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Race/ethnicity and sex in U.S. occupations, 1970–2010: Implications for research, practice, and policy

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Abstract

We used census data on the civilian non-institutional adult population to analyze trends in labor force participation by race/ethnicity and sex in U.S. occupations from 1970 to 2010 in decennial periods. We examined these data for the main effects and interactions of race/ethnicity and sex across the total labor market and within 35 detailed occupations. Results from a log-linear analysis revealed that, as a whole (across race/ethnicity), more women participated in the labor force from 1970 to 2010. The proportions of working racial/ethnic minorities to both the population and the people in the labor force increased across all decades except for Black men. Although White (Caucasian) men continuously comprised the largest racial/ethnic–sex group working across five decades in absolute numbers, their percentage of the total working population declined from 1970 (54%) to 2010 (37%). In our analyses of 35 occupations, significant sex differences within racial/ethnic groups emerged. Overall, with some exceptions, Asian men and women and White women were more likely to be absorbed into occupations typically associated with professional status whereas Black, Hispanic, and American Indian men and women were more likely to be absorbed into occupations typically associated with low skill, low wages, and low status. Implications for the role of psychologists in future research, practice, and policy are discussed.

Keywords

Workforce diversity; Labor force participation; Occupational segregation; Racial differences; Sex differences

Seismic shifts have occurred in the demographic composition of the United States (U.S.) in recent decades. The magnitude of these shifts is so great that the American society in 2013 is hardly recognizable from what it was a century ago. For example, California was predicted to be majority “minority” by the end of 2013 as the number of individuals who identify as Hispanic in California exceeds those who identify as White (State of California Department of Finance, 2013). Hispanics and those identifying as Black, Asian, Pacific Islander and American Indian will be about 60% of the California population. Nationally, Hispanics were

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over 16% of the population in 2010, growing from 12% in the 2000 census (U.S. Census Bureau, 2011), while 12.6% identified as Black, 5% as Asian American and 1% as American Indian (U.S. Census). Thus, 65% of the U.S. population identified as White only (some identified both as White and as a member of a racial/ethnic minority group). This is in contrast to 93% identifying as White in 1970 (U.S. Census, 1971), 80% in 1980 (U.S. Census, 1981), 76% in 1990 (U.S. Census, 1991), and 71% in 2000 (U.S. Census, 2001). Some of these trends reflect the change in the 2000 census that allows individuals to choose more than one racial category, yet they are also due to the increase in immigration and the higher fertility rate among Asian Americans and Hispanics, and the increased interest of individuals to embrace, and therefore report, their ethnic heritage (Pew Research Center, 2013a,b).

There have also been changes in the population and labor force profiles of women during the past three decades. Today, women comprise about 52% of the U.S. population and 47% of the total labor force and are projected to constitute 51% of the labor force growth by 2018 (U.S. Department of Labor [DOL], 2010a). What is less clear is the impact of these demographic shifts, particularly how they are reflected in the labor force, and whether all racial/ethnic minority (R/EM) groups and women are represented proportionately across the wide spectrum of occupations.

The present study investigated the participation of women and men from five racial and ethnic groups in the U.S. labor market and in specific occupations across five census periods, from 1970 to 2010. Although legislation prohibits outright discrimination, statistical data continuously reveal that not every qualified individual has an equal opportunity to work in a range of occupational fields (Spalter-Roth & Lowenthal, 2005). The labor market is not race or sex neutral and the longstanding occupational disparities between women and men and across racial/ethnic groups cannot be wholly explained by group differences in work preferences, ability, and educational attainment (see Noah, 2010; Spalter-Roth & Lowenthal, 2005). Thus, this study provides a macro-level analysis of the demographic and employment context within which micro-level studies of individual vocational behavior are conducted.

The labor market is an important place to examine the implications of cultural diversity in the general population on work choices and behavior, as well as career development. Analyses conducted over a decade ago (National Research Council, 1999) on demographic changes in the workforce indicated that diversity (in terms of age, sex, race, and education) was growing in nearly all occupational groups. But while more occupations are racially diverse and include more women, there are still disproportionate numbers of women and R/EMs in lower paid, less technical occupations (Fouad & Kantamneni, 2013) and they are particularly underrepresented in science, technology, engineering and math (STEM) fields (AAUW, 2010; National Science Foundation [NSF], 2010).

