DISCRIMINATION IN HEW: IS THE DOCTOR SICK OR ARE THE PATIENTS HEALTHY?*

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I. INTRODUCTION

EXECUTIVE Orders No. 11247 and No. 11375[1] require that federal contractors with a contract larger than $50,000 or with fifty or more employees develop and enforce a written plan of affirmative action that guarantees equal employment opportunity. Under these orders and Title IX of the Education Amendments of 1972,[2] the Office of Civil Rights (OCR) at the Department of Health, Education, and Welfare (HEW) has been given the responsibility for carrying out these regulations and ensuring that no employment discrimination exists at the nation's universities.[3] The higher education sector, in turn, has faced the task of convincing HEW that indeed no discrimination exists or it risks losing all federal funds received by the particular universities.

A surprising development is that HEW is currently "suggesting" that universities perform sophisticated statistical analyses to determine whether or not wage discrimination exists at a particular institution. Thus, for example, the Chicago office of HEW has reviewed affirmative action plans at six uni-

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[1] Exec. Order No. 11247, 3 C.F.R. 348 (1964-65 Compilation), 1 Weekly Comp. of Pres. Doc. 305 (1965); Exec. Order No. 11375, 3 C.F.R. 684 (1966-70 Compilation), 3 Weekly Comp. of Pres. Doc. 1437 (1967); see also 45 C.F.R. § 80 (1977).

[2] As amended, 20 U.S.C.A. § 1681-1686 (1978).

[3] 45 C.F.R. § 86.1 *et seq.* (1977). In his message to Congress, outlining his Reorganization Plan No. 1 of 1978, President Carter announced that he will issue an executive order on October 1, 1978 consolidating the entire contract compliance program, including OCR's responsibility for discrimination in university employment, in the Department of Labor, Office of Federal Contract Compliance Programs, [1978] U.S. Code Cong. & Ad. News 595.

versities and has requested detailed statistical analyses from four institutions.[4] These requests are included in the "conciliation agreements" reached between universities and HEW. These agreements ascertain that the affirmative action programs at the institutions are in compliance with the requirements of the executive orders once the universities carry out a detailed list of programs and actions covering its hiring practices of women and minorities. In particular, the conciliation agreements tend to be quite explicit in terms of the statistical analysis the universities must carry out to determine the extent of wage discrimination. For example, in the conciliation agreement between the University of Michigan and HEW the section concerning faculty salaries states that:

> The University is committed to achieving equity in pay between men and women and minority and non-minority employees in every faculty and academic staff category. In order to effect this commitment, the University will analyze its employment records and the qualifications of personnel. Professional job related criteria will be identified as base line variables for use in the analysis. Base line variables shall be quantified and include: department, rank, time in rank, measure(s) of length of professional experience. Other valid base line, quantifiable variables may be included; provided, however, that prior to inclusion the University shall consult with OCR regarding inclusion of these variables.
>
> Upon identifying appropriate base line variables, the University will perform a two tier analysis of faculty and academic staff salaries.
>
> The first tier analysis will consist of a statistical or other empirically verifiable analysis (such as multiple regression) of faculty and academic staff salaries to identify wage discrepancies. The second tier analysis will develop narrative justifications of wage discrepancies located in the first tier analysis and/or develop remedial salary awards. In no case will assertions, verbal or written, unsupported by specific comparative analysis be considered as justification for wage discrepancies.[5]

Thus universities are required to conduct analyses such as multiple regression to determine whether there exist racial or sexual wage differentials. If these are found, and if the university is unable to justify them, the university is required to provide remedial salary awards on current salaries and on two years back pay.[6] This paper is not an attempt to document what these afirmative action programs have done to improve the economic position of minorities and women.[7] It is, instead, an attempt to turn the table around

[4] These facts were made available to me by Mr. Paul Turner, an equal opportunity specialist at the Chicago Office of HEW.

