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CHANGING EMPLOYMENT PATTERNS ON THE NORTHERN AND CENTRAL GREAT PLAINS

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Abstract. *The Great Plains are sometimes characterized as an economically lagging region. To shed some light on the region's prospects, the locational and structural changes in employment patterns in the northern and central Great Plains were examined for the 1980 to 1990 period. County-level data were drawn from CD-ROM census publications and matched with locational references using Atlas*GIS. Shift-share computations were undertaken for the region as a whole and for metropolitan and nonmetropolitan counties. Employment declined sharply in agriculture and construction, but increased in the service sectors. Compared with the nation as a whole, the region competed poorly in many sectors, though it performed superbly in manufacturing and came close to holding its own in the business service and public administration sectors. Prospects appear bright for the metropolitan centers on the region's periphery, but the bulk of the territory will likely see only localized points of growth.*

The Great Plains increasingly have been treated as a distinct major region of the United States (Mather 1972), one noted for its immense size and limited topographic expression, semiarid grassland environment, harsh winters, and a traditional focus on grain and livestock production. The population density is low except in or near metropolitan areas on the eastern and western periphery, and ongoing population loss characterizes a majority of counties (Archer 1992). The farm population has been declining since the 1930s as modernization brought extensive farm consolidation (Baltensperger 1987). With alternative employment opportunities limited in rural areas, people migrated to the growing urban centers on the outer margin of the Plains or to a more distant destination like California. A clear dichotomy has evolved: the largely rural and small-town core of the study area and the set of metropolitan areas on the periphery. While there is general optimism about the future for the metropolitan areas, there is much pessimism regarding the largely nonmetropolitan core. Some observers predict widespread

land abandonment and depopulation (De Bres and Guizlo 1992), and in one often-quoted study it was proposed that the federal government take over huge tracts of land and create a vast national grassland or "buffalo commons" (Popper and Popper 1987).

The purpose of this study is to examine structural and locational changes in employment patterns in the north-central Great Plains which occurred between 1980 and 1990. Data are presented for the study area as a whole, the metropolitan counties, and the nonmetropolitan counties. By examining employment changes in each of eleven industrial sectors, aided by a shift-share analysis, it is possible to identify those sectors where metropolitan and nonmetropolitan areas have been performing best and where they are lagging. While 1980-90 performance is not necessarily indicative of future trends, it nonetheless provides a basis for better assessing where this distinct major region of the United States is heading.

The northern and central Great Plains study area as here delimited includes that portion of the Plains from the Kansas-Oklahoma border north to the Canadian border (Fig. 1). The western boundary is rather clearly fixed by the Rocky Mountains, while the eastern limit is more subjective. We include all of Kansas, Nebraska, and the Dakotas as part of the Great Plains, as do many analysts, even though a case can be made for excluding some eastern portions of these states. The bulk of the study area is nonmetropolitan (358 of the 389 counties, as defined in 1990), with metropolitan areas found largely on the eastern and western periphery. The only metropolitan areas not near the periphery are Bismarck, Rapid City, and Wichita. The population of the study area was 8.0 million in 1990 (after a 4.0% gain during the 1980 to 1990 decade), including 4.7 million in metropolitan counties (up 11.1% from 1980 to 1990), and 3.3 million in nonmetropolitan counties (down 4.8% from 1980 to 1990).

County-level data pertaining to employment by industry sector were drawn from U.S. Census CD-ROM (Compact Disk-Read Only Memory) publications (U.S. Bureau of the Census 1992; 1993a) and matched with locational references using Atlas*GIS (Strategic Mapping, Inc. 1992). Geographic Information System (GIS) procedures helped differentiate metropolitan from nonmetropolitan counties. GIS procedures also were used to create maps showing county-level employment by industry group in 1980 and 1990 and changes between these years.

Shift-share computations by industry group using a U.S. base were undertaken for all counties in the study area as a whole, and for metropolitan and nonmetropolitan counties. Shift-share analysis allows investigation be-

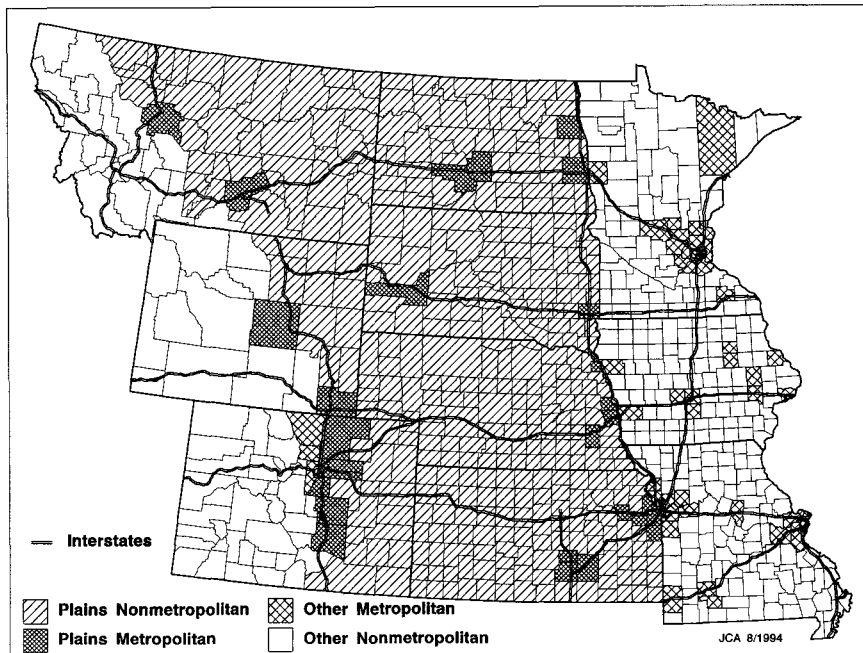


Figure 1. Northern and Central Great Plains Study Region. Map by J. Clark Archer.

yond mere observation of total employment changes by partitioning total employment growth or decline into three components, which are called the “national component,” the “industry mix component,” and the “regional competitive component.” Although our investigation focuses on the regional competitive component, this component cannot be determined without finding the values of the other components.

