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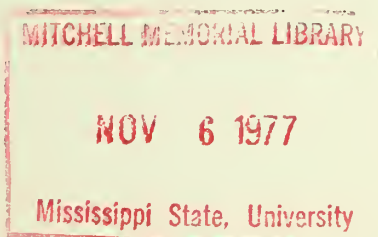
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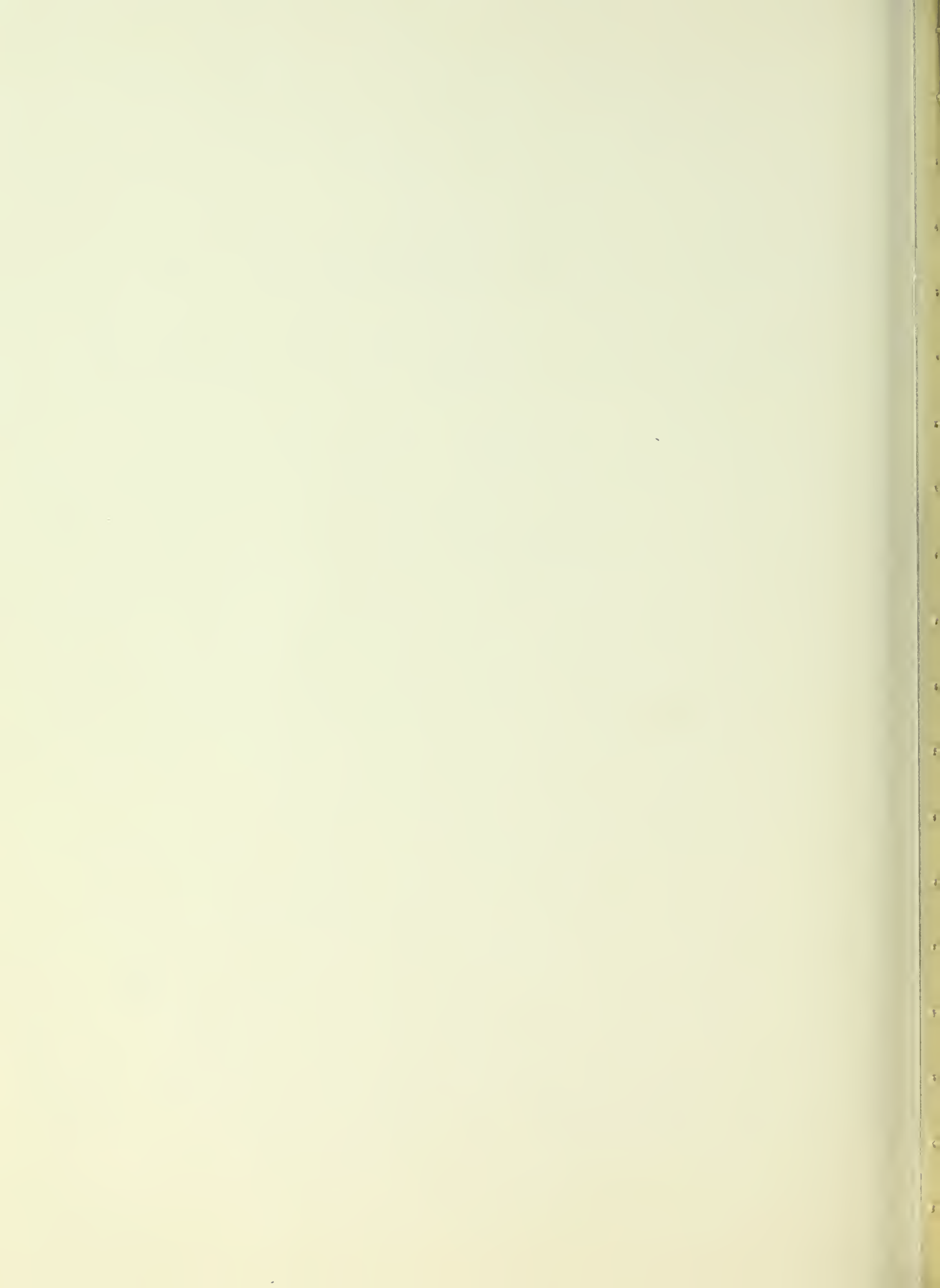
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# Changes in Occupational and Industrial Structure of Employed Urban Residents, Mississippi, 1960-1970

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# Changes in Occupational and Industrial Structure of Employed Urban Residents, Mississippi, 1960-1970<sup>1</sup>

Three forces can be identified in studies of industrial development trends in advanced societies: (1) a tendency toward localization of industries; (2) agricultural drift; i.e. a gradual shift of the workforce from agriculture into other economic activities; and (3) urban growth or urbanization (7).<sup>2</sup> These three forces are "basically independent", but their influences undoubtedly are inter-related. It is because of the nature of this relationship that the phenomenon of urbanization has been seen frequently as one of the prominent characteristics of modern societies (2).