[5] U.S. Department of Health, Education, & Welfare, Office of Civil Rights, Agreement with the University of Michigan 6 (Jan. 9, 1978).

[6] It is important to note that the conciliation agreements reached between universities and HEW cover not only faculty employees but noninstructional workers as well. Moreover, the universities are also instructed to conduct the same statistical analysis for the latter group.

[7] See Thomas Sowell, Affirmative Action Reconsidered: Was It Necessary in Academia? (Am. Enterprise Inst. 1975).

and ask what would happen if HEW were to perform a statistical analysis similar to the ones that universities are currently carrying out. Thus the paper poses the empirical question of whether the doctor swallows his or her own medicine. Put differently, does "discrimination," as defined by the statistical analysis ordered by the conciliation agreements, exist at HEW?

The empirical analysis presented in this paper is based on a one per cent random sample of HEW employees collected by the Civil Service Commission.[8] To be in the sample, the individual had to be a permanent full-time employee of the Department of Health, Education, and Welfare as of July 1977. Moreover, since the salary figures available in the data are full-time salaries, no labor supply differentials exist among individuals and the discrimination coefficients estimated in this paper are for HEW's permanent full-time labor force.

The analysis will use the procedure that has become traditional in estimating wage differentials across sex or race groups after standardizing for skills. The procedure was introduced into the discrimination literature by Oaxaca[9] and is one which causes the residual wage differential—that not explained by differences in observable personal characteristics—to be called "discrimination." It is not my purpose here to defend the procedure since its many drawbacks have been pointed out by Oaxaca and by Polachek.[10] Instead, I will simply inquire into what happens to wage differentials at HEW if the procedure is followed.[11]

Section II presents a brief descriptive look at HEW and gives the basic wage regressions estimated for the agency. It also presents regressions showing that general schedule ratings differ systematically by sex and race. Section III gives a more detailed accounting of the sex/race wage differentials at HEW and compares them to those found in the total economy and/or the private sector in the major studies in the literature. Section IV summarizes the empirical results and states some policy implications.

[8] The original data set is called the Central Personnel Data File and contains a record for each and every federal civil servant.

[9] Ronald Oaxaca, Male-Female Wage Differentials in Urban Labor Markets, 14 Int'l Econ. Rev. 693 (1973).

[10] Solomon W. Polachek, Potential Biases in Measuring Male-Female Discrimination, 10 J. Human Resources 205 (1975).

[11] Note that I am abstracting from the more general question of discrimination in the federal government. Both James E. Long, Employment Discrimination in the Federal Sector, 11 J. Human Resources 86 (1976); and Sharon P. Smith, Equal Pay in the Public Sector: Fact or Fantasy (Princeton Univ., Ind. Relations Section 1977), have studied the problem and have found substantial discrimination, though less than in the private sector. A discussion of programs designed to improve the economic position of women and minorities in several government agencies, including HEW, is provided by Mary E. Eccles, Race, Sex and Government Jobs: A Study of Affirmative Action Programs in Federal Agencies (1976) (unpublished Ph.D. dissertation at Harvard Univ.).

II. Basic Results

The Department of Health, Education, and Welfare has the largest budget of any agency in the federal government. In July 1977 its employment of full-time permanent workers was 140,164, an increase of over 100 per cent since 1961. The percentage of black and female employees at various times in the last decade was:[12]

	% BLACK	% FEMALE
1966	20.3	57.7
1971	22.4	59.5
1976	23.3	61.0

Thus the percentage of women and blacks employed by HEW has always been relatively high but did not increase very much in the last few years.

Table 1 presents estimates of July 1977 wages and wage differentials at HEW. It can be seen that the gross wage differentials are sizable and not very different from those found in the economy as a whole. For example, the chapter on the economic status of women in the 1973 Economic Report of the President reported that the adjusted (for differences in hours worked) female/male wage ratio was 66.1 per cent.[13] At HEW the similar statistic is 64.9 per cent. Similarly, in his analysis of 1970 U.S. Census data for males, Freeman[14] reports a black/white earnings ratio of .64. The respective statistic for HEW is .73. Finally, Freeman also reports the female black/white wage ratio to be .86 in 1970, while the HEW statistic for 1977 was .87.

