State Unemployment Rates: What Explains the Differences?

Unemployment rates vary sharply across the fifty states. In the ten most populous states, February 1985 unemployment rates ranged between 3.7 and 9.4 percent, compared with a 7.3 percent national average. Nor has it been unusual in recent years for the lowest and highest unemployment rates to differ by as much as ten percentage points. What accounts for this variation?

One of the most frequently cited reasons for different unemployment rates across states is industrial mix. States that tend to have a greater share of their employment in industries with low unemployment rates are likely to have lower unemployment rates than the national average.

But how can the effect of industrial mix be quantified? To answer this question an alternative unemployment rate was calculated for each state. It measures what unemployment rate a state would have if each of its industries had the same unemployment rate as prevailed nationally in the industry. Consequently, this alternative unemployment rate differs from the national average only to the extent that the state's concentration of high or low unemployment industries differs from the national average. A statistical analysis finds that the differences between the alternative unemployment rates and the national average account for a substantial part of the spreads between unemployment rates reported at the state and national level.

But industrial mix is not the whole story. Racial composition and the degree of unionization are also important for explaining the differences in unemployment rates across states. However, differences in state government policies seem to have little, if any, direct effect.

How important are these factors overall? For the twenty states with unemployment rates that are farthest away from the national average, these factors account for about 90 percent of the differences. For all fifty states combined, the figure is closer to two-thirds. By and large, the statistical results show that unemployment rates are lowest in those states with: (1) favorable industrial composition, (2) a lower-than-average degree of unionization, and (3) a lower-than-average proportion of Black population.

Factors behind unemployment differences

To keep the presentation manageable, the discussion focuses on nine illustrative states, chosen to represent a wide range in industrial composition and other factors (Chart 1). The statistical analysis, however, is based on all fifty states

States with above-average unemployment over 1980-83 tend to be above-average now, although the expansion has lowered most unemployment rates considerably[1] In recent years Texas and Connecticut consistently have had unemployment rates below the national average, while Michigan, Oregon, and Pennsylvania have had unemployment rates consistently above the national average The other four states (California, New Jersey, New York, and South Carolina) show some change over the past few years in their year-to-year relationship to the national average.

The persistence of relatively high and low unemploy-

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[1]A comparison with earlier years would show a similar pattern 1983 is the most recent year for which employment data by industry are available at the state level

ment rates in certain states suggests that longer-term factors, like industrial structure, may play an important role in determining state unemployment rate differences.

Industrial structure

While industrial structure is often mentioned as a source of unemployment differences, quantitative treatments of its effects are rare. The general presumption is that Michigan, Oregon, and Pennsylvania have had higher than average unemployment at least partly because large proportions of their labor forces are in industries with high unemployment during recent years (*e.g.*, automobiles, lumber, and steel). In contrast, Connecticut is thought to have done better than average because it does not have significant parts of its labor force in declining or weak industries.

If labor were homogeneous and perfectly mobile, industrial mix would not be such an important factor. But because the skills possessed by workers in high unemployment rate industries do not necessarily match the skills required to obtain a job in an expanding industry, substantial structural unemployment can develop. This problem is likely to be worse in a rapidly changing economy, whether because of technological progress, dramatic relative price changes (*e.g.*, energy prices), or new demand patterns.

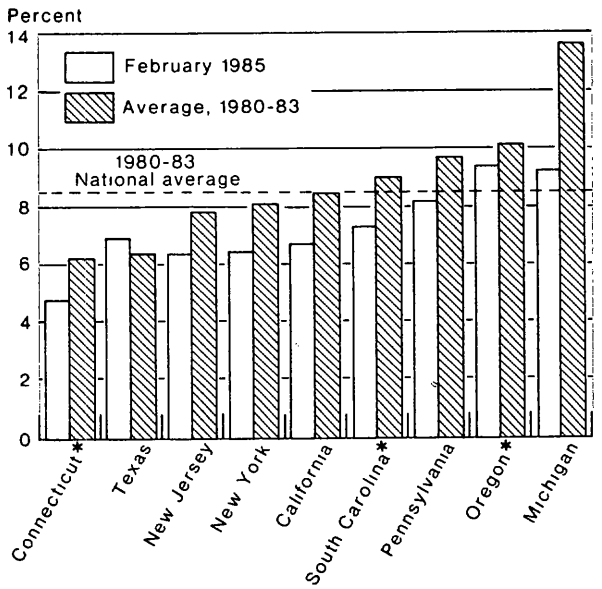
To focus on the contribution industrial composition makes to unemployment differences, an industrial mix adjusted, or IM-unemployment rate, was calculated for each state. Essentially, this alternative rate weights each industry according to how important it is for the state's labor force. It measures the unemployment rate a state would have if each of its industries had the same unemployment rate as prevailed nationally for the industry (Box 1). For example, in 1983 New York's IM-rate was 8.3 percent, compared with a national average of 9.6 percent, giving it a 1 3 percentage point industrial mix advantage. In general, the difference between the national unemployment rate and the IM-unemployment rate indicates a state's comparative advantage for unemployment from its industrial mix.[2]

