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Trend Analysis Of Rural Underemployment: An Example From North Dakota¹

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Introduction

A recent news release from the USDA's Economic Research Service stated that rural unemployment had eased since the harsh times of the early 1980's, but the improvement in the employment picture has temporarily stalled (*AgWeek* 1990:44). The researcher attributed the decline and levelling off in unemployment to the completion of the rural recovery and the slowdown in the national economy.

The USDA reported a 1989 nonmetro unemployment rate of 5.7 percent. Calculations of the nonmetro unemployment rate for North Dakota showed a rate of 5.1 percent. In comparison to the rate of 8.4 percent in 1985, it would appear that the nonmetro areas of the state are recovering from the economic adversity of the early 1980's. The nonmetro rate, however, is higher than both the state and metro rates (see Appendix A for Figure 1). From anecdotal information, we have known for some time that unemployment is considerably higher in rural North Dakota than the official figures indicate. And underemployment, of which unemployment is but one component appeared to be even higher.

Problem Statement

The unemployment rate continues to be the major criterion used in selecting counties for special economic assistance. But the official un

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employment rate is not a valid measure of either the quality or quantity of the rural labor force. The continued use of the official unemployment measure leaves rural areas at a disadvantage compared to urban areas in the distribution of economic development assistance.

Horne, et al. (1974) found that selecting counties on the basis of unemployment omitted many counties with both the greatest labor potential and economic need for expanded industrialization. They found that underemployment was a much better indicator of both underutilized labor and economic need. They believed that the use of underemployment as a criterion should be used to guide programs directed toward job creation in nonmetro areas. Briggs (1981) said that the unemployment rate had little relevance to the nonmetro economy. If underemployment measures were included in formulas that allocate funds for federal programs, he thought there would be a considerable increase in assistance provided under most programs to rural areas.

Our purpose in this paper will be to track three measures of rural underemployment using three years of survey data from the ND Rural Life Poll. We will compare the official unemployment rate with the rate calculated from the survey data. We will also add two new measures to the composite measure of underemployment.

Rural Underemployment

Rural sociologists have been aware of the inadequacy of traditional labor force measures when applied to rural areas. Korsching and Sapp (1978) found the official procedures used for estimating unemployment lacked validity and radically underestimated actual unemployment. Nilsen (1979) concluded that low levels of data reliability, inadequate economic concepts, and nonmetro differences in economic structure resulted in labor force statistics that frequently portrayed conditions to be better than they actually were.

Carter (1982) examined the measurement and conceptual problems

of the traditional labor force framework as well as the accuracy of official labor force estimates for three nonmetro counties. He found that the official estimates underestimated unemployment in nonmetropolitan counties. Using a modified labor force analysis, Carter found larger labor force estimates and higher unemployment estimates.

Gallagher (1990) compared unemployment rates calculated from a special survey on an American Indian reservation conducted by the Bureau of the Census with the official unemployment rates. The special survey revealed a far higher level of unemployment than estimated by official techniques. He concluded the official unemployment rate systematically minimizes the scale of economic hardship in rural areas and especially on rural reservations.

The problematic nature of traditional labor force measures and the marginality of much employment in nonmetropolitan areas, have lead rural sociologists to recommend alternative measures for nonmetropolitan and rural areas. Briggs (1981) argued for the inclusion of an underemployment index in the existing federal labor market data collection system.

Carter (1982) applied Clogg's (1979) labor-utilization framework to survey data from three nonmetropolitan counties. His analysis divided the working age population into seven labor-utilization categories. Five of the categories deal with underemployment: discouraged workers, unemployed but seeking employment, involuntary part-time employment, underemployment by low income, and inadequate use of workers' skills. He found 30 to 40 percent of the labor force in these three nonmetro counties was underemployed.

Lichter and Costanzo (1986) applied Clogg and Sullivan's (1983) revised labor utilization framework to the 1970 to 1983 March Current Population Surveys. They found that economic underemployment which includes discouraged workers, the unemployed, involuntary part-time, and employed at low income was considerably more prevalent in nonmetropolitan than metropolitan areas. They concluded that the officially-defined unemployment rate provided only a crude indicator of economic hardship in nonmetro

politan areas and tended to mask spatially-based differences in economic hardship.