Growth of urbanization in the United States, as in most parts of the world, has been augmented and stimulated by the development of a change in technology (15). Technological development means the creation of new kinds of jobs, the revision of labor in the communi-

ty, and sometimes the introduction of new industries. The dynamics of technology strongly influence the development and use of natural resources which, in turn, have important effects on the occupational composition of the employed population. For example, mechanization of agriculture and the introduction of modern means of transportation enable farmers to reside in urban localities and participate in nonagricultural activities.

Urban population increases are made possible by technological advances in general and by substantial increases in agricultural productivity in particular, because urban dwellers generally have depended upon farmers to provide food (16). Urban growth in Mississippi, as in most of the South, is expected to continue in the future, but at a decreasing rate.

The transition produced by rural-

farm desertion and urban concentration suggests a major inquiry into differentials in occupations of residents of "urbanized areas" and "other urban" areas in Mississippi.

Occupational classification long has attracted the thoughts of social scientists because of its close relationship to the economic advancement and social well-being of societies. As early as 1776, for instance, Adam Smith referred to divisions of employment as the basic wellspring of "the wealth of nations" (14). Occupation determines both income level and "social position of the individual" (13) each of which can be determined by providing answers to questions about wage-earning, tax-paying, and social class of urbanites---questions of interest to public officials, policy makers, businessmen, administrators, and laymen. Moreover, as an aid to understanding the nature of the

<sup>1</sup>This article is a revision of a paper presented at the annual meeting of the Southern Sociological Society, Atlanta, Georgia, April 12-14, 1973. The research was part of Mississippi Agricultural and Forestry Experiment Station Population Project No. 4004. The analysis is confined to Mississippi's urban areas. For a comparative analysis covering urban, rural-farm and rural non-farm residential types, see (6). A number of persons have contributed their assistance in the preparation of this report. More specifically, credit is due to Professors A. W. Bird, J. C. Crecink, J. Saunders, C. R. Sollie, and C. M. Wells for their reviews and comments on earlier drafts of the manuscript. Thanks to Mr. D. L. Steinman for drawing the charts.

<sup>2</sup>Numbers in parentheses refer to literature cited.

socio-economic development experienced by the state in the last decade, an investigation of the changing redistribution of people and jobs in urban Mississippi is necessary. One approach to this is to measure the differential change in the occupational structure of employed residents and compare these differentials with the differential change in the industrial structure of these urban types. Focus on changes in the structure of economic activities is fundamental to urban economic analysis because it enables the researcher to identify and measure the extent of industrial differentiation prevailing in the State. Moreover, changes in industrial

structure determine the degree of industrialization and the consequent urban growth in the State. This approach takes as its point of departure the following premises:

1. The rate of change in residential employment depends on the size of employment in the basic activities. "These basic activities not only provide the means of payment for raw materials, food, manufactured products which the (area) cannot produce itself but also support the 'service' activities, which are principally local in the productive scope and market areas"<sup>3</sup>.

2. The above premise emphasizes the relationship of industrialization (and, consequently, the divi-

sion of labor) to the extent of the market. This type of relationship has been recognized since the days of Adam Smith who stated:

"It is impossible there should be such a trade as even that of a nailer in the remote and inland parts of the Highlands of Scotland. Such a workman at the rate of a thousand nails a day, and three hundred working days in the year, will make three hundred thousand nails in the year. But in such a situation it would be impossible to dispose of one thousand, that is, of one day's work in a year" (14).

### Objective

The objective of this study was to test the hypothesis that urban growth in Mississippi tends to be differentiated with respect to the 'occupational' and 'industrial

structures'<sup>4</sup> of employed residents of 'urbanized areas'<sup>5</sup> and 'other urban areas'<sup>6</sup>. Underlying the hypotheses is the assumption that observed differences in 'oc-

cupational structure' are the product of the difference in changes in the 'industrial structure'<sup>7</sup> of the work force residing in each of four 'urban type'<sup>8</sup> areas.

<sup>3</sup>These basic activities constitute, among others, the production, processing, trading, distribution and provision of goods, services, and capital mainly to individuals and organizations located outside the boundaries of urban areas in which the activities are located. See (12, 16).

