This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Distribution of Economic Well-Being

Volume Author/Editor: F. Thomas Juster, ed.

Volume Publisher: NBER

Volume ISBN: 0-884-10478-8

Volume URL: http://www.nber.org/books/just77-1

Publication Date: 1977

Chapter Title: Labor Market Discrimination and Nonpecuniary Work Rewards

Chapter Author: Greg Duncan

Chapter URL: http://www.nber.org/chapters/c4376

Chapter pages in book: (p. 355 - 378)

9

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Labor Market Discrimination and Nonpecuniary Work Rewards

I. INTRODUCTION

While wage and salary income is the most important payment that an individual receives from his job, it is not the only one. Fringe benefits such as paid vacation, sick days, insurance plans, and the like are provided by most employers. Their importance is not insignificant—a recent survey has shown that these benefits amounted to about one-quarter of total payroll outlays.[1] Beyond these pecuniary benefits are the more difficult to quantify "nonpecuniary" benefits, such as job security, freedom to accept or reject overtime work, flexibility of the job assignment, and healthy and safe working conditions. These nonmonetary rewards are components of total earnings, since it is reasonable to think of workers as being willing to give up a job with higher income for one with more of these nonmonetary benefits. Additional but more ambiguous benefits can be included if one adopts the more normative viewpoint that work should be meaningful and challenging to the worker. Job autonomy and variety are examples of these benefits.

NOTE: The author is a graduate student at the University of Michigan. This paper has benefited considerably from comments by several members of the Economic Behavior Program of the Institute for Social Research. Charles Cowan did most of the computer work. He also suggested the technique of dividing payment differences into between and within occupation effects.

It is not at all obvious that income from a job approximates the total of all pecuniary and nonpecuniary payments. Jobs involving self-employment, for example, have traditionally been the way in which workers may opt for higher nonpecuniary payments, often at the expense of monetary reward. In understanding issues relating to job earnings, then, it is important to measure and analyze nonmoney work payments.

In this paper, I investigate two issues related to the correspondence between pecuniary and nonpecuniary work payments. The first concerns labor market discrimination. Many studies have attempted to document earnings differentials by race and sex. Of the more recent ones, Oaxaca[2] uses data from the 1967 Survey of Economic Opportunity and finds that average wages of women are about half those of men. Differences in individual characteristics between the sexes are found to account for about half of these wage differences. Cohen[3] also studies sex differences and attempts to adjust for fringe benefits and personal and institutional characteristics. He finds a residual annual income difference of about $2,500. Estimates of black-white differentials are somewhat smaller than those between sexes. Gwartney,[4] for example, finds that after adjusting for differences in education, scholastic achievement, age, region, and city size, nonwhite median income is about 80 percent of white male income.

Some authors attribute a substantial portion of the wage differentials to the occupational distribution of women and blacks. These groups are seen to be excluded from certain occupations and are overrepresented in others; as a result they earn lower incomes than they would if their occupational distribution were identical to that of white men. Another part of the earnings differential is due to discrimination *within* a particular occupation—that is, among the workers in a certain occupation, blacks and women may earn less than equally qualified white men. Until now, empirical studies have used a pecuniary work payment measure, such as annual income or hourly wage, to measure the effects of discrimination. Looking at the extent to which blacks and women differ from white men in nonpecuniary payments will provide a more complete look at labor market discrimination. Expanding the earnings concept to include the nonmoney payments may either increase or decrease the estimated prevalence of discrimination. Cohen, for example, reports that women are less likely to report unhealthy working conditions on their jobs. The number of fringe benefits available to women, moreover, is considerably less than those available to men. To the extent that nonpecuniary payments compensate for income differentials, discrimination is overstated by a simple income measure. If nonmoney benefits reinforce differences in income, discrimination is understated.

The second issue under investigation here is the extent to which labor income determinants, such as education and labor market experience,

affect nonpecuniary work payments. Estimates of the importance of these human capital investments for labor incomes have been the subject of numerous studies. Their importance in determining "psychic income," much of which consists of nonpecuniary job payments, is usually asserted but not substantiated for lack of data. Some of these data, however, are now available and they will be examined in this paper.

II. THE DATA

The data used here come from the 1972–73 Quality of Employment Survey, which was conducted by the Survey Research Center for the Employment Standards Administration and the National Institute for Occupational Safety and Health. Interviews were taken early in 1973, using a national probability sample of about 1,500 employed persons 16 years of age or older who worked for pay 20 hours a week or more.[5] Some of the purposes of the survey were to describe and assess work-related problems, to associate working conditions with various indicators of workers' well-being, and to develop efficient measures of job satisfaction.