Although these large reports document important disparities in STEM fields (National Science Board [NSB], 2012; National Science & Technology Council [NSTC], 2013), they do not describe the entire picture of occupational choice and attainment for women and R/EMs. First, the reports collapse categories of occupations, combining all STEM occupations into one group. But this grouping may hide important information that shows, for example,

that women are much less likely to be physicists than biologists (Bureau of Labor Statistics [BLS], 2014). Second, the reports group R/EM men and women together, preventing the analysis of occupational differences between men and women within the same racial groupings. Finally, although men's participation in the labor force is similar across racial/ethnic groups, women across racial/ethnic groups participate in the labor force at different rates. Therefore, occupational analyses also need to take into account gender and race/ethnicity proportion in the labor force. To examine this gender variation within racial/ethnic groups, as Weeden (1998) suggested, it is important to determine the proportion of a group within the population, its proportion within the labor force and then their proportions within various occupations. For example, if Hispanic women are 8% of the general population, and represent 6% of the labor force, then one would predict that Hispanic women would comprise 6% of engineers, scientists, teachers and physicians. But Hispanic women are actually 1.3% of engineers, 1% of physical scientists, 7.7% of teachers, and 1.2% of physicians (Bureau of Labor Statistics [BLS], 2013).

This study investigated potential labor market inequities evidenced by persistent and significant differences in employment patterns by sex and race/ethnicity (BLS, 2012). As vocational psychologists, we are interested in factors leading to individuals' vocational choices (Blustein, 2008). But we are also interested in identifying where the occupational landscape is uneven such that individuals from some groups are systematically less likely to be represented.

Analysis of R/EM and gender distribution among occupations over the past forty years is an ideal snapshot of time to investigate disparities in the representation of men, women, and racial/ethnic groups across occupations. Since the enactment of several federal and legislative efforts prohibiting discrimination and mandating affirmative action, including the Civil Rights Act of 1964, its related amendments, and the Equal Employment Opportunity Commission in 1965, R/EMs and women have had greater access to diverse occupations. Yet, several studies by Tomaskovic-Devey and his colleagues revealed that workplace desegregation for Black Americans and Hispanics in 2002 was the same as the 1980 levels (see Tomaskovic-Devey & Stainback 2007). Moreover, Stainback, Robinson, and Tomaskovic-Devey (2005) noted that the Civil Rights Act of 1991 shifted focus toward age and disability discrimination, resulting in slowed racial integration in the workplace and declines in women's entry into managerial occupations (Browne & Askew, 2005; Cohen, Huffman, Knauer, 2009).

A great deal of sociological research on occupational segregation has examined racial/ethnic and sex differences in occupational characteristics like earnings, authority, educational level, professional attainment (i.e., promotions), or workplace composition (see Mintz & Krymkowski, 2011; Tomaskovic-Devey et al., 2006). Studies have also examined these issues across time periods, often comparing two to three time points. We could not find any studies that investigated labor market segregation at detailed occupational levels (e.g., beyond 10 major occupational or industry groups) and across several time periods. Because occupational segregation may vary significantly not only across occupational clusters but within occupational clusters, examination of a wider variety of occupations across time is likely to provide a more refined picture of where *and* how any demographic shifts in the

labor market occurred. For instance, it is not clear whether changes in the distribution of White women and R/EM women over time is due to actual shifts in level and location of participation in the labor market or a re-distribution to occupations that had historically lower levels of segregation (Tomaskovic-Devey et al., 2006).

In this study, we sought to understand the relationship between demographic diversity in the general population and demographic diversity in the labor market and in detailed occupations during a 40-year period. We used census data across five decennial periods from 1970 to 2010 to analyze national trends in detailed occupations between men and women and racial/ethnic groups and within gender by racial/ethnic group. Our study was guided by three primary research questions: 1) What impact has the growth in demographic diversity (i.e., race/ethnicity and sex) in the U.S. had on workforce trends? 2) How proportionate are the labor force participation rates of racial/ethnic groups and women relative to their representation in the U.S. across time, 1970–2010? 3) What is the distribution of racial/ethnic minorities and women in specific occupations between 1970 and 2010?

