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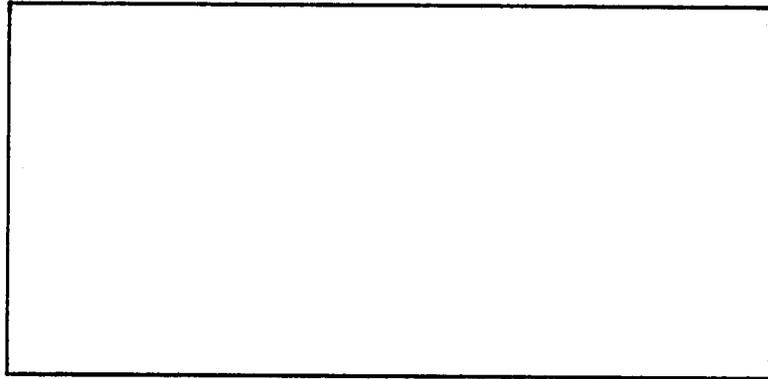
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**Unemployment and Underemployment
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T. T. Williams, Director

INTERNATIONAL ECONOMIC DEVELOPMENT PROGRAM



**Southern University and A & M College
Post Office Box 9846
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REDISTRIBUTION OF EMPLOYMENT
IN LOUISIANA

BY

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SOUTHERN UNIVERSITY

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FOREWORD

The Unemployment and Underemployment Institute was created to coordinate all international economic development activities of the 211(d) grant at Southern University.

In 1972, the Agency for International Development (AID) approved a five year grant to Southern University to strengthen and increase its capacity in economic/agricultural economics to enhance Southern's capabilities to contribute to the resolution of problems of rural unemployment and underemployment in developing countries.

The general objectives of the Institute are (a) to develop and coordinate the activities of the University for greater participation in international economic development programs; (b) to make available the capacities and expertise thus developed to public and private agencies involved in industrial development programs; and (c) to conduct research, seminars, and workshops on domestic and international development problems including cooperatives, manpower utilization, small farmers, housing, population, nutrition, leadership training, and community development.

In keeping with objective (a), the University supports several faculty members working towards advanced degrees in the area of economic development and related disciplines, supports undergraduate scholarships to foreign and U. S. nationals in the Department of Agricultural Economics and Economics, provides travel to professional seminars for faculty, and foreign exposure to development experiences and special training on techniques of program design and evaluation.

In keeping with objective (b), the Institute sponsors an International Development Seminar Series, Student-Faculty & Staff Seminar Series, and hosts foreign individuals and groups interested in economic development programs at Southern University.

Results of research projects consistent with the objectives of this program are published under the Institute's Faculty-Staff Research Paper Series. Papers published under this series reflects the diversity of interests and specialties of our faculty and staff.

The above activities of the Institute demonstrate the capacities and expertise of Southern University developed through the 211(d) program. As a result of the 211(d) grant, the Unemployment-Underemployment Institute at Southern University is in a position to offer expert and technical personnel to private and public agencies involved in international economic development programs.

**T. T. Williams
Director**

REDISTRIBUTION OF EMPLOYMENT IN LOUISIANA

BY

Ernesto C. Lucas

INTRODUCTION

Measured in terms of employment, substantial geographic redistribution of economic activities have occurred in the United States since 1940.

Beginning with the second world war and the disarmament that followed it, the Korean war followed by several years of slow economic growth, and finally the Vietnam war that led to inflation and recession, all have contributed to economic cycles affecting different industries and different regions of the country.

Intervals of war and peace time economy that created these business cycles have caused substantial redistribution of employment and income in the United States. While the impact of these cycles on the national economy have been studied by Ashby (1), Bretzfelder (2), and Graham (3), their effects on local economies have not been fully determined. Knowledge of the magnitude and direction of employment changes is important to economic planners in the nation as well as those in local governments.

