

## ***SOCIO-ECONOMIC WORKPLACE EXPERIENCE FOR WAGE EARNERS BY ETHNICITY AND GENDER***

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### **ABSTRACT**

The focus of this paper is to evaluate similarities and differences of workplace settings between and within ethnicity and gender samples of wage earners. Twenty-seven variables broadly classified by tenure, education, family background, type of employment (craft, service production), and working environment are employed for this purpose. For each of the 27 variables, the null hypothesis is that the means of workplace settings by ethnic classification (black, white, Latin) and gender classification (male, female) are equal against an alternative hypothesis that at least one of the member group differs. The method employed for this purpose is one-way analysis of variance. In each of the classifications, samples were divided to reflect the level of ability (high achievement, low achievement) as well as the full sample. Furthermore, the full samples are employed to find whether differences between genders exist for the 27 variables. The results indicate that, though wage gaps by ethnicity and gender persist, the workplace settings are characterized by diversity. A plausible reason for diversity is the effect of affirmative action to eliminate what is described as ability misperception by employers who may perceive minorities to lack skills. *JEL classifications*: J15, J16, J08.

### **INTRODUCTION**

Bell and Wray (2004) consider the war on poverty begun in 1964 an attempt to improve the quality of workers. Educational programs were devised to make the jobless more skillful, which appeals to private-sector employers. Yet, real wages, especially among the disadvantaged, have been on the decline. Wheeler (2005) showed that the states belonging to the Eighth Federal Reserve District have experienced increases in wage inequality. In 1970, the top 90<sup>th</sup> percentile of wage distribution was 3.7 times the 10<sup>th</sup> percentile. In 2000, the ratio increased to 5.5. Similar trends were observed for the entire United States.

Numerous factors lead to wage inequality, according to Kassa (2006), who explains that there are direct and indirect factors included in a typical study by the use of regression analysis. Most attention was given to economic and technological development. Included also are abundance of natural resources, bank concentration, population educational level, education inequality, urbanization, structure of the population, and composition of households. Kassa concludes that as many factors as possible should be included in the analysis of wage inequality. Broadly, the factors can be aggregated into groups that include economic and technological development, resources and their distribution, demographic factors, political factors, cultural

factors, and macroeconomic factors. A case in point is the work of Ezeala-Harrison (2005), which analyzes wage determination in rural agricultural labor by considering the two-tier labor market. For Tier 1, technology and productivity are primary in determining wages while for Tier 2, considered as secondary market clearing, the wage rate is flexible.

Goldsmith, Hamilton, and Darity, Jr. (2006), henceforth (GHD), recognizing the documented lower wages of black and Latino workers where differential human capital and discrimination are given as the explanations for disparity, set out to investigate workplace settings descriptors for explanations of differences in wages. Samples were chosen to determine characteristics of workplace settings. The full samples by ethnicity (blacks, whites, Latin) and by gender (male, female) were defined by 38 indicator variables, separated into high achievers and low achievers. The demarcation line is self-reported high school grades for all the 38 indicator variables. The purpose of their analysis was to determine some explanations for the wage gaps.

The aim of GHD was to test a hypothesis they call the *theory of ability misperception*, which could explain the relative wages of black and Latino workers during their working years. The hypothesis tested by GHD is made up of three propositions. The first is that employers, because they believe that non-white employees acquire fewer skills in prior employment, award white employees higher pay. Thus, the assumption here is that white workers are more skillful than are non-white workers, a form of racial discrimination. The consequence is that many capable non-white workers are denied jobs.

The second proposition relates to on-the-job observations of non-white workers by employers, whereby the employers realize that their perceptions of undervalued abilities were not correct. Therefore, the difference in returns between white and nonwhite to additional tenure or seniority will be smaller than the difference in returns to prior experience of the first proposition. The third proposition, a stronger version of the second proposition, is that rewards for additional seniority by non-whites exceed that of whites.

The first proposition has a direct implication for affirmative action policies. Enforcement of antidiscrimination laws could eliminate the bias of race by requiring employers to hire minorities. The policies could offset the initial undervaluation of prior experience of non-whites. The second and third propositions have the implications of a job lock. Non-white workers would refrain from seeking employment, fearing that their skills would be initially underrated by a different employer.

GHD explains that employers' perceptions of non-white workers' lack of abilities could arise from genuine ignorance and thus these employers would adjust their perception by awarding the workers higher on-the-job returns. On the other hand, employers undermine non-white talents because of racist inclinations. There are, however, mechanisms that force employers to adjust non-white wages. For instance, these workers can prove unfair treatment or hostile work environments. In either case, whether the perception is benign or racist, the second and/or third propositions hold.

GHD believes that a wide range of workplace settings factors such as racial-ethnic supervisors, number of co-workers, and amount of contact with customers should be taken into account to determine whether workplace settings variables impact differences in rewards. GHD's work, therefore, provides direct controls for a

large range of workplace settings descriptors that could prove or disprove ability perception. Results of GHD, by use of regression analysis, support the three propositions for males and subsamples for white and black females.

Their research is based on regression methodology, using a large set of data (to be discussed later). Regression entails the use of individual observations that could mask a comprehensive comparison of inequality, whether coming from within-group or between-group classifications, according to Cunha and Heckman (2007). This research, by using the summary statistics provided by GHD, investigates the broader aspects of the settings of workplace experience. The comparisons are made for male (black, white, Latin), female (black, white Latin) for both high and low achievers, and ratios male/female for blacks, whites and Latin.

