Introduction

Thomas Hyclak
Lehigh University

Geraint Johnes
University of Lancaster

Chapter 1 (pp. 1-16) in:
Wage Flexibility and Unemployment Dynamics in Regional Labor Markets
Thomas Hyclak and Geraint Johnes
Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 1992

Copyright ©1992. W.E. Upjohn Institute for Employment Research. All rights reserved.
1

Introduction

Periods of high unemployment are generally accompanied by intensive economic research into the causes of and potential cures for unemployment. This was certainly the case during the decade of the 1980s, which witnessed a sharp increase in the number of empirical and theoretical analyses focused on labor market behavior in general and unemployment in particular. The research was motivated by both macroeconomic and regional unemployment issues.

The marked rise and stubborn persistence of the unemployment rate in most European countries during the 1980s led to renewed macroeconomic interest in the performance of aggregate labor markets. This literature has been intensively surveyed by Klau and Mittelstadt (1986), Helliwell (1988), and Gordon (1990a). The problem of unemployment persistence led most empirical and theoretical studies to focus on the question of wage rigidity, since persistent unemployment implies the failure of the self-correcting properties of wage adjustment. While the concept of wage rigidity has long played a central role in both classical (Pigou 1913) and Keynesian (Keynes 1936) theories of unemployment, recent efforts have been directed at explaining how wage rigidity and labor market disequilibria can result from the profit- and utility-maximizing behavior of firms and workers (Davidson 1990).

There are two major policy issues in this macroeconomic research. The first is the debate over the ability of expansionary monetary and fiscal policy significantly to lower the unemployment rate (Pierre 1984). The second policy question concerns the appropriate microeconomic policy to minimize the degree of wage rigidity and labor market disequilibria. There is evidence that wage rigidity differs across countries (Coe 1985), that those countries with less rigidity also had less serious unemployment problems in the 1980s (Grubb, Jackman, and Layard
1983), and that wage rigidity appears to be related to labor market policy and industrial relations differences across countries (Layard, Nickell, and Jackman 1991).

The regional problem motivating recent labor market research was the emergence of substantial diversity in U.S. regional economic performance during the 1980s. This diversity is illustrated by references in the popular press to the shift of economic activity from the “Rust Belt” to the “Sun Belt”; the effects of defense spending and high technology industries on the “Massachusetts Miracle,” and the coexistence of “coastal” recovery with “heartland” recession. A number of studies have examined the causes of regional shifts in economic activity and the consequences of such shifts for unemployment, employment growth, and income prospects in various regions (see Markusen 1985; Clark, Gertler and Whiteman 1986; Lampe 1988; and Rodwin and Sazanami 1989). The policy issues connected to this research concern the appropriate adjustment policies to ameliorate the labor market consequences of regional change and the development strategies likely to succeed in an environment of regional change.

Thus far there have been relatively few attempts to apply the insights from aggregate labor market research to the analysis of regional unemployment. That is our focus in this book. We explore the extent to which wage rigidity differs across regional labor markets in the United States, the way in which wage rigidity affects the unemployment response to shifts in regional aggregate demand, and the determinants of differences in wage rigidity across regional labor markets. Our intent is to provide greater empirical content for the various theoretical models of wage rigidity, to enhance our understanding of the interaction of wage responsiveness and regional unemployment over the business cycle, and to provide some insight for state government policymakers who have been forced to assume greater responsibility for the design and execution of labor market policy (Leigh 1989).

**Wage Rigidity and Unemployment**

We can begin to analyze the relationship between wage rigidity and unemployment with the simple textbook supply and demand model of
the aggregate labor market used by Kniesner and Goldsmith (1987). The aim of their review article is to present some stylized facts about the cyclical behavior of labor market aggregates and to compare the way in which various theories perform relative to these facts. There are four such facts that prove essential to describing how the aggregate U.S. labor market behaves in a "typical" post-World War II recession.

