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### Dryland Agriculture: Sociology

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# Sociology

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## 34-1 PURPOSE

The physical environment of the Great Plains region in the USA is unique to the nation. It presents a set of climate and land conditions so extreme that for many years it was known as the "great American desert." As late as 1823, Major Long of the Army Engineers reported that most of the land between the Missouri River and the Rocky Mountains "is almost wholly unfit for cultivation, and of course uninhabitable by a people depending on agriculture for their subsistence." Today, by adapting techniques to fit a semiarid location and through the development of new technologies, the Great Plains has become one of the most productive agricultural areas in the world.

This chapter will examine important social characteristics of the people living on the Great Plains. The guiding question in the preparation has been whether the physical nature of the region and subsequent pattern of settlement has led to any significant differences between the inhabitants of the area and those living elsewhere in American society. How, if at all, has living in a semiarid or dryland region affected the quality of life of its people? Do they have any special problems? Do they have any special advantages?

These questions are addressed by looking at the demographic characteristics of the Great Plains, the quality of life on the Great Plains in comparison with other regions in the nation, the characteristics, quality of life, and problems of the Great Plains farming population. Comparisons are made between farmers living in the Great Plains with farmers living elsewhere in the nation, between those using dryland methods with those who use irrigation, and between farmers and urban dwellers. General conclusions and suggestions for further study will be discussed in the final section.

## 34-2 DEFINITION OF THE GREAT PLAINS REGION

The major dryland agricultural area in North America (the Great Plains) lies approximately between the eastern slope of the Rockies and the 100th meridian. Its southern border is in the Texas Panhandle, and it extends north into the Canadian provinces of Alberta and Saskatchewan. Smaller dryland areas outside the Great Plains are in eastern Washington, north central Oregon, the central part of California, southeastern Idaho, and northern and southeastern Utah. Discussion will focus on the states of Montana, Wyoming, North Dakota, South Dakota, Nebraska, Kansas, and Oklahoma, and to simplify discussion, these seven states are referred to as the Great Plains region. The other three Great Plains states are Colorado, New Mexico, and Texas. Because social and demographic data are most often collected within designated political boundaries, e.g., nations, states, counties, it is not practical to include the dryland portions of Canada and the areas outside the seven Great Plains states in the USA. The demographic and social characteristics of people living in dryland areas outside the seven states here defined as the Great Plains region may be similar, but this is an assumption that may or may not prove to be true through additional research. Other regions of the nation, exclusive of the Great Plains states, that will be used for comparative purposes are the U.S. Census Bureau's East, South, Midwest, and West regions (U.S. Bureau of the Census, 1970).

## 34-3 POPULATION CHARACTERISTICS<sup>1</sup>

### 34-3.1 Settlement

Initial westward expansion of agriculturists in the 19th century stopped abruptly at the Missouri River, held back by the belief that the climate of the Great Plains rendered it unsatisfactory for farming. In 1860 no state or territory in the Great Plains had a population density of even one person per square mile.

The Homestead Act of 1862 opened millions of hectares of land to settlement by making it possible for a person to obtain 61 ha at little cost. All that was required for ownership was to live on a claim for at least 5 years and to improve it through cultivation. Another important source of low-cost land was made available by railroad companies. The federal government had granted the companies alternate blocks of land in a strip 17 km wide on either side of their rights of way to be used to finance construction of railroads across the Great Plains. These companies and newly formed boards of immigration set up by state and territorial governments made great efforts to attract settlers. Often cooperating with ethnic and religious

<sup>1</sup>All findings presented in this section are based on data provided by U.S. Bureau of the Census (1900, 1970, 1975, 1977).

societies, they advertised the Great Plains as an agricultural Eden, a region of fertile and rockless soil.

The availability of inexpensive land on the Great Plains coincided with a time of extensive immigration into the USA. Between 1870 and 1900, the nation received nearly 13 million people from European nations. Along with Americans from the eastern part of the country, many immigrants moved onto the Great Plains. For example, in 1900, immigrants and persons of foreign parentage composed 47% of Nebraska's white population and made up 78% of the white population of North Dakota. Excluding Indians, the population of the Great Plains grew from only 0.531 million in 1870 to 4.383 million in 1900, an increase of more than 700%.

Development of the Great Plains region in the early years of settlement owes a great deal to the foreign born and their children. This is especially true in agriculture. Although they tended to form somewhat different kinds of settlement patterns, depending on their national origin, these ethnically diverse people usually arrived on the Great Plains as family units. Unlike many native-born Americans who viewed land ownership as a means of wealth, they saw land as necessary for the style of life they preferred. Luebke (1977) points out that the immigrants were either farmers or persons who intended to work in some form of agriculture. Thus, it is not surprising that such groups as the Germans, Norwegians, and Swedes were more likely than the native born to locate in the rural, farming areas of the region. And, as suggested above, these settlers played an important role in transforming the Great American Desert into one of the nation's most agriculturally productive regions. It was the Russian Germans, for example, who introduced the hard red winter wheat (Turkey Red) that revolutionized wheat production in the Southern Great Plains, and it was this group that had a most instrumental part in the success of the sugar beet culture in Nebraska and Colorado.

### 34-3.2 Population Growth

Except for the depression years from 1930 to 1940, the population of the Great Plains has continued to grow (Table 34-1). However, this increase has been due almost entirely to an excess of births over deaths. The region continued to receive newcomers in substantial numbers until 1910, but even as early as 1890, Kansas and Nebraska were losing large numbers of people through out-migration. Harsh winters, drought, grasshopper plagues, and other disturbing conditions took their toll. Inspection of the net migration figures in Table 34-1 shows that after the initial settling of the area, the Great Plains encountered a 60-year migration drain. This extended period of population loss was felt throughout the region, and except for Wyoming, all of the states experienced one or more decades of actual population decline. Small towns and rural areas were the most severely affected. Cities, in fact, gained in population but generally at a much slower rate than cities in other sections of the nation.

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Table 34-1. Great Plains population size, growth, and net migration, 1880-1970 for seven states (U.S. Bureau of the Census, 1970).

Year	Population size in 1000's	Ten-year net growth	Ten-year net migration†
		%	
1880	1643	209.4	127.6
1890	3496	112.8	52.6
1900	4384	25.4	9.7
1910	6223	42.0	18.9
1920	7120	14.4	-0.2
1930	7793	9.4	-5.7
1940	7548	-3.1	-10.3
1950	7619	0.9	-10.5
1960	8236	8.1	-8.2
1970	8599	4.4	-5.8

† Positive numbers: in-migration exceeds out-migration; negative numbers: out-migration exceeds in-migration.

Between 1970 and 1975, the Great Plains showed a net gain from migration (0.9%) for the first time since 1910. This gain has not occurred evenly throughout the region, however. Kansas and the Dakotas have continued to lose population through emigration, although the net loss appears to be declining. Montana and Wyoming have showed the largest gains, 3.7 and 7.5%, respectively.

Despite losses from out-migration, the Great Plains population increased throughout most of this century because of the growth of urban areas. The rate of growth, however, has been much less than for the USA as a whole. For example, from 1960 to 1970, the USA had an average annual growth of 1.34% compared with 0.45% for the Great Plains. Two kinds of changes are presently occurring that may change this picture in the future.

First, the U.S. growth rate is declining while the Great Plains rate is increasing. Average annual growth for the USA between 1970 and 1975 was 0.96, a 28.4% decline from the rate in the 1960's. From 1970 to 1975 the average annual growth rate for the Great Plains was 0.84, an increase of 86.7% over the average rate from 1960 to 1970. Thus, although the nation continued to grow at a faster rate than the Great Plains during the first half of the last decade, simple projection of trends suggests that the growth rate for the Great Plains region will surpass the national rate in the near future.