TABLE 1
Mean Wages at HEW[a]

Variable	Male	White Male	Black Male	Female	White Female	Black Female
W	19595.4	20897.3	15333.5	12710.0	13395.8	11642.2
$\ln(W)$	9.782	9.857	9.537	9.387	9.436	9.309
No. of observations	547	419	128	895	545	350

[a] W denotes annual, full-time earnings reported by the agency. Note that the "black" sample includes Negroes as well as members of other minority groups.

[12] These data were obtained from various issues of the Federal Civilian Workforce Statistics Monthly Release, Minority Group Employment in the Federal Government, Study of Employment of Women in the Federal Government, and Equal Employment Opportunity Statistics, all published by the U.S. Civil Service Commission.

[13] U.S. President, 1973 Economic Report of the President to the Congress, ch. 4.

[14] R. B. Freeman, Labor Market Discrimination: Analysis, Findings, and Problems, in 2 Frontiers of Quantitative Economics 501 (M. D. Intriligator & D. A. Kendrick eds. 1974) (Contributions to Economic Analysis vol. 87).

Of course, part of these differentials are due to different characteristics across groups. To standardize for these characteristics in a simple fashion, Table 2 pools the four groups and controls for education, labor-force experience, region, veteran status, retired-military dummy, and health; and then adds dummies indicating the race/sex status of the individual, the omitted group being black females. Columns 1 and 2 of Table 2 present equations with the logarithm of annual full-time earnings as the dependent variable. In column 1, the traditional specification of experience (that is, experience and experience squared) is followed. Column 2 utilizes the additional information given by the data on current job tenure and replaces the experience variable by current job tenure, *CURRENT,* and labor force experience prior to the current job, *PREVIOUS*.[15] It would, of course, be optimal to know whether in the case of women *PREVIOUS* represents labor market experience or time spent in the household.[16] However, information on experience in other jobs or even marital status is not collected in the Central Personnel Data File.

The results are quite interesting. In the simpler equation using total experience (column 1), it can be seen that white males earn about 23 per cent more than white females, 14 per cent more than black males, and a large 31 per cent more than black females even after standardization.[17] Thus wage differentials at HEW are far from trivial. We can go a step beyond these results and standardize for the components of total experience across individuals. These results are presented in column 2. The regressions indicate that white males earn 19 per cent more than white females, 13 per cent more than black males and 28 per cent more than black females. Thus the standardization for current job tenure diminished the unexplained male/female wage differential by only about 3 or 4 percentage points. Therefore, the findings indicate that substantial unexplained race/sex wage differentials exist even at HEW.

The reader might now be wondering exactly how these differentials are achieved given the strict civil service pay rules. For example, consider the pay structure facing white collar workers in the federal government. Most of these individuals will be covered by the general schedule (GS) pay system. The GS consists of 18 grades, each of which is defined by law in terms of the

[15] The exact specification used for these variables is derived in George J. Borjas, Job Mobility and Earnings over the Life Cycle (Nat'l Bureau Econ. Res. Working Paper No. 233, Feb. 1978).

[16] Presumably market experience and time spent in the household have different effects on market earnings. See Jacob Mincer & Solomon Polachek, Family Investments in Human Capital: Earnings of Women, 82 J. Pol. Econ. 576 (March 1974), for a thorough discussion of this issue.

[17] t-tests were carried out on each of these statistics. In every case the estimated test statistic was well over 2.