The components are derived in several ways. By assumption, the total change in employment, T_{ij} , for industry i in region j during the study period from 1980 to 1990 equals the sum of the three components. Symbolically, the total change in employment is:

$$T_{ij} = N_{ij} + M_{ij} + C_{ij}$$

The national component for an industry, N_{ij} , asserts that the expected change for that industry in the study area is the same as the total employment change in the entire U.S. for all industrial sectors. The national component is:

$$N_{ij} = e_{ij} * r_m$$

where e_{ij} is the 1980 employment in industry i in region j , and r_m is the growth rate between 1980 and 1990 for total U.S. employment. In the unlikely event that all industries and all regions were growing or declining at exactly the same rate, the national component would wholly dominate.

The industry mix component, M_{ij} , provides an indication of change attributable to the national performance of a particular industrial sector. In other words, the industry mix component is the employment change expected if an industry in the region had changed at the same rate as that industrial sector nationally, minus the national component. The industry mix component is:

$$M_{ij} = e_{ij} * (r_{in} - r_m)$$

where r_{in} is the growth rate for industry i for the U.S. as a whole. The industry mix component thus accounts for intersectoral but not for interregional variation in employment growth or decline.

The regional competitive component, C_{ij} , shows employment change attributable to an industry growing or declining at a distinct rate in the study area, relative to that industry nationally. Examination of regional competitive components for different industries allows the identification of economic activities for which the study area had a competitive advantage or disadvantage in the 1980 to 1990 study period. The regional competitive component is:

$$C_{ij} = e_{ij} * (r_{ij} - r_{in})$$

where r_{ij} denotes the rate of change for industry i in region j from 1980 to 1990. In this study, emphasis is placed on the regional competitive components calculated by major industry groups for all counties, and for metropolitan and for nonmetropolitan counties within the northern and central Great Plains.

A good summary of shift-share procedures and their applications is provided by Knudsen and Barff (1991). A discussion of the appropriateness

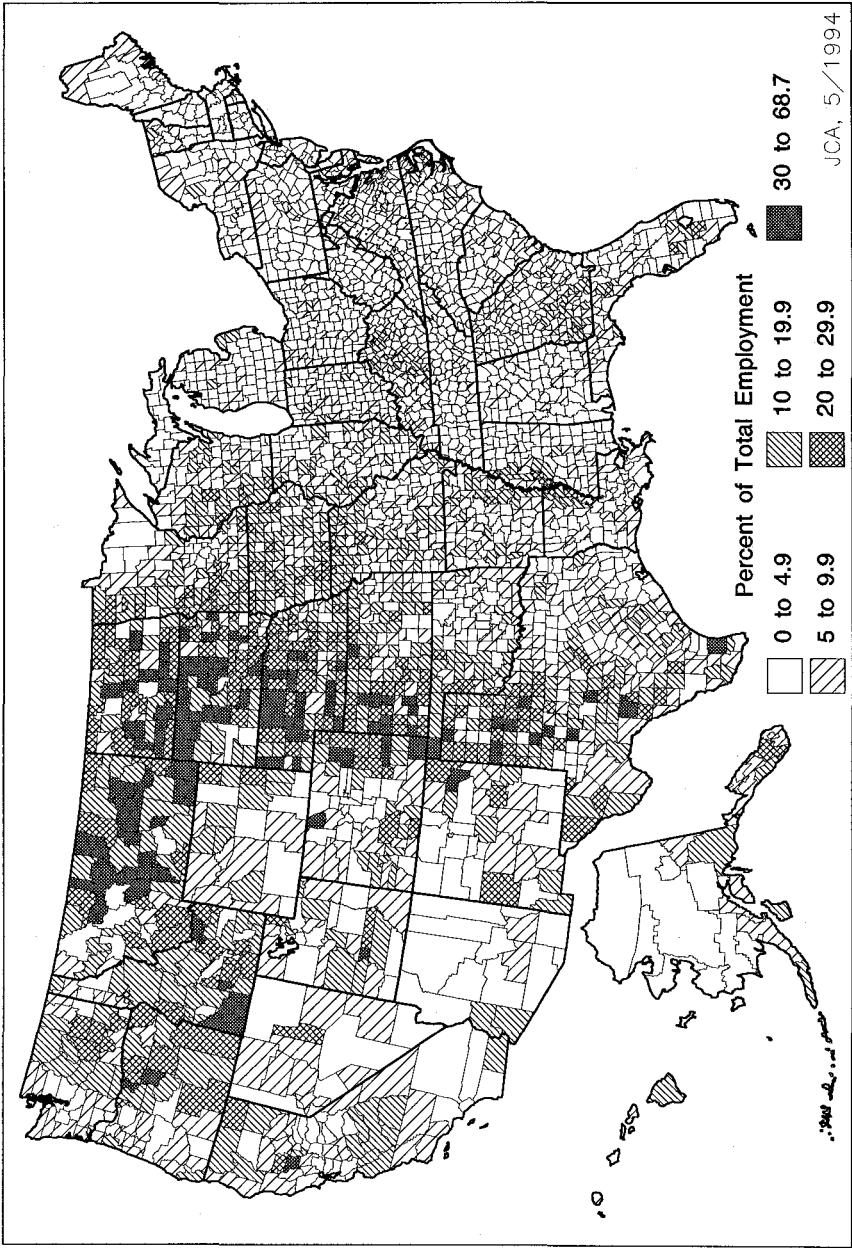


Figure 2. Agriculture, Forestry and Fisheries, 1990. Percent of Total Employment by county for U.S. Map by J. Clark Archer.