Second, a reversal of the rural to urban migration has characterized American society for more than a century. We can see this change by comparing growth in metropolitan and nonmetropolitan counties. A metropolitan county is one that lies within a standard metropolitan statistical area. This is an area made up of one or more entire counties that surround and are socially and economically tied to a city of 50 000 or more population. From 1960 to 1970, metropolitan counties grew by 17.1% compared with a 4.1% increase in nonmetropolitan counties. From 1970 to 1975, the U.S. population residing in nonmetropolitan counties increased by 6.5% while that in metropolitan counties grew by only 4.2%. The Great Plains

Table 34-2. Total population and population density of seven Great Plains states, 1970  
(U.S. Bureau of the Census, 1970).

State	Population in 1000's	Population density per square kilometer
Oklahoma	2559	14.3
Kansas	2247	10.6
Nebraska	1483	7.5
Montana	694	1.8
South Dakota	666	3.4
North Dakota	618	3.4
Wyoming	332	1.3

has a relatively small proportion of its population living in metropolitan counties, 39% compared with 73% for the nation's population in 1970. However, during the 1960's, the metropolitan counties in the Great Plains increased at a rate nearly comparable with the rate of growth for the U.S. metropolitan population, an average yearly rate of 1.59%. And, just as the overall metropolitan growth rate declined in the first half of the 1960's, the average rate in the Great Plains declined to 0.96%. The nonmetropolitan counties in the Great Plains actually lost population during the 1960's. The average rate of loss was 0.17%. This pattern reversed beginning in 1970, and the average rate of increase through 1975 was 0.75%. Montana and Wyoming experienced the highest nonmetropolitan growth during this time, an annual average increase of 1.92%. This, of course, represents nearly a 10% increase in nonmetropolitan population in the span of 5 years! It seems possible that the extensive population loss from rural areas and small towns in the Great Plains has come to an end.

### 34-3.3 Population Density

The Great Plains population has not increased a great deal since 1910, and population density has remained fairly constant. The density was 4.5 persons/km<sup>2</sup> in 1920 and 5.4 persons/km<sup>2</sup> in 1970. This is by far the lowest density of any region in the country. In comparison, density in the USA in 1920 was 11.5 persons/km<sup>2</sup> and increased by 1970 to 22.2 persons/km<sup>2</sup>.

Although no state in the Great Plains region has a density comparable with that of the USA as a whole, the density varies considerably among the states within the region. Because population density is one of the most important demographic characteristics of the Great Plains, state-level data on population size and density are provided in Table 34-2.

### 34-3.4 Other Demographic Characteristics

As might be expected from the large percentage of people living in non-metropolitan counties, the Great Plains has a higher proportion of its labor force employed in agriculture—10.8% in 1970 compared with 3.7% of the



total U.S. civilian labor force. In 1970, the labor force in the Great Plains employed in agriculture varied from a low of 5.3% in Oklahoma to a high of 20.9% in North Dakota. Other Great Plains-USA comparisons show a slightly larger proportion over 65 years of age (12% compared with 10%), a somewhat higher sex ratio (97 males per 100 females vs. 95 per 100), and only 6% of the people in the Great Plains regions are considered nonwhite compared with 13% in the USA. However, these and other small demographic differences evidenced through analysis appear to be of little consequence. Aside from size, density, growth, and rural-urban composition, the Great Plains population is very similar to that of the USA as a whole.

Some evidence, based on research in Nebraska, suggests that ethnic identity may be greater among Great Plains residents than in other regions (Williams et al., 1980). Such identity could cause problems if associated with ethnic discrimination or value conflict, but the extent of the problem is currently unknown.

## **34-4 QUALITY OF LIFE**

### **34-4.1 Definition and Measurement**

People in all societies must engage in various individual- and system-maintaining activities. For example, the physical environment chosen for habitation must not only be able to support human life but must also be protected so that its ecological system continues to function properly after settlement. Necessary goods and services, e.g., food and shelter, must be produced and distributed in sufficient quantity and quality. Because people are guided more by culture than by instincts, they must be educated to perform as members of the society. Mortality requires population replacement, and given the long years of early dependency, the group needs to maintain social organizations (e.g., the family) to protect and nurture children. Activities within the society's division of labor need to be coordinated and some degree of order maintained. Adequate physical and mental health are necessary, and this requires providing appropriate health services. The more successful a society is in performing activities related to meeting basic individual and social objectives, the higher the quality of life for its members. Failure to cope effectively with these social functions gives rise to social problems.

The Great Plains area was settled in a relatively short period of time by people from a variety of different cultural heritages. After initial settlement, the people experienced at least 60 years of extensive out-migration. Although the number of births exceeded deaths, net loss through emigration kept the population size relatively stable. Urban growth has occurred more slowly and to a lesser extent than in other regions of the nation, and population density has remained low. The proportion of people employed in agriculture has declined from more than 50% of the labor force at the turn of the century to only 10.8% in 1970, but this figure is still nearly three times greater than the average for the USA. Furthermore, many nonagricul-

Table 34-3. Satisfaction with climate by region of the USA (Campbell et al., 1971).

	Great Plains	West	Midwest	East	South
	%				
Very good	26.7	51.0	26.4	26.3	44.7
Fairly good	50.5	38.7	43.4	41.2	42.7
Neither good nor bad	16.1	5.2	16.6	15.4	6.0
Not very good	6.6	2.6	10.4	12.0	5.3
Not good at all	0.0	2.5	5.0	5.1	1.6
Number of cases	85	359	535	464	706

tural occupations are linked to agriculture in one way or another, e.g., railroads, meat packing, fertilizer production, flour milling, and manufacture of farm machinery. Have these and related characteristics affected the quality of life of Great Plains residents?

Quality of life can be measured with respect to both objective and subjective components. That is, the quality of various aspects of a population can be assessed through objective indicators, e.g., per capita income or median education, and through the subjective attitudes of people about their lives and surrounding social conditions.

34-4.2 Physical Environment

Many facets of the physical environment affect the quality of life. Of particular importance are the climate, air, water quality, and recreation opportunities.

34-4.2.1 Climate

Blizzards, heat, drought, dust storms, and tornadoes represent the kinds of weather that originally persuaded people to either remain east of the Missouri River or to cross over the Great Plains as quickly as possible toward what they believed to be a more hospitable climate on the other side of the Rockies. Apart from the perception of economic advantages to be gained by moving west, climate also may have contributed to the long years of emigration from the Great Plains after initial settlement. Nevertheless, the settlers proved that the region can support human life, and the tremendous agricultural production of the area is ample testimony to the value of the land. Thus, perhaps the most salient point regarding an association between climate and the quality of life on the Great Plains is how do people feel about it? Do they see the climate as having a negative impact on their lives?

In a national survey, Campbell et al. (1971) asked people, "Another way people judge a place to live is what the weather throughout the year is like—As far as you are concerned, how good is the climate here?" Residents of the West and South are the most likely to say that their climates are very good (Table 34-3). However, responses of Great Plains residents are

not different from people living in the East and Midwest, and, in fact, only the West has a smaller percentage stating that their climate is not very good or not good at all. The majority (77.2%) of the Great Plains population think the climate is fairly good or very good.