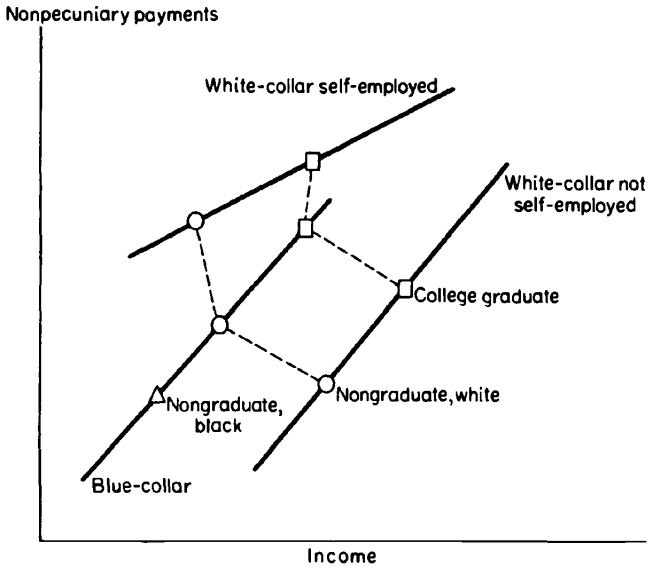
Income information comes from direct questions on the subject. The various nonpecuniary payments analyzed in this paper come from questions about the various working conditions that each individual experiences. The actual benefits used will be described in detail below. Briefly, they fall into three groups. The first is the set of fringe benefits that jobs make available to workers. The second group is composed of three job characteristics that are unambiguous "benefits" to the vast majority of workers. These are (1) whether job conditions are healthy and safe, (2) the extent to which the worker has control over overtime hours, and (3) employment stability throughout the year. A final set of benefits is an index of the extent to which the worker makes decisions on his job and has work with variety, interest, and meaning to him.

III. THE THEORETICAL MODEL

Each worker brings to the labor market a certain mix of training, aptitude, and demographic characteristics that determines, first, the occupations that are available to him and, second, given the occupation, the level of income and nonpecuniary payments that he will receive. Different occupations offer different combinations of the two types of payments. The self-employed occupations, for example, typically pay

higher nonpecuniary rewards relative to income. The relationships between income, nonmoney payments, occupation, and earnings determinants are shown in Figure 1.

FIGURE 1 Income and Nonpecuniary Payments for Three Occupations and Three Earnings Capacity Groups



Suppose that there are only three occupations: white-collar self-employed, white-collar not self-employed, and blue-collar. The white-collar occupation with self-employment has a higher mix of the nonmoney payments relative to income than the white-collar not self-employed occupation, and both of these tend to have higher levels of both money and nonmoney rewards than the blue-collar occupation. Further, suppose that a person's ability to choose an occupation is determined by three combinations of education and race: those who have graduated from college (regardless of race) have the highest earnings capacity, nongraduate blacks have the lowest, and nongraduate whites are in between these groups. Figure 1 shows how individuals in these groups are able to earn combinations of income and nonpecuniary payments. College graduates are able to choose among all three occupations. Typically, their choice will be between the two white-collar occupations. The self-employment white-collar occupation offers higher nonpecuniary payments to the graduate but at the expense of a lower annual

income. The occupation actually chosen will depend upon the individual's relative preferences for the money and nonmoney aspects of work. The nongraduate whites may also choose among the three occupations but they will be unable to earn as much as the graduates in any of them. For these nongraduates, the self-employment white-collar occupation offers the highest nonpecuniary payments and the lowest income; the white-collar occupation without self-employment pays the nongraduate whites the highest income and lowest nonpecuniary payments, while blue-collar work lies between these other two occupations. Blacks without a college degree are excluded from white-collar occupations altogether and are able to obtain only blue-collar employment. Furthermore, within the blue-collar occupations, they are discriminated against and are paid both fewer pecuniary *and* nonpecuniary payments for their blue-collar work.

The above discussion suggests that several factors must be taken into account when earnings differences for various race and sex subgroups are investigated. First, both the pecuniary and nonpecuniary components of total earnings must be included. Individuals earning low incomes may be compensated by higher nonpecuniary payments, so that simple income differentials may overstate the total earnings differentials. Second, it will be necessary to control for some of the training and skill differences of individuals, so that earnings differentials are not falsely attributed to race or sex when, in fact, they are due to training differences. Third, it is necessary to distinguish the extent to which payment differences result from occupational choice as opposed to within-occupation differentials. In Figure 1, it was seen that blacks earned less than similarly qualified whites, because they were excluded from white-collar occupations (that is, the payments varied by race between occupations). They also earned less within the blue-collar occupation to which they had been restricted (i.e., payments differed *within* an occupation). These effects from both between and within occupations need to be distinguished.

IV. THE EMPIRICAL MODEL

Monetary and nonmonetary work-payment differentials will be investigated with a series of multiple regressions of each of the payment variables on a common set of explanatory variables. To control for training differences, the regressions will include years of formal education and labor market experience. The latter variable is ascertained directly from the question "How many years in total have you worked for pay since you were 16 years old?" To account for the expected nonlinear

experience-earnings profile, the square of years of experience is also included as a separate predictor.[6] Income and nonpecuniary payment differentials by race and sex will be investigated through the inclusion of three dummy variables in the regression: (i) whether white female, (ii) whether black female, and (iii) whether black male. Coefficients on these variables will show the extent to which these subgroups differ in their payments from the group of white men. Since the various dependent variables are scaled in different ways, each is standardized so that the coefficients on the independent variables refer to the fraction of a standard deviation of the payment variable which is associated with a one-unit change in the particular independent variable.