<sup>4</sup>'Occupational structure' refers to allocation of the work force to the different functions within the occupational-group strata of a society. "The occupational structure in modern industrial society" shows the allocation of manpower to various institutional spheres, and it is the flow of movements among occupational groups that reflects the adjustment of the demand for diverse services and supply of qualified manpower.

<sup>5</sup>'Urbanized area' is "a central city of 50,000 inhabitants or more in the 1960 or 1970 census; or twin cities, i.e., cities with contiguous boundaries and constituting a single community with a combined population of at least 50,000 and with the smaller of the twin cities having a population of at least 15,000. All persons residing in an 'urbanized area' are classified as urban. The 'urbanized area' population is divided into those in the 'central city' and those in the 'urban fringe' " (17). The major advantage of designating 'urbanized areas' is that it provides an easy method for separating urban and rural populations in the vicinity of larger cities.

<sup>6</sup>'Other urban areas' refers to urban categories other than those included in 'urbanized areas.' Specifically, 'other urban areas' are classified into (1) urban places of 2,500 to 9,999 inhabitants and (2) urban places with 10,000 or more but less than 50,000 inhabitants.

<sup>7</sup>'Industrial structure' refers to the distribution of a society's manpower among industries. Expressed in data, it is the number of persons employed in each industry.

<sup>8</sup>The term, 'urban type,' is used in this study to refer to the 'central city,' the 'urban fringe' and to 'other urban areas.' Four urban types are identified: 'central cities,' 'urban fringe,' places with 2,000 to 9,999 inhabitants and places with 10,000 or more but less than 50,000 inhabitants.

## Analytical Procedures

Changes in 'occupational structure' and 'industrial structure' of all 'urban types' combined are expressed as a redistribution index<sup>9</sup>---an index with the property of summarizing changes over time in 'occupational and industrial structure' in different 'urban type' areas and for assessing total shifts in these structures in all 'urban types.' The index for each 'urban type' in Mississippi was constructed as follows: numbers of

employees in each occupation and industry in 1960 and 1970 were expressed as a percentage of total employment in each occupation and industry in each year and the percentage-point change from 1960 to 1970 was obtained by subtraction. (For example, if numbers employed in a given occupation were 22.50% and 23.75% of total employment in 1960 and 1970, respectively, the redistribution index is 1.25---23.75 - 22.50.) Data for all 'urban type' areas were com-

bined and indices of total shifts in 'occupational' and 'industrial structures' in all 'urban types' were obtained by the same procedure.

The hypothesis that urban growth in Mississippi tends to be differentiated with respect to the 'occupational' and 'industrial structures' of employed residents of 'urbanized areas' and 'other urban areas' was tested by analysis of variance.

**TABLE 1. Population, Total and By Designated Urban and Rural Categories, With Comparisons, Mississippi, 1950, 1960 and 1970.**

Population	1950	1960	1970
Total (Number)	2,178,914	2,178,141	2,216,912
Urban (Number)	607,162	820,805	987,312
(% of Total)	27.9	37.7	44.5
Urbanized Areas <sup>1</sup> (Number)	100,261	147,480	321,075
(% of Total)	4.6	6.8	14.5
(% of Urban)	16.5	18.0	32.5
Other Urban Areas (Number)	506,901	673,325	666,237
(% of Total)	23.3	30.9	30.1
(% of Urban)	83.5	82.0	67.5
Rural (Number)	1,571,752	1,357,336	1,229,600
(% of Total)	72.1	62.3	55.5
Rural Farm (Number)	1,097,207	542,839	210,323
(% of Total)	50.4	24.9	9.5
Rural Non-Farm (Number)	474,545	814,497	1,019,277
(% of Total)	21.8	37.4	46.0

<sup>1</sup>Only one 'urbanized area' (Jackson) in 1950 and 1960. The 1970 Census of Population delineated three 'urbanized areas' in 1970 (Biloxi-Gulfport, Jackson, Memphis).

Source: 1950 figures are from U. S. Department of Commerce, Bureau of the Census, *U. S. Census of Population: 1950, General Characteristics, Mississippi*, (Washington, D.C.: Government Printing Office, 1952), Table 15, p. 23; 1960 figures are from *U. S. Census of Population: 1960, General Social and Economic Characteristics, Mississippi* (1961), Table 37, p. 112; 1970 figures are from *U. S. Census of Population: 1970, General Social and Economic Characteristics, Mississippi* (1972), Table 59, as corrected by the U. S. Bureau of the Census for rural-farm and rural non-farm population.

### Population and Employment Changes

Total population of Mississippi declined slightly from 1950 to 1960 but increased during the next decade, bringing the total count in

1970 to almost 2% above that of 1950. Urban population increased and rural population decreased from 1950 to 1960 and from 1960 to

1970, bringing urban population to almost 45% of the total in 1970 (Table 1). Population of the Jackson area increased almost 50%

<sup>9</sup>This method has been frequently used to detect occupational and areal changes. See (3, 5, 8, 10, 12).