The research will show that though the results of GHD gave credence to the three components of their *theory of ability misperception*, a broader classification of between and within groups of ethnicity and gender for workplace experience settings showed no discernible statistical significance. In other words, upon overcoming initial discrimination in hiring, the workplace settings for the diverse workforce discrimination are completely absent. Therefore, policies of affirmative action which give priority of hiring by ethnicity and gender are positive tools to enhance equality. Once minorities are employed, discrimination in workplace settings subsides. Employers find it to their advantage to treat all workers fairly and equally. This introductory section of the paper is followed by a review of literature that provides background information for GHD's *theory of ability misperception*. Sections describing the data and methodology used and results will follow. A final section concludes.

## **REVIEW OF THE LITERATURE**

The *theory of ability misperception* advocated by GHD was inspired by Farmer and Terrell (1996) and Lewis and Terrell (2001). The gist of these articles is that economic theory explanations for wage gaps range between marginal product of labor being lower for one group as compared to others, to unobservable factors such as average intelligence and ethnic human capital because of past discrimination. An alternative to these views proposes that wage gaps are due to prior opinion of employers about a group's ability. Farmer and Terrell (1996), citing studies evaluating black and Hispanic workers with white workers with equal resumes, found that at every stage of the job-seeking process, minority candidates trailed. They believe that discrimination results from sincere, though incorrect, beliefs about ability of ethnic groups. However, returns to on-the-job tenure appear to be higher for black workers. These essays conclude that affirmative action may be warranted to alleviate initial discrimination by employers.

Fiske and Ruscher (1993) provide a look at negative stereotyping for minority groups. Even though Americans honor the *principle* that all people are created equal and therefore should have an equal chance for the good life, minorities are perceived to violate work-ethic norms, depend on welfare, and fail in school. Fiske et al (2002) argue that stereotypes are two dimensional. In essence, positive stereotypes do not contradict prejudice depending on whether the group is non-competitive, such as the elderly, or whether the group is competitive, such as Asians. For the elderly, the negative stereotype of low competence is jointly acted with a

positive of warmth, while for Asians, the positive stereotype acts jointly with low warmth, justifying resentment.

Darity and Mason (1998) cite the Civil Rights Act of 1964 as signaling the reduction of black-white earnings differential. The Act also played a major role in reducing discrimination against women. Yet, discrimination by race and gender continued in the more subtle form of presumption of inferiority. For instance, women continued to occupy lower-paying jobs more than men even though they possess equivalent levels of education. Wolpin (1992) studied the transition from high school to full-time employment as well as labor mobility during the first five years after graduation for cohort black and white males. The data reveal that blacks have much smaller payoffs to work experience than do whites, reducing the potential of blacks for upward mobility. Bratsberg and Terrell (1998), recognizing the narrowing of the pay gap between young black and white men, indicate that black workers trail behind the white workers for returns to general experience. Yet, black workers earn equal or even higher returns to tenure.

The evidence reviewed in this section is consistent with the conclusion that perception by employers of lack of skills of minorities, whether genuine or based on racial stereotyping, results at times in denial of initial employment. The evidence is also consistent with the view that differential rewards between whites and non-whites tend to diminish with tenure or seniority, an important ingredient for rise in wages, according to Topel (1991). This is tied to motivation, according to Goldsmith, Veum, and Darity (2000). Many of the authors cited suggested that affirmative action could be used to alleviate negative perceptions and provide equal opportunities for initial employment. Early on, however, Lazear (1979) suggested that the apparent diminishing of wage gaps between black and white wages in response to affirmative action legislation hides an unobserved reduction in the on-the-job training component of earnings. Holzer and Neumark (2000) and Raphael (2002), however, enumerate many beneficial results of affirmative action.

## **DATA AND METHODOLOGY**

The data used by GHD was drawn from the Multi-City Study of Urban Inequality (MCSUI) based on interviews of 8,916 persons. The interviews were made, beginning in 1992, in the cities of Los Angeles, Boston, Atlanta, and Detroit. Interviewers were matched with respondents by ethnic heritage and race. A large array of socio-economic and demographic indicators constitute the survey questionnaires. Included, among many questions, are job seniority, age completing high school, workplace characteristics, number of years with the current employer, co-workers, tasks regularly performed, employer characteristics, and race and ethnicity of direct supervisors. Further questionnaires were related to contact with customers, firm size, union status, full- or part-time employment, education level, marital status, immigrant status and the like.

GDH selected large samples from the 8,916 interviews to conform to regularity conditions of the theoretical models employed. The full samples were black males, n=419; white male, n=493; Latin male, n=494; black female, n=805; white female, n=554, and Latin female, n=514. These samples, in combination, were used in a variety of regression models to test the validity of their *theory of ability misperception*.

