

Rural Labor Markets Often Lead Urban Markets in Recessions and Expansions

Rural labor markets respond quickly to business cycle movements, and appear to show signs of recession and expansion before urban labor markets. The rural and urban unemployment rates, on the other hand, show about the same degree of response to changes in gross domestic product. Some rural labor market groups—part-time for economic reasons workers and discouraged workers—respond less to business cycle movements, so that an expansion is less likely to benefit these individuals than those in urban areas.

In the 1970's, rural areas experienced economic prosperity and population growth. Rural areas did not fare as well in the 1980's, and the 1980 and 1981-82 recessions appear to have hit rural areas harder than urban areas. The rural unemployment rate reached a high of 10.9 percent at the end of 1982, and did not decline to its prerecessionary level until 1988 (fig. 1). With the recession of 1990-91, some analysts expected that the rural unemployment rate would again soar above the urban rate. Instead, while both urban and rural areas were affected by the recession, the rural unemployment rate rose less and declined more rapidly after the recession than did the urban rate. In 1991, the rural unemployment rate dropped below the urban rate. Rural economic improvement is thought to be largely responsible for the net inflow of population to nonmetro counties in the first half of the 1990's.

This article analyzes the response of the rural labor market over the course of the business cycle. It uses the National Bureau of Economic Research dates for business cycle peaks—the end of the expansion and the beginning of recession—and troughs—the last period of recession and the beginning of expansion. Business cycle contractions—the recessions—are of particular interest, especially the last two recessions. Why was the rural labor market experience different after the recession of 1990-91 than

after the recessions of 1980-82? Was the observed phenomenon a normal part of the business cycle, or was something else causing the high rural unemployment of the mid-1980's? Is the rural labor market more or less sensitive to the business cycle than the urban labor market?

Four Important Indicators Measure Labor Market Health

This article examines four labor market measures that can be analyzed specifically for nonmetro areas: unemployment rate, employment level, underemployment rate, and part-time for economic reasons rate. The unemployment rate is one of the aggregated indicators often used to characterize the economy. The unemployment rate and the employment level are considered coincident indicators; that is, they move in sync with the business cycle.

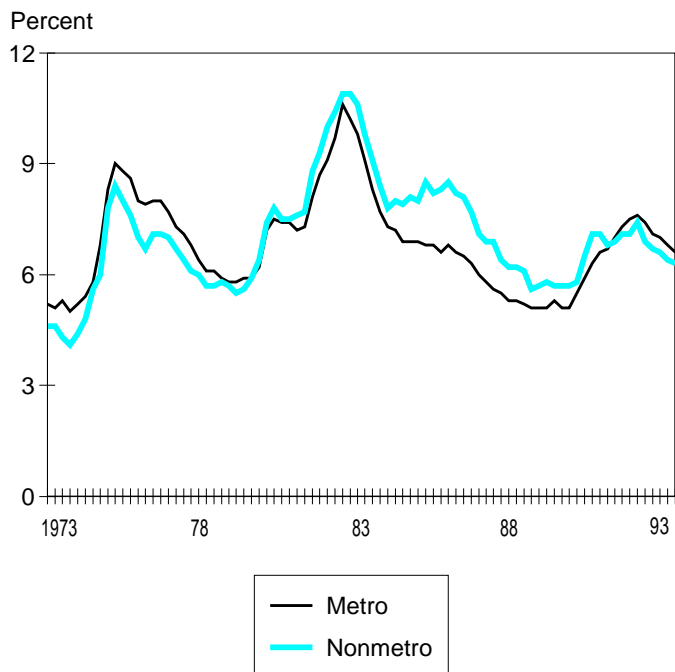
One leading indicator of a recession is average workweek length in the manufacturing sector. This is a leading indicator because employers frequently adjust current employees' workweek hours before they hire new workers or layoff employees. At the beginning of an expansion, employers may lengthen the workweek before they incur the cost of hiring new employees. The category part-time for economic reasons serves as a proxy to average workweek. In a recession, employers may cut employees' hours from full-time to part-time in order to avoid laying anyone off.

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The underemployment rate is of interest because nonmetro areas have disproportionately more underemployed individuals. The underemployment rate measures labor market distress better than the unemployment rate. For our purposes, underemployment includes only (1) the group part-time for economic reasons (PTE) workers, who wish to work full-time but only part-time work is available, and hence are underemployed by low hours of work; and (2) the group of discouraged workers, those who are out of work and available for work, but are no longer looking for a job because they believe none are available. These workers are not counted as in the labor force or as unemployed. PTE and discouraged workers were analyzed separately from the unemployed in order to see if the observed labor market behavior of these groups differs from the unemployed.