TABLE 2
HEW REGRESSIONS[a]

	Dependent = ln (W)				Dependent = GS Grade			
Variable	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t
CONSTANT	7.9648		7.9317		−6.2501		−6.5982	
EDUC	.0772	(24.01)	.0758	(25.35)	.7603	(23.93)	.7529	(25.45)
EXPER	.0378	(15.88)	—	—	.2751	(12.36)	—	—
EXPER^2	−.0006	(−10.56)	—	—	−.0049	(−9.71)	—	—
PREVIOUS	—	—	.0162	(5.83)	—	—	.0888	(3.34)
CURRENT	—	—	.0613	(20.51)	—	—	.4607	(16.99)
PREVIOUS^2	—	—	−.0003	(−3.22)	—	—	−.0017	(−2.16)
CURRENT^2	—	—	−.0012	(−13.67)	—	—	−.0096	(−12.41)
X$^{PREVIOUS}_{CURRENT}$	—	—	−.0006	(−5.03)	—	—	−.0062	(−5.40)
NORTH	−.0944	(−3.88)	−.0793	(−3.53)	−.7227	(−3.45)	−.5857	(−3.00)
MIDWEST	−.1001	(−4.21)	−.0989	(−4.53)	−.5965	(−2.91)	−.5339	(−2.80)
SOUTH	−.1072	(−4.74)	−.1024	(−4.92)	−.7489	(−3.79)	−.6362	(−3.45)
WEST	−.0773	(−3.38)	−.0595	(−2.82)	−.6858	(−3.37)	−.4788	(−2.53)
RETIRED MILITARY	.7975	(2.74)	1.0514	(3.90)	—	—	—	—
VETERAN	−.0094	(−.40)	−.0310	(−1.43)	−.2243	(−1.06)	−.4326	(−2.19)
HEALTH	−.0764	(−1.80)	−.0473	(−1.21)	−.7453	(−2.10)	−.4945	(−1.50)
WHITE MALE	.3108	(12.46)	.2778	(12.06)	2.7348	(12.10)	2.5239	(12.01)
BLACK MALE	.1751	(5.43)	.1514	(5.11)	1.6274	(5.22)	1.5771	(5.45)
WHITE FEMALE	.0837	(4.11)	.0889	(4.75)	.7556	(4.33)	.8117	(5.00)
R^2	.563		.632		.539		.604	

[a] Key to Variables: *EDUC* = years of completed schooling; *EXPER* = age-*EDUC*-6; *CURRENT* = years of civilian service in the federal government; *PREVIOUS* = *EXPER-CURRENT*; *NORTH, MIDWEST, SOUTH, WEST* = 1 if individual lives in respective region—left out is District of Columbia area; *RETIRED MILITARY* = 1 if individual is retired from the military; *VETERAN* = 1 if individual is a veteran; *HEALTH* = 1 if agency reported that individual has some kind of handicap.

skills and responsibilities associated with the job. The data set provides a unique opportunity to establish that indeed discrimination may well work by placing "equally" qualified individuals in lower job categories simply because of sex or race. This is done in columns 3 and 4 of Table 2. Again, column 3 uses total experience whereas column 4 uses current and previous tenure. The sample is restricted to the 1,287 individuals (89.3 per cent of the total sample) who are classified as GS employees. The dependent variable is the GS grade assigned to each employee. As can be seen, women and blacks are systematically assigned lower grades than men and whites. For example, in column 3 the results indicate that white males have a grade that is about one level above that of black males, about 2 levels above that of white females, and 2.7 levels above that of black females! If we standardize for current job tenure (column 4), the results indicate that white males are placed about one level above black males, 1.7 levels above white females, and 2.5 levels above black females. That is, controlling for current job tenure slightly diminishes male-female grade differentials, but does not affect black-white differences. In summary, the results indicate that males are placed about 1.5 to 2 grades higher than females, and that blacks are placed about 1 grade below whites.

