Institutions: 280 Median Total Assets \$40.4MM Asset Growth Rate 3.99% Pretax ROA 1.44%		
	(1.07)% to 1.05%	Low Asset Growth/Low Pretax ROA Number of Institutions 61 Median Total Assets \$21.5MM Asset Growth Rate -0.80% Pretax ROA 0.64%	High Asset Growth/Low Pretax ROA Number of Institutions 49 Median Total Assets \$37.5MM Asset Growth Rate 9.10% Pretax ROA 0.76%	
		(11.71)% to 1.91%	1.91% to 4.88%	4.88% to 79.65%
5-Year Annualized Growth Rate Range				
Notes: 1) Asset growth figures are merger-adjusted, asset-weighted annualized five-year growth rates. 2) Pretax ROA figures are merger-adjusted, asset-weighted annualized five-year pretax return on asset performance				
Source: Bank and Thrift Call Reports, Institutions meeting following descriptives: (1) December 31, 2003 total assets of \$250 million or less, (2) established December 31, 1993 or earlier, (3) headquartered in rural counties within the Great Plains Region with either declining population or accelerated declining population.				

Our analysis indicates that there are several key factors that indicate why groups of institutions are faring so differently:

- 1) significant differences in asset size appear to result in lower operating costs through benefits of scale;
- 2) branching into other counties has benefited some banks, but possibly hindered others;
- 3) risk-taking between the groups of banks differs considerably; and
- 4) net interest margins are significantly different between the groups of banks.

In the next section we examine each of these factors individually.

Asset size

Community banks that have achieved high earnings and high asset growth are the largest in size, at a median \$54.8 million in total assets. Banks that have achieved high earnings without commensurate growth also have relatively high levels of assets, at \$41.2 million. By contrast, institutions that have achieved lower profitability are significantly smaller – \$37.5 million for those with high asset growth, and just \$21.5 million for those with low asset growth. These figures suggest that asset size is a significant determinant of success, particularly earnings.

Larger asset sizes can result in certain economies of scale, helping institutions keep operating costs relatively low. Our analysis indicates that larger banks posted significantly lower noninterest expenses (in relation to average assets) than smaller institutions (see Table 13). When comparing the earnings of banking groups that are most different – those with high growth and high earnings and those with low growth and low earnings – operating expense is one factor that stands out. High growth/high earnings banks reported annual noninterest expenses of 2.67 percent of average assets, while low growth/low earnings banks reported expenses of 3.18 percent. The primary difference between these groups is salaries expense, which accounts for more than half the difference in noninterest expenses between the two groups of banks. Apparently, larger institutions are able to spread managerial and other salaries across larger asset bases. A similar but smaller difference can be seen in premises expenses, which again are significantly lower in larger institutions because they can spread the expenses further.

Banks reporting low growth but high earnings have the tightest control on operating expenses, as these banks reported noninterest expenses of just 2.48 percent of average assets. Recall that these banks are also relatively large in size, again enabling them some efficiencies of scale. In addition, perhaps the management teams of these institutions, realizing that opportunities for robust asset growth do not exist, have streamlined their organizations to maximize profitability. As the next section will show, these institutions tend to operate a single, albeit large, branch, again allowing them to keep costs down. On the opposite end of the spectrum, banks with high growth and low earnings have reported the highest operating expenses, at 3.25 percent of average assets. Salaries, premises costs, and other noninterest expenses are all high in this group of banks compared to other groups.

