

# Wage Differentials Between the States: The Effect of Region and Unionization

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## I. INTRODUCTION

Prior to World War II the United States' South lagged far behind its northern counterparts in terms of industrialization and economic growth. In fact, in the 1940's Franklin Delano Roosevelt proclaimed the South "the nation's number one economic problem" (Cobb, 1982). However, in 25 short years the region found itself in a dramatic spurt of economic growth that changed the region's image into the more flattering "Sunbelt" South. From 1960-1975 Gross Regional Product nearly doubled and industrial output more than doubled (Cobb, 1982). Dixie's growth was not only limited to domestic firms, but by the 1970's the region was attracting around half of the United States' foreign industrial investment (Cobb, 1982). By 1978, many Southern states were attracting as much as \$1 billion annually from foreign investments, led by South Carolina, North Carolina, and Virginia (Cobb, 1984). Manufacturing growth continued throughout the nineties. In the beginning of the decade eight of the top ten states, in terms of new manufacturing plants, were in the South (Applebome 1996).

The backward Southern states of the mid-century were now viewed as some of the best "business-climates" in the nation. In a 1980 survey, six southern states placed in the top ten business climates and the South's overall rank was better than the Midwest and Northeast - traditionally industrial powerhouses. These rankings also seemed to have a significant relationship with regional growth in manu-

facturing employment. The rankings took into account factors such as tax rates, unemployment compensation levels, and labor relations history. Some of the most telling factors, though, were those describing unionization numbers and wage levels. Six of the seven states with the lowest union membership and five of the six lowest weekly manufacturing wage states were in the South (Cobb, 1982).

Despite this economic growth, many argue that the wages of southern workers have not jumped to the level of their non-southern counterparts. This is the problem that this paper will address. Why have wages in the South seemingly remained at a lower level than the other regions of the United States, despite economic growth? What is determining the wage across the states? Is the market determining wage or are there other factors causing wages to be artificially high in some areas and low in others?

## II. HISTORICAL BACKGROUND / THEORY

Neoclassical economists would contend that continued industrial growth in the South will at some point bring the wages of laborers in Dixie in line with those of their Northern counterparts. However, the fact of the matter is that for most of the twentieth century the wage discrepancy between the South and

the rest of the nation remained constant. In 1907, Southern wages were at 86% of the national average and remained at about the same level in 1945. From 1945 to 1960 wages in the region remained between 20%-25% below the national average (Cobb, 1982). In 1994, Briggs & Stratton Corp. decided to move 2,000 of its 5,500 jobs from Milwaukee to Missouri and

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Kentucky because the company could pay half the \$21 an-hour wage it was paying up North for the same work (Bernstein, 1995). In 1977 there was an 18%-22% difference in union versus non-union wages in the South (Cobb, 1982). This point reiterates the problem of the anti-union climate in the South. As labor membership remains low, it seems so do wages relative to those in the North.

While non-southern states have continued to maintain higher levels of union membership, the state and local governments of the South have continued their cooperativeness with business, which has translated into Right-to-Work Laws, anti-picketing laws and the willingness of officials to protect employers from Unions (Cobb, 1982). Southern lawmakers have continued to be ardent supporters of the most pro-business, anti-union legislation in Congress (Applebome, 1996). Their policies seem to have paid off. Southern and other Right-to-Work states have grown faster economically than the non-RTW states of the northeast and the northcentral regions since the 1940's (Moore, 1998).

These facts point to the primary reason for the South's industrial growth in the second half of the twentieth century: cheap labor caused by a lack of unionization in the South (Cobb, 1984). The South's cheap labor force proves to be the tool in attracting foreign, as well as domestic, industrial investment. From the 1970's to the 1990's, as Southern markets grew and foreign competition rose, domestic automanufacturers responded to the pressure by moving south to lower wage areas (Cobb, 1984). The Southern market not only attracted domestic auto manufacturers. In recent years foreign manufacturers have opened many new plants in the South. For example, Nissan opened a \$1.2 billion, 6,000 job plant in Tennessee. In addition, BMW opened a \$2 billion, 4,000 job plant in South Carolina, and Mercedes opened a highly publicized \$300 million, 1,500 job plant in Alabama (Applebome, 1996). Another attraction for investors is the relatively union-free working environment of the South, and the state and local governments' pro-business attitudes. One German industrialist said: "We hoped and still hope that it will take a certain time until the unions move slowly down from the North to the South, and the farther down you are the longer it may take." He added: "A lot of