In sum, the basic equation which will be used to predict the set of various payment variables is:

$$\begin{aligned}\text{Payment} = {} & a + b_1(\text{Education}) + b_2(\text{Experience}) + b_3(\text{Experience})^2 \\ & + b_4(\text{Whether white female}) + b_5(\text{Whether black male}) \\ & + b_6(\text{Whether black female}) + u\end{aligned}$$

This functional form is not identical to the ones used in some other wage studies, because it fails to allow the coefficients on the education and experience variable to differ among the race-sex subgroups. Reported coefficients on these variables will thus be a weighted average of coefficients among the groups.

To account for the within and between occupation variations in the payments, two additional regressions will be run. The first will explain the pecuniary or nonpecuniary payment which results from occupational choice. Each individual is assigned the mean payment level of his occupation, and then the set of mean payments for all individuals is predicted by the education, experience, and race-sex dummy variables listed above. The coefficient on a race-sex variable, say for white females, will show the payment differential between white women and equally educated and experienced white men that is due to the fact that white women are concentrated in different occupations than men. The estimated coefficient on education will reflect the extent to which education affects the payment by placing individuals in occupations with different payment levels. These will be called the *between occupation* effects.

The second additional regression will explain *within occupation* payment effects. These effects are calculated by subtracting each individual's payment from his mean occupation payment. These differences are then predicted by the same independent variables used in the other two regressions.[7]

The success of this between/within-occupation division in actually quantifying the extent to which the explanatory variables operate

through occupational choice itself, rather than within occupations, is dependent upon several factors. First, the occupational classification must be sufficiently broad to include enough individuals so that average pecuniary and nonpecuniary payments for each occupation are meaningful. On the other hand, each occupation must be homogeneous enough so that within occupation differentials are not actually differences between two similar but distant occupations.

A ten-category occupation classification will be used for the empirical section of this study. It is given in Table 1. Sample sizes for the black male

TABLE 1 Occupational Classification with Numbers of Observations from Various Race-Sex Groups[a]

Occupation	Number of Observations				
	White Males	White Females	Black Males	Black Females	Total
Professional and technical	134	70	4	4	212
Managers and administrators	179	31	5	4	219
Sales	44	21	2	1	68
Clerical	54	131	5	20	210
Craftsmen	179	10	7	2	198
Operatives, except transport	114	58	13	12	197
Transport equipment operatives	44	2	8	0	54
Laborers	49	3	8	1	61
Farmers and farm managers	34	1	1	0	36
Service workers	58	72	12	18	160
Total	889	399	65	62	1,415

[a]Calculated from the 1972–73 Quality of Employment Survey.

and black female groups are rather small and, as a consequence, considerably more confidence can be placed in estimated effects for white women than for these other groups. It should be noted that the various race-sex groups differ considerably in their distributions across occupations. Relative to white men, women are much less likely to be in managerial and administrative occupations or to be craftsmen. (See Table 1.) They are overrepresented in the clerical and service categories. Small sample sizes do not permit confident statements about the distribution of blacks across occupations, but the pattern of underrepresentation

in higher status occupations has been confirmed in other studies using much larger samples.

The occupational division of effects also depends upon the assumption that within occupation effects are similar across occupations. That is, deviations from the mean payment in one occupation are related to the same things that lead to deviations in other occupations. A more complete study of the problem would examine each occupation separately for an explanation of the within occupation variability in payments. Our sample size does not permit this and our results must be interpreted with this in mind. We seek an estimate of the order of magnitude of between/within occupation effects of the various payment predictors.

V. RESULTS

Income

Annual labor income is the most studied of all payment variables; results for it will be presented first. Data on this variable come from the question "How much does your income from your job figure out to be a year, before taxes and other deductions are made?"[8] The distribution of income by occupation is presented in Table 2. The pattern is a familiar

TABLE 2 Annual Labor Income, by Occupation[a]

Occupation	Mean Income	Number of Observations
Professional and technical	$11,808	212
Managers and administrators	14,000	219
Sales	12,408	68
Clerical	6,788	210
Craftsmen	9,926	198
Operatives, except transport	7,641	197
Transport equipment operatives	9,789	54
Laborers	6,988	61
Farmers and farm managers	12,561	36
Service workers	5,555	160
Total	$9,629	1,415

NOTE: Standard deviation = $6,611.
[a]Calculated from the 1972–73 Quality of Employment Survey.

one. Professionals and managers earn the highest incomes, laborers earn the least, with the remaining occupations falling in between.

How this income variable (when standardized) relates to the race-sex dummy variables, education, and experience is presented in Table 3.

TABLE 3 Regression Coefficients for Earnings Predictors with Annual Labor Income the Dependent Variable[a]

	Dependent Variable: Annual Income (Standardized)		
Predictor	Total Effect	Between Occupation Effect	Within Occupation Effect
White female	−.69†	−.23†	−.46†
Black male	−.13	−.17†	.04
Black female	−.75†	−.35†	−.40†
Education	.10†	.05†	.05†
Experience	.07†	.02†	.04†
(Experience)^2	−.001†	−.0003†	−.0007†
R^2	.30	.24	.15
N = 1,415			

†Coefficient is statistically different from zero at the 1 percent probability level.
[a]Calculated from the 1972–73 Quality of Employment Survey.