TABLE 13

Significant Growth, Branching, and Operating Results Differences Exist Between the Groups of Banks					
	High Growth/ High Earnings Banks	Low Growth/ High Earnings Banks	Middle Cross Banks	High Growth/ Low Earnings Banks	Low Growth/ Low Earnings Banks
Equity Capital Ratio (year-end 2003, %)	11.22	13.07	11.26	9.32	11.38
<u>Growth Rates (1999 - 2003, annualized %)</u>					
Assets	7.47	0.56	3.99	9.10	-0.80
Loans	9.21	2.30	5.31	9.82	0.55
Deposits	6.64	0.27	3.16	8.63	-1.08
Core Deposits	5.89	0.41	2.60	8.03	-0.80
NonCore Funding	15.43	1.15	11.32	14.78	-1.23
<u>Branching Characteristics (% of institutions)</u>					
Unit Banks	38.78	70.45	53.57	34.69	65.57
Multibranch - all in HQ county	14.29	20.45	13.93	16.33	19.67
Multibranch - some branches in metro counties	6.12	2.27	8.93	16.33	4.92
Multibranch - no metro branches but some in Growing counties	18.37	0.00	8.21	10.20	4.92
Multibranch - but only in depopulating counties	22.45	6.82	15.36	22.45	4.92
<u>Earnings Ratios (1999 - 2003, annualized %)</u>					
Pretax Return on Assets	1.96	1.90	1.44	0.76	0.64
Net Interest Margin	4.49	4.28	4.15	4.07	3.87
Yield on Earning Assets	7.53	7.03	7.13	7.25	6.97
Yield on Total Loans	8.53	8.49	8.42	8.41	8.40
Cost of Funds	3.19	2.94	3.12	3.21	3.22
Noninterest Income/Average Assets	0.68	0.52	0.56	0.65	0.59
Noninterest Expense/Average Assets	2.67	2.48	2.74	3.25	3.18
Salaries and Benefits Expense	1.55	1.48	1.59	1.83	1.84
Premises Expense	0.32	0.29	0.34	0.46	0.41
Other Noninterest Expense	0.79	0.71	0.81	0.96	0.92
Provision for Loans Losses/Average Assets	0.20	0.07	0.20	0.35	0.34
<u>Asset Quality Ratios (1999 - 2003, annualized %)</u>					
Past-Due and Nonaccrual Loans/Total Loans	2.21	2.47	2.78	3.25	3.75
Charged-Off Loans/Total Loans	0.21	0.13	0.31	0.44	0.55
<u>Asset Composition (1999 - 2003, annualized %)</u>					
Earning Assets	92.06	92.02	91.84	90.80	91.36
Total Loans	64.68	53.85	56.16	61.19	52.21
Securities	23.87	31.03	31.05	25.06	31.77
<u>Loan Composition (1999 - 2003, annualized %)</u>					
Agricultural (RE secured and operating)	45.75	59.81	51.54	45.75	47.99
Commercial and Industrial (not RE secured)	16.45	12.06	14.67	16.45	15.12
1-4 Family Residential (all liens)	15.33	10.13	12.72	12.95	14.99
Commercial Real Estate	10.60	7.25	9.72	11.69	9.54
Consumer	10.21	8.61	9.59	11.66	11.01
Source: Bank and Thrift Call Reports, institutions meeting the following descriptives:					
1) December 31, 2003 total assets of \$250 million or less;					
2) established in 1993 or earlier; and					
3) headquartered in rural counties in the Great Plains that have declining populations since 1970.					
Notes: Branch data are as of June 30, 2003.					
Growth rates are merger adjusted.					
"Commercial Real Estate" loans consist of nonresidential real estate, construction and development, and multifamily housing loans					

Branching

Another significant factor in the success of community banks in depopulating areas is the willingness and ability to appropriately add branches. Branching into more economically vibrant areas than the county of the bank headquarters is a relatively popular strategy for many banks in the rural Great Plains. While such a strategy certainly can be expected to add to a bank's asset base, it may not always be a profitable venture.

Community bank managers have many branching choices available to them, including operating a single branch. In fact, just over half of Great Plains community banks located in depopulating counties are "unit banks." As Table 13 shows, the unit-bank option is most popular with low growth/high earnings banks (70 percent), which appear to achieve high profits by keeping operating costs low. By contrast, far fewer high growth/low earnings banks (35 percent) operate a single branch, but these banks may have sacrificed profits for growth. Even when considering multiple branches inside the bank's "home" county, these differences persist.

