

## **Examining the historically high rate of unemployment in Southeast Texas**

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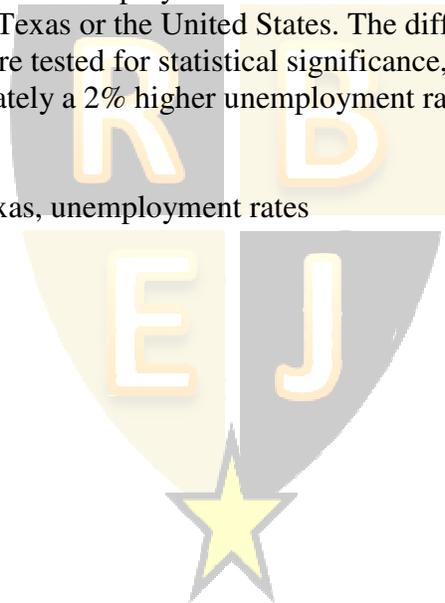
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### **ABSTRACT**

The authors examined the rate of unemployment in Southeast Texas and found that there have been historical differences in unemployment rates between Southeast Texas and its counties/cities and the state of Texas or the United States. The differences in unemployment rates between these regions were tested for statistical significance, and it was found that Southeast Texas has approximately a 2% higher unemployment rate than the state of Texas or the United States.

Keywords: unemployment, Texas, unemployment rates



## **INTRODUCTION**

The natural rate of unemployment has fascinated economist for decades. In economic terms, “full employment” does not mean that every worker will be employed. The natural rate of unemployment represents in the employment market, the labor force that is transitional workers between jobs, laid off employees and terminated employees. Full employment of the labor force would be when all jobs seeking employees find that are able to work a position minus the natural rate of unemployment. The level of natural unemployment rate becomes an important concept when examining employment level.

In this research, the authors will first have to examine what was the rate of unemployment in Southeast Texas area. To make comparable comparisons; the historical rate of unemployment has to be established so that comparisons with the State of Texas and the United States unemployment rates can be made. Since Southeast Texas area has had higher unemployment rates historically, the historically significant difference in unemployment rates would be needed for these comparisons.

This research will attempt to identify the historical differences in unemployment rates for various areas in Southeast Texas as compared to the State of Texas and the United States rates. The differences in unemployment rates will be tested for statistical significance.

The next section covers the literature review of relevant research. Based on our review of the literature, in the conclusion, an explanation will be made regarding economic factors possibly affecting the rate of unemployment in Southeast Texas. The section following the literature review defines the specific goals of this research. Next, the sources of data and methodology are discussed. Our empirical findings are presented next, followed by conclusions drawn from the results.

## **LITERATURE REVIEW**

Milton Friedman, a Noble Prize winner in economics, introduced the concept of the natural rate in 1968 as part of an article on "The Role of Monetary Policy." Milton Friedman defined it as the "level of unemployment which has the property that it is consistent with equilibrium in the structure of real wage rates. At that level of employment, real wages are tending on the average to rise at a `normal' secular rate, i.e., at a rate that can be indefinitely maintained so long as capital formation, technological improvements, etc. remain on their long run trends" (Friedman 1996). A lot of time the “natural rate of unemployment” is misused or misinterpreted. Let it be known the natural rate does not have a numerical value nor can it be easily estimated. The natural rate of unemployment can best be defined as, real wages that adjust to make labor supply equal to the labor demand and the equilibrium rate of unemployment would then stay at a level uniquely associated with that real wage (Geng 2002). Early studies of the relationship between wage changes and unemployment first began with Alban William Phillips between 1861 and 1957. His name has been attached to a famous curve in post-war economics known as the “Phillips Curve”. Phillip believed that there was a negative relationship between unemployment and inflation. The graph of this negative relationship shows that economies should expect with low (high) levels of unemployment there is high (low) inflation rates. Other research has extended his theory. Many studies have found evidence against his theory.

Two of the more famous theorists to independently challenge Phillips theory to be incorrect were the economists Milton Friedman and Edmund Phelps. Friedman & Phelps argued

that long run tradeoff between inflation and unemployment is unlikely because it would require persistent money illusion on the part of workers (Geng 2002). Therefore if workers expected inflation then they would anticipate and expect a correspondingly higher wage rise (Geng 2002). Friedman's thought on the natural rate of unemployment was given in 1968 at an American Economic Association presidential address (Friedman, 1968):

“At any moment in time there is some level of employment which has the property that it is consistent with equilibrium in the structure of real wage rates... The ‘natural rate of unemployment’, in other words, is the level which would be ground out by the Walrasian system of general equilibrium equations, provided that commodity markets, including market imperfections, stochastic variability in demand and supplies, the cost of gathering information about job vacancies and labor availabilities, the cost of mobility, and so on.”