A central premise underlying our study is that career entry depends upon both an individual's job choice and intentions as well as the openness of occupational environments to employing that individual. The significance of this premise is elucidated, for instance, in numerous studies of hiring that involve assigning a man's name or woman's name to the same application and randomly distributing the applications to a group of reviewers. In these studies, women are generally regarded as less competent than men with the same accomplishments and skills and, interestingly, the sex of the reviewer has no effect on the outcome (see Steinpreis, Anders & Ritzke, 1999). This gender bias has been replicated with racial bias in field studies (Bertrand & Mullainathan, 2004; Dovidio & Gaertner, 2000; Moss-Racusin, Dovidio, Brescoll, Graham, & Handelsman, 2012). Gender and racial biases can affect initial access to occupations and advancement opportunities, with effects that accumulate over a lifetime resulting in dramatically different occupational outcomes for men and women and racial/ethnic groups.

The structure of occupational opportunity, or the relative openness of various occupations to individuals possessing certain characteristics, as well as environmental factors such as hiring practices and employment selection criteria within an organization, plays a crucial role in an individual's career choice and career entry (Astin, 1984; Turner & Turner, 1995). Thus, along with vocational research into what difference cultural variables like race/ethnicity and sex make in individuals' career cognitions and behavior, a better understanding is also needed of the occupational opportunity structure for women and men from groups historically marginalized in the world of work. Results from such research can help to clarify the process and outcomes of the opportunity structure–occupational choice behavior thesis (Astin, 1984), advancing theory and practice aimed at supporting individuals to realize their full potential.

1. Method

1.1. Data sources

The data sources for the general U.S. population and U.S. labor force were retrieved from the U.S. Census Bureau for the years 1970, 1980, 1990, 2000, and 2010. We used data based on the civilian non-institutional population. This population is comprised of the total U.S. resident population 16 years and older, subtracting estimates of the number of individuals in both the institutional and Armed Forces populations based on Census Bureau data and then benchmarked against the Current Population Survey (Toossi, 2012).

The Integrated Public Use Microdata Series (IPUMS) (Ruggles et al., 2010) for social and economic research were used to retrieve the actual numbers of individuals (i.e., person-level data) in occupations by race/ethnicity and sex for each decennial period of interest. Specifically, we used the IPUMS-USA data set–which is based on USA census data and is, thus, harmonious with the U.S. decennial census data–to extract five samples (1970–2010). American Community Survey (ACS) data were used for the 2010 sample due to the unavailability of census data in the IPUMS-USA data set for 2010. The ACS sample design approximates the Census 2000 long form sample design and oversamples areas with smaller population (U.S. Census Bureau, 2010a). Therefore, the estimates from the ACS sample are comparable to census data (U. S. Census Bureau, 2010b). We selected the following demographic variables for the sample data retrieval under “Person Variables”: *Sex*, *Race*, and *Hispanic Origin*. Data for Native Hawaiian or Other Pacific Islander individuals were included as Asian. Within the “Work” codes, we selected the following employment variables: *LABFORCE* and *OCC1990*. LABFORCE is a dichotomous variable that identifies whether or not an individual participated in the labor force during the week preceding the survey (i.e., employed, seeking work, or temporarily laid off from work). The OCC1990 variable is a modified version of the original 1990 Census Bureau occupational classification scheme, containing 389 categories (compared to 514 in the original scheme) to maximize consistency in classifications and, therefore, it is comparable over time from March 1968 thru December 2010. It is noted that the workforce in OCC1990 includes civilians aged 14 years and over (1968–1987) or civilians aged 15 years and older (1988–2010). Finally, the person weight (PERWT) variable was used in the analyses (Ruggles et al., 2010).