The paper by GHD provided in three appendices their computation of summary statistics to describe wage-earner experience by ethnic classification (black, white, Latin) and by gender (male, female) by two categories of achievement (high, low) as well as full sample. The 27 variables selected in this paper are:

<b>Variable</b>	<b>Variable Definition</b>
Hourly Wage	Respondents hourly wage at survey date
Tenure	Number of years employed by current employer at survey date
Potential prior experience	Age at last year of schooling (out of school a least 15 continuous months) – tenure
High school graduate	1 if respondent’s highest level of schooling is completion of high school, 0 otherwise
Attended college	1 if respondent’s highest level of schooling was attended college, 0 otherwise
College graduate	1 if respondent completed college, 0 otherwise
Self-esteem	Rosenberg self-esteem score; scores range in ascending order from 0 to 4
Married	1 if respondent is married or living with a partner, 0 otherwise
Number of dependents	Number of dependents in household
Foreign resident at 16 years of age	1 if respondent was primarily a foreign resident before 16 years of age, 0 otherwise
Union member	1 if respondent is a union member, 0 otherwise
Work part time	1 if respondent works part time , 0 otherwise
Customer contact daily	1 if respondent has customer contact daily, 0 otherwise
Firm size	Number of workers at respondent’s firm per 1,000
Supervise others	1 if respondent supervises other employees, 0 otherwise
Manager or professional	1 if respondent is in a managerial or professional occupation, 0 otherwise
Production	1 if respondent is in a precision production, craft, or repair occupation; 0 otherwise
Services	1 if respondent is in a service occupation, 0 otherwise
Craft	1 if respondent is in a craft occupation, 0 otherwise
Laborers	1 if respondent is in a laborer occupation, 0 otherwise
Government	1 if respondent is a public employee, 0 otherwise
White co-workers	1 if respondent’s co-workers are mostly white, 0 otherwise
Black co-workers	1 if respondent’s co-workers are mostly black, 0 otherwise
Hispanic co-workers	1 if respondent’s co-workers are mostly Hispanic, 0 otherwise
Supervisor white	1 if respondent’s supervisor is white, 0 otherwise
Supervisor black	1 if respondent’s supervisor is black, 0 otherwise
Supervisor Hispanic	1 if respondent’s supervisor is Hispanic, 0 otherwise

The summary statistics GDH provided are the mean ( $\bar{y}$ ) and the standard error of the mean  $S(\bar{y})$ , obtained by dividing the standard deviation S by the square root of the sample size n. That is,  $S(\bar{y}) = S/(n)^{1/2}$ . In this article, data for the chosen 27 variables were put together in a suitable format showing the means only as reported in Tables 1 and 2 for male and female ethnicity classification (black, white, Latin) in the two categories of achievement (high, low). Table 3 provides summary data (the mean) for the full sample by ethnic and gender classifications.

The 27 factors included in Tables 1, 2, and 3 provide a wide range of workplace settings such as ethnic background of direct supervisors, number of co-workers, and amount of contact with customers. Also included are tenure for measuring prior experience, schooling, union membership, and whether a worker is full time and is a public sector employee. In Table 1, for instance, an average high achievement white male worker earns \$13.81 per hour as compared to a black and Latin worker, who earns \$11.42 and \$8.30, respectively. On average, the same types

of workers have been with the current employer for 4.61, 5.19, and 6.91 years. Similar contrasts can be made for formal education and the number of years living overseas.

**Table 1**  
**Summary Statistics for Males (Mean)**

Variable	Blacks		Whites		Latin	
	High	Low	High	Low	High	Low
Hourly Wage	11.42	13.34	13.81	16.90	8.30	9.42
Potential Prior Experience	5.19	12.68	4.61	14.17	6.91	15.35
Tenure	2.92	6.79	2.64	7.90	3.62	4.87
High School Graduate	0.59	0.51	0.24	0.41	0.45	0.34
Attended College	0.18	0.16	0.48	0.23	0.10	0.09
College Graduate	0.04	0.12	0.15	0.17	0.00	0.03
Self-Esteem	3.58	3.19	3.75	3.17	3.26	3.10
Married	0.38	0.58	0.45	0.69	0.63	0.71
Number of Dependents	0.69	0.91	0.33	0.75	1.07	1.51
Foreign Resident at 16	0.38	0.20	0.02	0.06	0.75	0.67
Union Member	0.24	0.33	0.12	0.29	0.18	0.20
Work Part-Time	0.45	0.07	0.09	0.09	0.22	0.12
Firm Size	0.59	0.52	0.24	0.70	0.08	0.16
Supervise Others	0.17	0.40	0.20	0.43	0.21	0.24
Customer Contact Daily	0.73	0.59	0.46	0.56	0.39	0.40
Manager or Professional	0.21	0.16	0.48	0.40	0.10	0.09
Craft	0.46	0.28	0.35	0.20	0.18	0.15
Services	0.26	0.26	0.06	0.10	0.17	0.14
Production	0.02	0.09	0.07	0.15	0.18	0.19
Laborers	0.04	0.20	0.05	0.14	0.37	0.43
Government	0.14	0.20	0.17	0.19	0.08	0.05
White Coworkers	0.29	0.40	0.83	0.77	0.19	0.19
Black Coworkers	0.19	0.35	0.05	0.03	0.03	0.03
Latin Coworkers	0.14	0.14	0.07	0.08	0.74	0.71
Supervisor White	0.68	0.57	0.81	0.80	0.36	0.47
Supervisor Black	0.18	0.24	0.04	0.03	0.03	0.02
Supervisor Latin	0.03	0.07	0.01	0.04	0.42	0.38

Note: For definition of variables, see text. High, low refer to achievement.  
Source: Goldsmith, Hamilton and Darity (2006).

