

Can Manufacturing Reverse Rural Great Plains Depopulation?

Manufacturing has been expanding in the rural Great Plains, more rapidly than in the rest of the rural United States, but much of the expansion has been to larger, growing places and much has been in meat packing, which tends to hire low-skill workers—a group in relatively short supply in much of the region. Manufacturers in areas of substantial population loss report problems with finding labor and, even more often, with the attractiveness of the area to managers and professionals. The rural Great Plains seems particularly suited to advanced technology manufacturing, if the problem of attracting managers and professionals could be eased. Manufacturers in the region participate heavily in government programs, but no more so than in other rural regions. Those in areas of decline have tended to receive greater support.

Nationally, natural amenities and proximity to large urban areas heavily influence rural population change, raising questions about the future of remote places with little recreation appeal (Galston and Baehler). These areas have human and community resources, however, which may be attractive to manufacturing, an important part of the rural economic base. And government programs at the Federal, State, and local levels have been geared toward developing rural manufacturing. The Great Plains, largely dependent on agriculture, generally has little prospect for a recreation-based economy. In much of the region, the land is too flat, the winters too cold, the summers too hot, and the services too sparse to appeal to many short-term visitors or retirees. What, then, are the prospects for developing a manufacturing base to stem rural depopulation? And what have governments been doing to stimulate rural manufacturing in the Great Plains?

Drawing principally on the ERS Rural Manufacturing Survey (RMS) (see box p. 41), this article investigates problems facing Great Plains manufacturers and their participation in government programs. After an overall comparison with other rural areas, these issues are examined across three dimensions within the rural Great

Plains. The first is local population change, which has varied considerably across the region. Areas of substantial population loss, which typically have older and sparser populations, may be less amenable to manufacturing than areas of modest loss or gain, and may not be sharing in its expansion. Alternatively, these may be the areas receiving most government support and most attractive to manufacturers. The second dimension is technology use. One of the advantages of the rural Great Plains is its relatively well-educated labor force. Manufacturers adopting advanced technologies and production practices generally prefer more highly skilled workers (Teixeira, 1998). In the RMS national sample, these manufacturers have tended to have greater gains in employment and earnings, so their situation in the rural Great Plains is of particular concern. The third issue is the type of manufacturing, whether it involves the processing of agricultural products, particularly meat packing. Given the importance of agriculture as its economic base, the Great Plains presumably has a competitive advantage in agricultural processing. Moreover, this type of manufacturing has been receiving considerable attention in Federal if not State legislation.

Manufacturing in Rural Great Plains Has Been Expanding, Much of It in Meat Packing

The Great Plains, particularly the rural Great Plains, has relatively little manufacturing compared with the rest of the country. In 1993, only 8 percent of jobs in the rural

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Great Plains were in manufacturing compared with about 18 percent in the rest of the rural United States (table 1). But while this might suggest that the rural Great Plains is unattractive to manufacturers, the number of manufacturing jobs in the rural Great Plains has expanded considerably since at least 1969, at a rate well above that of the rest of the rural United States. Although there was a substantial drop in manufacturing jobs with the recession of the early 1980's and the subsequent farm crisis, the growth rate in rural Great Plains manufacturing jobs has been about twice the rate of the rest of the rural United States since the 1986 nadir (fig. 1).

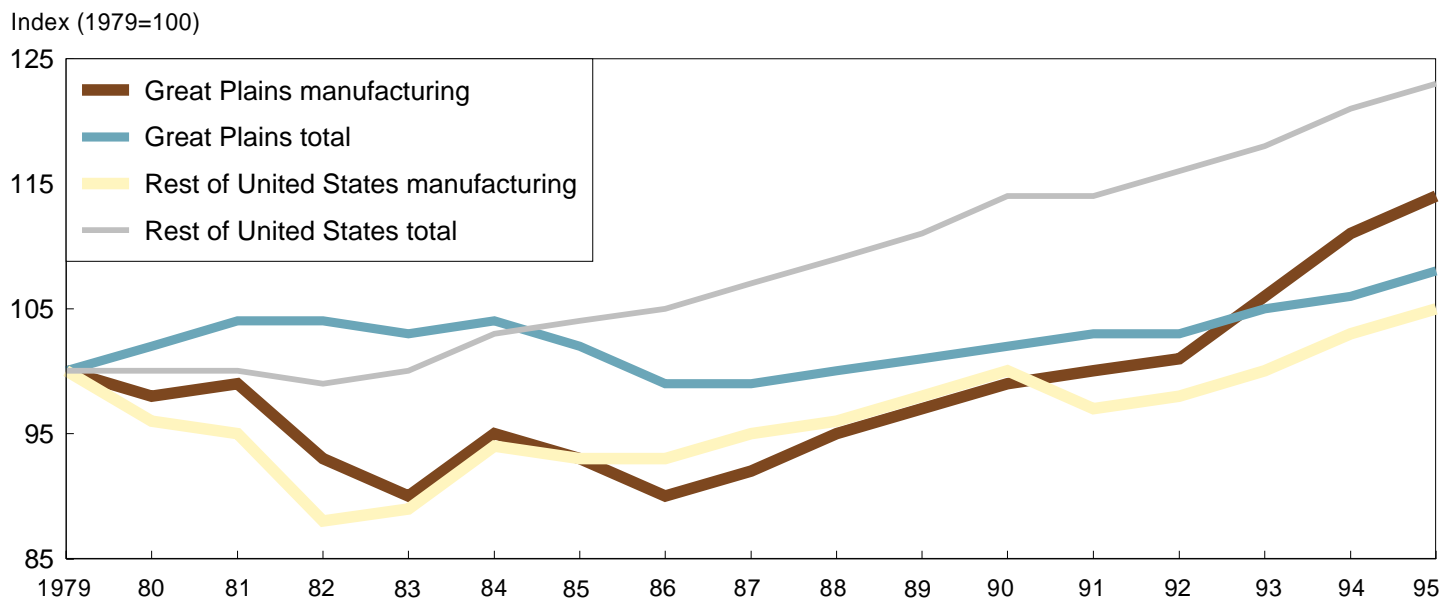
Much of the gain in manufacturing jobs has come from a shift in meat packing to the rural Great Plains. In 1984, food processing comprised 26 percent of total manufacturing wage and salary jobs in the region (table 2). About half the food processing jobs were in meat products, primarily meat packing (as opposed to sausages or poultry process-