(1) The fall in real GNP during a recession is accompanied by a drop in employment of similar magnitude and a rise in the unemployment rate. The unemployment rate rises by about ½ of a point for every percentage point difference between trend growth in real GNP and actual real GNP growth. This relationship between unemployment and the real GNP gap is commonly referred to as Okun's law and is one of the most consistent empirical relationships observed in macroeconomic analysis.

(2) The rise in unemployment during a recession is largely due to new firings and layoffs and represents a decrease in the number of workers with jobs. Empirically, decreases in employment are far more important than reductions in hours worked in explaining the decrease in labor inputs used during a cyclical downturn.

(3) The aggregate real wage does not decline in the face of rising unemployment during a recession. The real wage is statistically independent of the level of economic activity as measured by real GNP.

(4) The aggregate labor supply curve appears to be relatively inelastic with respect to the real wage level. Thus a decrease in labor demand coupled with rigid wages leads to disequilibrium in the labor market rather than, as some have argued, a movement along a flat labor supply curve to a lower equilibrium level of employment at which any unemployment would be voluntary.

Figure 1.1 illustrates these stylized facts in a simple supply and demand model of the aggregate labor market during a recession. The immediate cause of a rise in unemployment is the decrease in labor demand associated with falling aggregate output. However, the role of wage rigidity in explaining unemployment is immediately clear. If the labor market operated in auction-market fashion and any excess supply put immediate downward pressure on the real wage, then the effect of
the decline in labor demand on total employment, and therefore in the unemployment rate, would be much less pronounced. The level of employment in figure 1.1 would fall only from \(N_1\) to \(N_2\) instead of to \(N_3\), if the real wage fell so as to clear the market. Real wage rigidity also plays a prominent role in explaining unemployment persistence. If labor demand remains depressed for several time periods and the real wage moves slowly if at all to the market-clearing level, then the time series data on the unemployment rate will exhibit persistence — a rise in unem-
ployment in one period will not be offset by a fall in subsequent periods because the automatic adjustment mechanism in the market fails to work properly.

The analysis in figure 1.1 follows the usual textbook convention of treating labor demand and supply as determined by the real wage level in the absence of money illusion. Hence the importance of rigid real wages for the explanation of unemployment. However, the real wage is not determined in the labor market alone. Instead, labor market forces influence the money wage while the average price level reflects product market factors. Therefore, it is necessary to distinguish between nominal and real wage rigidity, which may differ in a given labor market. Our analysis focuses on the responsiveness of wage inflation to unemployment holding constant expectations about consumer price inflation. Hence, our concern throughout is with measuring and explaining regional differences in real wage rigidity.

Kniesner and Goldsmith's (1987) analysis of cyclical unemployment emphasizes the role of labor demand shifts resulting from decreased real output. Labor supply is passive in Figure 1.1, merely determining the number unemployed at any given level of demand and fixed real wage. In a regional labor market setting, however, it is possible that labor supply changes through net migration would play a more significant role in determining the unemployment rate and its persistence. However, recent studies by Topel (1986), Bartik (1991), and Holzer (1991) all conclude that shifts in labor demand dominate short-run movements in wages and employment in regional labor markets with significant mobility costs greatly lengthening the time span of labor supply adjustments through migration. In terms of figure 1.1, this means that a decrease in labor demand stemming from an economywide decrease in total spending—for example, the effects of monetary policy in the 1982 recession—would, in the short run, be treated in a similar way as a decrease in the demand for the goods of one region—for example, the effects of the fall in world oil prices in the 1986–87 recession in the “oil patch” states.

Our reading of the literature comparing aggregate labor market performance across countries leads us to add three additional stylized facts to the list provided by Kniesner and Goldsmith. There is some
empirical evidence that the results of these international comparisons also apply to contrasts among regions within countries. The additional stylized facts are:

(1) Unemployment persistence appears to be virtually ubiquitous. In a careful study of some 19 countries, Robert Barro (1988, p. 34) found that "the general picture is one of high persistence of unemployment in the post-World War II period." He measured persistence by the AR1 coefficients in a time series analysis of unemployment rates. These coefficients lie close to unity for all countries in his sample bar Sweden, indicating the general lack of a tendency for unemployment to revert to a long-run mean.