#### *34-4.2.2 Air and Water Pollution*

Primarily because of its smaller, less densely settled population and limited industrialization, the Great Plains region has the lowest levels of air and water pollution in the USA. The U.S. Environmental Protection Agency (USEPA, 1973. Personal communication) evaluations show that only Kansas and Oklahoma have a serious air pollution problem among the Great Plains states. Among the metropolitan counties in the Northern Great Plains, only Omaha has an air pollution problem. The region has water pollution, especially along the eastern fringes of the Plains (e.g., the Missouri and Arkansas rivers), but even this problem tends to involve fewer stream kilometers and to be of less duration and intensity than in most other areas in the nation (USEPA, 1972).

#### *34-4.2.3 Recreation*

To the extent that life is enhanced by providing a portion of the physical environment for recreational use, the Great Plains region offers a comparatively high quality. For example, in addition to such traditional vacation spots as Yellowstone and the Black Hills, more hectares per 100 000 population have been set aside by local and state governments for parks and recreational use than in any other region. The national average is 17.4 ha, and land areas per 1000 000 population for regions are Great Plains 45.1; East, 39.5; West, 19.8; Midwest, 10.6; and South, 6.3 (U.S. Bureau of the Census, 1971). Among the Plains states only North Dakota and Kansas fall below the national average. In addition, the Great Plains states added recreational areas at a faster rate than other regions throughout the 1970's.

#### **34-4.3 Economy**

Compared with the world average of \$1650, the per capita gross national product of \$7890 for the USA is very high (Population Reference Bureau, 1978). Comprising about 6% of the world's population, the USA uses more than 25% of the earth's nonrenewable resources (Meadows et al., 1972) and over 50% of all basic resources (Allen, 1969). Despite these high levels of production and consumption, the nation is not free of economic difficulties (e.g., inflation, unemployment, and poverty). Regional variations in economic problems, and hence in the economic quality of life, can stem from differences in such factors as availability of natural resources,

Table 34-4. Selected indicators of economic quality by region of the USA.

	Great Plains	West	Midwest	East	South
Cost-adjusted personal income per capita†	\$3634	\$3973	\$3895	\$3974	\$3427
Percent of families with incomes below poverty level‡	12.2	9.9	8.2	7.7	16.4
Percent unemployed§	5.6	8.5	8.2	10.4	8.6
Percent of workers dissatisfied with main job¶	6.5	11.9	7.4	9.4	6.4

† Source: Liu (1973).

‡ Source: U.S. Bureau of the Census (1970).

§ Source: U.S. Bureau of the Census (1976).

¶ Source: Campbell et al. (1971).

type and amount of production, technological development, and population composition.

According to a national assessment of the quality of life by the Midwest Research Institute (MRI), Kansas City, Missouri, the Great Plains region is approximately equal to the national average in economic productivity and only slightly lower in technological development (Liu, 1973). Exceptions to this are Nebraska's high standing in the rate of economic productivity and North Dakota's relatively low ranking in technology. The Midwest Research Institute's general evaluation tends to be supported by indicators that relate to an individual's chances of economic success (Table 34-4). With the exception of the South, cost-adjusted personal income is somewhat lower in the Great Plains states, and the proportion of families with incomes below the poverty level is larger. On the other hand, the Great Plains has the lowest level of unemployment among the five regions, and the likelihood of being dissatisfied with one's job is lower than in most other regions. More will be said about the economic quality of life in the next section dealing with the farming population in the Great Plains.

There is at least one newly developing source of economic production in the Great Plains states that could have a major impact on the quality of life for the majority, if not all, of the residents. The rapidly dwindling supply of crude petroleum, natural gas, and uranium in the nation and the world makes the deposits of coal and shale oil in the Northern Great Plains an especially important natural resource. In 1967, none of the Great Plains states was among the top 10 coal-producing states. However, in estimated coal reserves, North Dakota, Montana, and Wyoming ranked first, second, and fourth, respectively (Schwartz, 1967). Current estimates indicate that the Great Plains has about 37% of the nation's minable coal reserve by weight and 60% of the surface minable coal (Northern Great Plains Resources Program, 1975). Research suggests that the presence of these mineral resources in the Great Plains region may represent a mixed blessing for the quality of life in the region. As mentioned, population and urban development are increasing in the region at the present time. Rapid development of mining and auxiliary industries could add substantially to that growth. High growth in a short period of time has been found to be as-

sociated with a variety of negative consequences, e.g., alienation, mental illness, crime, family disruption, and a drain on social, medical, educational, and recreation services. Some evidence suggests these consequences are now occurring in Montana and Wyoming (Gold, 1974). In addition, the extraction and distribution of coal and other minerals can have unfortunate consequences for the natural ecology of an area, including deterioration of the quality of air, land, and water and destruction of animal habitat (Northern Great Plains Resources Program, 1975). To this listing can be added the possibility that mining and related industries will compete with agriculture for labor, water, and land (Dalsted et al., 1974; White, 1974). The research groups for the Northern Great Plains Resources Program have indicated that some of the available approaches to using the region's mineral reserves will have less harmful effects than others. Thus, the extent to which negative results occur depends on how rapidly development takes place and the types of choices made by the decision makers. Furthermore, the mineral resources in the Great Plains could offer benefits for the quality of life. In addition to providing needed sources of energy for agriculture and industry, development may increase employment opportunities, raise the general standard of living, further halt the emigration of young people from the region, and increase the availability of services. Much depends on the willingness of various interest groups to work together for the common welfare of the region.

#### 34-4.4 Education

Although there are a number of learning sources (e.g., that provided by the family, the church, on the job training, and the mass media), the best indicators of the quality of life in relation to education in an industrial society are those associated with the effectiveness of the public school system.

The survey conducted by MRI led to the construction of several indices, each based on a number of different variables known to be associated with the quality of life in that area. After combining measures for an index, MRI standardizes raw scores by setting the national average at 1.00 and computing the standard deviation. States having an index score more than one standard deviation above the mean are rated excellent, those with more than one standard deviation below the mean are judged substandard, and the rest are rated average. These ratings are arbitrary, but they do provide evidence of rather clear superiority or inferiority on a comparative basis.

The MRI index of education is made up of 10 variables, including public school pupil/teacher ratio, percent of median school years completed among persons 25 years old and over, ratio of higher education enrollment to population 18 to 34 years old, and the ratio of cost-adjusted public school expenditures to personal income per capita. By their rating procedure, 10 states received excellent scores, and half of these are in the Great Plains. Kansas and Oklahoma are defined as average, but Kansas does have a score

Table 34-5. Satisfaction with schools by region of the USA (Campbell et al., 1971).

	Great Plains	West	Midwest	East	South
	%				
Very good	43.3	33.2	42.2	37.4	35.9
Fairly good	46.5	44.2	39.9	37.8	44.4
Neither good nor bad	6.5	5.5	6.6	7.7	6.6
Not very good	0.0	11.2	6.8	10.5	7.3
Not good at all	3.6	6.0	4.5	6.6	5.8
Number of cases	62	273	435	351	560

above the national mean. By combining state scores and computing regional averages, MRI rated the Great Plains region as excellent, the South as sub-standard, and all other regions as average. Thus, according to the MRI index, the Great Plains has the highest quality of education in the USA.

Table 34-5 shows that MRI's high rating of the quality of education in the Great Plains region is consistent with public opinion. Campbell et al. (1971) asked people, "How do you feel about the quality of the public schools that the children from around here go to?" The Great Plains has the largest proportions saying "very good" and "fairly good" and has the smallest proportion of those who are dissatisfied.