TABLE 1
EMPLOYMENT BY INDUSTRY SECTOR, FOR ALL COUNTIES IN
THE NORTHERN AND CENTRAL GREAT PLAINS, AND THE
UNITED STATES AS A WHOLE, 1980 AND 1990*

Industry Sector	Northern and Central Plains			U.S.		
	Total Employment		Percent Change	Total Employment		Percent Change
	By Number			By Number		
	1980	1990	1980-90	1980	1990	1980-90
TOTAL	3,466,296	3,788,616	9.30	97,639,355	115,681,202	18.48
Agriculture	288,501	251,847	-12.70	2,913,589	3,115,372	6.93
Mining	61,287	41,944	-31.56	1,028,178	723,423	-29.64
Construction	227,231	201,933	-11.13	5,739,598	7,214,763	25.70
Manufacturing	480,368	479,841	-.11	21,914,754	20,462,078	-6.63
Transportation, Communications, & Public Utilities	287,404	297,806	3.62	7,087,455	8,205,062	15.77
Wholesale & Retail Trade	752,997	827,237	9.86	19,933,926	24,556,692	23.19
Finance, Insurance, & Real Estate	205,732	250,838	21.92	5,898,059	7,984,870	35.38
Business & Repair Services	126,606	169,264	33.69	4,081,677	5,577,462	36.65
Personal, Entertainment, and Recreation Services	137,303	159,613	16.25	4,082,834	5,305,156	29.93
Professional Services	729,322	930,949	27.65	19,811,819	26,998,247	36.27
Public Administration	169,545	177,344	4.60	5,147,466	5,538,077	7.59

* Source: computed from U.S. Bureau of Census (1992; 1993a).

of such procedures under alternative economic and geographical circumstances is offered by Fothergill and Gudgin (1979).

Agriculture

The Census data include forestry and fisheries as well as agriculture, but in the Great Plains the data can be assumed to approximate those for agriculture alone. The study area traditionally has claimed a high level of activity in this sector, 8.3% of total employment in 1980 and 6.6% in 1990, compared with national figures of 3.0% and 2.7%, respectively. Indeed, on a county map of the U.S. showing the share of employment in this sector, the Great Plains stands out clearly and almost can be delimited on this basis (Fig. 2). Counties with over 20% of their employment in agriculture are very common.

Despite agriculture's preeminence on the Plains study area, agricultural employment declined 12.7% in the 1980-90 period, compared with a national gain of 6.9% (Table 1). How can this be? One must first look at some of the kinds of employment classified as "agricultural" by the U.S. Department of Commerce: small-animal kennels and veterinarians, boarding and breeding of horses, landscape planning, lawn care of all types, tree trimming, and even cemetery upkeep (U.S. Department of Commerce 1988). These are mostly growth sectors, and they are largely concentrated in metropolitan areas. Also, metropolitan area farms across the U.S. specialize in high-value crops, accounting for over 75% of nursery and greenhouse sales, over 67% of vegetables and fruits, and 38% of dairy products (Heimlich and Brooks 1989). Indeed, in 1990, 51% of all U.S. agricultural employment was found in metropolitan areas (U.S. Bureau of the Census 1993b), while only 17.6% of study area agricultural employment was so situated (Table 2). Thus, the small number of metropolitan counties in the study area is a factor in explaining declining agricultural employment while the nation as a whole experienced an increase.

Severe financial stress characterized traditional agricultural areas through most of the 1980s, especially in regions like the Great Plains where agriculture is dominant and often there is little other basic industry (Mazie and Killian 1991). Depressed grain prices, lower per capita beef consumption, excessive debt-to-asset ratios, and frequent foreclosures all brought farm and ranch consolidation (Archer 1992). Although the amount of land actually removed from agricultural production was relatively slight, consolidation exerted a strongly downward force on agricultural employment. As a

TABLE 2
EMPLOYMENT BY INDUSTRY SECTOR, FOR METROPOLITAN AND
NONMETROPOLITAN COUNTIES IN THE NORTHERN AND
CENTRAL GREAT PLAINS, 1980 AND 1990*

Industry Sector	Metropolitan Counties			Nonmetropolitan Counties		
	Total Employment		Percent Change 1980-90	Total Employment		Percent Change 1980-90
	1980	1990		1980	1990	
TOTAL	1,992,179	2,323,547	16.63	1,474,117	1,465,069	-.61
Agriculture	40,596	44,392	9.35	247,905	207,455	-16.32
Mining	24,095	16,373	-32.05	37,192	25,571	-31.25
Construction	127,527	122,338	-4.07	99,704	79,595	-20.17
Manufacturing	313,077	311,194	-.60	167,291	168,647	.81
Transportation, Communications, & Public Utilities	179,826	196,855	9.47	107,578	100,951	-6.16
Wholesale & Retail Trade	448,900	522,147	16.32	304,097	305,090	.33
Finance, Insurance, & Real Estate	148,234	187,972	26.81	57,498	62,866	9.34
Business & Repair Services	90,276	125,348	38.85	36,330	43,916	20.88
Personal, Entertainment, & Recreation Services	82,598	105,071	27.21	54,705	54,542	-.30
Professional Services	430,836	578,621	34.30	298,486	352,328	18.04
Public Administration	106,214	113,236	6.61	63,331	64,108	1.23

* Source: computed from U.S. Bureau of Census (1992; 1993a).

result, the shift-share analysis showed the northern and central Great Plains suffered a net regional competitive disadvantage of 56,648 jobs (i.e., agricultural jobs which the area could have had if the region's overall economy and the agricultural sector had performed at national levels [Table 3]). The burden of this disadvantage fell entirely on the nonmetropolitan counties, as the metropolitan counties experienced a modest regional competitive advantage (Table 3) and an absolute gain of 9.3% (Table 2).