These four indicators were observed for the last three recessions. As might be expected, employment levels increased before recessions (except for nonmetro areas before the 1990-91 recession), decreased during the recession, and increased in the post-recession period. Unemployment and underemployment rates increased during recessions and declined afterwards in expansions. The PTE rate behaved like a leading indicator; that is, it increased before each recession. Perhaps employers cut employees' hours from full-time to part-time as orders started to level off or decline, which may have occurred before the national economy reached the business cycle peak.

Figure 1
Nonmetro and metro unemployment rate, 1973-93
 Nonmetro unemployment rate was greater than the metro rate during the 1980's



Source: Calculated by ERS using data from the Current Population Survey, Bureau of Labor Statistics, U.S. Department of Labor.

Nonmetro Labor Market Often Takes the Lead in Business Cycle Movements

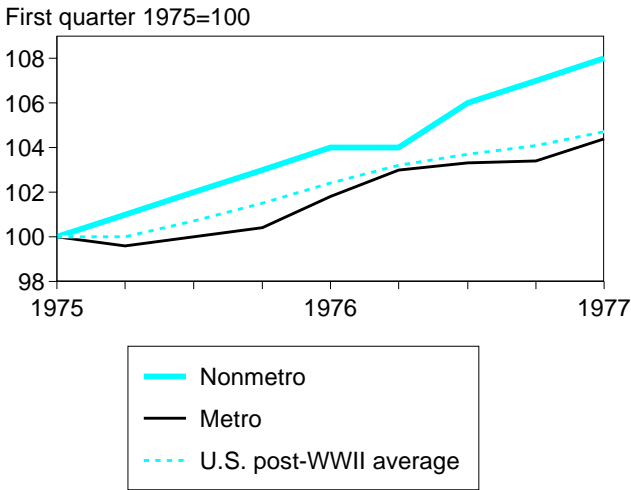
Nonmetro areas appear to lead metro areas both into and out of recessions. Nonmetro labor market behavior was quicker or stronger than metro behavior in most cases during the last three business cycles at the various phases of the cycle for the four indicators discussed above.

To illustrate, nonmetro employment growth led or matched metro in the last three expansions. By indexing employment levels, metro and nonmetro employment growth can be easily compared. Also included in the comparison is the U.S. average over the last 8 business cycles—the post-World War II (WWII) experience—which is a standard comparison when looking at business cycles. After the recession of 1973-75, nonmetro employment growth surpassed metro and the U.S. post-WWII average during the first 2 years of the expansion (fig. 2). Indeed, nonmetro employment growth was just under 8 percent over 1975-77, compared with the 4-percent growth of metro areas and the U.S. post-WWII average. In the first 2 years of the expansion following the 1980-82 recessions, nonmetro areas matched metro areas in terms of employment growth, about 7 percent, and both did better than the U.S. post-WWII average (fig. 3). After the last recession, neither metro areas nor nonmetro areas were able to generate enough jobs to match the U.S. post-WWII average experience. However, nonmetro areas did increase employment by about 4 percent over the first 2 years of the expansion while metro employment levels were stagnant (fig. 4).

Although national labor series data tends to be coincident to or lag business cycle movements, nonmetro labor series may be a leading indicator for metro, and consequently U.S., labor market behavior. Why would the nonmetro labor market respond more quickly to business cycle movements than the metro labor market? Probably because nonmetro areas have disproportionately more people employed in the goods-producing industries—agriculture, mining, manufacturing, and construction. For nonmetro areas in 1993, about 32 percent of the labor force was employed in the goods-producing sector, versus about 18 percent for metro areas. Similarly, a larger share of the nonmetro labor force was in occupations that would be expected to be more sensitive to business cycle movements. In 1993, about 54 percent of the nonmetro labor force was in service; agricultural; precision production, craft, and repair; or operators, fabricator, and laborer occupations. This compares with only 39 percent in the metro labor force. These are occupations where employees are likely to be paid hourly wages rather than salaries, and employees typically incur reductions in hours or layoffs when demand is slack. Consequently, nonmetro labor statistics form a composite of leading industries and occupations.