Using data from the ND Rural Life Poll for small town residents, Ludtke, Kelly and Geller (1988) found that the rural unemployment rate was higher than the official statistic. In addition, the discouraged and involuntary part-time workers' rates were about equal to those of the rural unemployed rate. They concluded the additional labor force pool available to work was severely underestimated by the continued use of the official unemployment measure.

Measuring Rural Underemployment

The Social Science Research Institute (SSRI) at the University of North Dakota has been monitoring rural underemployment since 1987 for small town residents and 1988 for farm residents through questions on employment included on our annual Rural Life Polls. The measure of underemployment used in 1987 and 1988 was a modified version of the Labor Force Utilization Framework (LUF) developed by Lichter and Costanzo (1986). The measures used included the official measure of unemployment, the discouraged worker rate, and an involuntary part-time rate. In 1990, we added two additional measures: employment at low income and occupational mismatch.

The *discouraged workers rate* includes those persons who are unemployed, still want to work, but have given up looking for work. The *unemployed rate* is the official BLS definition which includes those persons without work and have been actively seeking employment during the previous four week period and those who are in the process of a job transition or layoff. The *involuntary part-time rate* includes those persons who are working less than 35 hours a week, but who prefer full-time employment.

The *employed at low income rate* includes those whose full-time

earnings are less than 1.25 times of the individual poverty guideline. The *occupational mismatch rate* includes those workers whose education exceeds the average educational level of persons in the same occupation.

The *full-time employed rate* refers to those workers who are presently employed 40 hours a week. The *voluntary part-time rate* refers to those workers working less than 35 hours a week who do not prefer to be employed full time. The *labor force* refers to the sum of the number of people in the discouraged, unemployed, involuntary part-time, full-time, and voluntary part-time categories. The sum of people in the discouraged, unemployed, involuntary part-time, and low income categories provides a composite measure of *economic underemployment* because of its direct link with labor market earnings (Clogg, 1979).

The underemployment categories are ranked from most to least hardship in the order of involuntary unemployment, unemployment, involuntary part-time, employment at low income, and occupational mismatch. The sum of all under employment measures is possible because people are counted only once.

The Research

Our underemployment analysis uses data taken from the 1987 and 1988 North Dakota Rural Life Poll, and a 1990 rural labor market survey of the respondents of the Rural Life Poll. In January and February of 1987, 948 questionnaires were mailed to a random sample of small-town residents throughout North Dakota. The sampling frame was obtained from the telephone directories for communities which were designated as nonmetropolitan. A total of 481 useable questionnaires were returned for a 51 percent response rate.

In 1988 the number of respondents to the poll was expanded to approximately 2,100 each for the small town and farm operator samples of the poll. The sampling frame used for farm residents was the ASCS county

operator lists. In January and February of 1988, 4,247 questionnaires were mailed to the farm operators and small town residents. Of the 4,247 questionnaires mailed, a total of 1,824 useable questionnaires were returned for an overall response rate of 45.3 percent. In February 1989, 4,288 labor market surveys were mailed to farm and small town respondents of the Rural Life Poll. From the 4,288 questionnaires mailed out, 1,709 were returned completed for an overall response rate of 43.1 percent. Although the response rates may be considered low by usual standards, a comparison of respondents' demographic characteristics with available census data demonstrates that they resemble the population from which they were drawn.

Results

Trend analysis of underemployment

The underemployment rate for small town residents was 21.2 percent in 1990 compared to about 26.9 percent in 1988 and 25.1 percent in 1987. For farm residents, the 1990 rate at 18.8 percent is lower than the 1988 rate of 22.4 percent. Underemployment rates for farm residents were not collected in 1987.