### 34-4.5 Population and Family

Population size and growth per se need not affect the quality of life. However, problems can arise when a population is either too large or too small in relation to the base of economic and social support, when the age structure creates a high dependency ratio, or when the population is distributed geographically in a manner that makes it difficult to provide access to support services.

The Great Plains states have managed to tread the line between too many and too few people. Births exceeded deaths in every decade of this century, but extensive out-migration kept the overall growth to manageable proportions. The resulting population, generally, has provided a labor force well matched in size and quality to the economic needs of the region. Out-migration of young people has created a proportionally higher number of elderly persons in the Great Plains than in the U.S. average, but demographic trends from the 1970's may have reduced this problem. Potential problems associated with low density in rural areas are examined in section 34-4.6.1.

Even though the family appears to be undergoing some fundamental changes in American society, this institution continues to have primary responsibility for nurturing, protecting, and caring for children and for meeting many of the psychological and social needs of adults. Thus, an analysis of the quality of life in relation to population would not be complete without some assessment of the quality of marriage and the family. A

Table 34-6. Selected indicators of marital and family quality by region of the USA  
(Campbell et al., 1971).

	Great Plains	West	Midwest	East	South
Percent divorced or separated	3.2	10.7	7.3	5.7	9.9
Mean marital adjustment	22.9	23.5	23.9	23.8	23.5
Mean marital satisfaction	20.9	22.5	21.2	21.7	21.1
Percent never wished to be free from parental responsibility	91.2	79.2	79.1	78.8	84.7
Percent always or nearly always enjoys being a parent	82.0	80.4	77.6	75.2	80.1
Percent obtaining satisfaction from family life	91.3	83.0	86.1	85.5	88.6

thorough examination of family life is far beyond the scope of this chapter, but data that may be used to obtain a fairly reasonable estimate of marital stability and how people feel about their marriages and their role as parents are available.

Table 34-6 shows that the proportion of people who are divorced or separated is lower in the Great Plains states than in other regions of the USA. The next two measures in the table give some idea of the degree of adjustment and satisfaction with marriage. The marital adjustment index is a combination of several items dealing with such subjects as perceived agreement on spending, how well the respondent feels that he or she understands the spouse and is understood by him or her, and the extent of companionship in the marriage. The range of this index is 12 to 53; the lower the score, the better the marital adjustment. Differences among regions are not large, but the average for the Great Plains population indicates better adjustment than in other regions. It is possible for people to be well adjusted to each other in a marriage and still not derive a great deal of satisfaction from the relationship. The marital satisfaction index taps this dimension. The range is from 10 to 70; the lower the score, the higher the satisfaction. Once again, regional differences are not large, but the Great Plains population shows a somewhat higher degree of marital satisfaction.

Data in Table 34-6 also indicates the amount of satisfaction obtained from parenthood and family life. Asking parents whether they ever wished to be free from parental duties and how much they enjoy being a parent is not a direct measure of the quality of child care, but it seems plausible that there is a positive relationship between quality and enjoying being a parent and not wishing to be free from parental responsibility. Furthermore, responses to these questions provide an idea of whether people see their own needs as being thwarted or fulfilled through parenthood. The final item, how much satisfaction people find from family life, is a good measure of perceptions of how well their families are assisting in meeting general social and psychological needs. All of these measures suggest that the great

Table 34-7. Attitudes toward selected community services by region of the USA  
(Campbell et al., 1971).

	Great Plains	West	Midwest	East	South
Percent saying residence not very or not at all conveniently located	23.8	10.7	14.1	16.6	19.9
Percent dissatisfied with upkeep of streets and roads	18.5	14.4	18.5	24.8	23.0
Percent dissatisfied with parks and playgrounds	9.4	22.0	24.1	18.5	31.3
Percent dissatisfied with public transportation	20.8	30.0	23.1	20.7	19.6
Percent dissatisfied with garbage collection	7.9	7.7	5.4	6.1	9.9
Percent saying local taxes are very high	23.4	24.7	16.2	24.9	15.6
Percent neutral or dissatisfied with community	8.2	21.9	28.2	28.5	22.6

majority of parents accept and enjoy their responsibilities as parents and are obtaining satisfaction from their families. To the extent that answers to these questions measure the quality of family life, people of the Great Plains enjoy a higher quality, on the average, than do people in other regions.

### 34-4.6 Government

For the most part, all Americans share in essentially the same form of government. Hence, regional differences in quality stem largely, but certainly not exclusively, from the capacity of local and state governments to provide public services and secure the safety of the population.

#### 34-4.6.1 Public Services

Measures of the quality of public services by region are not available. However, the information presented in Table 34-7 gives an indication of whether people have access to certain services and how they feel about others. The first item in the table shows responses to the question, "First, thinking about the kinds of things you would like to have near where you live—places you go fairly often—how convenient would you say this location is?" The Great Plains has the largest proportion saying they are not conveniently located. This would appear to be a function of the lower population density of the region. Half of the Great Plains sample live in nonmetropolitan counties, and among these respondents only 8.4% say they are conveniently located. A much smaller proportion (13.4%) of the sample in other regions live in nonmetropolitan counties, but 35.0% of these people



Table 34-8. Rates per 0.1 million for selected crimes and attitudes toward police protection and safety of neighborhood by region of the USA. †

	Great Plains	West	Midwest	East	South
Murder and nonnegligency manslaughter	5.6	8.4	7.3	4.8	12.0
Forcible rape	16.7	34.4	22.3	15.6	22.8
Robbery	58.5	153.5	185.2	160.3	142.5
Aggravated assault burglary					
—breaking or entering	946.7	1804.6	1284.3	1350.7	1338.3
Larceny-theft	2363.0	3686.7	2881.5	2340.3	2369.5
Motor vehicle theft	243.0	479.6	411.7	594.5	305.5
Percent saying police protection not very good or not good at all	8.1	15.1	13.1	17.6	18.1
Percent saying not safe to walk in neighborhood at night	7.8	23.2	22.6	26.5	29.1

† Sources: Crime rates computed from U.S. Bureau of the Census (1976) and attitudes toward police protection and safety of neighborhood from Campbell et al. (1971).

indicate that they are conveniently located to services. There is no difference in perceived convenience between metropolitan residents in the Great Plains states and those living in metropolitan counties in other regions. It can be seen from the attitudes toward specific services that people in the Great Plains region seem to be no more or even less dissatisfied with their quality. Furthermore, the lack of convenient location does not appear to interfere with community satisfaction. The last item in Table 34-7 shows that a much smaller proportion of people in the Great Plains states than in any other region are either neutral to or dissatisfied with their community "as a place to live in."

#### 34-4.6.2 Safety

Table 34-8 shows the regional rates per 100 000 population for major crimes and for the attitudes of people regarding police protection and the safety of their neighborhoods. The East has the lowest rates of murder, rape, and larceny, with the Great Plains next to lowest. The Great Plains has the lowest rates of robbery, assault, burglary, and motor vehicle theft. Perhaps the most important information shown by these data in terms of regional differences is that the Great Plains is consistently low on all forms of crime. This relatively low crime rate is reflected in the attitudes of people. As indicated, a smaller proportion of people in the Great Plains are dissatisfied with the quality of police protection, and a much smaller proportion than in other regions believe that their neighborhoods are not safe to walk in at night. It could be argued that these attitudes are more related to the low incidence of crime in a sparsely populated area than they are to the quality of a governmental service. Undoubtedly there is some truth to this idea, but two points should be made. First, among people living in metro-

Table 34-9. Attitudes toward personal health by region of the USA (Campbell et al., 1971).