OBJECTIVES, DATA, AND PROCEDURES

The objective of this study are (1) to compare the employment trend in Louisiana with similar trends in the states of Mississippi, Arkansas,

and the Southeast Region, and (2) to determine the magnitude and direction of employment shifts in Louisiana by major industry groups.

The data used in this study are employment statistics from the County Business Patterns for the years 1940-1950, 1950-1960, and 1965-1972. These data are not complete in that they include only those workers that were covered under the Social Security Act. Also, government and domestic workers are excluded. It is estimated that these exclusions constitute approximately twenty-four percent of the labor force. Since, I am more interested about the changes in, rather than the level of employment, the deficiencies of these data become less significant. This is particularly true for government employment which is less sensitive to economic cycles than do industrial and commercial employment.

The procedure used in this study is known as shift share analysis.² It proceeds on the assumption that the change in employment is attributable to three factors namely, (1) the national growth component, (2) the industrial mix growth component, and (3) the regional share growth component. A state's growth in employment attributable to the general employment growth in the nation is known as the national growth component. Assuming no differences in economic characteristics, each state would grow at a rate equal to that of the nation, and so maintain over time its share of the nation's total.

The industrial mix growth component arises from the differential growth rates between employment in a particular industry and the total employment in the nation. If for a particular state, the difference is positive, that state has a favorable industry mix - suggesting the fact

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Computational procedure of shift share analysis is discussed in detail in the Appendix.

that a major proportion of employment is engaged in the fast growth industries. A state specializing in fast growth industries tend to show, ceteris paribus, a rate of growth higher than that of the national average.

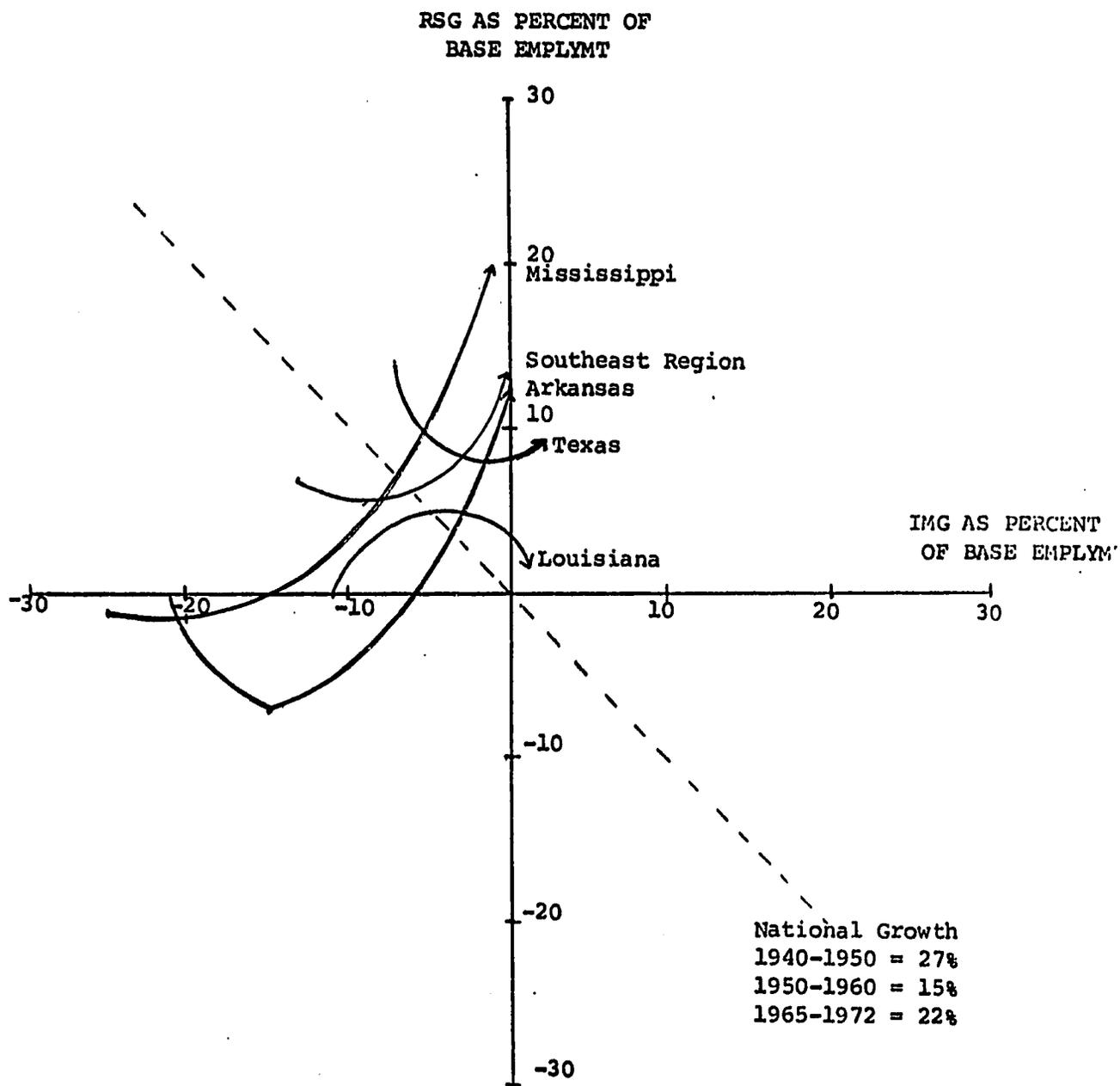
The regional growth component arises from the fact that a state's employment is expanding or declining more rapidly vis-a-vis other states engaged in the same activity. Thus, it measures the extent to which a state's growth exceeds or falls short of the national norm for that industry, and therefore can be interpreted to reflect the competitive position of the state.