Figure 2
Index of employment over the first 2 years of the expansion following the 1973-75 recession

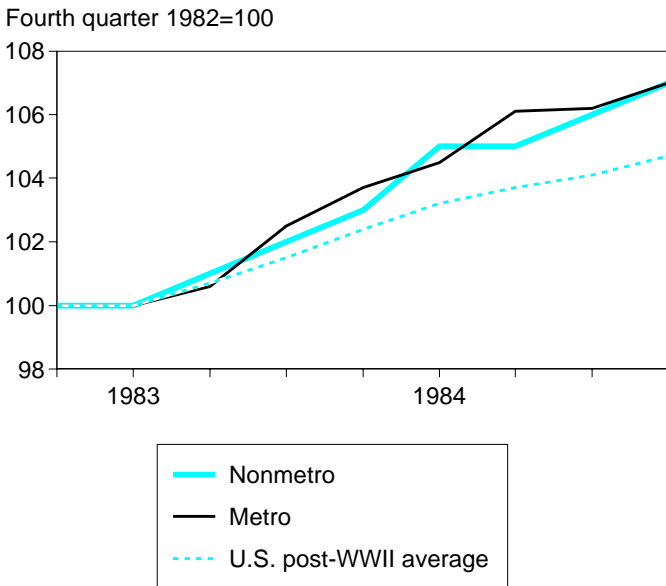
Nonmetro employment growth surpassed metro, attaining almost 8-percent growth in the first 2 years of the expansion



Source: Calculated by ERS using data from the Current Population Survey, Bureau of Labor Statistics, U.S. Department of Labor.

Figure 3
Index of employment over the first 2 years of the expansion following the 1980-82 recessions

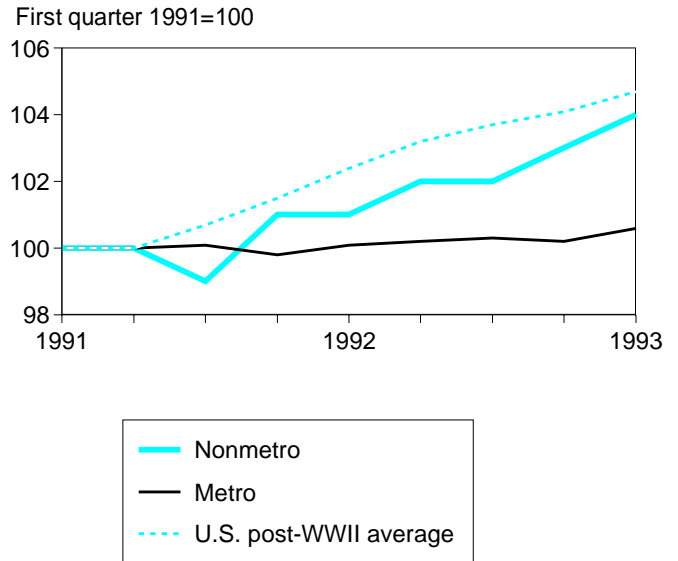
Nonmetro employment growth matched that of metro in the first 2 years of the expansion



Source: Calculated by ERS using data from the Current Population Survey, Bureau of Labor Statistics, U.S. Department of Labor.

Figure 4
Index of employment over the first 2 years of the expansion following the 1990-91 recession

Nonmetro growth was about 4 percent after the first 2 years of the expansion, while metro employment grew little



Source: Calculated by ERS using data from the Current Population Survey, Bureau of Labor Statistics, U.S. Department of Labor.

After a Quick Start, Rural Recovery in the 1980's Was Slowed by the Rising Dollar and High Interest Rates

If the nonmetro labor market responds so quickly to the business cycle, why did the nonmetro unemployment rate remain at about 8 percent for so long during the expansion of the 1980's? One explanation is found by looking at the exchange rate. The nonmetro labor market is more sensitive to exchange rate movements and appears more export-dependent than metro areas. Figure 5 shows the nonmetro unemployment rate against the exchange rate as measured by the Federal Reserve Board's index of the value of the U.S. dollar (nominal). As the nonmetro unemployment rate was declining, the value of the dollar increased and peaked in the first quarter of 1985. When the dollar attained its highest values, the nonmetro unemployment rate still remained around 8 percent. In 1986, six quarters after the value of the dollar fell, the nonmetro unemployment rate started to decline again. This lag is expected because the effect of a change in the exchange rate is not felt immediately. An exchange rate movement takes about 2 years to fully work its way through the rural economy, although most of the effect occurs within 12 to 18 months. Therefore, the rising value of the U.S. dollar from 1982 to 1984, and the declining, but still high, U.S. dollar value through 1986 helped keep the nonmetro unemployment rate high relative to the metro rate until 1988.