**TABLE 2. Population and Employment of Civilians Age 14 and Over, Total and By Designated Urban and Rural Categories, With Comparisons, Mississippi, 1950, 1960 and 1970.**

Item	1950	1960	1970	Percent Change		
				1950-60	1960-70	1950-70
<b>Population</b>						
Total (Number)	1,481,070	1,439,473	1,568,051	- 2.8	8.9	5.9
Urban (Number)	450,711	560,293	710,488	24.3	26.8	57.6
(% of Total)	30.4	38.9	45.3			
Urbanized Areas <sup>1</sup> (Number)	75,264	99,704	228,372	32.5	129.0	203.4
(% of Total Population)	5.1	6.9	14.6			
(% of Urban Population)	16.7	17.8	32.1			
Other Urban Areas (Number)	375,447	460,589	482,116	22.7	4.7	28.4
(% of Total Population)	25.3	32.0	30.7			
(% of Urban Population)	83.3	82.2	67.9			
<b>Employment</b>						
Total (Number)	776,851	682,339	724,699	-12.2	6.2	- 6.7
(% of Total Population)	52.5	47.4	46.2			
Urban (Number)	226,644	290,278	354,379	28.1	22.1	56.4
(% of Total Population)	15.3	20.2	22.6			
(% of Total Employment)	29.2	42.5	48.9			
Urbanized Areas <sup>1</sup> (Number)	42,959	59,002	113,460	37.3	92.3	164.1
(% of Total Population)	2.9	4.1	7.2			
(% of Urban Population)	9.5	10.5	16.0			
(% of Total Employment)	5.5	8.6	15.7			
(% of Urban Employment)	19.0	20.3	32.0			
Other Urban Areas (Number)	183,685	231,276	240,919	25.9	4.2	31.2
(% of Total Population)	12.4	16.1	15.4			
(% of Urban Population)	40.8	41.3	33.9			
(% of Total Employment)	23.6	33.9	33.2			
(% of Urban Employment)	81.0	79.7	68.0			

<sup>1</sup>Only one 'urbanized area' (Jackson) in 1950 and 1960. The Census of Population delineated three 'urbanized areas' in 1970 (Biloxi-Gulfport, Jackson, Memphis).

Source: 1950 figures are from U. S. Department of Commerce, Bureau of the Census, *U. S. Census of Population: 1950, Vol. II, Characteristics of the Population, Mississippi* (Washington, D.C.: Government Printing Office, 1952), Table 25, pp. 31-32 and Table 35, pp. 45-47; 1960 figures are from *U. S. Census of Population: 1960, General Social and Economic Characteristics, Mississippi* (1961), Table 70, pp. 140-42, and *U. S. Census of Population: 1970, General Population Characteristics, Mississippi* (1971), Table 20, pp. 44-49 and *U. S. Census of Population: 1970, General Social and Economic Characteristics, Mississippi* (1972), Table 66, p. 177.

from 1950 to 1960 and population of 'urbanized areas' more than doubled between 1960 and 1970, primarily as a result of adding Biloxi-Gulfport and Memphis to the 'urbanized' category. Population of 'other urban areas' still accounts for more than two thirds of total urban population but has declined relative to 'urbanized' population. Substantial increases in numbers of rural non-farm residents failed to offset the precipitous decreases in farm population and total rural population

declined from 72.1% of total population in 1950 to 62.3 and 55.5% in 1960 and 1970, respectively.

Changes in population of civilians age 14 and over followed the pattern reported for total population; however, decreases from 1950 to 1960 and the increases from 1960 to 1970 were greater for the age 14 and older group than for the total population. Numbers of urban residents age 14 and older increased in each decade and the urban work force accounted for slightly more than 45% of the total

work force in 1970 (Table 2).

Numbers of employed Mississippi residents increased slightly from 1960 to 1970; however, the increase failed to offset the substantial decrease from 1950 to 1960 and total employment in 1970 was below that in 1950. Employment as a percentage of the work force declined in each decade. Major changes between and within urban and rural employment since 1950 were:

(1) Total urban employment

decreased in each decade and gained almost one half of total employment in 1970.

(1) Employment increased in 'urbanized areas' and 'other

urban areas'---at an increasing rate in 'urbanized areas,' a decreasing rate in 'other urban areas.'

(3) Employment in 'other urban areas' accounted for more than one

half of total urban employment in 1970; however, employment in 'urbanized areas' increased from 19% of total urban population in 1950 to 32% in 1970.