COMPARATIVE EMPLOYMENT SHIFTS IN LOUISIANA, TEXAS
MISSISSIPPI AND ARKANSAS, 1940-1972

Employment changes for the states of Texas, Arkansas, Mississippi and the Southeast Region were analyzed and compared with the employment changes in Louisiana. To establish trends for comparison, three time periods were selected, 1940-1950, 1950-1960, and 1965-1972. Employment changes for each state within these periods were factored into three growth components, the national growth component (NG), the industrial mix growth component (IMG), and the regional share growth component (RSG). These components of growth are expressed as percent of the base employment and plotted in Figure 1.

Figure 1 is a convenient device for comparing changes in employment among the states. The position of the line segment representing each state, with respect to the diagonal line indicates the magnitude of the net shift. The net shift is obtained as the algebraic sum of the industrial mix and the regional share growth components and can be determined by inspection as the vertical distance between the diagonal line and the line segment representing the state. The direction of the arrow from one time period to another indicates the sources of the change - whether the change

Figure 1: Profile of Employment Changes in Louisiana, Mississippi, Texas & Arkansas, 1940-1972



is due to industry mix component or due to the regional share growth component.

Within the period 1940-1950, the employment growth rates of Louisiana, Mississippi, and Arkansas were less than the twenty-seven percent national growth rate by twelve percent, twenty-six percent and twenty-one percent respectively. In fact, the growth rate of the Southeast Region for the same period was about six percent less than the national average. In all cases, the reason for their lagging growth rates seem to be an unfavorable industry mix as indicated by the origins of the line segments representing each state. See Figure 1.

In the decade of the nineteen-fifties, employment growth rates for Mississippi and Arkansas were still below the fifteen percent national growth rate by eighteen percent and twenty-two percent respectively. Over the same period, growth rate for the Southeast Region was about three percent less than the national average, while Louisiana's growth rate was equal to that of the national growth rate of fifteen percent. While the industrial mix growth components of these states have slightly improved, their competitive position continued to decline.