	Great Plains	West	Midwest	East	South
Percent saying they have health problems	20.4	31.1	26.3	25.3	31.5
Percent indicating dissatisfaction with health	6.8	12.4	9.4	7.8	11.8
Among those with health problems, percent saying this prevents them from "doing lots of things"	20.8	39.8	37.7	33.5	42.1

politan counties, Great Plains residents are less likely to be dissatisfied with police protection (5.0 compared with 15.7%) and much less likely to feel that their neighborhoods are not safe (13.1 compared with 31.2%). Second, regardless of the reasons, relatively low incidence of crime in the Great Plains contributes to the quality of life in the region.

### 34-4.7 Health

The Great Plains has fewer physicians per 100 000 population than any other region: Great Plains, 113; West, 154; Midwest, 137; East, 183; and South, 134 (U.S. Bureau of the Census, 1976). This is at least partly due to the higher proportion of Great Plains people living in rural or nonmetropolitan counties and the reluctance of physicians to locate in rural areas. Thus, for example, 15 counties in Nebraska have no physicians, and all or part of 46 other counties are defined by the U.S. Department of Health, Education, and Welfare as areas of "primary medical shortage" (Terrill, 1978). Living in a sparsely settled area represents an inconvenience for some and perhaps a serious problem for others in obtaining health services (Kraenzel and Macdonald, 1971). On the other hand, the situation is not as grave as it might appear. With modern methods of transportation, patients usually are within reasonable driving distance of a physician. Regardless of the adequacy of health delivery, perhaps in spite of it, the general health of the Great Plains population appears to be at least as good, and probably better, than in other regions.

Life expectancy, especially for women, is the most sensitive and least biased measure of the health of a population. In 1970, life expectancy for women averaged 76.4 years for the Great Plains states compared with 74.8 years for the USA (USDHEW, 1970). Each state in the Great Plains has a life expectancy for women exceeding the national figures and no significant difference in either fertility or mortality between metropolitan and non-metropolitan counties. Furthermore, the conclusion based on these objective measures is supported by the attitudes of Great Plains residents toward their own health. Compared with other regions, smaller proportions say they have health problems and are dissatisfied with their health (Table 34-9). Among those who do have problems, the Great Plains has the smallest proportion saying this prevents them from "doing lots of things."

## 34-5 FARMERS

### 34-5.1 Objectives

This section focuses on the characteristics, quality of life, and problems of the farming population. Farming is more likely to impose structural constraints on life-style than most other occupations. Farming the land normally means living in a low-density area. This reduces the convenience of access to necessary services and to the wide choices among other services typically found in higher-density urban areas. Economic uncertainties related to the exigencies of the weather and fluctuations in the agricultural market are very real to the farmer, who must combine the tasks of running a business that varies considerably in demand during different times of the year with supplying the continuous social and economic needs of the family. Life on the farm has a strong tradition in American society as a unique life-style that affects all aspects of how a person thinks and behaves as a member of the society.

The broad question of how the quality of life of farmers differs from that of other Americans has not been addressed, although some findings are suggestive. We shall discuss how farming in a dryland region may affect the opportunities and outlook of farmers and their families in comparisons with several other groups. The first question is whether the farming population in the Great Plains differs in any important respects from the farming population in other regions of the nation. Second, because some farmers in the Great Plains use irrigation, a comparison is made between the irrigation and those using dryland methods to see if the practice has any important consequences for the quality of life. Finally, the effect of living in a sparsely populated area can be examined by comparing farmers with persons living in urban areas.

### 34-5.2 Sample

Although several national studies that include variables relevant to assessing quality of life are available, none was found that contained an adequate number of farmers representative of the Great Plains region. The 1978 *Nebraska Annual Social Indicators Survey* (NASIS) (Bureau of Soc. Res., 1978) includes a representative sample of 1940 persons. A sufficient number of farmers and their spouses could be identified to provide a good assessment of the farming population in this Great Plains state.<sup>2</sup> Nebraska farm families may not be representative of the farming population for all

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<sup>2</sup>Data were collected by the Bureau of Sociological Research, Univ. of Nebraska, Lincoln. The Bureau of Sociological Research assumes no responsibility for the views or interpretations contained in the present study report. A detailed description of the research design and sampling method can be found in White (1978).

the Great Plains region, but they should not differ in any important respects. Among seven Great Plains states, Nebraska has a higher population density than Montana, the Dakotas, and Wyoming but a lower density than Kansas and Oklahoma (Table 34-2).

### 34-5.3 Farming in Dryland Areas

The conditions that make the farming occupation unique are likely to be accentuated for farmers in dryland areas. Weather fluctuations can be extreme, and the annual variability can be large. Attempts to reduce some of these weather effects can require large capital investments in equipment, e.g., center-pivot irrigation systems. The nature of the occupation requires most farmers to live in a low-density area, but farming in a dryland area typically means even greater isolation than elsewhere. For example, in 1969 the average size of farms in the USA was 156 ha, whereas the farms of the Great Plains states averaged 577 ha (U.S. Bureau of the Census, 1976). Generally, the lower the population density, the smaller the town or urban place that can be supported by those in the surrounding countryside. Thus, many farmers in the Great Plains are within commuting distance only to very small communities that do not have the large variety of services found in a city. Although the records are far from adequate, they suggest that in the early period of settlement (the era of the sod house) and later during the period of the "dust bowl" and the Great Depression, the climate, barren terrain, social isolation, and difficulty in obtaining necessary goods and services were accompanied by mental illness, suicide, homicide, and a variety of other psychological and social problems. But, to what extent is this pattern true today with vastly improved transportation, mass communication, and other technological and social developments of modern America? Are the rural residents of the Great Plains still affected in negative ways—ways that lower the quality of their lives? One method for approaching an answer to these questions is to compare farm families living on the Great Plains with farm families in other parts of the nation.

The National Opinion Research Center (1977) asked people how satisfied they are with the place they live and how satisfied they are with their lives in general. Responses from the national sample, which includes 270 farmers and their spouses, can be compared with responses given by 350 Nebraska farm families. If conditions in the rural areas of the Great Plains are indeed worse than in other parts of rural America, the Nebraskans would be less satisfied. However, as shown in Table 34-10, even though neither group can be characterized as very dissatisfied, the Nebraska farmers are no more likely to be unhappy than others. In fact, the Nebraska farmers are much less likely to say they are not too happy with their lives.

Table 34-10 also gives a partial profile of the social characteristics of Nebraska farm families, and the comparisons with farmers in the nation provide a possible explanation of why the Nebraskans tend to be happier.

Table 34-10. Selected demographic and socioeconomic characteristics and attitudes of Nebraska and U.S. farm families.

	Nebraska†	USA‡
Percent with some, little, or no satisfaction with where they live	5.7	8.7
Percent saying they are not too happy with their lives	2.1	11.8
Average age	49.4	53.0
Percent nonwhite	1.4	12.6
Percent Catholic	20.0	17.0
Average number of school years completed	11.4	9.3
Percent with total family income less than \$10 000	26.3	43.2
Percent married	86.1	83.7
Average household size	3.3	3.2
Average number of children born	2.6	2.8
Percent saying their family gives them less than a great deal of satisfaction	17.9	21.8
Percent saying their health is only fair or poor	21.6	39.8

† Source: Bureau of Sociological Research (1978).

‡ Source: National Opinion Research Center (1977). All findings are based on survey conducted from 1972 through 1977, with the exception of family income, which is based only on the 1977 survey.

The more important differences bearing on this issue appear to be that Nebraska farmers are better educated, less likely to perceive their health as only fair or poor, and much more likely to be earning in excess of \$10 000. In most other respects, Nebraska farm families appear to be similar to their counterparts throughout the USA.

