

Unemployment Differentials

by Race and Occupation

by

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by Julianne Malveaux

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of the requirements for the Degree of Doctor of Philosophy
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ABSTRACT

This research focuses on explaining racial unemployment differentials. Chapter One surveys the employment and occupational status of blacks since and notes that while significant progress in occupational distribution has been made, the relative unemployment position of blacks has been static or has worsened in the 1960-1977 period. Chapter Two reviews theories of unemployment differentials. Chapter Three controls for age, education and occupational distribution in an effort to explain racial unemployment differentials. Despite the occupational changes of the past two decades, holding the occupational distribution constant reduces the unemployment differential by almost half in 1975--only slightly less than the reduction for 1960.

Chapter Four develops a model to explain differences in weeks worked, which is used as a proxy for unemployment. This model is tested on a cross-occupational sample and on six of the forty-four two-digit occupations for blacks and whites. In general, there are significant differences in those variables that explain weeks worked. Especially notable were differences in the institutional and options components of the equation. Despite differences highlighted, the black equations were not significantly different from the white in two of the six occupational equations. Here, this researcher hypothesized that barriers were to entry, not to employment. Chapter Five summarizes the research.

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CHAPTER ONE

INTRODUCTION: THE EMPLOYMENT AND OCCUPATIONAL STATUS
OF BLACKS IN A PERIOD OF AFFIRMATIVE ACTION

This research is about unemployment differentials. It was motivated by the dichotomous fact that despite marked improvement in the occupational distribution of blacks, in the period between 1960 and 1977, marked unemployment differentials persist within occupations. Further, despite improvements in the black occupational distribution, the overall employment situation of blacks, as measured by unemployment rate, labor force participation rate and employment population ratio, has either remained static or worsened.

Many of the developments in both occupational and labor force status must be discussed in the context of changes that took place in the legislative environment in the 1960-1977 period. The Civil Rights Act was passed in 1964 and amended in 1972. One of the remedies to past discrimination was an affirmative action policy that was adopted with varying degrees of intensity in different sectors of society.

While there is some disagreement about how effective affirmative action has been (Freeman, 1978), researchers noted some convergence, by the early 1970's, in racial socioeconomic status (Freeman, 1973; Smith, 1978; Smith, 1979). Table 1.1 shows, to some extent, the magnitude of the convergence since indices are reported for both 1960 and 1977.

While the body of this research is concerned with labor market and occupational status, the relationship between the indicators shown in Table 1.1 should be noted. Gunnar Myrdal spoke eloquently of the "cumulative causation" and interaction between the factors of lower black socioeconomic status and white discrimination:

TABLE 1.1

A COMPARISON OF BLACK AND WHITE SOCIOECONOMIC STATUS, 1960 AND 1977

	<u>1960</u>		<u>1977</u>	
	<u>Black</u>	<u>White</u>	<u>Black</u>	<u>White</u>
<u>Income</u>				
Median Family Income (\$)	4,001	7,252	9,563	16,740
Persons below the Poverty Level (in millions)	115	28.3	1.6	3.5
% of the Population Below the Poverty Level	50%	18%	28%	7%
<u>Employment</u>				
Employment Population Ratio (1963 and 1977)	55.2	54.0	51.1	57.9
Unemployment Rate	10.2	4.9	13.1	6.2
<u>Occupational Status</u>				
% of Employed Person in (1963 and 1977)				
Professional Jobs	4.6	12.3	11.0	15.1
Managerial Jobs	2.5	11.6	4.5	11.1
Private Household Work	14.5	2.2	0.2	0.1
Service Jobs	18.3	8.7	16.7	8.0
Laborer Jobs	12.9	4.3	15.3	7.3
<u>Education</u>				
Median School Years completed for population, 25 and over	8.2	10.8	11.8	12.5
Median School Years Completed 25 to 29 Years old	10.8	12.3	12.6	12.9
<u>Health Status</u>				
Infant Mortality (1960 and 1975) (deaths under 1 year of age per 1000 births)	44.3	22.9	26.1	14.2
Estimated Average Lifespan at Birth (1960 and 1976)	63.6	70.6	68.3	73.5

There is unity and close interrelation between the Negro's political power, his civil rights; his employment opportunities; his standards of housing, nutrition and clothing, his health and manners and law observance; his ideals and ideologies. The unity is largely the result of cumulative causation binding them all together in a system and tying them to white discrimination. (Myrdal, 1972)

It is interesting to note, in Table 1.1, the different effectiveness that affirmative action has had in these related areas.

The remainder of this chapter is organized in the following manner: Section 1.1 surveys developments in the employment status of blacks since 1960. In particular, changes in labor force participation rates, employment population ratios, and unemployment ratios are noted. Section 1.2 views changes in the occupational status of blacks and makes projections about future changes. Both Sections 1.1 and 1.2 discuss changes in the context of affirmative action. Section 1.3 concludes this chapter with summary comments that place the survey data presented here in the context of the rest of this research.

After examining theoretical explanations of unemployment differentials, (Chapter Two) and explaining portions of these differentials away by distributional differences (Chapter Three) explanations of intra-occupational unemployment differentials are considered for eleven of the two-digit occupations (Chapter Four). Chapter Five summarizes this research.

1.1 A Survey of the Employment Status of Black Americans, 1960-1977.

In 1960, the ratio of black to white unemployment was 2:1. Further, more blacks than whites were not in the labor force (and thus not counted at all in unemployment statistics). There was a five percentage point gap in the ratio of employment to population between black and white males. The pre-Civil Rights Act differences in patterns of black and white

employment have been attributed to the fact that blacks were employed in the high unemployment occupations (Gilroy, 1973), had different patterns of turnover (Flanagan, 1976), skill level, labor market attachment and location (Myers and Phillips, 1978). Discrimination affected labor market status both directly as blacks had more difficulty finding and keeping jobs, and indirectly, as it impacted those characteristics that had an adverse effect on unemployment.

The Civil Rights Act and the creation of the Equal Employment Opportunity Commission (EEOC) have intended to deter discriminatory labor market practices. Thus, it would be expected that the presence of an affirmative action policy would improve the relative employment position of blacks in the post-1964 period. As Tables 1.2, 1.3 and 1.4 show, however, the aggregate unemployment picture has remained static or in some cases worsened for blacks. The labor force participation rate of black men dropped, and the five point gap in employment population ratios that existed in 1960 grew to a full twelve points by 1977. The black-white unemployment ratio was 2:1 in 1977, exactly what it was in 1960. The following discussion views the 1960-77 employment picture in some detail by viewing some labor market indices: labor force participation rates, employment population ratios, and unemployment rates. Some explanations of the minimal change in the relative positions of blacks in the labor market are discussed.

Labor Force Participation Rates. The labor force participation rate is defined as the percentage of the civilian population either working or looking for work. In the 1960-77 period, the labor force participation of women increased dramatically, from 37.7% in 1960 to 48% in 1977. Most of this change was a change in the labor force participation of white

women. Their participation rose almost 32%, while the participation of black women rose by a modest 5.6%. The dramatic influx of white women in the labor force can be attributed to changes in the role of women that have taken place in the last decade. This factor has affected the participation of black women as well. Although overall black female labor force participation rates increased only slightly, there was a considerable increase in the labor force participation of young (25-34) women.

Black female teenagers fared more poorly than any group in the labor market. Although their labor force participation fluctuated some, it was fairly constant between 1960 and 1977 (see Table 1.2). In contrast, there was an increase in the participation of young white teenage females in the labor market. Black teenage females do so poorly in terms of labor force participation, that they are the only case where the labor force participation rates of white women exceed those of black women.

The labor force participation rate of males has declined by 5.6 percentage points between 1960 and 1977. The decline in the participation of black males, however, was more than double that -- black male participation dropped by 12% in those years. While most of the drop in black male participation was among teenagers, those age groups that traditionally participate most in the labor force -- males between 25 and 44 years of age -- experienced declines as well. Ironically, while the participation of young black teenage males (16-17) dropped by 32.5%, the participation of 16-17 year old white males increased by 17.2%. Similarly, the participation of 18-19 year old black males declined by almost 20%, and white males in the same age group experienced a rise of 8.6% in their labor force participation.

A modest drop in male labor force participation rates is to be expected as the labor force participation rates of females rise. But the rapid drop in the labor force participation of black males, especially black male teenagers, may be attributed to a "discouraged worker" effect. As young blacks are unable to find jobs within a reasonable period of time, they may drop out of the labor force. Black teenagers may also have lower labor force participation rates than white teenagers because they have a slightly higher school attendance rate than white teens. But there are factors that suggest that the demand for work by black teenagers should be higher than that of whites. For example, the lower family income of blacks should increase participation rates among black youths.

The slow but steady decline in male labor force participation rates need not be interpreted as alarming. Instead, males can be perceived "better off" because they can take advantage of options other than work, such as increased schooling, or earlier retirement (Cain, 1979). But the rapid drop in black male labor force participation cannot be interpreted as part of this favorable trend. Retirement, illness, or education were cited as reasons for not working by 91% of those white males who did not work in 1975. Seventy-nine percent of the black males cited those same reasons. Thus, more black males than white males are out of work involuntarily.

The presence of affirmative action programs and anti-discrimination laws has had no discernable effect on the relative employment of black males. In fact, while affirmative action has been effective in other areas, the growing gap between black and white male labor force participation rates indicates that other strategies may be necessary to promote the employment of black workers.

TABLE 1.2

CIVILIAN LABOR FORCE PARTICIPATION RATES BY RACE, FOR SELECTED YEARS

	<u>1960</u>	<u>1965</u>	<u>1968</u>	<u>1970</u>	<u>1973</u>	<u>1975</u>	<u>1977</u>
<u>Black Males</u>							
16 and over	83.0	79.6	77.6	76.5	73.7	71.5	71.0
16-17	45.6	39.3	37.9	34.8	34.1	30.1	30.8
18-19	71.2	66.7	63.3	61.8	60.1	57.5	57.8
25-34	96.2	95.7	95.0	93.7	92.7	91.4	90.4
35-44	95.5	94.2	93.4	92.2	91.4	90.0	91.4
<u>Black Females</u>							
16 and over	48.2	48.6	49.3	49.5	49.1	49.2	50.9
16-17	22.1	20.5	23.3	24.3	24.3	26.5	22.6
18-19	44.3	40.0	46.9	44.7	45.1	45.1	44.8
25-34	49.7	54.0	56.6	57.6	61.0	61.4	66.5
35-44	59.8	59.9	59.3	59.9	60.7	61.7	63.7
<u>White Males</u>							
16 and over	83.4	80.8	80.4	80.0	79.5	78.7	78.5
16-17	46.0	44.6	47.7	48.9	52.7	51.8	53.8
18-19	69.0	65.8	65.7	67.4	72.3	72.8	74.9
25-34	97.7	97.4	97.2	96.7	96.3	95.8	96.0
35-44	97.9	97.7	97.6	97.3	96.8	96.4	96.2
<u>White Females</u>							
16 and over	36.5	38.1	40.7	42.6	44.1	45.9	48.1
16-17	30.0	28.7	33.0	36.6	41.7	42.7	45.8
18-19	51.9	50.6	53.3	55.0	58.9	60.4	63.8
25-34	34.1	36.3	40.6	43.2	48.5	53.5	58.3
35-44	41.5	44.3	47.5	49.9	52.2	54.9	58.9

Employment Population Ratios. The employment population ratio is defined as the ratio of employed civilians to the total civilian non-institutional population. It has received some attention as a measure of employment status that provides more information than either the labor force participation rate or the unemployment rate. In particular, since it views employment as a percent of total population, the employment population ratio does not differentiate the labor market status of those who do not work (i.e., those who are unemployed, those who are not in the labor force because they do not want to work, or those who are not in the labor force but would work if they could find work).

Table 1.3 details changes in the employment population ratios of blacks and whites for selected years between 1960 and 1977. The table shows, as expected from our look at labor force participation rates, that the employment population ratios of white females had increased considerably. The employment population ratio for black females fluctuated a bit but remained constant over the 1960-1977 period. While the labor force participation rate of black teenage females remained about the same, the employment population ratio declined. Only one in eight 16-17 year old black females had a job in 1977, compared to more than one in three of the white females. Sixteen to seventeen year old black females had the lowest employment population ratio of any age-race-sex group. While the labor force participation rate of 18-19 year old black females also remained constant, their employment population ratio fell; white females in the same age group experienced a relative increase in employment.

Male employment population ratios fell, but as with labor force participation the decline was more severe for black males. There was a twelve percentage point gap between the employment population ratio of

TABLE 1.3
EMPLOYMENT POPULATION RATIOS OF THE CIVILIAN LABOR FORCE
BY RACE, FOR SELECTED YEARS

<u>BLACK MALES</u>	<u>1960</u>	<u>1965</u>	<u>1968</u>	<u>1970</u>	<u>1973</u>	<u>1975</u>	<u>1977</u>
16 and over	74.1	73.7	73.3	70.9	68.1	61.7	62.2
16-17	35.3	28.8	27.7	25.1	22.0	18.2	18.9
18-19	53.3	53.4	51.2	47.6	47.9	37.5	36.9
25-34	86.0	89.9	91.4	88.0	86.4	80.5	80.8
35-44	87.7	89.5	90.6	88.6	87.7	82.5	83.6
<u>BLACK FEMALES</u>							
16 and over	43.6	44.1	45.2	44.9	43.9	42.3	43.8
16-17	16.3	12.7	15.4	15.4	15.5	16.2	12.5
18-19	33.4	28.8	34.5	30.00	30.0	27.8	27.9
25-34	45.6	49.5	51.9	53.0	55.1	53.5	57.9
35-44	54.5	55.3	56.3	57.0	57.1	56.4	58.3
<u>WHITE MALES</u>							
16 and over	79.1	77.9	78.3	76.8	76.5	74.5	74.2
16-17	35.9	38.0	41.8	41.2	44.7	41.5	44.4
18-19	62.1	60.7	60.3	59.3	65.1	60.2	65.2
25-34	92.1	94.9	95.5	93.7	93.4	89.7	91.2
35-44	94.4	95.5	96.2	95.1	95.0	92.1	93.2
<u>WHITE FEMALES</u>							
16 and over	34.5	36.2	39.0	40.3	41.8	41.9	44.6
16-17	25.6	24.4	28.4	31.0	35.1	34.5	37.5
18-19	45.9	40.5	47.4	48.4	52.5	50.7	54.3
25-34	32.1	34.5	39.0	40.9	46.0	49.0	54.4
35-44	39.8	42.5	46.0	47.7	50.3	51.3	55.7

Source: Employment and Training Report
of the President, 1977

black males and that of white males. While the employment population ratios for black 16-17 year olds were less than half of those of white 16-17 year olds, the gap in the employment population ratios for 25-34 and 35-44 year old males was about ten percentage points, from gaps of about six percentage points in 1960.

Unemployment Rates. Historically, blacks have experienced twice the amount of unemployment that whites have. The number has varied a bit cyclically and by sex and age, but despite the affirmative action and anti-discrimination focus of recent years, there has been little improvement in the relative employment of blacks. Table 1.4 details black unemployment rates for selected years.

We are concerned with explanations of both the high level of black unemployment rates and with the stability of the racial unemployment differential. Researchers have noted that blacks have both longer spells of unemployment (Betsey, 1978) and higher turnover rates (Barrett and Margenstern, 1975), but these results are not surprising as they indicate, as expected, that blacks have a harder time than whites do in getting and keeping jobs. Others have noted that the presence of income transfer programs, or of multiple earners, have caused unemployment rates to rise, but it is difficult to see how these factors would differentially affect blacks. Another possible explanation of high unemployment rates has been the increasing labor force participation of white women and the effect that it has had on black male jobs. This could certainly be a partial explanation for the high black unemployment rates experienced recently, but the black unemployment differential was as high when female labor force participation was much lower in 1960.

Another explanation for the high black unemployment differential has

TABLE 1.4

UNEMPLOYMENT RATES AND RATIOS FOR SELECTED YEARS

<u>BLACK MALES</u>	<u>1960</u>	<u>1965</u>	<u>1968</u>	<u>1970</u>	<u>1973</u>	<u>1975</u>	<u>1977</u>
16 and over	10.7	7.4	5.6	7.3	7.6	13.7	12.4
16-17	22.7	27.1	26.6	27.8	34.4	39.4	38.7
18-19	25.1	20.2	19.0	23.1	22.1	32.9	36.1
25-34	10.5	6.2	3.8	6.1	5.8	11.9	10.6
35-44	8.2	5.1	2.9	3.9	4.0	8.3	6.1
<u>BLACK FEMALES</u>							
16 and over	9.4	9.2	8.3	9.3	10.5	14.0	14.0
16-17	25.7	37.8	33.7	36.9	36.5	38.9	44.7
18-19	24.5	27.8	26.2	32.9	33.3	38.3	37.4
25-34	9.1	8.4	8.4	7.9	9.7	12.9	12.9
35-44	8.6	7.6	5.0	4.8	5.3	8.6	8.5
<u>WHITE MALES</u>							
16 and over	4.8	3.6	2.6	4.0	3.7	7.2	5.5
16-17	14.6	14.7	12.3	15.7	15.1	19.7	17.6
18-19	13.5	11.4	8.2	12.0	10.0	17.2	13.0
25-34	4.1	2.6	1.7	3.1	3.0	6.3	5.0
35-44	3.3	2.3	1.4	2.3	1.8	4.5	3.1
<u>WHITE FEMALES</u>							
16 and over	5.3	5.0	4.3	5.4	5.3	8.6	7.3
16-17	14.5	15.0	13.9	15.3	15.7	19.2	18.2
18-19	11.5	13.4	11.0	11.9	10.9	16.1	14.2
25-34	5.7	4.8	3.9	5.3	5.1	8.5	6.7
35-44	4.2	4.1	3.1	4.3	3.7	6.6	5.3
<u>MALE UNEMPLOYMENT RATIOS</u>							
16 and over	2.2	2.0	2.1	1.8	2.0	1.9	2.2
16-17	1.5	1.8	2.2	1.8	2.3	2.0	2.2
18-19	1.8	1.8	2.3	1.9	2.2	1.9	2.8
25-34	2.6	2.4	2.2	2.0	1.9	1.8	2.1
35-44	2.5	2.2	2.1	1.7	2.2	1.8	2.0
<u>FEMALE UNEMPLOYMENT RATIOS</u>							
16 and over	1.8	1.8	1.9	1.7	2.0	1.6	1.9
16-17	1.8	2.5	8.6	2.4	2.3	2.0	2.5
18-19	2.1	2.1	2.4	2.8	3.0	2.4	2.6
25-34	1.6	1.8	2.1	1.5	1.9	1.5	1.9
35-44	2.0	1.8	1.6	1.1	1.4	1.3	1.6

Source: Employment and Training Report of the President, 1977

been that blacks are employed in the high unemployment occupations. But as Table 1.5 shows, while there are fluctuations in employment rates and ratios by occupation, there are considerable unemployment differentials in both high- and low-occupations.

Institutional constraints may also limit the improvement of the black unemployment position. As Munnell (1978) explains:

Since seniority clauses prevent employers from firing whites to hire blacks, additional jobs must be created for blacks to fill. However, firms will not hire more workers unless the wage can be lowered for all workers, permitting employment to be expanded at no additional cost. Since contract agreements make wages inflexible in the downward direction, improvement for blacks depends on an expansion of the economy to increase aggregate demand.

While the economy is not expanding rapidly, the growth rates of the black population and the black labor force exceed growth rates for whites, and this may effect the black unemployment rates. During the most recent recovery, black employment increased 20 percent from mid-1975 through 1978, while white employment increased by about 13 percent. But the black unemployment rate only fell 6 percent during this time, and the white unemployment rate fell 32 percent (Job, 1979). However, the size of the black population does not explain the constancy of the unemployment differential.

Whatever the explanations for the persistence of the black unemployment rate differential, it is clear that anti-discrimination policies have not been effective in this arena (unless we think that in absence of affirmative action policies the unemployment ratio may have worsened).

TABLE 1.5

UNEMPLOYMENT RATES AND RATIOS BY OCCUPATION, 1977

	BLACKS	WHITES	RATIOS
Professional, Technical and Kindred	5.0	2.8	1.786
Engineers	2.0	1.3	1.538
Physicians/Dentists	1.3	.8	1.625
Other Health	4.6	2.5	1.84
Teachers Except College	3.5	3.0	1.67
Engineers/Science Technicians	4.7	4.1	1.46
Other Salaried Professionals	7.1	3.4	2.088
Other Self-Employed Professionals	2.8	1.6	1.75
Managers and Administrators, except Farm	5.1	2.7	1.889
Salaried Manufacturing	6.7	2.2	3.045
Other Salaried	5.0	3.1	1.613
Retail Self-Employed	2.7	1.6	1.687
Other Self-Employed	7.2	1.2	6.0
Sales	12.2	4.9	2.490
Retail	14.3	6.5	2.2
Other	8.1	3.0	2.7
Clerical	10.8	5.3	2.038
Bookkeepers	8.6	4.7	1.83
Office Machine Operators	8.5	4.7	1.809
Steno/Typists/Secretaries	9.5	5.1	1.863
Other Clerical	11.6	5.6	2.071
Craft and Kindred	9.1	5.3	1.717
Carpenters	19.0	8.9	2.135
Other Construction Crafts	12.9	8.8	1.466
Foremen, NEC	5.3	2.9	1.828
Machine Jobsetters	6.6	3.3	2.0
Other Metal	4.0	4.6	0.87
Auto Mechanics	5.8	4.5	1.289
Other Mechanics	6.1	3.6	1.694
Other Craft	8.3	3.9	2.128
Operatives, Excluding Transport	13.6	8.8	1.545
Mine Workers	20.5	4.6	4.457
Motor Vehicle Equipment	6.8	4.7	1.447
Other Durable Goods	12.2	8.4	1.452
Nondurable Goods	15.5	9.6	1.615
All Other Operatives	14.5	9.8	1.48
Transportation Equipment Operatives	8.7	6.2	1.426
Driver/Delivery	8.8	6.1	1.443
Other	8.3	7.1	1.169
Nonfarm Labor	16.4	11.0	1.491
Construction	23.3	16.4	1.421
Manufacturing	13.6	10.7	1.271
Other	15.3	9.4	1.628

TABLE 1.5 (Cont'd.)

Private Household Workers	5.9	4.4	1.341
Except P.H. Service	13.5	7.3	1.849
Cleaning	12.9	6.8	1.897
Food	17.3	10.1	1.713
Health	11.3	5.8	1.948
Personal	14.2	5.5	2.582
Protective Service	5.5	2.9	2.0
Farm Managers	.3	.3	1.0
Farm Labor	13.4	8.3	1.614
Paid	14.1	11.0	1.282
Unpaid Family	3.3	.3	11.0

1.2 The Occupational Status of Black Americans, 1960-1977.

The extent of the occupational segregation that existed prior to the passage of the Civil Rights Act is clear from Table 1.6. Although black workers were 11% of all employed workers in 1960, they were half of all private household workers. A disproportionately high number of blacks were also employed in service occupations or as laborers. A view of the shifts in the occupational distribution of the black labor force (Table 1.7) shows a clear upgrading in the occupational status of blacks. Between 1961 and 1977, the representation of blacks in both the professional and clerical occupations more than doubled. Significant increases in the number of black workers also took place in managerial, sales and craft occupations. Declines in the proportional representation of blacks took place in farm occupations, in laborer jobs and in private household work.

Many of the improvements in the black occupational status, particularly in the professional and managerial occupations, seem to be the clear result of the presence of a vigorous affirmative action policy (since short run changes in status cannot be attributed to changes in the human capital stock of black workers). But some of the long-run improvements in occupational status can be attributed to an overall shift of the labor force towards service occupations and away from manufacturing and laborer occupations as well (Dicesare, 1975). As Table 1.7 shows, 11% of the total population held professional, technical and kindred jobs in 1961. This number rose to 15% by 1977. Similarly, 18.2% of the population were operatives in 1960; 15.6% held such in 1977.

While it is clear that there have been occupation advances by blacks in the past 15 years, the picture presented by the major occupational

TABLE 1.6

BLACKS AS PERCENT OF TOTAL EMPLOYMENT FOR MAJOR OCCUPATIONS AND SELECTED YEARS

	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1972</u>	<u>1977</u>
Professional, Technical and Kindred	4.0	5.9	7.0	7.2	8.4
Managers	3.0	2.8	4.0	4.0	4.8
Sales	2.0	3.0	4.0	3.6	4.5
Clerical	5.0	5.7	8.0	8.7	9.8
Craft and Kindred	5.0	5.6	7.0	6.9	7.4
Operatives excluding transport*	12.0	12.3	14.0	14.3	15.5
Transportation Equipment Operatives				14.8	13.8
Nonfarm Labor	27.0	25.6	23.0	20.2	18.1
Private Household	50.0	43.6	42.0	40.6	35.7
Service	20.0	20.8	19.0	18.5	18.1
Farm Managers					
Farm Laborers	16.0	24.3	11.0	3.3	2.5
Total	11.0	10.7	11.0	10.6	10.8

*Prior to 1970 the two operative categories were combined

TABLE 1.7

OCCUPATIONAL DISTRIBUTION OF POPULATION BY MAJOR OCCUPATIONS FOR SELECTED YEARS

	1961		1965		1970		1972		1977	
	TOTAL	NON- WHITE	TOTAL	NON- WHITE	TOTAL	NON- WHITE	TOTAL	NON- WHITE	TOTAL	NON- WHITE
Professional	11.5	4.6	11.8	6.8	13.8	8.6	14.0	9.5	15.1	11.8
Managers	10.6	2.5	10.2	2.6	10.2	3.3	9.8	3.7	10.7	4.8
Clerical	14.7	7.7	15.4	8.2	17.4	13.2	17.4	14.4	17.8	16.6
Sales	6.6	1.6	6.5	1.9	6.1	2.2	6.5	2.2	6.3	2.6
Craftsmen	12.9	6.1	12.7	6.7	12.8	8.0	13.2	8.7	13.1	9.0
Operatives	17.5	20.1	18.5	21.3	18.2	24.2	12.6	15.8	11.4	15.1
Transport Equipment Operatives							3.9	5.5	4.1	3/2
Nonfarm Labor	5.2	12.9	5.4	12.7	5.0	10.7	5.2	9.8	5.0	11.4
Private Household	3.4	14.5	3.1	12.7	2.0	7.6	1.8	6.7	1.3	4.2
Service	9.4	18.3	9.8	19.0	10.5	18.4	11.7	20.5	12.4	20.7
Farm Managers	4.0	2.9	3.1	1.8	2.1	1.0	2.1	0.6	1.6	0.4
Farm Labor	3.7	8.8	2.8	6.3	1.8	2.9	1.7	2.4	1.4	1.8

groupings may be somewhat misleading.

Use of the intermediate occupations in comparing occupational status by race gives us a clearer picture of the changes in the occupational distribution that have taken place. For example, 21.4% of all blacks were employed as service workers in 1977. Most of them worked as cleaning and food service workers, instead of in better paying personal service jobs. Similarly, there is a heavy concentration of black operatives in the non-durable goods sector, where pay is somewhat lower than it is in the overall category. Table 1.8 includes detailed occupational distributions by race for 1977.

Further disaggregation of occupational categories may yield even more interesting results. Although the three-digit occupations are too cumbersome to analyze here, they tend to support the hypothesis that blacks, even within two-digit occupations, are disproportionately concentrated at the lower skill range of those occupations. In the clerical area in 1975, for example, blacks were 9% of the occupational category "stenographers, typists, secretaries". This intermediate category includes five three-digit occupations: legal secretaries, medical secretaries, other secretaries, stenographers and typists. The three secretarial occupations have a higher skill level than the other two occupations. Blacks were 11.6% of the least skilled occupations in the category, but only four percent of the more skilled occupations.

The major occupational category, operatives, was divided for 1975 by skill level and intermediate occupation. A sample (the Survey of Income and Education) included 183 operatives in the "high skilled"

TABLE 1.8
OCCUPATIONAL DISTRIBUTION, 1977, BY DEMOGRAPHIC GROUP

	Total	Whites	White Male	White Female	Non White	Non White Male	Non White Female
Professional, Technical and Kindred	(15.4)	15.1	14.6	15.7	11.0	9.0	13.3
Engineers	1.4	0.3	2.3	0.1	0.7	1.1	0.1
Physicians/Dentists	0.8	0.7	1.2	0.2	0.5	0.6	0.1
Other Health	1.6	1.9	0.3	4.0	1.9	0.4	1.7
Teachers Except College	3.3	3.3	1.6	5.8	2.8	1.1	4.7
Engineers/Science Technicians	1.0	1.0	1.4	0.3	0.6	0.1	0.3
Other Salaried Professionals	6.0	6.0	6.8	4.9	4.4	4.5	4.3
Other Self-Employed Professionals	0.7	0.7	0.9	0.4	0.2	0.4	0.1
Managers and Administrators, except Farm	(10.7)	11.1	14.3	6.2	4.5	6.0	2.7
Salaried Manufacturing	1.4	1.5	2.2	0.3	0.3	0.4	0.1
Other Salaried	7.2	7.5	9.4	4.7	3.2	4.2	2.0
Retail Self-Employed	1.0	1.0	1.2	0.8	0.6	0.7	0.4
Other Self-Employed	1.0	1.0	1.4	0.4	0.5	0.7	0.1
Sales	(6.3)	6.7	6.3	7.3	2.6	2.6	2.7
Retail	3.5	3.7	2.3	5.8	1.8	1.3	2.3
Other	2.9	3.0	4.0	1.6	0.9	1.3	0.5
Clerical	(17.8)	18.0	6.1	35.6	16.1	7.6	25.8
Bookkeepers	1.9	2.0	0.3	4.6	0.8	0.3	1.3
Office Machine Operators	0.8	0.8	0.4	1.4	1.1	0.4	1.9
Steno/Typists/Secretaries	5.0	5.1	0.1	12.6	3.4	0.2	7.1
Other Clerical	10.1	10.1	5.3	17.0	10.8	6.8	15.5
Craft and Kindred	(13.1)	13.6	21.6	1.7	8.8	15.2	1.4
Carpenters	1.3	1.4	2.4	*	0.6	1.1	*
Other Construction Crafts	2.7	2.8	4.6	0.1	2.4	4.5	0.1
Foremen, NEC	1.7	1.7	2.6	0.4	1.1	1.8	0.3
Machine Jobsetters	0.6	0.6	1.0	0.1	0.4	0.8	0.1
Other Metal	0.7	0.7	1.2	*	0.4	0.7	0.1
Auto Mechanics	1.3	1.3	2.2	*	0.9	1.7	*
Other Mechanics	2.3	2.3	3.8	0.1	1.2	2.1	0.1
Other Craft	2.6	2.6	3.8	1.0	1.7	2.6	0.5
Operatives, Excluding Transport	(11.4)	11.4	11.6	11.1	15.6	15.0	16.2
Mine Workers	0.3	0.3	0.5	*	0.1	0.2	*
Motor Vehicle Equipment	0.6	0.5	0.8	0.2	1.0	1.5	0.5
Other Durable Goods	4.5	4.5	4.9	3.9	5.4	6.0	4.7
Nondurable Goods	3.7	3.6	2.5	5.3	6.0	4.1	8.2
ALL Other Operatives	2.3	2.4	2.9	1.6	3.1	3.3	2.8
Transportation Equipment Operatives	(3.8)	3.7	5.7	0.7	5.1	9.1	0.4
Driver/Delivery	3.2	3.1	4.8	0.6	4.0	7.2	0.4
Other	0.6	0.6	0.9	0.1	1.0	1.9	*
Nonfarm Labor	(5.0)	4.8	7.3	1.2	8.8	15.4	1.3
Construction	0.9	0.9	1.5	*	1.6	3.0	0.1
Manufacturing	1.2	1.1	1.6	0.3	2.4	3.9	0.5
Other	2.9	2.8	4.2	0.8	4.8	8.4	0.7

TABLE 1.8 (Cont'd.)

Private Household Workers	(1.3)	0.9	0.1	2.2	4.0	0.2	8.4
Except P. H. Service	(13.6)	11.6	8.0	17.0	21.4	16.7	26.7
Cleaning	3.1	2.1	2.4	1.7	7.1	7.6	6.6
Food	5.1	4.6	2.3	8.0	6.2	4.3	8.4
Health	2.0	1.7	0.3	3.7	4.1	1.0	7.6
Personal	2.0	1.8	0.8	3.4	2.4	1.4	3.7
Protective Service	1.5	1.4	2.2	0.3	1.5	2.5	0.4
Farm Managers	1.6	1.7	2.6	0.3	0.3	0.6	*
Farm Labor	1.6	1.4	1.7	1.1	1.8	2.6	1.0
Paid	1.2	1.1	1.5	0.5	1.7	2.5	0.8
Unpaid Family	0.4	0.4	0.2	0.6	0.1	0.1	0.2

category. (These occupations had skill levels of 11-13*.) All but seven of these operatives were white males! On the other hand, the sample of "low-skilled" operatives (with skill levels of 1 and 2) identified over 5,000 workers. 14.5 percent of them were black and 61.6 percent of them were women. Although the "high-skilled" and "low-skilled" operatives had a similar work effort (high-skilled operatives worked an average of 39 hours per week for 37 weeks per year), the wage and salary earnings of high-skilled operatives was 44% higher than the earnings of low-skilled operatives (SIE, 76). (The details of the occupational classification system are discussed in Appendix A.)

By 1977, although the position of blacks had improved considerably, there were still major differences in the black and white occupational distributions. Although blacks were 10.9% of those employed, they were only 8.4% of all professional technical and kindred workers. Blacks were 6.9 percent of all physicians, 2.1 percent of all managers, and 7.4 percent of all craft workers. On the other hand, blacks were overrepresented as laborers (18.1%), private household workers (35.7%), and cleaning service workers (28.9).

Without a continued and vigorous affirmative action focus, will the occupational gains made by blacks be sustained? Will there be further progress in moving blacks from occupations in which they are overrepresented to occupations in which they are underrepresented?

Part of the answer to questions about the future occupational distribution of blacks raises questions about the process of occupational choice.

*Bluestone grouped detailed occupations into skill levels, ranging from 1 (lowest level) to 17 (highest level) based on the General Educational Development (GED) and specific vocational preparation (SVP) values assigned in the Dictionary of Occupational Titles.

While parent's occupation has been significant in determining the occupation of children for the total population, Blau and Duncan (1978) noted that this factor was less significant for blacks. The lower significance may have been attributed to the occupational stratification that blacks experienced in a discriminatory labor market. More recent research suggests that family background is more important for blacks in determining educational attainment and occupational choice. However, given the "cumulative causation" discussed in the introduction to this chapter, it is clear that the mechanism whereby occupational upgrading can replicate itself has not yet been put into place for blacks. In other words, both incomewise and occupationally, proportionately fewer black families than white families will influence their children toward educational opportunities and white collar occupations. Thus a continued external stimulus, such as affirmative action programs in education and employment, are necessary.

Another view of the sustainability of occupational gains comes from viewing the occupational status by age. Despite the fact that occupational choice often has "lock-in" effects, blacks and women in the age cohort that were 25-34 in 1968 experienced some amount of occupational upgrading by 1977. Black women experienced dramatic gains as professional, technical and kindred workers. In 1968, 12.4 percent of the 25-34 year old black women were employed in professional jobs; by 1977, the number (for then 35-44 year olds) was 18.8 percent. Black men experienced a more modest increase in professional employment.

The gains in the managerial sector for this age cohort are indicative of a vigorous affirmative action effort. In 1968, 12.3 percent of the 25-34 year old white males held managerial jobs; by 1977, 18.6% of these men held managerial jobs -- an increase of 51%. But the percentage of

white females in that age cohort holding managerial jobs increased by 111% in the same period, from 3.5 to 7.4 percent. Blacks also experienced large increases in managerial job holding -- the percentage of black males holding managerial jobs grew by 145% from 3.3 to 8.1 percent while the percentage of black females holding such jobs increased from 1.3 to 3.5 percent, a 169% increase. Tables 1.9 and 1.10 detail the change from 1968 to 1977 of the occupational status of the age cohort that was 25-34 in 1968.

A look at the 25-34 year old population in 1977 also yields a perspective on the changing occupational status of blacks. This cohort is interesting because this age group has perhaps been the primary beneficiary of affirmative action efforts, at least educationally. In comparing the occupational distribution of 25-34 year olds with the occupational distribution of the total population, it is clear that the cohort has experienced improvements have varied. For example, there are 67% more black male physicians and dentists in the 25-34 year old cohort than there are in the total population. The comparable numbers for other demographic groups are 17% for white males, 50% for white females and 500% for black females. Similarly, while white males, white females and black females in the 25-34 year old cohort had fewer managers than the total population, there were 22% more black male managers in the 25-34 year old cohort than there were in the total black male population. Table 1.11 shows detail for the total occupational distribution and that of 25-34 year olds. A view of the distributions suggests that even if older workers are locked into occupations, the occupational distribution has improved for young workers in recent years.

TABLE 1.9
OCCUPATIONAL DISTRIBUTION, 1968, OF EMPLOYED PERSONS 25-34

	Total	25-34 Total	25-34 White Male	25-34 White Female	25-34 Non White Male	25-34 Non White Female
Professional/Technical	13.6	18.7	19.6	19.7	10.7	12.4
Engineers	1.6	2.3	3.6	*	1.7	*
Medical Salaried	1.7	2.4	1.0	5.5	1.5	3.5
Medical Self-Employed	0.5	0.3	0.4	*	0.1	*
Teachers, exc. College	2.9	3.9	2.2	7.9	1.9	5.4
Other Professional Salaried	6.3	9.4	11.9	5.7	5.4	3.4
Other Professional S/E	0.6	0.5	0.5	0.5	0.3	*
Managers	10.2	8.7	12.3	3.5	3.3	1.3
Salaried	7.2	7.1	10.0	2.3	2.4	1.0
Self-Employed Retail	1.4	0.8	1.0	0.5	0.5	*
Self-Employed Other	1.5	0.8	1.2	0.2	0.5	0.1
Clerical	16.9	16.5	7.1	39.0	8.2	22.6
Steno/Secretarial	4.4	4.6	0.1	15.6	0.2	5.9
Other	12.5	12.0	7.0	23.4	8.0	16.9
Sales Workers	6.1	5.4	6.3	4.8	2.4	2.0
Retail	3.7	2.5	2.0	4.1	1.1	1.6
Other	2.4	2.9	4.3	0.7	1.3	0.4
Craftsmen	13.2	14.7	21.9	1.1	13.9	0.9
Carpenters	1.1	1.2	1.8	*	0.6	*
Other Construction	2.5	2.8	4.1	0.1	3.5	0.1
Foremen	1.9	1.7	2.6	0.3	0.8	*
Machinists	0.8	0.9	1.4	*	0.7	*
Auto Mechanics	1.1	1.5	2.2	*	2.2	*
Other Mechanics	2.4	2.6	4.0	0.1	2.5	0.1
Metal Craftsmen	0.9	0.9	1.4	*	0.8	0.1
Other Craftsmen	2.5	3.0	4.3	0.6	2.7	0.4
Operatives	18.4	20.3	20.9	15.7	32.8	21.6
Drivers	3.4	4.0	5.4	0.4	8.4	0.1
Mine Workers	0.2	0.2	0.4	*	0.3	*
Auto Equipment	0.7	0.9	1.2	0.1	2.4	0.1
Other Durable	5.5	6.4	6.7	5.2	9.1	5.1
Nondurable	5.1	5.4	3.8	8.1	6.3	8.9
Nonmanufacturing	3.5	3.3	3.5	1.8	6.2	7.3
Nonfarm Labor	4.7	3.7	4.2	0.3	14.1	0.7
Construction	1.0	0.9	1.0	*	3.3	*
Manufacturing	1.4	1.4	1.6	0.2	4.6	0.4
Other	2.3	1.5	1.6	0.1	6.2	0.3
Private Household	2.3	1.1	*	1.6	0.1	20.3
Service Workers	10.1	8.0	4.4	12.3	11.0	29.2
Protective	1.3	1.5	2.2	0.2	1.8	0.3
Waiters	2.7	2.1	0.6	4.9	2.2	6.5
Other						
Farmers, Farm Managers	2.5	1.4	2.2	0.2	0.4	0.1
Farm Labor	2.0	1.5	1.1	1.3	3.3	2.1
Paid	1.3	1.1	1.1	0.4	3.6	1.4
Unpaid	0.7	0.4	0.1		0.1	0.7

TABLE 1.10
OCCUPATIONAL DISTRIBUTION, 1977, OF EMPLOYED PERSONS BY AGE

	Total	35-44 Total	35-44 White Male	35-44 White Female	35-44 Non White Male	35-44 Non White Female
Professional, Technical and Kindred	15.1	17.7	18.4	17.6	11.4	18.8
Engineers	1.4	1.9	3.1	0.2	1.7	0.2
Physicians/Dentists	0.8	1.0	1.5	0.2	0.9	0.4
Other Health	1.9	2.1	0.3	4.5	0.4	5.7
Teachers Except College	3.3	4.0	2.1	6.3	1.6	6.3
Engineers/Science Technicians	1.0	1.1	1.7	0.3	1.1	0.4
Other Salaried Professionals	6.0	6.9	8.4	5.0	5.2	5.3
Other Self-Employed Professionals	0.7	0.8	1.1	0.6	0.4	0.1
Managers and Administrators, except Farm	10.7	13.3	18.6	7.4	8.1	3.5
Salaried Manufacturing	1.4	2.1	3.5	0.5	0.7	*
Other Salaried	7.2	8.6	11.7	5.3	5.3	2.7
Retail Self-Employed	1.0	1.3	1.5	1.1	1.0	0.5
Other Self-Employed	1.0	1.3	1.9	0.5	1.1	0.1
Sales	6.3	5.7	6.0	6.5	1.8	2.3
Retail	3.5	2.5	1.4	4.6	5.5	1.9
Other	2.9	3.2	4.6	1.9	1.3	0.4
Clerical	17.8	16.7	5.2	36.2	7.3	19.5
Bookkeepers	1.9	2.1	0.3	5.4	0.3	1.4
Office Machine Operators	0.8	0.8	0.3	1.4	0.4	1.5
Steno-Typists/Secretaries	5.0	4.8	0.1	13.3	0.1	4.4
Other Clerical	10.1	9.0	4.4	16.2	6.5	12.2
Craft and Kindred	13.1	14.7	23.5	1.9	20.0	1.3
Carpenters	1.3	1.2	2.0	*	1.2	*
Other Construction Crafts	2.7	3.0	4.9	0.1	5.4	*
Foremen, NEC	1.7	2.4	3.6	0.6	2.9	0.4
Machine Jobsetters	0.6	0.7	1.1	0.1	1.0	0.1
Other Metal	0.7	0.9	1.4	0.1	1.3	*
Auto Mechanics	1.3	1.3	2.2	*	2.3	*
Other Mechanics	2.2	2.5	4.3	0.1	2.9	0.1
Other Craft	2.6	2.7	4.0	1.0	2.9	0.1
Operatives, Excluding Transport	11.4	10.8	9.4	11.3	13.7	17.4
Mine Workers	0.3	0.3	0.4	*	0.2	*
Motor Vehicle Equipment	0.6	0.7	0.9	0.2	2.0	0.9
Other Durable Goods	4.5	4.4	4.2	4.1	6.2	5.6
Nondurable Goods	3.7	3.6	2.0	5.6	2.2	8.1
All other operatives	2.3	1.8	1.9	1.3	3.2	2.7
Transportation Equipment Operatives	3.8	4.4	6.0	1.1	11.8	0.5
Driver/Delivery	3.2	3.8	5.3	1.1	9.9	0.6
Other	0.6	0.5	0.8	*	1.9	*
Nonfarm Labor	5.0	3.1	3.8	0.9	11.1	0.8
Construction	0.9	0.7	0.9	*	2.6	0.1
Manufacturing	1.2	0.9	1.0	0.3	3.2	0.3
Other	2.9	1.6	1.9	0.6	5.2	0.5
Private Household Workers	1.3	0.8	*	1.1	0.2	7.9

TABLE 1.10 (Cont'd.)