Within the eight year period 1965-1972, economic activities in the four states as reflected by their employment growths have exceeded the twenty-two percent national growth rate by nineteen percent for Mississippi, twelve percent for Arkansas, and four percent for Louisiana. These changes in employment appear to have been due to improved industry mix as well as increasing competitiveness of the southern states in relation to other areas in the country.

The employment trend for Texas appear to be quite different from the other states. Texas has traditionally been a fast growing state, exceeding the national growth rate by about seven percent in the decade of the nine-

Table 1: Comparative Employment Changes for Louisiana, Mississippi, Texas, Arkansas and the Southeast Region, 1940-1950, 1950-1960 and 1965-1972

Periods	Employment		Change in Employment (1000)	Components of Change		
	Base	Terminal		NG	IMG	RSG
Louisiana						
1940-1950	771.1	886.4	115.3	205.6	- 87.7	- 2.6
1950-1960	886.4	1026.5	140.5	137.2	- 45.1	48.4
1965-1972	682.9	852.8	169.9	147.0	9.1	13.8
Mississippi						
1940-1950	727.5	730.9	3.5	194.0	-185.0	- 5.5
1950-1960	730.9	703.3	-27.6	113.2	-135.3	- 5.5
1965-1972	335.9	484.4	138.4	74.4	- 5.1	69.1
Texas						
1940-1950	2138.4	2860.3	721.9	570.2	-142.9	294.6
1950-1960	2860.3	3480.9	620.6	442.8	- 51.2	229.0
1965-1972	2313.9	3065.2	751.3	498.0	35.7	217.7
Arkansas						
1940-1950	583.9	617.3	33.5	155.7	-122.1	- .3
1950-1960	617.3	513.7	- 43.6	95.6	- 93.6	-45.6
1965-1972	334.1	448.6	114.4	72.0	.7	41.7
Southeast Region						
1940-1950	9878.3	11913.4	2035.1	2634.0	-1299.7	700.8
1950-1960	11913.3	13414.1	1500.7	1844.3	-1062.4	718.8
1965-1972	8712.2	11745.1	3032.9	1874.8	- 28.7	1136.5

Table 2: Comparative Employment Changes in Louisiana, Mississippi, Texas, Arkansas, and the Southeast Region, 1940-1950, 1960-1970 and 1965-1972 in Percent

Periods	Employment		Employment Change		Components of Change		
	Base	Terminal	Number	Percent	% NG	% IMG	% RSG
Louisiana							
1940-1950	771.1	886.4	115.3	14.95	26.67	-11.37	- .34
1950-1960	886.4	1026.9	140.5	15.85	15.48	- 5.10	5.46
1965-1972	682.9	852.8	169.9	24.88	21.52	1.33	2.02
Mississippi							
1940-1950	727.5	730.9	3.5	.47	26.67	-25.43	- .76
1950-1960	730.9	703.3	-27.6	-3.78	15.49	-18.51	- .75
1965-1972	345.9	484.4	138.4	40.04	21.52	- 1.47	19.98
Texas							
1950-1960	2138.4	2860.3	721.9	33.76	26.67	- 6.68	13.78
1950-1960	2860.3	3480.9	620.6	21.70	15.48	- 1.79	8.01
1965-1972	2313.9	3065.2	751.3	32.47	21.52	1.54	9.41
Arkansas							
1950-1960	583.9	617.3	33.5	5.72	26.67	- 6.68	13.78
1960-1970	617.3	573.7	- 43.6	-7.06	15.49	-15.16	- 7.39
1965-1972	334.1	448.6	114.5	34.24	21.55	.21	12.48
Southeast Region							
1940-1950	9878.3	11913.4	2075.1	20.60	26.67	-13.16	7.02
1950-1960	11913.4	13414.1	1500.7	12.60	15.48	- 8.92	2.63
1965-1972	8712.2	11745.1	3032.9	34.81	21.52	- .33	13.62

teen-forties, six percent in the decade of the nineteen-fifties, and eleven percent from 1965-1972. Like the three southern states, its industry mix has been unfavorable although its competitive position has been strong.