Meaning the natural rate is determined by such economic fundamentals as technology, preferences, institutions, population, and so on. Friedman's theory can be summed by saying the natural rate of unemployment changes come about due to the changes in demographics, the labor market, government unemployment benefits and other specific factors affecting the supply of and demand for labor. The Friedman theory was subsequently developed by many macroeconomists under the term “non-accelerating inflation rate of unemployment,” or NAIRU, a remarkably clumsy term for expressing the simple concept of a threshold unemployment rate below which the inflation rate begins to rise (Pollin, 1999).

Since Friedman's 1968 speech, there has been recent work dedicated to explaining long run movement of unemployment and to testing the natural rate hypothesis. Other researchers have extended Friedman's idea by building rational expectations models of the output-inflation trade-off where the predictable part of the current inflation rate is not correlated with unemployment (Salemi, 1998). According to Geng (2002), as time goes, two theories, the job search matching theory and the efficiency wage theory have emerged as the most convincing candidates in explaining the existence and determination of natural rate of unemployment.

Other studies like that of Bartlett and Haas (1997), “argue that the natural rate of unemployment is different for a variety of groups. Relying on it does more harm to some than to others, and obscures the structural problems that cause these differences.” Their study just brought about more questions like; why do different groups experience different trade-offs between unemployment and inflation?, Why do different groups have different natural rates of unemployment?, If one or more groups consistently perform better in terms of their natural rate of unemployment, what are the policy implications?

Michael K. Salemi wrote an article on “estimating the natural rate of unemployment and testing the natural rate hypothesis.” This article proposed a systems procedure as an alternative to NAIRU. The natural rate is treated as an unobserved state variable in a system that includes measurement equations for the unemployment rate, the rate of wage growth and the rate of inflation (Salemi, 1998). The results Salemi found cast serious doubt on some versions of the natural rate hypotheses. The lack of significance of the coefficient that measures the effect of inflation surprises on unemployment and the finding that changes expected inflation are not fully reflected in wage growth provide evidence against new classical natural rate models (Salemi, 1998).

Previous literature has shown that there is a natural unemployment rate. The natural unemployment rate can be attributed to friction in the employment market. Given that there will always be employees getting fired, laid off, changing careers, or trading old jobs for new ones, the employment rate cannot equal 100% percent. The natural unemployment rate is the amount of unemployed due to frictions in the labor market.

Studies have shown the natural unemployment rate to be about 4% as predicted by authors in the Economic Journal with the likes of Debelle and Laxton (1997), Pollin (1997) and Geng (2002). In this research, the authors are interested in examining the natural unemployment rate in Southeast Texas Area. This study will investigate if the natural unemployment rate in the Beaumont-Port Arthur Metropolitan Statistical Area, the counties of Jefferson and Orange, and the cities of Beaumont and Port Arthur is statistically higher than the State of Texas and United States rates.

## **DATA**

The data set obtained for this study was acquired from using the resources available by the Texas Workforce Commission, Texas Labor Market Review Publications and the [www.tracer2.com](http://www.tracer2.com) of the Texas Workforce Commission website, which allowed the collection of the unemployment rates, number of unemployed, and number of employed for the various areas of Southeast Texas. Data was collected from the resource for January 2000 to June 2006. Data was pulled for the Beaumont Port Arthur-Metropolitan Statistical Area (BPT-MSA), Texas counties Jefferson and Orange, and Texas cities of Beaumont and Port Arthur. The authors also used the tracer2 website to pull the data for the State of Texas, and the United States of America. Missing data from publications was later obtained from the tracer2 website. There was uncollected data for the city of Orange after December of 2003, and uncollected data for all cities of Beaumont and Port Arthur before February of 2002.