Among small town residents the discouraged worker rate decreased from 8.4 percent in 1987 to 5.6 percent in 1990. The involuntary part-time rate also decreased from 8.6 percent in 1987 to 6.2 percent in 1990. The unemployment rate increased to 10.2 percent in 1988 from 8.1 percent in 1987; after 1988 it decreased to 9.4 percent. The data are presented in Figure 2 (see Appendix A for Figure 2).

Similar to the small town residents, the discouraged worker rate for farm residents decreased from 8.7 percent in 1988 to 5.4 percent in 1990, and the unemployment rate increased from 7.6 percent to 8.1 percent. Like the small town residents, the involuntary part-time rate among farm residents decreased to 5.2 percent in 1990 from 6.1 percent in 1988. The data are

presented in Fig. 3 (see Appendix A for figure 3).

Comparison of Official with LUF Unemployment Rates

A comparison of the official unemployment rate with the rate calculated from the Rural Life Poll data reveals differences of one to 4.5 percent in employment rates for small town residents and two to three percent difference for farm residents. The data are presented in Figure 4 (see Appendix A for Figure 4).

One reason for the discrepancy between official and survey rates may be that the building block method that the Bureau of Labor Statistics provides to Job Service to calculate unemployment rates at the substate level maybe insensitive to rural unemployment (Pederson, 1985). This methods relies on unemployment insurance data and information from Job Service's monthly survey of nonfarm wage and salary employment. Many of the rural unemployed may not have been covered by unemployment insurance or were formerly working in farm-related jobs. Thus, they are not included in either the unemployment insurance data or the survey data. For instance, self-employed (family farmers) and independent contractors are not covered by unemployment compensation. For farm workers to be covered by unemployment compensation, the farm has to employ 20 workers for 20 weeks with a minimum of \$20,000 a quarter total cash equivalent payment.

Job Search Activities of the Underemployed

Data from the survey that shows that only half of the unemployed respondents reported checking with the public employment agency for job leads. The data are presented in Figure 5 (see Appendix A for Figure 5). One may conclude that the major reason for most unemployed to register with Job Service is to collect unemployment insurance compensation.

Data from the survey indicate that the unemployed tend to make use of a variety of sources of information on job leads when they are unemployed.

Two-thirds of the small town and farm residents who were unemployed and looking for work tended to make direct contact with employers. Slightly more than half of those looking for work checked with public employment agencies.

Farm and small town residents differed in their use of friends and neighbors as job information sources. About 60 percent of the farm residents asked friends and neighbors for job leads while almost 50 percent of small town residents did so. Farm residents answered advertisements more often than did small town residents (37 and 32 percent, respectively).

Employment at Low Income and Occupational Mismatch

In 1990, we included two additional measures of underemployment: employment at low income and occupational mismatch. Data on these variables are included in Table 1.

Table 1
Employment at Low Income and Occupational Mismatch

Occupation	Low Income		Mismatch	
	Farm	Small Town	Farm	Small Town
Professional	00.1	01.4	02.6	00.0
Managers & Admin.	00.7	00.5	01.1	03.8
Sales Workers	00.1	00.3	00.3	00.2
Clerical	00.5	00.8	03.0	04.1
Craftsmen	00.6	02.8	00.0	00.0
Operatives	00.2	01.1	00.0	00.0
Transport	00.1	00.6	00.9	02.5
Laborers	01.1	01.0	04.1	00.0
Farmers	01.5	00.3	21.1	05.5
Service Workers	01.4	01.7	02.2	03.0
Total	04.3	05.4	31.8	29.7
Number	37	55	428	303

Of the rural residents, 5.4 percent were employed at low income and 3.0 percent of the farm residents were employed at low income. When those workers employed at low income were broken out by occupation, farmers and service workers had the highest rate of employment at low income.

Occupational mismatch (Table 1) refers to the extent to which a worker's education is higher than the national average for workers holding a similar occupation. Thirty-two percent of the farm residents and 30 percent of rural residents were classified as occupationally mismatched. About one in three rural workers has more education than the national average for that occupation. When those workers who were occupationally mismatched were broken out by occupation, farmers showed the highest rate of occupational mismatch followed by clerical and service workers.