Results for these nine states demonstrate how

[2]One limitation of the IM-unemployment rate as a complete indicator of comparative advantage from industrial structure is its failure to take full account of age differences in plant and equipment For the purposes of this paper this omission is desirable, because it leaves it to other factors—like state policies and unionization—to explain why the same industry is disinvesting in one state while investing in another But for other purposes, the omission may be inappropriate

Chart 1

Unemployment Rate in Nine States



*Not seasonally adjusted preliminary for December

Source United States Department of Labor, Bureau of Labor Statistics

Table 1

Index of Comparative Advantage from Industrial Composition (IM-Unemployment rate)*

In percent

State	1980	1981	1982	1983
New York	0 9	1 0	1 4	1 3
	(6 3)	(6 7)	(8 4)	(8 3)
New Jersey	0 3	0 3	0 6	0 6
	(6 9)	(7 3)	(9 1)	(9 0)
California	0 2	0 2	0 4	0 2
	(6 9)	(7 4)	(9 4)	(9 4)
Pennsylvania	0 1	0 1	−0 1	−0 1
	(7 1)	(7 5)	(9 8)	(9 7)
Connecticut	0 0	0.3	0 1	0 4
	(7 2)	(7 3)	(9 6)	(9 2)
Texas	−0 1	0 0	−0 1	−0 5
	(7 2)	(7 6)	(9 9)	(10 0)
South Carolina	−0 2	−0 5	−0 6	−0 2
	(7 4)	(8 1)	(10 4)	(9 7)
Oregon	−0 4	−0 5	−0 3	−0 5
	(7 6)	(8 1)	(10 0)	(10 1)
Michigan	−1.2	−0 7	−1 0	−0 5
	(8 4)	(8 3)	(10 7)	(10 1)
National average unemployment rate	7 2	7 6	9 7	9 6

*IM-unemployment rate and the index of comparative advantage may sum to 0 1 more or less than the national average unemployment rate because of rounding error

Box 1: The Industrial Mix-Unemployment Rate

The industrial mix unemployment rate is defined as the unemployment rate a state would have if each industry in the state had the same unemployment rate as the national unemployment rate for the industry. A simple example will clarify the concept.

Consider State A and State B, each with two industries, X and Y. State A has half of its labor force in each industry, while B has three-fourths in X and one-fourth in Y. Suppose that nationally industry X has a 10 percent unemployment rate, but industry Y has only a 5 percent unemployment rate. Assume that these are the only industries and that each one represents half the national labor force.

Under these circumstances, the national unemployment rate will be 7½ percent In state A, which has exactly the same industrial mix as the nation, we would expect the unemployment rate to be the same as the national average—based solely on industrial mix considerations. But in state B, the greater relative importance of industry X (with its higher unemployment rate) implies an industrial mix unemployment rate of 8¾ percent. So state B has an industrial mix disadvantage of one-and-a-quarter percentage point, while state A is neutral compared to national industry structure.

