

## WAGE RATE DIFFERENCES AMONG THE WORKING POOR

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### 1. INTRODUCTION

The Nixon administration's welfare reform proposals would extend for the first time on a broad scale income transfers to the working poor. According to the most recent version of the Family Assistance Plan (FAP), an estimated 13.9 million adults and children would be eligible for benefits in fiscal year 1973 under the Opportunities for Families Program, the component of FAP designed for households in which at least one person is employable [11].

If public policy is to assist such families in escaping from poverty, it is important to understand the factors that determine low-income status. Several recent studies have attempted to account for variation in the labor supply of adult family members, and major social experiments are being carried out in New Jersey and elsewhere to ascertain the likely consequences for work effort of welfare schemes embodying features of a negative income tax [4,5,7,13].

Clearly, the earned portion of income is the product of two components: (1) time worked and (2) a rate of pay per unit of time. This paper seeks to complement recent efforts to illuminate the determinants of low-income status by examining this second component of earnings: the wage rate. In the next section of this paper, the conceptual framework guiding the analysis is presented. In Section 3, the data source is described and a basic model of relationships is specified. Section 4 provides background information concerning labor force status and the magnitude of poverty in the population groups that constitute the data base. In Section 5, the regression results are presented. Finally, Section 6 contains a brief discussion of the findings.

### 2. CONCEPTUAL FRAMEWORK

Only infrequently have personal differences in pay rates (or, average hourly earnings) been subjected to careful analysis [3,6,8]. While there has been considerable empirical work over the years on the process of wage determination, most efforts have either (1) sought to account for interoccupational, interindustry, or inter-area variation in rates of pay, or have (2) analyzed the apparent effects of organizations (e.g., unions) and legal constraints (e.g., the Fair Labor Standards Act) on the wage structure. At the same time, studies of the factors that influence an individual's income have generally ignored the separate components of earnings. In some cases, failure to decompose the analysis into (1) hours worked per year and (2) dollars per hour rests on the absence of suitable data. In other instances, researchers have not been especially interested in whether factors such as more education and improved health enhance income primarily through the channel of increased labor supply or through a higher average rate of pay. Yet, for many purposes it is important to know

how the factors that influence earned income affect each of these two components. For example, in interpreting the relationship between low educational attainment or poor health and low earned income, social intervention strategies would likely differ depending on whether such personal variables were associated primarily with reduced annual hours of work or with low hourly earnings.

Human capital theory offers a useful framework within which to examine differences in hourly wage rates. In their analyses of the factors that influence a person's annual earnings, human capital theorists in the Becker-Schultz tradition have generally concentrated attention on productivity-increasing effects of human capital formation. An individual's wage rate (assumed to reflect marginal productivity) is viewed as the result of labor demand conditions and of natural and acquired abilities, as measured by educational attainment, health status, years of work experience, and so forth.

In addition to these measures, there is good reason to include several other variables in an analysis of wage rates. For several reasons, including deficiencies in the quality of educational opportunity and the existence of pervasive discrimination in employment, race is generally related systematically to earned income, controlling for the influence of other variables. Region of the country and size of place of residence (i.e., degree of urbanization) are also important correlates of income, especially of earned, money income [2]. This is the case for at least two reasons. First, there are differences among areas and regions in the cost of living, with consumer prices higher than average in the North and West and in larger cities. Second, the historic migration of families from rural areas (and, small towns) to the city, and from the South to the North and West suggests that real wage rates have been in disequilibrium.

Because of constraints on geographic mobility, many women may, on occasion, be subject to monopolistic pressures in local labor markets. We have used marital status as a proxy for this kind of immobility. While frequently not available in other data sources, we have added two other variables to the analysis: years of service with present employer and, in the case of women, percentage of years since leaving school that the individual has worked at least six months. In addition to on-the-job training (or, on-the-job learning) as measured by exposure to the labor market, job tenure may reflect the acquisition of valuable specific human capital and the existence of valuable job rights stemming from the seniority system. For these reasons we would anticipate, ceteris paribus, a positive relationship between job tenure and the wage rate, and between labor force exposure and the dependent variable.