Table 1
Proportion employed in manufacturing, 1993
The rural Great Plains has relatively little manufacturing

Area type	Great Plains		Rest of United States	
	Percent			
Total	8.9		13.5	
Urban (metro)	9.3		12.7	
Rural (nonmetro)	8.3		17.7	

Source: ERS analysis based on data from the Bureau of Economic Analysis, U.S. Department of Commerce.

Figure 1
Average annual rural employment, 1979-95
Rural manufacturing has grown rapidly in the Great Plains since 1986



Source: ERS analysis based on Bureau of Economic Analysis county data.

ing, which are not included in the meatpacking category). Between 1984 and 1995, while the rest of the food processing industries had no net gain, jobs in meat packing and related products increased by nearly two-thirds and comprised a major part of the new jobs. The growth in meat packing, like most of rural manufacturing growth, represented a movement from urban to rural areas. Nationally, wage and salary employment in meat packing was essentially the same in 1995 as it had been in 1984, although jobs in poultry processing, another meat products category, increased substantially (BLS Internet Data Files).

Highly concentrated in a few locations, meat packing in the rural Great Plains is an industry apart. In 1995, over 90 percent of meatpacking wage and salary workers were in 12 counties across three States and, while the rest of the rural Great Plains had a net loss in meatpacking jobs between 1984 and 1995, these 12 counties had a gain of 88 percent. Apart from these 12 meatpacking counties, manufacturing in the region has become slightly more dispersed since 1979. The meatpacking industry also differs sharply from the rest of Great Plains manufacturing in terms of plant size and workforce characteristics, as discussed below.

The meat products sector was not the only sector to expand from 1984 to 1995. Manufacturing in wood-related industries (wood products, furniture, and paper) grew by 49 percent, and manufacturing in nonresource-related industries (fabricated metal products, machinery, transportation, instruments, and miscellaneous) expanded by

32 percent. This last set of industries together added more jobs than agricultural and wood products combined. Although some of these industries may supply the agricultural sector, new manufacturing in the rural Great Plains is not locating there simply or perhaps even primarily because of natural resources.

Labor a Key Problem Facing Rural Manufacturers in the Great Plains

A principal aim of the ERS Rural Manufacturing Survey was to learn what the manufacturers themselves see as the major local problems inhibiting their ability to compete. We examined five general areas: human resources, transportation infrastructure, access to suppliers and customers, physical plant, and government. The first three are particularly relevant, given the development of new manufacturing technologies and the globalization of markets during the past decade.

The factor reported most often as a major problem by manufacturers in the rural Great Plains was the quality of available labor (table 3). This is true of rural (and urban) areas in general, so the Great Plains does not stand out in this regard (McGranahan, 1998). However, where in many rural regions the question is primarily one of quality, given both the high education levels and the sparseness of the Great Plains population, the problem there may be more one of availability. One indication is that manufacturers see the quality of local schools as a major problem much more rarely in the Great Plains than elsewhere. This question will be revisited in the discussion of advanced-technology manufacturers.