Employment data are available by industry at the state level from the establishment survey. Unemployment data by industry are available at the national level from the household survey. For each state, the percent of the labor force in a particular industry was calculated by summing the employment number with a hypothetical unemployment number based on the national unemployment rate in that industry, and then dividing this sum by the state's labor force size. This gave a weight for each industry, which was multiplied by the national unemployment rate in the industry These weighted unemployment rates were then summed to yield the IM-unemployment rate for the state.*

*Twenty-nine industrial categories were used, corresponding fairly closely to the level of detail presented each month in the Table, "Unemployed Persons by Industry and Sex", *Employment and Earnings*, Bureau of Labor Statistics Employment data by industry at the state level were taken from *Supplement to Employment, Hours, and Earnings, States and Areas, Data For 1980-83*, Bureau of Labor Statistics, August 1984

deceptive impressionistic evaluations of state industrial structure can be (Table 1). Low unemployment rate states, like Texas and Connecticut, do not necessarily have a particularly favorable structure Connecticut's industrial mix does improve over 1980-83, but for most of the period it is close to the national average. By 1983 Texas had moved from a somewhat neutral to an unfavorable industrial structure by the IM measure.

While the decline in oil prices has worked against Texas in recent years, it probably has helped New York and New Jersey as well as other states with industrial structures that benefit from lower energy prices. New York and New Jersey also gain by having higher proportions of their labor forces in sectors that traditionally have lower than average unemployment. This is particularly true of New York, which has a very large share of its employment in industries with below average unemployment rates (*e.g.*, finance, insurance, real estate, transportation, public utilities, communication, government, and other services).

California, often hailed as the stereotypical sunbelt high-tech service economy, is the only other state among the nine showing a consistent overall employment advantage from industrial structure. But, compared to its image, California's advantage of about a quarter percentage point is not very large.

Pennsylvania, where unemployment in the steel industry has affected certain areas dramatically, shows only a slight disadvantage in industrial structure in 1982-83, and actually comes much closer to the national norm than one might expect from its highly publicized problems. The remaining states, South Carolina, Oregon, and especially Michigan, all show persistent disadvantages from industrial mix.

The percentage of manufacturing employment is often used as a measure of the industrial mix effect on a state's economy. There are, however, dramatic differences in industry unemployment rates within the manufacturing sector For instance, despite a slightly higher proportion of manufacturing employment in 1983, Connecticut had a comparative industrial mix advantage over Michigan according to the IM-measure. This suggests that empirical studies based on measures of manufacturing as a whole will not accurately capture the desired effects of industrial composition on unemployment.

The *direct* effects of industrial structure are significant, but not nearly enough in most cases to explain the full deviation of an individual state's unemployment rate from the national average during 1980-83 (Chart 2). Over the nine states they explain no more than one percentage point deviation in either direction, yet in Michigan, for example, the unemployment rate averaged about five percentage points above the national level

In contrast, Connecticut and Texas averaged more than two percentage points below the national average, without any major direct impact from industrial structure

But before downplaying the effects of industrial mix, it is important to recognize its "spillover" impact on a state's whole economy A state with an unfavorable industrial mix is likely to have above-average unemployment in its stronger industries as well as in its disadvantaged ones For example, unemployment among retail sales workers in Michigan was probably higher during 1980-83 than in New York, simply because Michigan's less favorable industrial structure implies lower employment, income, and, hence, aggregate demand Also, businesses in other industries that act as suppliers to the high unemployment industries can feel the impact of a downturn at the state level, even if national conditions are good

Table 2 shows the estimated spillover effects They exceed the direct effects of industrial mix by about fifteen percent (Box 2) Altogether, industry mix adjustments—both direct and indirect—show that each percentage of comparative advantage in industrial mix results in more than two percentage points less unemployment

One more feature of the data needs to be mentioned Because the adjustment for industrial composition used here is based on industry data from the non-agricultural establishment payroll survey, it does not allow for effects from the agricultural sector, which generally has a much lower rate of unemployment than the average for the non-farm population Estimates taking the significance of agriculture into account imply that unemployment goes down about one-tenth of a percentage point for each percentage point of a state's farm population above the national average In most states this is not that important (Table 3, column 2) But in some, such as Nebraska and South Dakota, where the farm population is substantially higher than the national average, it can amount to more than a percentage point

Table 2

Average Contribution of Industrial Mix to State Unemployment Rates*

In percentage points

State	Direct effect	Spillover effect	Total effect
California	−0 26	−0 30	−0 56
Connecticut	−0 20	−0 23	−0 43
Michigan	0 86	0 99	1 85
New Jersey	−0 47	−0 53	−1 00
New York	−1 14	−1 31	−2 45
Oregon	0 41	0 48	0 89
Pennsylvania	−0 01	−0 02	−0 03
South Carolina	0 37	0 42	0 79
Texas	0 16	0 18	0 34