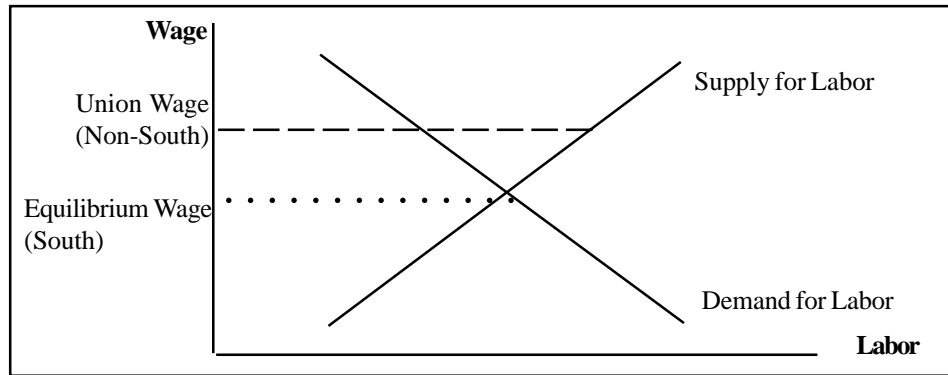
industry wants out of the North because of the high labor problems, because of people living together in crowded big cities - Aggressive people giving problems to factories" (Cobb, 1982).

In the RTW South, anti-union feelings are not held back, even to the point of detracting industrial growth in some cases. After finding out that Mazda was considering opening a union shop manufacturing plant in the Greenville/Spartanburg area of South Carolina, a leader in the Greenville business community and owner of a large apparel firm literally asked Mazda not to consider the location. The business leader was echoing the fears of many area business owners. Even though the new plant could possibly create 6,000 new jobs, they were uninterested because they felt it would raise the wage scale in the area and force their plants to increase wages. When Mazda chose to locate in the union-friendly state of Michigan, business leaders cheered. The Spartanburg County Development Association's monthly journal actually included this comment: "It is our considered view that the Mazda plant would have had a long-term chilling effect on Spartanburg's orderly industrial growth. An auto plant, employing over 3,000 card-carrying, hymn-singing members of the UAW would in our opinion, bring to an abrupt halt future desirable industrial prospects" (Falk and Lyson, 1988). In this case, the local development association was actually taking action to keep the wage down.

As stated before, neoclassical economic theory would predict that as demand for manufacturing labor in the non-South declines and demand in the South increases, wages will lower or stay stagnant in the non-South as wages rise to equalization in the South. But, as the historical evidence shows, wages have not equalized between the South and the non-South.

Macroeconomic theory shows that there may be three different reasons for the persistent wage differentials in the United States. These are: 1) minimum wage laws, which are uniform across the country and therefore will not be the cause of these sticky wages, 2) efficiency wages; but firms would not be moving out of the non-south if this were the case, or 3) unions and collective bargaining (Mankiw, 2000). The evidence clearly points to unionization differences as the cause for persistent wage differentials between the states. This union strength theory is represented

Figure 1 : Manufacturing Labor Market



in Figure 1 by the union wage. The wage in the South is represented by the equilibrium wage.

### III. EMPIRICAL MODEL

The purpose of this research is to determine whether or not the neoclassical theorists are correct and wages across states are converging. Or, to see if the theory that union strength is keeping wages above equilibrium in the non-South and therefore preventing wages from converging, despite economic growth in the South, is true. The data for my research was gathered from various volumes of the Statistical Abstract of the United States and, in several instances, Congressional Quarterly's State Fact Finder. The sample consists of all fifty states.