Mining

Mineral extraction is a relatively limited activity in the study area, focusing mainly on coal in eastern Wyoming; oil and gas in Kansas, eastern Wyoming, and western North Dakota; and gold in the Black Hills of South Dakota. About 42,000 persons were employed in 1990, down sharply from the 1980 level, consistent with the national trend (Table 1). The region's competitive employment position was essentially neutral in the mining sector (Table 3).

Construction

The disparity between study area employment trends and those of the nation in the 1980s was nowhere greater than in the construction industry. The northern and central Plains saw an 11.1% employment loss over the decade, while the nation enjoyed a robust 25.7% gain (Table 1). Construction's share of total study area employment fell from 6.6% to 5.3%. The region proved to be at a competitive disadvantage to the extent of 83,696 jobs (Table 3), and the deficit extended to both metropolitan and nonmetropolitan counties, though more severe in the latter. Construction dropped off dramatically along the western margin of the study area, especially in Colorado and Wyoming following the end of the 1970s "energy boom" with its concomitant overbuilding. The farm crisis of the 1980s adversely impacted construction activity across much of the region. Dramatic increases in federal government spending in the 1980s spurred construction in some other regions of the U.S., but it had a limited effect on the Great Plains.

Manufacturing

Here was the big surprise among industry sectors. To be sure, manufacturing employment is still modest by national standards, with 12.7% of total

TABLE 3
SHIFT-SHARE ANALYSIS OF CHANGING EMPLOYMENT
STRUCTURE, FOR ALL COUNTIES, METROPOLITAN COUNTIES,
AND NONMETROPOLITAN COUNTIES IN THE NORTHERN AND
CENTRAL GREAT PLAINS, 1980 TO 1990*

Industry Sector	All Counties:		Metro Counties:		Nonmetro Counties:	
	Total Employment Change	Regional Competitive Component	Total Employment Change	Regional Competitive Component	Total Employment Change	Regional Competitive Component
Agriculture	-36,654	-56,648	3,796	983	-40,450	-57,629
Mining	-19,343	-1,178	-7,722	-580	-11,621	-597
Construction	-25,298	-83,696	-5,189	-37,963	-20,109	-45,733
Manufacturing	-527	31,321	-1,883	18,874	1,356	12,448
Transportation, Communications, & Public Utilities	10,402	-34,921	17,029	-11,330	-6,627	-23,592
Wholesale & Retail Trade	74,240	-100,380	73,247	-30,853	993	-69,526
Finance, Insurance, & Real Estate	45,106	-27,682	39,738	-12,707	5,368	-14,975
Business & Repair Services	42,658	-3,743	35,072	1,986	7,586	-5,729
Personal, Entertainment, & Recreation Services	22,310	-18,785	22,473	-2,248	-163	-16,536
Professional Services	201,627	-62,898	147,785	-8,479	53,842	-54,419
Public Administration	7,799	-5,070	7,022	-1,039	777	-4,030

* Source: computed from U.S. Bureau of Census (1992; 1993a).

study area industrial workers compared with 17.7% nationally. (Fig. 3.) But while the manufacturing labor force declined by 6.6% across the nation in the 1980s, it held steady in the northern and central Plains (Table 1). In the shift-share analysis the area showed a regional competitive advantage of 31,321 jobs, the only industry sector where the regional competitive component was positive (Table 3). Of these jobs, 12,448 could be ascribed to nonmetropolitan counties, and even more remarkable was the fact that those nonmetropolitan counties not adjacent to metropolitan counties were responsible for virtually all (12,111) of this competitive edge.

The manufacturing sector now employs almost twice as many persons as does agriculture within the study region. Even in the nonmetropolitan counties, manufacturing employed 81% as many people as agriculture in 1990. Despite the 6.6% decline nationally, study area manufacturing employment edged downward only 0.6% in metropolitan counties and expanded by 0.8% in nonmetropolitan areas (Table 2). Nonmetropolitan-non-adjacent counties as a group actually exhibited a 5.1% increase in the decade, and outperformed the U.S. by a good margin.

What is going on in these rural and distant counties of the "buffalo commons"? Is this a kind of final stage in the domestic industrial "filtering down" process (Erickson 1976), wherein more mature industries tend to migrate to ever smaller communities seeking ever-lower wages and non-union labor for more routine manufacturing operations? The answer is "yes," but the circumstances are rather special. Study area employment gains in nonmetropolitan counties did not cover a wide range of manufacturing subsectors nor were many communities and districts affected. Rather, most manufacturing employment gains were concentrated in one subsector—meat-packing—and geographically focused on a small set of communities.