Since the dependent variable is standardized, coefficients are the estimated fraction of a standard deviation in income which is associated with a unit change in the independent variables. For example, the −.69 coefficient in the "total effects" column for white females means that when education and experience are taken into account, white women earn about two-thirds of a standard deviation of income less than white men. Since income's standard deviation is $6,611, this amounts to a difference in level of payments of $4,561. The .10 coefficient on education is interpreted similarly: each additional year of education is associated with a one-tenth of a standard deviation (or about $661) increase in annual income. Estimated coefficients which are statistically different from zero at the 5 percent probability level are denoted with a single asterisk, those at the 1 percent level have a dagger.

White women earn about $4,500 less than white men with similar education and experience. This difference can be divided into income differences due to the distribution of white women across occupations and to differences within each of the occupational classifications. This division is given in the second and third columns of Table 3. It is seen that about one-third of the income difference of white women can be

attributed to the fact that they prefer, or are crowded into, lower-paying occupations and the remaining two-thirds is the result of payment differences within occupations. The size of this estimated male-female income differential is somewhat larger than that found in other studies. Part of this discrepancy is due to the inclusion of part-time workers (i.e., those working between 20 and 35 hours per week), many of whom are women. When annual income is divided by average number of hours worked per week and then standardized and regressed on this same set of explanatory variables, the coefficient for white females drops from −.69 to −.51. The coefficient on black females is similarly reduced from −.75 to −.62. The division of these coefficients into within and between occupation effects is quite similar to that given in Table 3. Other factors contributing to the discrepancy may be absence of control for institutional characteristics (e.g., union membership) and personal characteristics (e.g., marital status and health problems).

Income differentials between black and white men are much smaller than the male-female differences. The total estimated income gap between black and white men with the same distributions of education and experience is a little more than one-tenth of a standard deviation (or $860). Examination of the between and within occupation division of this effect reveals that it is entirely attributable to the fact that blacks are in lower-paying occupations than whites.

Income differences for black women are similar to, and slightly larger than, those of white women. This difference is divided equally into within and between occupation effects.

It is also instructive to examine the ways in which education and experience pay off in labor income. An additional year of education is associated with a tenth of a standard unit increase in income. Half of this increase is due to the fact that additional education makes higher-paying occupations more accessible; the other half is due to income differentials by education *within* the various occupations.

Labor force experience also results in higher income. The significant coefficients on experience and $(\text{experience})^2$ imply a parabolic experience-income profile. As one might expect, most of the payoff to experience comes from within a particular occupation. A smaller part comes from the fact that different occupations are associated with differences in average experience levels for workers in them. These experience levels by occupation are given in Table 4. Jobs with the lowest mean experience levels are in the lower status blue- and white-collar occupations.

In sum, large income differences exist between white men and similarly qualified women. Black men also earn less but the differential is not nearly as great for them. The male-female difference is due partly to

TABLE 4 Average Years of Labor Force Experience, by Occupation[a]

Occupation	Average Years of Experience	Number of Observations
Professional and technical	17.9	212
Managers and administrators	22.1	219
Sales	19.7	68
Clerical	15.8	210
Craftsmen	19.6	198
Operatives, except transport	19.0	197
Transport equipment operatives	21.1	54
Laborers	15.2	61
Farmers and farm managers	27.8	36
Service workers	18.3	160
Total	19.0	1,415

NOTE: Standard deviation = 12.9.
[a]Calculated from the 1972–73 Quality of Employment Survey.

the prevalence of females in lower-paying occupations and partly to pay differences within the given occupations. We shall turn now to an examination of other types of work payments to see if this income differential accurately reflects the total pecuniary and nonpecuniary differences. The extent to which the race-sex groups earn higher nonmonetary benefits than white males means that income differences overstate total earnings differences. To the extent that they earn fewer of these nonpecuniary payments, differences will be understated.

Fringe Benefits

Fringe benefits have in recent years become a very important earnings component. The Quality of Employment Survey asked respondents whether any of the following fringe benefits were made available on their jobs:

1. Vacation days with full pay
2. Full pay sick days
3. Medical insurance for off-the-job illness or injury
4. Life insurance for off-the-job death
5. Retirement program
6. Training program to improve skills
7. Profit sharing

8. Stock options
9. Free or discounted meals
10. Free or discounted merchandise

The value of each of the fringe benefits will vary by firm, occupation, and wage rate. Rather than attempt to assign a value to each benefit, they are combined into an additive index.[9] The payment score for each worker is simply the number of the various benefits that he reports available on his job. The distribution of scores by occupation is given in Table 5. With the exception of the predominantly self-employed occupation of managers and farmers, occupations rank in average number of fringe benefits roughly by status.

TABLE 5 Average Number of Fringe Benefits Available, by Occupation[a]

Occupation	Mean Number of Benefits	Number of Observations
Professional and technical	5.1	212
Managers and administrators	3.6	219
Sales	4.2	68
Clerical	5.4	210
Craftsmen	4.3	198
Operatives, except transport	4.3	197
Transport equipment operatives	4.2	54
Laborers	3.3	61
Farmers and farm managers	0	36
Service workers	3.6	160
Total	4.3	1,415

NOTE: Standard deviation = 2.6.
[a]Calculated from the 1972–73 Quality of Employment Survey.