Economic Underemployment

The sum of categories 1 through 4 provides a composite measure of "economic underemployment" because of its direct link with labor-market earnings (Clogg, 1979). The data are reported in Figure 6 (see Appendix A for Figure 6). Approximately 25 percent of both small town and farm residents are classified as economically underemployed. About one in four workers in rural North Dakota is economically underemployed.

Total Underemployment

The sum of these categories provides a composite measure of underemployment. When the occupational mismatch rate is added to the previous figures, small town residents have a total underemployment rate of 57 percent while farm residents have a total rate of 56 percent, as shown in Figure 7 (see Appendix A for Figure 7). About three-fifths of rural workers are underemployed by this calculation. Compared to national rates for nonmetropolitan underemployment (Lichter and Costanzo, 1986), the state has higher underemployment rates in every category except employment at low income.

Discussion and Conclusions

The purpose of this paper has been to track three measures of rural underemployment in North Dakota and to add two new measures of underemployment to the composite measure. A comparison of underemployment as composed of the unemployed, the discouraged, and the involuntary part-time rates from 1987 to 1990 demonstrates that there has not been an appreciable change in total underemployment.

Among small town residents, the discouraged and involuntary part-time rates declined while the unemployed rate increased and then decreased between 1987 and 1990. Among farm residents, the discouraged and involuntary part-time rates declined while the unemployed rate increased.

Although the official unemployment rate for nonmetro North Dakota has declined from a high of 8.4 percent in 1985 to 5.1 percent in 1989, the lack of change in the total measure of rural underemployment as measured by survey data casts doubt on any significant improvement in rural economic well-being.

A comparison of the official unemployment rates for nonmetro areas with the survey rates demonstrated that in every year, the small town resident's unemployment rate exceeded the official rate. The farm resident's unemployment rate exceeded the official rate in 1990. This comparison casts doubt on the utility of using the official rate as any barometer of rural economic distress.

One reason given for the higher rates found in survey data is that the Bureau of Labor Statistics procedures for calculating unemployment may be insensitive to the rural unemployed. Relying on unemployment insurance claims and survey of nonfarm wage and salary employment may ignore the number of workers in jobs not covered by unemployment compensation or farm-related employment.

Data from the survey indicate that only one-half of the rural unemployed ever make use of Job Service of North Dakota's services. The

major reason for making use of Job Service may be to register for unemployment compensation.

While the survey did not ask rural underemployed why they did not make use of Job Service of North Dakota, one may conclude that because most of Job Services offices are located in the larger cities, few businesses in rural areas ever advertise job openings through the public employment service. Perhaps Job Service should contemplate a more aggressive campaign to have employers list their openings with them, and Job Service should consider a more effective rural outreach program to the underemployed.

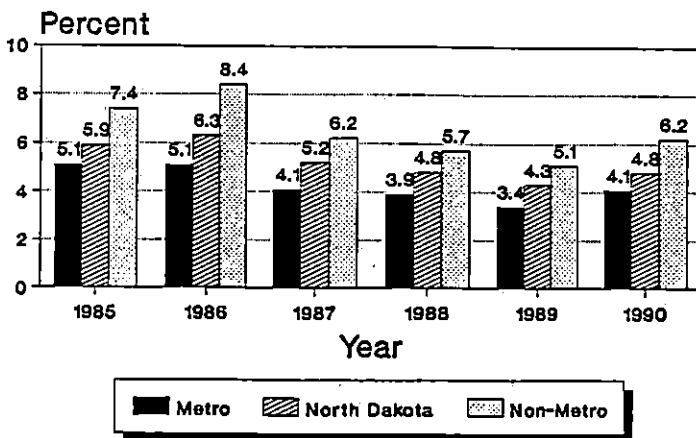
Approximately one in three full-time rural workers has education above the national average for people employed in the same occupation. This fact demonstrates that rural North Dakotans are a very well educated workforce and should be an attraction for industries contemplating relocation or for a new industry starting up in nonmetro areas of the state.