(2) Wage flexibility varies across countries and regions in a manner that is correlated with differences in unemployment trends. Evidence on international differences in the responsiveness of wages to labor market disequilibrium is provided by Coe (1985 and 1988), Grubb, Jackman and Layard (1983), Grubb (1986), and Klau and Mittelstadt (1986). The latter three studies also provide results indicating that measures of wage rigidity are positively correlated with the change in unemployment from the 1970s to the 1980s across countries. The conclusion generally drawn from this type of analysis is that wage rigidity serves to exacerbate the unemployment consequences of macroeconomic shocks.

(3) Wage rigidity and unemployment persistence appear to be related to government labor market policy and the system of industrial relations. Barro (1988) finds that his measure of unemployment persistence is higher in countries with greater union density but lower in those countries where collective bargaining takes place in a centralized fashion. Layard, Nickell and Jackman (1991) find a similar result and add that generous unemployment compensation policies also contribute to unemployment persistence. On the other hand, Chan-Lee, Coe and Prywes (1987) find no evidence that wage responsiveness has been affected by changes in government labor policy. In general, research into the causes of wage induration has remained largely at the theoretical level to date.

While these three stylized facts are drawn from comparative studies of national differences in labor market performance, there is some
Table 1.1  Measures of Unemployment Persistence and Wage Flexibility for 10 U.S. States and 11 West German Länder

<table>
<thead>
<tr>
<th>Area</th>
<th>Unemployment Persistence</th>
<th>Wage Flexibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>.9971</td>
<td>.6301</td>
</tr>
<tr>
<td>Florida</td>
<td>1.0000</td>
<td>.4392</td>
</tr>
<tr>
<td>Illinois</td>
<td>1.0426</td>
<td>.7490</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>9888</td>
<td>.2470</td>
</tr>
<tr>
<td>Michigan</td>
<td>1.0038</td>
<td>.4667</td>
</tr>
<tr>
<td>New Jersey</td>
<td>1.0014</td>
<td>.0228</td>
</tr>
<tr>
<td>New York</td>
<td>1.0138</td>
<td>2.719</td>
</tr>
<tr>
<td>Ohio</td>
<td>1.0062</td>
<td>.5408</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>1.0120</td>
<td>.7997</td>
</tr>
<tr>
<td>Texas</td>
<td>1.0167</td>
<td>.9188</td>
</tr>
<tr>
<td>Schleswig-Holstein</td>
<td>1.0537</td>
<td>.4090</td>
</tr>
<tr>
<td>Hamburg</td>
<td>1.0016</td>
<td>.5272</td>
</tr>
<tr>
<td>Niedersachsen</td>
<td>1.0586</td>
<td>.3601</td>
</tr>
<tr>
<td>Bremen</td>
<td>1.0654</td>
<td>1.826</td>
</tr>
<tr>
<td>Nordrhein-Westfalen</td>
<td>1.0499</td>
<td>3.202</td>
</tr>
<tr>
<td>Hessen</td>
<td>.9988</td>
<td>.5036</td>
</tr>
<tr>
<td>Rheinland Pfalz</td>
<td>1.0324</td>
<td>.4750</td>
</tr>
<tr>
<td>Baden-Wurtemberg</td>
<td>.8970</td>
<td>.6216</td>
</tr>
<tr>
<td>Bayern</td>
<td>1.0472</td>
<td>.6148</td>
</tr>
<tr>
<td>Saarland</td>
<td>1.0575</td>
<td>.3144</td>
</tr>
<tr>
<td>West Berlin</td>
<td>1.0496</td>
<td>.3054</td>
</tr>
</tbody>
</table>

Source  Author's estimates  Unemployment persistence is the AR1 coefficient in an ARMA(1,1) time series analysis of the log of the unemployment rate from 1971 to 1985. Wage Flexibility is the unemployment rate coefficient in a Phillips curve regression explaining wage inflation estimated over the 1971 to 1985 period, as reported in Hyclak and Johnes (1989).

preliminary evidence to suggest that they also apply to regional differences as well. In table 1.1 we provide some statistics regarding the applicability of the first two of these stylized facts to regional analysis. For comparative purposes the table lists data on unemployment persistence and wage flexibility for the ten most populous U.S. states and the 11 Länder in West Germany.