The ways in which the number of fringe benefits relate to the race-sex subgroups, education, and experience are presented in Table 6. Without taking into account the occupational choice, none of the race-sex subgroups significantly differ from white males in total number of fringe benefits available. Both of the human capital variables, however, have a significant effect in number of fringe benefits, although their estimated importance is about half as great as their effect on labor income.

When the between and within occupation effects for the race-sex sub-groups are estimated, some fascinating results emerge. While the overall number of fringe benefits available to women did not differ from those available to similarly qualified men, this result appears to be the

TABLE 6 Regression Coefficients for Earnings Predictors with Number of Fringe Benefits the Dependent Variable[a]

Predictor	Dependent Variable: Fringe Benefits (Standardized) Total Effect	Between Occupation Effect	Within Occupation Effect
White female	.07	.20†	−.13†
Black male	.06	.06	−.00
Black female	−.00	.16†	−.16
Education	.06†	.02†	.03†
Experience	.02*	.00	.02*
(Experience)^2	−.0004†	−.00003	−.0004†
R^2	.04	.11	.03
N = 1,415			

*Coefficient is statistically different from zero at the 5 percent probability level.
†Coefficient is statistically different from zero at the 1 percent probability level.
[a]Calculated from the 1972–73 Quality of Employment Survey.

sum of two significant effects which cancel each other out. Women earn significantly more fringe benefits because they are in occupations where a larger average number of benefits are made available. Much of this effect comes from the underrepresentation of women in the self-employed occupations which provide few fringe benefits. *Within* the various occupations, however, women receive significantly fewer fringe benefits than men of similar education and experience. These two opposing effects offset one another.

Healthy and Safe Working Conditions

The health and safety of work was ascertained in the question "Does your job at any time expose you to what you feel are physical dangers or unhealthy conditions?" Responses are less precisely measured than those given for the income and fringe benefit variables because conditions that are unhealthy and unsafe to one worker may not be evaluated as such by another. Those responding affirmatively to the question were given a score of zero, all others were scored one. Higher values for the variable thus indicate greater health and safety benefits.

The proportion of workers reporting healthy and safe working conditions in each of the occupational classifications is shown in Table 7. It is somewhat surprising that almost half of the entire work force feel that their work exposes them to dangerous and unhealthy conditions and that

TABLE 7 Proportion of Individuals Reporting Healthy and Safe Working Conditions, by Occupation[a]

Occupation	Proportion Healthy and Safe Conditions	Number of Observations
Professional and technical	.64	212
Managers and administrators	.69	219
Sales	.71	68
Clerical	.81	210
Craftsmen	.36	198
Operatives, except transport	.39	197
Transport equipment operatives	.33	54
Laborers	.38	61
Farmers and farm managers	.17	36
Service workers	.58	160
Total	.56	1,415

NOTE: Standard deviation = .50.
[a]Calculated from the 1972–73 Quality of Employment Survey.

in no occupation does this proportion fall much below 20 percent. As might be expected, white-collar occupations are considerably healthier and safer than blue-collar ones, with farmers and farm managers at the very bottom.

Regression results appear in Table 8 and show that each of the race-sex subgroup scores significantly *higher* on this nonpecuniary payment available than do white men.[10] For women, the positive difference is due mostly to holding jobs in safer occupations. Some of the effect, however, is attributable to their obtaining safer and healthier jobs within the various occupations. The finding that black men report somewhat safer and healthier jobs than white men is somewht puzzling. None of the differences are due to their distribution across occupations; all result from reports of safer jobs within the occupations. It could be that blacks are less inclined to conceive of or report their job as unhealthy or dangerous. Since the number of blacks is small, the mean scores on this variable across occupations would not be affected very much, while all the bias would show up as within occupation effects. Lacking any proof of this bias, however, we must accept the possibility that income deficits for black males may be compensated for by healthier and safer conditions.

Of the education and experience variables, only the former has a significant effect. Looking across the other columns of Table 8, one sees that education pays off in healthier and safer jobs by placing individuals in healthier and safer occupations.

TABLE 8 Regression Coefficients for Earnings Predictors with Whether Healthy and Safe Working Conditions the Dependent Variable[a]

Predictor	Dependent Variable: Whether Healthy and Safe Conditions (Standardized)		
	Total Effect	Between Occupation Effect	Within Occupation Effect
White female	.44†	.26†	.18†
Black male	.28*	.03	.26†
Black female	.31*	.23†	.08
Education	.05†	.04†	.01
Experience	.006	.006†	.000
(Experience)^2	−.00003	−.00008	.00004
R^2	.06	.24	.01
N = 1,415			

*Coefficient is statistically different from zero at the 5 percent probability level.
†Coefficient is statistically different from zero at the 1 percent probability level.
[a]Calculated from the 1972–73 Quality of Employment Survey.

Control over Overtime Hours

One desirable job characteristic is that the worker himself be able to choose whether or not he should work overtime hours and not be penalized in any way if he refuses the overtime work. Over three-quarters of the respondents gave some kind of definition of overtime work on their job—ranging from working more than so many hours per day or week to working before or after certain hours or on days that are not normal work days. For those who gave a definition of overtime work, questions were then asked about who determines whether the worker will put in the work. For jobs in which the overtime hours are set by the employer or supervisor, workers were further questioned as to whether they could refuse to work overtime without being penalized in any way. From this sequence of questions, the variable "control overtime hours" was constructed as follows:

The variable equals:
- 3 if no definition of overtime on job or if decision on overtime hours is mostly up to the respondent
- 2 if decision on overtime hours is up to employer but the respondent can refuse them without penalty

1 if decision on overtime hours is up to employer and respondent would be penalized if he refused to do the overtime work.