**Table 2**  
**Summary Statistics for Females (Mean)**

Variable	Blacks		Whites		Latin	
	High	Low	High	Low	High	Low
Hourly Wage	9.55	11.87	12.00	13.34	8.21	7.34
Potential Prior Experience	9.10	14.40	5.21	16.45	6.42	15.72
Tenure	2.62	7.91	3.43	7.56	2.85	5.25
High School Graduate	0.41	0.48	0.34	0.38	0.42	0.28
Attended College	0.17	0.12	0.36	0.22	0.14	0.04
College Graduate	0.05	0.06	0.09	0.09	0.01	0.02
Self-Esteem	3.75	3.01	3.77	3.13	3.77	3.20
Married	0.28	0.41	0.65	0.70	0.50	0.56
Number of Dependents	0.95	0.91	0.82	0.84	1.61	1.77
Foreign Resident at 16	0.06	0.07	0.04	0.05	0.69	0.70
Union Member	0.16	0.28	0.17	0.17	0.13	0.13
Work Part-Time	0.22	0.10	0.20	0.20	0.16	0.17
Firm Size	0.41	0.67	0.67	0.51	0.14	0.19
Supervise Others	0.29	0.25	0.27	0.30	0.23	0.14
Customer Contact Daily	0.71	0.63	0.52	0.67	0.49	0.45
Manager or Professional	0.14	0.25	0.43	0.41	0.19	0.07
Craft	0.63	0.47	0.46	0.44	0.29	0.30
Services	0.21	0.21	0.11	0.09	0.24	0.27
Production	0.01	0.02	0.00	0.02	0.08	0.09
Laborers	0.02	0.06	0.00	0.05	0.21	0.27
Government	0.19	0.28	0.18	0.17	0.11	0.10
White Coworkers	0.45	0.36	0.87	0.77	0.27	0.20
Black Coworkers	0.39	0.42	0.01	0.04	0.02	0.01
Latin Coworkers	0.06	0.09	0.01	0.07	0.63	0.72
Supervisor White	0.60	0.52	0.80	0.80	0.34	0.35
Supervisor Black	0.30	0.31	0.03	0.04	0.03	0.03
Supervisor Latin	0.07	0.04	0.01	0.03	0.31	0.42

Note: For definition of variables, see text. High, low refer to achievement.  
Source: Goldsmith, Hamilton and Darity (2006).

**Table 3**  
**Full Sample Summary Statistics by Ethnic (Male/Female)**

Variable	Blacks		Whites		Latin	
	Male	Female	Male	Female	Male	Female
Hourly Wage	12.76	11.09	15.95	12.92	9.08	7.56
Potential Prior Experience	10.82	12.61	11.62	12.98	12.79	13.70
Tenure	5.61	6.13	6.28	6.29	4.49	4.73
High School Graduate	0.54	0.46	0.36	0.40	0.37	0.31
Attended College	0.17	0.14	0.31	0.27	0.09	0.06
College Graduate	0.10	0.06	0.16	0.09	0.02	0.01
Self-Esteem	3.31	3.26	3.35	3.33	3.14	3.33
Married	0.52	0.37	0.61	0.68	0.69	0.55
Number of Dependents	0.84	0.92	0.61	0.83	1.37	1.73
Foreign Resident at 16	0.25	0.07	0.05	0.05	0.70	0.70
Union Member	0.30	0.24	0.24	0.17	0.20	0.13
Work Part-Time	0.19	0.14	0.09	0.20	0.15	0.17
Firm Size	0.54	0.59	0.56	0.56	0.14	0.18
Supervise Others	0.33	0.26	0.35	0.29	0.23	0.16
Customer Contact Daily	0.61	0.66	0.53	0.63	0.40	0.46
Manager or Professional	0.18	0.21	0.42	0.42	0.09	0.10
Craft	0.33	0.52	0.25	0.44	0.16	0.29
Services	0.26	0.21	0.09	0.09	0.15	0.26
Production	0.07	0.01	0.13	0.01	0.18	0.09
Laborers	0.15	0.04	0.11	0.03	0.41	0.26
Government	0.18	0.25	0.19	0.17	0.06	0.10
White Coworkers	0.37	0.39	0.79	0.80	0.19	0.22
Black Coworkers	0.30	0.41	0.04	0.03	0.03	0.01
Latin Coworkers	0.14	0.07	0.08	0.05	0.72	0.70
Supervisor White	0.60	0.54	0.80	0.80	0.44	0.34
Supervisor Black	0.22	0.30	0.03	0.04	0.03	0.03
Supervisor Latin	0.06	0.05	0.03	0.02	0.39	0.40

Note: For definition of variables, see text.

Source: Goldsmith, Hamilton and Darity (2006).

The summaries provided by the GHD appendices lead to a feasible restructuring for use as entries to conduct analysis of variance testing for equality of means by ethnicity and gender. Note that analysis of variance, according to Fields (1980) decomposes the total sum of squares of a dependent variable

$$SST = \sum_j \sum_i (Y_{ij} - \bar{Y})^2 \quad (1)$$

which is the sum of squared deviations from the overall means  $\bar{Y}$  into an effect due to variation between different groups (SSB) and an effect due to variation within the groups themselves (SSW). An identity is established as



$$SST = SSB + SSW \quad (2)$$

where

$$SSB = \sum_j n_j (\bar{Y}_j - \bar{Y})^2 \quad (3)$$

and

$$SSW = \sum_j \sum_i (Y_{ij} - \bar{Y}_j)^2. \quad (4)$$

Here,  $i$  refers to the  $i$ th individual in a group  $j$ , and  $n_j$  is the sample size of group  $j$ .