In the first column are indexes of unemployment persistence calcu-
lated as in Barro (1988) from a time series analysis of the logarithm of regional unemployment rates over the 1971–1985 period. The indexes are the AR1 coefficient derived from treating the unemployment time series as an ARMA(1,1) process. Values of the coefficient close to unity suggest a high degree of persistence. It is clear from even a cursory examination of the data that unemployment persistence is a common characteristic of regional as well as national labor markets.

In the second column, we present measures of wage responsiveness drawn from our study of regional Phillips curves in Europe and the U.S. (Hyclak and Johnes 1989). These measures are the absolute coefficients of the current unemployment rate in regressions explaining wage inflation as function of the unemployment rate and expected consumer price inflation over the 1971–1985 period. As is clear from the table, there is a considerable degree of variation in this measure of wage responsiveness across the regions within each country. This is not an unusual finding. Studies of regional Phillips curve regressions by Kaun and Spiro (1970), Mathur (1976) and Blackley (1989), among many others, all show differences across regions in the estimated response of wage inflation to unemployment.

In our previous papers (Hyclak and Johnes 1989 and Johnes and Hyclak 1989) we report regression results showing a positive relationship between wage rigidity and unemployment trends across regions in Europe and the United States. Thus, like the findings regarding international differences, it seems possible to conclude that wage rigidity heightens the regional unemployment response to macroeconomic shocks. Finally, Kaun and Spiro (1970) and Hyclak and Johnes (1992) present evidence indicating that wages may be more flexible in regions with lower rates of unionization. These results suggest that wage rigidity differences are a potentially important determinant of regional differences in labor market performance. This book presents the results of a comprehensive empirical examination of this issue concentrating on the U.S. states.

Theories of Wage Inflexibility

The studies discussed above have served to establish the existence and importance of both unemployment persistence and wage rigidity. They
do not, however, help us fully identify the reasons why such imperfections exist in the labor market. An understanding of these reasons is essential if governments are to take the appropriate policy steps to remove these sources of unemployment. Fortunately, the last decade or so has witnessed the development of several important theoretical approaches to explaining the existence of persistent unemployment and wage inflexibility. Useful full-length surveys of these have been conducted by Carruth and Oswald (1987), Davidson (1990), and Nickell (1990). Here we consider only the theories which have generated most interest amongst economists. These can usefully be classified into two groups. The first of these concerns factors which arise from the interaction of firms and their employees. The second concerns policy issues.

Consider first the sources of wage inflexibility which might arise from the manner in which employers and employees bargain. These rationalizations all rely on the idea that wage rigidity confers a benefit, since it enables some sort of (assumed) cost within the employment relationship to be bypassed. This bypassed cost might, for instance, be the disutility imposed by excessive risk, or it could be the cost of monitoring worker effort and co-operation, or it could be the costs associated with hiring, firing and training staff.