Except P.H. Service	12.4	10.3	5.8	14.4	14.2	27.2
Cleaning	2.6	2.0	1.4	1.7	6.1	6.3
Food	4.5	3.1	0.8	6.1	3.1	3.0
Health	1.9	1.7	0.2	3.1	1.0	9.0
Personal	1.9	1.6	0.7	3.1	0.8	2.9
Protective Service	1.5	1.3	2.8	0.3	3.2	0.4
Farm Managers	1.6	1.4	2.3	0.3	0.5	*
Farm Labor	1.4	1.3	0.8	1.2	0.1	0.6
Paid	1.1	1.0	0.3	0.3	0.1	0.5
Unpaid Family	0.4	0.3	*	0.9	*	0.1

In both of the cases mentioned above, care must be taken in interpreting percentage increase figures. Black women who were 25-34 in 1968, for example, experienced a significant increase in managerial employment. Their percentage increase was larger than the increase for black males, white females and white males. However, the magnitude of the increase is so large because the base figure for comparison is so small.

Employment growth rates for the period 1972-1977 clarify why black occupational status has improved so rapidly in this period. While total employment increased by 2.2% per year, black employment increased by 2.7%. Total professional employment increased by 3.9% per year, while black professional employment increased by 8.2%. Managerial employment increased by 4.1% per year, but black managerial employment increased over twice as much, by 9.3% per year. Growth rates for two-digit occupations are listed in Table 1.12.

The black employment growth rates are higher in white collar and draft occupations than total growth rates, not only because of a proportionate increase in black employment, but also from a concerted effort to hire blacks in these areas. The complementary lower black rates in service work, laborer occupations and private household occupations represent a movement away from traditionally stratified jobs and into opportunities in new areas. Can this improvement in occupational status continue? The increase in black population will certainly continue in the short run. It is not clear, however, that the concentrated affirmative action effort of the late sixties and middle seventies will continue into the eighties. The tone of the Bakke case, in particular, raises the possibility of re-trenchment in current programs. "Hasn't the extra effort of the 1970's

been enough?", critics of affirmative action ask. How much of an effort is required to achieve parity in occupational and employment status?

The projections shown in Table 1.13 view the occupational distribution for total and black employment in 1982. These distributions assume that employment growth rates for total employment and for black employment will be the same as they were in the 1972-1977 period. As expected, the gap between the total and the black occupational distribution will close somewhat if growth rates are the same. The most notable closing of the gap comes in the professional, technical and kindred occupations where the proportion of blacks in such jobs will be two percent less than the proportion of the total population in those jobs. Although there is an improvement in other areas, blacks are still by 1982 underrepresented in managerial, crafts and sales occupations, and overrepresented in laborer and service occupations.

What if the growth rate for blacks is not as high as it was between 1972 and 1977? Column 4 of Table 1.13 shows the black occupational distribution if black employment grows at the same rate that total employment grew between 1972-77. The lower growth rate of black employment would limit the upgrading of the black population. By 1982 blacks would be 8.4 percent of all professional workers, instead of the nearly ten percent that they would be if growth occurs at the 1972-77 rate. Instead of almost six percent of all managers, blacks would represent 4.8% of them. Similar reductions in the proportion of blacks in clerical and craft occupations would occur. Finally a disproportionately large number of blacks would remain in laborer, private household and service occupations.

Whether black employment grows at the rate that it grew in 1972-77, or at the more restrained rate that total employment grew in 1972-77, the occupational distribution in 1982 for blacks will be an improvement over

TABLE 1.11
OCCUPATIONAL DISTRIBUTION, 1977, OF EMPLOYED PERSONS BY AGE

	25-34		25-34		25-34	
	Total	Total	White Male	White Female	Non White Male	Non White Female
Professional, Technical and Kindred	(15.4)	(21.0)	(20.4)	(24.0)	(13.2)	(18.6)
Engineers	1.4	1.6	2.7	0.1	1.8	0.2
Physicians/Dentists	0.8	0.9	1.4	0.3	1.0	0.5
Other Health	1.6	2.7	0.7	5.7	0.7	5.2
Teachers Except College	3.3	5.2	2.9	9.6	1.4	5.8
Engineers/Science Technicians	1.0	1.3	1.9	0.5	1.4	0.4
Other Salaried Professionals	6.0	8.6	10.0	7.3	6.4	6.4
Other Self-Employed Professionals	0.7	0.7	0.9	0.4	0.4	0.1
Managers and Administrators, except Farm	(10.7)	(10.3)	(13.9)	(6.1)	(7.3)	(2.6)
Salaried Manufacturing	1.4	1.2	2.0	0.4	0.6	0.2
Other Salaried	7.2	7.6	10.0	5.0	5.8	1.9
Retail Self-Employed	1.0	0.7	0.9	0.5	0.4	0.3
Other Self-Employed	1.0	0.7	1.1	0.2	0.5	0.2
Sales	(6.3)	(5.8)	(6.6)	(5.5)	(3.4)	(2.0)
Retail	3.5	2.5	2.0	3.7	1.3	1.5
Other	2.9	3.3	4.6	1.8	2.1	0.4
Clerical	(17.8)	(17.6)	(6.0)	(35.4)	(7.8)	(34.6)
Bookkeepers	1.9	1.9	0.3	4.7	0.3	1.5
Office Machine Operators	0.8	1.1	0.5	1.7	0.6	3.1
Steno-Typists/Secretaries	5.0	5.3	0.1	13.7	0.1	10.5
Other Clerical	10.1	9.4	5.0	15.3	6.8	19.4
Craft and Kindred	(13.1)	(13.9)	(22.6)	(1.5)	(15.5)	(1.3)
Carpenters	1.3	1.4	2.5	0.1	0.5	*
Other Construction Crafts	2.7	2.8	4.6	0.1	4.1	*
Foremen, NEC	1.7	1.6	2.5	0.5	1.9	0.3
Machine Jobsetters	0.6	0.7	1.2	*	1.2	0.1
Other Metal	0.7	0.7	1.2	*	0.5	0.2
Auto Mechanics	1.3	1.5	2.5	0.1	1.8	*
Other Mechanics	2.3	2.3	3.9	0.1	2.3	0.2
Other Craft	2.6	2.8	4.1	0.9	3.3	0.7
Operatives, Excluding Transport	(11.4)	(11.3)	(11.2)	(10.0)	(16.9)	(16.7)
Mine Workers	0.3	0.3	0.6	*	0.3	*
Motor Vehicle Equipment	0.6	0.8	0.9	0.3	1.8	0.6
Other Durable Goods	4.5	4.6	4.8	3.7	6.6	5.3
Nondurable Goods	3.7	3.7	2.5	4.5	5.4	8.9
All other operatives	2.3	1.9	2.4	1.1	2.9	1.9
Transportation Equipment Operatives	(3.8)	(4.0)	(5.8)	(0.7)	(8.8)	(0.4)
Driver/Delivery	3.2	3.3	4.8	0.7	6.9	0.3
Other	0.6	0.7	0.9	0.1	1.9	0.1
Nonfarm Labor	(5.0)	(3.8)	(5.0)	(1.0)	(11.2)	1.1
Construction	0.9	0.7	1.0	0.1	2.0	*
Manufacturing	1.2	1.2	1.5	0.4	3.0	0.5
Other	2.9	1.9	2.5	0.5	6.2	0.5
Private Household Workers	(1.3)	0.6	*	(1.3)	*	(2.3)

TABLE 1.11 (Cont'd.)

Except P. H. Service	(13.6)	(9.9)	(6.0)	(13.8)	(13.2)	(19.9)
Cleaning	3.1	1.6	1.3	1.0	4.7	4.1
Food	5.1	2.7	1.3	4.7	2.6	5.5
Health	2.0	1.8	0.3	3.4	1.0	7.1
Personal	2.0	2.0	0.6	4.5	1.0	2.4
Protective Service	1.5	1.8	2.5	0.3	3.9	0.8
Farm Managers	1.6	0.9	1.6	0.2	0.1	•
Farm Labor	1.6	1.0	1.0	0.8	1.8	0.7
Paid	1.2	0.8	0.9	0.3	1.8	0.7
Unpaid Family	0.4	0.2	•	0.5	•	0.1

TABLE 1.12

ANNUAL GROWTH RATES BY OCCUPATION, 1972-1977

	<u>Total</u>	<u>Black</u>
Professional, Technical and Kindred	3.9	8.2
Engineers	4.0	16.8
Physicians/Dentists	3.2	5.6
Other Health	7.6	16.4
Teachers Except College	1.3	2.8
Engineers/Science Technicians	1.5	8.8
Other Salaried Professionals	5.0	8.7
Other Self-Employed Professionals	6.8	18.3
Managers and Administrators, except Farm	4.1	9.2
Salaried Manufacturing	3.6	17.1
Other Salaried	5.0	11.3
Retail Self-Employed	0.2	0.7
Other Self-Employed	2.9	7.1
Sales	1.4	6.5
Retail	0.2	2.9
Other	3.2	17.5
Clerical	2.6	5.5
Bookkeepers	1.8	6.7
Office Machine Operators	2.5	5.7
Steno-Typists/Secretaries	2.0	3.5
Other Clerical	3.1	6.1
Craft and Kindred	2.0	3.5
Carpenters	2.4	3.5
Other Construction Crafts	1.4	3.2
Foremen, NEC	2.0	7.1
Machine Jobsetters	4.4	11.7
Other Metal	0.9	5.1
Auto Mechanics	2.5	11.4
Other Mechanics	3.3	6.7
Other Craft	0.9	2.1
Operatives, Excluding Transport	0.3	1.7
Mine Workers	7.5	1.8
Motor Vehicle Equipment	2.8	2.3
Other Durable Goods	0.7	2.5
Nondurable Goods	1.1	2.1
All other operatives	0.6	0.3
Transportation Equipment Operatives	1.8	3.0
Driver/Delivery	1.2	1.1
Other	4.2	2.8
Nonfarm Labor	1.3	0.8
Construction	1.6	5.8
Manufacturing	1.2	0.5
Other	2.5	0.7
Private Household Workers	3.9	5.8

TABLE 1.12 (Cont'd.)

Except P. H. Service	3.6	3.1
Cleaning	2.8	2.0
Food	5.1	4.9
Health	3.2	1.5
Personal	2.1	3.0
Protective Service	3.1	7.1
Farm Managers	2.7	6.5
Farm Labor	1.2	3.2
Paid	1.0	3.5
Unpaid Family	5.8	3.6

TABLE 1.13

PROJECTIONS FOR OCCUPATIONAL DISTRIBUTIONS 1982

	Total	Black	% Black ^a	Black ^b	% Black ^b
Professional, Technical and Kindred	16.3	14.6	9.9	13.7	8.4
Engineers	1.4	1.1	8.8	0.8	5.5
Physicians/Dentists	0.8	0.6	7.6	0.5	6.9
Other Health	2.4	3.3	15.4	3.2	11.7
Teachers Except College	3.2	3.0	10.5	2.8	9.8
Engineers/Science Technicians	1.0	0.8	9.3	0.6	6.9
Other Salaried Professionals	6.7	5.8	9.5	5.8	8.3
Other Self-Employed Professionals	0.8	3.9	5.4	0.3	3.7
Managers and Administrators, except Farm	11.6	6.1	5.9	5.6	4.8
Salaried Manufacturing	1.5	0.4	3.2	0.3	2.0
Other Salaried	8.2	4.7	6.4	4.3	5.2
Retail Self-Employed	0.9	0.5	6.6	0.5	6.4
Other Self-Employed	1.0	0.5	6.0	0.5	5.0
Sales	6.2	3.0	5.5	2.4	4.5
Retail	3.1	1.7	6.0	1.4	5.3
Other	3.0	1.5	5.6	1.0	3.5
Clerical	18.1	18.1	11.1	16.8	9.8
Bookkeepers	1.9	0.9	5.4	0.7	4.4
Office Machine Operators	0.8	1.3	17.0	1.2	14.9
Steno-Typists/Secretaries	4.9	3.6	8.0	3.4	7.5
Other Clerical	10.5	12.3	13.1	11.7	11.6
Craft and Kindred	13.0	9.3	7.9	8.8	7.4
Carpenters	1.3	0.4	3.2	0.5	4.3
Other Construction Crafts	2.6	2.4	10.5	2.2	9.7
Foremen, NEC	1.7	1.4	9.1	1.1	7.4
Machine Jobsetters	.7	0.6	10.3	5.7	8.0
Other Metal	.7	0.5	8.1	0.4	6.7
Auto Mechanics	1.3	0.9	7.5	1.0	8.0
Other Mechanics	2.3	1.5	7.0	1.4	6.1
Other Craft	2.4	1.7	7.9	1.6	7.5
Operatives, Excluding Transport	10.3	14.4	15.5	12.3	14.3
Mine Workers	6.3	0.8	2.5	0.2	3.8
Motor Vehicle Equipment	0.6	1.1	18.9	1.1	19.4
Other Durable Goods	4.2	5.5	14.0	4.6	12.8
Nondurable Goods	3.2	5.5	19.3	4.1	16.6
All other operatives	2.0	2.5	13.9	2.2	13.6
Transportation Equipment Operatives	2.6	3.1	12.9	2.8	13.8
Driver/Delivery	3.0	3.8	13.8	3.8	13.8
Other	0.7	1.1	17.8	1.3	19.9
Nonfarm Labor	4.8	7.0	16.8	7.7	18.1
Construction	0.7	0.9	13.1	1.0	17.1
Manufacturing	11.3	2.0	20.2	2.1	20.9
Other	2.9	4.2	15.8	4.7	17.2

*These columns represent the black occupational distribution if black employment grew between 1977 and 1982 at the same rate that total employment grew.

TABLE I.13 (Cont'd.)

Private Household Workers	0.9	2.6	31.4	2.2	35.7
Except P.H. Service	13.2	21.0	17.7	23.5	18.1
Cleaning	2.7	6.7	27.8	7.4	28.9
Food	5.1	6.3	13.7	7.4	13.8
Health	2.0	3.8	21.0	4.4	22.7
Personal	1.9	2.4	14.1	2.3	13.7
Protective Service	1.5	1.9	14.2	1.8	12.2
Farm Managers	1.3	0.2	2.0	0.2	2.5
Farm Labor	1.2	1.3	12.1	1.3	13.5
Paid	1.0	1.2	13.0	1.5	16.6
Unpaid Family	0.2	0.1	6.7	0.5	4.0

These columns represent the black occupational distribution if black employment grew between 1977 and 1982 at the same rate that total employment grew.

the occupational distribution in 1977. But as policymakers weigh the costs and benefits of alternative strategies for occupational upgrading, the question of how fast growth ought to take place will be raised, as will the question of what the costs of growth are and to whom.

The uneven progress in Table 1.14 points out the fact that a more vigorous affirmative action effort may be necessary in some occupations than in others. Even with a growth rate in managerial employment that is twice the growth rate of the total population, black managers will be only 9% of all managers by 1992. Similarly, the annual growth rate in employment for black physicians and dentists was 5.6 percent between 1972 and 1977, as opposed to a 3.2 percent rate of employment growth for all physicians. If this growth rate continues through 1992, blacks will be 9.4% of all physicians, but 11.7% of all employed persons.

Affirmative action policies have been effective in the occupational arena. The high black employment growth rates, especially in some white-collar occupations, accompanied by employment decline in some less skilled occupations, have meant a major improvement in the black occupational distribution in recent years. If such growth rates in employment are sustained, projections through 1987 (see Table 1.14) show that further improvement can be expected and that blacks will be represented at approximately their percentage of the population in occupations that they were underrepresented in the not-too-distant past. However, for other occupations, notably physicians, managers and sales workers, the high growth rates experienced in the 1972-77 period will not produce a black presence in those occupations that is near the proportion of blacks in the population.

The use of the 1972-77 growth rates for projections is an optimistic approach. In this period of caution and retrenchment from affirmative

TABLE 1.14

PROJECTIONS FOR OCCUPATIONAL DISTRIBUTION, 1987

	Total	Black	% Black
Professional, Technical and Kindred	17.6	18.5	11.7
Engineers	1.6	1.9	14.2
Physicians/Dentists	0.9	0.7	8.4
Other Health	3.1	5.5	20.3
Teachers Except College	3.1	3.1	11.2
Engineers/Science Technicians	0.9	1.0	12.4
Other Salaried Professionals	7.6	7.5	10.9
Other Self-Employed Professionals	1.0	0.8	7.7
Managers and Administrators, except Farm	12.6	8.1	7.2
Salaried Manufacturing	1.6	0.7	5.1
Other Salaried	9.2	6.6	8.0
Retail Self-Employed	0.8	0.5	6.8
Other Self-Employed	5.1	0.7	7.0
Sales	5.9	3.6	6.9
Retail	2.8	1.8	6.9
Other	3.1	2.6	9.0
Clerical	18.5	20.9	12.5
Bookkeepers	1.8	1.1	6.6
Office Machine Operators	0.9	1.6	19.3
Steno-Typists/Secretaries	4.9	3.7	8.6
Other Clerical	10.9	14.5	14.8
Craft and Kindred	2.9	9.8	8.5
Carpenters	1.3	2.8	2.3
Other Construction Crafts	2.5	2.5	11.4
Foremen, NEC	1.7	1.7	11.2
Machine Jobsetters	0.8	0.9	13.4
Other Metal	0.6	0.6	9.7
Auto Mechanics	1.3	0.8	7.1
Other Mechanics	2.4	1.8	8.0
Other Craft	2.3	1.7	8.4
Operatives, Excluding Transport	9.3	14.1	16.8
Mine Workers	3.5	1.1	1.6
Motor Vehicle Equipment	0.6	1.1	18.5
Other Durable Goods	3.9	5.3	15.2
Nondurable Goods	2.7	5.6	22.5
All other operatives	1.8	2.3	14.1
Transportation Equipment Operatives	2.2	2.4	12.1
Driver/Delivery	3.0	3.6	13.7
Other	0.7	1.2	16.7
Nonfarm Labor	4.6	6.0	14.6
Construction	0.6	0.6	10.1
Manufacturing	1.1	1.9	19.5
Other	3.0	3.9	14.6
Private Household Workers	0.7	1.7	27.7

TABLE 1.14 (Cont'd.)

Except P. H. Service	14.0	21.9	17.3
Cleaning	2.8	6.7	26.8
Food	5.8	7.1	13.5
Health	2.1	3.7	19.4
Personal	1.9	2.5	14.7
Protective Service	1.6	2.4	16.6
Farm Managers	1.0	0.1	1.5
Farm Labor	1.0	1.0	10.8
Paid	1.0	0.9	10.2
Unpaid Family	0.1	0.1	11.1

action policies, the use of lower rates is probably warranted. Additionally, projections of recession and economic uncertainty due to the energy crisis and rapid inflation make it dubious that employment growth will continue at 1972-77 levels. However, the use of the higher growth rates illustrates that even in the most favorable case, there is a need for continued affirmative action, at least in the short run, to guarantee the continued improvement of the black occupational distribution.

1.3 Conclusions

Although the body of this dissertation will not deal directly with affirmative action and its impact, the issues that motivated this research are best highlighted by such an approach. The summary data that we examined in this introductory chapter indicate that despite improvements, employment disparities between the races remain. There are further disparities, however, among blacks and the dichotomy of recent labor market improvements is that while the overall employment situation has basically remained static, those who are employed experienced occupational advancement. But even within occupations, there are still unemployment differentials.

Why, with similar market conditions will blacks and whites doing the same kind of work have different employment experiences? This is the central question that this dissertation will seek to answer. By posing the question in this manner we must note that we address only part of the employment disparity that exists between blacks and whites. Isolating the unemployment experience by occupation does not at all deal with the overall unemployment gap although such isolation may provide some focus as to why, despite occupational advancement, the black unemployment rate has almost constantly been twice the white unemployment rate.

The remainder of this dissertation is organized as follows: Chapter Two will examine some of the theoretical explanations for unemployment differentials. Chapter Three explains why segmenting the labor market by occupation provides additional insights. Also, unemployment rates are adjusted in Chapter Three to correct for the differential distribution of blacks and whites by age, education, industry, and occupation. In the most potent adjustment about a third of the unemployment differential can be explained by differences in the occupational-industrial distribution. Chapter Four estimates a model that explains differences in weeks worked (our proxy for unemployment) for both the total population, and for workers in eleven of the forty-four two-digit occupations. The estimation is also done for young (25-34 year old) workers. As we mentioned in our introduction, this age cohort has been the beneficiary of affirmative action efforts; from such a perspective we will compare estimations for the total age group with results for this cohort. In Chapter Four we find racial differences in the sign, size and significance of those variables that explain weeks worked. Chapter Five summarizes our research findings.

CHAPTER TWO

THEORETICAL EXPLANATIONS OF UNEMPLOYMENT RATE DIFFERENTIALS

In our discussion of the employment and occupational status of blacks in Chapter One, we noted that despite significant occupational advances among blacks, the racial unemployment differential has not improved, and in some cases (especially for young blacks) has worsened over time. Table 1.4 shows the oscillation of male unemployment ratios around 2, with a temporal worsening among 18 and 19 year olds being the clearest trend. After a decline in the 1960's, other male ratios seem fairly stable. Except for teenagers, the female ratios oscillate around a point somewhere below 2. Again, there is no clear indication of a change in unemployment ratios -- instead, the relative differences between black and white female unemployment seem somewhat stable.

Some of the discussion in Chapter One alludes to theoretical explanations of racial unemployment differentials. This chapter will discuss such explanations in more detail.

Section 2.1 will discuss human capital explanations of racial unemployment differentials. Section 2.2 discusses job search/turnover explanations of the phenomenon. Section 2.3 discusses unemployment differentials in the context of institutional labor market theories, while Section 2.4 discusses unemployment differentials in terms of a crowding hypothesis. Section 2.5 views unemployment differentials from the perspective of both dual labor market theories and theories of labor market stratification. Section 2.6 examines some explanations of present discrimination and unemployment differentials, while Section 2.7 discusses cyclical explanations of racial unemployment differentials. Finally, section 2.8 summarizes this discussion.

2.1 A Human Capital Theory Theory of Racial Unemployment Differentials

The central purpose of human capital theory, as explained by Becker (1964) in his pioneering work, is to explain wage differentials between various segments of the labor force. Becker departed from a theory of a "perfect" labor market with a homogenous labor force by developing a notion of heterogeneous labor, and focused on the heterogeneity in education and training as the explanation for different marginal products that workers had.

The key explanatory factor for wage differentials, then, is captured by equation 2.1.

$$(2.1) \quad E = E_0 + rs$$

E = earnings
 r = rate of return
 s = years of schooling/
 training

Human capital theory distinguishes between general training, or education that is neither occupation- nor firm-specific, and specific training, or training that can be used only in a certain job or with a certain firm. According to the theory, workers would pay for general training, since it would increase their marginal product regardless of the firm that they worked for, while employers would pay for specific training, since it would increase productivity, and thus profits for their firm.

The notion of specific training bridges the gap between human capital theory as an explanation of wage differentials and human capital theory as an explanation of unemployment differentials. Since firms pay the cost of specific training, they have made an investment in the worker not unlike the capital investment they make on a piece of machinery. As Gilroy (1975) notes:

The firm which paid for the training of a worker who quit for another job has part of its capital expenditure wasted; a worker laid off after having paid for specific training would likewise suffer a capital loss...Turnover should be least then, for more specifically trained workers and greatest for those with little or general training.

This is consistent with Walter Oi's (1962) view of labor as a "quasi-fixed" factor of production. The layoff of an individual represents not only the loss of the investment embodied in his or her training but also in the cost of hiring him or her which may have including items such as recruitment, screening and testing. Thus, human capital theory suggests that when layoffs must take place, those workers with little training or no training will be laid off before those workers with specific training who represent an investment for the employer.

In a jobs competition model of the labor force Lester Thurow (1972) develops the concept of a job queue where skills are not important in the ordering of the queue (although education is). (The notion that most skills are acquired on the job is supported by actual patterns, since sixty percent of all workers are trained through on-the-job training. This is as true, if not more so, for college graduates as it is for other workers.) In such a jobs competition model, the cost effective employer will hire individuals for training who can be trained at the lowest cost. Since education may be used to determine the "trainability" of an individual, it is a screener, and will determine, when layoffs take place, the extent to which some workers will be unemployed and others will not. It should be noted that the connection between education and unemployment is not direct here. If an individual with less education than others is somehow chosen to

undergo a training program (for example, because the market is tight and there is competition for qualified trainees), there is no indication that, after completing training, this person would be laid off sooner than any other trained worker. However, to the extent that education was used to screen individuals for training, there is an inverse connection between education and unemployment.

How do these aspects of human capital theory relate to high black unemployment rates? If education is used to screen individuals for training, the fact that blacks have less education than whites means that fewer blacks will be employed in jobs where employers consider their training an investment and as such are cautious about who they layoff. Further, blacks may hold fewer jobs where OJT was acquired because employers may screen workers not only by the ease with which they can be trained, but also by the probability that they will remain on the job. An employer who notes high black turnover rates may then screen out black applicants as less likely to complete training or to remain on the job long enough to recoup training costs. This phenomenon is called statistical discrimination. It is important to note that because of statistical discrimination, as well as other factors, the training opportunity, not education, is key in minimizing racial unemployment differentials. As we will note in Chapter 3, and in the tables included in Appendix C, even where blacks are highly educated, their unemployment rates are higher than those for whites with similar educational profiles. Thus, while human capital theory contributes to the notion that education and training are important in explaining the racial unemployment differential, it makes it clear that the linkage between education and training is critical in such an approach.

The point about a linkage between education and training is important

in discussing black unemployment rates because observers have a tendency to wonder "why" blacks do not get more education. Further, a decade of public policy with respect to minorities was based firmly on the premise that increased educational opportunities would favorably impact economic outcomes for the disadvantaged. However, an individual investment in education is based on the presumption of reasonable future returns. To the extent that some black workers expect (and often realistically) that they will experience lower, or minimal returns to education they will be less likely to invest in it than white workers are. Thus, where education is used merely as a screen it may have no inherent value except to exclude some workers from consideration for jobs. Since, on the other hand, education is but one of several screening devices that firms utilize, the attainment of a certain level of education certainly does not guarantee a worker a job or even consideration. Thus the decision of black workers to forego educational investment may be a function of stark realism and not misinformation.

In firms where there are only limited points of entry to a training hierarchy, the term "internal labor market" describes the situation well. While theories of wages and employment are related to both a human capital theory and a theory of dual labor markets here, this author mentions the concept here since specific training (though perhaps as nebulous as "knowledge of the firm") is important in explaining longevity in these firms. Most entry in internal markets takes place at an entry hiring point, and all of the screening that takes place when a decision is made to train in the human capital model is made there in an internal market. An internal labor market may be somewhat more rigid than other markets described in human capital theory since individuals may have had other opportunities to

demonstrate their trainability in human capital markets (such as in jobs lateral to training jobs), while they may have had fewer opportunities to do so in an internal market where only one entry port exists.

A view of internal labor markets is important in understanding unemployment differentials because the presence of either pro-forma or statistical discrimination during any hiring period would limit the chance of black workers to hold entry level jobs, as would differential educational rates of educational attainment, if education were used as a screener. Thus, overtime black workers would have fewer opportunities in fairly protected jobs where turnover has been designed to be low, but would instead have to find work in jobs where longevity is less important, and thus experience higher unemployment rates. Even in the absence of current discrimination practices an internal labor market theory would suggest that unemployment rates would be higher for blacks than for whites, especially for older blacks who did not compete successfully for entry level jobs.

2.2 Job Search/Turnover Theories and Unemployment Differentials.

Job search/turnover theories of the labor market can be seen as related to human capital theories in that both theories focus on heterogeneity of individuals in labor markets. In a job search/turnover world, differences are not necessarily in the investment in education, but in the investment of search time for finding employment. This is especially important from a wage perspective when longer search may result in a broader spectrum of wage offers for a worker to choose from.

A good way to start a discussion of job search/turnover theories of the labor market is by noting that the unemployment rate here is viewed as the product of average duration and turnover. Equation 2.2 shows such an

equation as characterized by Barret and Morgenstern (1974) where N is the number of individuals experiencing unemployment, S is the number of weekly spells of unemployment, DUR is the duration in weeks of unemployment per spell, and L is the size of the labor force.

$$(2.2) \quad \frac{U}{L} = \frac{N \cdot S \cdot DUR}{52L}$$

Dividing the unemployment rate into components enables us to focus on the different explanations of each part of the rate. It is also conceivable that the size of the components will vary by demographic group.

The duration of unemployment will be related to (1) the availability of job vacancies; (2) the cost of search; and (3) the individual's reservation wage. In terms of job vacancies, it is clear that in tight job markets there will be relatively more vacancies and search will not be as it might be in a slack market. Search costs include things such as foregone wages, as well as the costs of physical search (such as travel to interviews). However, search costs are often partially or fully subsidized if an individual collects unemployment insurance, and the presence of other resources may also enable some individuals to search longer than they would have had these resources not been available. Finally, the individual's reservation wage and its relationship to the actual range of wage offers a person will receive is a factor in determining the duration of unemployment. If reservation wages are unrealistic it may take a long time for expectations to converge with the actual wage distribution, and the duration of unemployment lengthens.

When viewing unemployment rates by race, we must wonder if the entire range of job vacancies is available to the entire labor force. If there are

occupational barriers to entry in some cases, then the set of vacancies available to black workers is relatively smaller than the set of vacancies available to white workers, and a higher duration of unemployment is expected. Flanagan (1976) notes that we would predict unemployment differentials if blacks expect the same offers from the same wage distribution as whites but in fact face a lower distribution of wage offers.

Empirically, Barret, Gerardi, and Morgenstern (1975) found that the average duration of unemployment was not radically different by race. (Duration of unemployment was about 20% higher for black males than for white males and 15% higher for black females than white females in 1969.) However, those things that explained duration differed somewhat by race. Age was most important in explaining duration for whites, while education was most important for blacks. Also, occupation and industry factors were not at all significant for blacks, although there were some effects for whites. Osterman (1978), in viewing unemployment differences among youth by race, also noted that among youth, differences in the duration of unemployment were likely if black youth had reservation wages that were either too high or that did not converge to the actual wage distribution as rapidly as did the reservation wages of white youth.

While the differences in the duration of unemployment reported by Barret, et al (1975) may not be applicable in a slack labor market, data developed by Marston (1976) from monthly averages from 1967-73, a period which included diverse market conditions, shows that racial differences in the duration of unemployment are minimal for workers over 25 (see Table 2.1). Since differences in racial unemployment differentials cannot be fully attributed to differences in the duration of unemployment, a discussion of

the determinants of turnover is in order here.

TABLE 2.1
AVERAGE DURATION OF UNEMPLOYMENT
(IN WEEKS) 1967-1973

	<u>16-19</u>	<u>20-24</u>	<u>25-59</u>
Black Females	8.14	9.59	7.63
White Females	6.68	7.65	7.58
B/W	1.22	1.25	1.01
Black Males	7.82	12.04	9.73
White Males	6.81	7.94	9.41
B/W	1.15	1.51	1.03

Source: Marston (1976)

Turnover in the labor market can take place either because workers quit or because they are laid off. Clearly, the factors that determine quits and those that determine layoffs may differ significantly. Also, while turnover is a component in an unemployment equation, not all quits and layoffs result in unemployment. Especially with quits, although possibly also with layoffs, job-leaving can be immediately followed by the acquisition of another job.

Quitting, or voluntary turnover, can be considered a form of job search. Burdett (1978) differentiates dynamic quits, which result from changes in the wage distribution, from equilibrium quits, which are part of an individual's overall job search strategy, where the wage distribution is constant. Quitting will depend on the individual's wage in relation to his or her perception of the wage distribution, search costs, and the

attractiveness of the individual's present job. Unless an individual miscalculates the variables that determine his or her decision to quit, the returns to quitting should be positive (Rosen, 1972).

What does a theory of voluntary job-leaving have to say about high black unemployment rates? Flanagan (1978) notes that when an individual's wage is in relation to the wage distribution, she/he will be likely to quit. To the extent that the individual has misjudged the size of range of the wage distribution, quitting may not lead to a higher wage. In particular, when black workers do not distinguish between the set of wage offers made to blacks and those made to whites, their quitting is often the result of the expectation of a wage offer in the white wage distribution. In relation to this behavior, however, Flanagan (1976) suggest that as blacks learn (through search) that the distribution of their wage offers differs by race, their wage expectations will adjust and quitting based on misperception will fall. Thus, it is expected that younger blacks will have higher quit rates than older blacks do, and thus higher unemployment rates.

Considering search costs as part of the decision to quit also favors a higher quit rate for black than white. Phelps (1970) noted that where black wages are lower than white wages, the cost of search is lower for blacks than it is for whites. However, this should be balanced with some notion of financial ability to search. Despite lower wages, if blacks have fewer non-earnings income options than do whites, they may be reluctant to quit. However, Piore (1975) suggests that the availability of non-market income-generating options may be a positive influence on the quit rate, especially for young blacks.

Hall (1970) notes that high quit rates may be a function of job

dissatisfaction. Since we documented the differences in occupational distribution by race in Chapter One, it is clear that blacks would be more likely to experience more job dissatisfaction than do whites. Furthermore, as we mentioned in our discussion of human capital theory, if blacks find it difficult to obtain jobs that have training components, they will have less invested in a job, and thus more incentive to quit than a worker who has spent time training. Similarly, employers will not offer incentives for a worker that they have invested little in to remain on the job. So current job is clearly a factor in explaining quit rates.

Table 2.2 below shows the frequency of turnover as calculated by Marston (1976) from monthly data from 1967-73. It is clear that black turnover rates are higher than those of whites. Unlike the duration of unemployment, also, the racial differences in these rates are substantial.

TABLE 2.2

FREQUENCY (PERCENT OF THE LABOR FORCE PER MONTH)
OF UNEMPLOYMENT 1967-1973

	<u>16-19</u>	<u>20-24</u>	<u>25-34</u>
Black Females	16.75	6.37	3.38
White Females	8.31	3.82	2.10
B/W	2.02	1.67	1.61
Black Males	13.58	4.14	1.77
White Males	7.51	3.41	1.05
B/W	1.81	1.21	1.69

Source: Marston (1976)

In an empirical effort to explain turnover, Barret, et al (1975) find that the occupational composition of the labor force is important in explaining high black turnover rates. Further, turnover declined with age and education, which is important since there are proportionately more black than white youth, and since the educational profile of the black population is somewhat less educated than the white population. Barret, et al (1975) also found that married persons with spouses present had lower turnover in both races. The presence of children was associated with low turnover for whites but not for blacks. Finally, the theoretical assertion that low-paying, low-status jobs have higher turnover was verified in this research, since the relationship between turnover and income was negative.

Some of the Barret, et al findings are corroborated in recent research by Blau and Kahn (1978). They find that racial differences in job occupation raise the quit rates of blacks relative to those of whites. However, Blau and Kahn also noted that if blacks were given jobs comparable to those of whites their quit rates would be lower than white quit rates.

Flanagan (1978) finds in his estimates of turnover that for older (45-59) black males, the quit probability is positively related to previous employment instability; and that given a certain number of job changes, the probability of a quit is thrice as high for blacks as it is for whites. On the other hand, job changing was more profitable, in terms of wage-rate increases, for older blacks than for older whites. Among the young males (14-24) that Flanagan viewed, job instability was a reliable predictor of quitting only for whites. Further, job instability was not at all associated with wage advances for either blacks or whites.

Another aspect of the turnover process is layoffs, which are involuntary. While there is not a search theory-specific explanation for racial differences

in layoffs, a queue theory would suggest that those workers with the lowest marginal products would be the first to be laid off. This is consistent with the human capital notion (Oi, 1962) of labor as a quasi-fixed factor of production. In some cases, however, despite investment in a training program, the layoff determinants may be institutional. For example, seniority usually determines the order of layoffs in firms that have collective bargaining agreements. Thus, Osterman's (1978) finding that the length of employment is negatively associated with layoff for both blacks and whites (although the coefficient of the tenure variable is twice as large for whites as for blacks), is consistent with expectations about the dynamics of employer layoff decisions.

Search theory highlights important differences in the behavior of black workers, especially with respect to voluntary turnover. Since our interest here is in intraoccupational variations, we speculate that differential black quit behavior within occupations may be related to variances in institutional arrangements for an occupation across industries. As in Flanagan's (1978) hypothesis about misperceptions in the shape of the wage offer distribution, blacks may be frustrated in their attempt to obtain jobs in highly sheltered industries that provide higher wages and better benefits than do jobs in more competitive industries. To the extent that they quit to search for such jobs, their unemployment rates will be higher than those of whites.

2.3 Institutional Explanations of Unemployment Differentials.

The development of the theory that wages are equal to marginal product embodies the assumptions that markets are perfect and labor homogenous. Human capital theory maintains the assumption of "perfect" markets while focusing on the heterogeneity of the labor force in explaining wage and

employment differentials. Institutional theory, on the other hand, rejects the assumption of perfect labor markets.

Institutional theories of the labor market are concerned primarily with the relative wages of groups over time. These theories study and explain the impact of institutional factors on wages and employment; institutional factors including unionization, political power, ability (of firms) to pay wages, barriers to geographic mobility, legislative constraints to free markets (such as minimum wage) and other factors that make markets imperfect. Clark Kerr's (1954) theory of balkanization in labor markets is considered an early example of institutionalized labor market theory. He postulated that organization was evolving from an unstructured competitive market system, to a more structured, highly organized system. In structured markets, a system of the market determination is less operative than are sets of complex rules, such as government regulations and collective bargaining agreements. Kerr's theory also noted the distinction between the union role in raising wages by restricting the supply of workers.

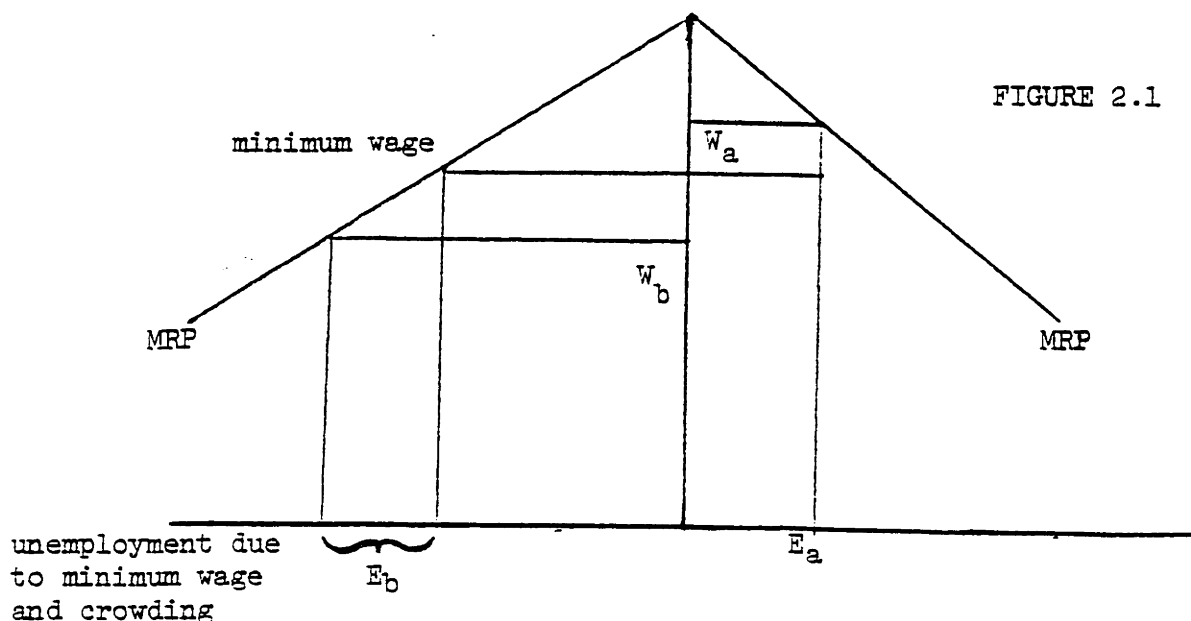
A problem with institutional theories of labor markets is that they are not as deterministic as other labor market theories are (Bluestone, 1974). Thus it is not clear that actual wages can be determined, although wage ranges may be estimated.

Institutional explanations of unemployment differentials are important in explaining racial disparities for two reasons. Firstly, to the extent that institutional theories describe the benefits of unionization and, the process of union "ownership" of a communal resource (labor), and the ownership benefits that accrue because of exclusionary practices, it is clear that the historical exclusion of blacks from such highly sheltered work

groups is a factor in the existence of relatively high black unemployment rates. Secondly, the institutional focus on market imperfections is important in the development of other labor market theories.

2.4 Unemployment Differentials and the "Crowding Hypothesis"

The "crowding hypothesis" of labor markets is one of the developments in labor market theory that seems quite harmonious with institutional notions of labor markets. In its most simple form this hypothesis assumes that there are two labor markets with entry restricted in one case but not in the other case. If we assume (in Figure 2.1) that market A is restricted to include only E_a persons, then the remaining E_b persons in the labor force will be "crowded" into labor market B where wages will be lower. Further, if minimum wage laws limit the paying of certain wages, unemployment will be high in labor market B. In any case, workers in labor market A will not be threatened by the lower wages in the other sector as they would in a competitive market because there are barriers to entry. Further, the entry of new workers in the labor market will cause, almost exclusively, downward pressure in labor market B.



The scenario described here is called "simple crowding". More involved types of crowding can be developed where there are differences in the characteristics of the two markets causing the slopes of the marginal revenue product line to be different. These variations on a "simple crowding" model are called "complex crowding" (Bluestone, 1974). Bergmann (1971) developed much of the crowding hypothesis to illustrate the ways the interests of the "in" group of protected workers are maintained when others are excluded from markets.