A second possible explanation for the nonmetro unemployment rate remaining at a high 8 percent during an expansion is that the credit crunch of the early 1980's affected nonmetro areas disproportionately more than metro areas. In particular, the tight credit markets were an important contributing factor to the depressed farmland values seen in the early- to mid-1980's. Before the third quarter of 1985, the nonmetro unemployment rate was more sensitive than the metro unemployment rate to the real prime interest rate. Figure 6 shows the real prime rate and the nonmetro unemployment rate, and indeed, the real prime was fairly high during the nonmetro unemployment rate's plateau.

Metro and Nonmetro Unemployment Rates Show Similar Response to Changes in the GDP

Unlike the timing of business cycle responses, the degree of response in unemployment rates is similar in metro and nonmetro areas. To understand why this is so, it is first necessary to look at what makes the unemployment rate change. The unemployment rate moves over the business cycle as employment increases during an expansion and decreases in a recession. Additionally, the unemployment rate changes as individuals move into and out of the labor force. In a recession, some individuals may want jobs, but believing no jobs are available, stop searching for a job; hence, they are no longer counted as part of the labor force. They are classified as discouraged workers. When the economy picks up and employers start hiring again, many of these people will rejoin the labor force by searching for a job. The initial surge in the unemployment rate at the beginning of an expansion is due to this phenomenon—more people in the labor force—and is considered a sign of workers' confidence in the labor market.

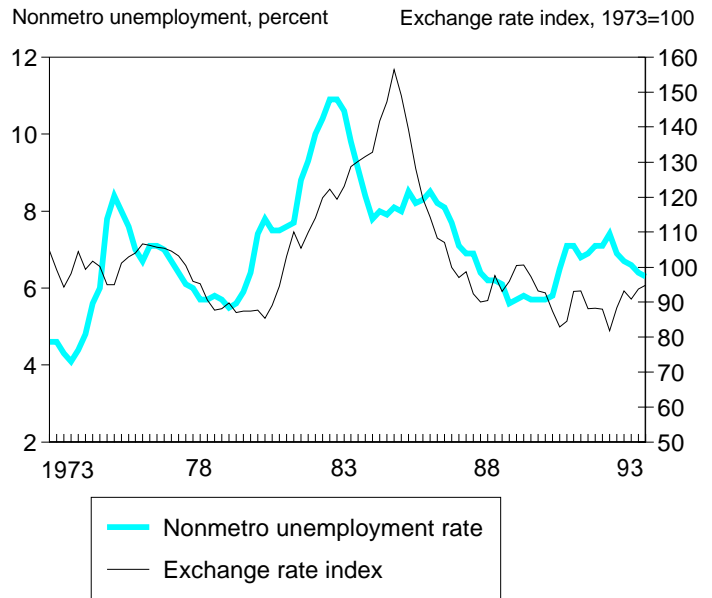
The cyclical movement of the unemployment rate is due, then, to two factors: employment changes and labor force participation changes. Understanding how much of the cyclical variation is due to each is useful in understanding the dynamic of the labor market.

An analysis of labor market behavior over the last three business cycles (1973-93) found that a 1-percentage point increase in real Gross Domestic Product (GDP) (1992 dollars) increased the nonmetro employment rate—the percentage of the labor force employed—by 1.61 percent (see table 1). The employment rate is the mirror of the unemployment rate since the number of workers employed plus those unemployed equals the total labor force. The response is about the same when looking at the earlier years versus the more recent years. The metro response is about the same as the nonmetro response.