When the unemployment, discouraged, involuntary part-time, and employed at low income rates are summed, we find that one in four workers are classified as economically underemployed. When nearly 25 percent of the rural labor force is classified as economically underemployed, one again should consider whether recent proclamations that the rural crisis is over are accurate.

When all measures of rural underemployment are tallied, nearly three out of five rural residents can be considered to be underemployed. Compared to national rates for nonmetropolitan underemployment (Lichter and Costanzo, 1986), the state has higher underemployment rates in every category except employment at low income. The comparison with national figures shows that rural North Dakota has an excessively high rate of rural underemployment. These high rates demonstrate the necessity for an economic development program especially tailored for the needs of rural areas.

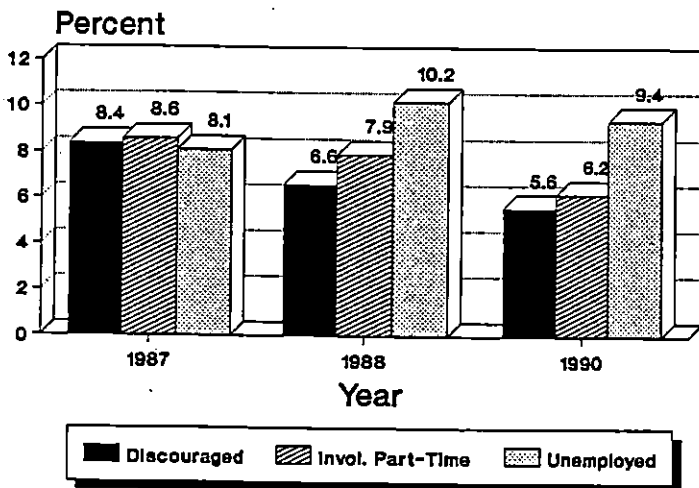
Appendix A

Fig 1. Unemployment 1985-1990
Metro, North Dakota & Non-Metro



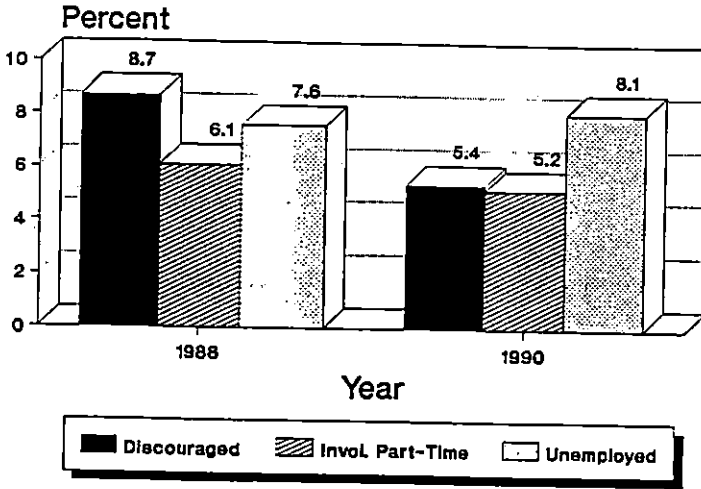
Source: ND Job Service 1985-90

Fig. 2. Small Town Underemployment



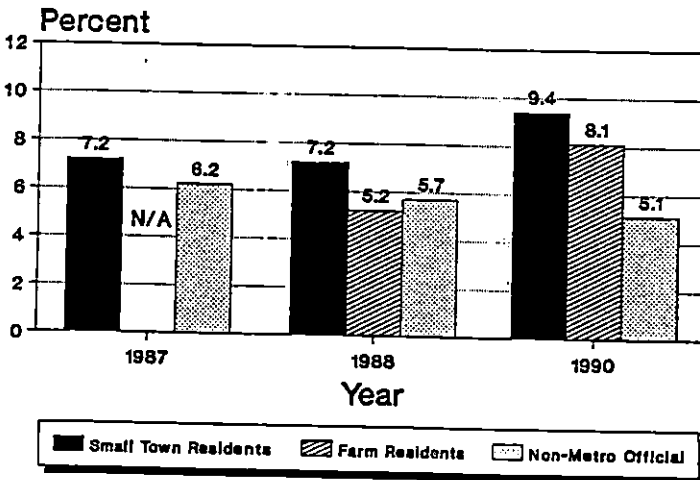
Source: SSRI Rural Life Polls 1987-90

Fig. 3. Farm Underemployment



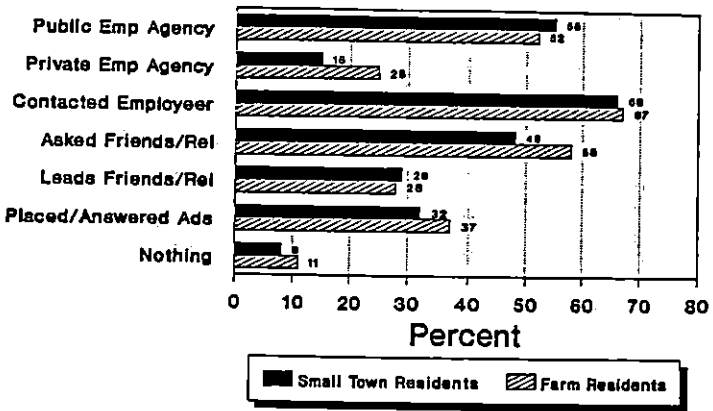
Source: SSRI Rural Life Polls 1988 1990

Fig. 4. Official & LUF Unemployment Rate



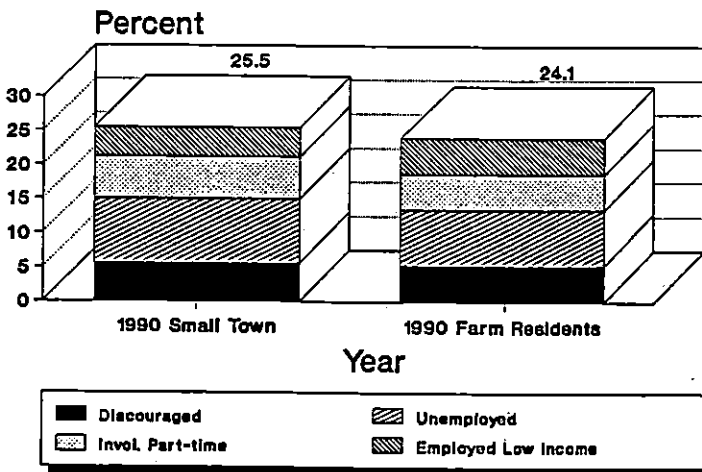
Source: Job Service, Rural Life Polls

Fig. 5. Percent Using Job Search Activities



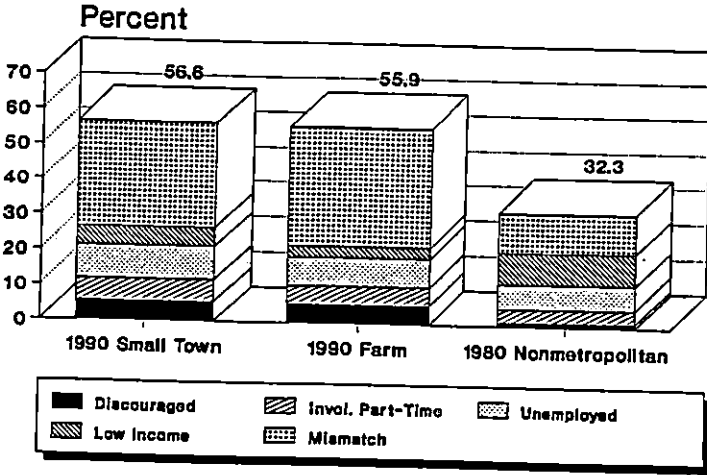
Source: SSRI Rural Life Poll 1990

Fig. 6. Economic Underemployment



Source: SSRI Rural Life Poll 1990

Fig. 7. Total Rural Underemployment



Source: SSRI, Lither & Costanzo

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