INDUSTRIAL EMPLOYMENT SHIFTS IN LOUISIANA, 1965-1972

Louisiana's employment for the ten major industry groups has increased by 170,000 over the eight year period from 1965-1972. Of this, 146,700 was due to national growth component, 9,600 due to industry mix component, and 13,000 due to regional share growth component. In percentages, Louisiana's employment has increased by approximately twenty-five percent, of which twenty-one percent representing national growth component, and about two percent each for industry mix and regional share growth components. This places Louisiana's growth rate approximately four percent above the twenty-two percent national norm for 1965-1972.

Figure 2 shows the relative growth rates of employment among the ten major industry groups in the state. For example, agricultural employment has increased by twenty-five percent above the national growth rate, making it the fastest growing industry in the state for that period. And the reason is because agriculture in the state was a fast growth as well as a competitive industry.³ See Figure 2. The employment growth rates for wholesale and retail trades, services, finance and real estate have exceeded

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While traditional agriculture may have been declining in the state as well as in the nation, commercial agriculture had not. The trend towards the smaller number of, but bigger size farms has opened up employment opportunities of independent farmers to agribusiness enterprises, thus including them in employment statistics reported in the County Business Patterns.

Figure 2: Profile of Employment Changes in Louisiana by Industry, 1965-1972

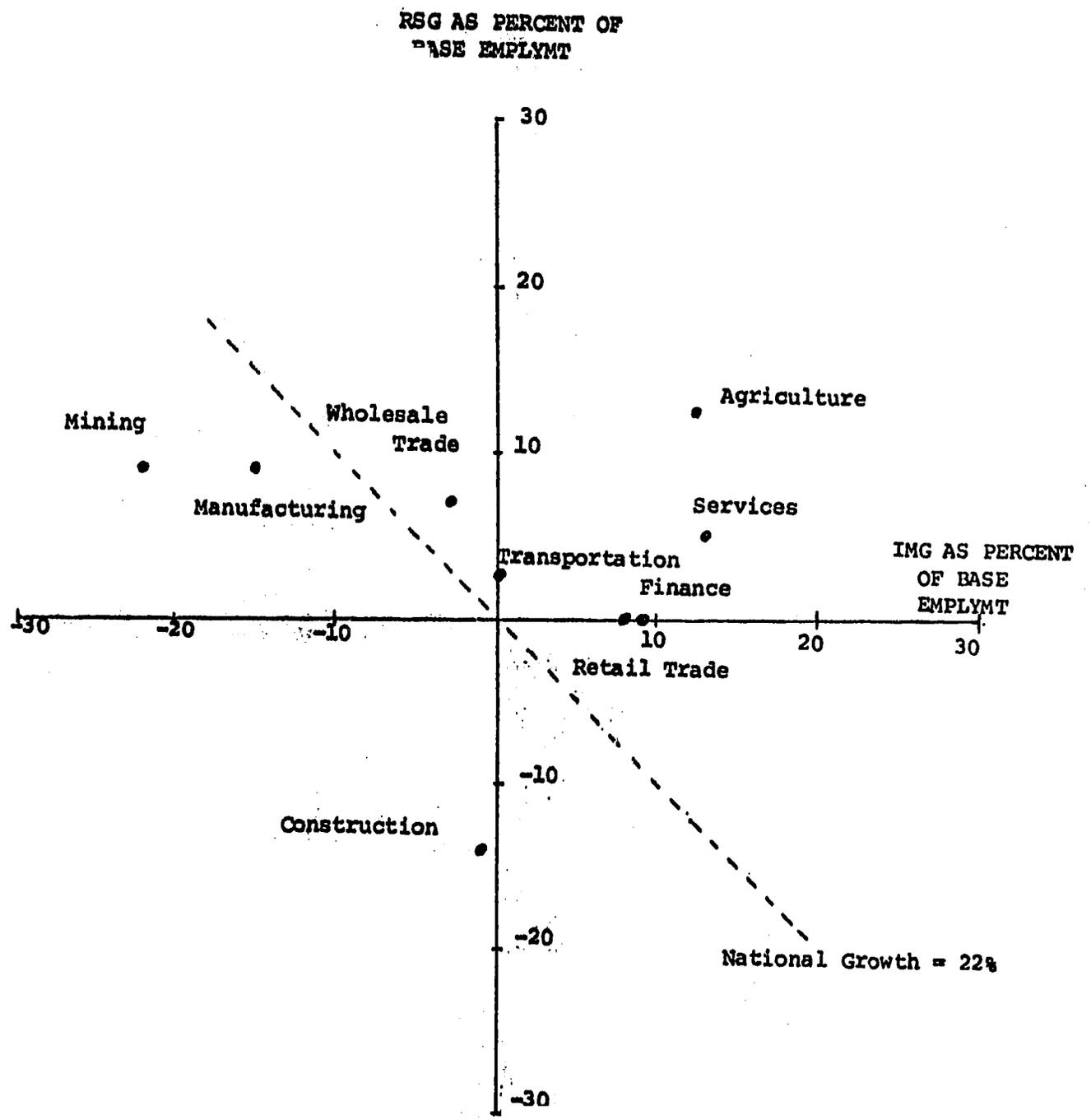


Table 3: Components of Employment Changes in Louisiana,
By Industry, 1965-1972

Industry	Employment		Change in Employment		Components of Change in Percent		
	1965	1972	Number	Percent	NG	IMG	RSG
Agriculture	3164	4741	1577	49.84	21.52	12.48	15.83
Mining	45347	49078	3731	8.23	21.52	-21.86	8.57
Construction	71248	75355	4107	5.76	21.52	- 1.19	-14.57
Manufacturing	149892	172559	22677	15.12	21.52	-15.26	8.86
Transportation	67927	84549	16622	24.47	21.52	- .50	3.45