### Occupational Changes

A change in occupation between 1960 and 1970, as measured by the distribution index, was made by each 10,000 employed 'urban' residents (Table 3). The magnitude of change was greatest for residents of 'urbanized areas'---greatest for the 'urban fringe' and least for 'central cities.' Shifts in employment of all 'urban type' residents were to occupations re-

quiring more academic and technical training (professional workers and craftsmen) and to the service and clerical occupations typically associated with greater urbanization.

Changes in occupation differed importantly by type of urban community in which employed members of the work force lived (Figure 1). Highlights of the

differences<sup>10</sup> are:

(1) Professional workers and clerical workers gained in each 'urban type' category. Largest gains by professional workers were in the 'urban fringe'; by clerical workers, in places of 10,000 or more but less than 50,000.

(2) Farmers and farm managers, sales workers, managers and private household workers lost in

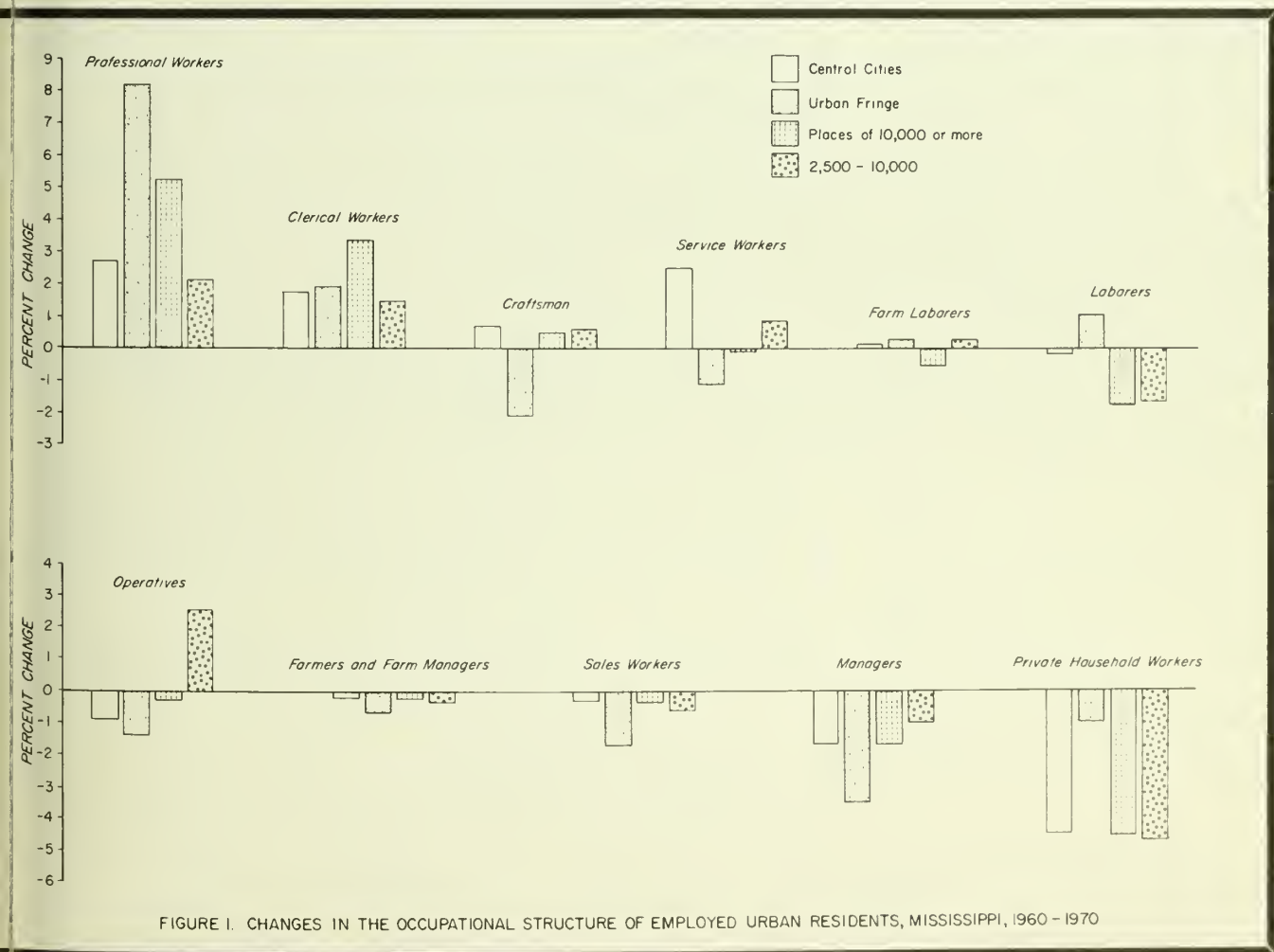


FIGURE 1. CHANGES IN THE OCCUPATIONAL STRUCTURE OF EMPLOYED URBAN RESIDENTS, MISSISSIPPI, 1960 - 1970

<sup>10</sup>These findings are in agreement with findings obtained from other studies. See for example (9, 11).



each 'urban type' category. Losses by the first three of these occupational groups were greatest for workers in the 'urban fringe'. Losses by private household workers were lowest in the 'urban fringe'.