The question is whether branching outside a bank's home county can be expected to improve a bank's prospects, and the answer is unclear. A case can be made that branching into other counties, especially those with more vibrant economies, was a primary factor in high growth/high earnings banks' success, as 47 percent of these banks operate branches outside their home county. These banks have achieved asset growth because of the branch expansion, but also have been able to report high profitability. By contrast, only 15 percent of low growth/low earnings banks have branched into other counties, at the cost of both growth and profit potential.

On the other hand, branching can also be a risky proposition, as management's knowledge of new markets, expertise in new types of lending activities, and ability to control expenses become more important. A case can be made that high growth/low earnings banks, of which nearly half operate branches outside their home county, may have lacked the management skills necessary to make such bold branching moves. Sixteen percent of these banks have branched into metropolitan counties, where the competitive arena – and thus the required managerial expertise – is much different than in rural areas.

Other balance sheet components than total assets are affected by branching decisions. For example, banks with high asset growth have been able to achieve relatively strong loan and core deposit growth, but they have also increased noncore funding significantly.⁶⁵ Low-growth banks have had difficulties retaining core deposits; in fact, from 1999 through 2003 low growth/low earnings banks lost \$22 million in core deposits, and posted little loan growth.

⁶⁵ "Core" deposits are traditional bank deposits that are assumed to be relatively stable despite interest rates offered by the institution. By definition, these consist of savings deposits, money market deposit accounts, and time certificates of deposit of less than \$100,000. By contrast, "noncore funds" are those that offer far less stability and may be expected to leave the institution should it decide to lower interest rates paid on the accounts. Examples of noncore funds are time certificates of deposit of more than \$100,000, borrowings from entities such as the Federal Home Loan Bank system, and brokered deposits.

Risk Tolerance

Another factor that appears to influence community bank success is risk-taking. Management's tolerance for risk is apparent in branching activities, capital levels, and asset composition, and differs significantly among the groups of banks we studied. While high-growth banks tend to show increased levels of risk tolerance, the fact that significant earnings disparities exist suggests that risk taking can be a double-edged sword.

Adding branches, especially well outside a bank's headquarters county, certainly is a risky proposition, depending on management's abilities. Still, many institutions have proved to be successful at such branching moves.

Another area where management's risk tolerance is evident is in capital levels. As Table 13 indicates, equity capital levels range from 9.32 percent for high growth/low earnings institutions to 13.07 percent for low growth/high earnings banks. Banks with high growth tend to have significantly lower equity capital levels than banks with low growth. Similar to branching decisions, these banks are willing to take greater risk, and while some have been rewarded, others have experienced far fewer benefits.

A significant divergence in risk tolerance is indicated by the share of assets held in loans. High-growth community banks hold substantially more loans (and, conversely, less securities) than low-growth banks. Since loans tend to have far greater credit risk than securities, these holdings tend to indicate management's greater tolerance for risk. In fact, researchers have found that in the agricultural crisis of the 1980s, the primary factor influencing whether a bank failed was the loan-to-asset ratio.⁶⁶

Interestingly, despite high-growth banks' willingness to take on additional credit risk, an examination of loan compositions between the different groups of banks reveals only relatively minor differences. The most significant differences are that low growth/high earnings banks make substantially more agricultural loans and less single-family housing loans than the other groups, and that high growth banks make slightly less farm loans but more commercial real estate loans. The comparable loan compositions indicate that while high-growth banks are in fact taking on more loans, they continued to make particular types of loans in relative proportion to those made by low-growth banks.

Although high growth banks have made substantially more loans, high growth alone does not appear to indicate how the loans will perform. During the past five years, low-earnings banks, whether growing assets significantly, have reported elevated levels of past-due loans and significantly higher loan charge-off rates than high-earning institutions. In fact, charge-off levels at low growth/low earnings institutions were more than four times higher than at low growth/high earnings banks between 1999 and 2003.