To determine occupations to be analyzed, we first reviewed all 389 occupation categories in the OCC1990 IPUMS variable. Because this was an unwieldy group of occupations with which to work, we decided to collapse occupational categories following a set of rules. We first chose occupations that were available across all five decade points. This resulted in a list of 218 occupations. Then we grouped similar occupations together. For instance, we used the generic occupational cluster of Engineers (codes 044–059) instead of the eight specific engineering occupations listed in the OCC1990 variable and used the generic occupational cluster of Scientists inclusive of all physical (e.g., geologists, physicists), life (e.g., biologists, agronomists), and quantitative (e.g., mathematicians) sciences. We considered Licensed Practical Nurses separate from Registered Nurses given the general differences in training requirements and professional duties for these occupations. We also

aggregated some occupations into broad categories, such as Extractive Occupations, Mechanics and Repairers, and Transportation and Material Movers. Finally, we decided to exclude some occupations from the analysis because they had multiple pathways and backgrounds to the occupation, such as Legislators and Clergy/Religious Workers whose occupational entry may depend on formal public election or appointment by a governing body. These steps resulted in 51 occupations (contact authors for full list). Another 16 occupations were excluded due to inadequate or non-existent race/ethnicity and sex data across the five decades, resulting in 35 occupations examined in the present study.

There are some methodological variances that complicate the use of these data sources to study change over time. Occupational classification systems have changed since 1970, new occupations emerged (e.g., biomedical engineering), self-reporting options for race/ethnicity differed between the 1990, 2000, and 2010 census, and the minimum age included in the labor force (e.g., 14, 15, 16 years old) varied. Nonetheless, these data sources provide robust information with which to pursue our research questions.

1.2. Data analyses

The Chi-square test, the log-linear model and the goodness of fit analyses were employed in this study. First, a four-way (sex × race/ethnicity × work status × decades) log-linear model (Eq. (1)) was conducted to investigate the relationship among sex, race and labor force across decades. Let *X* represent sex (male vs. female), *Y* represent race (Caucasian, Black, Hispanic, American Indian, and Asian), *Z* represent work status (work or not), and *W* represent decades (1970s, 1980s, 1990s, and 2000s); the log linear model is:

$$\begin{aligned}\text{counts}=&\beta_0+\beta_1 X+\beta_2 Y+\beta_3 Z+\beta_4 W+\beta_5 XY+\beta_6 XZ+\beta_7 XW+\beta_8 YZ+\beta_9 YW\\&+\beta_{10} ZW+\beta_{11} XYZ+\beta_{12} XYW+\beta_{13} YZW+\beta_{14} XYZW.\end{aligned} \quad (1)$$

To further investigate the role of sex in the labor force, a three-way (sex × work status × decades) Chi-square test was conducted across five decades, controlling for the population. Finally, in order to investigate if the distribution of minorities in each occupation is the same as their distribution in the whole labor force, the chi-squared goodness-of-fit test was employed to determine the discrepancy between percentages of each sex/race group in each occupation to those percentages in the whole labor force. The chi-squared goodness-of-fit test can be used to compare the observed and expected frequency distributions such that it can tell if the observed distribution "fits" the expected distribution. A significant statistic shows if the observed distribution is different from the expected distribution. The Pearson chi-squared test statistic is used to evaluate the significance. If there are C categories, the Pearson chi-squared statistic is

$$\chi^2=\sum_{i=1}^{C}\frac{(O_i-E_i)^2}{E_i}. \quad (2)$$

where O_i is the observed distributions in *i*th category and E_i is the expected distributions in *i*th category. In this study, the observed distribution is the percentage in each occupation and

the expected distribution is the percentage in the whole labor force. A total of 175 (35 × 5) Chi-squared goodness-of-fit tests were conducted for 35 occupations across 5 decades.

In order to evaluate χ^2, the effect size *Phi* (φ) was calculated as

$$\phi = \sqrt{\frac{\chi^2}{N}} \quad (3)$$

where *N* is the total number of observations in an analyzing table. Cohen (1988) has suggested that *Phi* values 0.10, 0.30, and 0.50 correspond to effects that could be described as small, medium, and large, respectively.

2. Results

For the first research question, we examined whether there was a significant interaction between sex, race, and labor force participation and time over the past five decades. Specifically, a log linear analysis found a significant four-way interaction between the number of women and those in various racial/ethnic groups who were in the labor force in the decades between 1970 and 2010 (G^2 = 1,793,137, *df* = 20, $p < .0001$). Because a four-way interaction is difficult to present visually, we examined sex differences first, then within-sex racial/ethnic group differences across time in three different ways. First, we compared within-sex racial/ethnic groups of those working compared to the overall population, then relative to their own proportion of the population, and finally, the proportion of each race/ethnic by sex group as an overall proportion of the population. To understand these further, we examined sex across time, combining all racial/ethnic groups. Fig. 1 shows that women have represented an increasing proportion of the labor force since 1970. In 1970, women were 37% of the labor force, and 43% of all women in the U.S. population were in the labor force (Fullerton, 1999). By 2010, women were 47% of the workforce with about 59% of women working (U.S. Department of Labor [DOL], 2010b).