An alternative expression for equation (4) is

$$SSW = \sum_j (n_j - 1) S_j^2 \quad (5)$$

where  $S_j^2$  is the variance of group  $j$ .

The procedures followed to conform the summaries provided by GDH to equation (1) to equation (5) are

$$\bar{Y} = \left( \sum_j n_j \bar{Y}_j \right) / \left( \sum_j n_j \right) \quad (6)$$

and

$$S_j^2 = n_j S^2(\bar{Y}). \quad (7)$$

Substituting equation (7) into equation (5), the resulting equation is

$$SSW = \sum_j (n_j - 1) n_j S^2. \quad (8)$$

The test statistic for testing equality of the means by ethnic classification (blacks, whites, Latin) is

$$F^* = MSB/MSW \quad (9)$$

where MSB and MSW are calculated from equation (3) and equation (8) by dividing by their proper degrees of freedom ( $k-1$ ) and  $(n-k)$  where  $k=3$  (the number of groups) and  $n = \sum_j n_j$ .  $F^*$  is compared for significance with  $F(\alpha, k-1, n-k)$ .

If the hypothesis of equality of means is rejected, a question arises as to which mean differs from which mean. The decision rule, according to Doane and Seward (2007) is to reject for equality of two pairs, say  $\mu_1$  and  $\mu_2$ , is

$$t^* = (\bar{y}_1 - \bar{y}_2) / [MSW(1/n_1 + 1/n_2)]^{1/2} \quad (10)$$

where  $t^*$  is compared with tabular  $t$  for a given significance level  $\alpha$  as  $t(\alpha/2, n-k)$ .

While the above statistical scheme is meant to test equality hypothesis by ethnicity for males and by ethnicity for females, the next scheme is meant to test a

hypothesis of equality between males and females by the ethnic criterion. For this scheme, the full samples were employed where in Table 3, the means of the samples are shown. Here, a t-test statistic for independent samples is appropriate. The test statistic is

$$t^* = (\bar{y}_1 - \bar{y}_2) / (S_1^2 / n_1 + S_2^2 / n_2)^{1/2} \quad (11)$$

where the indexes 1 and 2 stand for males and females.

Again, in order to conform the data given by GDH to this research, noting that

$$S^2(\bar{y}) = S^2 / n, \quad (12)$$

then

$$S^2 = nS^2(\bar{y}),$$

which transforms equation (11) into

$$t^* = (\bar{y}_1 - \bar{y}_2) / [S^2(\bar{y}_1) + S^2(\bar{y}_2)]^{1/2}. \quad (13)$$

The test statistic  $t^*$  is compared for significance with tabular  $\pm t(\alpha / 2, n_1 + n_2 - 2)$ .

Note the different approaches for use of data between the GHD paper and this paper. GHD used observations on individuals in the groups. This paper uses their computed summary statistics, consisting of the means and the standard errors of the groups for each of the 27 chosen indicator variables describing workplace experience. GHD's intention was to test the *theory of ability misperception* based on socio-economic indicators. This paper's intention is to test whether the groups categorized by race, ethnicity, and gender differ in their means for each of the 27 variables. The limitation of the data used precludes any statistical techniques other than those suggested.

## RESULTS

The results for testing equality of means between males by ethnicity (blacks, whites, Latin) and females by ethnicity (blacks, whites, Latin) are shown in Table 4. The computed F\* of equation (9) is based on samples  $n_1, n_2$ , and  $n_3$ , where 1 stands for blacks, 2 stands for whites, and 3 stands for Latin are:

<b>High Achievement:</b>	<b>Male</b>	<b>Female</b>
	n <sub>1</sub> =86	n <sub>1</sub> =216
	n <sub>2</sub> =137	n <sub>2</sub> =161
	n <sub>3</sub> =128	n <sub>3</sub> =150
<b>Low Achievement</b>	<b>Male</b>	<b>Female</b>
	n <sub>1</sub> =333	n <sub>1</sub> =589
	n <sub>2</sub> =356	n <sub>2</sub> =393
	n <sub>3</sub> =366	n <sub>3</sub> =364

For significance level  $\alpha=.05$ , the tabular F(.05, k-1, n-k) are thus:

High Achievement (Male):  $F(.05, 2, 348)=3.00$   
Low Achievement (Male):  $F(.05, 2, 1052)=3.00$   
High Achievement (Female):  $F(.05, 2, 521)=3.00$   
Low Achievement (Female):  $F(.05, 2, 1343)=3.00$

Therefore, for any  $F^*$  in Table 4 exceeding  $F=3.00$ , the hypothesis of equality of means by ethnicity for males or females must be rejected.

The results for testing equality of means between males and females by ethnicity using full samples are shown in Table 5. The  $t^*$  test statistics computed from equation (13) are based on samples  $n_1$  and  $n_2$ , where 1 refers to males and 2 refers to females are:

Blacks:  $n_1=419, n_2=805$   
Whites:  $n_1=493, n_2=554$   
Latin:  $n_1=449, n_2=514$

Since  $n_1$  and  $n_2$  are large, for significance level  $\alpha=.05$ ,  $\pm t(\alpha/2, n_1+n_2-2) \cong \pm 1.96$ . Therefore, a  $t^*$  in Table 5 beyond the critical points  $\pm 1.96$  gives reason to reject a hypothesis of equality of males and females by gender.