For the 1985-93 period, with an average 93.2 percent of the nonmetro labor force employed, a 1-percentage-point increase in GDP increased the employment rate by 1.72

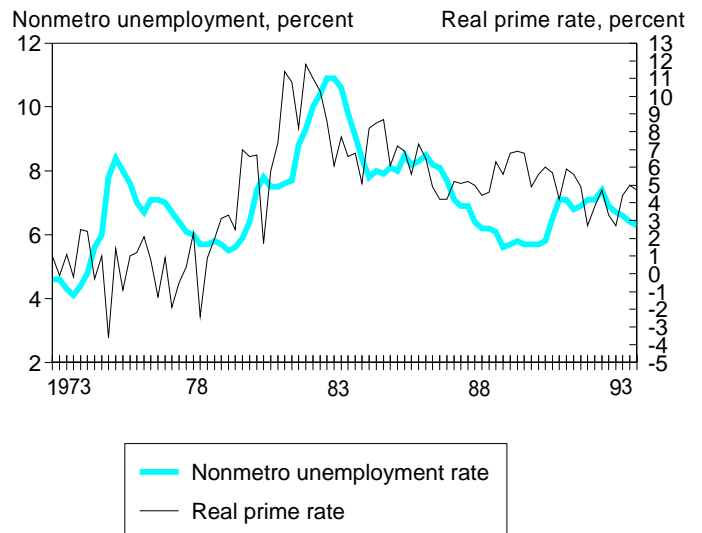
percent, to 94.8 percent. Since the number employed plus the number unemployed equal the total labor force, the unemployment rate is derived by subtracting the employ-

Figure 5
Nonmetro unemployment rate and the value of the dollar as measured by the exchange rate index
Nonmetro unemployment rate declined in 1986 following the decline of the U.S. dollar



Source: Current Population Survey, Bureau of Labor Statistics, U.S. Department of Labor and the Federal Reserve Board.

Figure 6
Nonmetro unemployment rate and the real prime rate
The high real prime rate of the mid-1980's may have kept the nonmetro unemployment rate high



Source: Current Population Survey, Bureau of Labor Statistics, U.S. Department of Labor, and the Federal Reserve Board.

ment rate from 100. Thus, the result of a 1-percentage-point increase in GDP is a lowering of the nonmetro unemployment rate from 6.8 percent to 5.2 percent, a considerable improvement.

The nonmetro labor force participation rate was found to increase by about 0.66 percent as a result of a 1-percentage-point increase in GDP for the entire period. This response is about the same for the earlier years as for the more recent years. For the more recent period, a 1-percentage-point increase in GDP increased the nonmetro labor force participation rate from an average of 62.6 percent to 63.0 percent. This represents an increase of about 167,000 people joining or rejoining the nonmetro labor force due to improved economic conditions.

The cyclical response of the employment/unemployment rate was consistently larger than that of the labor force participation rate. This is as expected since a change in aggregate demand would be expected to result mainly in a change in employment.

Nonmetro Underemployment Benefits Less from an Expansion Than Metro Underemployment

During a cyclical downturn, the involuntary part-time work force (referred to as part-time for economic reasons, or PTE) usually increases, as employers cut back on hours instead of, or in addition to, laying off workers. The number of discouraged workers (those who want jobs but believe none are available, and have quit looking) also grows in a slack labor market.

The cyclical response for PTE and discouraged workers was analyzed by looking at movement in the unemployment rate (see table 2). The nonmetro estimates are smaller than the metro estimates, indicating less of a response to aggregate demand movements. An expansion would

then be expected to benefit the PTE and discouraged worker groups in metro areas more than in nonmetro areas. Consequently, nonmetro areas would see less of a reduction in these underemployment groups than metro areas.

A decrease in aggregate demand that results in a 1-percentage-point increase in the nonmetro unemployment rate raised the level of part-time for economic reasons relative to the labor force by an estimated 7.57 percent for the 1985-93 period. With an average of 1,485,200 PTE in nonmetro areas, this translated into an increase of 112,400 people "bumped" from full-time work to part-time work. Therefore, in an economic downturn, not only does the unemployment rate increase, but the number of individuals underemployed, as measured by PTE, increases as well. Likewise, a 1-percentage-point increase in the nonmetro unemployment rate would bring about an expected increase of 14.31 percent in the discouraged worker share of the nonmetro labor force. With an average of 300,500 nonmetro discouraged workers in the 1985-93 period, this would represent an increase of about 43,000 individuals who wanted a job but stopped looking because they believed no job was available.

Rural Labor Market Behavior Has Implications for Policy

The nonmetro labor market leads metro areas in responding quickly to business cycle movements. Indeed, the nonmetro labor series may be a leading indicator for the metro labor series. At the onset of a recession, nonmetro areas can expect to see the unemployment rate rise more rapidly than that of metro areas. On the up side, during an expansion, the nonmetro labor market situation would be expected to improve more quickly than that of the metro market.