Wholesale Trade	56329	70694	14365	25.50	21.52	- 2.89	6.87
Retail Trade	136247	176689	40442	29.68	21.52	8.42	- .26
Finance	41199	53808	12609	30.61	21.52	8.62	.42
Services	104790	156559	51769	49.40	21.52	22.49	5.39
Unclassified	6799	8761	1962	28.86	21.52	83.75	-76.41
TOTAL	882942	952793	69851	24.87	21.52	1.33	2.02

the twenty-two percent national norm, while employment in mining, construction, manufacturing and transportation exhibited growth rates less than the national average.

SUMMARY AND CONCLUSIONS

In this study, I have attempted to describe the employment trend in Louisiana and compare it with similar trends for the states of Mississippi, Arkansas and Texas. Also, I have attempted to determine the causes of the changes in employment in the ten major industry groups in terms of the three components of growth. The results are summarized as follows:

1. Within the period 1940-1950, the employment growth rates of the three southern states and the Southeast Region were below the national growth rate. However, with the period 1965-1972, their employment growth rates have exceeded the national norm, with Mississippi leading the states, followed by Arkansas, Texas and Louisiana in that order. The high rate of employment growths in these states have been due to improved industrial mix as well as increasing competitiveness. Louisiana did not appear to have much of these attributes. In fact, its growth rate of twenty-five percent for the period 1965-1972 had been primarily due to national growth effect, a growth attributable to the economic vitality of the country in general, and not because of certain attributes of the Louisiana economy.

2. Employment growths in agriculture, services, finance and trade in Louisiana have exceeded the twenty-two percent national norm, while mining, construction, manufacturing, transportation lagged behind the national average. Industries which exceeded the national employment growth rate were fast growth industries, while those industries with growth rates below the national average were slow growth industries. This suggests a relatively weak competitive position of Louisiana.