The crowding hypothesis is clearly relevant in explaining the extent of occupational segregation in the labor market. The practice of having "male" and "female" titles for similar work jobs is an example of this. (In a discussion of sexism and the publishing industry, for example, a writer notes that entry jobs for women were "researcher" jobs, while male entry jobs were for "writers". Although educational qualifications were the same, the "writer" jobs are higher paying than the "researcher" jobs (Korda, 1973).) Similar separate hiring tracks existed in plants between blacks and whites, and occupational segregation prior to the Civil Rights Act was so pronounced that there were separate racial units and seniority lists for blacks and for whites. As blacks attempted to move from their traditional production units to those that required more skill after the Civil Rights Act was passed, the determination of their seniority rights became a major judicial issue (Wallace, 1976).

Racial unemployment differentials are consistent with a crowding hypothesis of the labor market. If the restricted labor market uses race as a barrier, and unlimited job opportunities do not exist in the unrestricted labor market, then blacks will have a higher probability of unemployment than will whites. This is especially true where institutional

constraints, such as minimum wage, prevent the indefinite expansion of the unrestricted sector of the labor market.

While Chapter One notes that occupational segregation is not as pronounced as it has been in the past, previously established "crowding" patterns may be determinants in the occupational choice of new labor market entrants. (For example, while the labor force participation of women has increased, women were as firmly entrenched in "women's jobs" in 1977 as they were in 1960. Similarly, while the black occupational distribution has a broader range than it did in 1960, there is still disproportionate representation in some menial jobs.) Even intraoccupationally, there may be "crowding" effects, although these are less pronounced than effects among the entire occupational spectrum. Among operatives, for example, we note a high concentration of blacks and women in durable goods industries but a significantly lower concentration in the more sheltered (because of higher concentration ratios among firms) durable goods industries. Similarly, we noted in Chapter One, that while the representation of black women in the clerical occupations has increased, their presence in the most skilled of secretarial jobs, legal and medical secretaries, is far below their proportion of secretaries as a whole.

As anti-discrimination laws prevent the rigid occupational segregation that took place in the past, the effects of the crowding hypothesis on new labor market entrants may be minimized. However, its impact on older cohorts may have produced "lock-in" effects that continue to have an impact on racial unemployment differentials. Furthermore, while rigid "crowding" does not exist the perception of "male", "female", "black", or "white" jobs may shape both the occupational preferences of employees and

the hiring preferences of employers, and to that extent the crowding hypothesis will remain important in explaining racial differences in unemployment.

2.5 Theories of Dual Labor Markets and Labor Market Stratification.

Like institutional market theory, dual labor market theory deals with critical imperfections in the labor market. However, while institutional theory is concerned with a range of market imperfections, dual labor market theory develops the notion of one key barrier, a lack of mobility between two separate labor markets termed "primary" and "secondary". The two labor markets have different types of jobs and require different types of market behavior.

Secondary labor markets are characterized by low pay, poor working conditions, low status, instability, little chance of advancement, the need for little or no education, as well as no training or skill investment, the lack of a formalized grievance procedure, or of any other formal structure, and the personalized relationship between the employee and the foreman (Gordon, 1973). Primary jobs are opposite these secondary jobs, with better pay, and working conditions, a system of upward mobility and possibly training embodied into the job situation. Primary jobs are far more structured than secondary jobs, in the sense that there is a formalized grievance procedure, formal procedures for hiring and advancement, and other clearly defined work rules.

Because there is so little skill required in secondary jobs, employers are indifferent to who performs work tasks. Thus jobs are almost casual, and workers may or may not show up for work on a given day. When there are shortages of labor, employers recruit through an informal system of word-of-mouth. (In a study of low-wage industries in Boston, Piore (1973) noted a

recruitment system of sending a worker to Puerto Rico to get others who would work at low-paying jobs.) The secondary market is usually in industries where there is a low concentration ratio, a high amount of price competition, and a labor-intensive production technique. The sector is dominated by minorities, women and youth.

For some workers, there is no mobility between the primary and secondary labor market. Furthermore, since there are no work rules in the secondary labor market, participants in that market tend to develop a set of work habits that are unacceptable in primary labor markets, if they could gain access there. These habits include the lateness and absenteeism that are not penalized in the secondary labor market. (Some ethnographers describe work and lifestyles in secondary markets (Liebow, 1967).) However, the delineation of the direction of causality in the development of work habits is often unclear.

For workers in the secondary labor market, there seems to be little payoff to acquiring training or skill. First of all, their probability of finding a job where they could use this skill is low. Secondly, there is little return to additional education in the secondary labor market.

Dual labor market theory was developed to explain the high black unemployment rates that existed in the 1960's, especially in the face of very tight labor markets. Clearly, if blacks are disproportionately represented in the secondary sector, then their turnover will be higher, as they move from job to job since neither skill nor longevity has any payoff. However, in order for dual labor market theory to explain why white youth, especially, can leave secondary labor markets while blacks are more clearly locked in, the notion of a lock in effect that differs by social strata is developed.

To this end, it seems that theories of labor market stratification are useful in explaining high black unemployment rates (Piore, 1975). However, discussion of labor market stratification theories quickly moves out of the realm of solely discussing jobs and into the realm of discussing individuals as well. It is interesting to note, however, that notions of labor market stratification have a strong parallel to John Stewart Mills' concept of non-competing groups. In a different era, Mills noted the balkanization of labor markets even within family units, as the roles for sons, depending on order of birth, were clearly delineated.

In a theory of stratification in the labor market, it is argued that market stratification merely mirrors societal stratification. Linkages are made between class, types of school attended, and type of family structure. (Bowles (1971), (1972) for example, discusses the role that the educational system plays in socializing the population for their role in the labor market.) Factors such as whether a family migrated or not are also considered in terms of the employment outcome for individuals.

While the basic structure of the dual labor market (with primary and secondary sectors) is maintained, the primary sector is divided into "self-directed" and "subordinate" sectors. The path then, from a lower class background, through possible migration and certainly poor schooling leads to a secondary labor market job. For the working class person, the path leads to a subordinate primary job. These jobs include jobs in internal labor markets where hierarchies are clearly defined and work rules are clearly structured.

Finally, middle class identity leads to an "innovative" education and to a job in the self-directed section of the primary labor market. These jobs are primarily professional and managerial.

In this characterization of the labor market there seems to be little interaction between the supply and demand for labor. Instead, supply for labor is rooted in the dynamics of the class sub-cultures while demand is a function of technology. The role that migration, both from the rural South and Puerto Rico, and illegally, from Mexico, plays in replenishing the secondary labor market should also be noted.

Again, theories of labor market stratification are consistent with high black unemployment rates. To the extent that historical discrimination has disproportionately placed blacks in the lower tier of the class distribution and adversely affected influencing factors such as family stability, blacks are tracked to secondary labor market jobs which have high turnover, lower chances for advancement, and so on. The "lock-in" effects discussed in a secondary labor market theory also indicate that the implications of a head of household holding a secondary market job are multi-generational.

Empirically, the rigidity implied in stratification theories is not as absolute as theory would suggest. Blau and Duncan (1966) note that while most intergenerational occupational mobility is small, this small mobility exhibits a clear upward trend. Furthermore, given the magnitude of societal changes, the meaning of some of the parameters in a stratification model (such as family stability where the divorce rate is 40%) are unclear. It will be interesting, in a decade or so, to consider the impact that these trends will have on theories of stratification.

2.6 Discrimination Theories and Unemployment Differentials

The existence of discrimination has been implicit in the discussion of all of the labor market theories above. While various unemployment theories make the link between low-paying jobs and high unemployment clear, discussion

of the historical impact of discrimination clarify the disproportionate representation of blacks in these low-paying jobs. Since the effects of historical discrimination were briefly discussed in Chapter One, it is not repeated here. Instead, we will discuss two views of the impact of present discrimination on racial unemployment differentials.

These arguments indicate that racial wage differentials that are attributable to discrimination have a positive impact on racial unemployment differentials both through the demand side actions of employers and supply side reactions of employees.

Gilman (1965) discusses present discrimination and unemployment rates in terms of what he calls a "differential wage rigidity" hypothesis. In the absence of discrimination, employers will hire blacks and whites until the traditional equilibrium condition is attained, and relative wages are equal to relative marginal products (see Equation 2.3 below).

$$(2.3) \quad \frac{W_w}{W_b} = \frac{MRP_w}{MRP_b}$$

However, when there is discrimination, the equilibrium condition is altered to account for the presence of a discrimination coefficient (Becker, 1957). The new equilibrium condition is shown in equation 2.4.

$$(2.4) \quad \frac{W_w}{W_b} = \frac{MRP_w(H_d)}{MRP_b}$$

The effect of the presence of discrimination will be to decrease black wages relative to white wages or to decrease black employment relative to white employment, or some combination of the two. Gilman's wage rigidity hypothesis indicates that since there are legislative barriers to flexible

wages such as minimum wage laws and union regulations, adjustment will take place as black employment is reduced relative to white employment, and thus black unemployment rates are higher. Gilroy (1975) further suggests that the effects of differential wage rigidity are "to push black workers into nonunionized, low-paying occupations and industries."

The Gilman/Gilroy point of view looks at the demand side of the labor equation exclusively. Flanagan (1978) views supply-side effects of wage discrimination among blacks by analyzing the quit behavior of blacks. His findings indicate (1) that racial wage discrimination raises the black quit rate, especially among youth, and (2) that racial wage differentials probably increase the duration of unemployment for blacks by providing an incentive for search activity.

2.7 Cyclical Explanations of Racial Unemployment Differentials.

A discussion of discrimination and unemployment differentials should note the effect that discrimination has in placing blacks on a queue of workers to be hired. Thus the "last hired, first fired" hypothesis explains the greater market vulnerability of blacks as a function of their low position on the queue. The "last hired, first fired" phenomenon is not always the result of present discrimination. In occupations that were traditionally closed to blacks, their recent entry has placed them, by virtue of seniority, at the bottom of an employment queue. With less seniority, these blacks are most susceptible to layoffs.

Harry Gilman (1965) did not agree that the "last hired, first fired" phenomenon was operable. He felt that racial unemployment differentials are independent of the position of the business cycle and that, instead, the disproportionate increase in black unemployment rates during the trough of the business cycle is due to the unfavorable occupational

distribution of blacks. However, whatever the reason, it is clear that blacks fare worse than whites do in recessionary periods. Table 2.3 shows that there has been some historical improvement in the magnitude of the adverse effect: In the 1957-58 downturn twice as many black workers were added to unemployment totals as were whites (1974). However, in the 1969-70 recession 1.8 blacks became jobless for every white. Further, in the 1973-75 recession 1.4 blacks became unemployed for every 100 whites (Job, 1978).

Gilroy noted that the disproportionate employment burden that blacks bear in recession was balanced by proportionately more employment experience movement from unemployment in recovery periods (1974). As the table shows, in 1958-60, 1.8 blacks became employed for every white. In the 1961-69 recovery period 2.2 blacks were employed for every white. However, the favorable effect of recovery periods has declined recently. In the 1971-73 recovery period only 1.25 blacks were employed for every white, and, most recently, between 1975 and 1978 fewer blacks left unemployment than did whites (see Table 2.3). Part of the reason for the lower strength of recovery for blacks is an increase in the black labor force participation rates that took place between 1975 and 1978. However, it is also interesting to note that the improvement in black occupational status was accompanied by both a less serious adverse impact of recession and a less strong effect in recovery, thus giving some credence to Gilman's argument that cyclical effects on unemployment must be considered in light of the occupational distribution.

Again, theories of stratification are consistent with high black unemployment rates. To the extent that a history of discrimination has disproportionately placed blacks in the lower tier of the class

TABLE 2.3

THE INCREMENTAL RATIO OF BLACK-WHITE UNEMPLOYMENT

BASED ON CHANGES IN JOBLESS RATES DURING RECESSION AND RECOVERY PERIODS

QUARTERLY AVERAGES, 1957-78

(Seasonally adjusted)

Recession and Recovery Periods	Beginning unemployment rates		Beginning unemployment rates		Absolute percentage point change		Incremental ratio
	Black and Other	White	Black and Other	White	Black and Other	White	
Recession periods							
1957 I-1958 II	7.4	3.6	13.4	6.6	6.0	3.0	2.00
1960 II-1961 II	9.9	4.7	12.9	6.3	3.0	1.6	1.88
1969 IV-1971 IV	6.2	3.3	10.1	5.5	3.9	2.2	1.77
1973 IV-1975 II	8.6	4.3	14.2	8.2	5.6	3.9	1.44
Recovery periods							
1958 II-1960 II	13.4	6.6	9.9	4.7	3.5	1.9	1.84
1961 II-1969 IV	12.9	6.3	6.2	3.3	6.7	3.0	2.23
1971 IV-1973 IV	10.1	5.5	8.6	4.3	1.5	1.2	1.25
1975 II-1978 IV	14.2	8.2	11.5	5.1	2.7	3.1	.87

* Although the fourth quarter 1978 is not a turning point date in either black or white unemployment rates, the date is used as the latest one available to mark the 1975-78 recovery period.

Source: Job (1978)

distribution, there is tracking to secondary jobs which have higher turnover, lower chances for advancement, and so on.

It will be interesting, however, to consider stratification theories in a decade or so. Given the magnitude of societal changes, the meanings of some of the parameters in a stratification model (such as family stability) are questionable. How will these factors affect the linkages from class to family structure to educational type, to labor market status in the long run?

2.8 Closing Comments

This chapter shows that high black unemployment rates can be explained by several labor market theories. This writer chooses to view the theoretical explanations as complementary, not competing. While human capital and search theories make it clear that different investments (i.e. in education or time) affect employment status, dual labor market, crowding, and institutional and discrimination theories show that pure investment effects are mitigated by other factors. The model of differences in employment experience that is presented and tested in Chapter Four incorporates elements of several of these theories.

Meanwhile, in an exercise that is consistent with arguments by both Gilman (1965) and Gilroy (1973), Chapter Three tests the hypothesis that distributional differences between the black and white populations account for some portion of the racial unemployment differential. While the adjustments in Chapter Three are consistent with those of Gilman and Gilroy, this researcher generally found that about the same amount of the male differential was explained by the 1975 adjustments to occupational distribution as Gilroy's 1960 adjustments.

CHAPTER THREE
STANDARDIZING INTEROCCUPATIONAL AND INTRA OCCUPATIONAL
UNEMPLOYMENT DIFFERENTIALS BY SELECTED FACTORS

Chapter One viewed unemployment differentials over time by age, sex and occupation. This chapter looks at unemployment differentials in the survey year (1975) by certain factors and shows how much of the unemployment variance can be explained when these factors are controlled for, both across occupation and intraoccupationally. Because both this chapter and the next will pay particular attention to variances within occupation, Section 3.1 of this chapter reviews methods of occupational classification.

Section 3.2 discusses a methodology to adjust overall unemployment rates for distributional differences in the population and presents the adjustments for age, sex, education, occupation and industry. The educational and occupational adjustments have the most significant effect in explaining racial unemployment differentials.

Section 3.3 considers an explanation of why some occupations have higher unemployment rates than others do, and finds that both the proportion of blacks and the amount of growth are significant in explaining the difference in occupational unemployment rates.

Adjustments to intraoccupational unemployment rates are made by age and education in Sections 3.4 and 3.5. In general, these adjustments are most effective at the upper end of the occupational distribution.

Section 3.6 adjusts intraoccupational unemployment rates by industry, and also simultaneously adjusts unemployment rates by occupation and industry. Section 3.7 is an overview of this chapter.

3.1 Methods of Occupational Classification

The discussion that follows explains how occupations are classified by the Bureau of the Census and discusses some criticisms of the classification system. Much of this discussion should be read in conjunction with Appendix 1.

The CPS system of occupational classification is the most widely used framework for occupational analysis (Scoville, 72). The census groups occupations into twelve major classifications: (1) professional, the technical and kindred; (2) managers and administrators, except farm; (3) sales workers; (4) clerical workers; (5) craftsmen and kindred workers; (6) operatives, except transport; (7) transport operatives; (8) laborers, except farm; (9) private household workers; (10) service workers, except private household; (11) farmers and farm managers; (12) farm laborers and farm foremen.

There are forty-four intermediate occupational classifications. Some of them are occupational groupings more detailed than the major occupations; other distinguish workers in major occupations by either industry or class of worker (i.e. salaried manufacturing managers; other professionals, self-employed). The forty-four intermediate occupations have been given two-digit numbers in the census system of classification. They appear at the far left-hand side of the page in the Appendix 1. Finally, there are 440 detailed occupational classifications, some wholly contained within intermediate classifications, and others appearing in more than one intermediate classification if that classification is defined by industry or class of worker. Some of the detailed occupational classifications are further subdivided by industry, and where possible this has been shown in the appendix.

An examination of the left side of the appendix table, which shows the division and subdivision of major, intermediate and detailed occupations reveals some of the problems with census occupational classifications. In particular, the range of occupations included in both the

major and the intermediate occupation groups is large. Insurance adjusters and messengers both are classified as clerical workers. Both physicians and radio operators are considered professional technical and kindred workers.

Scoville (1972, 1969, 1965) has written widely on the subject of occupational classifications. He finds that many of the inconsistencies that exist in the present system of occupational classification evolved from the sometimes conflicting desire to both study socioeconomic class and other broad social problems, and to view occupational homogeneity. According to Scoville (1965), one of the major indictments of the census system of occupational classification is the fact that so many workers and occupations fall under intermediate headings like "other--" and "not elsewhere classified".

In response to criticisms about the census system of occupational classification, many authors have proposed changes or modifications in the method of classification so that units of analysis are more homogenous. An interesting effort has been to merge information from the Dictionary of Occupational Titles with occupational classifications to view the degree of heterogeneity that exists in census occupational classifications.

The Dictionary of Occupational Titles (DOT) is characterized by some as a "census of jobs" (Scoville, 1972). It views occupation titles, job characteristics and worker conditions and also groups occupations by worker traits and areas of work. Because it has no estimates for the numbers of persons employed in occupations it is of limited use. The DOT is developed by the Bureau of Employment Security, and was first published in 1939. Successive editions were published in 1949, 1965, and 1972. The 1966 Supplement to the DOT contained useful analysis of estimated education

and training time necessary for each occupation. Two measures are developed, "general educational development", or GED, and "specific vocational preparation", or SVP. GED "embraces those aspects of education (formal and informal) which contribute to the worker's (a) reasoning development and ability to follow instructions and (b) acquisition of 'tool' knowledges, such as language and mathematical skills" (DOT, 1965). SVP estimates "the amount of time required to learn the techniques, acquire information and develop the facility needed for average performance in a specific job-worker situation" (DOT, 1965). The numbers on the right-hand side of the appendix refer to GED and SVP, with higher numerical designations corresponding to higher amounts of education or training time. Also, the appendix discusses the exact meaning of GED and SVP numbers. Barry Bluestone (1974) used GED and SVP to group occupations that had similar education and training requirements in his analysis of wage determination. His occupational levels (OL in the appendix column) represent an ordinal ranking of GED and SVP scores, and are also detailed in the appendix.

The variations captured by OL, GED and SVP are useful supplements to the information that we get from intermediate occupational classifications. When we segment occupations by skill it is clear, also, that blacks are often concentrated in the lower-skilled portions of in two-digit occupations. (See Appendix B for further discussion of this.)

In addition to an explanation of the present methods of occupational classification, there are other considerations to note in connection with the occupational classification and our analysis. Firstly, there is some concern with the accuracy of occupational classifications. Secondly, it should be noted that when a cross-sectional analysis views the occupation that an individual held in the survey year, it does not deal with mobility

that may have taken place during the year in question. In particular, if the longest occupation held is different from the last occupation held, which occupation should the individual be measured as having been employed in, the longest held occupation, or the most recent one? Both these issues are discussed in some detail below.

The Classification of Persons in Occupations. There has been enough concern about how a possible mismatch in the way individuals classify themselves occupationally and the way others classify them, for the Commerce Department to evaluate the classification for the 1970 census via the 1972 Postcensal Manpower survey (US Department of Commerce, 1978). In 1970, census coders classified the person's occupation, while in 1972 people chose their own classification. The result of the limited sample comparison (of 44 detailed science and engineering occupations) was that about 56% of the 35,000 people included in the sample were mismatched among detailed occupation codes. Presumably they were not mismatched in intermediate occupation codes. While the magnitude of the mismatch certainly raises questions about using occupational groupings as the focus of analysis, it is not clear that anything can be done about the possible inaccuracies pointed out in the census report. Further errors seemed to be between very similar detailed occupation titles, or the result of confusion for those who have dual occupations (and are thus supposed to be classified as holding the lower code of the two). Finally, it is not clear that the sample in question, science and engineering occupations, is typical of some of the other occupation groups that may have been used to test the magnitude of this problem. While the issue of the accuracy of classification is interesting, we do not feel that these errors have a major impact on our analysis.

Occupational Mobility. The Survey of Income and Education listed occupation for individuals by the longest occupation held in the survey year and by the occupation held at the time of the survey (or the last occupation held), which in most cases was the spring of 1976. Because this researcher made the decision to use the longest occupation held to measure occupational status, I thought it might be useful to discuss the differences between the longest occupation held and the last occupation held for the SIE.

TABLE 3.1

OCCUPATIONAL MOBILITY, 1975

Change in Occupation	12.0%
Same Major Occupation	1.9%
Different Two Digit Occupation	1.0%
Different Three Digit Occupation	0.9%
Different Major Occupation	9.0%
Occupation Upgraded	4.9%
Occupation Downgraded	4.2%
To Unemployment (i.e., No Major Occupation)	1.1%
No Change	88.0%

Source: Survey of Income and Education (1975)

Note: Totals may not add up due to rounding.

A sample from the total SIE was viewed for differences between the longest occupation held and the last one, and, as Table 3.1 below shows, almost nine-tenths of those sampled did not change occupation in the survey year. About ninety percent of those who changed their occupation, changed their major occupation.

Of those, more individuals experienced occupational upgrading than experienced downgrading. The estimates of the magnitude of occupational mobility are not large compared to the amount of mobility that exists, especially for young workers, in a longer time period.

TABLE 3.2

OCCUPATIONAL MOBILITY, 1965-1970, MALES

	<u>25-34</u>	<u>35-44</u>	<u>45-64</u>
Change in Title			
Same Major, Different Three Digit	15.4	12.9	11.3
Different Major	35.6	22.0	16.7
No Change	49.0	65.1	72.0

Source: Leigh (1978)

Table 3.2, for example, shows that the majority of men between twenty-five and thirty-four experienced some occupational mobility in a five year time period.

While there is some occupation mobility in the survey year, it is not as large as long-run occupational mobility is. Further, the slight measurement problem that exists by choosing the longest occupation held rather than the last occupation held cannot be reduced by using the alternate measure.

3.2 Standardizing Aggregate Racial Unemployment Rates for Certain Factors. Much of the discussion about racial unemployment rates notes that standardization for factors that are seemingly race-neutral may lower the unemployment rate gap between blacks and whites. For example, since the median age of the white population is higher than that for blacks, and unemployment rates tend to be higher for younger people, an adjustment that neutralized differences in the age distribution would show what portion of the black unemployment rate is due solely to differences in the age distribution by race. Gilroy (1973) uses this approach in making

adjustments in 1960 unemployment rates by race and factors that he terms "productivity" factors, such as age, education, occupation, industry and quality of education and region. While we will not duplicate the factors that he adjusted for, we will duplicate his approach in adjusting unemployment rates.

In adjusting racial unemployment rates for certain factors, we will take the distribution of that factor for one race and multiply it to the unemployment rate for the other race. In particular, if we think that the age distribution of black workers is a factor in explaining high black unemployment rates, then we will apply the black unemployment rates by age category to the white age distribution as follows:

$$(3.1) \quad U'_b = u_b \cdot dw$$

Thus, if blacks in lower age categories have a heavier concentration in lower age categories, then the application of the white age distribution to black unemployment rates will mean that the adjusted black unemployment rate is lower than the actual rate. If, on the other hand, the distribution of the black population is not a factor in the level of the black unemployment rate, then the adjusted unemployment rate for blacks will be identical to or smaller than the unadjusted black unemployment rate.

A similar adjustment to show to what extent whites experience lower unemployment rates because of favorable distributions can be measured by applying the white unemployment rates to the black population distribution.

Then,

$$(3.2) \quad U'_w = u_w \cdot d_b$$

as in equation 3.2 if blacks are concentrated in categories that have high unemployment rates, even for whites, such as the younger age groups, then the adjusted white unemployment rate will be greater than the unadjusted white unemployment rate. On the other hand, if it is the unemployment rates, and not the distribution, that explains differential racial unemployment, then the unadjusted and adjusted white unemployment rates will be identical or the adjusted rate will be smaller than the unadjusted rate.

Given that we have unemployment rate differentials, as in 3.3, then it is interesting to see how our adjusted unemployment rates increase or reduce the differentials that we measured. Thus,

$$(3.3) \quad D' = \frac{U'_b}{U_w}$$

the distribution shown in equation 3.4 compares the adjusted black unemployment rate to the unadjusted white unemployment rate. (Gilroy refers to this D' as a Laspeyres index of unemployment differences.)

$$(3.4) \quad D' = \frac{U'_b}{U_w}$$

Similarly, the distribution shown in equation 3.5 compares the adjusted white unemployment rate with the unadjusted black unemployment rate.

$$(3.5) \quad D'' = \frac{U_b}{U'_w}$$

(Gilroy calls this the Paasche index of unemployment differences). As

before, if the distributions have been important in explaining a portion of the black unemployment rate differential, then both D' and D'' will be less than the unadjusted differential, D .

Finally, a measure of the amount of the unemployment rate that can be explained away by distributional differences can be obtained by comparing adjusted and unadjusted unemployment rates. The extent to which the distribution reduces the black unemployment rate can be measured by R_b as shown in equation 3.6.

$$(3.6) \quad R_b = \frac{U_b}{U'_b}$$

Similarly the extent to which the population distribution is favorable to whites can be measured by R_w as shown in equation 3.7. When R_b and R_w exceed 1, the population distribution explains a portion of the racial unemployment rate. When the population R_b and R_w are less than 1, distribution did not make a difference in the size of the unemployment rate.

$$(3.7) \quad R_w = \frac{U'_w}{U_w}$$

Table 3.3 shows adjustments to unemployment differentials by certain factors, including industry, occupation, age, education and sex. Since Gilroy (1973) made similar adjustments for males in 1960 his estimates are included in the table for the sake of comparison. The data used to calculate unemployment rates and distributions was the SIE, and the rates that the SIE yields are roughly comparable to the rates calculated from the CPS for the same year.

TABLE 3.3
ADJUSTMENTS TO UNEMPLOYMENT DIFFERENTIALS BY CERTAIN FACTORS

	TOTAL			FEMALES			MALES				
	D'	D''	Rw	D'	D''	Rb	Rw	D'	D''	Rb	Rw
Unadjusted, 1975	2.39	-	-	2.22	2.22	-	-	2.46	2.46	-	-
Industry, 1975	2.18	1.86	1.28	2.14	1.79	1.03	1.24	2.21	1.91	1.12	1.29
*Industry, 1960	-	-	-	-	-	-	-	2.12	2.13	1.03	1.07
Occupation, 1975	1.80	1.61	1.48	1.90	1.60	1.16	1.38	1.73	1.56	1.43	1.58
*Occupation, 1960	-	-	-	-	-	-	-	1.67	1.59	1.31	1.46
Age, 1975	2.33	2.35	1.04	2.25	2.25	0.99	0.99	2.34	2.37	1.05	1.04
*Age, 1960	-	-	-	-	-	-	-	2.19	2.11	0.96	0.93
Education, 1975	2.15	2.12	1.11	2.03	2.00	1.09	1.11	2.22	2.15	1.11	1.15
*Education, 1960	-	-	-	-	-	-	-	1.53	1.60	1.06	1.25
Sex	2.34	2.32	1.02	-	-	-	-	-	-	-	-
**Unadjusted, 1975	2.27	2.27	-	2.14	2.14	-	-	2.35	2.35	-	-
**Industry, 1975	2.37	2.39	0.98	2.10	2.33	1.02	0.92	2.38	2.39	0.98	0.98
**Occupation, 1975	1.95	1.91	1.17	2.07	1.93	1.03	1.11	1.84	1.79	1.28	1.31

*Source: Gilroy (1973)

**This data excludes those who worked no weeks in the survey year: 4.1% of the black females in the labor force; 2.8% of the black males, 1.3% of the white females and .7% of the white males.

Because the SIE only made industry and occupational designations for those individuals who worked at least one week in the survey year, those who were in the labor force but did not work at all in the survey year are counted in the total unemployment rate but are unclassified by industry and occupation. Thus, industry and occupational adjustments are made both including those who worked no weeks and excluding them.

While the industrial distribution of blacks is different from that of whites, (blacks are more concentrated in public administration, service industries, private household work and nondurable goods manufacturing), all of the reduction in black unemployment rates due to the industrial distribution is accounted for by the percentage of blacks who are in no industry or occupation (see Table 3.3). Given that the industrial distribution of black workers improved between 1960 and 1975, however, this is consistent with Gilroy's finding that male unemployment rates were reduced by only three percent in 1960 when the differences in industrial distribution were considered. Results are somewhat different in a simultaneous education-occupation adjustment in Section 3.6.

The occupational distribution, on the other hand, is more important in explaining racial unemployment differentials. When the differences in distribution are considered the black unemployment rate is lowered by about a third, with most of the reduction taking place among males. As mentioned in Chapter One, blacks are concentrated more heavily in laborer, operative, and service occupations than whites are. While the consideration of those who did not work in the survey year reduces the size of black unemployment rates due to the occupational distribution, there is still a 17% reduction level of unemployment that is explained by racial differences in this factor.

An adjustment based on the sex distribution of the population was made both because proportionately more of the black labor force is female (49% compared to 40% of the whites), and because female unemployment rates are higher than male unemployment rates. However, adjusting according to distributional differences by sex reduced the overall black unemployment rate slightly, by about two percent.

Table 3.4 shows that there is a roughly negative relationship between years of education and level of unemployment. An adjustment based on years of education reduced the overall black unemployment rate by eleven

TABLE 3.4

UNEMPLOYMENT RATES BY EDUCATION AND OCCUPATION

	<u><9</u>	<u>9-11</u>	<u>12</u>	<u>13-15</u>	<u>16+</u>
Black Males	10.3	23.9	14.6	13.2	5.7
Black Females	13.8	28.7	17.9	16.1	4.2
White Males	6.9	10.6	5.8	6.0	2.8
White Females	9.6	14.3	7.6	7.2	4.9

percent while a similar (and more pronounced) relationship exists between age and unemployment rate, (see Table 3.5) the overall adjustment for age was a bit lower, at five percent.

TABLE 3.5

UNEMPLOYMENT RATES BY AGE AND OCCUPATION, 1975

	<u>16-19</u>	<u>20-24</u>	<u>25-34</u>	<u>35-44</u>	<u>45-54</u>	<u>55-64</u>	<u>65+</u>
Black Males	47.7	23.4	12.7	9.7	5.8	6.0	7.8
Black Females	51.4	30.6	17.2	11.8	6.8	6.3	2.2
White Males	16.1	11.5	5.3	3.1	3.3	4.2	5.5
White Females	11.3	11.5	7.5	6.5	5.2	4.6	4.0

There is an argument that an adjustment to the educational distribution solely on the basis of education is incomplete in that it does not incorporate arguments about the lower quality of education that blacks may experience (Gilroy, 1973). However, this author is not satisfied with linear adjustments that have been presented by other researchers, primarily because it is not clear that the adjustment is linear, nor is it clear that the magnitude of the adjustment is constant over time. For example, Welch (1973) notes the difference in certain educational quality variables by race such as length of school term and average attendance have narrowed over time. Simple unemployment adjustment by years of education is presented and the realm of possible modifications, which is wide, is noted as open for discussion.

It is important to note that the adjustments made to unemployment rates in Table 3.3 are not necessarily independent. In particular, there should be a high correlation between educational and occupational adjustments, the two with the strongest effects, because educational attainment is important in occupational determination, especially at the upper end of the occupation distribution. This correlation may have been

less pronounced for blacks in the past because of occupational segregation (Blau and Duncan, 1966). (This is reflected by the small educational adjustment (R_b) noted by Gilroy as shown in Table 3.3.) However, as the 1975 adjustment suggests, as occupational barriers become less important, the occupation/education relationship is strengthened for black workers.

In sum, of the measures considered, occupation is the most important in reducing unemployment rates by race. Adjustments for age and sex distributions have only a minor effect on black unemployment rates. Industry adjustments are largely insignificant, especially when those who did not work at all in the survey year are excluded. Finally, education is important, and adjustments by education distribution reduce total black unemployment rates by about more than ten percent.

3.3 Variations in Occupational Unemployment Rates. Why do some occupations have higher unemployment rates than others do? Part of the answer to this question has to do with the supply and demand for workers in the occupations. However, a crowding hypothesis would also suggest that the demographic composition of the work force in a given occupation might be important in determining the magnitude of unemployment in an occupation.

In an analysis that is admittedly partial, a regression was run on the unemployment rate across the forty-four intermediate occupations for 1977. The independent variables here were (1) the percentage of women in the occupation (FEM); (2) the percentage of blacks in the occupation (BLKS); and (3) the percentage of employment growth in the occupation in

the five year period from 1972 to 1977 (GROWTH). Growth was included as a measure of the demand for workers in an occupation. Our expectations about the result of the equation were that the coefficient of the FEM would be positive, as would the coefficient of BLKS. These expectations were based directly on crowding hypotheses - if blacks and women are excluded from certain occupations they will "crowd" into those occupations in which they are accepted. The large labor force in these occupations will either receive lower wages or, in the presence of wage rigidity, experience more unemployment. It was expected that the coefficient of GROWTH would be negative, since there are more employment opportunities in high-growth occupations.

Equation 3.8 shows our expectations were correct for both BLKS and GROWTH. (Standard errors appear below coefficients in parentheses.) The presence of an additional percentage point of blacks in an occupation was responsible for a roughly additional half-point of unemployment in an occupation. On the other hand, an additional percentage point of growth in an occupation accounted for a reduction of a bit less than a tenth of a percentage point in the unemployment rate.

$$(3.8) \quad U_{TOT} = 1.933 - 0.006 \text{ FEM} + .460 \text{ BLKS} - .076 \text{ GROWTH}$$

$$\quad \quad \quad (1.040) \quad (0.153) \quad \quad (.067) \quad \quad (.036)$$

The coefficient of FEM was insignificant. Since the occupational distribution shows a substantial amount of crowding along sexual lines, we were somewhat surprised at this result. However most female-dominated jobs are clerical or other white-collar jobs (i.e. health professionals), and the crowding difference between blacks and women may be traced to the differences in unemployment rates between white collar and blue collar

workers. It is interesting to note that this equation tends to overestimate unemployment rates at the upper spectrum of the occupational distribution.

3.4 Intraoccupational Adjustments in Unemployment Rates by Age

The adjustments to the total unemployment rates by age distribution had only a minor effect on reducing the black unemployment rate, but since the focus of this research is differences between occupations, this author thought it would be interesting to view adjustments to occupational unemployment rates by the age distributions of each occupation. The methodology is exactly as described in Section 3.2. Before making the adjustments it was anticipated that age adjustments would make more differences at the upper end of the occupational spectrum, in jobs where occupational segregation prevented the entry of older blacks. This point is made more clear in Table 3.6 which shows median age by race and occupation. While median age is not significantly different in all of the occupations at the top end of the spectrum, black engineers, black female physicians, black engineering and science technicians, black self-employed professionals, and black salaried managers are considerably younger than comparable whites, as are black sales workers and clerical workers. On the other hand, blacks in laborer and service jobs tend to be older than do whites.

Differences in the median age by race, however, will not alone indicate whether adjustments to unemployment rates will be made on the basis of age. It is also important to note the magnitude of unemployment for blacks in each of the age cells by occupation. Tables C.1, C.2, C.3 and C.4 in Appendix C show unemployment rates by age and occupation. Tables 3.7, 3.8 and 3.9 show the results of adjustments of occupational unemployment rates for the total population, and separately for females

TABLE 3.6
MEDIAN AGE BY RACE, SEX AND OCCUPATION

	<u>BM</u>	<u>BF</u>	<u>B</u>	<u>WM</u>	<u>WF</u>	<u>W</u>
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>						
Engineers	34.5	28.7	33.4	41.0	31.2	40.8
Physicians, Dentists	46.7	29.5	44.4	44.5	40.8	44.1
Other Health Professionals	37.3	38.4	38.2	34.1	36.5	36.2
Teachers Except College	37.2	37.7	37.5	37.2	37.9	37.7
Engineers, Science Technicians	33.1	29.8	32.5	36.5	32.8	36.1
Other Salaried Professionals	35.7	34.4	35.1	35.9	36.8	35.6
Other Self-employed Professionals	34.8	41.0	35.6	44.6	44.0	44.4
<u>MANAGERS AND ADMINISTRATORS, EXCEPT FARM</u>						
Salaried Manufacturing Managers	38.2	40.2	38.3	43.8	41.8	43.6
Other Salaried Managers	38.8	37.4	38.3	40.5	41.4	40.7
Retail Self-Employed Managers	47.4	48.0	47.7	46.1	47.5	46.5
Other Self-Employed Managers	46.2	40.1	45.9	46.1	50.7	46.6
<u>SALES</u>						
Retail Sales Workers	28.0	31.3	30.2	35.2	36.7	36.2
Other Sales Workers	33.8	30.8	32.9	39.0	39.3	39.0
<u>CLERICAL</u>						
Bookkeepers	29.9	32.1	31.6	40.2	39.9	39.9
Office Machine Operators	32.0	30.3	30.7	30.8	33.1	32.9
Stenographers, Typists, Secretaries	27.4	29.6	29.6	35.0	35.4	35.4
Other Clerical Workers	34.2	31.2	32.2	37.2	34.9	35.7

TABLE 3.6 (Cont'd.)

	<u>BM</u>	<u>BF</u>	<u>B</u>	<u>WM</u>	<u>WF</u>	<u>W</u>
<u>CRAFTS AND KINDRED</u>						
Carpenters	38.6	20.5	38.2	38.2	27.4	38.1
Other Construction Crafts Workers	39.1	43.4	39.2	38.7	35.4	38.6
Foreman, NEC	40.6	38.7	40.3	42.7	42.7	42.7
Machine Jobsetters	36.3	43.1	37.0	40.4	37.2	40.3
Other Metal Workers	37.6	32.4	37.4	41.4	38.3	41.3
Auto Mechanics	39.5	35.6	39.4	35.5	28.9	35.5
Other Mechanics	38.4	36.2	38.3	33.8	37.2	33.8
Other Crafts Workers	39.2	38.5	39.0	40.2	31.2	39.9
<u>OPERATIVES, EXCLUDING TRANSPORT</u>						
Mine Workers	36.4	*****	36.4	34.5	23.9	34.4
Motor Vehicle Equipment Operatives	36.9	32.0	35.0	35.6	38.1	36.2
Other Durable Goods Operatives	35.9	34.8	35.5	36.9	38.6	37.5
Nondurable Goods Operatives	34.4	33.8	34.0	36.5	40.0	37.6
Other Operatives	37.1	40.2	38.4	32.17	41.1	34.6
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>						
Driver/Delivery	39.3	36.7	39.2	37.4	36.9	37.3
Other Transport Equipment Operatives	38.4	36.4	38.4	36.9	31.6	36.7
<u>NONFARM LABORERS</u>						
Construction Laborers	38.3	19.9	38.1	31.2	31.0	31.2
Manufacturing Laborers	37.3	34.3	37.0	32.9	35.7	33.3
Other Laborers	37.6	34.5	37.3	29.7	30.7	29.8
<u>PRIVATE HOUSEHOLD WORKERS</u>						
	42.9	50.5	50.4	29.5	37.6	37.2

TABLE 3.6 (Cont'd.)

	<u>BM</u>	<u>BF</u>	<u>B</u>	<u>UM</u>	<u>WF</u>	<u>W</u>
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>						
Cleaning Service Workers	39.1	41.3	40.1	38.5	42.0	39.6
Food Service Workers	29.4	37.2	34.5	27.0	32.8	31.0
Health Service Workers	32.4	37.0	36.3	30.4	36.1	35.5
Personal Service Workers	37.4	36.6	36.9	34.6	37.1	36.4
Protective Service Workers	40.0	38.4	39.7	37.9	37.8	37.9
<u>FARMERS AND FARM MANAGERS</u>						
	48.2	40.0	47.4	48.1	47.1	48.0
<u>FARM LABORERS AND FOREMEN</u>						
Paid Workers	39.6	32.6	37.6	33.0	32.8	33.0
Unpaid Family Workers	18.7	41.7	33.3	26.7	42.8	37.2
Worked No Weeks	19.5	20.8	20.3	18.4	21.1	19.9
Total Labor Force	36.7	35.9	36.3	38.1	36.8	37.6

TABLE 3.7

INTRAOCUPATIONAL ADJUSTMENTS OF UNEMPLOYMENT RATES BY AGE, 1972

	<u>D</u>	<u>D'</u>	<u>D''</u>	<u>Rb</u>	<u>Rw</u>
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>					
Engineers	1.17	0.51	1.39	2.29	0.84
Physicians, Dentists	0.0**	0.0**	0.0**	0.0**	10.00
Other Health Professionals	.89	1.24	0.98	0.73	0.92
Teachers Except College	2.37	2.57	2.35	0.92	1.00
Engineers, Science Technicians	.87	.81	.88	1.07	.98
Other Salaried Professionals	1.86	1.66	1.71	1.12	1.09
Other Self-employed Professionals	1.33	1.27	0.87	1.05	1.53
<u>MANAGERS AND ADMINISTRATORS, EXCEPT FARM</u>					
Salaried Manufacturing Managers	0.0	0.0	0.0	0.0**	.91
Other Salaried Managers	1.08	0.95	0.59	1.14	1.84
Retail Self-Employed Managers	0.0	0.0	0.0	0.0**	.89
Other Self-Employed Managers	5.0	7.0	6.42	0.71	0.78
<u>SALES</u>					
Retail Sales Workers	2.93	2.19	2.6	1.33	1.12
Other Sales Workers	4.96	3.76	3.9	1.32	1.27
<u>CLERICAL</u>					
Bookkeepers	2.71	2.20	2.33	1.23	1.16
Office Machine Operators	2.67	2.47	2.72	1.08	0.98
Stenographers, Typists, Secretaries	2.5	2.04	2.17	1.23	1.15
Other Clerical Workers	2.10	1.90	1.96	1.10	1.07

TABLE 3.7 (Cont'd.)