The U.S. red meat industry (about 98% beef and pork) underwent a locational and structural transformation in the past 20 years, shifting away from inefficient plants in metropolitan counties of the western Corn Belt (e.g., Omaha, Dubuque, Sioux City, Cedar Falls) to nonmetropolitan counties in the Great Plains, in particular Kansas, Nebraska, and the Texas Panhandle (Brown 1993). Regionally, meat-packing has become dominated by four companies (Iowa Beef Processors [IBP], Monfort, Excel, and National), which cut costs by relocating closer to cattle feedlots, hiring non-union labor, and forcing existing workers to accept substantial pay reductions (Broadway 1991). Access to plentiful water was also a factor (White 1994). A 1990 study cited beginning hourly wages in Garden City as \$6.00 at Monfort and \$6.40 at IBP (Stull et al. 1990). In Nebraska, meat-packing

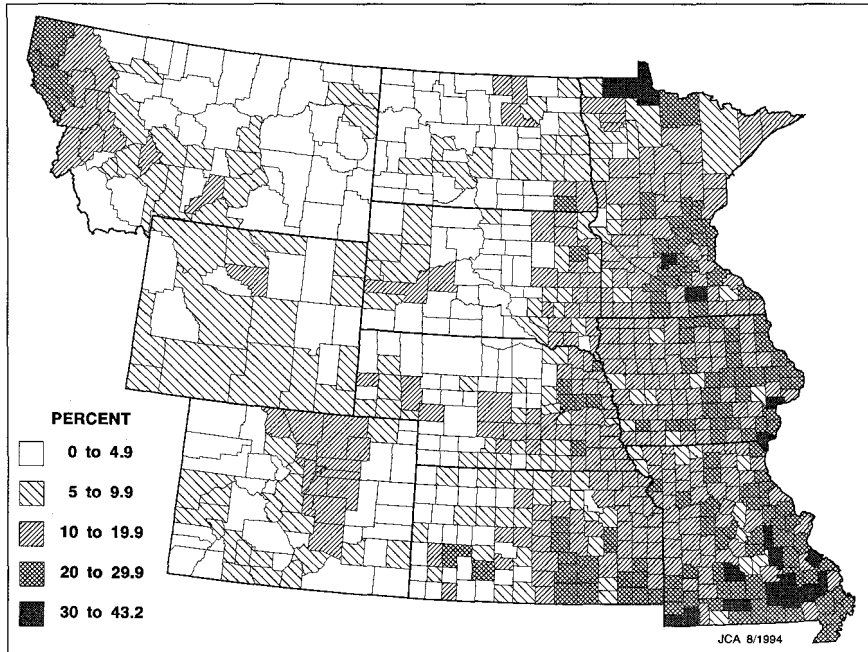


Figure 3. Manufacturing, 1990. Percent of Total Employment by county for study area. Map by J. Clark Archer.

plants' average hourly wages for all production workers declined from \$9.93 in 1982 to \$8.26 in 1990, but they were back to \$9.05 in 1993 (Nebraska Department of Labor 1994). The major sites of new or expanded production within the study area are at or near Garden City (Monfort and IBP), Dodge City (Excel), and Liberal (National) in Kansas; and at Dakota City (IBP), Grand Island (Monfort), Lexington (IBP), and Schuyler (Excel) in Nebraska. Each of these plants employ over 1,000 persons, and the two plants in the Garden City area employ a total of about 4,000.

How have these new or expanded meat-packing operations impacted their communities? Brown (1993) calculated a 2.25 employment multiplier in the case of Garden City and Dodge City, i.e. every 100 new meat-packing jobs led to another 125 new jobs in the area for a total of 225. Populations have increased (e.g., in the 1980-92 period Garden City's population increased by 42% to 25,500 [Sontag 1993]). Did Kansas and Nebraska natives

rush to these towns to seek employment with the meat-packers? For the most part they did not, as evidently they tended to view the wages as too low and the working conditions as undesirable. Instead, a large share of the new meat-packing jobs have been filled by Hispanic or Southeast Asian immigrants and refugees. Some of these people were brought here under the federal government's refugee resettlement program; others were and are continuing to be recruited in southern Texas and elsewhere through radio and newspaper advertising. Some prove to be undocumented (Hovey 1992). One study puts labor turnover in the meat-packing plants at about 7% a month (Stull and Broadway 1990). Under such circumstances the communities and the immigrants have had to face a whole host of social issues and challenges (Broadway 1990; Sontag 1993).

In the case of metropolitan areas in the northern and central Plains, the 1980-90 record of manufacturing growth was quite encouraging compared with the national picture (Table 1). They enjoyed a regional competitive advantage of 18,874 jobs (Table 3). Metropolitan counties are centers of innovation, investment, transportation and communications networks, skilled labor, business services, and large local markets. Metropolitan areas experiencing a 10% or greater gain in manufacturing employment in the decade were Denver, Colorado Springs, Greeley, Fort Collins-Loveland, Grand Forks, Fargo, Rapid City, Lincoln, Lawrence, and two Kansas counties part of the Kansas City metropolitan area.

Transportation, Communications, and Public Utilities

Employment expanded a modest 3.6% in this sector, compared with a 15.8% gain nationally (Table 1). This is a consumer-oriented sector, and jobs tend to be located in proximity to people, rural or urban (McGranahan 1988), and thus employment levels are particularly sensitive to changes in population size and geographical distribution. In nonmetropolitan counties employment fell 6.2% (Table 2) as the population declined 4.8%, while metropolitan counties saw a 9.5% increase in employment in this sector with a population increase of 11.1%. The employment versus population change differential between nonmetropolitan and metropolitan counties may reflect underutilized capacity in transportation, communications, and public utilities facilities, adding to higher unit costs of serving needs in lower density settings. Of particular note is the fact that study area employment in this sector as a share of total employment remained greater than in the nation as a whole (7.9% versus 7.1% nationally), presumably a result of the more

dispersed pattern of settlement prevailing in the northern and central Great Plains.

The shift-share analysis for the 1980-90 decade shows the study area at an overall competitive disadvantage to the extent of 34,921 jobs in this sector (Table 3), about two-thirds of which can be assigned to the nonmetropolitan counties. However, a distinction should be made between those nonmetropolitan counties adjacent to metropolitan areas and those (great majority) which are not. While both of these groups experienced negative regional competitive components, the nonmetropolitan-adjacent counties did see a 2.2% employment gain while the other nonmetropolitan counties lost 9.5% of their jobs.