⁶⁶ FDIC, *History of the Eighties – Lessons for the Future*, pages 281-282.

Net Interest Margins

When examining the earnings performance of community banks based in depopulating areas, the disparity in net interest margins (NIMs) is particularly striking. The range of NIMs reported for 1999 through 2003 was 3.87 percent for low growth/low earnings institutions to 4.49 percent for high growth/high earnings institutions. A considerable majority of community bank revenue is generated through the NIM; as a result, this difference is significant.

Differences in the NIM can be attributed to a variety of sources. First, some of the disparity in NIMs can be linked to the substantial difference in loan-to-asset (LTA) ratios. Typically loans are characterized by far higher yields than securities, Federal funds sold, or other “earning” investments; as a result, higher loan volume usually translates into higher levels of net interest income. Thus, high growth/high earnings banks, with an aggregate LTA ratio of 65 percent, report higher yields on earning assets than low growth/low earnings banks, with an aggregate LTA of only 52 percent.

However, low growth/high earnings banks have achieved the second highest aggregate NIM, despite having a relatively low (54 percent) LTA ratio. These banks appear to have achieved this through a combination of very low cost of funds (at 2.94 percent, by far the lowest of the groups) and relatively high loan yields. Low funding costs have been achieved through high levels of core deposits (at 73.2 percent of assets, the second highest of the groups) and low-growth prospects that do not require raising higher-cost funds. High loan yields appear to be the product of the group’s loan mix, which has more agricultural loans and fewer residential loans than other groups, but also could be a product of stable lending relationships and not entering new, highly competitive lending areas.

Will the Internet Solve Rural Bankers’ Customer Base Problems?

Beyond these differences in bank performance, does a “cure” exist for community banks in depopulating rural areas? One common response from rural bankers is that the Internet could be the magic elixir that helps them to overcome their problems, but this remains to be seen.

Use of the Internet is widespread and growing in rural America.⁶⁷ In fact, the adoption of computers by farm households is similar to that of U.S. households in general.⁶⁸ Clearly, rural populations can benefit from use of the Internet, expanding their choices for goods and services, reducing the burden of being located in geographically remote areas. While it may be an overstatement to suggest that the Internet could abolish distance entirely, it could enhance the ability of farmers, rural consumers, and rural businesses to access information, goods, and services from faraway sources, possibly increasing the economic viability of rural areas. As such, some economists view the Internet as the possible savior of rural areas, as companies could locate their businesses in rural areas, taking advantage of lower labor and land costs and less stringent environmental regulations, while still marketing their products to urban end-users.

⁶⁷ Much of the research for this section is drawn from Jeffrey Walser’s “The Information Superhighway: Panacea or Threat for Rural America,” FDIC *Regional Outlook*, Kansas City Region edition, Third Quarter 2002.

⁶⁸ Abbott, Eric A. J. Paul Yarbrough, and Allan G. Schmidt, 2000. Farmers, Computers, and the Internet: How Structures and Roles Shape the Information Society. In *Having All the Right Connections – Telecommunications and Rural Viability*. Eds. Peter F. Korsching, Patricia C. Hipple, and Eric A. Abbott. Westport, CT: Praeger Publishers, 220.

While many argue that the Internet has the potential to improve the economic prospects for rural communities, the history of earlier technological innovations suggests otherwise. In the early 1900s, for example, it was widely thought that expanding phone service to rural areas would solve depopulation problems at that time.⁶⁹ As we pointed out earlier, similar claims were made when the automobile became available in rural areas in the 1920s and when rural electrification became widely available after World War II, but some believe that these innovations actually *increased* the pace of rural-to-urban migration.

While proponents of the Internet see it as a “bridge from” rural communities, those who are more dubious of the rural benefits see the potential for the Internet to provide a “bridge to” rural areas. Rural residents, who have long been served by local businesses, are able to shop online for goods and services anywhere in the country, or the world for that matter. For community banks, the best-case scenario would allow them to expand their customer bases electronically even while at the same time their local populations are declining, effectively undoing the geographic ties that bind them.