Table 1

Cyclical response of the labor force participation rate and the employment rate, using a 1-percentage-point change in real GDP (1992 dollars)

Nonmetro response to changes in real GDP about the same as metro response

Time period	Labor force participation rate	Employment rate
Nonmetro:		
1973-93	0.66	1.61
1973-85	0.62	1.77
1985-93	0.69	1.72
Metro:		
1973-93	0.49	1.57
1973-85	0.46	1.70
1985-93	0.16	1.38

Note: In 1983, the classification of counties as nonmetropolitan was changed by the U.S. Office of Management and Budget as a result of the 1980 census. The reclassification was incorporated into the Current Population Survey data starting in the third quarter of 1985.

Source: Estimates made from Current Population Survey data.

Table 2

Estimates of how much a 1-percentage point change to the unemployment rate affected the rate of underemployment

Nonmetro PTE and discouraged workers benefited less from an expansion than corresponding metro workers

Time period	PTE as a share of labor force	Discouraged workers as a share of labor force
Nonmetro:		
1973-93	8.07	14.98
1973-85	7.68	12.79
1985-93	7.57	14.31
Metro:		
1973-93	9.21	15.10
1973-85	8.94	14.64
1985-93	10.86	15.38

Note: In 1983, the classification of counties as nonmetropolitan was changed by the U.S. Office of Management and Budget as a result of the 1980 census. The reclassification was incorporated into the Current Population Survey data starting in the third quarter of 1985.

Source: Estimates made from Current Population Survey data.

The nonmetro experience of the 1980's—the high unemployment rates though the expansion—was a result of the particular financial market conditions of the mid-1980's—the high value of the dollar and high interest rates—and not a business cycle phenomenon. Likewise, the financial market situation was more favorable for nonmetro areas in the early 1990's, with a low valued dollar and strong exports, so they were not hit as hard as metro areas in this last recession. However, there does not appear to be anything inherent in business cycle movements that affects nonmetro areas in either a negative or a beneficial way. There was some concern in the early 1990's that nonmetro areas would be affected more by the recession because of the previous recession experience.

Although nonmetro areas respond faster to business cycles movements, the nonmetro unemployment rate is about equally responsive to changes in aggregate demand—gross domestic product—as the metro unemployment rate. This means that an increase in aggregate demand will decrease the nonmetro unemployment rate by about the same percentage as the metro rate. This result accounts for both the increase in employment and increase in the labor force that occurs as individuals join or rejoin the labor force by searching for a job at a time of increased optimism in the economy. The importance of this result is that general macroeconomic policies, such as deficit spending that does not result in increased interest rates, or increasing the rate or growth of the money supply, cannot be expected to affect metro and nonmetro employment or unemployment differently. Nonmetro areas would be expected to see the benefits of a reduced unemployment rate as a result of an expansionary fiscal or monetary policy just as metro areas would.

Finally, some underemployed nonmetro groups are less responsive to business cycles movements than the corre-

sponding metro groups. These groups are part-time for economic reasons workers and discouraged workers. Labor market distress is more persistent for these groups. They would see less of a benefit during an expansion than the same groups in metro areas. Therefore, macroeconomic policies would be less effective in reducing nonmetro underemployment than policies targeted to regions or to particular demographic or income groups.

For Further Reading . . .

Michael T. Belongia and Michelle R. Garfinkel, *The Business Cycle: Theories and Evidence: Proceedings of the Sixteenth Annual Economic Policy Conference of the Federal Reserve Bank of St. Louis*, Boston: Kluwer Academic Publishers, 1991.

Karen S. Hamrick, *Macroeconomic Impacts on Nonmetro Unemployment: Preliminary Research*, Staff Report No. AGES 9141, USDA-ERS, August 1991.

_____, "Rural Unemployment Sensitive to Exchange Rates," *Rural Conditions and Trends*, Vol. 3, No. 2, USDA-ERS, 1992, pp. 10-11.

George L. Perry and Charles L. Schultz, "Was This Recession Different? Are They All Different?," *Brookings Papers on Economic Activity*, No. 1, 1993, pp. 145-211.

Lawrence H. Summers, *Understanding Unemployment*, Cambridge, MA: The MIT Press, 1990.

Victor Zarnowitz, *Business Cycles: Theory, History, Indicators, and Forecasting*, Chicago: University of Chicago Press, 1992.