The mean scores on this payment variable by occupation are given in Table 9. Workers in high status and high self-employment occupations report the greatest freedom in setting overtime hours; operatives and laborers report the least.

TABLE 9 Mean Score on "Control Overtime Hours" Payment Variable, by Occupation[a]

Occupation	Average Score on Control Overtime Hours Variable	Number of Observations
Professional and technical	2.70	212
Managers and administrators	2.79	219
Sales	2.75	68
Clerical	2.26	210
Craftsmen	2.22	198
Operatives, except transport	2.02	197
Transport equipment operatives	2.31	54
Laborers	2.03	61
Farmers and farm managers	3.00	36
Service workers	2.32	160
Total	2.41	1,415

NOTE: Standard deviation = .72.
[a]Calculated from the 1972–73 Quality of Employment Survey.

When education and experience levels are accounted for (Table 10), women and blacks report less control over overtime hours than white men, although these differences are often small and statistically insignificant. White women differ the least, and all of this differential can be attributed to their placement in occupations with less control over hours. Black women have one-quarter of a standard deviation less control over overtime than white males. This difference can be divided equally into the between and within occupation effects. Black men fall between the two female subgroups in their control of overtime work; nearly all of this difference stems from their overrepresentation in occupations characterized by less control.

While these race-sex differences are rather small and only sporadically significant, the importance of education and labor force experience is much larger and quite significant. Both education and experience appear

TABLE 10 Regression Coefficients for Earnings Predictors with "Control Overtime Hours" the Dependent Variable[a]

Predictor	Dependent Variable: Control Overtime Hours (Standardized) Total Effect	Between Occupation Effect	Within Occupation Effect
White female	−.02	−.04*	.02
Black male	−.14	−.10*	−.04
Black female	−.25*	−.13†	−.11
Education	.07†	.06†	.007
Experience	.02†	.01†	.008
(Experience)^2	−.0003*	−.0001†	−.0001
R^2	.05	.23	.003
N = 1,415			

*Coefficient is statistically different from zero at the 5 percent probability level.
†Coefficient is statistically different from zero at the 1 percent probability level.
[a]Calculated from the 1972–73 Quality of Employment Survey.

to allow individuals to choose occupations with a greater amount of control over overtime hours.

Employment Stability

Jobs which provide stable employment throughout the year are generally thought to be more desirable than seasonal jobs or jobs with frequent layoffs. The importance of this characteristic is greatest for main earners within families and least for casual labor force participants. To the extent that the respondent selection was restricted to those who worked more than 20 hours in the week prior to the interview and the interviewing was conducted during the early months of the year (and thus excluded Christmas and summer vacation workers), most of those for whom employment stability would not be a problem were excluded from this analysis. The employment stability variable was constructed from the following question: "Do you think of your job as one where you have regular steady work throughout the year, is it seasonal, are there frequent layoffs, or what?" Those responding that their jobs were seasonal or had frequent layoffs were scored zero, all others received a value of one. The distribution of responses across the occupational classification is given in Table 11. Employment stability thus defined is not a serious problem to

TABLE 11 Proportion of Workers Reporting Stable Employment, by Occupation[a]

Occupation	Proportion Reporting Stable Employment	Number of Observations
Professional and technical	.95	212
Managers and administrators	.94	219
Sales	.93	68
Clerical	.98	210
Craftsmen	.83	198
Operatives, except transport	.91	197
Transport equipment operatives	.87	54
Laborers	.74	61
Farmers and farm managers	.94	36
Service workers	.91	160
Total	.91	1,415

NOTE: Standard deviation = .28.
[a]Calculated from the 1972–73 Quality of Employment Survey.

most of the work force: more than 9 of every 10 workers report that their jobs provide this nonpecuniary payment. This is particularly true of those in white-collar occupations. Craftsmen and laborers are the most likely to experience seasonal work or frequent layoffs.

Regression results presented in Table 12 reveal significant differences among the race-sex groups in reported employment stability only for white women. They enjoy *more* stable work than white men and this is entirely the result of their absence from occupations which fail to provide steady employment. Coefficients for black men and women are not statistically significant.

Both education and experience are associated with jobs that provide steady employment. The payoff of education is mostly the result of its allowing entrance into more stable occupations. For labor force experience, however, the within occupation effect is much larger than that between occupations.