The second most cited problem is the attractiveness of the area to managers and professionals. This problem is cited twice as often in the Great Plains as in rural areas in general. One reason may be quality of life in sparsely settled areas, particularly those with declining populations. The lack of local services may make the rural Plains less attractive than other rural areas. Another reason may be

that the scarcity of local jobs makes living in the area relatively difficult for dual-career households. A third possibility, that the Great Plains has a relatively harsh climate, does not appear to be relevant. None of the 50 manufacturers surveyed in the urban Great Plains reported the attractiveness of the area to managers and professionals to be a major problem. Difficulty in attracting skilled managers and professionals could be a major drawback for rural Great Plains manufacturing as the effective adoption of new technologies and work organization methods typically requires a skilled managerial and professional core.

Access to airport facilities and, to a lesser extent, access to railroads were also more likely to be reported as major problems in the Great Plains than elsewhere. While the problem with airports is widespread—over half the Great Plains sample reported this as at least a minor problem—the railroad issue applies to relatively few establishments. Only 26 percent reported this as even a minor problem.

Despite the distance to airports and the remoteness of the Great Plains from major manufacturing centers, only 10 percent of the respondents reported major problems of access to any of their suppliers and customers. However, problems associated with access to equipment suppliers are reported significantly more often in the Great Plains than in the rest of the rural United States, another suggestion that advanced technology users, for whom this access is generally most critical, may face particular problems in the Great Plains.

Complying with environmental regulations was reported by about 20 percent of the Great Plains manufacturers as a major problem. Although quite substantial, this, like labor, is no more an issue in the Great Plains than in rural areas in general. While State and local taxes were felt to be at least a minor problem by over half the Great Plains manufacturers and a major problem by 15 percent, this is lower than in other rural regions and makes the Great Plains relatively attractive in this regard.

Table 2

Changes in manufacturing wage and salary jobs in the rural Great Plains, 1984-95*

Meatpacking is a major source of new jobs, but most new manufacturing jobs come from outside the food processing sector

Industry type	Annual average number of jobs				
	1984	1995		Change, 1984-95	
	1,000's	1,000's	Percent	1,000's	Percent
Food processing	41	56	28.8	15	35.9
Meat products	22	37	19.2	15	65.9
Meatpacking	20	32	16.6	12	62.1
Other food processing	19	19	9.7	0	0
Nonfood manufacturing	120	138	71.2	18	15.4
Total	161	194	100.0	33	20.6

*Data exclude Wyoming (see box p. 41).

Source: Calculated by ERS from BLS data files.

Table 3

Rural Great Plains manufacturers report on local problems in their establishment's ability to compete*Human resource, environmental, and transportation issues stand out*

Local factors	Great Plains		Other rural United States
	Any problem	Major problem	Major problem
	Percent		
Human resources:			
Quality of available local labor	79.4	30.4	34.5
Attractiveness to managers, professionals	60.8	28.3	14.0
Access to training courses	45.7	7.8	9.0
Local cost of labor	32.3	3.9	7.5
Quality of primary and secondary schools	28.5	1.1	10.7
Local management-labor relations	29.9	0	3.9
Transportation infrastructure:			
Access to airport facilities and services	52.7	16.4	8.4
Railroad access	26.1	10.1	6.1
Interstates and major highways	25.1	6.4	6.9
Local roads and bridges	25.4	4.0	5.7
Access to suppliers and customers:			
Access to equipment suppliers	50.2	9.9	4.7
Access to material suppliers	48.6	9.9	6.3
Access to major customers	43.9	9.7	6.1
Access to market information	34.9	5.3	5.3
Access to financial institutions	27.7	3.6	4.2
Access to business services	24.7	2.7	1.3
Physical plant:			
Water and sewer systems	32.7	8.9	7.8
Cost of facilities and land	37.2	5.0	8.4
Government:			
Environmental regulations	56.3	19.5	21.6
State and local tax rates	58.2	15.2	22.8

Note: Differences from rest of rural United States significant at 0.05 level are in bold.

Source: ERS Rural Manufacturing Survey, 1996.

These survey results do not immediately reveal why manufacturing is expanding more in the Great Plains than in rural areas in general. Great Plains manufacturers report fewer problems with State and local taxes than others do, but the differences do not seem substantial enough to comprise an explanation.

They also appear to have somewhat fewer problems with labor quality than other rural manufacturers. Only the extremely low reporting of problems with school quality is significantly different from the rest of the rural United States. According to statistical tests, all human resource problems referring to production workers were consistently reported less often in the Great Plains than elsewhere.

There are reasons to expect that labor quality is an asset of the Great Plains. While there are some local exceptions,

such as parts of the Texas Plains with substantial Hispanic populations, the levels of education in the rural Great Plains are generally high, despite decades of outmigration. Compared with their rural counterparts elsewhere, a relatively low proportion of the young working-age people in the rural Great Plains lack a high school diploma and a relatively high proportion have a college degree (table 4). With slow growth in other kinds of jobs in the Great Plains, manufacturing may have relatively little competition for more educated labor compared with manufacturing in other rural areas. Even with these relatively high area education levels, RMS data show that plant hourly wages are lower than the rural average in the Great Plains—if not as low as in the South.