The F-tests for equality of means for males and females for the high achievement, low achievement and the full sample (Table 4) indicate that for the 27 variables of employment experience, the test concludes that no statistically significant difference between the means was detected. In every case, the computed  $F^*$  by equation (9) is much less than 3.00, where, as explained earlier,  $F^* \geq 3$  indicates significance. In other words, based on large samples, whether dealing with high achievement, low achievement, or full samples among black, white, and Latin workers, for both male and female categories, their experiences encountered in the work place do not differ significantly. Since the null hypothesis of equality of means is accepted, there is no need to employ the multiple comparisons suggested by equation (10). A similar observation is witnessed when dealing with gender differences (male, female) among the three ethnic groups (black, white, Latin) as shown in Table 5. None of the values of the test statistic  $t^*$  of equation (13) showed significance. In each case, the t-values were within -1.96 and +1.96.

The results are important because they signal diverse workplace settings on average based on race, ethnicity and gender. The statistical tests show that the variation within the groups far outweighs the variation between the groups. Bennett (2007) concurs with these findings based on interviews with top executives of American corporations. Bennett explains that diversity hiring was the result of compliance with the Equal Pay Act of 1962, the Civil Rights Act of 1964, and the Americans with Disability Act of 1990. Threat of lawsuits obviously helped with this diversification. Perhaps, also, companies recognized the need for workforces that reflect the changing cultures of customers.

Along the lines of the Bennett assessments that support the findings of this paper regarding diversity of workplace settings, Orrenius and Nicholson (2007) document the rising employment diversity in the United States as a consequence of immigration. They show that international migration has become an important source for the labor force. Regions experiencing domestic out-migration have become reliant on immigrants from overseas. They cite the statistics that between 2000 and 2005, fully 94 percent of labor force growth in the East North Central region was

contributed by immigrants. For New England, the labor force growth contribution by immigrants was 73 percent. Globalization and the changes in American demography have been striking characteristics of recent business experience. This makes it conceivable that a diverse workforce can establish rapport with clients, job candidates, customers and people of different cultures and backgrounds. For these reasons, companies provide inclusive environments.

**Table 4**  
**F-Tests for Equality of Means by Ethnicity and Gender**

Variable	Males			Females		
	High	Low	Full	High	Low	Full
Hourly Wage	0.37	0.65	0.31	0.15	0.19	0.17
Potential Prior Experience	0.06	0.03	0.01	0.16	0.01	0.00
Tenure	0.03	0.10	0.02	0.02	0.03	0.01
High School Graduate	0.13	0.05	0.04	0.01	0.04	0.02
Attended College	0.25	0.07	0.09	0.08	0.06	0.07
College Graduate	0.10	0.12	0.07	0.03	0.02	0.02
Self-Esteem	0.07	0.00	0.01	0.00	0.00	0.00
Married	0.06	0.03	0.03	0.16	0.09	0.11
Number of Dependents	0.14	0.13	0.11	0.11	0.15	0.14
Foreign Resident at 16	1.21	0.82	0.79	1.36	1.22	1.28
Union Member	0.02	0.04	0.01	0.00	0.04	0.02
Work Part-Time	0.19	0.01	0.02	0.01	0.02	0.01
Firm Size	0.15	0.13	0.04	0.03	0.03	0.02
Supervise Others	0.00	0.08	0.02	0.00	0.03	0.02
Customer Contact Daily	0.11	0.07	0.05	0.07	0.05	0.04
Manager or Professional	0.24	0.39	0.19	0.14	0.13	0.13
Craft	0.09	0.04	0.04	0.12	0.04	0.05
Services	0.08	0.07	0.05	0.03	0.05	0.04
Production	0.07	0.03	0.03	0.08	0.04	0.06
Laborers	0.30	0.17	0.17	0.25	0.16	0.20
Government	0.02	0.11	0.05	0.01	0.05	0.04
White Coworkers	0.79	0.70	0.55	0.42	0.35	0.37
Black Coworkers	0.10	0.41	0.27	0.40	0.39	0.39
Latin Coworkers	1.14	1.15	0.99	1.27	1.11	1.21
Supervisor White	0.29	0.18	0.16	0.21	0.19	0.20
Supervisor Black	0.10	0.24	0.17	0.21	0.20	0.19
Supervisor Latin	0.53	0.34	0.36	0.26	0.54	0.45

Note: For definition of variables, see text. High, low refer to achievement.  
Source: Goldsmith, Hamilton and Darity (2006) and calculation by the authors from equations (1)-(9).