For the second research question, we examined within-group racial/ethnic differences by sex to investigate whether within and between decades there were differences in labor force participation. Figs. 2–5 show the percentage of each racial/ethnic group that was working and not working separately for each sex, across time. These results were calculated by taking the percentage for each group (e.g., Asian women), divided by the total U.S. population. Accordingly, it is clear, from Fig. 2, that the percentage of White women working increased until 1990, and then began to decrease in the past 20 years. Black, Hispanic and Asian women's participation in the labor force has increased steadily since 1970, while American Indian women's participation has been relatively stable over the past five decades. Fig. 2 reveals that White women's participation in the work force has decreased over the past five decades. Comparing Figs. 2 and 3 also demonstrates the overall increase in the growth of Hispanics in the U.S., since both groups of Hispanic women (working and not working) increased over the past five decades. The same pattern is seen for Hispanic men in Figs. 4 and 5.

While Figs. 2–5 demonstrate different rates of growth for each sex and racial ethnic groups, as Weeden (1998) noted, it is important to understand these differences across time relative to the overall proportion of each group in the population. In addition, comparing the working to non-working individuals masks potential demographic differences across groups. Some may be younger or older than the general population, and thus not eligible to enter the workforce, or have already retired. Thus, Figs. 6 and 7 portray the racial/ethnic groups, within sex, across time for those in the labor force as a proportion of their own racial group. Asian women in this case were compared to the proportion of all Asians in the population, working and not working. Figs. 6 and 7 further demonstrate the significant interaction within sex. Black women's participation in the workforce grew dramatically from 1990 to 2000, with a similar but slower rate of growth for Hispanic women, but Hispanic women's participation was still below all other women's participation in 2010. Men's patterns of participation was different, and here we see that Black men had the lowest level of participation in almost all years (save 1970), while the other groups' participation was roughly equivalent, peaking in 1990, dipping in 2000, and coming back in 2010, although White men were the highest at almost all time periods (except for Asian men in 1970 and 2010).

Finally, we were interested in the overall question “What proportion of the work force is each group?” Here we divided each racial/ethnic group's participation in the workforce divided by the overall labor force. Figs. 8 and 9 demonstrate that both White women and men are the greatest percentage of the labor force. Both figures also demonstrate that, in fact, the increasing demographic diversity is reflected in the labor force, particularly for Hispanic men and women, and that White men and women are a decreasing percentage of the labor force.

Thus, the increasing demographic diversity in the overall population is reflected in labor force participation across the past five decades. What these charts do not tell us, however, is where individuals are working, and if the increasing diversity is reflected proportionally across various populations.

For the third research question, chi-squared goodness of fit statistics were employed to evaluate the percentage of the number of people in each race–ethnicity/sex group (observed percentages) relative to the number of people in each occupation and the percentage of the number of people in each race–ethnicity/sex group to the number of people in the labor force (expected percentages). Each analysis was used within each decade across all 35 occupations. There are no categories for three occupations in 1970: Legal Assistants, Paralegals, and Legal Support Workers; Physical Therapists; and Supervisors and Proprietors. Therefore, the starting decade became 1980 for these three occupations. Due to the large sample size, the Chi-square statistic was not reliable so the effect size *Phi* (φ) was used to measure the results (Cramer, 1946).

We were interested in whether R/EMs and women were more absorbed in particular occupations and, if so, in which occupations across time. Therefore, we focus on effect sizes larger than 0.5 in 1970 and compare them to the effect sizes in 2010. As depicted in Table 1, five occupations were not discussed since effect sizes were smaller than 0.5 in 1970:

Accountants; Machine Operators, Fabricators, and Inspectors; Sales Representatives, Insurance, Real Estate, Financial, and Advertising; Supervisors, Office; and Supervisors and Proprietors. We only present data for the 1970 and 2010 time periods to capture the maximum time for racial/ethnic and gender diversity to be absorbed into the labor market as well as for conservation of space (occupational data for all decades 1970–2010 available from authors).