	<u>D</u>	<u>D'</u>	<u>D''</u>	<u>Rb</u>	<u>Rw</u>
<u>CRAFTS AND KINDRED</u>					
Carpenters	1.03	1.09	1.05	0.94	0.98
Other Construction Crafts Workers	1.68	1.68	1.66	1.00	1.01
Foreman, NEC	2.34	2.13	2.14	1.10	1.09
Machine Jobsetters	0.63	1.29	0.70	0.49	0.90
Other Metal Workers	1.09	1.17	1.17	0.93	0.94
Auto Mechanics	1.67	2.30	1.82	0.73	0.91
Other Mechanics	2.09	2.04	1.34	1.02	1.56
Other Crafts Workers	2.61	2.80	2.69	0.93	0.97
<u>OPERATIVES, EXCLUDING TRANSPORT</u>					
Mine Workers	0.92	1.00	0.85	0.92	1.07
Motor Vehicle Equipment Operatives	1.63	1.63	1.56	1.00	1.04
Other Durable Goods Operatives	1.87	1.71	1.92	1.09	0.97
Nondurable Goods Operatives	1.90	1.71	1.85	1.11	1.03
Other Operatives	1.89	2.50	2.12	0.76	0.88
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>					
Driver/Delivery	1.14	1.30	1.22	0.88	0.94
Other Transport Equipment Operatives	1.02	0.97	1.22	1.05	0.83
<u>NONFARM LABORERS</u>					
Construction Laborers	1.46	1.61	1.45	0.90	1.01
Manufacturing Laborers	1.53	1.71	1.60	0.89	0.95
Other Laborers	2.30	2.94	2.61	0.78	0.88
<u>PRIVATE HOUSEHOLD WORKERS</u>					
	1.82	3.11	2.58	0.58	0.70

TABLE 3.7 (Cont'd.)

	<u>D</u>	<u>D'</u>	<u>D''</u>	<u>Rb</u>	<u>Rw</u>
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>					
Cleaning Service Workers	1.59	1.77	1.70	0.90	0.93
Food Service Workers	1.91	2.14	1.98	0.89	0.96
Health Service Workers	1.81	2.04	1.93	0.88	0.94
Personal Service Workers	3.99	3.92	3.82	1.02	1.04
Protective Service Workers	1.00	0.96	0.90	1.04	1.11
<u>FARMERS AND FARM MANAGERS</u>					
	16.45	9.36	15.45	1.76	1.06
<u>FARM LABORERS AND FOREMEN</u>					
Paid Workers	1.40	1.70	1.54	0.82	0.90
Unpaid Family Workers	14.0	11.7	17.7	1.20	0.79
Total, including no weeks	2.39	2.33	2.35	1.03	1.01

TABLE 3.8
INTRA OCCUPATIONAL ADJUSTMENTS OF UNEMPLOYMENT RATES BY AGE, 1975, FEMALE

	<u>D</u>	<u>D'</u>	<u>D''</u>	<u>Rb</u>	<u>Rw</u>
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>					
Engineers	0.0**	0.0**	0.0**	***	1.95
Physicians, Dentists	0.0**	0.0**	0.0**	***	0.04
Other Health Professionals	1.05	1.42	1.15	0.74	0.92
Teachers Except College	1.69	1.65	1.69	1.02	1.00
Engineers, Science Technicians	1.03	.97	1.14	1.06	.90
Other Salaried Professionals	0.195	.96	.89	0.89	1.08
Other Self-employed Professionals	0.0**	0.0**	0.0**	***	.58
<u>MANAGERS AND ADMINISTRATORS, EXCEPT FARM</u>					
Salaried Manufacturing Managers	0.0**	0.0**	0.0**	***	1.84
Other Salaried Managers	0.71	.54	.67	1.31	1.06
Retail Self-Employed Managers	0.0**	0.0**	0.0**	***	1.11
Other Self-Employed Managers	0.0**	0.0**	0.0**	***	1.00
<u>SALES</u>					
Retail Sales Workers	3.71	2.65	3.38	1.39	1.10
Other Sales Workers	5.66	5.38	4.56	1.05	1.24
<u>CLERICAL</u>					
Bookkeepers	3.48	2.44	3.05	1.43	1.14
Office Machine Operators	2.48	2.19	2.40	1.13	1.03
Stenographers, Typists, Secretaries	2.43	1.98	2.15	1.22	1.13
Other Clerical Workers	2.12	1.90	2.02	1.12	1.05

TABLE 3.8 (Cont'd.)

	D	D'	D''	Rb	Rw
<u>CRAFTS AND KINDRED</u>					
Carpenters	0.0	0.0**	***	***	0.00*****
Other Construction Crafts Workers	1.19	1.34	1.18	0.89	1.01
Foreman, NEC	1.51	0.67	1.65	2.23	0.92
Machine Jobsetters	0.0	0.0**	0.0**	***	1.71
Other Metal Workers	0.0	0.0**	0.0**	***	1.54
Auto Mechanics	0.0	0.0**	***	***	0.0*****
Other Mechanics	2.34	1.81	4.54	1.29	0.51
Other Crafts Workers	3.23	2.48	3.52	1.26	0.89
<u>OPERATIVES, EXCLUDING TRANSPORT</u>					
Mine Workers	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>
Motor Vehicle Equipment Operatives	1.61	1.94	1.06	0.83	1.51
Other Durable Goods Operatives	2.09	1.86	2.05	1.13	1.02
Nondurable Goods Operatives	1.63	1.42	1.52	1.15	1.07
Other Operatives	1.66	1.74	1.64	0.96	1.02
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>					
Driver/Delivery	0.31	0.23	0.30	1.31	1.05
Other Transport Equipment Operatives	3.43	1.74	2.81	1.96	1.36
<u>NONFARM LABORERS</u>					
Construction Laborers	1.31	2.25	0.85	0.58	1.52
Manufacturing Laborers	2.34	1.51	1.96	1.55	1.20
Other Laborers	3.17	4.00	2.95	0.79	1.07
<u>PRIVATE HOUSEHOLD WORKERS</u>	1.78	3.14	2.53	1.02	0.98

TABLE 3.8 (Cont'd.)

	<u>D</u>	<u>D'</u>	<u>D"</u>	<u>Rb</u>	<u>Rw</u>
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>					
Cleaning Service Workers	1.47	1.44	1.51	1.02	0.98
Food Service Workers	1.83	2.16	1.97	0.85	0.93
Health Service Workers	2.00	2.33	2.14	0.86	0.93
Personal Service Workers	4.07	3.73	3.76	1.09	1.09
Protective Service Workers	0.53	0.60	0.64	0.90	0.84
<u>FARMERS AND FARM MANAGERS</u>					
	0.0**	0.0**	0.0**	3	1.00
<u>FARM LABORERS AND FOREMEN</u>					
Paid Workers	1.35	1.51	1.39	0.89	0.97
Unpaid Family Workers	0.0	0.0	0.0	---	0.80
Total, including no weeks	2.22	2.25	2.25	0.99	0.99

TABLE 3.9
 INTRA OCCUPATIONAL ADJUSTMENTS OF UNEMPLOYMENT RATES BY AGE, 1975, MALES

	D	D'	D''	Rb	Rw
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>					
Engineers	1.49	.65	1.90	2.30	.79
Physicians, Dentists	0.0**	0.0**	0.0**	***	1.00
Other Health Professionals	0.0**	0.0**	0.0**	***	0.73
Teachers Except College	5.95	5.69	5.70	1.06	1.06
Engineers, Science Technicians	.64	.62	.64	1.04	1.00
Other Salaried Profesionals	2.78	2.46	2.55	1.13	1.10
Other Self-employed Professionals	1.44	1.19	.85	1.21	1.68
<u>MANAGERS AND ADMINISTRATORS, EXCEPT FARM</u>					
Salaried Manufacturing Managers	0.0**	0.0**	0.0**	***	0.70
Other Salaried Managers	1.36	1.18	1.31	1.15	1.04
Retail Self-Employed Managers	0.0**	0.0**	0.0**	***	0.79
Other Self-Employed Managers	4.70	6.50	5.88	0.72	0.8
<u>SALES</u>					
Retail Sales Workers	1.09	0.89	0.94	1.27	1.16
Other Sales Workers	3.93	2.97	3.35	1.33	1.17
<u>CLERICAL</u>					
Bookkeepers	0.0**	0.0**	0.0**	0.0**	1.20
Office Machine Operators	6.56	6.67	7.38	0.98	0.89
Stenographers, Typists, Secretaries	7.22	4.93	8.04	1.46	0.90
Other Clerical Workers	1.95	1.76	1.79	1.11	1.09

TABLE 3.9 (Cont'd.)

	D	D'	D''	Rb	Rw
<u>CRAFTS AND KINDRED</u>					
Carpenters	1.10	1.17	1.10	0.95	1.00
Other Construction Crafts Workers	1.68	1.67	1.68	1.01	1.00
Foreman, NEC	2.37	2.63	2.29	0.90	1.04
Machine Jobsetters	0.75	1.29	0.86	0.58	0.86
Other Metal Workers	1.14	1.21	1.22	0.95	0.94
Auto Mechanics	1.68	2.29	1.84	0.73	0.91
Other Mechanics	2.06	1.99	1.29	1.03	1.59
Other Crafts Workers	2.21	2.38	2.24	0.93	0.98
<u>OPERATIVES, EXCLUDING TRANSPORT</u>					
Mine Workers	0.95	1.01	0.87	0.94	1.08
Motor Vehicle Equipment Operatives	1.62	1.87	1.72	0.87	0.95
Other Durable Goods Operatives	1.74	1.70	1.81	1.03	0.96
Nondurable Goods Operatives	2.66	2.82	2.78	0.94	0.96
Other Operatives	2.01	2.75	2.34	0.73	0.86
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>					
Driver/Delivery	1.22	1.40	1.32	0.88	0.93
Other Transport Equipment Operatives	0.98	0.94	1.18	1.03	0.82
<u>NONFARM LABORERS</u>					
Construction Laborers	1.46	1.64	1.44	0.89	1.01
Manufacturing Laborers	1.43	1.74	1.52	0.82	0.94
Other Laborers	2.21	2.82	2.61	0.79	0.85
<u>PRIVATE HOUSEHOLD WORKERS</u>					
	3.52	3.02	7.61	1.17	0.46

TABLE 3.9

SERVICE, EXCEPT PRIVATE HOUSEHOLD

Cleaning Service Workers
 Food Service Workers
 Health Service Workers
 Personal Service Workers
 Protective Service Workers

FARMERS AND FARM MANAGERS

FARM LABORERS AND FOREMEN

Paid Workers
 Unpaid Family Workers

TOTAL, including no weeks

	<u>D</u>	<u>D'</u>	<u>D"</u>	<u>Rb</u>	<u>Rv</u>
	1.65	1.86	1.77	0.88	0.93
	2.01	2.12	2.02	0.95	0.99
	0.89	1.13	0.97	0.79	0.92
	3.74	4.28	4.11	0.87	0.91
	1.04	0.94	0.89	1.10	1.17
	17.8	9.48	15.24	1.87	1.66
	1.12	1.43	1.27	0.78	0.88
	151.7	133.5	87.1	1.14	1.74
	2.47	2.34	2.37	1.05	1.04

and for males. For the total population, the largest reductions in the black unemployment rates take place among engineers, farm managers, and sales workers. There are also many significant reductions in occupations along the upper end of the occupational spectrum. It should be noted that the zero unemployment rates calculated for blacks in many cases are a result of small sample sizes in certain occupations. In many cases, CPS unemployment rates were non-zero, but the SIE was used here for the sake of consistency.

In general, black male unemployment rates tend to be reduced more when the age adjustment is taken into consideration than black female unemployment rates are. The only exception is among some female-dominated occupations, such as clerical jobs, which have had a fairly recent infusion of black female participation. In about half of the occupations the age distribution lowered black unemployment rates somewhat, while in the remaining cases the age distribution was not significant in explaining black-white unemployment rate gaps. As we predicted, age adjustments tended to have more of an effect on the upper range of the occupational spectrum, although there were some exceptions (such as teachers) to this general case.

3.5 Intraoccupational Adjustments to Unemployment Rates by Education

Education had the second largest impact in reducing the overall black unemployment rates among the factors examined in Table 3.3. However, we did not expect the effect of education to be uniform among occupations. In some occupations there is a lower bound placed on the amount of education necessary for entrance. This lower bound may be

due to legitimate training requirements that occupations (such as physicians or engineers) have, or lower educational bounds may be developed where education is used as a screening device for employers (see, for example, Thurow, 1972). On the other hand, in jobs where education is unimportant, either for skills reasons or as a credential, it is not clear that additional education will have an effect on unemployment rates. In any case, intraoccupational unemployment rates by education seemed useful to consider.

A review of appendix tables C.5, C.6, C.7 and C.8 reinforces some of the points made above. In some cases, education has a negative relationship with unemployment rates. However, in cases where over-education may be a problem (for example, see white male motor vehicles, durable goods and nondurable goods operatives) those with more education do not have lower unemployment rates. Many of these patterns differ by race and sex as well. For example, highly educated white female clerical workers have higher unemployment rates than do other white female clerical workers, while highly educated black female clerical workers had lower unemployment rates than did others.

Before adjustments by education were made the writer expected that adjustments would be most important at the upper end of the occupational spectrum, even though there is a fair amount of educational homogeneity due to the development of lower bounds mentioned above. It was also expected that in occupations where education is used as a screener (especially clerical jobs, but possibly some of the more skilled service jobs as well), educational adjustments would be significant. We did not expect education to be significant in adjusting unemployment rates in operative, or laborer occupations or in some of the crafts and service jobs.

Tables 3.10, 3.11 and 3.12 show adjustments to the unemployment differential and to unemployment rates by the educational distribution of the population. In all of the cases where adjustments were possible (i.e. where non-zero black unemployment rates were observed) adjustments were made in professional and managerial jobs, and sales jobs (except for engineers, self-employed professionals, and self-employed non-retail managers). Similarly, in most of the clerical occupations (except for bookkeepers) adjusting for the educational distribution lowered black unemployment rates. On the other hand, in crafts jobs there was no clear pattern, with the educational distribution being important for about half of the cases in explaining part of the unemployment differential. A similar effect is observed for operatives and service workers. The educational distribution was unimportant for all of the laborer occupations.

Adjustments to the unemployment rates by the educational distribution confirmed our expectation that adjustments would be more pronounced at the upper end of the occupational spectrum. Where education is important in explaining unemployment for crafts workers, operatives, and service workers, no clear patterns are observed; however the author suggests that at least in some of these cases where education is positive there is a clear skill range in these occupations (such as personal service workers or health service workers) and adjustments reflect differences in racial distribution at the three digit occupational level as well as in education.

TABLE 3.10
INTRAOCCUPATIONAL ADJUSTMENTS OF UNEMPLOYMENT RATES BY EDUCATION, 1975

	<u>D</u>	<u>D'</u>	<u>D''</u>	<u>Rb</u>	<u>Rw</u>
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>					
Engineers	1.17	1.47	1.10	0.80	1.06
Physicians, Dentists	0.0**	0.0**	0.0**	0.0**	
Other Health Professionals	0.87	0.70	0.87	1.25	1.01
Teachers Except College	2.37	1.97	2.21	1.20	1.07
Engineers, Science Technicians	0.88	0.80	0.86	1.10	1.02
Other Salaried Professionals	1.86	1.71	1.65	1.08	1.23
Other Self-employed Professionals	1.33	1.46	0.54	0.91	2.47
<u>MANAGERS AND ADMINISTRATORS, EXCEPT FARM</u>					
Salaried Manufacturing Managers	0.0**	0.0**	0.0**	0.0**	1.20
Other Salaried Managers	1.09	1.09	1.08	1.01	1.02
Retail Self-Employed Managers	0.0**	0.0**	0.0**	0.0**	1.33
Other Self-Employed Managers	5.04	5.07	7.09	1.00	0.72
<u>SALES</u>					
Retail Sales Workers	2.92	2.78	2.93	1.05	1.00
Other Sales Workers	4.78	4.27	4.26	1.12	1.12
<u>CLERICAL</u>					
Bookkeepers	2.71	3.09	2.96	0.88	0.91
Office Machine Operators	2.69	2.65	2.68	1.01	1.01
Stenographers, Typists, Secretaries	2.49	2.43	2.50	1.03	1.00
Other Clerical Workers	2.00	1.72	1.99	1.46	1.01

TABLE 3.10 (Cont'd.)

	D	D'	D''	Rb	Rw
<u>CRAFTS AND KINDRED</u>					
Carpenters	1.03	0.89	0.94	1.16	1.10
Other Construction Crafts Workers	1.68	1.77	1.61	0.95	1.04
Foreman, NEC	2.34	2.16	2.39	1.08	0.98
Machine Jobsetters	0.64	0.56	0.62	1.12	1.02
Other Metal Workers	1.08	1.19	1.04	0.90	1.04
Auto Mechanics	1.67	1.79	1.66	0.93	1.00
Other Mechanics	2.12	1.88	2.13	1.13	0.99
Other Crafts Workers	2.62	2.31	2.34	1.13	1.12
<u>OPERATIVES, EXCLUDING TRANSPORT</u>					
Mine Workers	0.92	0.95	0.84	0.96	1.09
Motor Vehicle Equipment Operatives	1.69	1.49	1.51	1.14	1.12
Other Durable Goods Operatives	1.92	1.92	1.93	1.00	1.00
Nondurable Goods Operatives	1.90	1.78	1.90	1.07	1.00
Other Operatives	1.89	1.81	1.86	1.04	1.01
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>					
Driver/Delivery	1.15	1.21	1.15	0.95	1.00
Other Transport Equipment Operatives	1.02	1.02	1.07	1.00	0.96
<u>NONFARM LABORERS</u>					
Construction Laborers	1.46	1.58	1.46	0.93	1.00
Manufacturing Laborers	1.53	1.63	1.57	0.94	0.98
Other Laborers	2.30	2.36	2.51	0.97	0.91
<u>PRIVATE HOUSEHOLD WORKERS</u>					
	1.82	1.22	0.91	1.49	1.99

TABLE 3.10 (Cont'd.)

	<u>D</u>	<u>D'</u>	<u>D"</u>	<u>Rb</u>	<u>Rw</u>
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>					
Cleaning Service Workers	1.59	1.64	1.55	0.97	1.03
Food Service Workers	1.91	1.94	1.96	0.98	0.97
Health Service Workers	1.81	1.74	1.82	1.04	0.99
Personal Service Workers	3.99	3.90	3.92	1.02	1.02
Protective Service Workers	1.00	0.99	0.87	1.00	1.14
<u>FARMERS AND FARM MANAGERS</u>	16.44	5.72	22.6	2.87	0.73
<u>FARM LABORERS AND FOREMEN</u>					
Paid Workers	1.40	1.42	1.63	0.98	0.86
Unpaid Family Workers	14.05	10.76	10.06	1.31	1.40
<u>TOTAL, including those who worked no weeks</u>	.239	2.15	2.12	1.11	1.12

TABLE 3.11

INTRAOCUPATIONAL ADJUSTMENTS OF UNEMPLOYMENT RATES BY EDUCATION, 1975, FEMALES

	<u>D</u>	<u>D'</u>	<u>D''</u>	<u>Rb</u>	<u>Rw</u>
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>					
Engineers	0.0**	0.0**	0.0**	2	0.48
Physicians, Dentists	0.0**	0.0**	0.0**	2.4	0.51
Other Health Professionals	1.03	0.79	1.03	1.30	1.00
Teachers Except College	1.69	1.53	1.62	1.10	1.04
Engineers, Science Technicians	1.03	1.48	1.14	0.70	0.90
Other Salaried Professionals	0.96	0.90	0.92	1.06	1.04
Other Self-employed Professionals	0.0**	0.0**	0.0**		0.0*****
<u>MANAGERS AND ADMINISTRATORS, EXCEPT FARM</u>					
Salaried Manufacturing Managers	0.0**	0.0**	0.0**		1.17
Other Salaried Managers	0.71	0.73	0.97	0.98	0.95
Retail Self-Employed Managers	0.0**	0.0**	0.0**		1.52
Other Self-Employed Managers	0.0**	0.0**	0.0**	0.0**	0.77
<u>SALES</u>					
Retail Sales Workers	3.69	3.54	3.70	1.04	1.00
Other Sales Workers	5.35	3.23	4.62	1.66	1.16
<u>CLERICAL</u>					
Bookkeepers	3.52	3.54	3.64	0.99	0.97
Office Machine Operators	2.46	2.35	2.47	1.05	0.99
Stenographers, Typists, Secretaries	2.43	2.37	2.42	1.03	1.00
Other Clerical Workers	2.02	1.96	2.01	1.03	1.00

TABLE 3.11 (Cont'd.)

	D	D'	D''	Rb	Rw
<u>CRAFTS AND KINDRED</u>					
Carpenters	0.0**	0.0**	0.0**	****	1.78
Other Construction Crafts Workers	1.18	0.80	1.17	1.49	1.02
Foreman, NEC	1.52	1.23	1.20	1.23	1.27
Machine Jobsetters	0.0**	0.0**	0.0**	****	0.64
Other Metal Workers	0.0**	0.0**	0.0**	****	0.64
Auto Mechanics	0.0**	0.0**	0.0**	****	6.74
Other Mechanics	2.37	2.48	4.10	0.95	0.57
Other Crafts Workers	3.24	2.98	3.27	1.09	0.99
<u>OPERATIVES, EXCLUDING TRANSPORT</u>					
Mine Workers	0.0**	0.0**	0.0**	*	*
Motor Vehicle Equipment Operatives	1.61	1.76	1.19	0.91	1.34
Other Durable Goods Operatives	2.09	1.99	2.03	1.05	1.03
Nondurable Goods Operatives	1.63	1.59	1.66	1.02	0.98
Other Operatives	1.66	1.49	1.64	1.11	1.02
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>					
Driver/Delivery	0.31	0.35	0.31	0.89	1.04
Other Transport Equipment Operatives	3.42	0.62	11.7	5.51	0.29
<u>NONFARM LABORERS</u>					
Construction Laborers	1.31	0.45	1.40	2.92	0.94
Manufacturing Laborers	2.34	2.36	1.69	0.99	1.39
Other Laborers	3.17	3.02	3.09	1.05	1.03
<u>PRIVATE HOUSEHOLD WORKERS</u>					
	1.78	1.20	0.72	1.48	2.46

TABLE 3.11 (Cont'd.)

	<u>D</u>	<u>D'</u>	<u>D"</u>	<u>Rb</u>	<u>Rw</u>
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>					
Cleaning Service Workers	1.47	1.57	1.41	0.94	1.05
Food Service Workers	1.83	1.92	1.92	0.95	0.95
Health Service Workers	2.00	1.95	1.92	1.03	1.04
Personal Service Workers	4.07	3.78	3.88	1.08	1.05
Protective Service Workers	0.53	0.71	0.61	0.75	0.87
<u>FARMERS AND FARM MANAGERS</u>					
	0.0**	0.0**	0.0**	2.3	0.0****
<u>FARM LABORERS AND FOREMEN</u>					
Paid Workers	1.34	1.23	1.41	1.10	0.96
Unpaid Family Workers	0.0**	0.0**	0.0**	**	2.21
<u>TOTAL, including those who worked no weeks</u>	2.22	2.03	2.00	1.09	1.11

TABLE 3.12
 INTRA OCCUPATIONAL ADJUSTMENTS OF UNEMPLOYMENT RATES BY EDUCATION, 1975, MALES

	D	B'	D''	Rb	Rw
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>					
Engineers	1.49	7.91	1.41	0.19	1.06
Physicians, Dentists	0.0**	0.0**	0.0**	0.0**	1.16
Other Health Professionals	0.0**	0.0**	0.0**	0.0**	0.88
Teachers Except College	6.05	4.61	5.47	1.31	1.11
Engineers, Science Technicians	0.65	0.74	0.60	0.87	1.07
Other Salaried Professionals	2.79	2.54	2.34	1.10	1.19
Other Self-employed Professionals	1.44	1.79		1.09	2.70
<u>MANAGERS AND ADMINISTRATORS, EXCEPT FARM</u>					
Salaried Manufacturing Managers	0.0**	0.0**	0.0**	0.0**	1.19
Other Salaried Managers	1.33	1.34	1.30	1.00	1.03
Retail Self-Employed Managers	0.0**	0.0**	0.0**	0.0**	1.16
Other Self-Employed Managers	4.77	4.78	0.0**	1.00	0.67
<u>SALES</u>					
Retail Sales Workers	1.10	0.96			0.96
Other Sales Workers	3.91	3.96	3.56	0.99	1.10
<u>CLERICAL</u>					
Bookkeepers	0.0**	0.0**	0.0**	0.0***	0.79
Office Machine Operators	6.30	5.13	9.92	1.23	0.63
Stenographers, Typists, Secretaries	7.28	6.27	6.68	1.16	1.09
Other Clerical Workers	1.96	1.55	2.01	1.26	0.97

TABLE 3.12 (Cont'd.)

	<u>D</u>	<u>D'</u>	<u>D''</u>	<u>Rb</u>	<u>Rv</u>
<u>CRAFTS AND KINDRED</u>					
Carpenters	1.10	0.94	1.01	1.16	1.09
Other Construction Crafts Workers	1.69	1.77	1.61	0.95	1.05
Foreman, NEC	2.42	2.29	2.47	1.06	0.98
Machine Jobsetters	0.74	0.62	0.69	1.19	1.08
Other Metal Workers	1.15	1.24	1.11	0.93	1.03
Auto Mechanics	1.68	1.8	1.67	0.93	1.00
Other Mechanics	2.09	1.86	2.09	1.13	1.00
Other Crafts Workers	2.21	1.82	1.88	1.22	1.17
<u>OPERATIVES, EXCLUDING TRANSPORT</u>					
Mine Workers	0.95	0.99	0.85	0.96	1.12
Motor Vehicle Equipment Operatives	1.72	1.39	1.59	1.24	1.08
Other Durable Goods Operatives	1.74	1.85	1.80	0.94	0.97
Nondurable Goods Operatives	2.66	2.39	2.41	1.12	1.10
Other Operatives	2.01	1.96	1.97	1.03	1.02
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>					
Driver/Delivery	1.23	1.29	1.22	0.95	1.00
Other Transport Equipment Operatives	0.98	0.97	1.03	1.01	0.95
<u>NONFARM LABORERS</u>					
Construction Laborers	1.46	1.58	1.46	0.93	1.00
Manufacturing Laborers	1.43	1.73	1.46	0.83	0.98
Other Laborers	2.22	2.28	2.46	0.98	0.90
<u>PRIVATE HOUSEHOLD WORKERS</u>					
	3.52	0.63	3.48	5.60	1.01

TABLE 3.12 (Cont'd.)

	D	D'	D''	Rb	Rw
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>					
Cleaning Service Workers	1.65	1.62	1.63	1.01	1.01
Food Service Workers	2.01	1.95	2.01	1.03	1.00
Health Service Workers	0.89	0.79	1.02	1.13	0.87
Personal Service Workers	3.74	3.75	3.79	1.00	0.98
Protective Service Workers	1.04	0.99	0.85	1.05	1.22
<u>FARMERS AND FARM MANAGERS</u>					
	17.8	5.99	22.3	2.96	0.79
<u>FARM LABORERS AND FOREMEN</u>					
Paid Workers	1.12	1.21	1.32	0.92	0.85
Unpaid Family Workers	151.7	10.323	0.0****	-47	0.0****
<u>TOTAL, including no weeks</u>	2.46	2.22	2.15	1.11	1.15

3.6 Industrial Considerations in Occupational Unemployment Rates

While adjusting the overall unemployment rate for industrial distribution did not have a large impact on the size of the racial unemployment differential (see Table 3.2), we observe, within occupations, a range of unemployment rates that varies with the industry of employment (see Tables c.9 and c.10). Further, since researchers have noted industry differences in both wages and the amount of discrimination (Comanor, 1973; Smith, 1977), we were interesting in viewing occupational differences in the industrial distribution of workers. Just a cursory view of the number of industries that individuals are represented in (see Table 3.13) reveals that whites tend to have a broader industrial distribution than do blacks. This suggests that the impact of a slack labor market in a particular industry may have a far greater impact on blacks since the options that blacks have in the occupation are smaller than those of whites. Except in female-dominated occupations, also, white males tend to have the broadest industrial distribution of any of the demographic groups.

Since many of the two-digit occupations are defined in an industry-specific manner (such as manufacturing managers or construction laborers), we did not adjust unemployment rates in all of the occupations by industry. However, Table 3.14 shows the impact of the industrial distribution for selected occupations. As in the case with education and age, there is a mixed picture presented regarding the impact of adjusting for industrial distribution by occupation.

In the occupations reviewed, the female unemployment differential improved in about half of the cases. Large reductions in the differential were observed for non-retail sales workers (where there is both a significant female concentration and where the distribution for black women is

less broad than that for white women), for personal service workers (where there is a broad skill range in which black women tend to be concentrated at the bottom), and in construction crafts. There were moderate reductions or none at all for the female differential in the other occupations viewed. There is no clear pattern to suggest that consideration of the industrial distribution made any difference at the upper or lower end of the distribution.

Similarly, in about half of the cases for males, there was a reduction in black unemployment if blacks are distributed industrially as whites are. There was no clear indication that adjustments were more likely to occur at the upper end of the occupational distribution than the lower end. However, our expectation would have been that industrial distribution made more of a difference in blue collar occupations. The large reduction in the male differential that takes place in the construction crafts occupation is consistent with such an assumption; but we do not observe similar reductions for operatives or laborers.

The writer has no firm conclusion after viewing intraoccupational distributions for industry in selected cases. The view of the complete spectrum of intraoccupational distributions does little to indicate a clear trend either. However, a tentative conclusion is that in occupations where industrial factors (such as unionization and industrial concentration) are important, adjustments are more likely to occur than in other occupations. Also, adjustments seem likely in "other" categories where there is a less homogeneous group of workers than in some of the more precisely defined two-digit occupations.

Table 3.15 considers a simultaneous adjustment of the industrial and occupational distributions. This adjustment was undertaken because the occupation-industry unemployment rates (as shown in Table C.9) indicate

TABLE 3.13

INDUSTRIAL REPRESENTATION BY OCCUPATION AND DEMOGRAPHIC GROUP, 1975

	<u>White</u> <u>Male</u>	<u>White</u> <u>Female</u>	<u>Black</u> <u>Male</u>	<u>Black</u> <u>Female</u>
<u>Professional, Technical and</u> <u>Kindred</u>				
Engineers	15	8	10	3
Physicians/Dentists	9	5	2	1
Other Health	9	14	3	7
Teachers Except College	9	10	3	4
Engineers/Science/Technicians	13	12	9	7
Other Salaried Professionals	15	14	13	11
Other Self-Employed Professionals	13	11	5	2
<u>Managers and Administrators,</u> <u>Except Farm</u>				
Salaried Manufacturing*	2	2	2	2
Other Salaried**	13	12	11	9
Retail Self-Employed*	1	1	1	1
Other Self-Employed**	12	11	11	4
<u>Sales</u>				
Retail*	1	1	1	1
Other**	13	12	6	8
<u>Clerical</u>				
Bookkeepers	15	15	5	9
Office Machine Operators	13	14	8	11
Steno/Typists/Secretaries	12	15	5	14
Other Clerical	15	15	13	13
<u>Craft and Kindred</u>				
Carpenters	15	6	9	1
Other Construction Crafts	15	10	14	4
Foremen, NEC	14	11	12	7
Machine Jobsetters	11	3	3	2
Other Metal	14	3	8	1
Auto Mechanics	13	4	11	2
Other Mechanics	15	9	12	3
Other Craft	15	14	13	8

TABLE 3.13 (Cont'd.)

	<u>White Male</u>	<u>White Female</u>	<u>Black Male</u>	<u>Black Female</u>
<u>Operatives, Excluding Transport</u>				
Mine Workers	1	1	1	0
Motor Vehicle Equipment*	1	1	1	1
Other Durable Goods*	1	1	1	1
Nondurable Goods*	1	1	1	1
All Other Operatives**	12	11	11	8
<u>Transportation Equipment Operatives</u>				
Driver/Delivery	15	15	14	6
Other	14	8	11	3
<u>Nonfarm Labor</u>				
Construction*	1	1	1	1
Manufacturing*	2	2	2	2
Other**	12	11	12	5
<u>Private Household Workers*</u>	1	1	1	1
<u>Service, Except Private Household</u>				
Cleaning	14	14	14	12
Food	14	14	11	9
Health	7	10	3	4
Personal	12	10	10	8
Protective	13	10	12	7
<u>Farmers and Farm Managers*</u>	1	1	1	1
<u>Farm Laborers and Foremen</u>				
Paid*	1	1	1	1
Unpaid Family*	1	1	1	1

NOTES: * Occupation is defined to be industry specific and includes only one or two industries.

** Occupation is defined to be industry specific, but is the complement of an asterisked occupation and includes 13 or 14 industries.

TABLE 3.14
ADJUSTMENTS TO INTRAOCUPATIONAL UNEMPLOYMENT RATES FOR SELECTED OCCUPATIONS, 1975

	TOTAL			FEMALE			MALE									
	D	D'	D''	R _b	R _w	D	D'	D''	R _b	R _w	D	D'	D''	R _b	R _w	
Health Professionals, Except Practitioners	0.88	0.16	0.91	5.6	0.97	1.03	0.94	1.06	1.09	0.97	-	-	-	-	-	0.87
Other Salaried Professionals	1.86	1.74	1.72	1.07	1.08	.95	1.0	1.03	0.94	0.92	2.8	2.6	2.14	1.07	1.3	
Non-Manufacturing Managers	1.1	1.21	1.12	0.91	0.98	0.71	0.7	0.75	1.02	0.95	1.35	1.65	1.36	0.82	0.99	
Non-Retail Sales Workers	4.92	3.53	4.55	1.4	1.08	5.65	2.49	2.43	2.27	2.32	3.93	4.19	4.29	0.94	0.92	
Stenographers, Typists, Secretaries	2.49	2.47	2.73	1.61	0.91	2.42	2.39	2.9	1.01	0.84	7.29	3.54	16.9	2.06	0.43	
Other Clerical Workers	2.1	2.37	2.24	0.89	0.94	2.14	2.39	2.31	0.9	0.93	1.96	1.86	2.0	1.05	0.98	
Other Construction Crafts Workers	1.68	2.04	1.74	0.82	0.97	1.19	0.6	0.66	1.94	1.79	1.69	2.03	1.75	0.83	0.92	
Other Crafts Workers	2.63	2.33	2.4	1.13	1.09	3.24	3.24	3.02	1.0	1.07	2.2	1.56	2.04	1.41	1.08	
Other Operatives	1.89	2.05	2.01	0.92	0.94	1.66	1.84	1.9	0.9	0.88	2.01	2.13	2.17	0.94	0.93	
Other Transport Equip- ment Operatives	1.02	1.01	0.96	1.0	1.0	3.43	5.32	4.3	0.64	0.8	0.98	0.94	0.96	1.04	1.01	
Other Non-Farm Laborers	2.3	2.34	2.25	0.98	1.02	3.17	2.83	3.1	1.12	1.02	2.22	2.3	2.18	0.96	1.02	
Food Service Workers	1.9	2.09	2.13	0.93	0.9	1.83	2.04	2.17	0.89	0.84	2.01	2.14	2.03	0.94	0.99	
Personal Service Workers	3.99	3.52	3.34	1.13	1.19	4.07	2.62	4.64	1.56	0.88	3.7	3.9	4.01	0.95	0.93	

that consideration of the joint distribution rounds out the adjustments that were made in Table 3.3.

TABLE 3.15

SIMULTANEOUS ADJUSTMENTS OF TOTAL UNEMPLOYMENT RATESBY OCCUPATION AND INDUSTRY, 1975

	<u>D</u>	<u>D'</u>	<u>D''</u>	<u>R_b</u>	<u>R_w</u>
Total	2.39	1.70	2.34	1.37	1.02
Male	2.46	1.67	1.87	1.48	1.31
Female	2.22	1.99	2.54	1.11	0.87

The table yields additional information to the adjustments that were already made. The total reduction in the black unemployment rate due to adjustments in the joint distribution is in excess of the reductions made separately for each distribution. More than a third of the black unemployment rate can be explained by distributional differences between the races in occupation and industry. At the same time, little of the size of the white unemployment rate can be attributed to distribution differences in occupation and industry. This fact is attributed to differences by sex, in the power of distributional adjustments.

The adjustment in male unemployment rates for the joint distribution shows a further reduction from either the occupational or the industrial distribution while the adjustment for female unemployment rates does not. The differences in these adjustments by sex indicates that black males experience more differences in their occupational and industrial distributions relative to white males than black females do relative to white females. However, since the distributional differences between males and females are considerable, it is not surprising that distributional

differences between black and white women are not of the magnitude of distributional differences between men.

3.7 Summary

Table 3.16 summarizes the percent reductions in unemployment differentials that were observed after the various adjustments described in this chapter were undertaken. For contrast, and for historical perspective, the reductions realized from Gilroy's (1973) 1960 adjustments are shown as well. The simultaneous adjustment of occupation and industry reduced the differential by about half, which was the largest reduction we observed. It is also notable that in almost every case adjustments were more powerful in reducing the male unemployment differential than the female differential.

Adjustments by education seemed to have more power in the past than they did in 1975. Both Gilroy (1973) and Gilman (1965) concluded that a human capital approach to black unemployment was important. However, in the face of major improvements in the education profile of blacks, the power of reductions for education have dwindled from 43 percent to about 16 percent. This considerable drop in the power of the educational adjustment in explaining unemployment differentials is consistent with the views that critics of human capital theory espouse regarding the persistence of discrimination and the rigidity of institutional barriers to blacks in the labor market.

This view that barriers to black progress persist is further substantiated by the fact that the occupational distribution explains away about as much of the unemployment differentials in 1975 as it did in 1960. This remains despite major improvements in the occupational distribution that we highlighted in Chapter One.

TABLE 3.16

PERCENT REDUCTION IN UNEMPLOYMENT DIFFERENTIALS
AFTER ADJUSTMENT FOR CERTAIN FACTORS

	<u>TOTAL</u>		<u>FEMALE</u>		<u>MALE</u>	
	<u>R_b</u>	<u>R_w</u>	<u>R_b</u>	<u>R_w</u>	<u>R_b</u>	<u>R_w</u>
Industry	15.1	38.1	6.6	35.2	17.1	37.7
*(Industry 60)	-	-	-	-	13.0	12.0
Occupation	42.4	56.1	18.8	50.8	50.0	61.6
*(Occupation 60)	-	-	-	-	48.0	54.0
Age	4.3	2.9	-2.9	-2.9	5.5	6.2
*(Age 60)	-	-	-	-	-28.0	-19.0
Education	17.3	19.4	15.6	18.0	16.4	21.2
*(Education 60)	-	-	-	-	43.0	35.0
Sex	3.6	5.0	-	-	-	-
**Industry	-7.8	-9.4	3.5	-16.9	-2.2	4.8
**Occupation	25.2	28.3	6.1	18.4	37.7	45.8
Simultaneous Occupation- Industry	49.6	3.6	18.9	-26.2	54.1	40.4

* Source: Gilroy, 1973

** Those who worked no weeks are not included in these adjustments.

It is not clear whether the fact that the explanatory power that the occupational distribution retains after fifteen years points out the futility of schemes to improve the occupational distribution, or whether it points out the need for more vigorous action in the occupational arena.

Another interesting intertemporal comparison is the effect that age has had in reducing unemployment rates. In 1960 adjustments by age did nothing to improve the unemployment differential, while in 1975 adjustments by age produced a small reduction in the differential. The change over time is clearly related to the racial youth employment differential that is far more severe now than it was in 1960 (see Table 1.5).

The reductions from adjustments for distributional factors indicate that while there remains differences in the distributions of certain factors by race (among which the rather constant effect of the occupational distribution is most disturbing), we can explain 54% of the differential when the joint occupational-industrial distribution is adjusted for. Differences remain, then within occupations that must be explained.

The adjustments to overall unemployment rates were only part of the adjustments we viewed in this chapter. Intraoccupational adjustments by age, education and industry were also examined. Here we found that adjustments were most potent, in general, at the upper end of the occupational spectrum. In many cases, however, adjustments had no effect. Both overall and intraoccupational adjustments reduce unemployment rate differentials. However, an explanation needs to be developed for the residual unemployment differential. The next chapter attempts this by viewing intraoccupational explanations of differences in employment experience by race.

CHAPTER FOUR

EXPLAINING THE DIFFERENCES IN BLACK AND WHITE EMPLOYMENT EXPERIENCES

Chapters 2 and 3 have discussed the theory of unemployment differentials and have adjusted both the overall unemployment rate and intra-occupational unemployment rates by seemingly race-neutral factors such as age and educational attainment. Among the adjustments, however, the occupational and educational distribution had the largest explanatory effect, and these factors close, at most, about a third of the gap. Even after adjustments, then there remain differentials in both the overall and intra-occupational unemployment rates.

This chapter will view the differences in the employment experiences of blacks and whites for both the overall population and for selected two-digit occupations. (The phrase "employment experience" instead of unemployment rate is used because the dependent variable of our model, weeks worked in the survey year, is used as a proxy for the unemployment rate. The details of this variable are discussed below.) The model for estimation is developed in Section 4.1. Section 4.2 estimates the model for a cross-section of the population. These occupations that were selected for analysis are discussed in Section 4.3. Estimates for the model are presented by occupation in Section 4.4. Section 4.5 concludes this chapter with summary information.

4.1 Modelling Unemployment Differentials

The thrust of the empirical work in this chapter is to examine whether the factors that explain unemployment differ by race. A model of the supply side of the labor market is as follows:

$$(4.1) \quad E_s = S(W, K, O, PC, Q)$$

where E_s = employment supplied

K = education and skills

O = non-work options

PC = personal characteristics

W = wage

Q = stability characteristics (such as number of jobs held and turnover)

Similarly, a model of the demand side of the labor market is:

$$(4.2) \quad E_d = D(W, Q, I.)$$

where E_d = employment demanded

W = wage

Q = stability characteristics

and I = insitutional factors

Thus:

$$(4.3) \quad E_s = S(W, Q, Z) + \epsilon_1$$

$$\text{and } (4.4) \quad E_d = D(W, Q, X) + \epsilon_2$$

where Z = supply factors K, O, PC

X = demand factors I

ϵ_1, ϵ_2 = respective error terms

A reduced form of equations (4.3) and (4.4) that measure unemployment is (4.5) $U_i = S(W, Q, Z) - D(W, Q, X) = H(W, Q, X, Z)$.

The causation between W and Q on the right hand side and the dependent variable U is two-way. Thus it is conceivable that U might appear as an independent variable in an equation explaining either W or Q . The reduced form of the equation, then, does not include these endogenous variables.

$$(4.6) \quad U_i = H(X,Z) + \epsilon_i$$

This equation can be modified to show the detail of the components of X and Z.

$$(4.7) \quad U_i = H(K,O,PC,I) + \epsilon_i$$

A Proxy for Unemployment. In attempting to explain the difference in the employment experience of blacks and whites, we found weeks worked to be a good choice of a dependent variable. While the discussion earlier has been developed in terms of unemployment rates, it is not possible to use unemployment rate as a variable in a cross-sectional analysis of individuals, since it is the composite of the employment experience for a segment of the population. However, the unemployment rate, U, is expressed in terms of weeks worked as follows:

$$(4.8) \quad \frac{\sum_{i=1}^N E_i}{N} \quad E_i = \text{weeks worked for individual } i$$

$$\frac{\sum_{i=1}^N W_{LFi}}{N} \quad W_{LFi} = \text{weeks in the labor force for individual } i$$

If the average denominator of the equation is the same by race, then where the average size of the numerator is twice as large for blacks as for whites, then the unemployment rates have the traditional 2:1 ratio. Where the denominator for blacks is lower (which seems likely in some occupations where black labor force participation is lower than that of whites) the impact of a week less work than desired is relatively more important for blacks than for whites in calculating unemployment rates.