**Table 5**  
**t-Tests for Equality of Means by Gender and Ethnicity**

Variable	Blacks	Whites	Latin
Hourly Wage	0.19	0.30	0.25
Potential Prior Experience	-0.14	-0.10	-0.06
Tenure	-0.05	0.00	-0.03
High School Graduate	0.11	-0.06	0.09
Attended College	0.06	0.06	0.08
College Graduate	0.11	0.15	0.06
Self-Esteem	0.03	0.01	-0.10
Married	0.22	-0.10	0.21
Number of Dependents	-0.05	-0.16	-0.18
Foreign Resident at 16	0.36	0.00	0.00
Union Member	0.10	0.13	0.13
Work Part-Time	0.10	-0.22	-0.04
Firm Size	-0.02	0.00	-0.05
Supervise Others	0.11	0.09	0.13
Customer Contact Daily	-0.07	-0.14	-0.09
Manager or Professional	-0.05	0.00	-0.02
Craft	-0.28	-0.29	-0.22
Services	0.08	0.00	-0.19
Production	0.21	0.34	0.19
Laborers	0.27	0.22	0.23
Government	-0.12	0.04	-0.11
White Coworkers	-0.03	-0.02	-0.05
Black Coworkers	-0.16	0.04	0.10
Latin Coworkers	0.16	0.09	0.03
Supervisor White	0.09	0.00	0.14
Supervisor Black	-0.13	-0.04	0.00
Supervisor Latin	0.03	0.04	-0.01

Note: For definition of variables, see text.

Source: Goldsmith, Hamilton and Darity (2006) and calculations by the authors from equation (13).

## CONCLUSIONS

Economic inequality studies in the United States clearly indicate a rising trend in recent years. Recently, Julia B. Isaacs of the Brookings Institution has written three articles on economic mobility. The first article, Isaacs (2007a), is concerned with economic mobility of families across generations (1960s-1990s). The findings indicate that the current generation of adults on average is better off than the previous one, but dispersion is larger. The second article, Isaacs (2007b), reports that between 1974 and 2004 women's income has grown in contrast to men's stagnant income, even though gaps remain. The third article, Issacs (2007c), reports that between 1974 and 2004, median income for both black and white families increased, but income gaps persist.

The gaps in income were high-lighted by Herman (2008) who cites a recent report by the Internal Revenue Service. The top 400 taxpayers' total income in 2005 was \$85.6 billion, amounting to an average of \$213.9 million for each of the 400 individuals. The minimum income of an individual in this club was \$100.3 million increasing from \$74.5 million in 2004 when the average income was \$172.8 million. Herman cited the Congressional Budget Office report that the median after-tax income in 2005 was \$55,900. Even though the income of the fortunate 400 seems to be excessive in 2005, it is only a small fraction of 134.4 million people who filed tax returns with total income of \$7.4 trillion.

The above references point to inequality and gaps of income which includes gaps by race and gender. This paper dealt with another important facet of inequality – the job experience at the ethnic (black, white, Latin) and gender (male, female) levels. The data on 27 variables used for comparisons were obtained from the GHD study. The GHD study was concerned with ethnic and gender wage differences using workplace experience for explanations. This study probed into the GHD study further by simply checking whether workplace experience by ethnicity and gender differ for each of the 27 variables. The surprising results for testing equality of the means pointed, in every case, to no significant differences whether by ethnicity or by gender. Such results were not expected when the literature, academic or popular, point to large differences and widening of gaps in income. Perhaps the new generations of blacks and Latinos are steadily integrating in the workplace with whites, challenging the social hierarchy of past generations.

The results of this research indicate that the American workplace is not a discrimination society where an invisible line separates whites from nonwhites. It shows job-market flexibility, absence of ethnic concentration, and a workplace that accepts diversity. The indication is that opening the market to all irrespective of race, ethnicity or gender leads to a workplace that is diverse. The consensus among employers of adhering to productive, free-market oriented work atmospheres has resulted in diverse markets that follow U.S. social policies. Two questions can be raised. The first question is whether the diversity of workplace settings as found in this paper can be maintained if the economy devolved into a recession. The second question is whether the findings of diversity of workplace settings are at odds with the large differences and widening of gaps in income.

The answer to the first question is that it is likely that ability misperception by employers takes hold because employers can be choosy about whom to hire on the assumption that employers want to hire the most capable employees who perceive the capabilities of minorities to be inferior to whites. However, affirmative action can possibly alleviate this perception. Employers would be under pressure not to practice discrimination. There is also, as Bell (1976) describes as part of societal structure of the post-industrial society in the United States, what he calls mobilized groups.

Through politics, ethnic pressure groups, symbolized for instance by NAACP, seek to gain privileges and advantages not available in the market place. As an example, Gamber (2007) reports on NAACP Washington Bureau Legislative Report which evaluated civil rights votes during the 109<sup>th</sup> Congress. The report card, since 1914, tallied the progress made and yet to be made by grading the 100 senators and 435 representatives on their voting and how they match the positions taken by NAACP. A member of Congress receives a grade ranging from A to F. Biased complaints by female workers through class action as reported, for instance by Bray

and Zimmerman (2008), could prevent employers from practicing discrimination for fear of class action.

The second question regards the widening of gaps in income being at odds with diversity in workplace settings. The answer possibly is that the two are not directly related. Wages according to Card (1995) are determined for instance as returns to education, the composition of the workforce over the business cycle, the unemployment rate and perhaps region, and ethnic and gender discrimination. Diversity in the workplace settings deals with the structure of the work environment. In this work environment, highly paid employees come along with low-paid employees without a sense of difference in status. Once employees are accepted to work for a firm, employers treat all of them alike without distinction of ethnicity and gender.