### 34-5.4 Dryland Farmers

Dryland agriculture means the production of crops under natural precipitation in semiarid regions where water is a major limiting factor. The Nebraska data were analyzed to see if there are any important differences between farmers using dryland methods as opposed to those who use various systems of irrigation. To make the comparisons as precise as possible, farm laborers, ranchers, and retired farmers were deleted from the sample. Thus, the present analysis is based on 131 farm families—70 on dryland and 61 who use irrigation.

The two groups were compared on more than 100 characteristics covering a wide range of demographic, ecological, cultural, and social variables. The picture that emerges is one of striking similarity. For example, the two groups are almost identical in the proportion owning their farms, age, educational attainment, marital status, family size, and even political affiliation and recent voting behavior, but the dryland farmer is somewhat more likely to have always lived in the same place, and the farm tends to be larger and further from an urban area.

Income does represent an important difference between persons using these two methods of farming. As can be seen from Table 34-11, the two groups have approximately the same median income, with half of each hav-

Table 34-11. Financial situation and attitudes of dryland and irrigation farmers in Nebraska, 1977 (Bureau of Soc. Res., 1978).

	Dryland	Irrigation
Median family income	\$20 079	\$20 034
Mean family income	\$20 183	\$28 884
Percent below federal poverty level	16.9	7.9
Percent not at all satisfied with financial situation	34.0	26.8
Percent saying family income is below average	40.2	26.6
Median percent total income from farm	95.2	72.5

ing earned in excess of \$20 000 in 1977. Thus, either method can yield a substantial income. On the other hand, 16.9% of dryland farmers had incomes below the federal poverty level, making them more than twice as likely to be in this category as farmers using irrigation. Furthermore, in a comparison of mean incomes, farmers using irrigation average \$8701 more than dryland farmers. These differences are reflected in attitudes: a somewhat larger proportion of dryland farmers is dissatisfied with their financial situation, and a much larger proportion believe their family income is below average.

Several factors appear to at least partly explain the observed income differences between dryland and irrigation farmers. With respect to the mean difference, farmers with very high earnings, e.g., \$50 000 or more, are more likely to be using irrigation. It is not known whether this result occurs because farmers with financially very successful operations could more easily afford to invest in irrigation systems or because irrigation helped to produce this high income. Perhaps it is a combination of both. In any case, the earnings of these farmers substantially affect the mean income of the total group. The substantively more important finding is the difference at the lower income range. Although the median income for the two groups is about the same, the dryland farmer is more likely to be at the low end of the income scale. The median percent total income from the farm suggests an explanation. For 50% of the dryland farmers, 95.7% or more of their total income is derived from the farm. The corresponding figure for irrigation farmers is only 72.5%. In other words, for 50% of the irrigation farmers 27.5% or more of their income is obtained from sources other than the farm. This difference could reflect the lack of available employment opportunities in the less densely populated areas in which dryland farmers are more likely to reside. Greater dependency on one income source increases the vulnerability of the dryland farmer to the variations in weather and market and thus accentuates the financial uncertainty of the family.

Another difference between irrigation and dryland farmers observed in the analysis appears to be directly related to differences in farming technology. Respondents were asked if the state government is doing enough, too much, or not enough in several potential problem areas. Among farmers using irrigation, 68.3 compared with 55.5% of dryland farmers said the state needs to do more about energy problems. Irrigation farmers were even more likely to differ from the dryland group in feeling that the state is not doing enough about water resources (58.1 compared with 36.5%). The in-

Table 34-12. Selected attitudes of dryland and irrigation farmers in Nebraska, 1978  
(Bureau of Soc. Res., 1978).

	Dryland	Irrigation
Percent with some, little, or no satisfaction with where they live	4.3	7.1
Percent saying they dislike neighborhood somewhat or very much	0.0	4.0
Percent saying a little or very dissatisfied with job	3.9	8.4
Percent saying neighborhood is not very or not conveniently located	10.0	14.2
Percent saying their health is only fair or poor	10.8	17.7
Percent saying they are not too happy with their lives	1.5	0.0

creasing cost of energy and the declining water table in the area raise serious questions about irrigation as a long-run solution to farming problems in an arid area unless appropriate conservation measures are taken. These figures indicate that many irrigation farmers are aware and apprehensive about potential shortages.

As previously mentioned, compared with farmers who use irrigation, dryland farmers tend to live in more sparsely populated areas and are more likely to be poor. It is possible that these conditions are interrelated and that income differences are reflected in satisfaction with the family's financial situation and perceptions of having a below-average income. On the other hand, even though these conditions can affect the quality of a person's life, the differences between the two groups do not appear to be large enough to produce any important divergences in satisfaction with general aspects of living. Table 34-12 shows that as a group, dryland farmers are no more likely than irrigation farmers to be dissatisfied with their place of residence, neighborhood, or occupation. They are no more likely to say their neighborhood is inconveniently located, their health is only fair or poor, or they are not too happy with their lives. In fact, the small, but generally consistent, differences tend to favor the dryland farmer.

### 34-5.5 Farmers and Urban Dwellers

Farm families in the dryland part of Nebraska do not appear to be disadvantaged compared with farmers elsewhere in the USA, and those using dryland methods tend to fare as well in most aspects of their lives as irrigation farmers. Are there important advantages or disadvantages of farming and living in a low-density area compared with living in a city? To answer this question, working farmers, exclusive of laborers and ranchers, were compared with people living in Nebraska's two complete standard metropolitan statistical areas, Omaha and Lincoln. Initial analysis indicated that the average farm population is older, less educated, and more likely to be married, and that a higher proportion of the respondents are men. Because these characteristics may affect quality of life independent of whether a person lives on a farm or in a city, the findings reported below are statistically

Table 34-13. Quality of life differences between farmers and standard metropolitan statistical area residents in Nebraska, 1978 (Bureau of Soc. Res., 1978).

	Farm	Standard metropolitan statistical area
Percent with some, little, or no satisfaction with the place where they live	6.1	13.3
Percent saying they are not too happy with their lives	0.0	4.8
Percent saying their family gives them some, little, or no satisfaction	0.0	7.8
Percent saying they have thought about a divorce in the last 2 years	4.1	10.7
Percent saying they were victimized by a crime in 1977	13.0	29.0

adjusted for these differences in population distribution (Andrews et al., 1973). By controlling for age, education, marital status, and gender, one can more easily determine if differences found between these groups are caused by occupation and residence.

#### 34-5.5.1 Residential Location

Access to services is one of the greatest potential problems of living in a low-density area. It was shown earlier (Table 34-7) that people living in the Great Plains states are somewhat more likely than others to say their residence is either not very or not at all conveniently located, and those living in nonmetropolitan counties are much more apt to give one of these same responses. Not surprisingly, the Nebraska study shows much the same, with 59.4% of urban dwellers saying their residence is very conveniently located compared with only 18.1% of the farmers. However, although distance from services may present an inconvenience, examination of the data suggests that it does not create a significant social problem. For example, among the various necessary services, close and rapid access to medical care may be the most important. Respondents were asked how long it normally takes them to get to a physician. Farmers reported an average of 21.7 min and urban residents reported an average of 19.0 min. Of course, it is a considerable problem for some. Among the farmers, 4.0% said that it takes 1 hour or more. But for the great majority, whether urban or rural, the time is about the same.