Wholesale and Retail Trade

The use of CD-ROM data sources required the combination of these two trade subsectors in order to achieve comparability over the study interval. Once again, the study area showed up poorly vis-a-vis the national picture, since the regional trade sector employment gain of 9.9% in the 1980-90 period was quite overshadowed by a 23.2% employment surge in the trade sector nationally (Table 1). Within the study region, metropolitan counties saw a 16.3% gain in trade employment (Table 2), and thus were more in line with the national trend. Those nonmetropolitan counties adjacent to metropolitan areas managed a weak 1.8% employment gain, while the remaining nonmetropolitan counties as a group suffered a slight loss of 0.2%. There was a net regional competitive disadvantage of 100,380 jobs in this decade, greater than in any other industry sector (Table 3). But remarkably enough, employment in the trade sector as a share of the total study area employment actually remained slightly ahead of that for the U.S. as a whole (21.8% v. 21.2%). Even a good number of nonmetropolitan counties have 20% or more of their jobs in the trade sector (Fig. 4); these are usually counties astride Interstate highways and/or ones with towns that have emerged as trade centers of local regions.

Transport time and cost barriers traditionally sheltered local merchants in less-accessible Plains communities from outside competition. But for many rural service center merchants in the study region this "protection" may be vanishing. It is precisely in nonmetropolitan-nonadjacent settings that Wal-Mart has achieved so much success (Graff and Ashton 1994). Communities acquiring a Wal-Mart or other major discount store may see a local increase in overall retail sales, though likely at the expense of existing

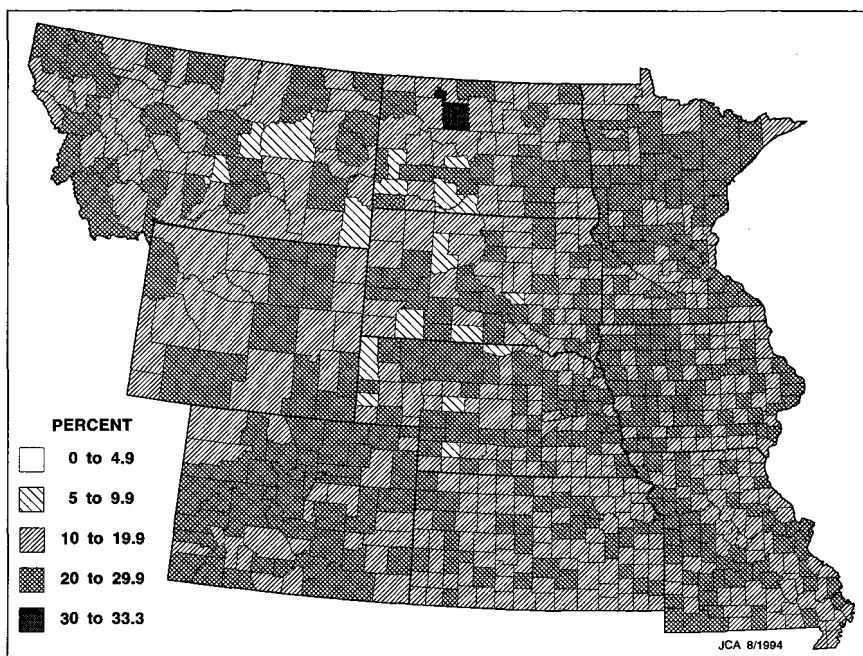


Figure 4. Wholesale and Retail Trade, 1990. Percent of total employment by county for study area. Map by J. Clark Archer.

traditional retailers in direct competition with Wal-Mart, and merchants in nearby smaller communities usually experience a substantial decline in their retail sales (Flora and Flora 1991). While beneficial for the consumer, large-scale discount merchandising tends to impact nonmetropolitan employment in the same downward direction as does farm and ranch consolidation, through a substitution of capital and machinery for labor.

Finance, Insurance, and Real Estate

The finance, insurance, and real estate sector fared reasonably well within the study region, with employment up 21.9% compared with a 35.4% gain nationwide (Table 1). However, most of the new jobs were in the metropolitan areas where a 26.8% gain was recorded (Table 2). In the shift-share analysis, the region found itself at a competitive disadvantage vis-a-vis

the nation to the extent of 27,682 jobs (Table 3), and this was rather evenly divided between metropolitan and nonmetropolitan counties.

Of special note was the emergence of Sioux Falls, South Dakota as a major center of business credit activity involving about 3,500 employees (U.S. Bureau of the Census 1993c). In the early 1980s Citibank moved their national credit card operations here from Huntington, New York, attracted by South Dakota's having no ceiling on interest rates, no corporate income tax (though there is a 6% bank franchise tax on profits), modest hourly wage rates, workers speaking a Midland dialect easily understood over the telephone, and a favorable time-zone situation. Citibank now employs about 2,900 persons in Sioux Falls. Other credit card operations have followed, including Sears Payment Systems and Service One International. These developments provide dramatic evidence of the locational flexibility of financial and information-based activities using advanced telecommunications (Langdale 1991).

Business and Repair Services

The business and repair services sector was the most rapidly growing industry sector in the U.S. as a whole between 1980 and 1990, and in the study area as well. It embraces such activities as computer data processing, advertising, mailing and copy services, building services, vehicle and equipment rental, security services, repair work, and the like. The northern and central Plains almost kept pace in the 1980-90 decade, experiencing a 33.7% employment gain, compared with 36.7% for the nation. Even nonmetropolitan counties saw a 20.9% increase (Table 2). In the shift-share analysis, the study area was at a regional competitive disadvantage of only 3,743 jobs (Table 3), which is remarkably good, and the metropolitan counties showed a positive competitive advantage of 1986 jobs. Business services have usually been concentrated in larger urban centers, as have been the best jobs in this sector (Miller and Bluestone 1988). Among the better performing metropolitan areas in business and repair services employment were Omaha, Denver, Boulder, Colorado Springs, Casper, and Billings.