## **METHODOLOGY**

To analyze the significant differences in our data, the authors used the two-sample assuming unequal variances t-test analysis tool to find the historical rates of unemployment. The two-sample student's t-test form assumes that the two data sets came from distributions with unequal variances. It is referred to as a heteroscedastic t-test. This t-test can determine whether the two samples are likely to have come from distributions with equal population means. The two-sample t-test tests for equality of the means of the population using two samples from each population. The calculated t-stat will be used in a two tail comparison to get a p-value for the statistic. The authors used the t-test to compare unemployment rates between the metropolitan statistical area, counties, cities, and the state and national rates.

## **EMPIRICAL RESULT**

The Beaumont-Port Arthur Metropolitan Statistical Area historical unemployment rate has been compared to the State of Texas and United States rates. In Table 1, the Beaumont-Port Arthur Metropolitan Statistical Area unemployed rate is 2.27% higher than the State of Texas and 2.48% higher than the United States. These rates are statistically significant at the 1% level. This means that historically Southeast Texas has had a higher unemployment rate.

**Table 1. Comparison of Southeast Texas Areas versus the State of Texas and the United States Unemployment Rates**

The percent difference in historical unemployment rates for each is presented with the t-statistic in parenthesis.

	<u>Texas</u>	<u>United States</u>
Beaumont-Port Arthur Metropolitan Statistical Area	2.27% (29.34)***	2.48% (27.39)***
Jefferson County	2.03% (30.28)***	2.24% (28.71)***
Orange County	3.53% (26.98)***	3.74% (25.81)***
Beaumont	1.73% (25.53)***	1.94% (22.55)***
Port Arthur	6.31% (48.29)***	6.52% (45.37)***
Texas		0.21% (5.2)***

Jefferson County's historical unemployment rate has been compared to the State of Texas and United States rates. In Table 1, Jefferson County's unemployed rate is 2.03% higher than the State of Texas and 2.24% higher than the United States. These rates are statistically significant at the 1% level. This means that historically Southeast Texas has had a higher unemployment rate. This shows that Jefferson County has higher unemployment.

The Orange County historical unemployment rate has been compared to the State of Texas and United States rates. In Table 1, the Orange County unemployed rate is 3.53% higher than the State of Texas and 3.74% higher than the United States. These rates are statistically significant at the 1% level. This means that historically the Orange County has had a higher unemployment rate.

The City of Beaumont historical unemployment rate has been compared to the State of Texas and United States rates. In Table 1, the City of Beaumont unemployed rate is 1.73% higher than the State of Texas and 1.94% higher than the United States. These rates are statistically significant at the 1% level. This means that historically the City of Beaumont has had a higher unemployment rate.

The city of Port Arthur's historical unemployment rate has been compared to the State of Texas and United States rates. In Table 1, Port Arthur's unemployed rate is 6.31% higher than the State of Texas and 6.52% higher than the United States. These rates are statistically

significant at the 1% level. This means that historically Southeast Texas has had a higher unemployment rate. Southeast Texas area has had about 1400 to 1600 more unemployed workers when compared to the State of Texas or the United States averages.

In an interest note, the Beaumont-Port Arthur Metropolitan Statistical Area unemployment claims were increased by 7839 due to Hurricane Rita. Surprisingly 5616 of these unemployment claims disappeared by the end of the October 2005 to November 2005 period. There were approximately 5616 non-verifiable claims in the Metropolitan Statistical Area.

## CONCLUSIONS

Historically, Southeast Texas has had a higher rate of unemployment as compared to the State of Texas and United States rates. The results have shown the Beaumont-Port Arthur Metropolitan Statistical Area to have a natural rate of unemployment 2.27% higher than the state and a 2.48% rate higher than the national averages. Jefferson County has had a natural rate of unemployment 2.03% higher than the state and a 2.24% rate higher than the national averages. Orange County has had a natural rate of unemployment 3.53% higher than the state and a 3.74% rate higher than the national averages. The city of Beaumont has had a natural rate of unemployment 1.73% higher than the state and a 1.94% rate higher than the national averages. The city of Port Arthur has had a natural rate of unemployment 6.31% higher than the state and a 6.72% rate higher than the national averages. All areas tested in Southeast Texas had a higher rate than the state and national averages.

The authors suggest more research into why Southeast Texas has a historically high rate of unemployment. The first area for researching an explanation for the high rate could look into the areas low educational level. Forbes named Beaumont the least educated city in America in 2014. Another possible factor could be sticky wages (wage misperceptions). For many years, workers in Southeast Texas could command high hourly wage jobs due to the many plants in the area. Now as the jobs have disappeared, workers seem unwilling to take the low hourly wages that service jobs pay.

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