There are some drawbacks to using weeks worked as the dependent variable. Firstly, those who did not work in the survey year are not included in the analysis because the SIE only coded occupation for those who worked at least one week in the survey year. Secondly, the variable "weeks worked" does not address the labor market status of individuals. People may have worked less than 52 weeks by choice or because they are unemployed, and the sampling did not differentiate the two. In retrospect we might have drawn our sample only from those who were in the labor force at the time of the survey. However, there would be imperfections generated by the latter approach as well since the survey was taken in 1976 but referred to employment experience in 1975.

Thus, the equation estimated is

$$(4.9) E_i = H(K, O, PC, I) + \epsilon$$

A more detailed discussion of the motivation for the inclusion of variables in the equation, what these variables purport to measure, and expectations of variable signs follows. This discussion is summarized in Table 4.1.

Education and Skills. This component of the equation is drawn directly from a human capital explanation of employment. Three variables are included in this component: (1) EDUC, or number of years of education, (2) HS or COLL, dummy variables that are zero if less than twelve (or sixteen for COLL) years of education are completed, and one if twelve (or sixteen) or more years are completed, and (3) SVP, a measure of the amount of specific vocational preparation (or training time) associated with the three-digit occupation that the individual works in (See Appendix 1).

TABLE 4.1

EMPLOYMENT EXPERIENCE MODEL

Variable and Component Definitions

$$(4.1) \quad E_s = S(W, Q, K, O, PC)$$

$$(4.2) \quad E_d = D(W, Q, I)$$

$$(4.7) \quad E_i = H(K, O, PC, I)$$

K - Skill Component

SVP	Specific Vocational Preparation is a job trait associated with the three-digit occupation in which a person works. This data was compiled from the Employment Probability Analysis Project (Ware, 1976). Range from 0 to 8.
HS	Dummy Variable. 0 if less than 12 years of education completed; 1 if more than 12 years completed.
COLL	Dummy. 0 if less than 16 years of education completed; 1 if more than 16 years of education.
EDUC	Years of schooling completed. Range from 0 to 20.

O - Options Component

PUB	Dummy Variable for Public Assistance receipt. 0 if neither AFDC nor Food Stamps nor other Public Assistance was received, 1 if any of those items noted were received.
UN	Dummy Variable for receipt of unemployment-associated benefits. 0 if neither Unemployment Insurance nor Workmen's Compensation is received. 1 if either is received
PUN	Composite variable of PUB and UN. 1 if either PUB or UN is 1, zero otherwise.
EARNERS or EARN	Dummy variable that is zero if a family has only one earner and 1 if there are multiple earners.
CHILD6	Number of children six years old or younger. Range 0 to 5.
CHSEX	Child variable with a sex interaction term. Range 0 to 5. (CHILD6*SEX)

TABLE 4.1 (Cont'd.)

I - Institution Effects Component

PROFITS	Profits for the industry in which the individual works. This data was obtained from the Employment Probability Analysis Project (Ware, 1976).
UNION	Percentage of unionization for all workers for the industry in which the individual works. This data was obtained from Freeman and Medoff (1975).
CLW or CW	Class of Worker. Dummy Variable. 0 for private workers and 1 for public (federal, state or local) workers.

PC - Personal Characteristic Component

AGE	Age. Continuous Variable with person-age in years.
SEX	Dummy Variable. 0 for males, 1 for females.
RACE	Dummy Variable. 0 for whites, 1 for blacks.
CMAR or MAR	Dummy Variable. 0 if never married, divorced or separated. 1 if married (with spouse present or in the Armed Forces).

As we noted in Chapter 2, education is positively related to length of employment when education is used as a screen for training opportunities. HS and COLL, similarly, are possible screens. Since SVP measures the amount of training an occupation requires, we expect that its coefficient will be positive as well.

The HS and COLL dummy variables are not often used in the same equation. Similarly, those variables are not frequently used in conjunction with the EDUC variable.

Options. This component of the equation has more variables than any other components of the model. It attempts to deal with the choices other than working that an individual has. This component is motivated by the search theoretic notions of reservation wage and ability to search (in terms of existing resources).

EARNERS is a dummy variable that measures whether there is more than one earner in a family. This variable was expected to indicate whether resources exist in absence of the earnings of the individual observed. If families maximize their joint resources, then the presence of other family earners may allow for longer job search on the part of the individual in question. Thus the sign of EARNERS may be negative. However, since it is not clear that a family portfolio model is always applicable, our expectation of a negative sign is not firm.

Two of the variables in the options component measure the effect that unearned income has on weeks worked. UN is a dummy variable that is zero if neither unemployment insurance or workmen's compensation is received and 1 if either is received. Similarly, PUB is zero if

neither AFDC (Aid for Families with Dependent Children), nor food stamps, nor other public assistance (such as General Assistance) is received, and 1 if any of those types of income is received in the individual's household. In some cases, the incidence of the receipt of either PUB or UN is so low that a composite variable (PUN) was developed. PUN is 1 if either PUB or UN is 1 and zero otherwise. The signs of PUB, UN, and PUN are expected to be negative, since the receipt of non-wage income is a possible factor in the prolonging of job search for workers.

The final variable in the options component of the equation deals with the presence of children under six in the family. Children under six were included as opposed to the total number of children because one of the "options" for earners with young children would be caring for them rather than participating in the labor market. It was expected that the sign of CHILD6 will be negative, although for males the sign should be positive. The variable CHSEX is the CHILD6 variable with a sex interaction term. Because of the stratification by sex in some of the occupations tested CHSEX is used either in combination with, or instead of CHILD6, and is expected to have a negative sign.

Institutional Effects. Our conclusion of institutional effects in the model is motivated primarily from other empirical work done in this area. For example, Bluestone (1974) found that the explanatory power of wage equations increased significantly when institutional variables were added to human capital variables. Furthermore, a view of the effect of industry on the level of unemployment (See Chapter 3) indicates that there are significant differences in unemployment rates by industry as well as by occupation.

Three institutional variables are included in our model.

Class of worker (CLW) is a dummy variable that is one for those employed by federal, state and local governments, and zero for those with private employment. The self-employed are excluded from this analysis since the concept of unemployment for the self-employed is nebulous. We do not have an expectation about the sign of CLW in the overall equations. We expected, however, that it would be positive for blacks, as other researchers have found that blacks have a more favorable employment experience in the public sector than in the private sector. PROFITS measures the average net profits earned between 1967 and 1971 for firms by three-digit industry. This data is available through the Employment Probability Analysis Project at Boston College. PROFITS is expected to have a positive sign especially for blue-collar workers.

UNION measures the percentage of unionization for all workers in the three-digit industry in which the individual works. A recent article (Freeman and Medoff, 1979) presented this information for 1975. UNION is an imperfect measure of unionization for several reasons. Firstly, it measure industry not individual characteristics, so that while the degree of unionization in an industry is known, individual union affiliation is not. Secondly, the Freeman-Medoff article did not have information for federal and municipal unionization (industries 907, 917, 927, 937), a factor that has become especially significant in the 1970's. However, since the SIE did not include information on unionization, the inclusion of this measure was considered preferable to total exclusion of a union variable.

While the general expectation is that UNION will have a positive coefficient, the wage rigidity that collective bargaining agreements often causes might generate a negative UNION coefficient. A negative coefficient would be consistent with Gilman's (1965) differential wage rigidity hypothesis that we discussed in Chapter 2.

Personal Characteristics are included in the analysis, since the empirical work of many researchers has found such characteristics to have a significant effect in explaining unemployment differentials (for example, see Flanagan (1976) or Barrett and Morgenstern (1974)). AGE measures the age of individuals in years. Since unemployment rates for individuals (regardless of race-sex group) drop with age, it is expected that AGE will have a positive sign. SEX is a dummy variable that is zero for men and one for women. Unemployment rates for women are generally higher than those for men, and thus SEX is expected to have a negative sign. RACE is a dummy variable that is zero for whites and one for blacks. It is included in the equation when analysis is done for the pooled black-white occupational samples. The sign of RACE was expected to be negative. MAR is a dummy variable that is zero for those who either have no spouse or whose spouse is not present, and 1 for those who are married with their spouse present (if spouses are in the military they are measured as being present). The expected sign for MAR was positive, and although it is often correlated with other variables, it is used occasionally in analysis for young workers as a possible measure of employment stability.

Possible Biases to the Model. While this researcher has been careful to eliminate all simultaneity from this model, this zeal

may be apparent in those variables which do not appear in the model. To the extent that there are eliminated variables in the models, there are biases in that those variables included may measure some of the effects of the excluded variables. In particular a measure of an individual's relative contribution to the family coffer may have been a useful addition to the options component of the equation. But the denominator of such a variable (i.e., family income) would include a variable endogenous to the model. Another similar measure would be the proportion of the total income that is earned. Again, the endogeneity of the denominator in this case is of concern.

An endogenous component of the model, "stability" effects would include such variables as turnover, spells of unemployment, and occupation-changing. While this reseacher felt that these variables are significant in explaining racial unemployment differentials, her inability to attribute these factors to either the supply or the demand equations argued for their exclusion, as did possible issues of simultaneity associated with their use.

4.2 Estimating Differences in Employment Experience by Race and Occupation.

In Section 4.1 our basic model for estimating differences in employment experience was discussed. Our dependent variable, weeks worked, precludes the use of ordinary least squares estimation because the variable is constrained to a range between zero and 52. The use of least-squares might give us predictions that are outside of the permissable range for the equation. In addition to the fact that the range is restricted, there is bunching at the upper end of the range

since about half of the population works fifty-two weeks. Least squares estimation, even if permissible, would yield flat estimates because of the bunching problem. Tobin (1958) suggests that a maximum likelihood procedure is possible under these conditions, and a TOBIT model of limited dependent variables is used for estimation. The assumptions needed to estimate the model do not impede analysis (as in OLS we assume that error in terms are distributed normally), and since the normal equations are nonlinear an iterative maximization algorithm is required. The Newton-Raphson algorithm is used in the estimations here. The interpretation of coefficients and standard errors in the equations is identical to the OLS interpretation. Maximum likelihood estimation is possible under the conditions described above, and a TOBIT model of estimation was used for our analysis.

The purpose of this estimation is to explain both the differences in the employment experience of blacks and whites, as measured by weeks worked and to consider the different explanations of the employment experience of blacks and whites. This is important to note because in some cases the number of weeks worked is not significantly different for blacks and whites. (In the female-dominated occupations, especially, the mean number of weeks worked for blacks may actually exceed the mean number of weeks worked for whites. Given the higher labor force participation rates of black women in most age groups, however, this could be anticipated.)

This research is primarily concerned with explaining intra-occupational differences in weeks worked. However, a cross-occupational estimation of the model is done here to put occupational

TABLE 4.2

DETERMINANTS OF WEEKS WORKED AND MEAN VARIABLE VALUES, 1975CROSS OCCUPATIONAL SAMPLE

(Standard errors in parentheses)

<u>VAR</u>	<u>TOTAL</u>		<u>BLACK</u>		<u>WHITE</u>	
	<u>Coeff./Mean Value</u>		<u>Coeff./Mean Value</u>		<u>Coeff./Mean Value</u>	
CONST	27.959*		18.528*		36.273*	
	(5.503)		(7.001)		(8.450)	
EDUC	0.220	12.81	0.243	12.27	0.358	13.36
	(0.399)		(0.524)		(0.616)	
HS	2.938		5.867**	.703	-1.146	.821
	(2.659)		(3.359)		(4.259)	
SVP*	1.231*	4.21	1.558*	3.95	1.009**	4.58
	(0.404)		(0.589)		(0.557)	
EARN	-7.620*		-8.407*	.656	-6.743*	.707
	(1.813)		(2.317)		(2.872)	
CHSEX	1.610	.137	-0.091	.144	3.775	.129
	(2.174)		(2.749)		(3.501)	
UN**	-22.317*	.095	-22.182*	.107	-23.714*	.083
	(2.418)		(3.054)		(3.906)	
PUB*	-17.086*	1.28	-16.377*	.209	-14.129*	.041
	(2.213)		(2.400)		(5.271)	
UNION*	0.206*	17.07	0.261*	16.48	0.148**	17.70
	(0.047)		(0.064)		(0.069)	
CW	2.598***	.258	2.639	.313	2.929	.199
	(1.187)		(2.312)		(3.135)	
PROFITS	-0.343***	3.70	-0.442***	3.48	-0.249	3.93
	(0.221)		(0.291)		(0.336)	
AGE	0.451*	37.0	0.581*	36.5	0.339*	37.5
	(0.059)		(0.081)		(0.088)	

TABLE 4.2 (Cont'd)

CROSS OCCUPATIONAL SAMPLE

<u>VAR</u>	<u>TOTAL</u>		<u>BLACK</u>		<u>WHITE</u>	
	<u>Coeff./Mean Value</u>		<u>Coeff./Mean Value</u>		<u>Coeff./Mean Value</u>	
SEX*	-6.676*	.471	-5.364*	.478	-9.089*	.464
	(1.601)		(2.113)		(2.456)	
MAR**	11.770*	.564	11.929*	.482	11.417*	.651
	(1.810)		(2.379)		(2.789)	
RACE	0.053	.516	-		-	
	(1.605)		-		-	
SIGMA	24.839*		23.591*		25.906	
	(0.739)		(0.939)		(1.164)	
N	1458		755		703	
R ² .OLS	.289		.349		.164	
WEEKS WORKED	39.78		37.87		41.83	

F(13,1430) - test of significance of differences in equations 2.393*

* indicates significance at the .01 level

** indicates significance at the .05 level?

*** indicates significance at the .10 level

Note: The VAR column is coded to show the results of F-tests on the difference between variables in the black and the white equations. F-tests were done only where applicable, i.e. where variables are significant (at the 10% level or better) in both equations. When done * indicates that the variables are different from each other, while ** indicates that they are not. For example, the coefficients of UN are not significantly different from each other--the coefficients of SVP are.

estimations into the larger context of why overall differences in weeks worked persist. Table 4.2 shows mean values of variables in the equations and the results of the cross-occupational estimation. The results of F-tests on the statistical difference in the coefficients is also shown.

The education and skills component of the equation has the overall positive effect that was expected. Incremental years of education are not significant, however, while educational credentialization (as measured via the HS variable) is positive and significant only for blacks. SVP is significant in all of the equations, but the coefficient of SVP is larger for blacks than for whites, and an F-test shows that the two are significantly different from each other at the 5% level. At the mean values measured, the holding of a job that requires an additional six months of training will yield result in an additional week and a half of work for black workers, but the holding of a job that requires about an additional nine months of training would result in an additional week of work for white workers. (It should be noted that given the wide SVP range observed in the cross-occupational equations, SVP may be a proxy for measuring occupational attainment. If this is so, we can expect the variable to be less successful in measuring intra-occupational skill differences.)

In the options component, EARN has the expected negative sign in each of the equations. Those workers with other earners in their household work fewer weeks than those earners who do not have other earners. The size of the coefficient is larger, and significantly different, however, for black workers than for white workers.

While a negative sign was expected the CHSEX, and observed in the majority of the occupational equations, the coefficients of CHSEX were insignificant in all of the equations. Thus, in terms of family-related options, the presence of other earners is the only variable that has a measurable impact on the number of weeks worked.

The two variables in the options component of the equation that measured unearned income, PUB and UN, both have the expected negative signs. An F-test indicates that the coefficients of UN are not significantly different from each other in the racial equations. The coefficient of PUB is somewhat larger for blacks than it is for whites in the equation.

In the institutional component of the equations, CW is unexpectedly insignificant in the separate racial equations although significant in the overall equation. The result was especially surprising, given the differences in representation, by race, in the public sector, and the positive effects that have been measured (in terms of unemployment rates and wages) for blacks in the public sector. UNION had the expected positive sign in all of the equations, with a larger and statistically different coefficient in the equation for blacks than in the equation for whites. Blacks who worked in industries that had an increment level of unionization of four percent worked about a week more than did other blacks. Similarly, whites in industries with an additional seven points of unionization worked about a week more than did other whites. Finally, the PROFITS variable had an unexpected negative coefficient, and was significant only in the overall equation and in the equation for blacks. As was mentioned

in the development of the model, a positive coefficient for PROFITS was expected, largely because of the assumption that jobs would be more stable in industries with more profits. However, the speculation that blacks had less seniority, even in high profit industries, might explain the negative sign we observed for the variable. In any case it is notable that the institutional component of the equation is more significant for blacks, than it is for whites and that while one of the demand side variables (UNION) has the expected positive effect on black work effort, the other has a negative effect.

There are no surprises in the personal characteristics component of the equation. AGE has the expected positive sign, is larger for blacks than for whites, and an F-test indicates that the coefficients are statistically different from each other. SEX was negative in all of the equations and was larger for whites than for blacks. Again this difference was significant, as the F-test indicates. This result is consistent with the somewhat higher labor force participation rates that adult black women had (in 1975 - since then there has been some further convergence in those rates) in comparison to adult white women. The results of regressions not reported here indicate that some of this larger negative sign may be child-related, although this equation showed an insignificant coefficient for the CHSEX variable. The MAR variable was positive in all the equations with coefficients not significantly different from each other by race.

In general, while there are significant racial differences in the equations, a comparison indicates a basic similarity in the sign of the variables measured, with differences in significance observed

in only two cases. Size differences in coefficients were often large, notable, and statistically significant (especially in terms of EARN, UNION, AGE, and SEX), but in general, while the estimations indicate forces that are different in determining black work effort from white work effort, they indicate similarities as well.

An F-test makes it possible to test the hypothesis that these racial equations are identical to each other. The use of the F-test for these equations, however, is a rough estimate of the hypothesis, since the sum of squared residuals are derived from the OLS estimates of the equations. As explained in an earlier section of this chapter, the TOBIT estimation process is non-linear and does not produce these statistics.

Table 4.2 shows that the F-test is statistically significant at the 1% level - thus the hypothesis that the equations are identical is rejected.

It is often useful, when estimating equations of this sort, to decompose the effects of the equation into the differences in the characteristics of the populations, and how much of the differences are due to differences in the structure of the equation, or to the coefficients of the equation. We decompose the effects of the means and the coefficients in a manner similar to that used by Flanagan (1974) for measuring differences in wage equations.

$$(4.10) \quad W_w = \sum_{i=1} A_i X_{wi}$$

$$(4.11) \quad W_b = \sum_{i=1} B_i X_{bi}$$

$$(4.12) \quad W^*_b = \sum_{i=1} A_i X_{bi}$$

$$(4.13) \quad D_{\text{mean}} = A_i (X_{wi} - X_{bi})$$

$$(4.14) \quad D_{\text{coef.}} = (A_i - B_i) X_{bi}$$

Equation 4.10 shows the estimation of weeks worked for whites as the sum of the product of a set of coefficients, A, and mean values, X_w for n variables. Similarly, equation 4.11 shows the estimation of the number of weeks worked for blacks to be the sum of the product of a set of coefficients, B, and a set of mean values, X_b , for n variables. When the coefficients produced in the white equations are multiplied by the mean values of the black equation, then equation 4.12 is produced. Equation 4.13 measures the differences in the estimations due to differences in mean values of variables for blacks and whites; equation 4.7 shows differences due to the difference in coefficient sizes in the equations.

Table 4.3 details the differences due to characteristics (from equation 4.13), and structure (from equation 4.14). Positive signs are favorable to whites, and negative signs to blacks in terms of relative work effort. According to the table, age is strongly favorable in increasing the number of weeks blacks work relative to whites. Also strong are HS, SVP and UNION. However, there is a clear split in the effects of the equation. While differences in means are strongly favorable to relative black work effort, structural differences are favorable to relative white work effort. Thus, the ten-week gap in weeks worked estimated by the decomposition is totally accounted for by racial differences in the structure of the equation.

TABLE 4.3

DECOMPOSITION OF DIFFERENCES IN VARIABLESCROSS-OCCUPATIONAL SAMPLE

<u>VARIABLE</u>	<u>CHARACTERISTIC DIFFERENCES</u>	<u>STRUCTURAL DIFFERENCES</u>
EDUC	1.536	0.265
HS	-5.758	0.692
SUP	-2.514	0.982
CHSEX	0.499	0.001
EARN	1.176	-0.429
PUB	0.092	2.751
UN	-0.127	0.532
CLW	0.058	-0.301
UNION	-2.000	0.318
PROFIT	3.108	-0.221
AGE	-9.074	0.581
SEX	-1.728	0.075
MAR	<u>-0.333</u>	<u>2.016</u>
	-15.066	7.264
CONSTANT		<u>17.725</u>
TOTAL	-15.066	24.989
ESTIMATED DIFFERENCE		9.923

There are gaps in the mean values of some of the variables. Table 4.2 shows that the blacks in the cross-occupational sample were less well educated than the whites and held less skilled jobs. There were fewer earners in black families and more blacks received more public assistance and unemployment insurance income than did whites. More blacks worked in the public sector, and blacks also worked in less-unionized and lower-profit industries than did whites. However, differences in coefficient size were more important in explaining the gap in racial work effort.

4.3 The Selection of Sample Occupations. The initial plan for this research was to view blacks and whites in all forty-four of the two-digit occupations, but limitations of time and money made modification of the research plan a necessity. Thus, a subset of the intermediate occupations was chosen. An effort was made to choose a mix of occupations that approximated the range of characteristics of the total occupational spectrum. Special attention was paid to employment growth in occupations, and to the concentration of blacks and women in occupations.

The sample for each occupation was drawn separately. In most cases all of the blacks in a two-digit occupation are pooled with a sample of the whites. (One of the advantages of the SIE is that it has sufficient observations for two-digit occupations to allow analysis for blacks at this level.) The self-employed in each race are excluded from analysis, as mentioned earlier.

Our segmentation by occupation was done based on the longest occupation that an individual had in the survey year. There were other choices: for example, the most recent occupation could have been chosen. However, we made the somewhat arbitrary decision that an individual was in the job market for the occupation they held longest. The difference in choosing one or another measure for segmentation is only significant for a small portion of our sample. (Chapter Three discusses this in detail.)

Our sample of managers was drawn from two intermediate occupations, salaried manufacturing managers (08) and other salaried managers (09). This occupation was male-dominated, with women

comprising about nine percent of the manufacturing managers and about twenty-five percent of the nonmanufacturing managers. Employment growth for managers has been high in the 1972-1977 periods for both the total population and for blacks.

We were interested in the clerical occupations for several reasons. Firstly, those occupations have been traditionally female dominated. Secondly, researchers have noted that much of the movement of black women from private household work in the 1960's and early 1970's was accompanied by the increased presence in the clerical occupations. One of the two-digit clerical occupations are included in our sample. The office machine operators occupation has a somewhat lower concentration of women (74%) than do most clerical occupations. Although black employment growth exceeds total employment growth in this occupation, total employment growth here has also been quite rapid.

Our sample includes both durable goods operatives and nondurable goods operatives. Both occupations have higher than average unemployment rates and lower than average growth but there is a higher concentration of women and blacks among nondurable goods operatives than there is among durable goods operatives. Similarly, the industrial picture is somewhat different for durable and nondurable goods operatives.

Two service occupations are included in our sample. The cleaning service occupation is included since about a third of the blacks in service occupations are in cleaning. This occupation has both a high concentration of blacks (30.3%) and a high concentration of women

TABLE 4.4
SUMMARY STATISTICS FOR TWO-DIGIT OCCUPATIONS, 1972

	% Black	% Female	Unemployment Rate		Unemployment Rate - Black		Labor Force Growth '72-'77		% Part-Time		% of Total	% of Black Population
			Unemployment Rate	Unemployment Rate - Black	Unemployment Rate - Black	Unemployment Rate - Black	Labor Force Growth '72-'77	Labor Force Growth '72-'77	% Part-Time	% Part-Time		
Professional, Technical and Kindred												
Engineers	5.6	2.7	1.3	2.0	15.0	14.3	1.2	1.4	0.7			
Physicians/Dentists	6.8	10.5	0.8	1.3	16.1	16.8	8.3	0.8	0.5			
*Other Health	11.9	87.1	2.8	4.6	38.2	39.1	20.7	1.6	1.9			
Teachers Except College	9.8	70.9	3.1	3.5	6.4	7.7	18.3	3.3	2.8			
Engineers/Science Technicians	7.0	14.9	4.1	4.7	7.7	7.4	5.9	1.0	0.6			
Other Salaried Professionals	8.6	33.1	3.7	7.1	24.9	25.9	11.1	6.0	4.4			
Other Self-Employed Professionals	3.9	20.7	1.7	2.8	33.8	34.3	19.4	0.7	0.2			
*Managers & Administrators, Except Farm												
Salaried Manufacturing	2.2	9.2	2.3	6.7	18.2	18.9	1.5	1.4	0.3			
Other Salaried	5.2	24.7	3.2	5.0	25.2	26.7	4.5	7.2	3.2			
Retail Self Employed	6.5	29.9	1.7	2.7	0.1	0.4	9.1	1.0	0.6			
Other Self-Employed	5.4	15.0	1.6	7.2	18.8	15.7	10.4	1.0	0.5			
Sales												
Retail	5.8	62.4	6.9	14.3	0.5	3.4	37.7	3.5	1.8			
Other	3.6	20.3	3.2	8.1	15.9	16.6	10.6	2.9	0.9			
Clerical												
Bookkeepers	4.6	90.0	4.9	8.6	9.0	10.5	23.8	1.9	0.8			
*Office Machine Operators	15.4	73.8	5.3	8.5	12.6	13.3	10.9	0.8	1.1			
Steno/Typists/Secretaries	7.9	98.3	5.5	9.5	10.1	10.5	14.8	3.0	3.4			
Other Clerical	12.3	67.7	6.3	11.6	15.4	16.9	19.2	10.1	16.1			
Craft and Kindred												
Carpenters	4.9	0.9	9.3	19.0	12.2	14.5	5.2	1.3	0.6			
*Other Construction Crafts	10.1	1.0	9.2	12.9	6.9	9.8	4.6	2.7	2.4			
Foremen, NEC	7.6	9.0	3.0	5.3	10.0	12.3	0.9	1.7	1.1			
Machine Jobsetters	8.2	2.6	3.6	6.6	22.3	22.5	1.0	0.6	0.4			
Other Metal	6.7	3.1	4.6	4.0	4.6	4.1	1.3	0.7	0.4			
Auto Mechanics	8.1	0.9	4.6	5.8	12.4	13.8	3.6	1.3	0.9			
Other Mechanics	6.2	1.6	3.8	6.1	16.4	17.7	3.1	2.3	1.2			
Other Craft	7.8	14.7	4.3	8.3	4.6	5.6	6.2	2.6	1.7			
Operatives, Excluding Transport												
Mine Workers	4.3	1.1	5.3	20.5	37.7	39.0	0.4	0.3	0.2			
Motor Vehicle Equipment	19.8	18.1	5.1	6.8	14.0	13.0	0.5	0.5	1.5			
*Other Durable Goods	13.3	35.8	8.9	12.2	3.3	5.0	2.7	4.7	6.0			
*Nondurable Goods	17.5	58.4	10.6	15.5	-5.4	-2.6	3.6	3.7	4.1			
All Other Operatives	14.3	28.8	10.5	14.5	-3.1	- .3	16.4	2.3	3.3			
Transportation Equipment Operatives												
Driver/Delivery	14.2	8.0	6.5	8.8	6.2	-7.7	9.4	3.2	7.2			
Other	19.0	4.0	7.3	8.3	21.7	23.6	3.6	0.6	1.9			

TABLE 4.4 (Cont'd.)

	% Black	% Female	Unemployment Rate	Unemployment Rate - Black	Unemployment Growth - '72-'77	Labor Force Growth - '72-'77	% Part-Time	% of Total	% of Black Population
<u>Nonfarm Labor</u>	18.4	1.7	17.7	23.3	-7.8	-6.0	6.9	0.9	1.6
Construction	21.6	12.0	11.3	13.6	6.1	8.2	4.7	1.2	2.4
Manufacturing	18.2	10.6	10.5	15.3	12.5	15.1	25.3	2.9	4.8
Other	36.1	97.0	5.0	5.9	-19.3	-18.6	54.5	1.3	4.0
<u>Private Household Workers Service, Except Private Household</u>									
*Cleaning Service	30.3	34.9	8.6	12.9	13.9	15.9	24.0	3.1	7.1
Food Service	14.8	68.5	11.2	17.3	25.5	28.2	41.8	5.1	6.2
Health Service	23.8	89.2	7.1	11.3	16.0	18.5	20.9	2.0	9.1
Personal Service	14.7	74.0	6.8	14.2	10.6	12.6	34.1	2.0	2.4
Protective Service	12.4	7.8	3.3	5.5	15.7	16.9	8.4	1.5	1.3
<u>Farm Managers</u>	2.6	6.4	0.3	0.3	-13.6	13.5	12.5	1.6	0.3
<u>Farm Labor</u>									
Paid	17.2	16.5	11.6	14.5	5.2	9.7	15.3	1.2	1.7
Unpaid Family	4.3	68.5	0.5	3.3	-29.0	-29.0	38.7	0.4	0.1
<u>TOTAL</u>	11.4	40.5	6.1	11.0	+10.8	12.3	100.0	100.0	100.0

(34.9%). In 1972-1977, employment in the cleaning service occupations grew more rapidly than average black employment growth. On the other hand, there is a low concentration of women and about an average proportion of blacks in protective service occupations. This occupation has the lowest unemployment rate of any of the service occupations and high growth rates of both total and black employment.

The occupations mentioned above comprise six occupations of our sample. Table 4.4 summarizes some of the overall characteristics of the occupational distribution, with asterisks marking those occupations included in our sample.

It is clear that the sample has some flaws. Sales workers are not included, despite the fact that some interesting comparisons may be drawn from the fact that most whites are in nonretail sales work while most blacks are in retail sales. As mentioned elsewhere in this work, those workers in "other" categories (such as other clerical workers, other professionals, other crafts workers, and other operatives) that comprise a significant proportion of the labor force (see Appendix A) are excluded because their occupational categories are too heterogeneous. However, the group of occupations chosen will yield information about employment experience by race for a broad-based segment of the labor force.

4.4 Estimates of Weeks Worked by Occupation

This section estimates the model for the six occupations discussed in Section 4.3 of this chapter. In general all of the variables developed in the model are included in the equation, with some variations involving both the CHILW and the CLW variables. In

TABLE 4.5

SUMMARY OF REGRESSION RESULTS

VAR	TOTAL	MANAGERS	OMO's	DURABLE	NONDURABLE	CLEANING	PROTECTIVE
Education and Skills							
EDUC	XXX	X+X	XXX	-X-	XXX	X+-	XXX
HS	X+X	+--+	+X+	+X+	XX+	+X+	X+X
COL		X-X					
SVP	+++	+X+	+++	XXX	XXX	+X+	+++
Options							
CHILD				+X+	+++	+++	+X+
CHSEX	XXX	XX-	---	---	---	---	-X-
EARN	---	X-X	-X-	---	---	---	-XX
PUB	---	-X-	---X	---	---	---	---
UN	---	---	---	---	---	---	---
Institutional							
CW	+XX	+++	XXX			XXX	+++
UNION	+++	XXX	+++	XXX	XXX	X-X	X-X
PROFIT	--X	+X+	X-X	+X+	+X+	X+-	XXX
Personal Characteristics							
AGE	+++	+X+	+++	+++	+++	+++	+X+
SEX	---	-X-	X+X	-X-	---	XX-	XX-
MAR	+++	XXX	+X+	+++	+X+	+++	+X+
RACE	X	-	X	X	+	+	X

NOTE: The three symbols in each cell represent the coefficients of variables in the total, black and white equations. X indicates insignificance, - indicates not present in that equation, and an entirely blank cell indicates that the variable was not at all included in the set of equations. Thus, +-- means that a variable had a positive sign in the total equation but was not included in the black or white equations.

particular, since few operatives work in the public sector (less than five percent of those sampled) the CLW variable is eliminated in that case. The dummy variable, COLLEGE, only appears in the equation for managers. Table 4.5 summarizes the results of the estimations by occupation. The table indicates the differences in the sign and significance of coefficients. There are also differences in coefficient size that Table 4.5 does not capture. It should be noted that these differences are often sizeable and quite variant by occupation.

Managers

Table 4.6 presents the results of estimations for managers. While the education and skills component of the equation is significant, significance differs by race. The coefficient of EDUC is positive and significant for blacks, but the credentialization variables (HS and COL) both have negative coefficients in the black equations. The combined effect of the EDUC, HS, and COL coefficients for blacks suggests a small return to education that may be either neutral or negative. For white managers, EDUC and COL are insignificant, but HS has a positive coefficient. Thus, while credentialization is unimportant for black managers, at least one aspect of the credentialization process is important for white managers. SVP has a positive coefficient in the white equation, but is insignificant in the black equation. Thus, skilled white managers work more than do other white managers, while the holding of a more highly-skilled job has no payoff for black managers. In sum, the education and skills component of the equation has the expected effects on white managers, but minimal or negative effects on black managers.

TABLE 4.6

DETERMINANTS OF WEEKS WORKED, 1975, - MANAGERS

(Standard errors in parentheses)

<u>VAR</u>	<u>TOTAL</u>	<u>BLACK</u>	<u>WHITE</u>
	<u>Coefficient</u>	<u>Coefficient</u>	<u>Coefficient</u>
CONST	38.292* (14.596)	29.178 (27.394)	26.976*** (19.425)
EDUC	0.026 (0.519)	3.723** (1.946)	0.274 (1.119)
SVP	3.475** (1.940)	0.085 (3.143)	5.237** (2.344)
HS*	6.569*** (4.535)	-15.019*** (10.131)	9.251*** (5.910)
COL	2.495 (2.120)	-13.278*** (8.859)	-5.802 (4.899)
CHSEX	-4.145 (3.514)	-4.431 (5.243)	-10.583** (4.803)
EARN	-0.079 (2.204)	-5.530*** (4.133)	-2.080 (2.447)
UN*	-35.479* (3.712)	-28.756* (6.899)	-37.861* (4.067)
PUB	-10.366* (5.150)	-4.069 (8.025)	-24.239* (6.587)
CW*	7.755* (3.200)	10.259* (5.315)	6.158*** (3.871)
UNION	0.022 (0.069)	-0.029 (0.131)	-0.004 (0.077)
PROFIT	0.667** (0.349)	1.811* (0.648)	0.228 (0.386)
AGE	0.176* (0.082)	0.073 (0.162)	0.135*** (0.087)

TABLE 4.6 (Cont'd)

<u>VAR</u>	<u>TOTAL</u>	<u>BLACK</u>	<u>WHITE</u>
	<u>Coefficient</u>	<u>Coefficient</u>	<u>Coefficient</u>
SEX	-13.047* (2.317)	-1.704 (4.081)	-19.069* (2.733)
MAR	-0.164 (0.314)	0.418 (0.595)	-0.097 (0.378)
RACE	-3.430*** (2.184)	- -	- -
SIGMA	26.229* (1.285)	28.545* (2.805)	22.888* (1.398)
N	1348	441	907
R ² /OLS	.161	.126	.275
WEEKS WORKED		47.4	48.7

F(14,318) - test of significance of differences in equations -12.697

* indicates significance at the .01 level

** indicates significance at the .05 level

*** indicates significance at the .10 level

Note: The VAR column is coded to show results of F-test on the significance of differences between variables in the black and white equations. * indicates significant differences at the 10% level or better; while ** indicates insignificance.

In the options component of the equation, those variables related to family factors have different racial significance. CHSEX has a large negative coefficient for white women managers, but is insignificant for blacks. Thus, while white women reduce work effort by about ten weeks in response to the presence of children under six, black women do not reduce work effort at all. On the other hand, the presence of other earners has no effect on the work effort of white managers, but has a negative effect (although weakly, at the 10% significance level) for black managers.

In terms of unearned income, an unexpectedly stronger response by whites to the receipt of public assistance and unemployment insurance income was observed. The coefficient of UN is much larger for whites than for blacks, while the coefficient of PUB is insignificant for blacks but large for whites. It must be noted, however, that the populations that receive PUB and UN are quite small in the managerial population. Less than two percent of the white and five percent of the blacks lived in households that received public assistance income in the survey year, while about five percent of the population (but slightly more blacks than whites) received unemployment insurance income.

In any case, the inference that may be made from the coefficients of variables in the options component of the equation is that blacks respond less strongly to the receipt of unearned income and to the presence of children, while whites respond less strongly to the presence of other earners, in determining work effort.

The institutional component of the equation has stronger results for black than for white managers. CLW is positive in all of the

equations, but has a larger coefficient for blacks than for whites. The relative benefit of holding a job in the public sector is higher for black than for white managers. (Nearly two-fifths of the black managers work in the public sector, while only one-sixth of the white managers do.) UNION is insignificant in all of the equations. PROFITS is positive in the overall equation and for blacks. An additional percentage point of profits in an industry is associated with almost two more weeks of work for black managers.

In a result different from the cross-occupational result, age has a significant coefficient only in the overall equation and for whites. While aging is usually associated with significant drops in black unemployment rates, it is possible that the relatively recent entry of blacks into the managerial occupations minimizes this effect (see, for example, Tables 1.9 and 1.10 in Chapter One and that discussion about the increase over a ten-year period in the number of managers in a fixed age cohort).

The coefficient of the SEX variable is insignificant for blacks, but has a strong negative sign for white managers. Thus, white women work less relative to white men, while sex does not affect the work effort of black women relative to black men. Since both SEX and CHSEX are significant, there is a large reduction in weeks worked for white female managers with young children. MAR is insignificant in all of the equations. While the RACE dummy is not generally significant, it is negative in the overall equation (although significance is weak). Thus, if all else is equal, black managers work less than white managers do.

An F-test shows that the racial equations are not significantly different from each other. This is consistent with the findings of the decomposition below, which shows that differences are more attributable to differences in mean characteristics than to structural differences in the equation.

The decomposition is shown in Table 4.7. In contrast to Table 4.3, all of the two-week gap in weeks worked is attributable to differences in variable characteristics. Given purely structural factors, blacks would work more weeks than whites do; but differences in the means of the independent variables suggest that whites would work almost five weeks more than would blacks. Since it is customary to interpret differences due to the coefficients (or structure) of the equations as differences in the treatment or behavior of black managers, we conclude that gaps in the unemployment differential for managers is due, atypically, to differences in the characteristics of black managers. (A view at mean variable values highlights these differences--especially in the institutional characteristics of black managers.) However, this conclusion is somewhat modified by the negative coefficient at that the RACE variable measured in the overall managerial equation.

The conclusion is significant in both terms of the dynamics of supply and demand in this occupation and in terms of the implication of this finding for other professional occupations. As the supply of black managers increases, will differences in racial employment experience continue to be attributable solely to differences in characteristics? As characteristics converge, will differences

TABLE 4.7

DECOMPOSITION OF DIFFERENCES IN VARIABLESMANAGERS

<u>VARIABLE</u>	<u>CHARACTERISTIC DIFFERENCES</u>	<u>STRUCTURAL DIFFERENCES</u>
EDUC	-50.700	-0.931
HS	22.668	-0.225
COL	2.624	0.850
SUP	37.094	0.009
CHSEX	-0.178	0.173
EARN	2.284	0.077
PUB	-0.343	0.134
UN	-0.437	0.115
CLW	-0.709	-2.154
UNION	0.395	-0.090
PROFIT	-6.079	1.557
AGE	2.553	0.138
SEX	-4.063	0.193
MAR	-0.415	0.048
	4.694	-0.106
CONSTANT	_____	-2.202
TOTAL	4.694	-2.308
ESTIMATED DIFFERENCE		2.386

persist, or will the effect of some of the structural factors change? It is too early to speculate on the answers to these questions, since the growth in the employment of blacks in managerial occupations is fairly recent.

Office Machine Operators

This occupation is predominately female, although about 20% of all office machine operators are male. White office machine operators worked 45.4 weeks, while black office machine operators worked 44.0 weeks. Black office machine operators were also about two

years younger (29.6) than white office machine operators (31.7). Less than five percent of the office machine operators in the sample were non-high school graduates--and median education was about the same by race (13.6 years for white office machine operators and 13.4 for black office machine operators). As with secretaries, black office machine operators are more heavily represented in the public sector (35%) than whites are (17%).

There is not a clear skill split among office machine operators. Of the seven detailed occupations included here, five of them have occupation levels (OL) between 5 and 7. The other two occupations are at one at poles of the distribution, one with an OL of 2, and one with an OL of 12. The SVP range is about three points, from 2.87 to 5.87.

Table 4.8 shows the result of estimations for office machine operators. In the education and skills component of the equation, while EDUC was insignificant in all of the equations, HS was positive in the overall equation and for whites. The SVP coefficient was positive in all of the equations, but more than twice as large (and significantly different) in the equation for blacks as it was in the equation for whites. Thus, within racial groups the acquisition of more skill, or the holding of a more highly skilled job, had a higher payoff for blacks, while credentialization had no payoff for blacks but a significant payoff for whites.

In the options component, only white workers reduced work effort in response to the presence of other earners in the household. CHSEX was negative in all of the equations, but had a larger coefficient for

TABLE 4.8

DETERMINANTS OF WEEKS WORKED, 1975, - OFFICE MACHINE OPERATORS

(Standard errors in parentheses)

<u>VAR</u>	<u>TOTAL</u>	<u>BLACK</u>	<u>WHITE</u>
CONSTANT	19.195* (17.573)	4.249 (28.021)	34.648*** (21.306)
HS	11.178*** (7.551)	0.945 (13.194)	17.849** (9.301)
EDUC	-0.912 (1.120)	-0.678 (1.985)	-1.490 (1.354)
SVP*	6.847* (1.698)	11.155* (3.042)	4.935* (2.039)
EARN	-10.824* (3.734)	-6.309 (5.813)	-13.567* (4.867)
CHSEX*	-8.757* (2.608)	-7.990** (3.997)	-9.636* (3.373)
PUB	-14.094* (4.785)	-22.369* (6.269)	-6.511 (8.083)
UN**	-28.899* (5.093)	-30.364* (8.507)	-29.934* (6.257)
CW	0.661 (3.653)	-4.628 (5.497)	2.389 (4.949)
UNION*	0.209** (0.091)	0.346** (0.183)	0.168*** (0.107)
PROFITS	-0.167 (0.458)	-1.712** (0.914)	0.374 (0.534)
SEX	3.236 (3.796)	12.210** (6.048)	-2.202 (4.949)
MAR	6.023*** (3.565)	-2.650 (6.204)	9.687** (4.365)

TABLE 4.8 (Cont'd)

<u>VAR</u>	<u>TOTAL</u>	<u>BLACK</u>	<u>WHITE</u>
AGE**	0.491* (0.154)	0.612** (0.304)	0.429* (0.178)
RACE	3.707 (3.111)	- -	- -
SIGMA	34.799* (1.479)	23.279* (2.365)	24.741* (1.822)
N	512	168	344
R ² /OLS	.181	.295	.150
WEEKS WORKED		44.04	45.36

F(13,484) - test of significance of differences in equations 2.639*

* indicates significance at the .01 level

** indicates significance at the .05 level

*** indicates significance at the .10 level

Note: The VAR column is coded to show results of F-test on the significance of differences between variables in the black and white equations. * indicates significant differences at the 10% level or better; while ** indicates insignificance.

white office machine operators than it did for blacks. Those variables that measured unearned income had the expected negative coefficients. PUB was significant only for blacks, and while UN was significant in all of the equations, an F-test indicates that the coefficients were not significantly different from each other.