Government Program Participation Is High, but No Higher Than in the Rest of the Rural United States

One potential explanation for the relatively high rate of growth in manufacturing in the rural Great Plains is greater government assistance in the Great Plains than elsewhere. The RMS asked about participation over the previous 3 years in potential credit assistance, tax breaks, industrial parks/enterprise zones, and worker training/technology assistance. The level of participation reported by rural Great Plains manufacturers was high, particularly when measured according to plant employment. Over 60 percent of the plants had received some form of assistance and over 75 percent of the employment in manufacturing plants was in plants that had received assistance (table 5). (The latter proportion is higher because larger plants are more likely to participate in programs.)

The most frequent form of assistance was tax breaks from State and local governments. Nearly half of the manufacturers reported receiving tax breaks. These plants employed two-thirds of the workforce in the sample. In addition, nearly a quarter of the manufacturers had received credit assistance and the same proportion worker training or technology assistance. Finally, nearly 20 percent benefited from industrial parks or enterprise zones.

Despite these high levels of participation, rural Great Plains manufacturers were generally no more likely to benefit from government programs than manufacturers in the rest of the rural United States. The only substantial difference is in employment in plants receiving direct government loans, where the proportion is much higher in the Great Plains (29 percent) than elsewhere (13 percent). Since the proportion of plants benefiting from loans is the same in the Great Plains as elsewhere, the basic difference is that these loans are more concentrated among large plants in the Great Plains. In general, direct assistance to manufacturers is not a reason that manufacturing is growing more rapidly in the rural Great Plains than in the rest of rural America.

Table 4
Education completed by rural population, ages 25-44, 1990
Rural Great Plains young working-age population has relatively high education levels

Education	Great Plains	Rest of United States
	Percent	
No H.S. diploma	14.2	18.7
H.S. diploma	67.5	66.0
B.A./B.S. degree	18.3	15.3
Total	100.0	100.0

Source: ERS based on data from the 1990 Census of Population (Bureau of the Census).

Manufacturing and Population Change

As the rural Great Plains population has declined, it has become less dispersed. From 1980 through the mid-1990's, the more rural a Great Plains county—the more remote from a metro area and the smaller the size of its towns—the more likely it was to lose population. Over 60 percent of the 423 counties in the rural Great Plains lost a substantial proportion of their population (over 8 percent) between 1980 and 1996. Of the 208 rural counties not adjacent to a metro area and lacking a town of at least 2,500 residents, nearly 80 percent had a substantial population loss. Although the rural Great Plains population was stable during the 1990-96 period, three out of every four of these completely rural counties continued to lose population. At the same time, having a substantial town has not guaranteed a stable population. Over half of the nonadjacent counties with cities of 10,000 or more lost population in 1980-96, with one in seven having losses of over 8 percent.

Population change has been related to change in manufacturing jobs in the rural Great Plains, but the nature of this relationship has been complex. Manufacturing jobs have grown in counties with expanding populations, and undoubtedly contributed to that expansion (fig. 2). But the correlation between the rate of population change, 1980-96, and change in manufacturing jobs, 1979-93 (expressed as change in jobs divided by the county employment in 1979), was only 0.21. One reason for the low correlation is that change in manufacturing has had little bearing on population change in remote, completely rural counties, which have almost uniformly had a substantial population loss (fig. 3). Their economies are generally too porous to be greatly affected by changes in their manufacturing jobs and have been largely overwhelmed by the loss of agricultural jobs. The correlation between changes in manufacturing and population was strongest among rural counties with cities of at least 10,000 residents. In these counties, every gain in a manufacturing job (per 100 total jobs in 1979) was associated with a 1.4-percent gain in population. Even here, however, one cannot assume that manufacturing is responsible for the gains in population. To some extent, people and manufacturers may be drawn to the same types of locations—ones with airports, hospitals, and other amenities, for instance. Indeed, population loss itself may discourage some manufacturers, given its impact on the age structure and its stress on local services.

The manufacturing survey results suggest that human resource problems are much greater in areas of substantial population loss than in other Great Plains counties. In counties with a loss of at least 8 percent of their population during 1980-96, 44 percent of the manufacturers reported a major problem with the quality of available labor (table 6). What may be equally significant in an era

Table 5

Rural manufacturer participation in government programs**Great Plains programs are little different than rest of rural United States*

Type of program	By plant		By employment	
	Great Plains	Rest of United States	Great Plains	Rest of United States
	Percent			
Any of government programs below	61.9	62.6	78.1	78.5
Tax breaks by State or local government	46.2	46.5	65.6	65.6
Credit programs:				
Direct loans from a government agency	14.6	15.0	28.5	12.8
Government insurance or guaranteed loans	14.3	13.0	12.2	10.2
Revolving loan funds operated by a nonprofit organization	9.9	9.2	5.5	6.1
Any of above	23.5	23.3	35.0	18.1
Worker training programs or technology assistance programs	23.2	29.5	49.8	48.0
Industrial parks or enterprise zones	18.8	21.0	28.9	27.8