*Averaged over 1980-83

Other factors

While the impact of industrial composition explains part of the gap between state and national unemployment rates, a good bit of difference remains unexplained To look at possible reasons for this, several additional factors that have been suggested as causes of state unemployment rate differences were considered

Policy variables at the state level

Federal expenditures in the state The level of Federal expenditures is another factor frequently said to influence state unemployment differences. presumably, large amounts of Federal expenditures will stimulate a state's economy and help reduce unemployment Per capita Federal expenditures vary widely from state to state For example, in 1983 Connecticut received $3,750 per person in Federal expenditures compared with $2,203 in Michigan [3]

Surprisingly, the test results suggest that Federal expenditures have only a small (statistically insignificant) positive effect For each additional thousand dollars a state receives per person, the unemployment rate will only be about one-tenth of a percentage point lower (Table 3) Since most states now receiving relatively large amounts of Federal expenditures have enjoyed this advantage for a long time, favorable economic effects have probably become embodied in the state structure [4] In that case, the impact of Federal expenditures would already be captured in the industrial mix effect

State tax systems Differences in state tax systems may also affect the labor market In particular, how tax differentials influence where businesses choose to locate has been a primary concern in recent years Increasingly, individual states use tax incentives and enterprise zones as an integral part of their economic development and employment programs [5]

As with Federal expenditures, these effects did not turn out to be very significant in the statistical analysis,

[3]For more on this topic, see Thomas J Anton, "The Regional Distribution of Federal Expenditures", *National Tax Journal*, December 1983, pages 429-442

[4]For example, Connecticut's industrial mix reflects a considerable amount of low unemployment defense manufacturing This is not a recent development, but a long-standing consequence of Federal expenditures there

[5]Most states have several forms of taxes, both corporate and personal, applying to diverse bases, including income, sales, and wealth Because of the difficulty in summarizing a state's tax system in a variable, three measures of differences in state tax systems were used in the analysis (Box 2)

Table 3

Average Contribution of Selected Factors to State Unemployment Rates*

In percentage points

State	Total industrial mix	Agriculture	Unionization	Federal expenditures	State taxes	Race
California	−0 56	0 20	0 36	−0 05	0 01	−0 32
Connecticut	−0 43	0 26	−0 46	−0 11	−0 02	−0 37
Michigan	1 85	0 07	2 43	0 08	0 01	0 10
New Jersey	−1 00	0 26	0 08	0 05	0	0 07
New York	−2 45	0 21	2 69	0 01	0 08	0 16
Oregon	0 89	−0 06	0 16	0 07	0 01	−0 81
Pennsylvania	−0 03	0 13	1 87	0 03	0	−0 23
South Carolina	0 79	0 09	−3 46	0 04	−0 01	1 47
Texas	0 34	0 07	−2 75	0 05	−0 04	0 03

*Averaged over 1980-83

indicating that differences among state tax systems, at least as measured here, do not account for much of unemployment differences. Again, this may be because most effects of tax structure, like Federal expenditures, are already embodied in industrial structure.

Other state policy variables. Another policy factor economists cite is unemployment insurance (UI). Some analysts argue that differences in state UI programs influence locational decisions of firms and the pattern of unemployment across states.[6] Also, issues of tax-exempt securities to finance public and private sector capital expenditures within a state have been mentioned as a possible employment stimulus. Neither unemployment insurance nor tax-exempt financing shows any significant effects in the statistical analysis.

Unions

Another factor which seems to influence unemployment rate differences is the degree of unionization. The industrial mix measure will capture this partially, because unionization is associated with particular industries. But since the unionization rate in a given industry varies across states, some residual impact is not included.

Economists have suggested several channels for unions' impact on unemployment. These can generally be put into three categories: higher labor costs, increased labor market friction, and higher worker productivity.