On the other hand, the Internet may prove to be a double-edged sword, allowing larger banking companies to market their products in rural areas where it may never have been feasible to locate a physical branch. Since large banks typically have a wider array of products than rural banks, and because their size allows them some scale benefits in the cost of providing banking services, they may become very formidable competitors of rural institutions when the Internet becomes increasingly diffused in rural areas.

WHAT DOES THE FUTURE HOLD?

What does the future hold for depopulating rural counties in the Great Plains, and for insured financial institutions headquartered there? Of the regions affected by rural depopulation that we have studied, the case of the Great Plains seems the most critical in extent and severity. The low population densities, relative isolation of the population, lack of natural amenities, and dearth of opportunities for non-agricultural industries all pose significant obstacles to any region-wide strategies to reverse the trend. In addition, the very low populations of many Great Plains communities, together with their comparatively high agricultural populations, make them highly vulnerable to slipping below the threshold of continued economic viability.

Policy makers at every level continue to search for solutions to the rural depopulation problem in the most severely affected counties. The question is: what are the appropriate public policies to respond to the continuing depletion of the populations of many rural areas?

One viewpoint holds that rural depopulation is the result of fundamental economic forces, or the cumulative effect of millions of individuals responding to market forces. Thus, the role of public policy should be limited to programs that facilitate migration from the rural areas. This line of reasoning is labeled by some observers as “rural transition programs.” These programs may

⁶⁹ Kline, Ronald R. 2000. *Consumers in the Country: Technology and Social Change in Rural America*. Baltimore, MD. Johns Hopkins University Press, 24.

include education and training programs of rural residents to improve their skills, presumably improving their attractiveness to employers, or grants to local governments to support infrastructure, linked with incentives for them to pool resources more efficiently. Such programs would typically have a short-term orientation and work in concert with the underlying market forces.⁷⁰ These policies would be expected to adversely affect community banks in depopulating areas as their customer base continues to erode.

The opposing viewpoint favors an “economic development strategy” that would use government funds to reverse market forces and restore viability to declining rural areas. This would be a long-run strategy, addressing the need of those “left behind” – unwilling or unable to migrate away. Rural development policies are usually justified by arguments that lie beyond economics, such as the social value of the rural lifestyle. Such policies typically include expenditure for the development of infrastructure and the enhancement of business opportunities.⁷¹ These policies could ultimately benefit community banks in positively affected counties, but the ultimate cost of such programs could be substantial.

Technology, such as the Internet and the continued spread of broadband access into rural areas, potentially holds some promise for depopulating counties. Rural businesses hope that such technology will allow them to market their goods and services to customers well beyond their county lines. However, such technology could also become a “bridge to” these communities as well as the hoped for “bridge from” them. Urban businesses, including large banks, will have the means to reach into isolated rural communities, providing a powerful new source of competition.

Looking ahead at the prospects for community banks, we foresee increasing consolidation in depopulating rural areas, potentially dramatically altering the number of institutions over the next 20 years. Community bank consolidation in these areas has yet to outpace that elsewhere in the nation, but two factors are reaching a critical juncture. First, the large pocket of very elderly in rural depopulating counties threatens to significantly weaken community bank funding bases. Second, the lack of succession plans due to the absence of younger, capable bank managers in some areas could leave many retiring bank owners with no option but to sell their institutions.

In the meantime, the strategic options available to community banks in depopulating counties are limited. In the short-term, community bank success in rural areas could depend on the willingness of management to take well-conceived risks, such as branching into more economically vibrant areas. However, many management teams may not have the expertise to do so without heightening their institutions’ risk profiles. Another viable strategy may be to streamline their institutions, cutting costs wherever possible, to remain profitable despite the absence of local growth opportunities.

⁷⁰ Ibid. p47.

⁷¹ Ibid. p51.