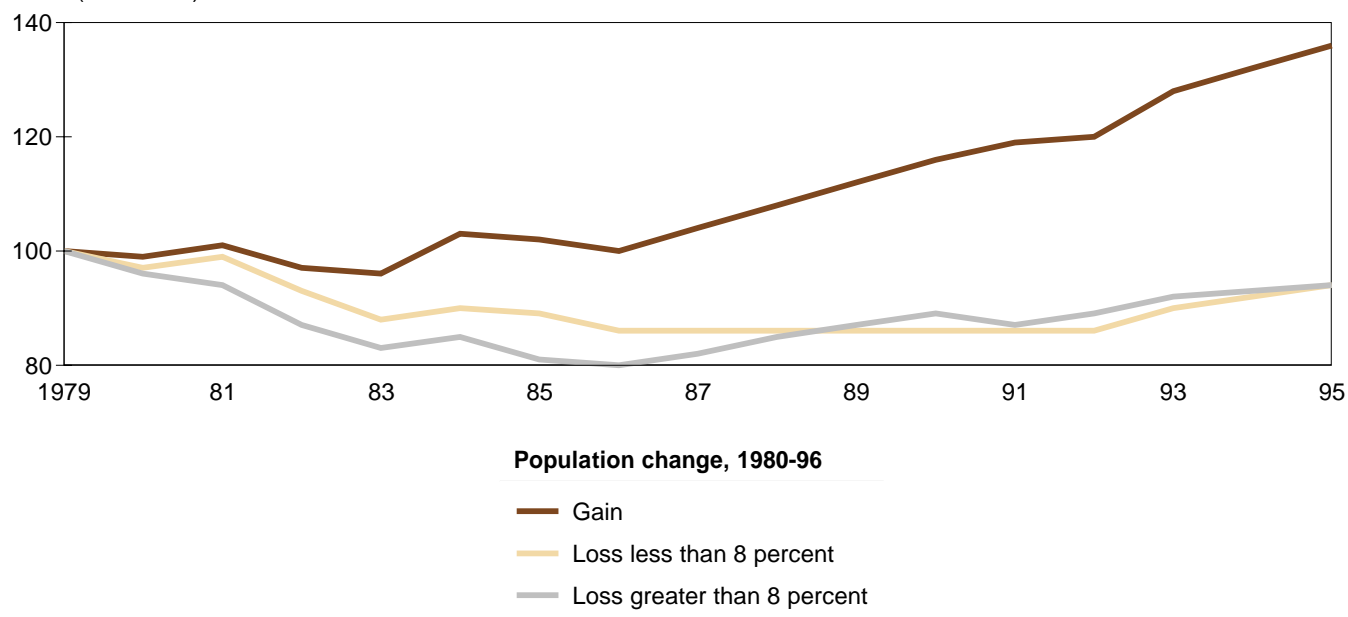
*Proportion reporting programs to have been somewhat or very important for their business's operations in the past 3 years.

Source: ERS Rural Manufacturing Survey, 1996.

Figure 2

Rural Great Plains manufacturing employment, 1979-95*The fastest manufacturing employment growth has been in counties with rising population*

Index (1979=100)



Source: ERS analysis based on data from Bureaus of Economic Analysis and Labor Statistics.

of intense competition and restructuring, nearly half the manufacturers in heavy population-loss counties reported that the attractiveness of the area to managers and professionals was a major problem for their ability to compete. Both of these statistics are much higher than found in counties with either a lower loss or a gain in population during 1980-96. Manufacturers in other rural counties with substantial population loss (20 percent of the sample) reported labor and attractiveness problems with even

greater frequency than manufacturers in completely rural areas.