III. Decomposition of Wage Differential

Although the simple analysis conducted in the previous section provides convincing evidence that unexplained wage differentials exist at HEW, the methodology can be improved somewhat. In particular, only the intercepts were allowed to vary across sex and race groups when, in fact, slope parameters may also differ. This can be remedied by estimating the equations within each sex/race group. These results can then be used to ask what would males (whites) earn if they faced the female (black) wage structure. These predicted earnings can, in turn, be used to decompose the gross wage differential into that part due to differences in group characteristics and into the unexplained component which has traditionally been identified with "discrimination." Again note that the purpose of the analysis is not to defend the methodology as providing a correct way of estimating discrimination coefficients, but to ask how would HEW fare if it were to conduct its own internal analysis.

The estimated regressions are shown in Appendix Tables A-1 and A-2. Table A-1 provides the regressions using total labor force experience, while Table A-2 presents the regressions holding job tenure constant. Table A-3 gives the average characteristics for each of the four subsamples. The procedure used to decompose the gross wage differential is best understood by means of an example. In particular, suppose one is interested in decomposing the gross 42 per cent wage differential between white males and white

females into that part due to differences in characteristics and that part due to discrimination.[18] To do this, one can ask what female earnings would be if they faced the male wage structure (namely, the male regression coefficients). An unbiased estimate of this wage is obtained by predicting female earnings using male regression coefficients and female characteristics. The difference between this predicted wage and the actual female wage is due to differences in structures and is usually attributed to discriminatory practices by the firm. Alternatively, one could have asked what male wages would be if they faced the female wage structure, and again the portion due to "discrimination" is given by the difference of the predicted male wage and the actual male wage. Clearly the answers given by the two methods will not, in general, be identical but they do provide a (hopefully) narrow range for the estimates.

The gross wage differential and the results of the decomposition (using the regressions presented in the Appendix) are shown in Table 3. To provide a detailed and systematic breakdown of the results, Table 3 gives the decomposition separately for each sex and race group, using both available sets of weights, and specifying the regressions either with total experience (columns 1 and 3) or with previous and current tenure (columns 2 and 4). The gross differential between white males and females is .42. Although there are differences in the percentage of this differential that is due to "discrimination" according to the specification of the regression and the set of weights used, it can be seen that at least 40 per cent of the gross differential cannot be explained by observable differences in characteristics and, using the traditional approach, can be attributed to discrimination. The results do not improve if we decompose the wage differentials between black males and females: at least 80 per cent of the gross differential is due to discrimination. Thus the results indicate the strong prevalence of sex discrimination at HEW.

The results concerning race discrimination (shown in parts C and D of Table 3) are not very different qualitatively. In comparing male whites and blacks we find a 32 per cent gross wage differential. The results in Table 3 indicate that about a third of this differential is due to discrimination. Similarly, in comparing female whites and blacks, between half and 75 per cent of the wage differential can be attributed to discrimination.

Perhaps it is best at this point to remind the reader of the dollar magnitudes that can be attributed to discrimination. For example, consider the difference between white males and white females and take the most favorable discrimination coefficient from HEW's point of view. That is, suppose

[18] The 42 per cent figure is obtained as the difference between the mean logarithm of white male earnings and the mean logarithm of white female earnings.