Before entering into a regression model, this paper will first look at a few descriptive statistics to show that wages in the South have indeed remained lower than wages in the North. Also, the paper will look at manufacturing growth to see that enough movement has occurred that would lead us to believe wages in the North and South should be converging. These descriptives will take a look at the mean manufacturing wage for the South versus the non-south and also the growth in manufacturing importance between those two areas (this variable will be explained in the following discussion of the regression model).

The regression model will use ordinary least squares (OLS) analysis with average hourly earnings of production workers in manufacturing as the dependent variable. The first model will contain three independent variables. They are: a variable showing whether or not the state is in the South, manufacturing importance, and the education level of the state. The model is formulated as follows:

$$Wage = e + \beta_1 South + \beta_2 Manufacturing\ Importance + \beta_3 Education$$

This model, and those that will follow, will first be regressed using data from 1980. The model will then be regressed using the most recent data available, mostly from 1998. The year 1980 was chosen as a starting point because this should allow for the most recent manufacturing growth of the South to be included. Please refer to Table 1 for a summary explanation of variables and expected signs of the coefficients.

The WAGE variable is the average hourly earnings of production workers in manufacturing industries by state (U.S. Census Bureau 1999). This variable was chosen to represent wage because it should be the most sensitive to manufacturing growth. This variable was available for both 1980 and 1998.

The SOUTH variable will also be a dummy variable showing one if the state is considered to be in the South and zero if not. Twelve states were determined to be southern: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia. This variable is predicted to have a negative effect on wage.

The MANUFACTURING IMPORTANCE variable is derived by taking the manufacturing employment of a state in a given year and dividing it by the total population in that state for the same year. This process gives the percentage of the population working in manufacturing. This data comes from 1980 and 1997, because 1998 was unavailable (State Fact Finder 1999). It seems logical that this variable will have a positive effect on the manufacturing wage

**Table 1 : Variable Definitions and Their Predicted Signs**

Variable	Type	Definition	Expected Sign
<b>WAGE</b>	Dependent	Manufacturing Wage	
<b>SOUTH</b>	Independent	Dummy Variable indicating southern state; non-south=0, south=1	Negative
<b>MANUFACTURING IMPORTANCE</b>	Independent	Manufacturing employment divided by population	Positive
<b>EDUCATION</b>	Independent	Percent of population that has finished high school	Positive
<b>RIGHT-TO-WORK</b>	Independent	Whether or not the state has a RTW law; RTW=1, no RTW=0	Negative
<b>UNION</b>	Independent	Percent of non agricultural workers is unionized	positive

because as this variable increases, so too should the demand for manufacturing workers in the respective states. Therefore, the wage should also increase in these states.

The EDUCATION variable is determined by the percentage of the population in each state that are high school graduates. This data comes from 1980 and 1998 (U.S. Census Bureau 1984, 1999). This variable is predicted to have a positive effect on the manufacturing wage because firms are more willing to pay a higher wage to more skilled workers.

The second model will take out the variable of SOUTH from the first equation and add the variables of RIGHT-TO-WORK and UNIONIZATION. This is done to protect from the inevitable multicollinearity problem that would arise from including all three. It is clear from the literature that southern states are almost all right-to-work states and most non-south states are not right-to-work states. The model will still include MANUFACTURING and EDUCATION. The model will be formulated like this:

$$Wage = e + \beta_1 \text{Right-to-Work} + \beta_2 \text{Unionization} + \beta_3 \text{Manufacturing Importance} + \beta_4 \text{Education}$$

RIGHT-TO-WORK is a dummy variable showing whether or not a state is considered to have a right-to-work law (RTW). These laws restrict unions from forcing membership on workers so that they may only be allowed to work in certain factories if they

are union members. These right-to-work laws are often known as "open-shop" laws, because they prevent "closed only to union members" work environments. This variable is used to control for effects on wages and unionization that may not be caused by being a southern state, but rather by being a RTW state. A one will be assigned to RTW states and a zero to those states without a RTW law. This variable is expected to have a negative effect on the manufacturing wage of a state because of its anti-union sentiment.

The UNION variable will be the percentage of labor union membership of the non-agricultural workforce of a state (U.S. Census Bureau, 1984 and 1998). This data was available for both 1980 and 1998. Due to the union wage effect, this variable should have a positive effect on the manufacturing wage.