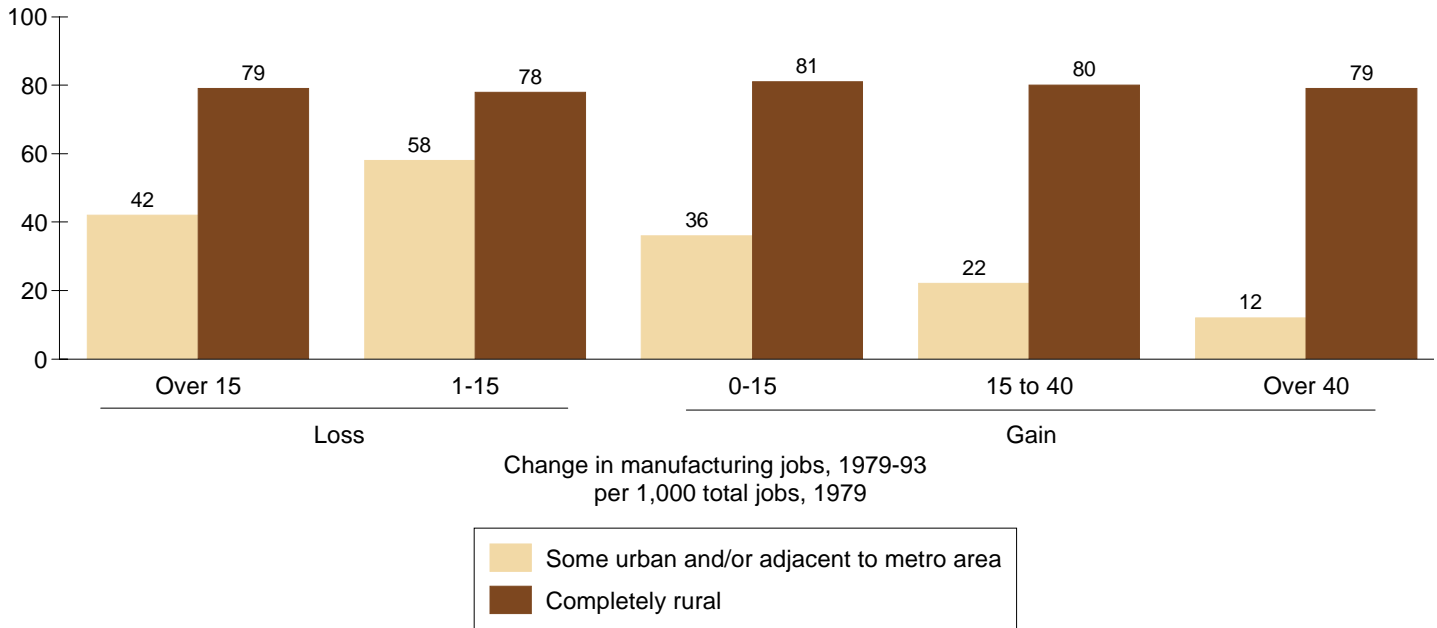
Although the differences were not statistically significant, manufacturers in counties with heavy population loss also tended to report more problems with environmental regulations. The manufacturing in these counties is not more concentrated in the types of industries that typically have these problems, so the problem may lie more in the ability

Figure 3

County change in manufacturing jobs and population loss

Manufacturing growth is unrelated to population loss in completely rural counties

Percentage of counties with over 8 percent population loss, 1980-96



Source: ERS analysis based on Bureau of Economic Analysis data.

of local infrastructure to deal with environmental problems. At the same time, these manufacturers reported fewer problems with State and local taxes (although, again, the differences were not large enough to be statistically significant).

The only other statistically significant difference related to access to financial institutions (not shown), which 9 percent of the manufacturers in the heavy population-loss counties reported as a major problem compared with less than 1 percent in the gaining counties. While this could reflect relative prospects for manufacturing in the population-loss counties, it could also indicate that financial institutions in these counties are more constrained.

Conditions of population loss, which have been long-term over a substantial part of the rural Great Plains, have created a “vicious circle.” People leave an area because of a lack of jobs while at the same time manufacturers and other employers may avoid the area because of a lack of available people. The high proportion of manufacturers reporting the attractiveness of the area for managers and professionals to be a major problem seems likely to represent an issue that goes well beyond manufacturing to other industries and even civic affairs. An area that cannot develop an adequate managerial/professional base in an era of high technology may have difficulties no matter what kinds of special development programs are in place.

The Rural Manufacturing Survey and Other Data Sources

The data for this article are from three major sources. The first is the 1996 ERS Rural Manufacturing Study, designed to identify problems facing rural manufacturers and programs needed to enhance rural competitiveness. The telephone survey, carried out by Washington State University, included 159 respondents from the rural Great Plains out of a total completed sample of 3,900 manufacturing plants with 10 or more employees. The other two data sources are county-level data, one with information on employment by major industries for 1979-86 and 1990-93 from the Bureau of Economic Analysis (U.S. Department of Commerce) and the other with detailed industry information from the Bureau of Labor Statistics (U.S. Department of Labor) (BLS) for 1984 and 1995. These industry data were not available for rural Wyoming.

Technology Adoption

Establishments that have adopted advanced technology are typically the more effective firms in our study, with better educated workers, higher wages, and greater gains in employment and wages over the previous 3 years. They also tend to have greater needs for skilled workers—although the Great Plains meatpacking firms, generally users of advanced technology, are a major exception.

Table 6

Major local problems reported by rural manufacturers and county population change*Human resource problems are much greater in counties with substantial population loss*

Local factor*	Population change, 1980-95		
	Loss		None or gain
	Over 8%	Under 8%	
		Percent	
Quality of available local labor	43.9	17.1	31.6
Attractiveness of area to managers and professionals	49.1	31.6	9.7
Environmental regulations	27.7	18.9	13.8
Access to airport facilities and services	18.5	5.2	24.5
State and local tax rates	8.9	15.7	19.4
		Number	
Number of establishments	45	52	61

Note: Differences across categories significant at 0.05 level are in bold.