TABLE 3*
DECOMPOSITION OF SEXUAL AND RACIAL WAGE DIFFERENCES AT HEW

	(1)	(2)	(3)	(4)
A. *Sex Differences Between White Males and Females*				
	Male Structure		Female Structure	
Gross Differential	.4208	.4208	.4208	.4208
Due to Characteristics	.2024	.2193	.1840	.2533
% Due to Characteristics	48.1%	52.1%	43.7%	60.2%
% Due to Discrimination	51.9%	47.9%	56.3%	39.8%
B. *Sex Differences Between Black Males and Females*				
	Male Structure		Female Structure	
Gross Differential	.2278	.2278	.2278	.2278
Due to Characteristics	−.0027	−.0093	.0444	.0351
% Due to Characteristics	0%	0%	19.5%	15.4%
% Due to Discrimination	100%	100%	80.5%	84.6%
C. *Race Differences Between Male Whites and Blacks*				
	White Structure		Black Structure	
Gross Differential	.3203	.3203	.3203	.3203
Due to Characteristics	.2095	.2100	.1979	.2102
% Due to Characteristics	65.4%	65.6%	61.8%	65.6%
% Due to Discrimination	34.6%	34.4%	38.2%	34.4%
D. *Race Differences Between Female Whites and Blacks*				
	White Structure		Black Structure	
Gross Differential	.1273	.1273	.1273	.1273
Due to Characteristics	.0321	.0283	.0611	.0489
% Due to Characteristics	25.2%	22.2%	48.0%	38.4%
% Due to Discrimination	74.8%	77.8%	52.0%	61.6%

* See text for explanation of methodology

only 39.8 per cent of the wage gap is due to discrimination. The arithmetic dollar wage gap between the two groups is $7,501.5, of which approximately $2,986 cannot be explained by observable differences in individual characteristics.

The reader will now be wondering how these estimates compare with those obtained in the private sector and/or the total economy. A brief survey of empirical results in the literature is given in Table 4, which contains information on the gross wage gap (defined as the difference in the logarithm of wages across groups), the sample used, and the percentage of the wage gap which is due to discrimination. By and large, the comparison of men to

TABLE 4
ESTIMATES OF DISCRIMINATION FROM OTHER STUDIES[a]

I. *Sex Differences*

Study	Sample	Gross Wage Gap	% of Gap Due to Discrimination	Variables Held Constant
Oaxaca[b]	*SEO*	Whites = 43% Blacks = 40%	58.4% 55.6%	Education, experience, class of worker, industry, occupation, health, labor supply, migration, marital status, children, size of urban area, region
Mincer and Polachek[c]	*NLS, SEO*	White married = 42% White single = 15%	33% 50%	Education, home time, current tenure, other experience, formal training, migration, labor supply, children
Smith[d]	*CPS*, 1975 private sector	All women = 44%	67.1%	Education, experience, marital status, region, occupation, veteran, size of urban area, union, labor supply, Spanish

TABLE 4 (*Continued*)

II. Race Differences

Study	Sample	Gross Wage Gap	% of Gap Due to Discrimination	Variables Held Constant
Long[e]	Census, 1970 private sector	Males = 38%	88.3%	Education, age, marital status, labor supply, region
Smith[f]	Census, 1970 private sector	Males = 38% Females = 16%	71.1% 36.7%	Education, experience, marital status, Spanish, health, labor supply, occupation, region, urban residence

Notes:

[a] In order to simplify the presentation the estimates from other studies were boiled down to a single summary statistic. In the case where the author reported different results due to the use of different weights, a simple average of the two estimates is reported Long's study does not report the gross black/white wage differential, only the adjusted one, 33.5%. Smith, using the same data set, reports the gross wage ratio to be .38. The estimate given in the table is calculated from this information

[b] Ronald Oaxaca, Male-Female Wage Differentials in Urban Labor Markets, 14 Int'l Econ. Rev. 693 (1973).

[c] Jacob Mincer & Solomon Polachek, Family Investments in Human Capital: Earnings of Women 82 J. Pol. Econ. S76 (March 1974).

[d] Sharon P. Smith, Equal Pay in the Public Sector: Fact or Fantasy (Princeton Univ., Industrial Relations Section 1977)

[e] James E. Long, Employment Discrimination in the Federal Sector, 11 J. Human Resources 86 (1976).