The institutional component had more clear measurable effects for black workers than it did for white workers, although mixed signs for UNION and PROFITS were measured, as they were in the cross-occupational equations. The coefficient of UNION was positive in all of the equations, but about twice as large for blacks as it was for whites. The coefficient of PROFITS was negative, but significant only in the black equation. Those black office machine operators that fared best, then, were those who worked in highly unionized, but less profitable industries. CLW was not significant in any of the equations.

In the personal characteristics component of the equation, SEX had a positive sign for blacks. This was different from the coefficients observed in both the overall equation and in most of the others. Further, since the proportion of black males among black office machine operatives is about the same as the proportion of whites, the coefficient suggests a strong positive work effort for black women that is not present for white women. MAR is insignificant for blacks, but positive in the overall equation and for whites. AGE is positive and larger for blacks than for whites, though these coefficients were not significantly different from each other. An F-test showed that despite some similarities in coefficient size, the equations are significantly different from each other.

A decomposition of the equation (see Table 4.9) estimates that blacks work more weeks than do whites, and that much of the reason for this difference is because of differences in variable characteristics.

TABLE 4.9
DECOMPOSITION OF DIFFERENCES IN VARIABLES
OFFICE MACHINE OPERATORS

<u>VARIABLE</u>	<u>CHARACTERISTIC DIFFERENCES</u>	<u>STRUCTURAL DIFFERENCES</u>
EDUC	-29.569	0.155
HS	16.126	0.008
SUP	-30.546	1.729
CHSEX	-0.286	1.318
EARN	-5.421	-0.397
PUB	0.650	2.818
UN	0.024	14.544
CLW	1.207	0.856
UNION	-2.828	2.057
PROFIT	7.130	-2.128
AGE	-5.776	1.201
SEX	-11.357	0.171
MAR	<u>7.205</u>	<u>-0.313</u>
	-53.443	22.019
CONSTANT	<u> </u>	<u>30.399</u>
TOTAL		52.418
ESTIMATED DIFFERENCE		-1.035

In particular, differences in the coefficients of EDUC, SVP, and SEX are largely responsible for the large positive differences in the relative work position of blacks. However, since the coefficients of the EDUC variable are insignificant, the alternative composition methodology of constraining insignificant variables to be equal to

zero would minimize this effect. In any case, as decomposed, differences in work effort for office machine operatives are more consistent with the decomposition done in the overall equation than with that done for managers.

Operatives

The one-digit occupations, operatives, is divided into five two-digit occupations that are mutually exclusive by industry. Unlike many of the other occupations that we have looked at within a major occupation group, there is no clear difference between the kind of work that workers in various two-digit occupations do. Further, although we thought there might be more unionization among either durable or nondurable goods operatives, there is no significant difference in the median values of many of the variables included in our equation. (The median percentage of unionization is 35.6% for durable goods operatives and 35.1% for nondurable goods operatives.) Weeks worked did not differ substantially either--41.4 weeks for durable goods operatives, and 40.1 weeks for nondurable goods operatives. Median industry profits differed slightly--7.1% median net profits in nondurable goods industries, compared to 6.6% median net profits in durable goods industries, and concentration ratios tended to be higher in durable goods industries (Ware, 1976).

There was, however, a clear demographic difference in the composition of workers in durable goods and nondurable goods occupations. As Table 4.10 shows, women were more highly concentrated, and in fact were the majority of workers, in the nondurable goods operatives occupation. As in other occupations, there was also a clear difference

in the unemployment rates of demographic groups. One of the features, then, of our view of durable and nondurable goods operatives will be our ability to compare the explanatory variables in an industry that seems fairly crowded with women with an industry that is somewhat less crowded.

TABLE 4.10

SUMMARY STATISTICS, DURABLE AND NONDURABLE GOODS OPERATIVES

	% Black	% Female	% B. Fem.	U _{WM}	U _{WF}	U _{BM}	U _{BF}
Durable Goods Operatives							
Total	13.2	35.5	5.0	9.1	12.5	15.9	26.2
25-34	16.5	32.6	7.5	9.5	12.3	23.1	25.5
Nondurable Goods Operatives							
Total	16.7	59.9	10.0	6.7	12.4	17.8	20.2
25-34	23.4	53.9	14.0	5.7	10.7	18.6	19.5

Durable Goods Operatives

Table 4.11 shows estimation results for durable goods operatives. The education and skills component is significant only for whites. EDUC has a negative sign for white durable goods operatives, while the credentialization variable, HS, has a positive sign for whites. SVP is insignificant in all of the equations. The overall effect, then, is that human capital variables are insignificant for blacks.

TABLE 4.11

DETERMINANTS OF WEEKS WORKED, 1975, - DURABLE GOODS OPERATIVES

(Standard errors in parentheses)

<u>VAR</u>	<u>TOTAL</u>	<u>BLACK</u>	<u>WHITE</u>
CONST	42.335* (7.219)	48.536* (13.689)	42.125* (8.473)
EDUC	0.620*** (0.481)	-0.046 (0.889)	-0.934** (0.583)
HS	8.102* (2.357)	4.024 (4.628)	9.868* (2.752)
SVP*	0.037 (0.918)	-1.654 (1.834)	0.409 (1.055)
CHILD	2.977** (1.562)	0.676 (3.352)	3.331** (1.759)
CHSEX**	-8.075* (2.324)	-8.015** (4.799)	-8.022* (2.642)
PUB*	-13.919* (2.071)	-18.013* (3.433)	-12.383 (2.670)
UN**	-19.312* (1.513)	-18.391* (3.007)	-19.584* (1.742)
EARN*	-5.366* (1.595)	-8.288* (3.143)	-4.005** (1.844)
PROFIT	-0.069 (0.187)	-0.143 (0.385)	-0.086 (0.212)
UNION	0.080** (0.047)	0.061 (0.089)	0.099** (0.055)
AGE**	0.410* (0.062)	0.411* (0.138)	0.410* (0.069)
SEX	-5.119* (1.546)	0.433 (3.226)	-7.182* (1.758)

TABLE 4.11 (Con't)

<u>VAR</u>	<u>TOTAL</u>	<u>BLACK</u>	<u>WHITE</u>
MAR**	5.822* (1.721)	6.012** (3.295)	6.021* (2.013)
RACE	1.117 (1.524)	-	-
N	1296	365	931
R ² /OLS	.247	.259	.252
WEEKS WORKED		40.75	41.71

F(13.1268) - test of significance of differences in equations 1.662

* indicates significance at the .01 level

** indicates significance at the .05 level

*** indicates significance at the .10 level

Note: The VAR column is coded to show results of F-test on the significance of differences between variables in the black and white equations. * indicates significant differences at the 10% level or better; while ** indicates insignificance.

In the options component of the equation, there were no unexpected results. CHILD was positive but only significant for white workers. CHSEX, however, had virtually coefficients showed no significant difference in all of the equations, a finding that was somewhat different than earlier findings for this variable. EARN was negative in all of the equations, but larger for blacks than for whites. The coefficients for UN were similar in equations for blacks and for whites; an F-test showed them not significantly different from each other. PUB was a third larger for blacks than for whites.

In the institutional component of the equation, PROFIT was insignificant in all of the equations, while UNION was positive only for whites. Demand side variables, then, were more important for white durable goods operatives than they were for black durable goods operatives.

In the personal characteristics component of the equation, AGE and MAR had identical coefficients by race, while SEX was negative only for whites. While the similarity of the coefficients was not anticipated, the signs of the coefficients has been observed in earlier equations.

The major differences by race in the equations for durable goods operatives were that education and skill had an insignificant effect on blacks, and institutional variables were more strongly significant for whites. Thus, the fact that an F-test does not allow indicate significant differences between the two equations is not surprising.

While the equation seems to be well behaved in explaining weeks worked by race, there is nothing in the equations to explain the

large unemployment rate differentials that we observed in Table 4.10. But while weeks worked was not very different by race, unemployment was. Thus, this equation and its results for this occupation may be important in noting one of the flaws of the use of our dependent variable that we mentioned in Section 4.1. Weeks worked measures differences in work effort, but does not distinguish between voluntary and involuntary unemployment, and so is a flawed measure.

A decomposition of the effects of durable variable effects in the equation for durable goods operatives is shown in Table 4.12.

TABLE 4.12
DECOMPOSITION OF DIFFERENCES IN VARIABLES
DURABLE GOODS OPERATIVES

<u>VARIABLE</u>	<u>CHARACTERISTIC DIFFERENCES</u>	<u>STRUCTURAL DIFFERENCES</u>
EDUC	-10.576	-0.018
HS	23.060	0.241
SUP	1.353	-0.015
CHIL6	0.781	0.018
CHSEX	-0.001	0.184
EARN	2.967	-0.539
PUB	0.456	1.855
UN	-0.277	0.313
UNION	1.304	-0.279
PROFIT	0.378	0.006
AGE	-0.038	0.493
SEX	-2.840	0.005
MAR	0.006	0.733
	16.575	2.998
CONSTANT		-6.441
TOTAL	16.575	-3.443
ESTIMATED DIFFERENCE		13.132

As is general, the decomposition is not precise in estimating the difference in the number of weeks worked. In this case, as in the case for managers, however, the difference is entirely attributable to differences in the characteristics, or means, of the variables. As in the case for managers, when considering durable goods operatives we can conclude that differences in unemployment have more to do with worker characteristics than they have to do with worker treatment or behavior in the market. This suggests that parity in employment may be attained if certain changes in the mean variable profile are pursued.

Nondurable Goods Operatives

Table 4.13 shows the results of the estimation for nondurable goods operatives. As in the equation for durable goods operatives, SVP is insignificant in all of the equations. EDUC, significant for whites in the equation for durable goods operatives, is also insignificant in the equation for all of the equations for nondurable goods operatives. Only HS is significant in the equation for nondurable goods operatives, and it is positive only in the equation for whites.

In the options component a positive coefficient was observed for the presence of children in all of the equations. Coefficient size is larger for whites than for blacks, though. This is somewhat similar to the fact that CHILD had a positive sign for whites but was insignificant in the equation for durable goods operatives. The coefficient for CHSEX is almost twice as large for white nondurable goods operatives as it is for blacks in the equation. This contrasts

with the similar coefficient size observed in the equation for durable goods operatives. As is expected, however, the sign of CHSEX is negative. The final variable that deals with family options, EARN, has the expected negative sign in all of the equations but is significant only for blacks. Thus, white nondurable goods operatives do not reduce work effort when others in their household are earners, while black nondurable goods operatives do.

PUB and UN both have expected negative signs, and in each case coefficient size is somewhat larger and significantly different for blacks than for whites. When these coefficients are interpreted with the EARN coefficient it is clear that, except for the presence of children, black nondurable goods operatives are more sensitive to changes in their set of non-labor market options than are whites.

As in the equation for nondurable goods operatives, the institutional component of the equation is significant for whites but not for blacks. But the PROFIT and UNION variables have opposite effects now, as UNION is insignificant in all of the equations and PROFIT has a positive coefficient. The fact that neither traditional demand nor supply side variables are significant for black operatives in either durable or nondurable goods industries suggests that a set of forces other than traditional market forces are important in determining work effort for blacks in these occupations.

In the personal characteristics component of the equation, AGE has a larger coefficient for blacks than for whites. SEX is always negative, but has a larger coefficient for whites. MAR is positive but only significant in the white equation. And, surprisingly

(especially in light of the unemployment rates shown in Table 4.10), RACE has a positive sign in the overall equation.

In general the durable and nondurable goods equations performed similarly. Neither the education and skills component nor the institutional component were significant for blacks. The options component, while significant, had predictable racial differences, in the size of the CHILD, EARN, and CHSEX coefficients. There were differences as well in the coefficients for unearned income. However, while an F-test indicated no significant differences between equations for durable goods operatives, there is a significant difference between black and white nondurable goods operatives. Further, the decomposition (see Table 4.14) suggests that for nondurable goods operatives, structural differences, not characteristic differences are responsible for the gap in the number of weeks worked. Such a measurement is consistent with the higher concentration ratios measured in durable goods industries. Such primary sector industries have a more carefully delineated work set of work rule that would make it more difficult to attribute racial differences to differences in the "structure" of the market. On the other hand, the crowded, secondary, nondurable goods industries may have a more poorly defined set of work rules which make "structural" differences more easy to implement (and/or more observable).

Our look at operatives raises questions that remain unanswered. For example, it would have been interesting to isolate women and compare their experiences by race in these occupations. Unfortunately, our sample is not large enough to allow such a division. Also, a

TABLE 4.13

DETERMINANTS OF WEEKS WORKED, 1975, - NONDURABLE GOODS OPERATIVES

(Standard errors in parentheses)

<u>VAR</u>	<u>TOTAL</u>	<u>BLACK</u>	<u>WHITE</u>
CONST	35.631* (7.334)	24.849** (14.148)	36.452* (8.675)
HS	2.015 (2.490)	-4.786 (4.628)	4.914 (2.981)
EDUC	0.374 (0.486)	2.378 (1.012)	-0.356 (0.558)
SVP	0.369 (0.935)	-0.706 (1.515)	1.202 (1.206)
CHILDD*	5.942* (2.007)	4.321*** (3.239)	7.386* (2.576)
CHSEX*	-11.650* (2.402)	-8.129** (3.782)	-15.053* (3.124)
UN*	-14.277* (1.598)	-17.074* (2.899)	-13.424* (1.907)
PUB*	-11.547* (2.052)	-12.818* (3.118)	-10.516* (2.792)
EARN	-3.869** (1.753)	-5.426* (3.017)	-2.180 (2.156)
PROFIT	0.603** (0.315)	0.559 (0.580)	0.699** (0.377)
UNION	-0.039 (0.060)	-0.062 (0.103)	-0.020 (0.074)
AGE	0.365* (0.063)	0.418* (0.130)	0.366* (0.071)
SEX*	-8.926* (1.705)	-6.301** (3.081)	-9.849* (2.049)

TABLE 4.13 (Cont'd)

<u>VAR</u>	<u>TOTAL</u>	<u>BLACK</u>	<u>WHITE</u>
MAR	3.379** (1.727)	2.055 (3.171)	3.953** (2.062)
RACE	- -	- -	- -
SIGMA	22.379* (0.669)	23.019* (1.202)	21.781* (0.794)
N	1243	435	808
R ² /OLS	.174	.168	.194
WEEKS WORKED		40.23	40.74

F(13,1215) - test of significance of differences in equations 1.836**

* indicates significance at the .01 level

** indicates significance at the .05 level

*** indicates significance at the .10 level

Note: The VAR column is coded to show results of F-test on the significance of differences between variables in the black and white equations. * indicates significant differences at the 10% level or better; while ** indicates insignificance.

TABLE 4.14
DECOMPOSITION OF DIFFERENCES IN VARIABLES

NONDURABLE GOODS OPERATIVES

<u>VARIABLE</u>	<u>CHARACTERISTIC DIFFERENCES</u>	<u>STRUCTURAL DIFFERENCES</u>
EDUC	-31.351	-0.721
HS	5.752	0.354
SUP	6.867	-0.073
CHIL6	0.818	-0.467
CHSEX	-0.997	0.658
EARN	2.334	-0.494
PUB	0.244	1.295
UN	0.956	-0.427
UNION	1.474	0.007
PROFIT	9.017	-0.039
AGE	-1.999	0.998
SEX	-2.171	-0.088
MAR	1.256	0.203
	-7.799	1.208
CONSTANT	_____	11.603
TOTAL	-7.799	12.811
ESTIMATED DIFFERENCE		5.012

measure of individual union membership may have given the institutional variables a precision that we lose here. Unfortunately, the SIE did not include such a measure.

Cleaning Service Workers

Over a third of the blacks employed in service work are employed as cleaning service workers. This occupation had, in 1977, the second highest concentration of blacks (with the highest being private household workers). There is a considerable concentration of women in the cleaning service occupation, as well, although not as high as it

is in some clerical and health occupations. Within the cleaning occupation, it is interesting to note that there is a clear skill and sex split according to three-digit occupations: chambermaids and maids (901), cleaners and charwomen (902), and janitors and sextons (903). Women are disproportionately concentrated in occupations 901 and 902, but underrepresented in occupation 903.

While the mean number of weeks worked was higher for black cleaning service workers (39.5) than it was for white cleaning service workers (36.5), the unemployment rate was higher for black cleaning service workers than it was for all cleaning service workers (see Table 4.6). Black cleaning service workers contributed more to family earnings (63.7%) than white cleaning service workers did (52.7%), and had a higher median age (40.8) than did white cleaning service workers (38.4). However, in many other respects black and white cleaning service workers are similar. About a third of all cleaning service workers were public sector employees, regardless of race. Also, the median wage of black and white cleaning service workers was about the same (3.18 per hour for whites and 3.19 per hour for blacks), although white cleaning service workers had a wider wage range than did blacks.

Table 4.15 shows the result of estimations for cleaning service workers. In the education and skills component, different racial coefficients for EDUC are observed. The black coefficient has the expected, positive effect, while the coefficient for white cleaning service workers is negative. On the other hand, HS is positive and significant for whites but insignificant for blacks. Similarly, SVP has a strong positive coefficient for whites but is insignificant for

TABLE 4.15

DETERMINANTS OF WEEKS WORKED, 1975, - CLEANING SERVICE WORKERS

(Standard errors in parentheses)

<u>VAR</u>	<u>TOTAL</u>	<u>BLACK</u>	<u>WHITE</u>
CONST	10.0#%*** (7.249)	-1.793 (12.822)	18.127** (8.508)
EDUC*	-0.314 (0.408)	1.472 (0.748)	-1.185* (0.479)
HS	5.932* (2.178)	-0.602 (3.853)	9.235* (2.597)
SVP	4.408* (1.494)	0.418 (2.569)	6.404* (1.781)
CHILD*	6.151* (1.968)	10.222* (3.973)	4.643** (2.224)
CHSEX**	-8.531* (2.608)	-10.945* (4.668)	-8.044* (3.216)
EARN	-5.507* (1.651)	-3.752*** (2.821)	-6.680* (1.998)
PUB**	-10.265* (1.810)	-11.149* (2.983)	-9.886* (2.283)
UN*	-14.383* (2.321)	-18.109* (4.358)	-12.597* (2.677)
PROFITS*	0.034 (0.255)	0.901** (0.454)	-0.445*** (0.306)
UNION	0.020 (0.055)	-0.139*** (0.107)	0.066 (0.063)
CW	1.490 (1.895)	3.209 (3.215)	0.722 (2.332)
AGE**	0.642* (0.053)	0.877* (0.104)	0.540* (0.062)

TABLE 4.15 (Con't)

<u>VAR</u>	<u>TOTAL</u>	<u>BLACK</u>	<u>WHITE</u>
SEX	-1.554 (1.753)	3.247 (3.067)	-3.734** (2.112)
MAR*	7.434* (1.688)	9.469* (3.059)	6.752* (2.016)
RACE	5.729* (1.493)	- -	- -
N	1744	591	1153
R ² /OLS	.247	.319	.243
WEEKS WORKED		39.48	36.56

F(13,1716) - test of significance of differences in equations 2.218*

* indicates significance at the .01 level

** indicates significance at the .05 level

*** indicates significance at the .10 level

Note: The VAR column is coded to show results of F-test on the significance of differences between variables in the black and white equations. * indicates significant differences at the 10% level or better; while ** indicates insignificance.

blacks. While jobs in the cleaning service jobs are not highly skilled (the most highly skilled, janitorial, requires up to a year of training, while the other two, chambermaids and cleaners, require less than thirty days of training), the insignificance of the SVP variable for blacks indicates that there is no payoff to additional training for blacks in cleaning service occupations. On the other hand, the coefficients of EDUC and SVP indicate that while blacks realize payoffs for marginal increments of education, credentialization is important for whites.

In the options component of the equation, cleaning service workers with children work more than do those without young children. The size of the coefficient for the CHILD variable is nearly twice as large for blacks as it is for whites, and is significantly different. On the other hand, women with young children work less than do others in both the black and the white equations, and here CHSEX has a larger negative sign in the black equation than in the white, but an F-test shows that coefficient differences are not significant. The presence of other earners has the expected negative effect, but the coefficient of EARN is larger for whites than for blacks, again, an effect opposite than we have usually observed. Finally, in terms of options, both black and white cleaning service workers reduce work effort in response to the receipt of public assistance and unemployment insurance income. In both cases, coefficient size is larger for blacks than for whites, although differences in PUB are not significant.

The institutional component of the equation has more measurable effects for blacks than for whites. In all of the equations, CLW is

insignificant, but opposite, significant effects are measured for PROFITS. Black cleaning service workers in high-profit industries work more than do blacks in lower-profit industries, but whites experience the opposite effect, and work less in high-profit industries than they do in lower-profit industries. Although several explanations were considered, and speculation was made about the full- or part-time nature of the respective labor forces, about the size of the working population that is female (which is larger for black cleaning service workers), and about the size of the population represented in the private sector, this writer was unable to explain these opposite effects. UNION had negative coefficient, but was significant only in the equation for blacks. The negative coefficient for UNION suggested that black cleaning service workers who work in unionized industries might not themselves benefit from unionization. This might be especially likely considering the concentration of part-time workers in this occupation. If this occupation is viewed as "secondary" the negative coefficients or insignificance of industry variables makes sense. However, the unexplained positive coefficient for PROFITS in the black equation remains.

The personal characteristics component of the equation yielded no unexpected effects. AGE had a positive coefficient in each of the equations. The coefficient of SEX was significant only in the equation for whites, where it was negative. And the coefficient of MAR was positive in each case but larger for blacks. RACE had a positive coefficient in the overall equation, which is consistent with the observed difference in the number of weeks worked by race. Since

unemployment rates in cleaning service occupations are higher for blacks than for whites, the writer hypothesized that the positive coefficient of RACE might be more reflective of more black labor force participation than of a larger black employment rate. An F-test indicates that the equations for cleaning service workers are significantly different at the 1% level.

Table 4.16 shows the decomposition effects for cleaning service workers. We observe about three more weeks worked for blacks than for

TABLE 4.16
DECOMPOSITION OF DIFFERENCES IN VARIABLES
CLEANING SERVICE WORKERS

<u>VARIABLE</u>	<u>CHARACTERISTIC DIFFERENCES</u>	<u>STRUCTURAL DIFFERENCES</u>
EDUC	-30.986	
HS	5.824	1.016
SUP	18.724	-0.050
EARN	-2.111	0.049
CHSEX	-0.418	-0.405
CHILD6	0.519	-0.501
PUB	0.169	0.317
UN	0.485	1.115
UNION	2.854	-0.308
PROFIT	-2.839	-0.059
CLW	-0.666	-0.021
AGE	-12.944	-0.311
SEX	-2.729	-2.133
MAR	-1.412	-0.240
	<u>-25.532</u>	<u>0.615</u>
		-0.916
CONSTANT	<u> </u>	19.920
TOTAL	-25.532	18.004
ESTIMATED DIFFERENCE		-7.528

whites, and as in previous decompositions, this observed difference is overestimated. All of the estimated difference in weeks worked can be attributed to differences in the characteristics of the variables in the equation. Those factors most favorable are EDUC and AGE (black cleaning service workers have a median age that is about two years more than that of white cleaning service workers). The findings here are consistent with the decompositions for managers and for durable goods operatives. Clearly, while this examination of cleaning service workers clarifies somewhat the different explanations of weeks worked in this occupation, except for the insights we gained from the institutional component of the equation, it does not explain differences in racial differences in unemployment rates.

Protective Service Workers

The detailed occupations in protective service work include both municipal and law enforcement protective service workers, and protective service employees in the private sector. The detailed occupations are listed in Appendix 1. The occupation is primarily male (the sample is 2% female which is about 4% higher than the percentage of women in the occupation). Although most protective service workers have jobs in the public sector, about a third of them work in the private sector. (More black than white protective service workers were employed in the private sector.) White protective service workers worked about four more weeks (46.8 weeks) than did black protective service workers (43 weeks).

Table 4.17 shows the results of estimations for protective service workers. Unlike many of the other equations we have estimated,

TABLE 4.17

DETERMINANTS OF WEEKS WORKED, 1975, - PROTECTIVE SERVICE WORKERS

(Standard errors in parentheses)

<u>VAR</u>	<u>TOTAL</u>	<u>BLACK</u>	<u>WHITE</u>
CONST	-12.410* (13.381)	-64.743* (20.134)	31.023** (17.215)
EDUC	0.627 (0.759)	0.931 (1.130)	0.188 (0.992)
HS	6.251 (5.028)	14.916** (7.503)	3.936 (6.825)
SVP*	11.228* (1.761)	16.393* (2.757)	5.000** (2.299)
CHILD	4.933*** (3.127)	4.156 (4.599)	5.816*** (4.112)
CHSEX	-12.618* (5.325)	-8.259 (6.624)	-21.691* (8.844)
EARN	-4.777*** (2.942)	-2.776 (4.089)	-4.535 (3.995)
PUB*	-12.061* (4.038)	-8.847** (5.219)	-18.313* (6.001)
UN*	-27.409* (3.883)	-16.223* (6.058)	-30.452** (5.016)
PROFITS	0.051 (0.665)	0.086 (0.848)	-0.282 (0.981)
UNION	0.092 (0.124)	0.366** (0.207)	0.008 (0.155)
CW*	6.638** (3.925)	7.482*** (5.093)	10.025** (5.959)
AGE	0.370* (0.115)	0.836* (0.193)	0.038 (0.148)

TABLE 4.17 (Cont'd)

<u>VAR</u>	<u>TOTAL</u>	<u>BLACK</u>	<u>WHITE</u>
SEX	-1.275 (4.104)	4.492 (5.369)	-9.985** (5.982)
MAR	9.391* (3.352)	3.127 (4.703)	14.207* (4.607)
RACE	-1.396 (2.730)	-	-
N	665	264	400
R ² /OLS	.268	.316	.306
WEEKS WORKED		43.0	46.43

F(13,637) - test of significance of differences in equations 10.153*

* indicates significance at the .01 level

** indicates significance at the .05 level

*** indicates significance at the .10 level

Note: The VAR column is coded to show results of F-tests on the significance of differences between variables in the black and white equations. * indicates significant differences at the 10% level or better; while ** indicates insignificance.

the education and skills component of the equation has strong positive coefficients for black protective service workers. While EDUC is insignificant in all of the equations, the HS credential has a positive effect for blacks but not for whites. SVP also has a large positive coefficient for blacks, with coefficient size more than three times that of SVP in the equation for whites. Thus, black protective service workers experience the traditional effects from both the attainment of the HS credential and for the attainment of a more highly skilled job.

In the options component of the equation, EARN is not significant in any of the racial equations, although it is significant in the overall equation. CHILD was positive and significant in the overall equation and for whites, while CHSEX had a large negative sign in the white equation. The presence of young children had no effect on weeks worked for blacks of either sex (although, as mentioned, the proportion of women in the sample is not high). In terms of unearned income, both PUB and UN had the expected negative coefficients, although coefficient size in each case was larger for whites than for blacks. Thus, white protective service workers reacted more strongly to the receipt of unearned income, especially unemployment insurance income, than did black protective service workers.

Because the majority of protective service workers are represented in the public sector, the variables in the institutional component of the equation are measured somewhat incorrectly here. As noted in section 4.2, the UNION variable shows no unionization for the public sector despite the presence of municipal unions. Further, the public

sector is measured has having zero or negative profits, when in fact variations by municipality might influence the wage and employment settlements that municipal workers are able to make with their employers.

In any case, the coefficients of PROFITS are not significant in any of the equations. UNION is significant only for blacks, and has a positive sign, indicating that blacks in more highly unionized industries work more than do those in less-unionized industries. Since fewer black than white protective service workers are in the public sector (the reverse is generally true), this is an interesting result. CLW has the expected positive sign in all of the equations, but has a larger coefficient for whites than for blacks. This is consistent with the fact that more whites work in the public sector than do blacks, and with the fact that black entry into protective service jobs has been fairly recent.

In the personal characteristics component of the equation, AGE has the expected positive sign but is significant only for blacks. SEX is negative but significant only for whites, a result that has previously been observed. Finally, MAR is positive but significant only in the equation for whites.

The most interesting racial differences in the equations for protective service workers are in the education and skills component of the equation. Here, the effects of human capital variables are more strongly measurable for blacks than for whites. Because of differences in the racial composition of the public and private sector, the institutional component of the equation is useful in

explaining racial unemployment differentials in this occupation. An F-test indicates that these equations are significantly different from each other.

The decomposition of these equations is shown in Table 4.18. The entire difference in estimated difference in the number of weeks worked is explainable by differences in the structure of the equation. This suggests that the behavior or treatment of black protective service workers, rather than the characteristics of these workers, is most important in explaining differences in employment. Thus, while

TABLE 4.18
DECOMPOSITION OF DIFFERENCES IN VARIABLES
PROTECTIVE SERVICE WORKERS

<u>VARIABLE</u>	<u>CHARACTERISTIC DIFFERENCES</u>	<u>STRUCTURAL DIFFERENCES</u>
EDUC	-9.924	0.439
HS	-9.113	0.731
SUP	-49.309	8.311
CHSEX	-0.309	0.306
CHIL6	0.551	0.141
EARN	-1.069	-0.094
PUB	-0.615	0.531
UN	-1.323	-0.227
UNION	-2.353	-0.591
PROFIT	-0.422	-0.025
CLW	1.800	4.814
AGE	-32.191	1.287
SEX	-1.303	-0.377
MAR	8.565	0.507
	-97.016	15.752
CONSTANT	_____	95.766
TOTAL	-97.016	111.518
ESTIMATED DIFFERENCE		14.502

differences in the number of black protective service workers in the private sector have been mentioned, a convergence in the racial characteristics of workers is not as important as changes in the structure of the equation would be in moving toward a small racial unemployment differential for protective service workers.

4.5 Summary Notes

Several clear trends regarding explanations for weeks worked emerge from our view of a cross-occupational sample of workers and of workers in eleven occupations:

- (1) Within occupations we observe major differences in sign, size and significance of the coefficients of our explanatory variables, indicating that there seem to be different forces at operation in determining work effort for blacks than for whites. However, especially in the options component of the equation, there was often a similarity in coefficient size and sign.
- (2) The explanatory coefficients look most similar among operatives, especially durable goods operatives. It was hypothesized that here unionization had the effect of homogenizing labor.
- (3) Aggregate estimations tend to capture the overall trends that we may have theorized would be important. For example, while the education and skills component of the equation is not positive in all of the equations, the positive sign of the component in the aggregate equation is consistent with human capital theory. Similarly, while institutional

effects were only sometimes significant, they performed as hypothesized in the overall equation. But despite the value of these aggregate estimations it is clear that aggregate statistics do not yield enough information about unemployment differentials, and that divisions by occupation provide useful additional information.

(4) Summary table 4.4 shows the variations in the signs and significance of explanatory variables in the model that are noted briefly below:

- o The effects of the education and skills component varied considerably by both race and occupation. SVP had a positive effect on weeks worked for both the office machine operators and for protective service workers, but had positive effects only for whites for managers and cleaning service workers. SVP was insignificant in most other cases. While HS was generally either positive or insignificant, it had a negative effect for black managers. There was no pattern in the coefficients of EDUC. It was often insignificant, but in no case did it have the same sign (or significance) by race in an equation.
- o There were some consistent effects in the options component of the equation. The coefficients of PUB and UN were similarly usually negative and variant by occupation and race, in that coefficients were usually larger for blacks. Retrospectively, the writer notes

that since PUB deals with household, not individual, public assistance receipt, some of the negative effects of PUB are attributable to "poverty effects" of the household rather than individual response to unearned income. In terms of the presence of children, since the expectation of coefficients size was not firm, it was not surprising to have observed several results. The coefficient of CHSEX was generally negative, but insignificant in equations for blacks, and smaller in three other cases, indicating that black women do not tend to adjust work effort to accommodate the presence of children. This might be explained by the greater proportion of black female-headed families, by higher labor force participation rates among black married women or by extended family infrastructures in black communities that make child care more available to black women.

- o There were mixed results from the institutional component of the equation. We expected a positive coefficient for PROFITS, but in some cases negative or insignificant coefficients were observed. Also, there were almost always racial differences in the significance of the variable. Positive coefficients for UNION were expected, and observed in the equation for all workers. There were racial differences in sign and significance of the variable for service workers. CLW was not always used in the equations; it was insignificant for office machine

operators and for cleaning service workers, but had the expected sign for managers and protective service workers.

- o The most interesting result in the personal characteristics component of the equation was the coefficient of the SEX variable. In general, SEX had a negative coefficient and was significant only for whites. However, there were exceptions. Black women worked more weeks relative to black men in the office machine operators occupation, and where SEX was significant for both blacks and whites, it had a larger negative significance for blacks. RACE was usually insignificant, but it had a positive coefficient in equations for cleaning service workers and nondurable goods operatives, and a negative coefficient in equations for managers.

- (5) The decompositions shown yield interesting valuable information about the roots of racial unemployment differentials. Structural differences are most important in explaining unemployment differentials in the cross-occupational sample, for protective service workers, and for nondurable goods operatives, and F-tests indicate that these differences are significant. In the other cases, differences in the mean values of variables is most important in explaining variable differences. This writer suggests that direct discrimination exists in those occupations where structural differences are clearly more important, but is less willing to discuss the

magnitude of discrimination that exists when variable values explain differences in weeks worked. (This point is reinforced by the fact that differences in mean variable values may reflect long run differences in long-run, but not immediate, present, discrimination--differential education attainment is a good example of this, or industrial concentration are examples of this.)

- (6) F-tests indicated that there were no significant differences in estimations by race for managers and for durable goods operatives. When coupled with the fact that coefficient, not structural differences were important in a decomposition, there is no evidence of "discrimination" in these occupations. Barriers to entry, however, may be significant factors in these occupations--for durable goods operatives, unionization is a potential barrier; for managers, high educational requirements may have a similar effect.
- (7) The results presented here explain only a portion of racial unemployment differentials. The dependent variable in this analysis is weeks worked, not unemployment; to the extent that the measurement of weeks worked does not measure labor force behavior, this is a partial analysis. A clear extension of this research would focus on those in the labor force who did not work at least one week in the survey year to see if their characteristics were different from those of the employed.

CHAPTER FIVE
SUMMARY AND CONCLUSIONS

This chapter summarizes the results of this research, suggests some areas in which results are important from a policy perspective, and makes recommendations for related research in the area. While each chapter developed its conclusions separately, Section 5.1 highlights those separate conclusions and relates them to each other. Section 5.2 deals with policy recommendations that are the results of this research. Section 5.3 discusses areas in which this research is flawed, and makes suggestions for future research.

5.1 Summary and Conclusions

Chapter One looked at the employment status of blacks from two perspectives: unemployment rates were viewed over time and by age, sex and occupation; and occupational status was viewed over time and by demographic group as well. The Chapter discusses a mixed set of phenomena: while there has been considerable occupational advancement among blacks in the fifteen year period that began in 1960, the unemployment ratio has remained somewhat static. Chapter One makes several suggestions about this dichotomy. In particular, this writer hypothesized that those blacks who had jobs were able to leverage them into better jobs, while those who were not in the labor force were not able to take advantage of the occupational gains being realized by some.

After viewing theoretical explanations of the unemployment differential in Chapter Two, the writer adjusts the unemployment rate for seemingly race-neutral factors such as age, education, industry and occupation in Chapter Three. While distributional factors explain

away some of the unemployment differentials both across occupation and intra-occupationally, a portion of the unemployment differential remains in almost every case. The most potent reduction in the differential comes from the simultaneous adjustment of the occupational and industrial distributions; it explains more than a third of the unemployment differential. Most of the adjustment is due to differences in the male occupational and industrial distribution: the male unemployment differential is reduced by over half, despite the fact that this is a considerable adjustment, the magnitude of the adjustment is not considerably different from an adjustment undertaken by Curtis Gilroy (1973) for the 1960 occupational distribution. Thus, despite occupational advancement, a similar portion of the unemployment differential can be explained by differences in the (male) occupational distribution in both 1960 and 1975.

The intra-occupational adjustments viewed in Chapter Three present mixed results, as well. Generally, adjustments for age and education are most potent at the upper end of the occupational distribution. Adjustments by industry seem to be most potent when industrial arrangements are important in terms of occupational organization. The variations in occupational unemployment rates by industry, as observed in Appendix C, reinforce this point.

While the data did not permit a view of the composition of two-digit occupations (by three-digit jobs), such a view might also have been interesting in adjusting unemployment differential. From the cursory look that we took in Appendix B, we note that blacks seem to be concentrated in lower skilled jobs within occupations as well as

having jobs on the lower end of the occupational distribution so that intro-occupational adjustments by age and education may mask other skill-related adjustments that should perhaps take place.

Chapter Four views intro-occupational differences in explanations of weeks worked by race. There is a pronounced difference by occupation, in the factors that explain weeks worked. Even when we compare the results from estimations of occupations in the same major occupational category (such as protective service workers and cleaning service workers), we find differences in the variables that explain weeks worked. Thus, a major conclusion of Chapter Four is that disaggregation by two-digit occupational levels yields additional information from the one-digit disaggregation. Furthermore, in Chapter Four, we observe significant differences within occupations by race in the factors that explain weeks worked. These differences occur in sign, significance and size of coefficients. Thus, we are concerned with structural differences in the labor markets between blacks and whites.

In a decomposition of the cause of the differences in weeks worked, however, it is noted that structural factors are responsible for the racial unemployment differential for protective service workers and for nondurable goods operatives, while differences in weeks worked among managers and durable goods operatives were attributed to differences in worker characteristics. This split raises interesting questions about the work rules and the characteristics of jobs in those occupations where structural factors are important as opposed to those where characteristics are important.

In the case of durable and nondurable goods workers, it was speculated that the difference between primary and secondary jobs accounted for differences in how to explain the racial unemployment differential. This rationale, however, does not explain the fact that structural factors are most important for protective service workers.

From Chapter Four we also note one of the major flaws of this research. Weeks worked, our dependent variable, is not the most effective proxy for the magnitude of unemployment. Because of the organization of the data source, it removes from the sample those workers who are in the labor force but worked no weeks. While this number is not huge, it is four times as large for blacks as it is for whites. Furthermore, by choosing weeks worked as the dependent variable, those workers who have not worked in the survey year are ignored (these may be discouraged workers or those who were in the labor force but did not work in the survey year). Further, because our data is cross-sectional, the question of long-term employment (i.e. of a duration of more than one year) is not addressed. Because of the organization of our data set, we are not even able to suggest the magnitude of this population.

5.2 Policy Recommendations

The issues that are discussed in this research can be decomposed into a two-stage problem. Firstly, the writer is interested in the disparities between the races in the occupational distribution. Secondly, this researcher focuses on intra-occupational differences between the races. The mixed picture that we got from the

institutional component of the equation (with often opposite signs for PROFITS and UNION among blacks) raises questions about the nature of the demand side of the market. Some attention needs to be directed to the dissolution of institutional barriers in the labor market. The differences in explanatory variables in the case of durable and nondurable goods operatives reinforces this point, as does the fact that blacks who work in the public sector in some occupations tend to work more weeks than those in the private sector. (Does this reinforce the notion of the government as a more secure employer or does it suggest some differences in the way that black employees are treated in the public sector as opposed to the private sector)?

The positive coefficient of the AGE variable confirms the fact that a large portion of the high black unemployment rates that are observed is due to the high rates experienced by young people. However, the persistence of differentials for older workers, as shown in Chapter One, remains unexplained. Further, if the hypothesis that blacks who are in the labor force get better at holding and keeping jobs, then there must be a concern with those who are intermittently in the labor force or who drop out of the labor force. (In Chapter Three it is noted that about four times more blacks than whites were in the labor force but worked no weeks in the survey year.)

Variables that measure education are only occasionally important in explaining the variations in weeks worked. In fact, a negative coefficient is often measured for education. While this writer does not wish to minimize the importance of equalizing educational attainment, this research suggests that the linkage between education

and employment is not at all firm. Differences in the number of weeks worked could be eradicated, in some occupations, by narrowing gaps in educational profiles; in other cases a focus on other forces in the model, especially institutional forces, could prove to be just as effective in removing differences in work effort.

The interrelationship of these issues is illustrated by a relationship that we uncovered in Chapter Three: despite major changes in the occupational distribution, at least a third of the unemployment differential can still be explained by differences in that distribution.

Several conclusions and policy recommendations regarding the closing of the gaps at either stage of the problem flow from this research. They are detailed below:

- The projections in Chapter One regarding what the occupational distribution will look like in the 1980s given the 1972-77 growth conditions indicate that if parity in occupational attainment is a desired goal, then its fulfillment is best obtained by a vigorous policy of altering the distribution. The interpretation of "vigorous policy" includes (but is not limited to) affirmative action efforts.
- If differences in decomposition measures are heeded, then it is clear that there are at least two strategies for eradicating gaps in the weeks worked portion of unemployment differentials that can be explained by weeks worked. In some occupations, the narrowing of gaps in worker characteristics will be effective in reducing unemployment differentials. In others, however,

attention to market forces (and structural factors) is more important. It is critical strategy to match occupation when an effort is made to minimize unemployment differentials.

- For women, a reduction in work effort in response to the presence of children under six is often observed. Because of the peculiarities of the data set, we were unable to measure the extent to which this reduction is voluntary. However, if there is a concern with the disproportionately high unemployment rates that women experience and an involuntary reduction in work effort is the result of the presence of young children, then attention to day-care delivery systems is necessary.

5.3 Improvements to and Extensions of This Research

That the writer considered the use of weeks worked as a proxy for unemployment was the primary flaw of this research. However, there are other drawbacks to our approach that should be noted here. One flaw of this research is our inability to measure the magnitude of discrimination intra-occupationally. The discussions in Chapters One and Three indicate that we might like to attempt such a measure; but the estimations presented in Chapter Four are not conclusive to measuring "discrimination" per se. However, to the extent that we can decompose the effects of different characteristics and structural differences in the equations in Chapter Four, we begin to suggest the upper bounds that a discrimination measure might take. Since in the overall cross-occupational equation about two-thirds of differences can be attributed to differences in characteristics, discrimination can account for, at most, a third of the difference in weeks worked.