*Ordered by proportion of rural Great Plains respondents indicating factor is a major problem.

Source: ERS Rural Manufacturing Survey, 1996.

Rural advanced technology users typically report more problems with human resources—the quality of available local labor, the attractiveness of the area for managers and professionals, the quality of local schools, and access to training (McGranahan). In the Great Plains, the pattern appears to be markedly different, although the number of advanced technology firms in the sample—26—is so small that even though the results reported here are statistically significant, the magnitude of the differences must be seen as subject to a wide range of error.

In contrast to the general pattern, the low-adoption manufacturers report the most problems with the quality of available labor in the Great Plains, about twice as often as advanced technology users (table 7). This is consistent with the earlier suggestion that the lack of labor for production jobs rather than the quality of labor seems to be the principal issue in the Great Plains. Moreover, advanced technology manufacturers seem considerably more satisfied with their labor quality in the rural Great Plains than elsewhere as they are only half as likely to cite it as a major problem. A final indication of labor quality is that none of the advanced technology users reported major problems with the quality of local schools (versus 17 percent elsewhere).

At the same time, the ability to find managers and professionals appears to be a more substantial problem in the rural Great Plains than in the rest of the rural United States at all levels of technology adoption, but particularly for those using advanced technologies. These manufacturers report major problems with the attractiveness of the

area twice as often as they report labor quality problems, the reverse of the pattern found in other rural regions.

Advanced technology users in the Great Plains also report more problems with access to machinery and equipment suppliers (25 percent) than advanced technology users in other regions, suggesting that remoteness from industrial regions is a drawback for those wanting to adopt the latest technologies. Like advanced technology users in other regions, they are no more likely than others to report a lack of access to financial capital.

In the national rural sample, the larger the plant and the more advanced the use of technology, the greater the participation in government programs. While program participation may facilitate technology adoption, it seems most likely that the primary dynamic is that effective management leads to both faster adoption of new technology and greater ability to garner government support. In the rural Great Plains, however, this pattern does not hold—technology use is unrelated to program participation (table 8). In effect, low technology users benefit more from government programs (credit assistance and industrial parks, in particular) in the rural Great Plains than elsewhere in the country. This result is somewhat puzzling since low adopters of new technology are not more likely to be located in counties with low education levels or population loss.

Food Processors

Food processing, particularly meat packing, has been a substantial and growing part of manufacturing in the rural Great Plains. Only seven (5 percent) of the rural

Table 7

Major problems reported by rural manufacturers, by level of technology adoption

High local labor quality is an advantage to Great Plains new technology users, but this is accompanied by problems in access to airports and equipment suppliers and, especially, the attractiveness of the area to managers and professionals

Local factor	Great Plains:			Other rural United States:		
	Level of adoption of new technologies and work organization*			Level of adoption of new technologies and work organization**		
	High N=26	Middle N=86	Low N=38	High N=548	Middle N=1317	Low N=645
	Percent					
Quality of available local labor	18.9	30.2	42.7	39	34	32
Attractiveness to managers, professionals	47.9	26.2	23.6	18	14	10
Access to airport facilities and services	30.5	11.3	21.5	13	8	5
Access to equipment suppliers	24.6	8.6	4.5	7	5	4
Quality of primary and secondary schools	0	2.0	0	17	10	7

*Differences across technology categories significant at 0.05 level are in bold.

**Differences for technology level between Great Plains and other rural United States significant at 0.05 level.

Source: ERS Rural Manufacturing Survey, 1996.

Great Plains sample plants in the RMS were meat packers, but they are markedly different from other plants in the region. They are larger; most employ over 1,000 workers, while only one other plant in the rural Great Plains sample was that large. In most of these plants, fewer than half the production workers have a high school degree. Only 4 percent of the remaining plants have as low a proportion of high school graduates. Similarly, while almost all the meat packing plants have workforces that are over 50 percent minority, less than 10 percent of the other plants reach that level. Despite the small size of the sample, these three differences are all statistically significant. All of the meatpacking plants in the survey with over 100 employees are branch plants of larger firms.

The meatpacking plants employ a sufficient proportion of the RMS sample workforce to significantly affect some of the workforce statistics. For instance, while production worker education levels are otherwise relatively high in the Great Plains—reflecting the high educational levels in the working-age population—well over half the workers in meat packing have less than a high school education and relatively few have at least 1 year of college (table 9). Despite these low education levels, hourly earnings are generally not lower in meat packing than other industries, probably because of the nature of the work. The two plants that did not rely on low-education workers paid substantially higher than average wages.