Increasingly important in the study area are telecommunications-based business services, including telemarketing and data processing. Telemarketing includes telephone solicitation as well as hotel reservation centers and catalog sales operations. North Dakota alone has seen about 1,800 new jobs in such businesses since 1987, mostly in nonmetropolitan communities (Leistritz 1994). Telemarketing has been an important employer in Omaha

for several years. As with the credit card operations noted previously, locational advantages include modest wage rates, operators who are easily understood, and a favorable time-zone situation. These developments confirm the earlier prediction by Garnick (1984) that advances in telecommunications can encourage the dispersion of several service activities.

Personal, Entertainment, and Recreation Services

The personal, entertainment, and recreation services sector spans a rather eclectic spectrum of activities ranging from laundry and dry cleaning, beauty and barber shops, funeral homes, and tax preparation to motion picture production, escort services, professional sports, golf courses, and gambling casinos. Some of these services are surely not the forte of the study area, yet a rather respectable 16.3% employment gain was attained, compared with a 29.9% national increase (Table 1). Geographically speaking, job increases in this sector were almost totally concentrated in metropolitan areas to the virtual exclusion of nonmetropolitan counties (Table 2), especially those nonmetropolitan counties not adjacent to metropolitan areas. Shift-share figures for the region as a whole show a competitive disadvantage relative to the nation of 18,785 employees (Table 3), a deficit largely attributable to nonmetropolitan counties. Nationally, 4.6% of employees were found in this sector in 1990, but only a very few study area counties exhibited this high a proportion of total employment in personal, entertainment, and recreation activities and they were largely in Colorado, western South Dakota, and southeastern Wyoming (i.e., where the Plains abut mountainous terrain).

Professional Services

Professional services are important to maintain a reasonable "quality of life" in any region (Fig. 5). They embrace health, education, legal and social services, engineering, architectural and accounting services, and religious and other membership organizations. This sector ranked third in employment in the U.S. in 1980, behind manufacturing and trade, but rapid growth moved it to top ranking in 1990 in both the nation and the study area (Table 1). Professional services claimed 24.6% of total employment in the study area in 1990, and 23.3% of total U.S. employment. The higher proportion of employment in this sector in the northern and central Plains can be explained in part by the educational demands of a dispersed population for

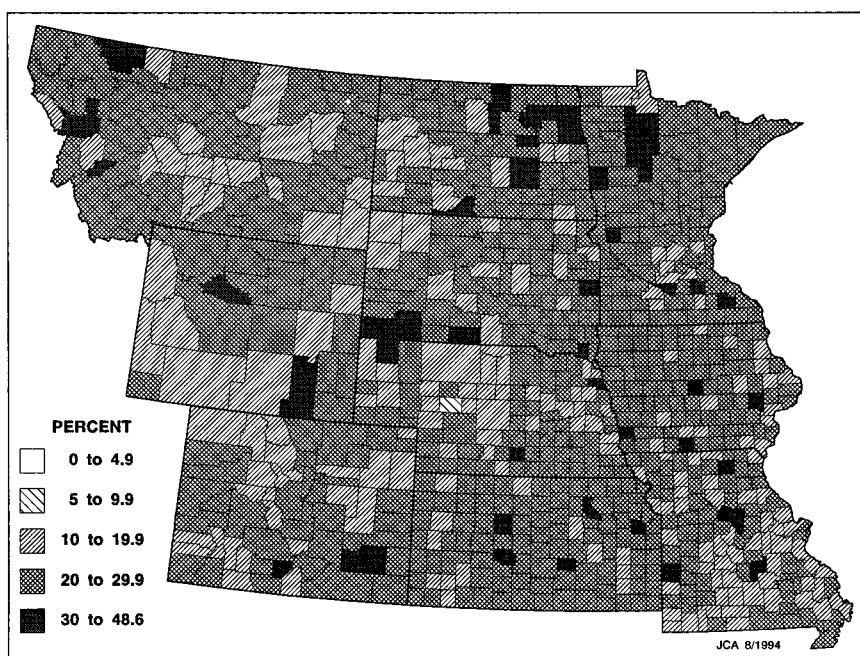


Figure 5. Professional Services, 1990. Percent of Total Employment by county for study area. Map by J. Clark Archer.

locally provided schooling, and the health and medical needs generated by a higher-than-national percentage of persons in age 65 and over cohorts. Small-scale public schools and both public and private nursing home facilities are found in many rural and small-town settings in the northern and central Plains. However, the rate of increase in professional services employment from 1980 to 1990 was slower in the study region than in the nation as a whole (Table 1), resulting in a sharply negative regional competitive effect (Table 3). Nonmetropolitan counties were responsible for much of the competitive disadvantage, yet even here an absolute gain of 18.0% in professional services employment was experienced (Table 2).