### 3. DATA, VARIABLES, AND THE MODELS

Individuals selected for analysis in this paper represent subsets of respondents in two of the National Longitudinal Surveys (LGS). Specifically, the analysis uses first-round interview data for poverty and nonpoverty groups of 45-to-59-year-old men interviewed in 1966, and of 30-to-44-year-old women surveyed a year later.<sup>1</sup> The cohorts contain approximately 5,000 individuals each, and represent national probability samples of the civilian noninstitutional population in these age categories. We are fortunate in having a large number of both blacks and whites in each sample. Blacks and other nonwhites were overrepresented by a 3-to-1 ratio relative to whites in order to permit reasonably confident inferences concerning differences between the races in labor market experiences. In other words, of the approximately 5,000 sample cases in each cohort, nearly 1,500 are blacks and other nonwhites.<sup>2</sup>

Unfortunately, we do not have a measure of natural ability for either the men or the women. On the other hand, we do have measures of most of the other variables hypothesized to influence hourly rate of pay.<sup>3</sup> We could have included occupational assignment as an explanatory variable, but we chose to use educational attainment instead. Of course, these two variables are highly intercorrelated, and the influence of education on earnings is mediated through occupational assignments. We take the view, however, that individuals generally settle into the occupational structure at places which maximize their hourly earnings consistent with (1) individual preferences concerning the nonpecuniary aspects of particular jobs and (2) the existence of discrimination in the labor market.<sup>4</sup>

Regression coefficients were estimated for several models of the following form:

$$Y = a + b_1X_1 + b_2X_2 + \dots + b_nX_n + e.$$

The variables in the several models are described in Table 1. Following a brief discussion of the extent of poverty in the two cohorts, the results of the regression analysis will be presented.

### 4. POVERTY STATUS

Since this paper emerges from a larger study of potential recipients of family assistance payments--and, because family composition is a defining characteristic--we have not examined the wage rates of employed men and women living in families without children. Thus, automatically, approximately one-sixth of the women and half of the men are excluded from our concern here. Of the remainder, over half of the black women and approximately two-fifths of the black men would have qualified for payments had the Family Assistance Plan as described in H.R. 16311 been in effect at the time they were interviewed [12]. Among whites, approximately one-sixth of the women and one-eighth of the men would have qualified.<sup>5</sup> A woman's participation in the labor force reduces the chance that her family will be in poverty whether or not she has a husband. Among women 30 to 44 years of age living in

households with at least one child, a smaller percentage of the poor than of the nonpoor were in the labor force when interviewed in 1967. Among the poor, 58 percent of the blacks and 36 percent of the whites were in the labor force at the time of the 1967 survey. Comparable percentages of the nonpoor were 75 and 45 percent. Participation in the labor force is a less important factor in accounting for the poverty position of families headed by older men. Nine-tenths of the black men in poverty and 86 percent of the white were in the labor force when interviewed in 1966. Of course, the participation rates of nonpoor black and white men were even higher: 97 and 99 percent, respectively.

### 5. RESULTS OF THE ANALYSIS

Tables 2 and 3 present the basic regression results for the women and men employed as wage or salary workers when first interviewed. In each case, separate regressions were run for each poverty status and racial group. In the case of men, size of place of residence, race, region, job tenure, and educational attainment show up as important determinants of hourly wage rate. Of course, there are exceptions to this statement, and the relative importance of the variables differs somewhat according to color groups and poverty category. Consider job tenure. In the case of the nonpoor, each year of service with a given employer seems to add \$0.01 to \$0.03, on average, to the individual's hourly wage rate. Among the poor, the coefficient is less than \$0.01 and not significantly different from zero. The reason for this difference by poverty status may be that the poor are more likely to be in those types of jobs in which neither on-the-job training nor institutional influences would operate to increase the wage rate with increasing service.<sup>6</sup>

City size and region are also significant factors--in this case for both the poor and the nonpoor. Controlling for the influence of other variables, living in areas with 25,000 or more inhabitants increases the expected wage rate by anywhere from \$0.28 to \$0.53 per hour. Living in the South as opposed to other areas of the country reduces the "expected" rate of pay by a roughly comparable amount, but the influence of region appears to be more powerful among the poor than the nonpoor. Another variable that shows a strong relationship to the hourly wage rate is highest year of school completed, but the relationship is not consistent in the case of poor men.

Ignoring the group in poverty for a moment, it is instructive to compare nonpoor blacks and whites. Nonpoor black men with some high school averaged \$0.22 more per hour than those with fewer than nine years of school, the omitted category, and those with 12 or more years of school earned an average of \$0.96 more per hour. Comparable increments for nonpoor white men were \$0.71 and \$2.51 per hour compared to those in the omitted group.

In Table 3, many of the same relationships between the wage rate and other variables are evident in the case of employed women. Since region of residence could not be entered into the regressions, city size and race may have

picked up some of the influence of region. Years of service with present employer is again a significant variable for the nonpoor, and our direct measure of past work experience--percentage of years since school in which the respondent worked six months or more--is salient for the same group. Once again, it would appear that work experience pays off for the nonpoor but not for the poor. Educational attainment is important, especially among the nonpoor. It is also worth mentioning that race (being black) is inversely associated with the wage rate; and, while not significantly different from zero, the coefficient of the health limitations variable possesses the proper sign. Our measure of geographic immobility, however, did not perform according to expectations; marital status does not bear a consistent relationship to the hourly wage rate.