[f] Sharon P Smith, *supra* note d.

women or blacks to whites leads to gross wage differentials in the range of 40 per cent, not at all unlike those presented in Table 1 for HEW. The proportions of the wage gap which cannot be explained by observed personal characteristics vary widely across studies of the sex wage differential. For example, consider the Oaxaca study. He finds, after standardizing for a very large set of variables, that about 58 per cent of the white male/female wage gap is due to discrimination.[19] On the other hand, Mincer and Polachek[20] find that by controlling for the fact that women have a discontinuous labor force history (and thus fewer incentives for market-human-capital investments) about two-thirds of the male/female wage differential can be explained by differences in personal characteristics.[21] I find that slightly less than half of the wage gap is due to unexplained differences in HEW. Thus my results are about half way between the bounds provided by the Mincer and Polachek and Oaxaca studies.

In terms of racial differences, the results are somewhat mixed. It seems that about 80 per cent of the male black/white wage differential in the private sector cannot be explained by differences in individual characteristics, whereas the respective statistic for HEW is about 35 per cent. On the other hand, Smith[22] finds that only about a third of the private female black/white differential is due to discrimination, while in HEW the relevant statistic is between 50 and 75 per cent.

IV. Summary and Policy Implications

This paper has documented the existence of large wage differentials in HEW even after standardizing for skills. These unexplained wage differentials have been attributed to discrimination in studies of the private sector or the economy as a whole. In particular, it was shown that among HEW employees a wage gap of $2,986 between white men and women could not be explained by differences in individual characteristics. Similarly, a wage gap of $1,914 between white men and black men working for HEW remains unexplained.

[19] Ronald Oaxaca, *supra* note 9. Oaxaca also reports results which exclude occupation and industry dummies. He finds that it is the industrial categories which help to explain a large part of the wage gap and that occupation does not affect significantly the percentage of the wage gap due to discrimination. Since I concentrate the analysis on individuals in the public sector I am already controlling for industry. Moreover by standardizing for job tenure I partly account for the effects of marital status on labor force experience. Thus the regressions are roughly comparable.

[20] Jacob Mincer & Solomon Polachek, *supra* note 16.

[21] Elisabeth M. Landes, Sex-Differences in Wages and Employment: A Test of the Specific Capital Hypothesis, 15 Econ. Inquiry 523 (1977), finds that practically the entire male/female wage gap can be explained by differences in personal characteristics once the regression standardizes for rough estimates of differences in turnover by sex.

[22] Sharon P. Smith, *supra* note 11.

The question, of course, is whether these differentials truly measure the extent of discrimination. This raises a delicate problem if we consider the policy implications of one extreme way of interpreting the wage differential. Suppose, for example, HEW argues that it does not discriminate against women and blacks and that the whole unexplained wage gap could be explained if only we could quantify unobserved productivity differences. This may well be true but it certainly raises an important question concerning HEW's handling of observed wage differentials in the higher education sector. Why is it not possible that these wage differentials *also* be due to unobserved productivity differences?

Let me summarize by restating the purpose of this paper. My point was not to accuse HEW of discriminatory practices. It was simply to point out that the statistical procedures universities are currently carrying out to comply with the conciliation agreements can be easily applied to HEW wage data. More importantly, this analysis reveals a wage structure within HEW which follows roughly the same patterns that the agency is vigorously attacking in the private sector.

APPENDIX

TABLE A-1
EARNINGS FUNCTIONS BY RACE AND SEX

	White Male		Black Male		White Female		Black Female	
Variable	Coeff.	*t*	Coeff.	*t*	Coeff.	*t*	Coeff.	*t*
CONSTANT	8.0475		7.9389		8.0011		8.1408	
EDUC	.0783	(15.06)	.0814	(7.78)	.0866	(15.65)	.0698	(9.53)
EXPER	.0601	(11.99)	.0434	(4.79)	.0387	(11.40)	.0202	(4.46)
$EXPER^2$	−.0009	(−8.10)	−.0004	(−2.39)	−.0007	(−8.96)	−.0002	(−1.66)
NORTH	−.1063	(−2.42)	.0001	(.00)	−.1397	(−4.03)	.0018	(.03)
MIDWEST	−.1783	(−3.78)	.0060	(.04)	−.1252	(−3.74)	−.0038	(−.09)
SOUTH	−.1427	(−3.27)	−.0450	(−.47)	−.1533	(−4.93)	.0141	(.30)
WEST	−.1477	(−3.52)	.1157	(1.54)	−.1656	(−4.36)	.0494	(1.23)
RETIRED								
MILITARY	.7128	(2.44)	—	—	—	—	—	—
VETERAN	−.0565	(−1.72)	−.1682	(−2.28)	−.0907	(−1.89)	−.0328	(−.27)
HEALTH	−.0297	(−.41)	−.2036	(−1.01)	−.0951	(−1.50)	−.1788	(−2.19)
R^2	.568		.488		.459		.327	