The theory of implicit contracts (Baily 1974; Azariadis 1975) is based on voluntary agreements entered into by firms and workers. These agreements guarantee risk-averse workers a degree of income stability in return for wages somewhat below the average (over the cycle) of the marginal revenue product. Both firms and tenured workers gain from these contracts; firms gain because their total labor cost falls, while tenured workers gain because they face a less risky environment. A slump causes unemployment because the real wage rises as product prices fall, thereby pricing untenured workers out of jobs. In this model, then, nominal wage inflexibility reduces the costs associated with workers' risk. The success of the contracts model in explaining unemployment relies critically on the failure of indexation (or cost-of-living adjustments) fully to maintain the real wage at market-clearing level (Schultze 1985). Sure enough, wages are not fully indexed in the world; but without a good theoretical reason for this observed fact, contract theory remains unsatisfactory.
A theory of more recent vintage, closely related to that of implicit contracts, has been proposed by Lindbeck and Snower (1988). This is the theory of insiders and outsiders. Insiders are currently employed or temporarily laid-off workers, while outsiders are unemployed workers whose bargaining power with the representative firm is limited. The externality in this case takes the form of turnover costs (due to hiring and training). These enable insiders to extract a rent from their employers, who are willing to pay a premium to prevent quits. Insiders can increase this rent by issuing credible threats to harass any outsiders who are hired, thereby further reducing the productivity of new recruits. Thus the insiders can prevent outsiders from pricing themselves into work by adopting limit pricing behavior in their wage bargaining.

The insider-outsider categorization of workers into two distinct groups is reminiscent of earlier theories which explained the low degree of wage responsiveness to external conditions by appealing to institutional arguments. Chief amongst these is Doeringer and Piore's (1971) theory of internal labor markets. In their model, many posts within a firm are filled by promotion from within. The remuneration associated with these posts is not, therefore, determined by competitive forces in the labor market, since open competition for these jobs is absent. While the theory of internal labor markets is often advocated as an alternative to the dominant neoclassical paradigm, it is consistent with a neoclassical world in which the costs of assessing external (or secondary) labor market candidates for promoted positions is high relative to the costs of monitoring internal applicants. The challenge now faced by advocates of both the insider-outsider and internal labor market theories is to explain how some workers become insiders while others do not.

A further explanation of wage rigidity is provided by the theory of efficiency wages (Lazear 1981; Summers 1988). The central idea is that worker motivation and productivity depend positively on the level of wages. Consequently, firms are reluctant to lower wages during a downturn, since this might result in a drop in worker effort and firm profitability. The cost bypassed by the stickiness of wages in this instance is the potential detrimental effect on output of reduced worker effort. The ease of modeling afforded by the efficiency wage idea is
appealing, but the theory has faced a number of criticisms. Most seriously, the wage in such models performs two tasks—it regulates the supply of both hours and effort. The realism of the model may be enhanced by reinstating the missing price; in other words, we can introduce into the remuneration system a productivity bonus (or a promotion structure, or an equity ownership scheme). Once this is done, the theory is no longer able to explain unemployment. Efficiency wage theory can, therefore, satisfactorily explain unemployment only where incentive schemes are, for rational reasons, absent.

Consider now the second broad class of variables which might influence wage flexibility. These are variables which may more easily be subject to policy influence. The first of these potential determinants of wage viscosity is unemployment compensation. Burtless (1987) argues that unemployment benefits increase the duration of unemployment by financing job search and raising the reservation wage of the unemployed. Benefits may also cushion the detrimental effects of short-term unemployment and may therefore raise the equilibrium wage which falls out of an efficiency wage model. By providing a floor below which wages in an otherwise competitive nonunion sector cannot fall, benefits can further exacerbate unemployment (Minford et al. 1985). Further, benefits may tilt union preferences away from a concern about their members' employment prospects and towards the achievement of higher wage levels.

Minimum wage legislation imposes a floor below which the wage may not fall. This institutional rigidity is obviously capable of causing unemployment, although its empirical importance as a source of market failure in the United States is likely to be slight (Chan-Lee, Coe and Prywes 1987). The minimum wage rate is rarely changed, so its real value is constantly being eroded; furthermore, relatively few workers are covered by the minimum wage.

Finally, the impact of trade union behavior on the flexibility of wages has been a subject of much debate. The efficient bargains model of McDonald and Solow (1981) shows that union and firm negotiations over employment and wage levels can lead to Pareto optima characterized by wage inflexibility and unemployment. Although Clark (1990)
finds that this result does not extend to the more realistic case of bargains struck over wages and the worker-to-machine ratio, union behavior remains an important potential source of nominal rigidity (Minford et al. 1985). We shall therefore pay special attention to the role of unions, and, in particular, the effects of the right-to-work laws adopted by some states.