A considerable literature indicates that union workers are more highly paid, both in terms of hourly wages and fringe benefits, than non-union workers performing similar tasks. Unless greater productivity offsets this higher labor cost, firms will tend to locate in areas that are less unionized.[7]

Aside from raising labor costs for employers, unionization may also increase labor market frictions, prolonging adjustment to changing economic conditions. For example, the well-documented benefits of union membership probably increase the reluctance of laid-off union members to accept non-union jobs where benefits on average are less.[8] Also, there is empirical evidence of increased wage rigidity in unionized sectors. Union-

[6]For example, John M. Barron and Wesley Mellow, "Interstate Differences in Unemployment Insurance", *National Tax Journal*, March 1981, pages 105-113. For a discussion and references on the effect of UI on the duration of unemployment, see Robert Moffitt and Walter Nicholson, "The Effect of Unemployment Insurance on Unemployment: The Case of Federal Supplemental Benefits", *The Review of Economics and Statistics*, February 1982, pages 1-11.

[7]The classic study on the union wage premium is H. Gregg Lewis, *Unionism and Relative Wages in the United States: An Empirical Inquiry*, University of Chicago Press, 1963. For recent studies that update Lewis' work and summarize the empirical literature, see John Pencavel and Catherine E. Hartsog, "A Reconsideration of the Effects of Unionism on Relative Wages and Employment in the United States, 1920-1980", National Bureau of Economic Research Working Paper No. 1316, March 1984, and Richard B. Freeman and James L. Medoff, "The Impact of Collective Bargaining: Can the New Facts Be Explained by Monopoly Unionism?", National Bureau of Economic Research Working Paper No. 837, January 1982.

[8]This does not mean unemployed union workers will never accept lower paying non-union jobs, only that they may wait longer and look harder before doing so.

A recent study by Martin Feldstein and James Poterba, "Unemployment Insurance and Reservation Wages", *Journal of Public Economics* 1984, pages 141-167, provides persuasive evidence that the reservation wage that the unemployed chose is generally quite close to the wage they received at their last job. This fact, together with the generally higher level of union compensation, implies unemployed union workers will have higher reservation wages than non-union workers. With most recent job growth in the non-union lower wage sectors, this suggests unemployed union workers will engage in a longer job search on average and have a higher rate of frictional unemployment.

negotiated work rules can limit management flexibility in the use of labor.[9]

[9]A frequent explanation for the stagnation of job growth in Western Europe revolves around labor market rigidities The relatively rapid job growth in the U S over the past ten years is then attributed to flexibility and less restraint on market adjustments to changing economic conditions One interpretation of the results in this paper is that even within the U S there is quite a bit of variation in labor market flexibility, and that this accounts for a large part of the differences among state unemployment rates Also see Jeffrey D Sachs, "Real Wages and Unemployment in the OECD Countries", *Brookings Papers on Economic Activity*, Number 1, 1983, pages 255-304

Finally, on the positive side, some labor market analysts find unions to be beneficial to worker productivity, thereby mitigating some of the negative impact of higher wages on employment The stronger this union productivity advantage is, the less adverse the effects of unions on employment [10]

[10]After surveying the evidence, Richard P Freeman and James L Medoff conclude that productivity is generally higher in union establishments compared with otherwise similar non-union establishments For more on this and related topics see their comprehensive survey, *What Do Unions Do?*, Basic Books, 1984

Box 2: Statistical Results

Regression analysis was used to see how much of the difference between the national unemployment rate and each state's unemployment rate could be explained by industrial structure and other factors

The explanatory variables included

- Industrial Mix
  (1) The difference between the national unemployment rate and the computed IM-rate A coefficient of one on this variable means there are no indirect or spillover effects from industrial mix Since the coefficient on this variable is generally more than two, indirect effects exceed direct effects from industrial mix.
  (2) The proportion of the state's population engaged in agriculture

- Other Factors
  (1) Two measures of Federal expenditures were tried: the total per capita expenditures, and the procurement contract expenditures per capita. Both had positive, but insignificant, effects.
  (2) Three measures of state tax rates were tried the maximum marginal rate on personal income; the average rate on personal income (adjusted gross income), and the average of total state and local tax revenues (net of severance taxes) to adjusted gross income Coefficients varied between negative and positive values, but were insignificant
  (3) Three measures of unemployment insurance were tried. the ratio of insured unemployed to total unemployed, the percentage of weekly salary available in benefits, and the product of the two All were insignificant in regressions that included the demographic variables
  (4) The total amount of general obligation and industrial revenue bonds was also insignificant
  (5) The proportion of the state's employed belonging to a labor organization
  (6) The proportion of the population that is Black.
  (7) The proportion of the population between eighteen and twenty-four years old was not significant
  (8) The proportion of the population over age twenty-five with at least a high school education was not significant