(3) No consistent pattern of gain or loss by 'urban type' categories was found for the other occupational groups.

Changes in the 'occupational structure' of residents of the four 'urban type' areas were significant ( $P < .05$ ); therefore, the hypothesis that urban growth in Mississippi tends to be differentiated with respect to 'occupational structure' was not rejected. However, variations among the occupational categories were not significant at the 5% level, implying that all occupational categories experienced similar proportional changes during the decade<sup>11</sup>.

### Industrial Changes

A change in industry between 1960 and 1970, as measured by the redistribution index, was made by 979 of each 10,000 employed 'urban type' residents (Table 4). The magnitude of change was largest for residents of places with 10,000 or more but less than 50,000, smallest for residents of 'central cities'. Shifts by all 'urban type' residents were to industries requiring employees with more academic and technical training.

Industry shifts differed importantly by type of urban community in which employed members of the work force lived (Figure 2). Highlights of the differences are:

(1) Employment in professional services and finance increased in each 'urban type' category. Gains

**TABLE 3. Employment Changes From 1960 to 1970 Civilians Age 14 and Over, Total For Designated Urban Places and By Occupation For All Urban Places, Mississippi.<sup>1</sup>**

Occupation	Gains		Losses
	Central Cities		
All Occupations	7.62		7.62
	Urban Fringe		
All Occupations	11.34		11.34
	Places of 10,000 or More But Less Than 50,000		
All Occupations	8.92		8.92
	Places of 2,500 But Less Than 10,000		
All Occupations	7.98		7.98
	All 'Urban Types'		
Professional Workers	4.04		
Clerical Workers	2.99		
Craftsmen	.71		
Service Workers	.63		
Farm Laborers			.1
Laborers			1.3
Operatives			.3
Farmers and Farm Managers			.2
Sales Workers			.2
Managers			1.2
Private Household Workers			4.8
All Occupations	8.37		8.3

<sup>1</sup>Change expressed as the redistribution index; i.e., 70 of each 10,000 employed residents of central cities have changed occupations between 1960 and 1970.

Source: Computed from U. S. Department of Commerce, Bureau of the Census, *U. S. Census of Population: 1960, General Social and Economic Characteristics, Mississippi* (Washington, D.C.: Government Printing Office, 1961), Table 70, pp. 14-42; and *U. S. Census of Population: 1970, General Social and Economic Characteristics, Mississippi* (1972), Table 66, p. 17.

in each 'urban type' category were greatest for professional services. type' category. The decrease smallest in the 'urban fringe'

(2) Employment in personal services decreased in each 'urban type' category. (3) No consistent pattern of gain or loss by 'urban type' category.

<sup>11</sup>Occupational change constitutes three components: (1) "the growth effect resulting from the growth economy, that is, proportional increases in all industries and all occupations;" (2) "the industry effect results from disproportionate growth among industries and which affects occupational patterns in various degrees;" and (3) "the occupational mix effect resulting from technological change which causes the volume components of the employed work force within a given industry to differ from one census to another. For further details on this point, see (5).

found for the other industry  
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 changes in the 'industrial struc-  
 of residents of each 'urban type'  
 were significant (P < .05);

therefore, the hypothesis that ur-  
 ban growth in Mississippi tends  
 to be differentiated with respect to  
 'industrial structure' was not re-  
 jected. However, variations among

industrial categories were not  
 significant at the 5% level, imply-  
 ing that all industrial categories  
 experienced similar proportional  
 changes between 1960 and 1970<sup>12</sup>.

### Summary, Conclusions and Implications

This study tested the hypothesis  
 urban growth in Mississippi

between 1960 and 1970 tended to be  
 differentiated with respect to the

'occupational and industrial struc-  
 tures' of employed residents of  
 'urbanized areas' and 'other urban  
 areas' of the state. Underlying the  
 hypothesis was the assumption  
 that observed differences in 'oc-  
 cupational structure' are the  
 product of the difference in  
 changes in the 'industrial struc-  
 ture' of the work force residing in  
 each of four 'urban type' areas.