Comparisons on a number of other indicators that theoretically might be associated with place of residence fail to indicate much difference between farmers and city people. The few differences that were found tend to show a possible advantage to living in a rural area. As can be seen from Table 34-13, smaller percentages of farmers than urban residents express dissatisfaction with the place where they live and say that they are not too happy with their lives, that they derive only some, little, or no satisfaction from their families, and that they have contemplated a divorce. The largest



Table 34-14. Economic characteristics and attitudes of farmers and standard metropolitan statistical area residents in Nebraska, 1978 (Bureau of Soc. Res., 1978).

	Farm	Standard metropolitan statistical area
Percent saying they are dissatisfied with the work they do	6.1	11.8
Mean family income	\$22 336	\$19 200
Percent with family income less than \$15 000	55.9	66.1
Percent with family income less than \$25 000	67.2	73.8
Percent below federal poverty level	14.4	4.5
Percent not at all satisfied with financial situation	44.2	11.3
Percent saying family income is below average	34.3	18.0
Percent saying financial situation is getting worse	61.3	7.6

difference among the various quality of life measures, apart from convenience of location, is the much smaller proportion of farmers than urban dwellers who say they were victimized by a crime in the past year.

#### 34-5.5.2 Occupation

Table 34-14 shows that a smaller proportion of farmers than metropolitan residents say they are dissatisfied with their occupation, but farm families had a higher average income and a smaller proportion earning less than \$15 000 and \$25 000 in 1977. On the other hand, compared with their urban counterparts, farmers tend to be considerably less satisfied with their financial situation, more apt to perceive the family's income as below average, and far more likely to think their financial situation is getting worse. Part of the explanation for the apparent inconsistency between income level and satisfaction can be found in the disproportionate representation of farmers at both ends of the income range. For example, whereas a higher proportion of farmers than urban people earned more than \$25 000 in 1977, a higher proportion of farm families also had incomes below the federal poverty level. However, this is only part of the answer; the proportion of farmers with very low incomes is not nearly large enough to account for the large difference in financial dissatisfaction between the urban and farm groups. Nevertheless, the high incomes of some farmers and the very low incomes of others do suggest that farming may be perceived as involving a somewhat larger degree of economic uncertainty or risk than many other occupations. If this statement is true, it is possible that this risk could lead to feeling financially less secure and hence to a higher rate of economic dissatisfaction. Another likely possibility is that given the size of monetary investment, farmers may have higher financial expectations. That is, despite having a higher average income than their urban counterparts, farmers generally receive a much lower return for the amount they have invested. Thus, farmers feel deprived relative to what they expect or think they should earn, and they feel deprived relative to what others with comparable capital in-

vestment earn. These explanations may or may not be correct, but it is clear that there is a substantial difference in financial satisfaction between farmers and urban residents and that this difference may have important implications for behavior.

### **34-6 SUMMARY, CONCLUSIONS, AND SUGGESTIONS FOR FURTHER RESEARCH**

#### **34-6.1 Summary**

Perhaps because of its nearly unique environmental characteristics, the Great Plains has been the subject of considerable discussion and fascination. From an examination of the literature, both fictional and factual, it seems fair to say that its disagreeable nature has tended to receive the major emphasis. Among novelists, for example, Rolvaag (1927) describes the hardships of Norwegian settlers in South Dakota who had to contend with the overwhelming boredom of the terrain, social isolation, grasshopper plagues, lack of access to services, and blizzards. The final chapter of Book II is entitled, "The Great Plain Drinks the Blood of Christian Men and Is Satisfied." If early settlement was difficult, the "dust bowl" years in the 1930's may have been equally as harsh. No one has described the problems in this era more forcefully than Steinbeck (1942) in *The Grapes of Wrath*. More recently, Michener (1974) discusses the tremendous problem of obtaining water and the conflict over right of access. The Platte, he says, has been the subject of more jokes than any other river on earth, "too thick to drink, too thin to plow." Social scientists have scarcely been more complimentary. Kraenzel and Macdonald (1971) report that in eastern Montana, local employment is low, per capita income is low, and health and social services are few. They suggest that these conditions are associated with feelings of helplessness, anomie, social disorganization, and mental illness. Loftsgard and Voelker's (1978) examination of North Dakota farmers takes a more optimistic view indicating that the socioeconomic gap between Great Plains farmers and urban residents is closing and that farmers have increasingly been able to secure goods and services once considered luxuries. Immediately following this report, Parsons (1978) takes these authors to task by saying that they should have analyzed the relative economic position of farmers and urban residents. His own research indicates that over two thirds of upper Midwest farmers have inadequate incomes and are underemployed. Many of the "luxuries" that farmers have are frequently of ancient vintage. Powers, at a symposium on the cultural heritage of the Great Plains held at the University of Nebraska, Lincoln, in 1977, addressed the subject of quality of life on the Great Plains and concluded that the available data are inadequate for the assessment. He offered the view, however, that objective indicators suggest the Great Plains has a significant problem with access to services but that subjective data show a high level of satisfaction.

This chapter began by asking whether the physical characteristics of the Great Plains and the nature of its settlement have led to any important differences between the region's inhabitants and those living elsewhere in the USA. The primary objective was to determine if the quality of life of Great Plains people, especially the farming population, was superior, equal to, or inferior to other Americans. In the light of previous literature, one might expect to find serious social problems in the Great Plains states. Much of what has been said about life on the Great Plains in past years is true, but past difficulties have been overly emphasized or too broadly generalized. More important, the Great Plains region, along with all other sections of the nation, has experienced extensive social and technological changes. How have these changes affected the lives of Great Plains residents?

Demographic analyses revealed at least three major differences between the Great Plains and other regions. The Great Plains states were settled very rapidly by people from a variety of national and cultural backgrounds. After initial settlement, despite an excess of births over deaths, the population size remained comparatively small and grew at a slow pace because of extensive out-migration. Although preceded by Great Plains Indians, cattlemen, and sheepherders, homesteading farmers were largely responsible for the great influx of population in the settlement period. Because of the nature of ranching and farming and the land, population density was low. Analysis of data from 1970 to 1975 indicates a cessation of out-migration for the first time in 60 years and an increase in the growth rate of both rural and urban areas. Nevertheless, compared with the entire USA, the Great Plains region has a small population in relation to its land area. Furthermore, some evidence indicates that ethnic identity remains stronger in the Great Plains than in the rest of the nation. All three of these population characteristics could be, and in the research literature have been found or hypothesized to be, associated with social problems.

Comparative analysis with other regions showed no evidence of significant social problems associated with living in the Great Plains region. With reference to the physical environment, Great Plains residents were no more likely to express dissatisfaction with the climate than people in other regions, and the region was found to have less of a problem of air and water pollution. More area is set aside in the Great Plains for recreational use than in any other section of the nation. The region does have the next to lowest per capita income and next to highest proportion of its population below the federal poverty level, but the differences among regions are small, and the Great Plains has the lowest unemployment rate and little job dissatisfaction. A variety of indicators suggest that the quality of education is high. Marriage and family adjustment and satisfaction appear to be as strong as, or stronger than, that of other regions. A relatively high proportion of people say they are not conveniently located to services, but satisfaction with services appears to be high, and the region has the lowest proportion dissatisfied with their communities. Compared with other regions, crime rates are low and people are more likely to be positive about the quality of police protection and to feel safe in their neighborhoods. The Great Plains

has the smallest number of physicians per capita but the longest life expectancy and the smallest proportion of people thinking they have health problems or indicating dissatisfaction with their health.