Regressions for the individual years 1980-83, as well as all four years together, were done The sample of states was varied to include all fifty states, the forty most populous states, and the ten highest and ten lowest unemployment rate states. The cross-section results for all fifty states in 1982 are representative of the general pattern of results. Variables not significant in that regression were generally not significant in other regressions, and their estimated coefficients varied with the sample The variables significant in that regression were generally significant in other regressions and their coefficients were much more stable over time and across sub-samples of states

Statistical Results

Independent variables	Coefficient	t-value
Industrial structure	2 15	4 1*
Agricultural population	11 64	1 8†
Unionization	−0 20	−6 5*
Federal expenditure	0 34	0 3
State taxes	−1 09	−0.1
Race	−7 86	−3 3*
S E E 1 438	$\bar{R}^2$ = 0 62	

Dependent variable is national unemployment rate minus state unemployment rate Sample is all fifty states in 1982

*Significant at 99 percent confidence level

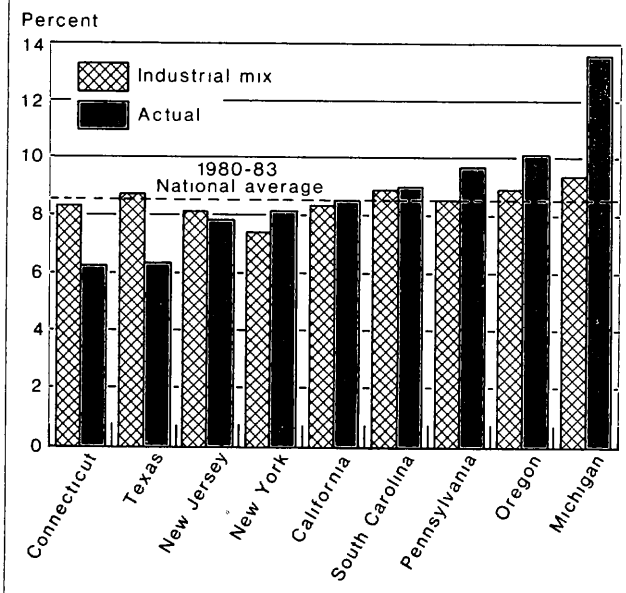
†Significant at 90 percent confidence level

The explanatory variables were all expressed as deviations from the national average No constant term was in the regression, so that a hypothetical state that matched the national average in every dimension would have a predicted unemployment rate equal to the national average Regressions were also run with constant terms to check bias in the regression. Constant terms were generally insignificant and did not influence the magnitude of the significant variables' effects

Chart 2

Industrial Mix Unemployment Rate in Nine States

Average over 1980-83

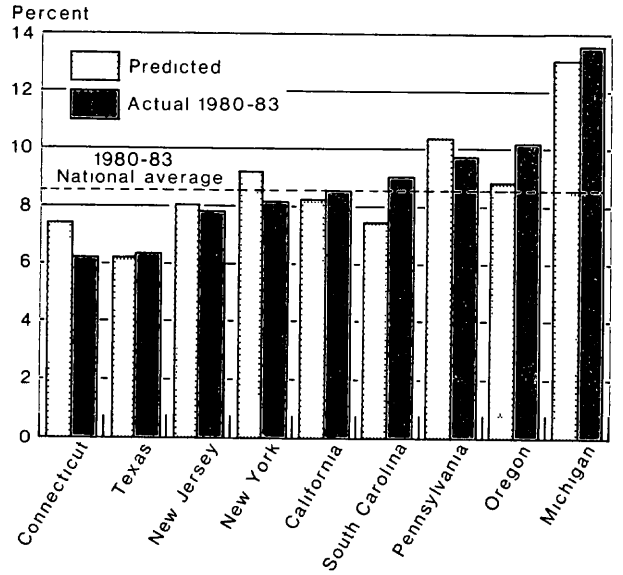


Sources United States Department of Labor, Bureau of Labor Statistics and Federal Reserve Bank of New York staff estimates