## 6. DISCUSSION

It is quite clear that race, region, city size, job tenure, and years of schooling strongly influence a person's wage rate. In addition, the number of years of past work experience is an important variable for the women. Nevertheless, with the possible exception of region (for men) and race (for women), the impact of these variables on the wage rate appears to be greater for the nonpoor than the poor. This is undoubtedly, in part, a consequence of how poverty status is defined, since low wage rates are an important factor in accounting for the inclusion of employed individuals in the poverty category. Thus, for this group, there is relatively little variation in the dependent variable. At the same time, we are inclined to believe that natural ability (for which we lack a direct measure) and possible underlying interactions among variables (e.g., low educational attainment and lack of job tenure) may also be important determinants of the low wage rates of substantial numbers of respondents, especially in the case of the poor. The uniformly lower constant term for poor men and women compared to their nonpoor counterparts hints at the possibility of important interactions not captured in the linear models presented here.

## FOOTNOTES

\*This paper is an outgrowth of a special study entitled "Analysis of Characteristics of Potential Recipients of Family Assistance Through Use of Longitudinal Surveys Data." The National Longitudinal Surveys project is sponsored by the Manpower Administration of the U.S. Department of Labor, under the authority of the Manpower Development and Training Act. Data are collected by the U.S. Bureau of the Census. Interpretations and viewpoints expressed in this paper do not necessarily represent the position or policy of the Department of Labor. We wish to thank M. Borus, S. Kim, A. Kohen, G. Nestel, H. Parnes, and R. Roderick for helpful suggestions on an earlier draft of the paper.

<sup>1</sup>Several summary reports on the two cohorts are available [9,10].

<sup>2</sup>Since we are more interested here in labor market behavior than in universe estimates of

personal characteristics, unweighted sample cases are used in the regression analysis. While combined in some cases, regressions have been run separately on blacks and whites, with other races excluded. Deliberate "oversampling" of blacks relative to whites implies that regressions using combined, unweighted observations reflect the black experience more than would be the case if the sampling ratios had been the same.

<sup>3</sup>An exception is region of residence in the case of the women, where--through oversight--the variable was not added to the initial data tape; it is being added to the updated data files covering the 1969 survey.

<sup>4</sup>Ivar Berg [1] examined differences in earnings by educational attainment within occupations; as might be expected he frequently found little difference attributable to education.

<sup>5</sup>Exact percentages are impossible to determine because of the failure of some respondents (approximately 10 percent of those with children) to report fully on their income, assets, and liabilities.

<sup>6</sup>It is perhaps worth noting that fully two-fifths of the poor men report 20 or more years of service with their present (1966) employer. This fraction is still considerably lower, however, than for their nonpoor counterparts: three-fifths.

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Table 1

Variables and Omitted Categories Used in the Models

Cohort and variable symbol	Description
<u>Dependent variable</u>	
\$/hour	Hourly wage rate, in dollars: Continuous variable <sup>a</sup>
<u>Explanatory variables</u>	
<u>Men and women:</u>	
Rc	Race: 1 if black; 0 if white <sup>b</sup>
H	Health: 1 if health limits kind of work; 0 otherwise
T	Tenure in current job (years): Continuous variable
S	Size of place of residence: 1 if area of 25,000 or more; 0 otherwise
<u>Men only:</u>	
E <sub>i</sub>	Educational attainment, a series of dummy variables of highest year of school completed, specifically, depending on poverty status:
	E <sub>0-4</sub> 1 if 0-4; 0 otherwise--an omitted category
	E <sub>0-7</sub> 1 if 0-7; 0 otherwise--an omitted category
	E <sub>5-7</sub> 1 if 5-7; 0 otherwise
	E <sub>8</sub> 1 if 8; 0 otherwise
	E <sub>9+</sub> 1 if 9 or more; 0 otherwise
	E <sub>9-11</sub> 1 if 9-11; 0 otherwise
	E <sub>12+</sub> 1 if 12 or more; 0 otherwise
A <sub>j</sub>	Age, a series of dummy variables, specifically:
	A <sub>45-49</sub> 1 if 45-49; 0 otherwise
	A <sub>50-54</sub> 1 if 50-54; 0 otherwise
	A <sub>55-59</sub> 1 if 55-59; 0 otherwise--an omitted category
Rg	Region of residence: 1 if South; 0 otherwise
<u>Women only:</u>	
M	Marital status: 1 if married; 0 otherwise
W	Work experience, expressed as percentage of years since leaving school that respondent worked six months or more to nearest percent: Continuous variable
E <sub>k</sub>	Educational attainment, a series of dummy variables of highest year of school completed, specifically, depending on poverty status:
	E <sub>0-7</sub> 1 if 0-7; 0 otherwise
	E <sub>0-8</sub> 1 if 0-8; 0 otherwise
	E <sub>8</sub> 1 if 8; 0 otherwise
	E <sub>9-11</sub> 1 if 9-11; 0 otherwise
	E <sub>12</sub> 1 if 12; 0 otherwise
	E <sub>12+</sub> 1 if 12 or more; 0 otherwise--an omitted category
	E <sub>13</sub> 1 if 13 or more; 0 otherwise--an omitted category