#### IV. RESULTS

The descriptive statistics of wage and manufacturing importance show some very interesting trends, which are reported in Table 2. The importance of manufacturing in the South in 1980 is actually found to be more important than in the non-South. In 1980, an average of 7.9% of the population in a non-south state worked in manufacturing. In the South, on the other hand, an average of 8.9% of a state's population worked in manufacturing. This is a difference of 1% percent. In 1997, an average of 6.4% of the

**Table 2 : Descriptives**

Variable	1980	Percent Difference	Most Recent	Percent Difference
<b>WAGE</b>				
<b>South</b>	\$6.24/hr	16.80%	\$12.11/hr	11.14%
<b>Non-South</b>	\$7.50/hr		\$13.63/hr	
<b>MANUFACTURING</b>				
<b>South</b>	8.90%	1.00%	7.75%	1.26%
<b>Non-South</b>	7.90%		6.49%	
<b>UNIONIZATION</b>				
<b>South</b>	15.32%	9.41%	7.15%	7.36%
<b>Non-South</b>	24.73%		14.51%	

population of a non-South state worked in manufacturing. In the South, 7.75% of the population continued to work in manufacturing. This is a 1.35% difference and is higher than the 1980 difference of 1%. Therefore, it may be concluded that manufacturing was more important in the South by 1980 than in the North and that importance grew slightly from 1980 to 1997. This would be consistent with the previously discussed historical background.

This being understood, the descriptive statistics of manufacturing wage in 1980 and 1997 tell an interesting story. In 1980, the manufacturing wage of the non-South was \$7.50/hour. In the South, it was \$6.24/hour. That is a 16.8% difference. This does not fit with the findings that manufacturing was more important in the South in 1980 than in the non-South. But, by 1997 this gap in the wage closed to a 11.14% difference. At this time the non-South had a wage of \$13.63/hour and the South had a wage of \$12.11/hour. This indicates that the wage was changing to show affects in the importance of manufacturing be-

tween South and non-South states. This would seem to agree with the neoclassical theory that wages will eventually converge due to higher labor demand in the South.

The descriptive statistics shown on unionization may show why wages seemed to have a persistent differential. Unionization has remained at a significantly higher point in the non-South than in the South. While this difference in unionization across states seems to be slightly declining, it could very well explain the wage differences across these two specific regions of the United States. This data seems to lend strong support to the theory that unions are driving higher wages in the non-South.

The first regression using 1980 data and with the dependent variable of WAGE and independent variables of SOUTH, MANUFACTURING IMPORTANCE, and EDUCATION, explains 24.1% of the variance in the model. None of the variables in this model are significant as shown in Table 3. The MANUFACTURING IMPORTANCE variable has

**Table 3 : Regression #1**

Variables and Expected Signs	1980	Most Recent Data
<b>SOUTH (-)</b>	-1.437	-1.834*
<b>EDUCATION (+)</b>	1.364	1.365
<b>MANUFACTURING</b>	-0.361	1.318

Significant at the 0.07 level

**Table 4: Regression #2**

<b>Variables and Expected Signs</b>	<b>1980 Data</b>	<b>Most Recent Data</b>
<b>RIGHT-TO-WORK (-)</b>	1.149	-1.017
<b>UNION (+)</b>	5.103**	2.039
<b>EDUCATION (+)</b>	2.971**	2.137*
<b>MANUFACTURING (+)</b>	-0.855	1.15

\*Significant to the .05

\*\*Significant to the 0.01

the opposite sign than was predicted. It shows in this model to be negative. The other two variables show the predicted signs. SOUTH has a negative effect on wage, but is insignificant. EDUCATION has a positive effect. This first model is showing that the importance of manufacturing at this time actually had a negative effect on wage. This may be counterintuitive, but according to the descriptive statistics it is true. This follows with the union strength theory that wages may be above the market driven price due to forces other than the demand for labor.