Despite their uniqueness in the rural Great Plains setting, meat packers did not stand out in terms of the local problems they reported (although, with such a small sample,

Table 8

Rural plant participation in any government program in past 3 years, by technology level

In Great Plains, low adopters just as likely to benefit as high adopters

Level of technology adoption	Great Plains	Outside of Great Plains
	Percent	
Low	62.2	48.1
Middle	60.5	64.3
High	65.3	76.0

Note: Significant differences from outside Great Plains are in bold.

Source: ERS Rural Manufacturing Survey, 1996.

almost all would have had to report one or another problem or program). Most reported receiving tax breaks and assistance in worker training. Since almost half of the other plants in the rural Great Plains (and most of the branch plants) also reported tax breaks, it is only clear that meat packers are not disadvantaged in terms of government program benefits.

Other food processors in the region resemble the meat packers less in their size and work force characteristics than they do other manufacturers. In general, these food processors report local barriers to competitiveness similar to other manufacturers, with three interrelated (and statistically significant) exceptions. They were more likely to report as major problems environmental regulations (43

Table 9

Average education levels of production workers in Great Plains and other rural plants*Except in meat packing, rural Great Plains workers have relatively high education*

Education completed	Rest of rural United States	Total	Rural Great Plains:		
			Food processing		
			Meat-packing	Other	Nonfood
Percent					
No HS diploma	19.7	27.1	58.6	15.9	12.6
HS diploma	67.9	60.5	36.5	67.5	71.2
Further schooling	12.4	12.4	4.9	16.6	16.1
Total	100.0	100.0	100.0	100.0	100.0

Source: ERS Rural Manufacturing Survey, 1996.

percent), water and sewer systems (27 percent), and the cost of land and facilities (17 percent). None of the meat packers cited environmental regulations as a major problem. This difference, although not as stark, is also found in the rest of rural America outside of the Great Plains. With respect to government program participation, food processors were generally like other manufacturers, except that nearly two-thirds reported receiving tax breaks. Also, perhaps because of the low skills involved, with meat packers the exception, they rarely took advantage of government training programs.

The Future of Great Plains Manufacturing

What are the prospects for developing a manufacturing base in the Great Plains to stem rural depopulation, and what have government programs been doing to stimulate this development? This study provides no definitive answers, but some clues.

Manufacturing has been expanding in the rural Great Plains, much more rapidly than in the rest of the rural United States. However, while emphasis is given to agricultural value-added production, most new manufacturing jobs between 1984 and 1995 were in activities that did not draw on agriculture (or wood). In fact, outside of meat packing and related activities, food processing has not been generating jobs in the rural Great Plains. Particularly given the high education levels in much of the Great Plains relative to the rest of the country, it would be a mistake to focus on value-added production, which tends not to require skilled workers.

While manufacturing has been expanding in the rural Great Plains, it may do relatively little to relieve problems of population decline. First, much of the expansion has been in meat packing, which is highly concentrated in a few counties and takes no advantage of the relatively high workforce education levels in much of the region. Second, population change in the Great Plains has been

uneven. While areas of population growth have gained considerable manufacturing, the reverse is not always true. Small counties tend to be overwhelmed by other change, particularly the loss of agricultural employment. Lacking major service activities, these local economies appear largely unable to take advantage of new income coming into the community. To some extent, the problem in smaller counties may be less the generation of new economic base activities than the loss of service center functions to larger centers. This is not to say that new manufacturing is not important to the local region. Rather, the jobs generated as the money circulates may not be in the same place as the plant.

Finally, there is some evidence, particularly from the RMS, that manufacturers are not attracted to counties with substantial population decline, whether this is for the same reasons that the population has been leaving or because people have been leaving. Manufacturers in counties that have had substantial decline in the past 15 years are much more likely than others to report the attractiveness of the area to managers and professionals as a major problem for their businesses. They are also more likely to report problems with the quality of available labor and access to financial institutions.

Most manufacturers report benefiting in the past 3 years from State and local tax breaks, government credit programs, industrial parks, and/or training assistance. This is true in the rest of the rural United States as well, suggesting that smokestack chasing has not gone out of style. In the Great Plains as elsewhere, branch plants are more likely to report tax breaks than single-unit firms. However, there is evidence of an at least de facto regional policy in the rural Great Plains, as manufacturers in counties with substantial population decline are more likely than others to have received assistance.

The attractiveness of the area to managers and professionals is the local factor most often reported as a major problem by both advanced technology users and manufacturers in counties with substantial population loss. Except in relation to local school quality, the issue of the ability to attract managers and professionals to an area has received little research attention, so it is difficult to judge its salience in manufacturer decisionmaking. But the future development of advanced technology manufacturing, particularly in areas of population decline, is important for the rural Great Plains. The general ability to attract and keep effective managers and professionals, who often become the new local entrepreneurs in any industry, may be the most significant barrier to widespread economic development in the rural Great Plains.

For Further Reading . . .

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