There are clear unanswered questions that are generated from this research. The listing below suggests areas that need to be investigated further:

- What does an estimation of the model look like for the occupations not viewed here? Since it has been concluded that it is useful to look at the two-digit occupations in detail, it is likely that the results here would be supplemented by estimations of the other occupations.
- While we cannot comment on the occupations not viewed here, there is a particular interest in the "other . . ." occupations that have the most heterogeneity by skill. Will adjustments by three-digit occupation reduce unemployment rates?
- What are the characteristics of those workers who were in the labor force but worked no weeks? How important are these workers in measuring the magnitude of unemployment differentials?
- What are the characteristics of the long-term unemployed? Why were they out of the labor force for more than one year, or why have they dropped out of the labor force? Again, how does information about these people contribute to an understanding of differences in the unemployment experience by race?
- Have racial changes in the occupational distribution been accompanied by different types of discrimination? (i.e. intra-occupations discrimination instead of the occupation segregation that was so important in the past). Further, how do we explain the fact that about half of the unemployment differential can still be explained by distributional differences by occupation?

- What are the precise measures of differences in the occupational distribution at the three-digit level? Would such differences account for more of the difference in unemployment differentials? This question is asked with considerable caution. A case could be made, of course, for perfect standardization--by detailed occupation, and detailed industry and years in the labor force, and so on. The temptation, then, would be to measure differences in weeks worked as differences attributable to discrimination. However, disaggregation at too narrow a level might obscure from factors, such as normal mobility, that are important in explaining the employment experience.

As underlying theme of this research is the development of explanations for gaps in outcomes (such as weeks worked and unemployment) as the educational and occupational profiles of the black population converge with those of whites. In similar research using 1960 data, Gilroy (1973) was able to conclude that differences in human capital investment were a major explanatory factor in the existence of unemployment differentials. After noting convergences in both education and occupation and reviewing some intra-occupational explanations of unemployment differentials, this researcher concludes that while educational differences are not insignificant in explaining unemployment differentials, the persistence of institutional barriers for blacks also explains a major part of the unemployment differential. Also, while we cannot explain the nearly-constant size of the explanatory power of the occupational distribution despite major

occupational advances by blacks in the recent years, we speculate that the types of jobs that blacks partially hold within occupational categories explained this.

APPENDIX A

DETAILS OF THE OCCUPATIONAL CLASSIFICATION SYSTEM

This appendix details the two and three digit occupations in the Census occupational classification and, through three measures, gives an idea of the level of skill required for employment in each of the occupations. This data was compiled by researchers at the Social Welfare Regional Research Institute (Ware, 1976) and based on an earlier paper (Temme, 1975).

Specific Vocational Preparation (SVP) is an ordinal measure of the amount of time needed to learn how to perform a certain job at an average level. As the Dictionary of Occupational Titles explains:

This training may be acquired in a school, work, military, institutional, or avocational environment. It does not include orientation training required of even every fully qualified worker to become accustomed to the special conditions of any new job. Specific vocational training includes training given in any of the following circumstances:

- a) Vocational education (such as high school commercial or shop training, technical school, art school, and that part of college training which is organized around a specific vocational objective);
- b) Apprenticetraining (for apprenticeable jobs only)
- c) In-plant training (given by an employer in the form of organized classroom study);
- d) On-the-job training (serving as learner or trainee on the job under the instruction of a qualified worker);
- e) Essential experience on other jobs (serving in less responsible jobs which lead to the higher grade job or serving in others jobs which qualify).

Table A.1 shows an explanation of the various levels of specific vocational preparation. One of the problems in using SVP as an independent variable in a regression technique is that the mobility from

level to level represents different time increments. Thus the discussion of a marginal unit of SVP can be interpreted as a small training increment at one end of the spectrum, but as a substantial one at the other end.

Table A.2 explains levels of general educational development. The measure that appears in the list of occupation is a composite of the reasoning, mathematical and language development scores. Table A.3 is Bluestone's (1974) measure of occupation level (OL) that includes both GED and SVP.

The remainder of this appendix lists one, two and three digit occupations and the OL, GED and SVP that correspond to the three digit occupations. As mentioned several times in the text, some of the variance in skill level at both the one- and two-digit level are clear from an examination of these tables.

TABLE A.1
SPECIFIC VOCATIONAL PREPARATION

Level	Time
1	Short demonstration only
2	Anything beyond short demonstration up to and including 30 days
3	Over 30 days up to and including 3 months
4	Over 3 months up to and including 6 months
5	Over 6 months up to and including 1 year
6	Over 1 year up to and including 2 years
7	Over 2 years up to and including 4 years
8	Over 4 years up to and including 10 years
9	Over 10 years

TABLE A.2

GENERAL EDUCATIONAL DEVELOPMENT

<u>Level</u>	<u>Reasoning Development</u>	<u>Mathematical Development</u>	<u>Language Development</u>
6	Apply principles of logical or scientific thinking to a wide range of intellectual and practical problems. Deal with nonverbal symbolism (formulas, scientific equations, graphs, musical notes, etc.) in its most difficult phases. Deal with a variety of abstract and concrete variables. Apprehend the most abstruse classes of concepts.	Apply knowledge of advanced mathematical and statistical techniques such as differential and integral calculus, factor analysis, and probability determination, or work with a wide variety of theoretical mathematical concepts and make original applications of mathematical procedures, as in empirical and differential equations.	Comprehension and expression of a level to <ul style="list-style-type: none"> - Report, write, or edit articles for such publications as newspapers, magazines, and technical or scientific journals. Prepare and draw up deeds, leases, wills, mortgages, and contracts. - Prepare and deliver lectures on politics, economics, education, or science. - Interview, counsel, or advise such people as students, clients, or patients, in such matters as welfare eligibility, vocational rehabilitation, mental hygiene, or marital relations. - Evaluate engineering technical data to design buildings and bridges.
5	Apply principles of logical or scientific thinking to define problems, collect data, establish facts, and draw valid conclusions. Interpret an extensive variety of technical instructions, in books, manuals, and mathematical or diagrammatic form. Deal with several abstract and concrete variables.	Perform ordinary arithmetic, algebraic, and geometric procedures in standard, practical applications.	Comprehension and expression of a level to <ul style="list-style-type: none"> - Transcribe dictation, make appointments for executive and handle his personal mail, interview and screen people wishing to speak to him, and write routine correspondence on own initiative. - Interview job applicants to determine work best suited for their abilities and experience, and contact employers to interest them in services of agency. - Interpret technical manuals as well as drawings and specifications, such as layouts, blueprints, and schematics.
4	Apply principles of rational systems to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists. Interpret a variety of instructions furnished in written, oral, diagrammatic, or schedule form.	Make arithmetic calculations involving fractions, decimals and percentages.	Comprehension and expression of a level to <ul style="list-style-type: none"> - File, post and mail such material as forms, checks, receipts, and bills. - Copy data from one record to another, fill in report forms, and type all work from rough draft or corrected copy. - Interview members of household to obtain such information as age, occupation, and number of children, to be used as data for surveys, or economic studies. - Guide people on tours through historical or public buildings, describing such features as size, value, and points of interest.
3	Apply common sense understanding to carry out instructions furnished in written, oral or diagrammatic form. Deal with problems involving several concrete variables in or from standardized situations.	Use arithmetic to add, subtract, multiply, and divide whole numbers.	Comprehension and expression of a level to <ul style="list-style-type: none"> - Learn job duties from oral instructions or demonstration. - Write identifying information, such as name and address of customer, weight, number, or type of product, on tags, or slips. - Request orally, or in writing, such supplies as linen, soap, or work materials.
2	Apply common sense understanding to carry out detailed but uninvolved written or oral instructions. Deal with problems involving a few concrete variables in or from standardized situations.	Perform simple addition and subtraction, reading and copying of figures, or counting and recording.	
1	Apply common sense understanding to carry out simple one- or two-step instructions. Deal with occasional or no variables in or from these situations encountered on the job.		

TABLE A.3

"OCCUPATION LEVELS" BASED ON GED AND SVP SCORES

<u>Occupation Level</u>	<u>GED Range</u>	<u>SVP Range</u>
1	1.5-2.4	1.8-2.4
2	1.5-2.4	2.5-3.4
3	1.5-2.4	3.5-4.8
4	2.5-3.4	2.0-2.4
5	2.5-3.4	2.5-3.4
6	2.5-3.4	3.5-4.4
7	2.5-3.4	4.5-5.4
8	2.5-3.4	5.5-6.4
9	2.5-3.4	6.5-8.0
10	3.5-4.4	3.0-4.4
11	3.5-4.4	4.5-5.4
12	3.5-4.4	5.5-6.4
13	3.5-4.4	6.5-7.4
14	3.5-4.4	7.5-8.0
15	4.5-5.4	6.0-7.4
16	4.5-5.4	7.5-8.0
17	5.5-6.0	7.0-8.2

Source: Bluestone (1974)

DETAILS OF THE OCCUPATIONAL CLASSIFICATION SYSTEM

		<u>SL</u>	<u>GED</u>	<u>SVP</u>
<u>Professional, Technical and Kindred Workers</u>				
01 Engineers	006 Aeronautical and astronautical engineers	17	5.56	7.84
	010 Chemical engineers	17	5.70	7.77
	011 Civil engineers	16	4.97	7.85
	012 Electrical and electronic engineers	17	5.67	7.82
	013 Industrial engineers	15	5.21	7.34
	014 Mechanical engineers	17	5.64	7.79
	015 Metallurgical and materials engineers	17	5.67	7.67
	020 Mining engineers	16	5.33	8.00
	021 Petroleum engineers	16	5.38	7.88
	022 Sales engineers	15	4.94	7.02
	023 Engineers, n.e.c.	16	5.47	7.64
02 Physicians, Dentists, and Related Practitioners				
	061 Chiropractors	15	5.00	7.00
	062 Dentists	17	5.93	7.93
	063 Optometrists	15	5.00	7.00
	064 Pharmacists	15	4.93	7.03
	065 Physicians, medical and osteopathic	17	5.92	7.93
	071 Podiatrists	15	4.88	7.00
	072 Veterinarians	16	5.13	7.67
	073 Health practitioners, n.e.c.	15	5.00	7.00
03 Health workers, Except Practitioners				
	074 Dieticians	13	4.00	6.85

		<u>SL</u>	<u>GED</u>	<u>SVP</u>
075	Registered nurses	13	4.19	6.91
076	Therapists	13	4.28	6.56
080	Clinical laboratory technologists and technicians	12	4.47	5.63
081	Dental hygienists	12	4.00	6.17
082	Health record technologists and technicians	12	4.41	6.32
083	Radiologic technologists and technicians	12	4.03	5.71
084	Therapy assistants	7	3.00	5.00
085	Health technologists and technicians, n.e.c.	12	4.04	5.79
04 Teachers, Except College				
141	Adult education teachers	15	4.85	6.97
142	Elementary school teachers	15	4.99	6.14
143	Prekindergarten and kindergarten teachers	12	4.40	5.85
144	Secondary school teachers	15	4.99	6.96
145	Teachers, except college and university, n.e.c.	15	4.93	7.28
05 Engineering and Science Technicians				
150	Agriculture and biological technicians, except health	11	3.99	4.97
151	Chemical technicians	12	4.15	5.88
152	Draftsmen	15	4.85	7.06
153	Electrical and electronic engineering technicians	13	4.46	6.79
154	Industrial engineering technicians	12	4.01	5.61
155	Mechanical engineering technicians	12	4.39	5.99
156	Mathematical technicians	15	5.00	7.00

		<u>SL</u>	<u>GED</u>	<u>SVP</u>
	161 Surveyors	15	4.80	6.64
	162 Engineering and science technicians, n.e.c.	12	4.33	5.93
Other Professionals				
	001 Accountants	15	4.76	7.29
	002 Architects	17	5.79	7.88
06 Salaried	003 Computer programmers	15	5.10	7.04
	004 Computer systems analysts	15	5.29	7.10
07 Self-employed				
	005 Computer specialists, n.e.c.	17	5.48	7.23
	024 Farm management advisors	15	5.00	6.88
	025 Foresters and conservationists	12	4.03	5.50
	026 Home management advisors	15	4.60	6.18
	030 Judges	17	6.00	8.20
	031 Lawyers	17	5.92	7.92
	032 Librarians	15	4.88	6.39
	033 Archivists and curators	15	4.73	6.98
	034 Actuaries	15	5.00	7.14
	035 Mathematicians	17	5.83	7.68
	036 Statisticians	15	5.07	6.86
	042 Agricultural scientists	15	4.91	6.72
	043 Atmospheric and space scientists	15	5.00	6.69
	044 Biological scientists	17	5.67	7.62
	045 Chemists	17	5.75	7.79
	051 Geologists	17	6.00	8.00
	052 Marine scientists	17	6.00	8.00

	<u>SL</u>	<u>GED</u>	<u>SVP</u>
Other Professionals (Cont'd.)			
053 Physicists and astronomers	17	6.00	8.00
054 Life and physical scientists, n.e.c.	17	6.00	7.00
055 Operations and systems researchers and analysts	15	4.96	6.84
056 Personnel and labor relations workers	15	4.86	6.61
086 Clergymen	17	5.97	7.97
090 Religious workers, n.e.c.	16	5.39	7.67
091 Economists	15	5.25	6.88
092 Political scientists	15	5.06	6.43
093 Psychologists	17	5.88	7.85
094 Sociologists	17	6.00	8.00
095 Urban and regional planners	16	5.19	7.79
096 Social scientists, n.e.c.	17	5.57	7.14
100 Social workers	15	5.25	6.96
101 Recreation workers	15	5.25	7.28
102 Agriculture teachers*	17	6.00	8.00
103 Atmospheric, earth, marine, and space teachers*	17	6.00	8.00
104 Biology teachers*	17	6.00	8.00
105 Chemistry teachers*	17	6.00	8.00
110 Physics teachers*	17	6.00	8.00
111 Engineering teachers*	17	5.95	8.00
112 Mathematics teachers*	17	5.95	7.95
113 Health specialties teachers*	17	5.66	7.62
114 Psychology teachers*	17	6.00	8.00

* college and university

		<u>SL</u>	<u>GED</u>	<u>SVP</u>
Other Professionals (Cont'd.)				
115	Business and commerce teachers*	17	6.00	8.00
116	Economics teachers*	17	6.00	8.00
120	History teachers*	17	5.84	7.84
121	Sociology teachers*	17	6.00	8.00
122	Social science teachers, n.e.c.*	17	6.00	8.00
123	Art, drama, and music teachers*	16	5.48	7.92
124	Coaches and physical education teachers*	17	5.53	7.86
125	Education teachers*	17	5.91	7.91
126	English teachers*	17	5.67	7.72
130	Foreign language teachers*	17	5.64	7.64
131	Home economics teachers*	17	5.65	7.65
132	Law teachers*	17	6.00	8.00
134	Trade, industrial, and technical teachers*	13	4.43	7.22
135	Miscellaneous teachers*	17	5.95	7.95
140	Teachers, subject not specified*	17	5.59	7.62
163	Airplane pilots	15	4.91	6.17
164	Air traffic ontrollers	14	4.01	7.59
165	Embalmers	15	4.68	7.00
170	Flight engineers	13	4.00	7.00
171	Radio operators	7	3.47	4.93
172	Tool programmers, numerical control	15	4.63	6.63
173	Technicians, n.e.c.	11	4.00	5.27
174	Vocational and educational counselors	15	5.12	7.06

* college and university

Other professionals (Cont'd)	<u>SL</u>	<u>GED</u>	<u>SVP</u>
175 Actors	15	4.62	6.42
180 Athletes and kindred workers	12	3.74	6.20
181 Authors	17	5.63	7.63
182 Dancers	13	3.77	6.53
183 Designers	15	4.81	7.07
184 Editors and reporters	15	5.39	7.37
185 Musicians and composers	16	4.91	7.86
190 Painters and sculptors	15	4.70	7.21
191 Photographers	13	3.93	6.74
192 Public relations men and publicity writers	15	5.00	6.98
193 Radio and television announcers	15	4.98	5.58
194 Writers, artists, and entertainers, n.e.c.	15	4.69	6.61
195 Research workers, not specified	15	5.11	7.01

Managers and Administrators, Except Farm

08 Salaried - manufacturing (Industry 107-398)

09 Salaried - other industries (Industry 017-077,407-937)

10 Self-employed - retail trade (Industry 607-698)

11 Self-employed - other industries (Industry 017-479, 707-937)

201 Assessors, controllers, and treasurers; local public administration	15	4.93	6.97
202 Bank officers and financial managers	16	5.06	7.81
203 Buyers and shippers, farm products	15	4.80	7.02
205 Buyers, wholesale and retail trade	13	4.43	6.61
210 Credit men	16	4.93	7.78
211 Funeral directors	15	4.86	6.82

Managers and Administrators, Except Farm (Cont'd.)		<u>SL</u>	<u>GED</u>	<u>SVP</u>
212	Health administrators	16	4.96	7.58
213	Construction inspectors, public administration	15	4.76	6.25
214	Inspectors, except construction, public administration	12	4.00	5.67
215	Federal	12	4.12	6.00
216	Managers and superintendents, building	12	3.82	6.39
220	Office managers, n.e.c.	16	4.89	7.78
221	Officers, pilots, and pursers; ship	13	3.95	6.77
222	Officials and administrators; public administration, n.e.c.	15	4.75	6.92
223	Officials of lodges, societies, and unions	16	5.07	7.70
224	Postmasters and mail superintendents	13	4.04	6.94
225	Purchasing agents and buyers, n.e.c.	13	4.08	6.74
226	Railroad conductors	13	3.81	6.56
230	Restaurant, cafeteria, and bar managers	12	3.97	5.99
231	Sales managers and department heads, retail trade	13	4.26	6.59
233	Sales managers, except retail trade	16	5.00	7.70
235	School administrators, college	16	5.28	7.67
240	School administrators, elementary and secondary	17	5.75	7.93
245	Managers and administrators, n.e.c.			
	- Private wage and salary workers	15	4.67	7.27
	- Government workers (Federal)	13	4.06	6.62
	- Government workers (State)	11	3.92	5.38
	- Government workers (Local)	11	3.78	5.27

<u>Sales Workers</u>		<u>SL</u>	<u>GED</u>	<u>SVP</u>
12 Retail trade (Industry 607-698)				
13 Other Industries (Industry 017-479, 707-937)				
260 Advertising agents and salesmen	12	4.42	6.19	
261 Auctioneers	8	3.00	6.00	
262 Demonstrators	6	3.28	3.71	
264 Hucksters and peddlers	5	3.21	3.43	
265 Insurance agents, brokers, and underwriters	12	4.21	6.18	
266 Newsboys	4	2.99	2.09	
270 Real estate agents and brokers	12	3.95	5.82	
271 Stock and bond salesmen	15	5.26	6.81	
281 Sales representatives, manufacturing industries	11	3.84	5.05	
282 Sales representatives, wholesale trade	11	3.81	4.97	
283 Sales clerks, retail trade	6	3.14	3.59	
284 Salesmen, retail trade	11	3.74	4.67	
285 Salesmen of services and construction	11	3.63	4.51	
<u>Clerical Workers</u>				
14 Bookkeepers 305 Bookkeepers	11	3.98	5.01	
15 Office Machine Operators				
341 Bookkeeping and billing machine operators	6	3.40	4.34	
342 Calculating machine operators	5	3.00	3.06	
343 Computer and peripheral equipment operators	12	4.11	6.87	
344 Duplicating machine operators	2	2.49	2.87	
345 Key punch operators	7	3.33	4.60	

		<u>SL</u>	<u>GED</u>	<u>SVP</u>
350	Tabulating machine operators	6	2.86	4.05
355	Office machine operators, n.e.c.	6	2.97	3.99
16 Stenographers, typists and secretaries				
370	Secretaries, legal	12	3.99	5.99
371	Secretaries, medical	12	3.95	5.81
372	Secretaries, n.e.c.	12	4.00	5.98
376	Stenographers	6	3.00	4.40
391	Typists	6	3.05	3.78
17 Other clerical workers				
301	Bank tellers	11	3.98	5.04
303	Billing clerks	6	3.11	3.96
310	Cashiers	4	3.11	2.44
311	Clerical assistants, social welfare	5	3.00	3.00
312	Clerical supervisors, n.e.c.	13	4.36	6.73
313	Collectors, bill and account	5	3.19	3.39
314	Counter clerks, except food	6	3.09	3.84
315	Dispatchers and starters, vehicle	7	3.42	4.74
320	Enumerators and interviewers	10	3.50	4.25
321	Estimators and investigators, n.e.c.	11	4.13	5.49
323	Expeditors and production controllers	11	3.86	5.04
325	File clerks	6	3.17	3.48
326	Insurance adjusters, examiners, and investigators	16	4.77	7.62
330	Library attendants and assistants	10	3.91	4.29
331	Mail carriers, post office	5	3.01	2.94
332	Mail handlers, except post office	5	3.00	2.85

17 Other Clerical Workers (Cont'd.)		<u>SL</u>	<u>GED</u>	<u>SVP</u>
333	Messengers and office boys	1	2.14	2.27
334	Meter readers, utilities	6	3.00	4.00
360	Payroll and timekeeping clerks	11	3.73	4.58
361	Postal clerks	10	3.68	3.81
362	Proofreaders	6	3.11	4.26
363	Real estate appraisers	15	5.00	7.00
364	Receptionists	7	3.14	4.97
374	Shipping and receiving clerks	6	3.02	3.62
375	Statistical clerks	6	3.42	4.22
381	Stock clerks and storekeepers	6	3.00	4.00
382	Teacher aides, exc. school monitors	10	3.66	3.58
383	Telegraph messengers	0	0.00	0.00
384	Telegraph operators	10	3.50	4.17
385	Telephone operators	5	3.12	3.31
390	Ticket, station and express agents	11	3.79	4.94
392	Weighers	1	2.00	2.44
394	Miscellaneous clerical workers	6*	3.44	3.59
395	Not specified clerical workers	6*	3.44	3.59
18 Carpenters	415 Carpenters	14	3.87	7.61
19 Other Construction Craftsmen				
	416 Carpenter apprentices	13	3.87	6.61
	410 Brickmasons and stonemasons	9	3.08	7.67
	411 Brickmasons and stonemasons, apprentices	9	3.00	8.00
	412 Bulldozer operators	7	2.95	4.79

* When industry - specified, the OL Ranges from 5-10; 10 was FIRE, Professional and related services, and Public Administrators, SVP is generally higher, while GED is similar.

	<u>SL</u>	<u>GED</u>	<u>SVP</u>
19 Other Construction Craftsmen (Cont'd.)			
421 Cement and concrete finishers	8	2.95	5.84
430 Electricians	13	3.96	6.95
431 Electrician apprentices	13	4.00	7.03
436 Excavating, grading, and road machine operators, exc. bulldozer	7	2.96	4.88
440 Floor layers, exc. tile setters	8	3.00	6.00
510 Painters, construction and maintenance	9	3.02	6.72
511 Painter apprentices	9	3.00	7.00
512 Paperhangers	9	3.29	7.09
520 Plasterers	9	3.18	5.74
521 Plasterer apprentices	9	3.00	7.00
522 Plumbers and pipe fitters	13	3.91	7.28
523 Plumber and pipe fitter apprentices	13	4.00	7.33
534 Roofers and slaters	9	3.04	7.00
550 Structural metal craftsmen	9	3.20	6.53
560 Tile setters	9	3.17	6.87
20 Foremen (n.e.c.)			
441 Foremen, n.e.c.*	13	4.14	7.16
21 Machinists and job setters			
454 Job and die setters, metal	12	3.89	6.26
461 Machinists	13	3.95	6.97
462 Machinist apprentices	13	3.90	6.61
22 Metal craftsmen, except machines and machinists and job setters			
403 Blacksmiths	13	3.76	6.76
404 Boilermakers	13	3.85	6.86

* Broken down by industry, all have OL=13 except metal industries non-electrical machinery, which are 14 due to slightly more SVP (7.75)

22 Metal craftsmen, except machines and machinists and job setters (Cont'd.)	<u>SL</u>	<u>GED</u>	<u>SVP</u>
442 Forgemen and hammermen	8	3.14	5.59
446 Heat treaters, annealers, and temperers	7	2.99	4.45
502 Millwrights	13	3.98	6.98
503 Molders, metal	12	3.49	5.75
504 Molder apprentices	8	3.00	6.48
514 Pattern and model makers, except paper	13	3.81	6.76
533 Rollers and finishers, metal	3	2.38	3.91
535 Sheetmetal workers and tinsmiths	13	3.92	6.85
536 Sheetmetal apprentices	13	4.00	7.00
540 Shipfitters	14	3.99	7.73
561 Tool and die makers	13	3.96	6.95
562 Tool and die maker apprentices	13	4.00	7.00
23 Mechanics, Auto			
472 Automobile body repairmen	9	3.13	6.81
473 Automobile mechanics	13	3.79	6.66
474 Automobile mechanic apprentices	13	4.00	7.00
24 Mechanics, Except Auto			
470 Air conditioning, heating, and refrigeration	13	3.85	7.27
471 Aircraft	13	3.94	6.92
475 Data processing machine repairmen	13	4.32	7.05
480 Farm implement	13	3.97	5.91
481 Heavy equipment mechanics, including diesel	13	3.85	6.61
482 Household appliance and accessory installers and mechanics	12	3.57	5.66

24 Mechanics, Except Auto (Cont'd.)

	<u>SL</u>	<u>GED</u>	<u>SVP</u>
483 Loom fixers	13	4.00	7.40
484 Office machine	13	4.15	6.82
485 Radio and television	13	3.98	6.83
486 Railroad and car shop	13	3.81	6.62
491 Mechanic, except auto, apprentices	12	3.47	6.19
492 Miscellaneous mechanics and repairmen	12	3.63	5.95
495 Not specified mechanics and repairmen	12	3.68	6.44

25 All Other Craftsmen

401 Automobile accessories installers	8	3.40	6.40
402 Bakers	9	3.12	6.50
405 Bookbinders	8	2.78	5.48
413 Cabinetmakers	12	3.81	5.89
420 Carpet installers	9	2.98	6.60
422 Compositors and typesetters	13	3.84	6.79
423 Printing trades apprentices, except pressmen	12	3.65	5.94
424 Cranemen, derrickmen, and hoistmen	7	2.84	4.56
425 Decorators and window dressers	15	4.63	6.54
426 Dental laboratory technicians	14	4.05	7.57
433 Electric power linemen and cablemen	13	3.84	6.86
434 Electrotypers and stereotypers	9	3.38	6.86
435 Engravers, except photoengravers	8	3.00	6.30
443 Furniture and wood finishers	12	3.58	5.70
444 Furriers	14	4.00	8.00
445 Glaziers	8	3.06	6.33

25 All Other Craftsmen (Cont'd.)

	<u>SL</u>	<u>GED</u>	<u>SVP</u>
450 Inspectors, scalers, and graders; log and lumber	6	2.88	3.76
452 Inspectors, n.e.c.			
- Construction	13	4.19	6.95
- Railroad and Railway Express	11	3.60	4.96
- Other	7	3.40	5.42
453 Jewelers and watchmakers	14	4.00	7.65
455 Locomotive engineers	13	4.03	6.95
456 Locomotive firemen	13	4.00	7.00
501 Millers; grain flour, and feed	7	2.96	5.13
505 Motion picture projectionists	12	3.89	6.11
506 Opticians, and lens grinders and polishers	8	3.14	5.54
515 Photoengravers and lithographers	13	3.58	7.28
516 Piano and organ tuners and repairmen	12	4.00	6.00
525 Power station operators	13	3.92	6.91
530 Pressmen and plate printers, printing	12	3.73	6.38
531 Pressman apprentices	7	3.32	5.30
542 Shoe repairmen	9	3.09	7.00
543 Sign painters and letterers	13	4.00	6.88
545 Stationary engineers	12	3.75	6.27
546 Stone cutter and stone carvers	7	2.95	4.53
551 Tailors	8	3.27	5.62
552 Telephone installers and repairmen	12	3.60	5.95
554 Telephone linemen and splicers	13	3.83	6.80
563 Upholsterers	7	2.85	4.67

25 All Other Craftsmen (Cont'd.)	<u>SL</u>	<u>GED</u>	<u>SVP</u>
571 Specified craft apprentices, n.e.c.	0	0.00	0.00
572 Not specified apprentices	0	0.00	0.00
575 Craftsmen and kindred workers, n.e.c.	7	3.10	4.95

Operatives, Except Transport

26 Mining (Industry 047-057)

27 Motor Vehicles and Equipment Manufacturing (Industry 219)

28 Other Durable Goods Manufacturing (Industry 107-209, 227-259)

29 Nondurable Goods Manufacturing (Industry 268-398)

30 All Other Industries (Industries 017-028, 067-077, 407-937)

601 Asbestos and insulation workers	7	3.00	4.96
602 Assemblers	2	2.42	3.24
603 Blasters and powdermen	13	3.85	6.12
604 Bottling and canning operatives	1	1.93	2.00
605 Chainmen, rodmen, and axmen; surveying	6	2.93	4.04
610 Checkers, examiners, and inspectors, manufacturing	6	2.87	3.95
611 Clothing ironers and pressers	5	2.62	3.34
612 Cutting operatives, n.e.c.	6	2.58	3.58
613 Dressmakers and seamstresses, except factory	8	3.12	5.51
614 Drillers, earth	7	2.89	4.90
615 Dry Wall installers and lathers	11	3.63	4.49
620 Dyers	6	2.57	3.57
621 Filers, polishers, sanders, and buffers	3	2.28	3.51
622 Furnacemen, smeltermen, and pourers	6	2.49	4.00
623 Garage workers and gas station attendants	5	2.92	3.15

Operatives, Except Transport (Cont'd)		<u>SL</u>	<u>GED</u>	<u>SVP</u>
624	Graders and sorters, manufacturing	2	1.86	2.69
625	Produce graders and packers, except factory and farm	1	1.94	2.15
626	Heaters, metal	12	3.50	6.00
630	Laundry and dry cleaning operatives, n.e.c.	2	1.92	2.55
631	Meat cutters and butchers, except manufacturing	8	3.27	5.90
633	Meat cutters and butchers, manufacturing	7	2.54	4.58
634	Meat wrappers, retail trade	1	2.04	2.14
635	Metal platers	7	3.27	5.32
636	Milliners	8	3.00	6.00
640	Mine operatives, n.e.c.	6	2.60	3.90
	- Coal mining	6	2.83	4.12
	- Crude petroleum & gas extraction	6	2.60	4.29
	- Nonmetallic mining and quarrying, except fuel	2	2.23	2.95
641	Mixing operatives	6	2.48	3.47
642	Oilers and greasers, except auto	2	2.07	3.14
643	Packers and wrappters, except meat and produce	1	2.06	2.19
644	Painters, manufactured articles	7	2.78	4.74
645	Photographic process workers	7	3.13	5.06
640	Drill press operatives	6	3.03	4.06
651	Grinding machine operatives	6	2.81	4.44
652	Lathe and milling machine operatives	6	2.60	3.79
653	Precision machine operatives, n.e.c.	7	3.20	4.71
656	Punch and stamping press operatives	7	2.87	4.77

Operatives, Except Transport (Cont'd.)		<u>SL</u>	<u>GED</u>	<u>SVP</u>
660	Riveters and fasteners	2	2.35	2.91
661	Sailors and deckhands	7	2.55	4.60
662	Sawyers	6	2.69	4.34
663	Sewers and stitchers	6	2.68	4.03
664	Shoemaking machine operatives	2	1.91	2.91
665	Solderers	8	2.46	6.22
666	Stationary firemen	7	3.11	5.19
670	Carding, lapping, and combing operatives	6	2.52	3.45
671	Knitters, loopers, and toppers	3	2.43	3.86
672	Spinners, twistors, and winders	2	2.08	2.86
673	Weavers	7	2.94	4.71
674	Textile operatives, n.e.c.	2	2.33	3.28
680	Welders and flame-cutters	7	2.90	5.19
681	Winding operatives, n.e.c.	6	2.54	3.69
690	Machine operatives, miscellaneous specified	6	2.57	3.86
692	Machine operatives, not specified	6	2.57	3.86
694	Miscellaneous operatives	6	2.57	3.86
695	Not specified operatives	6*	2.57	3.86
31 Drivers and deliverymen				
703	Bus drivers	7	3.01	4.98
705	Deliverymen and routemen	6	2.90	4.09
714	Taxicab drivers and chauffeurs	5	3.00	3.12
715	Truck drivers	6	2.94	3.83

* Unspecified operatives are classified by industry with occupational levles ranging from 2 to 7.

		<u>SL</u>	<u>GED</u>	<u>SVP</u>
32 All Others				
	701 Boatmen and canalmen	7	3.00	5.00
	704 Conductors and motormen, urban rail transit	7	3.00	4.88
	706 Fork lift and tow motor operatives	2	2.10	3.09
	710 Motormen, mine, factory, logging camp, etc.	7	2.75	4.46
	711 Parking attendants	1	2.00	2.00
	712 Railroad brakemen	6	2.91	3.97
	713 Railroad switchmen	5	2.55	3.28
33 Construction (Industry 067-007)				
	740 Animal caretakers, except farm	6	2.70	3.75
34 Manufacturing (Industry 107-398)				
	750 Carpenters' helpers	1	1.40	1.70
35 All other industries (Industry 017-077, 407-937)				
	751 Construction laborers, except carpenters' helpers	2	2.25	3.32
	752 Fishermen and oystermen	3	2.20	3.79
	753 Freight and meterial handlers	2	2.17	2.94
	754 Garbage Collectors	1	1.46	1.56
	755 Gardeners and groundskeepers, except farm	2	2.26	2.99
	760 Longshoremen and stevedores	2	2.17	3.38
	761 Lumbermen, raftsmen, and woodchoppers	3	2.12	4.24
	762 Stock handlers	5	2.53	2.74
	763 Teamsters	7	2.52	5.00
	764 Vehicle washers and equipment cleaners	1	1.72	2.03
	770 Warehousemen, n.e.c.	1	2.07	2.36
	780 Miscellaneous laborers	2	2.14	2.73

		<u>SL</u>	<u>GED</u>	<u>SVP</u>
35 All Other Industries (Cont'd.)				
	785 Not specified laborers*	2	2.14	2.73
36 Private household workers				
	980 Child care workers, private household	4	3.00	2.01
	981 Cooks, private household	6	2.99	4.35
	982 Housekeepers, private household	6	3.05	3.51
	983 Laundresses, private household	1	2.05	2.05
	984 Maids and servants, private household	5	2.77	2.76
<u>Service Workers, Except Private Household</u>				
37 Cleaning Service				
	901 Chambermaids and maids, except private household	1	2.17	2.27
	902 Cleaners and charwomen	2	2.25	2.56
	903 Janitors and sextons	6	2.83	3.62
38 Food Service				
	910 Bartenders	6	3.01	3.48
	911 Busboys	1	2.02	2.03
	912 Cooks, except private household	12	3.60	6.42
	913 Dishwashers	1	1.21	2.00
	914 Food counter and fountain workers	1	2.21	2.09
	915 Waiters	5	2.88	2.93
39 Health Service				
	921 Dental assistants	12	4.00	6.43
	922 Health aides, except nursing	11	3.63	4.72
	923 Health trainees	12	3.54	5.46
	924 Lay midwives	6	3.00	4.00

*Not specified laborers are classified further by industry. Most of them are classified at OL 1-2, but those in railroads and railway express service, newspaper publishing and printing, and business and repair services are classified at occupational level 5 or 6.

39 Health Service (Cont'd.)		<u>SL</u>	<u>GED</u>	<u>SVP</u>
925	Nursing aides, orderlies, and attendants	6	3.06	4.02
926	Practical nurses	11	3.59	5.17
40 Personal Service				
931	Airline stewardesses	5	2.96	2.96
932	Attendants, recreation and amusements	6	3.01	3.57
933	Attendants, personal service, n.e.c.	5	2.69	2.92
934	Baggage porters and bellhops	5	2.57	3.21
935	Barbers	7	3.09	5.14
940	Boarding and lodging house keepers	13	3.80	6.54
941	Bootblacks	1	2.00	2.00
942	Child care workers, except private household	4	3.06	2.41
943	Elevator operators	2	2.16	2.72
944	Hairdressers and cosmetologists	12	3.94	5.95
945	Personal service apprentices	10	4.00	3.00
950	Housekeepers, except private household	11	3.59	5.05
952	School monitors	10	3.83	4.40
953	Ushers, recreation and amusement	2	2.30	2.73
954	Welfare service aides	15	4.61	5.89
41 Protective Service				
960	Crossing guards and bridge tenders	2	2.23	2.54
961	Firemen, fire protection	8	3.21	6.08
962	Guards and watchmen	5	2.53	3.19
963	Marshalls and constables	6	3.00	3.50
964	Policemen and detectives	7	3.16	4.81

	<u>SL</u>	<u>GED</u>	<u>SVP</u>
Protective Service (Cont'd.)			
965 Sheriffs and bailiffs	6	3.00	3.96
<u>Farmers and Farm Managers</u>			
42 Farmers and Farm Managers			
801 Farmers (owners and tenants)	13	3.84	6.62
802 Farm managers	13	3.98	6.83
<u>Farm Laborers and Farm Foremen</u>			
43 Paid Laborers and Foremen			
821 Farm foremen	13	4.00	6.86
822 Farm laborers, wage workers	6	2.53	3.75
824 Farm service laborers, self-employed	6	3.00	3.74
44 Unpaid family laborers			
823 Farm laborers, unpaid family workers	6	2.61	3.79

APPENDIX B
NOTES ON DATA SOURCES

Two primary data sources were used in this dissertation. They are discussed briefly below:

- (1) Unpublished data from the Bureau of Labor Statistics was used to develop the tables in Chapter One, Table 4.2 in Chapter Four, and the regression presented in equation 3.3.
- (2) The Survey of Income and Education (SIE) was used to prepare the regressions in Chapter Four, the adjustments in Chapter Three, and the tables in Appendix C. The basis of the SIE was the March, 1976 CPS questionnaire, which was expanded to include information on sources of income, disability and health status and housing characteristics. The 46 CPS items are expanded to some 120 SIE questionnaire items.

The sample size of the SIE is three times as large as the CPS. Thus robust samples exist for two-digit occupations that do not exist in the CPS. However, despite the fact that the SIE has the largest number of individuals represented in the sample except a Census survey, there are still terribly small numbers of blacks sampled in some of the occupations - less than 40 physicians, less than 40 engineers, one (!) black stockbroker, and seventeen black lawyers are sampled in the SIE.

At the three-digit level, while binding conclusions cannot be drawn from sample data, the detailed occupational tabulations highlight racial disparities in the occupational distribution. Even within two-digit categories blacks tend to hold the least skilled jobs within the occupation. Among laborers over half of those who are employed at the lowest skill level are black; but blacks comprise 20 percent of the two medium range skill levels, 5 and 6, and only 5 percent of the highest skill range for laborers (blacks were 15 percent of the laborer sample). Similarly, blacks were

about 7.9 percent of the median skill level for operatives (OL 6). However, they were disproportionately highly represented in the occupation levels at less than 6 -- 18 percent of the operatives in OL 1 were black, 12 percent of the operatives in OL 2 were black, as were 12 percent of the operatives in OL 3. Similar results were obtained for transport equipment operators and for crafts workers, but they need not be recounted in detail to illustrate the point. Not only are blacks disproportionately represented at the bottom of the occupation spectrum, but within two-digit categories they are more likely to hold the least skilled jobs on a three-digit basis.

APPENDIX C

DETAILED TABLES REFERRED TO IN CHAPTER THREE

TABLE C.1

UNEMPLOYMENT RATES BY AGE AND OCCUPATION, BLACK FEMALES

	16-19 Years	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65+ Years
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>							
Engineers	0.0 ²	0.0*	0.0 ²	0.0 ²	0.0*	0.0 ²	0.0*
Physicians, Dentists	0.0 ²	0.0	0.0 ²	0.0 ²	0.0	0.0	0.0*
Other Health Professionals	0.0 ²	10.1	0.0 ²	0.0 ²	4.7	11.6 ²	0.0 ²
Teachers Except College	50.4	8.0	7.7	2.4 ²	1.5 ²	0.0*	0.0*
Engineers, Science Technicians	0.0 ²	23.1	12.3	0.0 ²	0.0 ²	0.0	0.0 ²
Other Salaried Professionals	2.2	10.2	8.7	1.2*	0.0 ²	2.8	0.0 ²
Other Self-employed Professionals	0.0 ²	0.0 ²	0.0 ²	0.0	0.0	0.0 ²	0.0 ²

MANAGERS AND ADMINISTRATORS, EXCEPT FARM

Salaried Manufacturing Managers	0.0 ²	0.0*	0.0 ²	0.0*	0.0*	0.0*	0.0 ²
Other Salaried Managers	23.6*	5.5*	1.6 ²	7.1 ²	0.0 ²	5.2	0.0 ²
Retail Self-Employed Managers	0.0*	0.0*	0.0 ²	0.0 ²	0.0 ²	0.0 ²	0.0*
Other Self-Employed Managers	0.0	0.0	0.0 ²	0.0 ²	0.0 ²	0.0 ²	0.0

SALES

Retail Sales Workers	29.8	43.2	27.7	19.3 ²	0.0 ²	0.0 ²	0.0 ²
Other Sales Workers	47.8	63.4	7.0	0.0 ²	64.2	0.0 ²	0.0 ²

CLERICAL

Bookkeepers	65.7	1.5	28.2	0.0 ²	0.0 ²	22.9 ²	0.0*
Office Machine Operators	38.0	14.5	22.1	0.0	0.0 ²	0.0	0.0*
Stenographers, Typists, Secretaries	32.1	15.9	10.1	7.5	0.0	10.8	0.0*
Other Clerical Workers	26.0	25.5	16.4	12.0	2.2	7.3	0.0

TABLE C.1 (Cont'd.)

UNEMPLOYMENT RATES BY AGE AND OCCUPATION, 1975, BLACK FEMALES

	16-19 Years	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65+ Years
<u>CRAFTS AND KINDRED</u>							
Carpenters	0.0*	0.0*	0.0 ²	0.0*	0.0*	0.0*	0.0*
Other Construction Crafts Workers	100.0*	0.0 ²	0.0 ²	0.0 ²	0.0*	0.0 ²	0.0*
Foreman, NEC	0.0*	63.8*	0.0 ²	6.2 ²	0.0 ²	0.0 ²	0.0*
Machine Jobsetters	0.0*	0.0*	0.0 ²	0.0 ²	0.0*	0.0*	0.0*
Other Metal Workers	0.0*	0.0*	0.0*	0.0 ²	0.0*	0.0*	0.0*
Auto Mechanics	0.0*	0.0 ²	0.0 ²	0.0 ²	0.0*	0.0 ²	0.0*
Other Mechanics	0.0*	45.3	0.0 ²	0.0 ²	0.0*	0.0 ²	0.0*
Other Crafts Workers	0.0	55.7	29.4	0.0 ²	0.0 ²	36.2	0.0 ²
<u>OPERATIVES, EXCLUDING TRANSPORT</u>							
Mine Workers	0.0*	0.0	0.0	0.0	0.0*	0.0	0.0*
Motor Vehicle Equipment Operatives	0.0	21.3	10.4	10.3	0.0	100.0	0.0*
Other Durable Goods Operatives	41.2	34.3	25.5	29.7	15.6	2.7	0.0*
Nondurable Goods Operatives	7.2	32.2	19.4	17.0	14.0	14.7	0.0 ²
Other Operatives	49.3	61.4	27.2	10.0	2.9	5.0	0.0 ²
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>							
Driver/Delivery	0.0*	0.0*	7.8	0.0*	0.0 ²	0.0 ²	*
Other Transport Equipment Operatives	0.0	0.0	32.4	0.0	0.0	0.0	0.0*
<u>NONFARM LABORERS</u>							
Construction Laborers	0.0 ²	100.0	100.0	0.0*	0.0*	0.0 ²	*
Manufacturing Laborers	0.0	43.2	38.2	14.1 ²	0.0 ²	0.0 ²	0.0 ²
Other Laborers	59.3	47.7	38.5	0.0	5.7	0.0	0.0 ²

OPERATIVES, EXCLUDING TRANSPORT

TRANSPORTATION EQUIPMENT OPERATIVES

NONFARM LABORERS

TABLE C.1 (Cont'd.)