Changes in 'occupational struc-  
 ture' of each 'urban type' and for all  
 'urban types' combined were ex-  
 pressed as the redistribution index.  
 Data for all 'urban type' areas were  
 combined and indices of total shifts  
 in 'occupational' and 'industrial  
 structures' in all 'urban types' were  
 obtained. The hypothesis was  
 tested by analysis of variance.

Changes in 'occupational struc-  
 ture' and 'industrial structure' of  
 residents of the four 'urban type'  
 areas were significant at the 5%  
 level of probability; therefore, the  
 hypothesis that urban growth in  
 Mississippi tends to be differen-  
 tiated with respect to 'occupational  
 structure' and 'industrial structure'  
 was not rejected. However,  
 variations among occupational  
 and industrial categories were not  
 significant at the 5% level, imply-  
 ing that all occupational and  
 industrial categories experienced  
 similar proportional changes  
 between 1960 and 1970.

The similarity of changes in each  
 industry category may be at-  
 tributed to one or a combination of  
 three factors:

(1) Newly-created jobs in in-  
 dustry were not significantly  
 different from old ones---that is,  
 jobs needed in the early stages of  
 industrialization tend to concen-  
 trate in industries requiring

TABLE 4. Industry Changes From 1960 to 1970, Civilians  
 Age 14 and Over, Total For Designated Urban Places and By  
 Industry For All Urban Places, Mississippi.<sup>1</sup>

Industry	Gains	Losses
	Central Cities	
All Industries	8.76	8.76
	Urban Fringe	
All Industries	11.61	11.61
	Places of 10,000 or More But Less Than 50,000	
All Industries	13.19	13.19
	Places of 2,500 But Less Than 10,000	
All Industries	10.89	10.89
	All 'Urban Types'	
Professional Services	6.90	
Finance, etc.	.66	
Manufacturing	1.82	
Business Services	.23	
Public Administration	.18	
Agriculture, etc.		.54
Mining		.16
Trade		1.74
Transportation, etc.		.55
Construction		.24
Entertainment and Recreation		.19
Personal Services		6.38
	9.79	9.79

<sup>1</sup>Change expressed as the redistribution index; i.e., 876  
 each 10,000 employed residents of central cities had found  
 employment in a different industry between 1960 and 1970.

Source: Computed from U. S. Department of Commerce,  
 Bureau of the Census, *U. S. Census of Population: 1960, General  
 Social and Economic Characteristics, Mississippi* (Washington,  
 D.C.: Government Printing Office, 1961), Table 70, pp. 140-  
 4; and *U. S. Census of Population: 1970, General Social and  
 Economic Characteristics, Mississippi*, (1972), Table 66, p. 177.

See the comments in Footnote 11.