This study is exploratory in nature and the results are essentially descriptive. While the analysis or the results do not suggest appropriate measures to improve the employment opportunities in the state, comparison of the different components of growth among the four states suggests that Louisiana has not attracted sufficient number of fast growth industries to make its industry mix favorable, nor has it developed the institutional and economic climate necessary to make it competitive with other states in the region.

COMPUTATIONAL PROCEDURES OF SHIFT SHARE ANALYSIS

Shift share analysis is a method which has been applied successfully in a number of regional development studies. It has been found effective in determining, in broad categories, the causes of change in income and employment.

The procedure is conceptually simple, based on common sense logic rather than profound theory. It does not make impossible demands on the data, and the computational procedures can be programmed easily in a computer or worked out in a calculator.

Yet, despite its simplicity, shift and share analysis is a powerful tool which enables the investigator to look through the mass of statistical data and acquaint himself with the multiplicity of relationships among different areas and industries. Also, it enables the investigator to untangle complex relationships among industries and among regions and in the process, discovers the basic problems confronting the industry or region.

Notations

Let there be n industries ($i = 1, 2, 3, \dots, n$) and m states ($j = 1, 2, 3, \dots, m$) in a country. Also, let E_{ij} and E'_{ij} be the employment of the i th industry in the j th state for the terminal year and the base year respectively.

From these, the computational notations are established as follows:

$$E_{i.} = \sum_{j=1}^m E_{ij} = \text{aggregate employment for the } i\text{th industry in the base year,}$$

$$E'_{i.} = \sum_{j=1}^m E'_{ij} = \text{aggregate employment for the } i\text{th industry in the terminal year,}$$

$$E_{..} = \sum_{i=1}^n \sum_{j=1}^m E_{ij} = \text{aggregate employment for all industries in the base year,}$$

$$E'_{..} = \sum_{i=1}^n \sum_{j=1}^m E'_{ij} = \text{aggregate employment for all industries in the terminal year,}$$

$r_i = E'_{ij}/E_{ij}$ = terminal to base year employment ratio for the i th industry in the j th state,

$R_i = E'_{i.}/E_{i.}$ = terminal to base year employment ratio for the i th industry in the country, and

$R_a = E'_{..}/E_{..}$ = terminal to base year employment ratio for all industries in the country.

The Model

Shift share analysis assumes that the change in employment can be factored into three components - the national growth component (NG), the industrial mix growth component (IMG), and the regional share growth component (RSG). The change in employment in the i th industry in the j th state from the base to the terminal period is shown algebraically in equation (1)

$$(1) \quad E'_{ij} - E_{ij} = \Delta E_{ij} = E_{ij}(R_a - 1) + E_{ij}(R_i - R_a) + E_{ij}(r_i - R_i)$$

where:

ΔE_{ij} = change in employment in the i th industry in the j th state,

$E_{ij}(R_a - 1)$ = change in employment due to the national growth component,

$E_{ij}(R_i - R_a)$ = change in employment due to the industrial mix component, and

$E_{ij}(r_i - R_i)$ = change in employment due to the regional share growth component.

Dividing equation (1) by E_{ij} and multiplying each term by one hundred yields equation (2)

$$(2) \quad r_i - 1 = (R_a - 1) + (R_i - R_a) + (r_i - R_i).$$

The left hand side of equation (2) indicates the change in employment in percent. The right hand side indicates, respectively, the national growth, the industrial mix growth, and the regional share growth components in percent. The industrial summation of employment changes, (summation over the i th index) yields the state change in employment as shown in

equation (3).

$$(3) \quad E'_{.j} - E_{.j} = \Delta E_{.j} = E_{.j}(R_a - 1) + E_{.j}(R_i - R_a) + E_{.j}(r_i - R_i)$$

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