**Aims and Methodology**

It should be clear from the above that we have available at this stage a number of alternative theories of wage inflexibility, each of which remains to be fully developed. Unfortunately, while theory has been racing ahead, empirical work on this issue remains relatively underdeveloped. Empirical analysis can throw light on which of the alternative theoretical research programs is most likely to bear fruit, and at the same time can allow important policy conclusions to be drawn. It is with this in mind that we embarked upon the present study. Specifically, we wanted to use empirical methods to answer the following questions:

1. What local and regional patterns can be observed in labor market behavior in the United States?
2. What are the determinants of wage inflexibility?

These questions have not until now been seriously addressed in the empirical literature, but their answers are critically important. Indeed, the second question addresses one of the major unsolved macroeconomic puzzles. Both questions are of obvious policy relevance; this being so, our results can provide information about the impact on wage flexibility and unemployment of:

- right-to-work legislation
- policies to encourage the development of small firms
- minimum wage policy
- unemployment benefits.

In addition, we provide evidence about the impact of industry mix and other structural indicators upon wage flexibility. The main theoretical
approaches to involuntary unemployment are confronted with the data in order to establish which avenues offer the most promise for future work.

In answering the key questions, we use a unified framework built upon a simple two-equation model of the labor market. The first equation is a traditional expectations-augmented Phillips curve, where the rate of wage inflation is determined by unemployment and by the expected rate of price inflation. The theory underlying this equation has been explained by Friedman (1968) as follows. Starting from a point of equilibrium,

\[ \text{suppose that } \quad \text{the authority increases the rate of monetary growth.} \]

This will tend initially to lower interest rates and income and spending will start to rise. To begin with much or most of the rise in income will take the form of an increase in output and employment. Producers will tend to react to the initial expansion in aggregate demand by increasing output, employees by working longer hours, and the unemployed by taking jobs now offered at former nominal wages. There is always a temporary trade-off between inflation and unemployment. The temporary trade-off comes from unanticipated inflation (pp 9–10).

The Phillips curve is thus a close relative of the aggregate supply curve (Lucas 1973; Sargent and Wallace 1975), since it concerns a supply-side response to errors in the formation of price expectations.

The long-run responsiveness of wage changes to the rate of unemployment, as measured by the appropriate Phillips curve coefficient, may be used as a measure of real wage flexibility (Grubb, Jackman and Layard 1983; Coe 1985; Hyclak and Johnes 1989; Johnes and Hyclak 1989). This aspect of our Phillips curve results therefore merits considerable attention in the present context, since it enables us to analyze the magnitude and nature of wage viscosity for each of the geographical samples in the study.

This tells only half a story, though. Certainly unemployment exerts an influence upon wage inflation. But the rate of change of wage rates also has an impact on unemployment. This is because the derived
demand for labor varies negatively with the real wage. Consequently, any increase in wages that is not matched by an increase in prices or product market demand must lead to a decline in the demand for labor, and unemployment results. This idea was put forward by Irving Fisher (1926) and can be derived from Okun's law (Okun 1962). To be more precise, we model the unemployment rate as a function of lagged unemployment, nominal growth of aggregate demand, and wage inflation. This specification of the "Fisher curve" allows us to investigate certain issues concerning unemployment persistence, since the coefficient on the lagged dependent variable captures an effect similar (though not identical) to Barro's persistence measure.

In order fully to account for the simultaneous nature of the relationship between wage inflation and unemployment, we use a systems method to estimate the parameters of both the Phillips curve and the Fisher curve. This approach is one of the major innovations we introduce in chapter 2. The second innovation introduced in that chapter concerns the level of analysis at which our analyses are conducted. Following the lead of Blackley (1989), we study data at state level within the United States; our study, however, improves upon earlier work in that we cover all 48 contiguous states. Moreover, our disaggregation goes further than state level, for we also present estimates of the model for 16 of the largest standard metropolitan areas.