This same model, with the most recent data, explains 20.1% of the variance in wage. This model has one significant variable: SOUTH. This model shows that SOUTH has a negative effect on wage that is significant to the .073 level as shown in Table 3. For this model, MANUFACTURING IMPORTANCE has the expected positive sign. EDUCATION continues to be positive, yet insignificant. The changing of the sign of MANUFACTURING IMPORTANCE between 1980 and 1997 follows the neoclassical theorist view that over time the stronger demand for labor in the South will cause wages to converge.

The second regression formula that contains 1980 data, with manufacturing wage as the dependent variable and RTW, UNION, MANUFACTURING IMPORTANCE, and EDUCATION as independent variables, explains 54.6% of the variance in the model. This model has two significant variables: EDUCATION and UNION as seen in Table 4. EDUCATION has a positive effect on wage and is significant to the .01 level. UNION has a positive effect on wage and is significant to the .01 level. RIGHT-TO-WORK and MANUFACTURING

IMPORTANCE do not have their predicted signs, but are, again, insignificant.

MANUFACTURING IMPORTANCE in this model still has the non-predicted sign and points to the union strength theory's validity. The strength of unions effect on wage is also demonstrated with the significance of the UNION variable.

This same regression, ran with the most recent data, explains 35.1% of the variance in the model. This model has two significant variables: UNION and EDUCATION, as seen in Table 4. The UNION variable has a positive effect on wage at the .05 significance level. The EDUCATION variable also has a positive effect on wage at the .05 level. In this model, MANUFACTURING and RIGHT-TO-WORK both have the expected signs, positive and negative, respectively. But, both of these variables are insignificant. This model, unlike the 1980 model, does show the correct sign for MANUFACTURING IMPORTANCE and points to the strength of the Neoclassical theory. But, in this model, the strength of the neoclassical theory seems to be outweighed by the fact that UNION is having a positive and significant effect on wage.

It is interesting to note that a final model was regressed again with an additional variable to control for cost of living differences between the South and non-South. While most people may believe that demonstrated differences in wage may be due to differences in cost of living between states, the regression found otherwise. With WAGE as the dependent variable, and SOUTH, EDUCATION, MANUFACTURING, and a COST OF LIVING index from 1997 (State Fact Finder 1999) as the independent variables, COST OF LIVING was found to have a posi-

tive influence on wage, but was insignificant. Using the second model, COST OF LIVING still had an insignificant effect on wage once multicollinearity was controlled for between COST OF LIVING, RTW, and UNION.

## V. RESULTS AND POLICY IMPLICATIONS

The findings of this paper show that while the union strength theory seems to hold true in 1980, the most recent data shows that the neoclassical theory is being realized. Wages do look to be converging due to the importance of manufacturing in the South, though this movement seems painstakingly slow. This is not to say that southern workers are no longer at a wage disadvantage. Unionization and right-to-work laws seem to still play a significant role in determining the manufacturing wage, but descriptive statistics show that the difference in wage has lowered by over 5% since 1980.

This research was not without its problems. This study would benefit from a state cost of living index variable to confirm, not just for 1997, that the difference in cost of living is not driving the difference in wage over time. The manufacturing importance variable could also be altered in future research to more clearly demonstrate the differences in supply and demand of manufacturing labor in different states. Perhaps the variable could be substituted with a manufacturing unemployment rate that may more closely represent the shortage or excess supply of labor within particular states. In general, the findings of this study would be greatly helped by expanding the data set to include more years. This would allow for more trends to be seen across time and would control for recessionary periods. It would be helpful to have the data set start before the massive influx of growth that occurred in the South in the 1970's when manufacturing was still more important to the non-South.

This paper's conclusions lead to some interesting policy questions. Is it okay for politicians to follow a policy course that attracts business, but does not help their constituents' wages for years down the road? If the answer is yes, then more states should follow the policies of the South. Keep unions out, let wages be market driven, and wait for them to raise. If the answer is no, southern workers may want to rethink their dislike of unions. Is union activity really

helping union members, or is the loss of jobs to non-union areas outweighing the benefits of a higher wage? If the wages of union and non-union members are going to eventually converge there does not seem to be a point of paying union dues. But, if the convergence is going to take as long as it seems, current workers will never see this happen and would benefit from staying in the union.

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