If the semiarid characteristics of the region and the comparative isolation arising from the pattern of settlement were associated with problems, it seemed likely that farmers and their families would encounter the most difficulty. They, more than most others, are dependent on the weather and the land, and the nature of the occupation requires living in comparative isolation. Data are not available on the entire farming population in the Great Plains region, but a recent Nebraska study includes a large enough sample of farm families for analysis. Generalizations from this study to the Great Plains region must be made with caution. Nevertheless, the findings provide useful information about whether Great Plains farmers encounter unusual problems in coping with their environment.

A comparison of Nebraska farm families with those in other parts of the nation showed little difference with respect to a number of social and demographic characteristics. However, the differences found suggest that the Great Plains farmer may enjoy a somewhat higher quality of life. The Nebraskans have a higher median level of education, are less likely to be dissatisfied with their health, have a much larger proportion earning \$10 000 or more, and are less apt to say they are not too happy with their lives.

A second comparison was made between Nebraska farmers using irrigation and dryland methods. Analysis over a wide range of variables showed the two groups to be similar in most respects. Among the few differences found, those using irrigation are more likely to be concerned about energy and water resources; however, the most important difference appears to be economic. As a whole, both groups have relatively high incomes (a median slightly above \$20 000), but dryland farmers have a higher proportion with earnings below the poverty level. Analysis of possible reasons for this led to the discovery that irrigation farmers were obtaining a larger proportion of their income from nonfarm sources. One possible reason is that irrigation farmers tend to live closer to urban places and find it easier to obtain off-farm employment. There may be additional reasons, but the income difference cannot be accounted for by age, education, or number of gainfully employed people in the family. And, it is doubtful that irrigation farmers have more free time from farming responsibilities to carry a second job, although this remains an open question. Perhaps it should be reemphasized that although the proportional difference in numbers below the poverty level is important, the proportions are relatively small (16.9 vs. 7.9%), and the great majority of farmers, both dryland and irrigation, express high levels of satisfaction with nearly all aspects of their lives.

After controlling for distributional differences in age, education, marital status, and gender, the study comparing Nebraska farmers with residents of Lincoln and Omaha allowed comparison of possible problems associated with residential location and farming in a dryland area. It is generally recognized that farmers tend to be less conveniently located

relative to services than urban dwellers, and farmers' comments support this observation. However, the data suggest that location does not create a significant problem of access. For example, on the average it takes farmers only 2.7 min longer to reach a physician. On the other hand, location does present a real problem for a minority of farm families, with 4% saying it takes 1 hour or more to travel to a physician's office, and it is possible that location away from services is a more sizable problem in those Great Plains states that have a lower population density than Nebraska. An examination of other problems potentially related to place of residence revealed little difference between farm and urban families. If anything, farmers are more likely to be satisfied with where they live, their families, and their lives in general. Furthermore, they are less likely to be victimized by crime.

Few farmers (6.1%) are dissatisfied with their occupations, and the average farmer has a higher income than a city resident. On the other hand, farmers tend to be overly represented at both ends of the income scale such that a larger proportion earned more than \$25 000 in 1977 and a larger proportion had incomes below the poverty level. Economic dissatisfaction is much greater among farmers than urban workers, and this difference is much too great to be accounted for solely by farmers earning low incomes. This element of dissatisfaction may be associated with the economic uncertainty of farming, dissatisfaction with income relative to capital investment, and, perhaps, dissatisfaction with being deprived in relation to the perceived income earned by the average urban resident.

### 34-6.2 Conclusions

The assessment of the social characteristics of people living on the Great Plains indicates that they are much like other Americans. They enjoy as high, and in some cases a higher, quality of life as people in the other regions of the nation, by a wide variety of indicators, including measurements concerned with the physical environment, family, education, economics, government, and health. This is not to say that Great Plains people do not have problems. This study has provided much evidence to the contrary. Rather, the point here is that the Great Plains region has no more, and in some respects fewer, problems than the rest of the country. Apparently, any problems that once may have arisen from the nature of the region, the capricious environment, and the small, isolated, ethnically diverse population have been largely overcome.

Examination of current trends suggests that the residents of the Great Plains are now facing some important challenges to preserving and improving the quality of life they presently have. Many of these they share with all Americans. However, some tend to be endemic to the region. One of the advantages of living on the Great Plains may stem from its social and demographic characteristics. For example, relatively clean air and water, a low crime rate, good health, and satisfaction with one's community seem to be associated with low population density. The Great Plains population is growing at a faster rate than the national average. Nationally, and no less

true of the Great Plains, people have begun to leave the cities, perhaps seeking a higher quality of life. A 1971 survey found that more than one third of the American people would prefer to live in a rural area and an additional third in a small town (Fuguitt and Zuiches, 1975). These are the environments in greatest abundance in the Great Plains. Even the metropolitan counties in the region are relatively small and provide the amenities of close-by rural or small town living. Harris, Louis and Associates in a 1978 national survey for the U.S. Department of Housing and Urban Development reports that 35% of urban residents say they plan to move in the next 2 to 3 years, and over half anticipate moving away from the city, with rural areas being the most popular intended destination. We doubt that all of these people will actually move, but their plans are consistent with population trends. The highest growth rates in the Great Plains have been in the non-metropolitan counties of Wyoming and Montana. These counties are not the ones designated as principal impact areas for coal development. Rather, this growth appears to have resulted from people seeking "the good life." Nevertheless, the Great Plains is experiencing rural and small town growth as part of a national trend, but it also can be expected to grow from development of its energy-producing resources: coal and shale oil. Unless carefully managed, exploitation of these resources can have disruptive consequences: rapid population expansion, effects on the physical environment, and deleterious competition with agriculture for water, land, and labor. Water supply may become a particularly pressing problem, especially because competition is arising not only from the mining industry but also from farmers with the increasing use of irrigation.

Offering possible solutions for social problems is beyond the scope of this chapter. We have endeavored to describe some of the more basic social and demographic characteristics of the Great Plains population and advantages and disadvantages of living in the region, especially for the farming population. This approach has allowed us to uncover some of the problems of the area. As more research is conducted, increasingly better means will be available to solve the problems that now exist and to prevent others from occurring.

### **34-6.3 Suggestions for Further Research**

Difficulties encountered in trying to answer the questions posed delineate some needs for future research. First, because most data were collected within politically defined boundaries, it was not possible to examine the entire population living in the Great Plains portion of North America's dryland region. Second, findings reported in this chapter are based on secondary analysis. That is, we had to rely on data that were not obtained specifically to answer our research questions. This problem could have been more severe than it was since much of the data used was intended to assess the quality of life. However, data are not available to assess those problems potentially associated with living in a rural, dryland area and with farming. Third, because farmers compose a very small segment of the American

population, representative samples do not include a sufficient number of them for analysis. A Nebraska study was used that included a number of farm families, but the extent to which findings based on these respondents may be generalized and extrapolated to farm families living in other Great Plains states is unknown. Furthermore, although the Nebraska study contained enough farmers for examination, even this sample was not large enough for the kind of detailed statistical analysis desired.

Without going into particulars, we believe that a very valuable contribution to knowledge could be made through a study design that would avoid the problems faced by using limited data. Several techniques are available to gain the necessary data base, but the preferred method would use disproportional stratified sampling. This method would ensure that the research included enough people living in dryland areas and enough farm families for proper statistical analysis. For comparative purposes, the study should ask certain questions of all respondents, but it should also obtain in-depth information from farm families and others living in low-density environments. This study should be repeated on a regular basis to record any changes that may be occurring, e.g., from coal development, in-migration, availability of water, and need for new or additional services. Knowing what the problems are and why they exist could result in substantial improvements in social policy, thus helping to solve existing problems and preventing new ones.

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