Our reasons for disaggregating the analysis to state and metropolitan areas are several. First and foremost, we disaggregate because labor market decisions are typically reached at the local level. In a full employment world, migration might be expected to equalize remuneration for given work across localities, thus removing in the long run any distinction between areas. However, the same is not true if unemployment exists, or if migration responds imperfectly to labor market inequalities. Areas where unemployment is high can maintain a stable labor force only if remuneration is also high relative to that obtainable elsewhere. Once housing effects are introduced, the picture becomes still more complex; areas in which housing is expensive must also be high-wage areas if they are to prevent net out-migration of labor, other things (such as unemployment rates) being equal. Thus distinct local
labor markets can be defined (Topel 1986), in much the same way as distinct local policy jurisdictions within a Tiebout (1956) model; individual preferences determine whether a worker will choose to reside in an area with high rate of joblessness (where wages compensate for the risk of unemployment) or a locality where unemployment is relatively uncommon. Consequently, despite the existence of national (and indeed international) markets for the labor of a minority of very highly skilled workers, the state or metropolitan area makes a more appropriate level for labor market analysis than does the nation.

The second important reason for spatial disaggregation is that it enables us to proceed to an analysis of the reasons why wage rigidity varies across states. This is the main contribution of chapter 3. The analysis builds upon the contribution of Grubb, Jackman and Layard (1983), but by studying regions within a single country (rather than a cross section of OECD nations) we are able to provide a reasonably homogeneous social, cultural, political, and institutional setting.

A third reason for conducting our analyses at the state and local level is that it allows us to study regional variations in labor market behavior across the country. A number of hypotheses can thus be tested. For example: do labor markets in some states (such as those in the Rust-Belt which have endured rapid structural decline) respond differently to economic shocks than do other states? If so, would different labor market policies be appropriate in different regions? Is wage inflation transmitted across the country according to an established set of geographical patterns (Martin 1981)?

To summarize briefly: we estimate separately for 48 states and 16 metropolitan areas the parameters of our labor market model. This enables us to draw important and novel inferences about the dynamics of unemployment, and regional differences in the operation of the labor market can be identified. Since the flexibility of wages varies substantially across the states, we are also able to analyze the determinants of real wage induration. These contributions all have important policy implications: they tell us what counter-unemployment policies might be effective in the various regions of the country, and they suggest measures
that could be taken to make wages more responsive to the swings of the market.

Structure of This Book

In chapter 2 we develop the theory and conduct the empirical time series analyses. The theoretical and empirical models build on previous work and involve the simultaneous estimation of Phillips and Fisher curve equations. Variants of our model are tested and a preferred set of results is identified. Thus we can comment upon regional patterns emerging from the results and identify areas within which demand- or supply-side policies would be appropriate as means of alleviating the problem of unemployment. Both states and metropolitan areas are used as bases for our analysis in this chapter; metropolitan areas are particularly interesting because they most nearly approximate the size of local labor market within which we believe most employment decisions are made. The novelty of chapter 2 is primarily seen in the extent of disaggregation used: for the first time, Phillips and Fisher curve estimates are presented for all 48 contiguous states and for 16 cities.

The slopes of the Phillips curves estimated in chapter 2 are a vital input into the work reported in the following chapter. The work reported in chapter 3, using these coefficients, represents what we believe to be the most important original contribution of this book. There we provide an empirical investigation of the differences in measured wage flexibility between the 48 contiguous states. As we have already seen, the received literature is strong on theory concerning wage inflexibilities, but only a handful of rather speculative papers have treated this important issue from an empirical standpoint. By conducting a cross-section analysis of 48 states, we gain significant new insights. We investigate the role of efficiency wages, insider-outsider effects, union behavior, welfare benefits, industrial concentration, and other factors on the flexibility of wages. The results are interesting and policy-relevant.

The final chapter of the book draws together the main results and conclusions. It also contains an extended discussion of the policy implication of our findings.