TABLE A-2
EARNINGS FUNCTIONS BY RACE AND SEX

	White Male		Black Male		White Female		Black Female	
Variable	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t
CONSTANT	8.0293		7.8172		7.9008		8.1702	
EDUC	.0779	(15.07)	.0783	(7.64)	.0888	(18.51)	.0605	(9.19)
PREVIOUS	.0375	(5.58)	.0282	(2.93)	.0172	(4.54)	−.0049	(−.96)
CURRENT	.0730	(12.68)	.0859	(6.64)	.0650	(15.53)	.0555	(9.30)
$PREVIOUS^2$	−.0004	(−2.33)	−.0001	(−.34)	−.0004	(−3.92)	.0004	(2.14)
$CURRENT^2$	−.0013	(−8.40)	−.0017	(−4.74)	−.0013	(−10.89)	−.0011	(−6.16)
$X^{PREVIOUS}_{CURRENT}$	−.0012	(−4.22)	−.0007	(−1.45)	−.0008	(−5.12)	−.0002	(−.68)
NORTH	−.0954	(−2.23)	.0405	(.37)	−.1201	(−3.98)	.0083	(.19)
MIDWEST	−.1783	(−3.88)	.0414	(.36)	−.1159	(−4.01)	−.0004	(−.00)
SOUTH	−.1428	(−3.35)	−.0097	(−.11)	−.1403	(−5.22)	.0350	(.86)
WEST	−.1427	(−3.49)	.1278	(1.78)	−.1116	(−3.38)	.0327	(.93)
RETIRED								
MILITARY	.7192	(2.46)	—	—	—	—	—	—
VETERAN	−.0582	(−1.78)	−.2086	(−2.99)	−.0713	(−1.71)	−.1036	(−.98)
HEALTH	−.0177	(−.25)	−.2149	(−1.14)	−.0485	(−.88)	−.1118	(−1.55)
R^2	.593		.564		.601		.486	

TABLE A-3
AVERAGE CHARACTERISTICS BY RACE AND SEX

Variable	White Male	Black Male	White Female	Black Female
EDUC	15.554	13.520	13.611	12.911
EXPER	19.064	18.262	18.569	16.623
$EXPER^2$	499.420	501.928	525.547	396.654
PREVIOUS	5.788	6.410	8.662	7.277
CURRENT	13.277	11.852	9.906	9.346
$PREVIOUS^2$	94.344	104.264	168.774	115.829
$CURRENT^2$	266.155	225.477	171.928	145.837
$X^{PREVIOUS}_{CURRENT}$	69.461	86.094	92.422	67.494
NORTH	.136	.078	.152	.109
MIDWEST	.112	.070	.169	.154
SOUTH	.136	.125	.213	.126
WEST	.153	.227	.117	.177
RETIRED				
MILITARY	.002	0.0	0.0	0.0
VETERAN	.456	.508	.062	.014
HEALTH	.041	.023	.033	.031

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ERRATA

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Please correct typographical errors on:

Page 1. Footnote 2, line 3. Replace 300 with 30.

Page 97. Line 1 and footnote 1. Replace "Executive Order No. 11247" with: Executive Order No. 11246, 3 C.F.R. 339 (1964-65 Compilation).