a Respondents were asked how much they earned on their current jobs, and if not reported as an hourly rate, hourly equivalents were calculated on the basis of usual hours worked per week.

b Nonblack-nonwhites (e.g., American Indians, Orientals) were excluded from the analysis.

Table 2 Average Rate of Pay (\$ per hour): Estimated Regression Coefficients for Men 45 to 59 Years of Age  
Employed as Wage or Salary Workers at Time of Survey, 1966<sup>a</sup>  
(Standard errors in parentheses)

Variables and statistics	Blacks and whites			Blacks			Whites		
	Poor and nonpoor	Poor	Nonpoor	Poor and nonpoor	Poor	Nonpoor	Poor and nonpoor	Poor	Nonpoor
S (1 = 25,000+)	.52 (.10)*	.29 (.10)*	.51 (.11)*	.51 (.10)*	.28 (.12)*	.37 (.14)*	.51 (.12)*	.35 (.23)	.53 (.13)*
Rc (1 = Black)	-.84 (.12)*	-.10 (.11)	-.78 (.14)*						
Rg (1 = South)	-.34 (.11)*	-.52 (.14)*	-.23 (.12)	-.52 (.10)*	-.65 (.18)*	-.29 (.11)*	-.26 (.14)	-.39 (.26)	-.20 (.15)
H (1 = Health limits kind of work)	.04 (.12)	.10 (.11)	-.03 (.14)	.14 (.11)	.12 (.14)	.08 (.15)	.04 (.15)	.16 (.21)	-.06 (.16)
T (years)	.031 (.005)*	.004 (.005)	.030 (.005)*	.021 (.004)*	.007 (.006)	.014 (.001)*	.033 (.006)*	.003 (.012)	.032 (.006)*
A <sub>45-49</sub> (1 = 45-49)	.03 (.10)	-.23 (.10)*	.07 (.11)	-.04 (.09)	-.21 (.12)	.03 (.12)	.09 (.13)	-.22 (.23)	.09 (.14)
A <sub>50-54</sub> (1 = 50-54)	-.02 (.14)	.13 (.14)	-.03 (.16)	-.15 (.12)	.21 (.16)	-.28 (.16)	.03 (.18)	-.36 (.35)	.02 (.19)
E <sub>5-7</sub> (1 = 5-7 years)		.09 (.12)			.13 (.13)			-.21 (.31)	
E <sub>8</sub> (1 = 8 years)	.13 (.17)	-.21 (.15)	.12 (.20)	.05 (.13)	-.20 (.19)	-.01 (.18)	.32 (.24)	-.16 (.29)	.31 (.27)
E <sub>9+</sub> (1 = 9+ years)		.25 (.14)			.31 (.16)			-.07 (.36)	
E <sub>9-11</sub> (1 = 9-11 years)	.54 (.14)*		.49 (.16)*	.34 (.10)*		.22 (.12)	.75 (.22)*		.71 (.24)*
E <sub>12+</sub> (1 = 12+ years)	2.30 (.16)*		2.22 (.18)*	1.16 (.17)*		.96 (.19)*	2.60 (.23)*		2.51 (.25)*
Constant term	2.19 (.27)*	1.75 (.24)*	2.39 (.32)*	1.61 (.24)*	1.64 (.30)*	2.06 (.34)*	2.00 (.41)*	1.78 (.48)*	2.16 (.39)*
# of observations	1,657	208	1,449	424	156	268	1,233	52	1,181
$\bar{R}^2$	.28	.20	.21	.35	.19	.16	.20	.10	.18
F	64.01*	6.20*	39.57*	26.12*	5.14*	6.64*	34.32*	1.78	30.61*
<u>Dependent variable:</u>									
Mean	\$3.38	\$1.59	\$3.64	\$2.28	\$1.52	\$2.73	\$3.75	\$1.80	\$3.85
S.D.	\$2.16	\$0.72	\$2.17	\$1.03	\$0.73	\$0.92	\$2.26	\$0.69	\$2.32

\* Significant at .05 level.

a Restricted to the "definitely poor" and "nonpoor" living in families with at least one child; see Section 4 for a definition of poverty status.

b The omitted category is A<sub>55-59</sub>.

c The omitted category for the poor is E<sub>0-4</sub>; for the nonpoor, and for the poor and nonpoor combined, E<sub>0-7</sub>.

d Excludes respondents for whom information on one or more variables was not ascertained.