Job Autonomy

Apart from the reasonably unambiguous nonpecuniary payments already discussed, there are job characteristics which develop the individual by allowing him to participate in the decisions that affect his work, challenge

TABLE 12 Regression Coefficients for Earnings Predictors with Employment Stability the Dependent Variable[a]

Predictor	Dependent Variable: Employment Stability (Standardized) Total Effect	Between Occupation Effect	Within Occupation Effect
White female	.13†	.16†	−.03
Black male	.13	−.00	.13
Black female	−.08	.14	−.22
Education	.04†	.03†	.01
Experience	.02†	.004†	.015†
(Experience)^2	−.0003*	−.00003	−.00024
R^2	.02	.24	.01
N = 1,415			

*Coefficient is statistically different from zero at the 5 percent probability level.
†Coefficient is statistically different from zero at the 1 percent probability level.
[a]Calculated from the 1972–73 Quality of Employment Survey.

his creativity, or simply give him varied and interesting tasks. These characteristics are less ambiguous than the other payment variables. Some individuals may not care about those characteristics and therefore would not forgo a higher paying job for one in which these characteristics were present.

An index of job autonomy and variety was constructed from questions about the extent to which an individual's job was associated with the following characteristics:

1. Requires the learning of new things
2. Allows freedom as to how work is done
3. Allows decision making
4. Requires creativity
5. Allows varied work
6. Avoids repetition
7. Allows taking part in decisions
8. Helps keep the respondent informed
9. Helps the respondent to understand the kind of person he really is

Responses to each of these questions were translated into a four-point scale. The score equaled 4 if the job required "a lot" of that characteristic, 3 if it was somewhat related to the characteristic, 2 if the association between job and characteristic was "a little," and 1 if the

characteristic was "not at all" a part of the job. An empirical investigation of these components revealed that although there are a considerable variety of concepts, none offset any other and so a simple additive index of them could be formed. The resultant variable consists of the sum of the nine variables, each of which ranges from 1 to 4.

Average job autonomy scores for the different occupations are presented in Table 13. Not surprisingly, farmers report the most autonomous and varied work, followed closely by professionals, managers and salespersons. Craftsmen report job autonomy equal to the overall mean, and the remaining occupations score below average autonomy.

TABLE 13 Mean Job Autonomy Index, by Occupation[a]

Occupation	Mean Job Autonomy Index	Number of Observations
Professional and technical	29.8	212
Managers and administrators	29.7	219
Sales	28.4	68
Clerical	24.4	210
Craftsmen	26.4	198
Operatives, except transport	21.6	197
Transport equipment operatives	23.5	54
Laborers	23.1	61
Farmers and farm managers	31.2	36
Service workers	25.6	160
Total	26.4	1,415

NOTE: Standard deviation = 5.5.
[a]Calculated from the 1972–73 Quality of Employment Survey.

Regression results (in Table 14) show that all of these race-sex groups report significantly less job autonomy than do white males with similar education and experience. The deficit is largest for blacks—both black men and women score about one-third of a standard deviation less on job autonomy. A look across the columns of Table 14 shows that about half of the total deficit for black males is attributable to the fact that they work in occupations with less autonomy and the remaining half is due to their obtaining less autonomous jobs *within* the occupations. For black females, the between occupation effect is greater than that from within the occupations.

The autonomy deficit for white women is not as great as that for blacks, although it is large enough to be statistically significant. Most of it comes from the occupational distribution of the white women.

TABLE 14 Regression Coefficients for Earnings Predictors with Job Autonomy the Dependent Variable[a]

Predictor	Dependent Variable: Job Autonomy (Standardized)		
	Total Effect	Between Occupation Effect	Within Occupation Effect
White female	−.18†	−.11†	−.06
Black male	−.35†	−.17†	−.19
Black female	−.35†	−.22†	−.12
Education	.10†	.08†	.02†
Experience	.04†	.02†	.03†
(Experience)^2	−.0006†	−.0002†	−.0004†
R^2	.16	.25	.03
N = 1,415			

†Coefficient is statistically different from zero at the 1 percent probability level.
[a]Calculated from the 1972–73 Quality of Employment Survey.

The importance of education in allowing individuals to choose autonomous jobs is as great as its importance in determining income. But while the effect of education on income was equally divided into the between and within occupation effects, its effect on job autonomy comes mostly from placing individuals in occupations with greater autonomy. A smaller, but still significant, within occupation effect for education is shown in Table 14.

Labor force experience also has an important association with job autonomy, half of which comes from between occupation effect, the remaining half from within occupations.

VI. SUMMARY AND CONCLUSIONS

This paper has looked beyond the well-documented pecuniary work payment differentials between white men and similarly qualified women and blacks to see whether other desirable work characteristics compensate or reinforce these income differences. Some compensating work payments were observed. Relative to white men with the same amount of education and labor force experience, women and black men report safer and healthier working conditions. Further, white women responded that their jobs provided significantly greater employment stability.

Differences in some job characteristics were seen to exacerbate the observed income differentials. Members of all three race-sex subgroups reported considerably less autonomy and variety in their work than did white males with the same amounts of education and experience. Control of overtime hours was significantly less for black females.

One way in which labor market discrimination against population subgroups operates is by crowding their members into certain occupations and preventing their entry into others. The resulting differences in the distribution of the labor force across occupations accounts for most of the observed payment differences. Some additional differentials show up *within* the various occupations: women earn significantly less income than similarly qualified white men within the occupations; they also have jobs which provide fewer fringe benefits. A compensating payment difference within occupations for women is healthier and safer working conditions.