### REFERENCES

- Bell, D. 1976. *The Coming of Post-Industrial Society: A Venture in Social Forecasting*. New York: Basic Books, Inc.
- Bell, S.A. and Wray, L.R. 2004. "The War on Poverty after 40 Years: A Minskyan Assessment." *Public Policy Brief*, Levy Economics Institute of Bard College, 78A. Also available at [www.levy.org](http://www.levy.org).
- Bennett, J. 2007. "Tactics for Tapping a More Diverse Talent Pool." *The Wall Street Journal*, (Tuesday, October 16): B9.
- Bratsberg, B. and D. Terrell. 1998. "Experience, Tenure, and Wage Growth of Young Black and White Men." *The Journal of Human Resources* 33: 658-682.
- Bray, C. and A. Zimmerman. 2008. "Female Workers at Jeweler File Bias Complaint," *The Wall Street Journal*, (Thursday, March 20): B6.
- Card, D. 1995. "The Wage Curve: A Review." *Journal of Economic Literature* XXXIII: 785-799.
- Cunha, F. and J.J. Heckman. 2007. "The Evolution of Inequality, Heterogeneity and Uncertainty in Labor Earnings in the U.S. Economy." NBER Working Paper No. W13526, Available at SSRN: <http://ssrn.com/abstract=1024130>.
- Darity, W.A. and P.L. Mason. 1998. "Evidence on Discrimination in Employment: Codes of Color, Codes of Gender." *Journal of Economic Perspectives* 12: 63-90.
- Doane, D.P. and Seward, L.E. 2007. *Applied Statistics in Business and Economics*. Boston: McGraw-Hill Irwin.
- Ezeala-Harrison, F. 2005. "Two-Tier Wage Systems in Rural Agriculture: Evidence from Indonesian Micro Data." *Southwestern Economic Review* 32: 1-12.
- Farmer, A. and D. Terrell. 1996. "Discrimination, Bayesian Updating of Employer Beliefs, and Human Capital Accumulation." *Economic Inquiry* 34: 204-219.
- Fields, G.S. 1980. *Poverty, Inequality and Development*, Cambridge, UK: Cambridge University Press.
- Fiske, S.T. and J.B. Ruscher. 1993. "Negative Interdependence and Prejudice: Whence the Affect?" In *Affect, Cognition, and Stereotyping: Interactive Processes in Group Perception*, edited by D.M Mackie and D.L. Hamilton. San Diego, CA: Academic Press, 239-268.
- Fiske, S.T., Cuddy, A.J.C., Glick, P. and J. Xu. 2002. "A Model of (Often Mixed) Stereotype Content: Competence and Warmth Respectively Follow from Perceived Status and Competition." *Journal of Personal and Social Psychology* 82: 878-902.

- Gamber, F. 2007. "Legislative Report Card: The NAACP and Congress." *Crisis* 114 (March/April): 45-48.
- Goldsmith, A.H., Hamilton, D., and W.A. Darity, Jr. 2006. "Does a Foot in the Door Matter? White-Nonwhite Differences in the Wage Return to Tenure and Prior Workplace Experience." *Southern Economic Journal* 73: 267-306.
- Goldsmith, A.H., Veum, J.R. and W. Darity. 2000. "Motivation and Labor Market Outcomes." *Worker Well Being* 19: 109-146.
- Herman, T. 2008. "There's Rich, and There's the 'Fortunate 400'." *The Wall Street Journal* (Wednesday, March 5): D1, D3.
- Holzer, H. and D. Neumark. 2000. "Assessing Affirmative Action." *Journal of Economic Literature* XXXVIII: 483-568.
- Isaacs, J.B. 2007a. "Economic Mobility of Families across Generations." The Pew Charitable Trust available <http://www.economicmobility.org>.
- Isaacs, J.B. 2007b. "Economic Mobility of Men and Women." The Pew Charitable Trust available <http://www.economicmobility.org>.
- Isaacs, J.B. 2007c. "Economic Mobility of Black and White Families." The Pew Charitable Trust available <http://www.economicmobility.org>.
- Kassa, A. 2006. "Factors of Income Inequality and their Influence Mechanism: A Review of Empirical Literature." *Journal of Income Distribution* 15: 9-41.
- Lazear, E. 1979. "The Narrowing of Black-White Wage Differentials is Illusory." *The American Economic Review* 69: 553-564.
- Lewis, D. and D. Terrell. 2001. "Experience, Tenure, and Perceptions of Employers." *Southern Economic Journal* 67: 578-597.
- Orrenius, P.M. and M. Nicholson. 2007. "Regional Labor Force Growth: Mix of Native, Immigrant Workers Varies." *Southwestern Economy* 4(July/August): 10.
- Raphael, S. 2002. "Anatomy of the Anatomy of Racial Inequality." *Journal of Economic Literature* XL: 1202-1214.
- Topel, R. 1991. "Specific Capital, Mobility, and Wages: Wages Rise with Job Seniority." *Journal of Political Economy* 99: 145-176.
- Wolpin, K.I. 1992. "The Determinants of Black-White Difference in Early Employment Careers: Search, Layoffs, Quits, and Endogenous Wage Growth." *Journal of Political Economy* 100: 535-560.
- Wheeler, C.H. 2005. "Wage Gap Widens, Especially in the Cities." *The Regional Economist*, (January), Federal Reserve Bank of Saint Louis, [www.stlouisfed.org](http://www.stlouisfed.org).