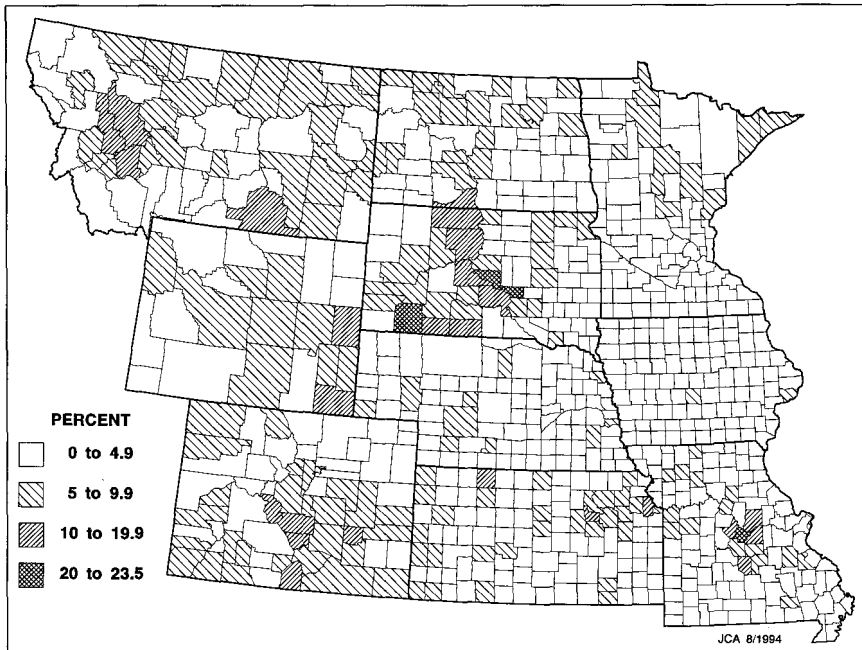


Figure 6. Public Administration, 1990. Percent of Total Employment by county for study area. Map by J. Clark Archer.

Public Administration

Modest employment increases characterized the public administration sector nationally and in the central and northern Plains (Table 1), however, the proportion of total employment in public administration declined by 4.7% in the study area and 4.8% nationally in the 1980-90 years. The nonmetropolitan counties fared less well than metropolitan counties, expanding employment by only 1.2% compared with 6.6% in the metropolitan areas (Table 2), but in interpreting these figures one must keep in mind the corresponding population growth rates in the same period—a negative 4.8%

in nonmetropolitan areas and a positive 11.1% in metropolitan counties. An encouraging fact is that the study region was at only a minor competitive disadvantage vis-a-vis the nation in both metropolitan and nonmetropolitan settings (Table 3). Not surprisingly, counties with state capitals exhibited higher proportions of total employment in public administration, as to a lesser extent, than did counties with American Indian reservations (Fig. 6). Although public sector employment in education and health services grew substantially faster than the overall national economy from 1980 to 1990, this was not true of public sector employment categorized under public administration.

Conclusions

What does the experience of the 1980s suggest for the future of the Great Plains? Employment in farming and ranching will probably continue its long-established downward trend, but at a variable pace depending on the vagaries of commodity prices, export demand, weather conditions, federal subsidies, federal programs to take land out of production, farm and ranch consolidation, and the like. The region is not in a position to benefit much from the growth of more metropolitan-oriented forms of agricultural employment. Nevertheless the employment picture in farming areas is more diverse than is usually recognized, and it encompasses much more than just agriculture (Henry 1993).

Manufacturing based on local raw materials would seem to offer a promising source of alternative employment, and persons with a rural background are seen as efficient factory workers. The study area showed up very impressively vis-a-vis the nation in manufacturing employment during the decade, both in metropolitan and nonmetropolitan areas. Is it possible that we will see a nonmetropolitan renaissance based on manufacturing decentralization similar to what many other nonmetropolitan regions of the U.S. experienced in the 1960s and 1970s? (Lonsdale 1981). It is premature to be that optimistic. The new meat-packing plants in nonmetropolitan settings do not offer wages or working conditions sufficiently attractive to keep many people from out-migrating, and these plants have to "import" recent immigrants to the U.S. This does expand local employment, population, and retail sales, but it also requires a delicately balanced community-wide commitment to face responsibly a variety of social problems which might arise (Broadway, et al. 1944). It is questionable how many more communities will be willing to assume this responsibility. Another resource-based industry

showing promise is the production of ethanol as a motor fuel, and several plants are expanding or are under construction in the study region, but the industry's future partly rests on hard-to-predict legislation at state and federal levels of government.

New technologies appear to be making many service industries more footloose than previously thought (Smith 1993). The expansion of credit card operations in South Dakota and the presence of many telemarketing firms elsewhere suggest a much broader opportunity for the region to take advantage of modern telecommunications. The strong growth in business and professional services employment in metropolitan as well as in nonmetropolitan settings is another encouraging trend.

In assessing future prospects for the region, there is a tendency to think in terms of metropolitan versus nonmetropolitan areas. In one sense this is false, of course, because the well-being of a metropolitan center can be strongly influenced by conditions in its nonmetropolitan hinterland. On the other hand, the employment performance of study area metropolitan counties in the 1980-90 decade is quite similar to that for the whole of the nation (Tables 1-2), which is highly (79.4%) metropolitan. Study area nonmetropolitan counties lag behind metropolitan counties in employment growth in all sectors except manufacturing, and income levels are lower, and this surely affects the metropolitan counties. But there is nothing unique in this for the Great Plains, because most metropolitan centers across the nation also have "lagging" hinterlands. Rural areas most everywhere in the U.S. have historically trailed behind their urban counterparts, and employment and population declines in largely rural counties have persisted in many areas of the nation for a century or more (Walzer 1991).

Metropolitan areas will likely retain their role as the dominant growth centers, and the gap between their performance and that of the nonmetropolitan areas will likely widen rather than become narrower, consistent with the national trend (Henry 1993). Localized differences in employment trends should be the rule within nonmetropolitan areas, with the current pattern of dispersed concentrations of manufacturing and service activities persisting while more sparsely populated areas continue to see a population decline and a loss of small-town functions. Any kind of widespread land abandonment and return of the land to its natural state does not appear at all probable. It may occur to a limited extent in selected areas, as has happened in the Canadian portion of the Great Plains (Paul 1992), but nothing on a broad scale can be envisioned.

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