The net result of these compensating and reinforcing nonpecuniary payment differentials on the estimated total labor market discrimination will depend upon the ways in which these various payments combine into a measure of total earnings. If characteristics such as control over overtime hours and variety are considered to be more important than the others, then the large income differences between white men and the race-sex subgroups (in particular women) will underestimate total discrimination. If, on the other hand, the payments of healthy and safe working conditions and employment stability receive much more weight than the others, the income differentials will overstate the extent of discrimination.[11] However, given the huge income gap between white men and the other groups and relatively small differences in the nonpecuniary characteristics, it would be difficult to argue that the latter compensate for the former. Regardless of how one chooses to define earnings, differentials in those earnings between the sexes and races are pervasive in the labor market.

NOTES

1. *Fringe Benefits, 1971* (Washington, D.C.: Economic Analysis and Study Group, Chamber of Commerce, 1972).
2. Oaxaca, Ronald, "Male-Female Wage Differentials in Urban Labor Markets," *International Economic Review*, Vol. 14, No. 3, Oct. 1973.
3. Cohen, Malcolm S., "Sex Differences in Compensation," *Journal of Human Resources*, Vol. 6, Fall 1971.
4. Gwartney, James, "Discrimination and Income Differentials," *American Economic Review*, Vol. 60, No. 3, June 1970.

5. Since the distribution and importance of fringe benefits to full-time workers may differ from those working less than full time, I have replicated much of the analysis of this paper for those working at least 35 hours per week. Results are quite similar and are presented in "Nonpecuniary Work Rewards: Implications for Studies of Earnings Functions, Discrimination, and Labor Union Effects" (Ph.D. diss., University of Michigan, 1974). Significant differences will be noted at appropriate places in this paper.
6. These variables comprise the standard human capital earnings function given by Jacob Mincer in *Schooling, Experience, and Earnings* (New York: National Bureau of Economic Research, 1974).
7. This technique was used to explain between and within industry differentials in investment behavior of firms by Robert Eisner in "A Permanent Income Theory for Investment: Some Empirical Explorations," *The American Economic Review*, Vol. 57, No. 3, June 1967.

   One desirable property of the division of the total effects of the predictors into between and within occupation effects is that the coefficients estimating these latter effects will always add up to the total effect. This is because the two "subeffects" are uncorrelated with one another.
8. Respondents unable to estimate their annual income were asked how often they received work payments (e.g., weekly, monthly) and how much they typically received per pay period. These numbers were then converted into annual equivalents.
9. It is possible to obtain a crude valuation of fringe benefits by assigning the fraction of payroll that firms report allocating to the various fringe benefits. This information is gathered annually on a sample of firms by the Chamber of Commerce. When this valuation is applied to the respondents of the Quality of Employment Survey who worked more than 35 hours per week, it is found that there is little difference in the occupational distribution of fringe benefits (see Table 5) but substantial changes in the extent to which the various race-sex subgroups differ from white males in the receipt of fringe benefits (Table 6). The .07, .06, and −.00 coefficients for white females, black males, and black females respectively, become .19, .06, and .16. The white female coefficient is large enough to be significant at the 1 percent probability level. Thus when part-time workers are excluded from the analysis and fringe benefits are valued with outside data, women receive more fringe benefits than white men. When fringe benefits are combined with income to obtain a more comprehensive earnings measure, however, it is found that the impact of fringe benefits on total earnings differences between the races and sexes is quite small.
10. All of the assumptions necessary for ordinary least squares regression are not met for this dependent variable and several of those which follow. Here, the payment variable is confined to taking on only the values of zero and one, thus producing a heteroscedastic error term. Estimated coefficients will, as a result, be unbiased but inefficient.
11. Combining pecuniary and nonpecuniary payments into a single earnings measure is a difficult and rather arbitrary process. In my dissertation, I combine the two kinds of payment in two ways—1. with a Cobb-Douglas utility function that weights each of the nonpecuniary measures equally (job autonomy is omitted) and also gives the entire set of nonpecuniary measures a weight equal to that on the pecuniary earnings measure; and 2. with coefficients obtained from a regression of a linear combination of the pecuniary and nonpecuniary measures on education, experience, and the square of years of experience. When the race-sex earnings differences using these earnings measures are compared to differences using wage rate with and without fringe benefits for the sample of quality-of-employment respondents who worked 35 hours or more

per week, one obtains the following coefficients (and standard errors in parentheses):

Race-Sex Subgroup	Earnings Measure (Standardized)			
	Wage Rate	Wage Rate and Fringe Benefits	Cobb-Douglas Utility Index of Wage, Fringe and Nonpecuniary Benefits	Regression Index of Wage, Fringe and Nonpecuniary Benefits
White female	−.57	−.56	−.44	−.32
	(.05)	(.05)	(.05)	(.06)
Black male	.08	.09	.06	.11
	(.12)	(.12)	(.12)	(.13)
Black female	−.62	−.62	−.59	−.55
	(.12)	(.12)	(.12)	(.12)

SOURCE: 1972–73 Quality of Employment Survey.
NOTE: Other variables included in the regression: education experience, $(\text{experience})^2$, job tenure, whether a nervous condition limits the type of work respondent could do.

Thus, when more comprehensive earnings measures are used, it is found that earnings differences between white men and white women are considerably (although certainly not completely) reduced and that compensating benefits are *not* found for either black females or black males.