Three trends of effect sizes were found from 1970 to 2010. The first trend is an increasing effect size, indicating that the discrepancy between observed percentages and expected percentages increased. That is, in an aggregate, overall, racial/ethnic minorities and women were not more represented in such occupations, relative to their change in the proportion of the labor force in 2010 compared to 1970. There are 12 occupations with increasing effect sizes, including Construction Trades; Engineers; Extractive Occupations; Farming, Forestry, and Fishing; Firefighters, Prevention Workers, and Inspection; Handlers, Equipment Cleaners, Helpers, and Laborers; Lawyers and Judges; Mechanics and Repairers; Pharmacists; Scientists; Social Workers; and Transportation & Material Moving. However, three movements were visible in these occupations in the direction of greater participation of one or two groups of racial/ethnic minority individuals, mostly of one sex, rather than an overall absorption of racial/ethnic minority men and women and White women. Black and Hispanic men were more absorbed into the occupations of Construction Trades; Extractive Occupations; Farming, Forestry, and Fishing; Firefighters, Prevention Workers, and Inspection; Handlers, Equipment Cleaners, Helpers, and Laborers; Mechanics and Repairers; and Transportation and Material Moving, while Black and Hispanic women were more absorbed into the occupation of Social Worker. Asian men were more absorbed into the occupation of Engineers, while both Asian men and women were more absorbed into the occupations of Pharmacists and Scientists. The only occupation with an increasing effect size that did not have an overrepresentation of R/EM men or women was the occupation of Lawyer, where the increasing effect size was accounted for by the greater absorption of White women into the occupation.

The second trend is a decrease in effect sizes, indicating that the discrepancy between observed percentages and expected percentages is decreasing. In other words, R/EMs and women were more represented or absorbed into this group of occupations in 2010 compared to 1970. Thirteen occupations with decreasing effect sizes include: Dietitians and Nutritionists; Economists; Food Preparation and Serving Related Occupations; Health Technicians; Licensed Practical Nurses; Optometrists; Physical Therapists; Police, Detective and Private Investigators; Precision Production Workers; Registered Nurses; Retail Sales Clerks; Teachers; and Veterinarian. White women and Asian men and women increased their participation as Economists, whereas Asian and Hispanic women were more absorbed into Dietitians and Nutritionists. For the occupation Food Preparation and Serving Related Occupations, there was a dramatic decrease from a large effect size (0.76) to a small effect size (0.29), as more women of all racial/ethnic groups except Asians and men of all racial/ethnic groups except American Indian men were more represented in the field; a dramatic change in an occupation dominated by White women in 1970. Asian women and men increased their participation most notably in the health service occupations including Health Technicians, Optometrists, and Physical Therapists, with Asian women more absorbed into

Licensed Practical Nurses. Black, Hispanic, and American Indian males were more absorbed into the occupation of Police, Detectives, and Private Investigators whereas Black, Hispanic, and Asian males were more absorbed into the occupation of Precision Production Workers (e.g., textile and apparel workers, metal and wood working). The decreasing discrepancy between the observed and expected percentages for sex and racial/ethnic representation in the occupation of Retail Sales Clerk was largely attributable to the absorption of Black and Hispanic men and women, with the large effect size of .64 in 1970 to a negligible effect size of .15 in 2010. All R/EM women increased their participation as Registered Nurses. Hispanic and Asian women were more absorbed into the occupation of Teachers (includes primary, secondary, and post-secondary levels). Finally, White, Black, and Hispanic women accounted for the significant decreasing disparity in gender/racial-ethnic representation among Veterinarians, with White women increasing their participation ten-fold in this occupation in forty years.