Table 3 Average Rate of Pay (\$per Hour): Estimated Regression Coefficients for Women 30 to 44 Years of Age Employed as Wage or Salary Workers at Time of Survey, 1967<sup>a</sup>  
(Standard errors in parentheses)

Variables and statistics	Blacks and whites			Blacks			Whites		
	Poor and nonpoor	Poor	Nonpoor	Poor and nonpoor	Poor	Nonpoor	Poor and nonpoor	Poor	Nonpoor
S (1 = 25,000+)	.34 (.04)*	.28 (.06)*	.30 (.05)*	.58 (.09)*	.33 (.07)*	.70 (.15)*	.23 (.05)*	.10 (.15)	.23 (.05)*
M (1 = married)	.11 (.05)*	-.04 (.06)	.02 (.07)	.14 (.08)	-.07 (.07)	.01 (.14)	.06 (.07)	.04 (.14)	.01 (.07)
Rc (1 = black)	-.33 (.05)*	-.37 (.07)*	-.20 (.06)*						
H (1 = health limits kind of work)	-.07 (.07)	-.06 (.09)	-.07 (.08)	-.11 (.13)	-.03 (.11)	-.21 (.20)	-.04 (.08)	-.15 (.19)	-.01 (.09)
T (years)	.081 (.016)*	-.036 (.023)	.089 (.019)*	.068 (.028)*	-.039 (.024)	.108 (.043)*	.086 (.020)*	-.052 (.058)	.087 (.021)*
W (percentage of years)	.004 (.001)*	.001 (.001)	.005 (.001)*	.003 (.001)*	.000+ (.001)	.006 (.002)*	.005 (.001)*	.004 (.003)	.005 (.001)*
E <sub>0-7</sub> (1 = 0-7 years)		-.52 (.09)			-.45 (.10)*			-.55 (.22)*	
E <sub>0-8</sub> (1 = 0-8 years)	-1.15 (.07)*		-1.00 (.09)*	-1.51 (.13)*		-1.08 (.19)*	-.94 (.09)*		-.95 (.10)*
E <sub>8</sub> (1 = 8 years)		-.44 (.11)*			-.36 (.12)*			-.31 (.31)	
E <sub>9-11</sub> (1 = 9-11 years)	-.95 (.07)*	-.22 (.08)*	-.89 (.07)*	-1.39 (.12)*	-.14 (.09)	-1.25 (.16)*	-.75 (.08)*	-.38 (.15)*	-.74 (.08)*
E <sub>12</sub> (1 = 12 years)	-.65 (.06)*		-.63 (.06)*	-1.02 (.12)*		-.86 (.15)*	-.52 (.07)*		-.55 (.07)*
Constant term	2.00 (.09)*	1.70 (.09)	2.02 (.11)*	1.96 (.18)*	1.31 (.11)*	1.55 (.28)*	1.93 (.11)*	1.71 (.19)*	1.99 (.12)*
# of observations	1,352	236	1,115	431	166	266	920	69	850
$\bar{R}^2$	.31	.34	.24	.41	.29	.33	.22	.11	.21
F	67.13*	14.27*	40.08*	38.86*	9.57*	17.20*	32.98*	2.01	28.71*
<u>Dependent variable:</u>									
Mean	\$1.95	\$1.26	\$2.09	\$1.71	\$1.13	\$2.07	\$2.06	\$1.58	\$2.10
S.D.	\$0.90	\$0.56	\$0.90	\$1.02	\$0.49	\$1.10	\$0.82	\$0.57	\$0.83

\* Significant at .05 level.

+ Rounded to nearest tenth of a cent.

a Restricted to the "definitely poor" and "nonpoor" living in families with at least one child; see Section 4 for a definition of poverty status.

b The omitted category for the poor is E<sub>12+</sub>; for the nonpoor, and for the poor and nonpoor combined, E<sub>13+</sub>.

c Excludes respondents for whom information on one or more variables was not ascertained.