Data and Methodology

Labor force data used are from the Current Population Survey (CPS). The CPS is a monthly survey of households, which is conducted by the Bureau of the Census for the U.S. Department of Labor (DOL). Labor force information collected is based on respondents' work activity during 1 week each month. The CPS is monthly; however the metro/nonmetro data are quarterly, covering the period from 1973 to 1993.

The *labor force* is, by definition, the sum of the employed and the unemployed. The *unemployment rate* used here corresponds to the DOL Bureau of Labor Statistics (BLS) official unemployment rate: the total unemployed as a percent of the civilian labor force.

The group *part-time for economic reasons (PTE)* are workers who wish to work full-time where only part-time work is available. Although these workers are counted as employed, they are partially unemployed, or more accurately underemployed, since they are working fewer hours than they wish. Employers frequently cut back on workers' hours when general economic conditions are unfavorable. This group is to be distinguished from part-time workers, who are working part-time by choice. One-half of PTE workers was used in order to calculate a full-time equivalent measure of unemployment.

Discouraged workers are those who desire a job, believe that none are available, and thus have quit job hunting. Since, at the time of the survey, they had not looked for a job during the previous 4 weeks, they are not counted as part of the labor force and so are not classified as unemployed.

BLS does not seasonally adjust the CPS data. The U.S. Department of Agriculture seasonally adjusts the data using the multiplicative X-11 ARIMA method. The nonmetro series appear to be more seasonal than the metro or the total U.S. series, partly due to the agriculture industry, but also because of recreational areas in nonmetro counties.

In the text, "nonmetro" and "metro" are used interchangeably with "rural" and "urban." *Metro* areas are defined by the Office of Management and Budget as core counties containing a city of 50,000 or more people or an urbanized population of at least 50,000 with a total area population of at least 100,000. Additional contiguous counties are included in the Metropolitan Statistical Area if they are economically and socially integrated with the core county. *Nonmetro* areas are counties outside metro area boundaries. In 1983, the classification of counties as nonmetropolitan was changed by the U.S. Office of Management and Budget as a result of the 1980 census. The reclassification was incorporated into the CPS data starting in the third quarter of 1985. The reclassification reduced the nonmetro labor force by about 30 percent as 149 counties changed from nonmetro to metro status. (Forty-eight counties changed from metro to nonmetro at that time.) This large change in counties' classification was due to both population movements in the 1970's and a change in the metro definition. Since county-level CPS data are not available, constructing a series using a consistent nonmetro definition is not possible.

The National Bureau of Economic Research (NBER) dated business cycle peaks—the end of the expansion and the beginning of recession—and troughs—the last period of recession and the beginning of expansion. NBER identifies the recessions since 1973 as the fourth quarter of 1973 to the third quarter of 1975, the first quarter of 1980 to the third quarter of 1980, the third quarter of 1981 to the fourth quarter of 1982, and the third quarter of 1990 to the first quarter of 1991. However, here the 1980-82 recessions will be counted as one recessionary period. A good definition of *business cycle* is the Burns and Mitchell one:

Business cycles are a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises: a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions, and revivals which merge into the expansion phase of the next cycle; this sequence of changes is recurrent but not periodic; in duration business cycles vary from more than one year to ten or twelve years; they are not divisible into shorter cycles of similar character with amplitudes approximating their own. (Belongia and Garfinkel.)

Descriptive analysis was done to analyze the timing of the metro/nonmetro labor market response to business cycle movements. Each series was analyzed at all phases of the business cycle. The methodology used follows Perry and Schultz and standard practice in the business cycle literature.

For estimating the cyclical response of employment and the labor force participation rate, the methodology follows that of Summers. The cyclical movement of the unemployment rate is decomposed into the movement of employment and the labor force movement. Ordinary least squares (OLS) regressions were run on the resulting equations, using the Cochrane-Orcutt first-order autocorrelation correction. Gross domestic product was used as a measure of aggregate demand. In addition, the seemingly unrelated regression estimation technique was used. Estimates were also done using the unemployment rate of males aged 35-44 as a proxy for aggregate demand. These estimates on GDP are presented here.

For the cyclical responses of part-time for economic reasons and discouraged workers, OLS regressions were run using the unemployment rate as a measure of aggregate demand. The metro unemployment rate was used for the metro estimates; the nonmetro rate was used for the nonmetro estimates. The Cochrane-Orcutt first-order autocorrelation correction was used.