The third trend is effect sizes that were almost the same from 1970 to 2010. Five occupations are in this category: Computer Scientists; Dentists; Legal Assistants, Paralegals, Legal Support Workers; Physicians; and Private Household Workers. Although, overall, the relative proportion of R/EMs and women did not change, there were some demographic changes in these occupations. The change in the occupation of Computer Scientist is due to a greater number of Black and Asian men and Asian women in the field. Asian men and women are also represented among Dentists and Physicians, while more Black and Hispanic women are Private Household Workers and Legal Assistants, Paralegals, Legal Support Workers. Among Physicians, White males' representation decreased by half whereas White females' representation increased three-fold from 1970 to 2010.

Noteworthy within these three trends are four very large effect sizes (around 1.00 or larger than 1.00) that were observed in both 1970 and 2010 in the following occupations: Dietitians and Nutritionists; Licensed Practical Nurses; Private Household Workers; and Registered Nurses. These occupations are all female dominated and the large effect sizes are attributable to the influx of Black, Hispanic, and Asian women into these fields.

3. Discussion

Despite the increasing demographic diversity in the general population and ongoing civil rights legislation and policies, our findings illuminate continued racialized and gendered disparities in the U.S. labor force. White men and women continue to be the largest percentage of the labor force and there has been proportionally little integration of R/EMs and women into a range of specific occupations in the last 40 years.

The effect sizes observed in our analyses revealed large differential labor market outcomes that varied by sex within racial/ethnic groups. Where we observed decreasing effect sizes in disparity of representation for 13 occupations (e.g., Dietitians and Nutritionists, Licensed Practical and Registered Nurses, Teachers), these changes were largely due to movement of R/EM women into those occupations. Consistent with findings in a study conducted by Hegewisch, Liepmann, Hayes, and Hartmann (2010), the largest effect sizes were greatest in those occupations that are female-dominated, reflecting greater absorption of women in

these occupations than in integrated occupations (i.e., proportional gender representation). In contrast, Black and Hispanic men were largely absorbed into low skilled, low status, or low wage occupations, like food service preparation and serving, equipment cleaners/helpers, and some trade/technical occupations particularly for Hispanic men (e.g., mechanics/repairers). Asian men and women and White women increased their participation in occupations typically requiring a baccalaureate degree or higher, whereas Black and Hispanic males and females increased their participation in occupations that require comparatively less formal post-secondary education and lower skills. Where R/EM women did increase in occupations with professional status they were in female-dominated occupations (e.g., registered nurses, teachers, social workers), whereas White women were increasingly absorbed into several occupations that were previously male-dominated in 1970 (e.g., accounting, economists, veterinarian). The occupation cluster of Police, Detectives, and Private Investigators is one of few professional status occupations where Black and Hispanic males are consistently overrepresented. Ironically, Black and Hispanic men are being more policed in our communities (Alexander, 2010) while growing in their participation as police [being policed and becoming police].

We found three disturbing trends related to who is working in the U.S. and in what occupations they are working since 1970. First, American Indian's share of the labor force, for both males and females, has remained at.20 or .30 from 1990 to 2010. Though American Indians have recently increased their income and wealth through efforts like increased tribal control over natural resources, involvement in the U.S. energy sector, and trading with Asian countries (National Congress of American Indians, 2013), as a whole, they continue to experience huge economic and employment disadvantages, in part due to differences in educational attainment. Yet, even when American Indians are similar to Whites on factors like age, sex, education level, marital status, and state of residence, they are still 31% less likely than Whites to be employed (Austin, 2013). Second, Black males' proportion of the labor force in 1970 was greater than in 2010. Black men are nine times more likely than White men to be incarcerated and more likely to be out of the labor force even when not incarcerated (see Alexander, 2010; Harris, 2013).

The third disturbing trend in our analyses is the relatively small change in gender and racial/ethnic diversity in STEM fields in the last 40 years, especially in engineering (Fouad et al., 2012). Despite significant federal investments in STEM-related education and workforce training to engage more people in STEM ($3.4 billion spent in fiscal year 2010; NSTC, 2011), challenges remain with R/EM men and women as a whole gaining little ground (Byars-Winston, 2014). The exception in STEM fields is the absorption of Black, American Indian, and Hispanic men and Asian men and women into computer science and engineering. In some STEM occupations, such as computer science, women actually had decreased participation over the last decade; they earned 37% of computer science bachelor's degrees in 1985 compared to 18% in 2010 even though the number of computer science graduates remained about the same during that period (NSF, 2013). The significant investments in STEM interventions appear to be effective in creating more opportunities in higher education–women are now 20% of engineering graduates–yet do not appear to be as effective in creating an equitable STEM workforce, with women leaving STEM occupations at a rate two to three times greater than men.