UNEMPLOYMENT RATES BY AGE AND OCCUPATION, 1975, BLACK FEMALES

	16-19 Years	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65+ Years
<u>PRIVATE HOUSEHOLD WORKERS</u>	20.0	31.7	21.4	11.6	7.8	3.7	1.7
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>							
Cleaning Service Workers	22.9	41.7	17.3	15.0	7.7	4.3	0.0*
Food Service Workers	31.9	36.3	27.4	10.4	7.7	6.8	18.5
Health Service Workers	50.1	16.4	15.0	10.6	6.3	6.2	4.4 ²
Personal Service Workers	57.6 ²	35.0	17.6	12.6	7.1 ²	6.0	0.0 ²
Protective Service Workers	0.0	0.0 ²	11.8	25.7	0.0 ²	0.0 ²	0.0
<u>FARMERS AND FARM MANAGERS</u>	0.0*	0.0 ²	0.0*	0.0 ²	0.0 ²	0.0 ²	0.0*
<u>FARM LABORERS AND FOREMEN</u>							
Paid Workers	34.4 ²	24.4*	28.4 ²	30.5 ²	0.0*	53.3 ²	0.0 ²
Unpaid Family Workers	0.0	0.0	0.0	0.0	0.0 ²	0.0	0.0
<u>TOTAL</u>	51.4	30.6	17.2	11.8	6.8	6.3	2.2

TABLE C.2

UNEMPLOYMENT RATES BY AGE AND OCCUPATION, 1975, BLACK MALES

	16-19 Years	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65+ Years
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>							
Engineers	* 0.02	0.02 ²	5.02	0.02 ²	0.02 ²	0.02 ²	0.02 ²
Physicians, Dentists	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Other Health Professionals	0.0	0.0	0.0	0.0	0.02	0.02	0.0
Teachers Except College	100.0	11.4	14.02	10.42	0.02	0.02	100.02
Engineers, Science Technicians	0.02	15.9	0.0	0.02	0.0	0.02	0.02
Other Salaried Professionals	36.72	11.92	12.6	8.52	0.22	0.42	0.02
Other Self-employed Professionals	0.0	0.0	7.4	0.02	0.02	0.02	0.02

MANAGERS AND ADMINISTRATORS, EXCEPT FARM

Salaried Manufacturing Managers	0.0 [*]	0.0 [*]	0.0 ²	0.0 ²	0.02 ²	0.0 ²	0.02 [*]
Other Salaried Managers	0.02 [*]	6.7 [*]	5.32	4.72	0.02	2.32	0.02
Retail Self-Employed Managers	0.0 [*]	0.0	0.02	0.02	0.02	0.02	0.02
Other Self-Employed Managers	0.0	72.0	0.0	17.9	0.02	0.02	0.02

SALES

Retail Sales Workers	15.8	4.9	5.5	0.0 ²	0.02 ²	0.02 ²	0.02 ²
Other Sales Workers	36.7	14.9	9.4	19.0	0.0	0.0	0.0

CLERICAL

Bookkeepers	0.02 [*]	0.02 ²	0.0 ²	0.0 ²	0.02 ²	0.0 [*]	0.0 [*]
Office Machine Operators	0.0	11.4	5.8	0.02	0.0 [*]	15.2 [*]	0.0 [*]
Stenographers, Typists, Secretaries	82.7	65.7	21.3	0.02	0.0	0.0	0.02
Other Clerical Workers	26.3	19.2	7.7	6.4	5.6	2.9	0.02

TABLE C.2 (Cont'd.)

UNEMPLOYMENT RATES BY AGE AND OCCUPATION, 1975, BLACK MALES

	16-19 Years	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65+ Years
<u>CRAFTS AND KINDRED</u>							
Carpenters	0.0 ²	42.5	13.2	0.4	0.0 ²	6.0	0.0 ²
Other Construction Crafts Workers	18.1	12.1	19.3	17.9	8.5	15.0	0.0 ²
Foreman, NEC	100.0	77.8	0.0 ²	5.1	0.0 ²	0.0 ²	0.0*
Machine Jobsetters	0.0 ²	52.9	0.0 ²	0.0 ²	0.0 ²	0.0 ²	0.0 ²
Other Metal Workers	0.0 ²	45.5	6.4	13.6	0.0 ²	4.4	0.0*
Auto Mechanics	62.4	19.2	7.9	10.7	5.0	0.0 ²	0.0 ²
Other Mechanics	48.4	24.5	8.5	4.8	0.0 ²	0.0 ²	0.0 ²
Other Crafts Workers	60.1	9.7	10.8	11.4	7.2	0.8	22.3
<u>OPERATIVES, EXCLUDING TRANSPORT</u>							
Mine Workers	100.0	0.0 ²	0.0 ²	2.6	0.0 ²	0.0 ²	* 0.0*
Motor Vehicle Equipment Operatives	0.0	46.9	10.4	9.7	0.0 ²	0.0 ²	0.0 ²
Other Durable Goods Operatives	35.6	17.7	23.1	14.1	6.1	2.8	0.0 ²
Nondurable Goods Operatives	39.5	23.7	18.6	16.6	3.4	11.5	100.0
Other Operatives	58.5	28.2	20.0	16.9	6.8	9.7	16.3
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>							
Driver/Delivery	16.3	18.2	5.6	4.0	8.3	6.4	19.9
Other Transport Equipment Operatives	16.6	5.6	10.2	1.0	8.3	0.0 ²	0.0 ²
<u>NONFARM LABORERS</u>							
Construction Laborers	40.4	34.9	28.6	27.6	24.5	18.8	20.0
Manufacturing Laborers	36.5	21.8	12.9	12.0	5.5	3.0	34.6
Other Laborers	32.7	25.9	20.6	10.1	13.2	8.9	11.2

TABLE C.2 (Cont'd.)

UNEMPLOYMENT RATES BY AGE AND OCCUPATION, 1975, BLACK MALES

	16-19 Years	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65+ Years
<u>PRIVATE HOUSEHOLD WORKERS</u>	0.0 ²	0.0*	31.0	0.0 ²	0.0 ²	0.0 ²	0.0 ²
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>							
Cleaning Service Workers	39.5	18.5	10.4	11.8	7.1	6.8	2.4
Food Service Workers	31.4	36.3	23.7	5.8	3.5	15.1 ²	9.6 ²
Health Service Workers	28.9	6.1	16.8	0.0 ²	0.0 ²	0.0 ²	0.0 ²
Personal Service Workers	58.3	50.4	23.3	0.0 ²	5.9	0.0 ²	10.5
Protective Service Workers	35.4	8.6	6.0	3.7	2.2	0.0 ²	3.8
<u>FARMERS AND FARM MANAGERS</u>	100.0	0.0*	0.0 ²	0.0 ²	0.0 ²	0.0 ²	0.0 ²
<u>FARM LABORERS AND FOREMEN</u>							
Paid Workers	10.1	14.4 ²	7.9*	7.9*	0.0 ²	22.7*	5.1*
Unpaid Family Workers	35.2	0.0 ²	0.0	0.0*	0.0	0.0*	0.0*
<u>TOTAL</u>	47.7	23.4	12.7	9.7	5.8	6.0	7.8

TABLE C.3

UNEMPLOYMENT RATES BY AGE AND OCCUPATION, 1975, WHITE FEMALES

	16-19 Years	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65+ Years
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>							
Engineers	*	0.6 ²	19.1 ²	0.0 ²	0.0 ²	0.0 ²	* 0.0 ²
Physicians, Dentists	100.0	0.0	0.0	6.0	0.0	0.0 ²	0.0 ²
Other Health Professionals	11.1	3.5	3.1	2.9	1.2	1.1	3.8
Teachers Except College	13.6	5.3	3.1	3.8	0.8	1.7	1.3
Engineers, Science Technicians	12.0	15.3	7.9	13.4	8.2	2.0	100.0 ²
Other Salaried Professionals	20.8	7.7 ²	5.0	7.5	2.8	3.2	0.0 ²
Other Self-employed Professionals	4.5	0.0	0.0 ²	0.0 ²	5.2	0.0 ²	0.0 ²
<u>MANAGERS AND ADMINISTRATORS, EXCEPT FARM</u>							
Salaried Manufacturing Managers	0.0 ²	16.9	7.4	0.5	0.2	5.1	0.0 ²
Other Salaried Managers	7.0 ²	9.0 ²	8.8	6.4	5.4	4.1	6.4 ²
Retail Self-Employed Managers	0.0 ² *	0.0 ²	0.8	3.2	2.0 ²	1.5	0.0 ²
Other Self-Employed Managers	0.0	0.0 ²	0.0 ²	0.4	0.0 ²	0.0 ²	0.0 ²
<u>SALES</u>							
Retail Sales Workers	9.1	13.7	5.4	6.0	5.9	4.2	2.9
Other Sales Workers	8.8	10.1	5.1	2.5	5.0	0.6	6.7
<u>CLERICAL</u>							
Bookkeepers	3.9	5.2	7.7	4.3	3.8	3.9	2.4
Office Machine Operators	3.6	7.9	5.8	6.1	8.6	3.3	1.4
Stenographers, Typists, Secretaries	5.3	8.2	6.0	4.9	2.9	2.7	5.1
Other Clerical Workers	9.1	10.3	9.3	6.2	6.0	5.8	6.9

TABLE C.3 (Cont'd.)

UNEMPLOYMENT RATES BY AGE AND OCCUPATION, 1975, WHITE FEMALES

	16-19 Years	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65+ Years
<u>CRAFTS AND KINDRED</u>							
Carpenters	55.1	31.6	0.0 ²	0.0*	0.0 ²	0.0 ²	* 0.0 ²
Other Construction Crafts Workers	13.6	28.5	24.3	0.0 ²	0.0 ²	9.7	0.0 ²
Foreman, NEC	96.1 ²	0.0 ²	8.5	12.9	1.6	9.9 ²	0.0 ²
Machine Jobsetters	0.0 ²	12.0	22.4	1.9	23.5 ²	0.0 ²	0.0
Other Metal Workers	0.0 ²	0.0 ²	18.4 ²	14.6 ²	0.0 ²	0.0*	100.0*
Auto Mechanics	3.9	0.0	0.0	0.0 ²	0.0 ²	0.0 ²	0.0*
Other Mechanics	50.7	8.7	1.1	0.0	0.0	0.0 ²	0.0
Other Crafts Workers	19.5	5.8	12.0	7.0	4.4	0.0 ²	6.1
<u>OPERATIVES, EXCLUDING TRANSPORT</u>							
Mine Workers	85.9 ²	8.8	62.4	0.0 ²	0.0 ²	0.0*	* 0.0 ²
Motor Vehicle Equipment Operatives	0.0 ²	17.1	14.4	11.0	1.8	7.0	0.0 ²
Other Durable Goods Operatives	17.5	20.0	12.3	10.9	8.8	10.7	9.5
Nondurable Goods Operatives	16.0	17.6	10.7	14.2	10.6	8.3	18.6
Other Operatives	18.9	20.4	17.1	8.9	9.6	4.5	3.1
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>							
Driver/Delivery	5.9	13.3	11.4	11.3	5.7	3.4	7.3*
Other Transport Equipment Operatives	4.1	1.8	12.9	5.7	0.0 ²	0.0 ²	0.0
<u>NONFARM LABORERS</u>							
Construction Laborers	39.9	37.1	0.0 ²	0.0 ²	1.2	0.0 ²	* 0.0*
Manufacturing Laborers	17.9	14.8	9.2	5.1	8.8	8.7	0.0 ²
Other Laborers	6.1	9.5	12.3	14.3	7.4	2.5	0.0 ²

TABLE C.3 (Cont'd.)

UNEMPLOYMENT RATES BY AGE AND OCCUPATION, 1975, WHITE FEMALES

	16-19 Years	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65+ Years
<u>PRIVATE HOUSEHOLD WORKERS</u>	7.5	7.3	2.3	6.9	3.0	1.9	1.5
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>							
Cleaning Service Workers	20.5	22.7	11.8	5.8	7.8	3.6	1.2
Food Service Workers	11.4	18.1	14.1	6.6	4.3	6.4	3.9
Health Service Workers	8.4	10.5	8.5	3.6	3.6	4.6	8.0
Personal Service Workers	15.0	7.9	4.0	3.2	3.1	3.8 ²	1.6
Protective Service Workers	4.7	45.7	7.6	17.0	8.9	0.0 ²	0.0 ²
<u>FARMERS AND FARM MANAGERS</u>	0.0 ²	0.0 ²	0.0 ²	0.0 ²	0.6	0.0 ²	0.0 ²
<u>FARM LABORERS AND FOREMEN</u>							
Paid Workers	26.8	20.4 ²	19.9 ²	14.9 ²	6.3	7.2 ²	0.0 ²
Unpaid Family Workers	0.0 ²	0.0 ²	0.0 ²	0.0 ²	3.4	0.0 ²	0.0 ²
<u>TOTAL</u>	18.3	11.5	7.5	6.5	5.2	4.6	4.0

TABLE C.4

UNEMPLOYMENT RATES BY AGE AND OCCUPATION, 1975, WHITE MALES

	16-19 Years	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65+ Years
<u>PROFESSIONAL, TECHNICAL, AND KINDRED</u>							
Engineers	0.0*	7.6 ²	1.8	0.6 ²	2.0 ²	3.1	20.0 ²
Physicians, Dentists	0.0 ²	0.0	0.8	0.0	0.0	0.1 ²	0.0
Other Health Professionals	0.0 ²	2.6	2.7	1.4	0.2	0.0	13.8 ²
Teachers Except College	0.0	5.2	1.8	1.2	3.3	0.2	0.0
Engineers, Science Technicians	0.2	7.1	4.0	2.2	4.3	8.4	1.9
Other Salaried Professionals	5.8 ²	9.9	3.1	2.0	1.4	2.8	6.4
Other Self-employed Professionals	0.0	6.9	3.3	0.7	0.0	0.0	1.6
<u>MANAGERS AND ADMINISTRATORS, EXCEPT FARM</u>							
Salaried Manufacturing Managers	0.0 ²	10.8	1.6	0.9	1.3	3.8	2.8
Other Salaried Managers	4.1 ²	5.7	2.9	2.6	1.7	3.1	3.3 ²
Retail Self-Employed Managers	0.0 ²	12.0 ²	1.3	1.1	2.7	1.6	0.0
Other Self-Employed Managers	0.0	0.0	0.4	1.9	0.2	1.6	0.8
<u>SALES</u>							
Retail Sales Workers	6.9	10.7	5.1	1.5	2.3	4.8	4.0
Other Sales Workers	7.6	7.9	2.4	2.1	1.5	4.4	1.5
<u>CLERICAL</u>							
Bookkeepers	10.3	14.9	0.2	10.7 ²	1.2 ²	8.7	0.0 ²
Office Machine Operators	0.5	1.9	0.8	0.0 ²	0.0	1.2 ²	0.0 ²
Stenographers, Typists, Secretaries	3.6	15.1	1.9	0.0	8.8	0.0	0.0
Other Clerical Workers	12.4	11.6	6.9	2.1	1.0	1.2	6.3

TABLE C.4 (Cont'd.)

UNEMPLOYMENT RATES BY AGE AND OCCUPATION, 1975, WHITE MALES

	16-19 Years	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65+ Years
<u>CRAFTS AND KINDRED</u>							
Carpenters	10.9	9.4	7.1	10.0	11.7	10.6	8.8
Other Construction Crafts Workers	9.6	9.3	8.0	8.0	8.6	8.7	22.3
Foreman, NEC	0.4	5.7	3.8	1.7	2.1	2.1	8.4
Machine Jobsetters	14.5	4.9	5.5	1.2	4.3	5.2	28.3
Other Metal Workers	17.9	18.3	7.4	2.0	5.5	8.6	23.0
Auto Mechanics	9.8	8.9	5.0	6.2	3.6	3.9	0.5
Other Mechanics	3.4	5.7	4.9	2.0	2.1	2.6	6.7
Other Crafts Workers	11.1	8.1	4.2	2.4	3.2	5.4	6.8
<u>OPERATIVES, EXCLUDING TRANSPORT</u>							
Mine Workers	11.4	9.5	6.8	7.9	3.1	19.6	0.0 ²
Motor Vehicle Equipment Operatives	11.2	12.4	8.5	3.1	1.2	6.0	0.0 ²
Other Durable Goods Operatives	14.4	16.4	9.5	5.4	3.0	5.9	20.4
Nondurable Goods Operatives	13.3	11.2	5.7	2.1	4.9	4.1	19.9
Other Operatives	14.6	13.6	8.4	3.6	8.9	7.4	8.8
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>							
Driver/Delivery	7.5	11.0	6.3	3.3	5.5	5.6	9.8
Other Transport Equipment Operatives	27.8	9.2	7.0	4.0	2.6	1.3	0.0 ²
<u>NONFARM LABORERS</u>							
Construction Laborers	15.0	20.0	24.5	19.8	21.1	9.5	14.6
Manufacturing Laborers	11.5	14.8	6.8	8.4	6.1	6.1	17.4
Other Laborers	8.6	13.4	10.3	3.2	2.2	4.1	0.1

TABLE C.4 (Cont'd.)

UNEMPLOYMENT RATES BY AGE AND OCCUPATION, 1975, WHITE MALES

	16-19 Years	20-24 Years	25-34 Years	35-44 Years	45-54 Years	55-64 Years	65+ Years
<u>PRIVATE HOUSEHOLD WORKERS</u>	1.5	9.3	3.1	0.0 ²	0.0 ²	0.0 ²	0.0 ²
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>							
Cleaning Service Workers	14.0	12.3	10.3	6.1	2.6	3.8	10.8
Food Service Workers	11.3	17.0	15.8	1.8	11.4 ²	8.6 ²	16.8
Health Service Workers	12.2	15.9	10.6	0.0 ²	0.0 ²	0.0 ²	0.0 ²
Personal Service Workers	15.3	11.6	1.4	1.0	0.3	3.6	3.3
Protective Service Workers	10.3	4.6	4.5	3.4	3.2	10.1	8.7
<u>FARMERS AND FARM MANAGERS</u>	0.0 ²	0.0 ²	1.1	0.2	0.0 ³	0.1	0.1
<u>FARM LABORERS AND FOREMEN</u>							
Paid Workers	9.8	8.9	5.8	2.4	4.1 ²	4.3	9.2
Unpaid Family Workers	0.1	0.9	0.0 ²	0.0 ²	0.0 ²	0.0 ²	0.0 ²
<u>TOTAL</u>	16.1	11.5	5.3	3.1	3.3	4.2	5.5

TABLE C.5

UNEMPLOYMENT RATES BY EDUCATION AND OCCUPATION, 1975, BLACK FEMALES

	9 Years	9-11 Years	12 Years	13-15 Years	16+ Years
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>					
Engineers	0.0*	0.0*	0.02	0.02	0.02
Physicians, Dentists	0.0*	0.0*	0.0	0.0*	0.02
Other Health Professionals	0.02	0.02	6.0	0.02	3.5
Teachers Except College	0.02	26.2	9.9	31.8	1.8*
Engineers, Science Technicians	0.0*	0.02	35.3	3.8	0.0
Other Salaried Professionals	0.02	25.8	4.6	6.2*	4.2
Other Self-employed Professionals	0.0	0.0	0.02	0.0	0.02
<u>MANAGERS AND ADMINISTRATORS, EXCEPT FARM</u>					
Salaried Manufacturing Managers	0.0*	0.02	0.0	0.02	0.02
Other Salaried Managers	0.02	13.02	4.02	5.42	2.6*
Retail Self-Employed Managers	0.0*	0.02	0.0*	0.02	0.02
Other Self-Employed Managers	0.0	0.02	0.0	0.02	0.02
<u>SALES</u>					
Retail Sales Workers	0.0*	28.1	29.6	29.42	3.62
Other Sales Workers	0.0	42.9	28.8	0.02	0.02
<u>CLERICAL</u>					
Bookkeepers	0.0*	23.2	21.7	11.0	0.0*
Office Machine Operators	0.0*	39.6	12.6	10.3	27.3
Stenographers, Typists, Secretaries	0.0	23.1	12.0	13.6	8.8
Other Clerical Workers	23.5	29.5	16.9	12.1	9.0

TABLE C.5 (Cont'd.)

UNEMPLOYMENT RATES BY EDUCATION AND OCCUPATION, 1975, BLACK FEMALES

	9 Years	9-11 Years	12 Years	13-15 Years	16+ Years
<u>CRAFTS AND KINDRED</u>					
Carpenters	0.0*	0.02	0.0*	0.0*	0.0*
Other Construction Crafts Workers	0.02	0.02	23.9	0.0*	0.0*
Foreman, NEC	0.0*	17.2	8.1*	1.0*	51.5
Machine Jobsetters	0.02	0.02	0.0*	0.0*	0.02
Other Metal Workers	0.0*	0.02	0.02	0.0*	0.0*
Auto Mechanics	0.0*	0.0*	0.02	0.0*	0.02
Other Mechanics	0.02	0.02	24.6	0.0*	0.0*
Other Crafts Workers	45.8	27.8	20.0	19.6	0.0
<u>OPERATIVES, EXCLUDING TRANSPORT</u>					
Mine Workers	0.02	0.0*	0.0*	0.02	0.02
Motor Vehicle Equipment Operatives	0.0	24.1	17.7	0.0	0.0
Other Durable Goods Operatives	16.0	35.7	21.0	37.6	10.2
Nondurable Goods Operatives	17.2	23.2	20.4	14.9	6.82
Other Operatives	9.5	33.7	12.4	15.0	0.0
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>					
Driver/Delivery	0.02	0.02	6.0*	0.0*	0.02
Other Transport Equipment Operatives	0.0	21.3	0.0	0.0	0.0
<u>NONFARM LABORERS</u>					
Construction Laborers	0.02	29.7	0.02	0.0	0.02
Manufacturing Laborers	0.0	33.5	28.7	13.4	0.0
Other Laborers					

TABLE C.5 (Cont'd.)

UNEMPLOYMENT RATES BY EDUCATION AND OCCUPATION, 1975, BLACK FEMALES

	<9 Years	9-11 Years	12 Years	13-15 Years	16+ Years
<u>PRIVATE HOUSEHOLD WORKERS</u>	8.6	9.5	7.0	0.0 ²	0.0 ²
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>					
Cleaning Service Workers	10.7	16.4	12.5	32.0	85.0
Food Service Workers	10.0	24.1	21.7	9.0	50.5
Health Service Workers	13.7	18.2	10.2	16.5	0.0 ²
Personal Service Workers	11.5 ²	28.1 ²	17.7	26.2	0.0 ²
Protective Service Workers	0.0	0.0	20.2	9.2	0.0 ²
<u>FARMERS AND FARM MANAGERS</u>	0.0 ²	0.0 ²	0.0*	0.0 ²	0.0*
<u>FARM LABORERS AND FOREMEN</u>					
Paid Workers	14.8	37.7	22.4 ²	0.0 ² *	0.0*
Unpaid Family Workers	0.0 ²	0.0 ²	0.0 ²	0.0	0.0
<u>TOTAL</u>	13.8	28.7	17.9	16.1	4.2

TABLE C.6

UNEMPLOYMENT RATES BY EDUCATION AND OCCUPATION, 1975, BLACK MALES

	9 Years	9-11 Years	12 Years	13-15 Years	16+ Years
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>					
Engineers	0.0 ²	0.0 ²	0.0 ²	1.00	0.0 ²
Physicians, Dentists	0.0 ²	0.0 ²	0.0 ²	0.0 ²	0.0 ²
Other Health Professionals	0.0 ²	0.0 ²	0.0 ²	0.0 ²	0.0 ²
Teachers Except College	0.0 ²	1.00	0.0 ²	29.7	7.0 ²
Engineers, Science Technicians	0.0 ²	0.0 ²	0.0 ²	8.3	0.0 ²
Other Salaried Professionals	14.5*	20.7	7.3	10.9 ²	7.9 ²
Other Self-employed Professionals	0.0	0.0 ²	23.9	0.0 ²	0.0 ²
<u>MANAGERS AND ADMINISTRATORS, EXCEPT FARM</u>					
Salaried Manufacturing Managers	0.0 ²	0.0 ²	0.0 ²	0.0 ²	0.0 ²
Other Salaried Managers	0.0 ²	4.5	4.7	4.9 ²	2.4
Retail Self-Employed Managers	0.0 ²	0.0 ²	0.0 ²	0.0 ²	0.0 ²
Other Self-Employed Managers	0.0 ²	7.7	11.2	0.0 ²	0.0 ²
<u>SALES</u>					
Retail Sales Workers	0.0 ²	8.5	1.9	12.1	0.0 ²
Other Sales Workers	0.0 ²	19.4	9.8	9.2	14.2
<u>CLERICAL</u>					
Bookkeepers	0.0 ²	* 0.0*	0.0 ²	0.0 ²	0.0 ²
Office Machine Operators	29.0*	0.0	0.0 ²	9.7	0.0*
Stenographers, Typists, Secretaries	0.0	47.5	50.1	41.4	0.0
Other Clerical Workers	20.1	20.3	10.1	3.9	0.7

TABLE C.6 (Cont'd.)

UNEMPLOYMENT RATES BY EDUCATION AND OCCUPATION, 1975, BLACK MALES

	9 Years	9-11 Years	12 Years	13-15 Years	16+ Years
<u>CRAFTS AND KINDRED</u>					
Carpenters	4.7	17.3	2.3	27.9	0.0 ²
Other Construction Crafts Workers	9.3 ²	20.7	17.3	13.9	0.0 ²
Foreman, NEC	0.0 ²	12.4	4.7	0.0 ²	25.5*
Machine Jobsetters	0.0 ²	8.1	2.7	0.0	0.0*
Other Metal Workers	1.8	19.2	0.9	34.7	0.0 ²
Auto Mechanics	5.9 ²	11.3	12.5	10.8	0.0 ²
Other Mechanics	0.0 ²	18.5	6.8	0.0 ²	0.0 ²
Other Crafts Workers	3.8	21.8	8.2	1.8	0.0 ²
<u>OPERATIVES, EXCLUDING TRANSPORT</u>					
Mine Workers	5.4 ²	0.0 ²	14.5	0.0 ²	* 0.0 ²
Motor Vehicle Equipment Operatives	0.0 ²	18.0	7.3	15.8	0.0 ²
Other Durable Goods Operatives	7.2	17.6	21.4	15.3	0.0 ²
Nondurable Goods Operatives	10.2	22.8	14.2	31.7	0.0 ²
Other Operatives	13.9	28.7	19.9	13.3	0.0 ²
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>					
Driver/Delivery	5.1	8.0	10.9	5.4	0.0 ²
Other Transport Equipment Operatives	6.7	5.7	8.0	4.7	0.0*
<u>NONFARM LABORERS</u>					
Construction Laborers	23.4	32.0	18.4	62.6	45.9
Manufacturing Laborers	9.0	31.5	6.5	15.1	1.00
Other Laborers	13.4	23.8	19.6	11.1	20.7

TABLE 0.6 (Cont'd.)
 UNEMPLOYMENT RATES BY EDUCATION AND OCCUPATION, 1975, BLACK MALES

	<9 Years	9-11 Years	12 Years	13-15 Years	16+ Years
<u>PRIVATE HOUSEHOLD WORKERS</u>	17.0	0.0 ²	0.0 ²	0.0 ²	0.0 [*]
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>					
Cleaning Service Workers	11.1	16.3	12.9	22.0	0.0 ²
Food Service Workers	14.6	22.0	33.8	26.9	0.0 ²
Health Service Workers	0.0 ²	7.7	9.4	11.8	0.0 ²
Personal Service Workers	19.5	23.2	28.1	32.8	0.0 ²
Protective Service Workers	2.2	15.1	5.3	2.2	2.8
<u>FARMERS AND FARM MANAGERS</u>	4.7	0.0 ²	0.0 ²	0.0 [*]	0.0 [*]
<u>FARM LABORERS AND FOREMEN</u>					
Paid Workers	6.8 [*]	8.0	15.4 [*]	0.0 [*]	0.0 [*]
Unpaid Family Workers	0.0	35.2	0.0	0.0 ²	0.0
<u>TOTAL</u>	10.3	23.9	14.6	13.2	5.7

TABLE C.7

UNEMPLOYMENT RATES BY EDUCATION AND OCCUPATION, 1975, WHITE FEMALES

	<9 Years	9-11 Years	12 Years	13-15 Years	16+ Years
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>					
Engineers	0.0*	0.0*	0.0 ²	0.0 ²	10.5
Physicians, Dentists	0.0 ²	0.0	0.0 ²	16.2	1.5
Other Health Professionals	0.0 ²	4.7	2.4	2.9	2.9
Teachers Except College	0.0	7.6 ²	5.9	3.7	2.8
Engineers, Science Technicians	8.2	0.0 ²	12.5	9.5	13.1
Other Salaried Professionals	7.0 ²	10.4 ²	6.8	7.1	4.8 ²
Other Self-employed Professionals	0.0	0.0	0.0 ²	5.4	0.0
<u>MANAGERS AND ADMINISTRATORS, EXCEPT FARM</u>					
Salaried Manufacturing Managers	13.9	0.0 ²	2.7	10.6	0.0 ²
Other Salaried Managers	4.5	10.9	7.2	5.6 ²	4.7
Retail Self-Employed Managers	4.4	2.1 ²	2.2	0.0 ²	0.0 ²
Other Self-Employed Managers	0.0 ²	0.0	0.4	0.0	0.4
<u>SALES</u>					
Retail Sales Workers	8.8	7.9	6.4	8.8	6.8
Other Sales Workers	4.6	5.2	6.9	3.9	2.4
<u>CLERICAL</u>					
Bookkeepers	7.1	7.6	5.4	3.5	2.8
Office Machine Operators	0.0 ²	4.8	7.0	5.7	3.5
Stenographers, Typists, Secretaries	6.4	7.6	4.7	5.5	9.0
Other Clerical Workers	8.7	10.8	7.5	7.8	6.8

TABLE C.7 (Cont'd.)

UNEMPLOYMENT RATES BY EDUCATION AND OCCUPATION, 1975, WHITE FEMALES

	9 Years	9-11 Years	12 Years	13-15 Years	16+ Years
<u>CRAFTS AND KINDRED</u>					
Carpenters	0.02	49.6	13.2	0.0 ²	15.5
Other Construction Crafts Workers	0.02	5.5	20.1	6.0	13.22
Foreman, NEC	0.02	16.6	4.5	13.92	0.02
Machine Jobsetters	29.8	1.4	11.8	0.02	0.0*
Other Metal Workers	45.62	2.52	9.1	0.02	0.0*
Auto Mechanics	0.02	0.02	10.4	0.02	0.02
Other Mechanics	0.02	1.0	5.3	11.4	0.02
Other Crafts Workers	3.8	10.7	8.6	5.2	6.1
<u>OPERATIVES, EXCLUDING TRANSPORT</u>					
Mine Workers	0.02	91.9	19.7	0.0 ²	86.7*
Motor Vehicle Equipment Operatives	8.8	4.7	9.4	29.2	0.0
Other Durable Goods Operatives	10.1	13.8	12.5	12.6	23.1
Nondurable Goods Operatives	14.1	11.1	11.1	19.6	17.0
Other Operatives	9.4	14.5	11.5	11.3	8.3
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>					
Driver/Delivery	19.3	7.3	8.6	6.0	41.72
Other Transport Equipment Operatives	0.0 ²	1.8	10.8	0.0 ²	0.0 ²
<u>NONFARM LABORERS</u>					
Construction Laborers	0.0 ²	20.3	29.7	30.2	9.5
Manufacturing Laborers	8.8	3.1	10.9	33.9	1.00
Other Laborers	3.2	11.5	10.1	2.1	11.0

TABLE C.7 (Cont'd.)

UNEMPLOYMENT RATES BY EDUCATION AND OCCUPATION, 1975, WHITE FEMALES

	<9 Years	9-11 Years	12 Years	13-15 Years	16+ Years
<u>PRIVATE HOUSEHOLD WORKERS</u>	3.1	6.9	4.5	2.3	0.4
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>					
Cleaning Service Workers	7.9	13.0	8.5	8.3	13.3
Food Service Workers	5.7	11.9	10.0	12.8	16.0
Health Service Workers	7.9	10.8	6.0	4.8	18.8
Personal Service Workers	2.8	6.4	3.8	8.8	7.8
Protective Service Workers	11.2	0.4	18.6	24.0	10.0
<u>FARMERS AND FARM MANAGERS</u>	0.0 ²	0.0 ²	0.4	0.0 ²	0.0 ²
<u>FARM LABORERS AND FOREMEN</u>					
Paid Workers	6.7	27.0	22.3	13.5 ²	15.7
Unpaid Family Workers	4.0	0.0 ²	0.4	0.0	0.0 ²
<u>TOTAL</u>	9.6	14.3	7.6	7.2	4.9

TABLE C.8

UNEMPLOYMENT RATES BY EDUCATION AND OCCUPATION, 1975, WHITE MALES

	<9 Years	9-11 Years	12 Years	13-15 Years	16+ Years
<u>PROFESSIONAL, TECHNICAL AND KINDRED</u>					
Engineers	0.0	3.5	5.5	2.9	1.6
Physicians, Dentists	0.0	0.0	0.0	0.6	0.2
Other Health Professionals	0.0	0.0	3.8	0.9	2.4
Teachers Except College	0.0	21.3	0.3	0.5	1.8
Engineers, Science Technicians	4.8	3.5	6.2	3.3	3.9
Other Salaried Professionals	9.7	6.4	5.0	6.0	2.3
Other Self-employed Professionals	0.0	20.0	2.3	3.5	0.2
<u>MANAGERS AND ADMINISTRATORS, EXCEPT FARM</u>					
Salaried Manufacturing Managers	3.2	5.5	1.4	2.7	1.4
Other Salaried Managers	3.4	5.0	2.9	3.1	2.0
Retail Self-Employed Managers	5.2	2.5	1.3	1.3	0.0
Other Self-Employed Managers	1.9	1.3	0.5	1.2	0.7
<u>SALES</u>					
Retail Sales Workers	4.8	5.3	5.6	5.3	7.4
Other Sales Workers	3.8	6.8	2.2	3.5	2.1
<u>CLERICAL</u>					
Bookkeepers	0.0	1.6	10.7	3.4	6.6
Office Machine Operators	0.0	3.3	0.5	0.6	3.3
Stenographers, Typists, Secretaries	0.0	1.4	3.7	7.1	11.2
Other Clerical Workers	2.7	7.2	4.5	6.5	7.2

TABLE C.8 (Cont'd.)

UNEMPLOYMENT RATES BY EDUCATION AND OCCUPATION, 1975, WHITE MALES

	9 Years	9-11 Years	12 Years	13-15 Years	16+ Years
<u>CRAFTS AND KINDRED</u>					
Carpenters	13.7	11.5	7.9	8.7	3.6
Other Construction Crafts Workers	10.0	9.3	8.0	9.6	5.7
Foreman, NEC	3.9	2.8	3.0	1.3	0.1
Machine Jobsetters	0.7	7.5	4.8	5.9	3.7
Other Metal Workers	6.5	10.4	6.8	7.1	11.0
Auto Mechanics	5.7	6.7	5.8	5.2	8.8
Other Mechanics	3.8	4.2	2.8	4.8	2.5
Other Crafts Workers	7.9	7.8	3.5	3.8	1.9
<u>OPERATIVES, EXCLUDING TRANSPORT</u>					
Mine Workers	8.0	4.7	9.4	10.8	1.1
Motor Vehicle Equipment Operatives	6.0	5.4	4.9	16.2	24.0
Other Durable Goods Operatives	6.5	9.5	9.5	10.5	14.5
Nondurable Goods Operatives	7.5	7.8	5.5	7.0	9.9
Other Operatives	9.8	13.4	9.0	7.2	14.7
<u>TRANSPORTATION EQUIPMENT OPERATIVES</u>					
Driver/Delivery	6.2	7.2	4.9	8.9	12.3
Other Transport Equipment Operatives	3.2	11.4	5.8	8.6	0.0
<u>NONFARM LABORERS</u>					
Construction Laborers	21.7	17.5	15.8	24.4	26.4
Manufacturing Laborers	8.7	9.9	8.9	13.2	12.0
Other Laborers	4.5	10.2	6.4	11.7	6.7

TABLE C.8 (Cont'd.)

UNEMPLOYMENT RATES BY EDUCATION AND OCCUPATION, 1975, WHITE MALES

	<u><9</u> Years	<u>9-11</u> Years	<u>12</u> Years	<u>13-15</u> Years	<u>16+</u> Years
<u>PRIVATE HOUSEHOLD WORKERS</u>	0.0	5.2	2.1	0.0	0.0
<u>SERVICE, EXCEPT PRIVATE HOUSEHOLD</u>					
Cleaning Service Workers	5.1	11.9	7.4	11.7	6.1
Food Service Workers	9.7	11.1	13.7	16.2	6.7
Health Service Workers	5.8	2.8	9.6	9.7	19.6
Personal Service Workers	5.9	9.5	5.7	2.8	14.3
Protective Service Workers	13.7	8.3	4.2	3.5	1.8
<u>FARMERS AND FARM MANAGERS</u>	0.2	0.0 ²	0.4	0.0 ³	0.4
<u>FARM LABORERS AND FOREMEN</u>					
Paid Workers	5.9	5.4	8.9	8.9	9.6
Unpaid Family Workers	0.3	0.0 ²	0.5	0.0 ²	0.0 ²
<u>TOTAL</u>	6.9	10.6	5.8	6.0	2.8

TABLE C.9 (Cont'd.)

UNEMPLOYMENT RATES BY OCCUPATION AND INDUSTRY, 1975, WHITES (Cont'd.)

	Other Crafts workers	Line workers	Motor Vehicle Equipment Operators	Other Durable Goods Operators	Non-durable Goods Operators	Other Operators	Other/Inlay	Other Transport Equipment Operators	Construction Laborers	Manufacturing Laborers	Other Laborers	Private Household Workers	Cleaning Service Workers	Food Service Workers	Health Service Workers	Personal Service Workers	Protective Service Workers	Farmers and Farm Managers	Field Workers - Farm	Unpaid Family Workers - Farm	TOTAL
AGRICULTURE, FORESTRY, AND FISHING	10.79	-	-	-	-	3.96	4.43	-	-	-	6.32	0	0	35.93	0	-	-	0.23	8.93	0.61	3.51
MINING	2.62	8.41	-	-	-	-	2.17	3.28	-	-	8.81	13.4	13.03	-	-	0	0	-	-	-	4.78
CONSTRUCTION	7.12	-	-	-	-	13.94	9.18	9.83	19.16	-	-	11.01	5.92	-	-	37.8	15.88	-	-	-	10.36
MANUFACTURING - DURABLE GOODS	8.59	-	7.11	10.31	-	-	5.33	5.16	-	9.92	-	7.8	1.19	0	100.0	1.66	-	-	-	-	7.02
MANUFACTURING - NONDURABLE GOODS	5.85	-	-	-	10.13	-	4.07	5.63	-	9.22	-	5.16	0	100.0	32.84	0.84	-	-	-	-	6.75
TRANSPORTATION, COMMUNICATIONS, AND PUBLIC UTILITIES	2.06	-	-	-	-	-	10.21	2.07	-	-	8.31	8.05	21.40	0	0	19.04	-	-	-	-	4.02
WHOLESALE TRADE	5.75	-	-	-	-	14.46	7.57	14.55	-	-	8.55	17.06	31.76	0	0	21.15	-	-	-	-	5.05
RETAIL TRADE	6.76	-	-	-	-	9.63	9.1	18.78	-	-	8.39	11.2	12.2	2.1	6.81	-	-	-	-	-	8.19
FINANCE, INSURANCE, AND REAL ESTATE	9.38	-	-	-	-	0	8.81	57.41	-	-	11.34	5.64	0	-	5.06	8.81	-	-	-	-	4.11
BUSINESS AND REPAIR SERVICES	2.78	0	-	-	-	12.35	7.47	14.68	-	-	20.26	7.02	31.54	0	22.54	19.85	-	-	-	-	7.83
PRIVATE HOUSEHOLD	0	-	-	-	-	0	0	-	-	-	1.81	4.62	-	-	12.98	0	-	-	-	-	4.43
PERSONAL SERVICES EXCEPT PRIVATE HOUSEHOLD	3.46	-	-	-	-	8.96	11.89	88.79	-	-	6.59	19.25	10.33	0	2.71	3.02	-	-	-	-	7.3
ENTERTAINMENT AND RECREATION SERVICES	1.12	-	-	-	-	29.52	20.53	21.05	-	-	7.66	18.78	11.33	-	14.93	27.0	-	-	-	-	11.63
PROFESSIONAL AND RELATED SERVICES	4.77	-	-	-	-	8.08	10.04	0	-	-	7.56	6.91	5.7	6.97	5.81	12.03	-	-	-	-	4.13
PUBLIC ADMINISTRATION	4.81	-	-	-	-	4.94	6.06	0	-	-	10.96	9.2	20.65	0	12.53	1.69	-	-	-	-	4.21

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BIOGRAPHICAL NOTE

Julianne Malveaux is a poet, writer, and economist. She was born in 1953 in San Francisco, California and attended elementary and secondary school there. Ms. Malveaux entered Boston College in 1970, where she majored in economics and urban affairs. She graduated from Boston College, magna cum laude, in 1974, and received the M.A. from Boston College in the following year. Ms. Malveaux entered the Ph.D. program at MIT in 1974. She took a leave of absence in 1977 to work as a Junior Staff Economist at the Council of Economic Advisors in Washington, D.C. She has completed her dissertation as a research fellow at the Rockefeller Foundation in New York. Ms. Malveaux has worked as an instructor of economics at several universities, and has also had radio, television and magazine work experience. In 1979, she was listed as an Outstanding Young Woman of America. Ms. Malveaux's interests include politics, the arts, travel, and dance. She is a member of the Commission on Arts and Letters of Delta Sigma Theta Sorority, a founding member of the Committee to Historify the Legend of Edmonia Lewis, and a member of the Board of Directors of the Rod Rogers Dance Company.

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