Chart 3

Unemployment Rate Predicted

By the regression equation
Average over 1980-83



Sources United States Department of Labor, Bureau of Labor Statistics and Federal Reserve Bank of New York staff estimates

The statistical analysis suggests that a state with a ten percent above-average unionization rate is likely to have an additional two percentage points of unemployment. Among the nine sample states, union effects range from lowering unemployment in South Carolina and Texas by about three percentage points, to raising it by about two and a half percentage points in New York and Michigan (Table 3, column 3).[11]

This additional unemployment is not confined to the unionized sector, but includes spillover effects into the non-union sector as well. Otherwise, it would imply unrealistically high levels of unemployment among union workers.[12]

Demographics

Besides industrial mix, policy, and unionization differences, there are demographic differences among the states For instance, Blacks make up a larger segment of the population in South Carolina (about thirty percent), compared with Oregon (about one percent) Unemployment rates are typically higher among the Black population nationwide, which accounts for some of the differences among state unemployment rates. Age is another factor younger workers are more likely to be unemployed than those over twenty-five Also, average education levels vary among the states, and some evidence suggests that the likelihood of unemployment

[11]There is surprisingly little empirical evidence to compare with these results Most U S work focuses on wage and productivity effects of unions rather than unemployment effects Recent studies in the United Kingdom use structural labor market models to estimate the impact of unions on unemployment Patrick Minford finds a substantial adverse impact in "Labour Market Equilibrium in an Open Economy", *Oxford Economic Papers*, November 1983, pages 207-244 S J Nickell and M Andrews, on the other hand, find the effects to be much less pronounced, but still adverse, in an article in the same volume, "Unions, Real Wages and Employment in Britain 1951-79", pages 183-206

[12]Applying the same ratio of spillover to direct effects as from industrial structure yields a more realistic implied level of unemployment among union members Spillover effects in the case of unionization may include wage spillovers as well as aggregate demand spillovers There is some research suggesting higher union wage levels put upward pressure on non-union wages See, for instance, Susan Vroman, "The Direction of Wage Spillovers in Manufacturing", *Industrial and Labor Relations Review*, October 1982, pages 102-112

decreases with the level of education [13] But of these three demographic factors, only race emerged as significant in the statistical analysis (Box 2).

In evaluating these results, it is important to recognize that a variable can be insignificant for explaining *differences among states,* but still be an important determinant of the *national unemployment rate.* For example, a higher proportion of younger workers may result in a higher overall level of unemployment, yet if the age composition differences among states are not that great, this factor will not show up as an important determinant of state unemployment rate differences.

Conclusion

This paper started off by asking what accounts for the variation in state unemployment rates Somewhat surprisingly, in view of the often heated debate on short-term economic policies at the state level, factors outside the immediate realm of policy contribute the most to unemployment differences.

This does not imply that policy choices will not affect unemployment levels. Partly, such decisions are already incorporated into the industrial mix adjustment. A higher proportion of employees in government or defense manufacturing, where unemployment is low, will give a state an edge in industrial mix. Also, a dollar of government expenditure or tax revenue may have very different effects from state to state, because the composition of spending and distribution of the tax burden will vary considerably For these reasons it is probably unrealistic to expect very broad statistical measures of fiscal policy to work the same way in each state.

Among the factors which did seem to affect relative unemployment rates, industrial structure appears very important Its estimated impact ranges from lowering New York's unemployment rate by about two percentage points, to raising Michigan's by about the same amount (Table 3) Of the other factors considered, unionization and racial composition are significant for explaining unemployment differences across states.

On the whole, the analysis presented here seems to account for most of state unemployment rate fluctuations around the national average. This is especially true for the twenty states with the highest and lowest unemployment rates But in a few states like Connecticut, New York, and South Carolina, there remains a fairly large unexplained gap (Chart 3). Case studies on these states may be helpful for determining whether any unexamined policies are particularly effective in lowering unemployment

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[13] For a recent study that estimates the influence of demographic factors on regional unemployment differences see Kevin J Murphy and Richard A Hofler, "Determinants of Geographic Unemployment Rates A Selectively Pooled Simultaneous Model", *The Review of Economics and Statistics,* May 1984, pages 216-223