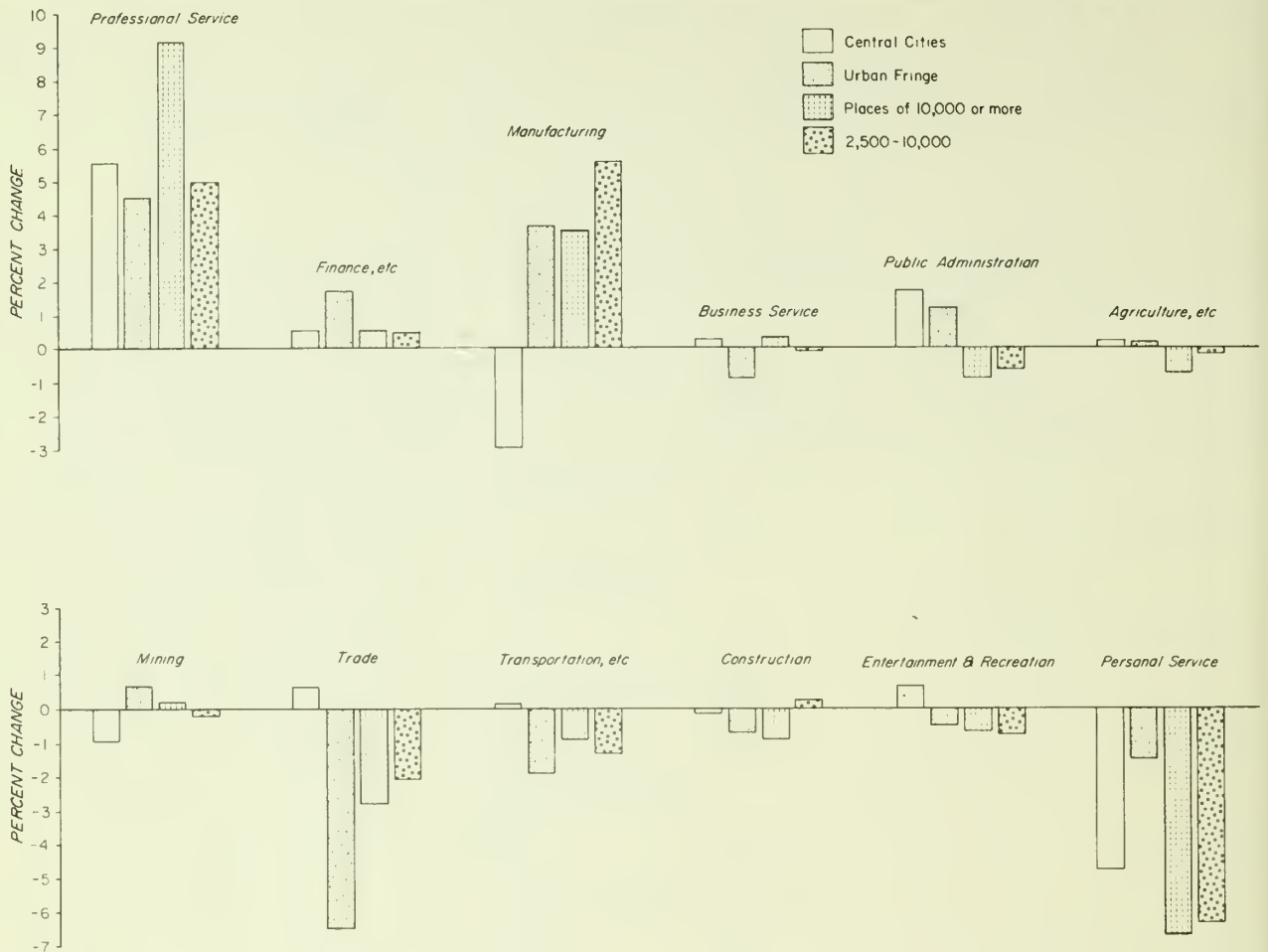


FIGURE 2 CHANGES IN THE INDUSTRIAL STRUCTURE OF EMPLOYED URBAN RESIDENTS, MISSISSIPPI, 1960-1970

minimum or no training. Given the validity of this assertion, one could maintain that observed industrial changes may have been due to small-scale movements of residents with slightly-differentiated job backgrounds, to large-scale movements of residents to jobs similar to those previously held, and/or to annexation as reflected in growth of the 'urban fringe', where employment increased by 2,140% from 1960 to 1970.

(2) Newly-established industries in all areas were similar either with regard to job content or homogeneity of job function.

(3) Use of first-digit industrial classification in the Census tends to conceal industry differences because of the variety of jobs reported in each industrial category. Whether more detailed data would have given results of greater statistical significance could not be determined because of lack of detail in the 1960 Census of

Population.

The most suggestive finding of the study is that the resident urban pattern of Mississippians is a function of changes in 'occupational structure' that tend to follow changes in the pattern of 'industrial structure'. However, the study also reveals that certain 'urban type' areas attract ('attractive' to) residents from certain occupations and industries and repel (are 'repellent' to) residents from certain others.<sup>13</sup>

<sup>13</sup>The term 'attractive' refers to those qualities and characteristics which draw people by eliciting their interests, desires, and tastes; 'repellent,' on the other hand, is a term that stands in opposition to attract denoting those qualities and characteristics that have the capacity to drive people away (4). There are many factors that have differential capacities to attract or repel human populations. Such factors can be sociological, economic, psychological, climatic, environmental, or others. In this study, a positive change (gain) in industrial or occupational structure denotes an attraction whereas a negative change (loss) denotes a repellency.

For example, redistribution indices were positive for professional, technical and kindred workers in four 'urban type' areas, negative for managers and administrators in each 'urban type' area. This implies that:

(1) certain types of occupations are carried only in certain types of

urban categories, and/or

(2) commuting and annexation were important in determining urban growth and job changes between 1960 and 1970.

Occupations and place of residence of urbanites are not distributed randomly with respect to industrial activities and this nonrandomness is a function of

dynamic factors inherent in a society's growth and change.

Further research is needed to identify other factors (i.e., classification by sex, race and marital status) that generate changes in 'occupational' and 'industrial' structure of urban residents.

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In conformity with Title IX of the Educational Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973 Dr. T. K. Martin, Vice President, 610 Allen Hall, P. O. Drawer J, Mississippi State, Mississippi 39762, office telephone number 325-3221, has been designated as the responsible employee to coordinate efforts to carry out responsibilities and make investigation of complaints relating to nondiscrimination.

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