There are several implications from our findings for the role of vocational psychologists and researchers in promoting occupational equity and individuals' broader participation in the labor market. Below we discuss implications for research and theory, practice, and policy.

3.1. Implications

3.1.1. Research and theory—Our data suggest the need for a closer examination of the informal pathways leading up to labor market entry as well as post labor market entry dynamics that contribute to occupational disparities. Future studies should not only consider why groups differ in their access to and participation in the labor market but also the mechanisms that account for how they become stratified into work. For example, the present study underscores the need to investigate the effects of perceptions of the occupational opportunity structure on individuals' work and career-related behaviors (Chung & Harmon, 1999; Fouad & Byars-Winston, 2005) and the importance of an intersectionality lens in interpreting the findings (e.g., race/ethnicity × sex). The results of the present study also suggest the need for further examination of theoretical frameworks and constructs (e.g., work expectations, occupational stereotypes) that may help explain the mechanisms through which cultural variables like race/ethnicity and sex have their influences on different dimensions of career behavior, and how they are salient across career junctures.

3.1.2. Practice—Findings in the present study demonstrate that waiting on naturally occurring population changes to increase racial/ethnic and gender diversity in occupations is inefficient and results in maintenance of the status quo (Marschke, Laursen, Nielsen, & Rankin, 2007). Practices aimed at deliberate reorganization of opportunity structures for R/EM men and women and White women are required. This may include interventions to counter prevailing implicit biases that create environments that maintain social homogeneity, in which employers continue to hire people who are like themselves. Psychologists have been at the forefront of conceptualizing and intervening on bias and prejudice (e.g., Sue et al., 2007) and there are promising practices from randomized controlled studies to reduce implicit bias that are ripe for implementation (Carnes et al., in press).

3.1.3. Policy—Although there are individual stories of success, at an aggregate level legislative efforts targeting gender and racial/ethnic equity over the last 40 years have not created an equitable occupational landscape. Policies that provide federal and state funding only for companies that hire *and* retain R/EM men and women and White women would hold companies accountable for creating climates supportive of a diverse workforce. Following the *Gendered Innovations* initiative at Stanford University, we suggest that policies require organizations receiving federal and state funding to demonstrate both how they are 1) increasing R/EM and women's participation and 2) promoting equality for R/EMs and women through structural change within their organization.

3.2. Limitations

Due to the secondary nature of the data set, we could only investigate race, ethnicity, and sex as demographic variables without delving into racialized, ethnic, and gendered identity experiences related to these variables that may influence occupational outcomes. Future

research may include cultural identity measures to investigate how individuals' experiences of their cultural group membership(s) may contribute to career development and occupational status. Additionally, our data provided macro-level trends by race/ethnicity but future studies should examine micro-level race/ethnicity data for within-group differences. For instance, what Asian ethnic groups are gaining ground in the labor market and which ones are not?

3.3. Summary

Race/ethnicity and sex are strong predictors of labor market position and outcomes, historically defining the U.S. occupational landscape. This study's findings are consistent with Steinberg's (1991, 2009) criticisms of the U.S. labor market as a system in which individuals who are not White (and male) are predictably relegated to the least desirable jobs. Our data exist against the backdrop of unprecedented, expanding opportunities for individual and group mobility for women and R/EMs over the last 40 years that, ironically, left historical patterns of inequalities in place; a paradoxical coexistence of mobility with inequality (Katz & Stern, 2008). Chronic, social exclusion in occupations is a societal problem with serious implications for individuals and families in their ability to generate livable wages, accumulate family wealth, and thereby reduce economic disparity. Because occupational segregation is inextricably linked to employment disparities (e.g., differences in wages, promotions), occupational equity plays a central role in the social justice discourse (Byars-Winston, Kantamneni & Mobley, 2012). We encourage scientist-practitioners with expertise in career development and work behavior, such as vocational and industrial/organizational psychologists, to conduct investigations and interventions toward the advancement of more equitable occupational outcomes for all individuals.

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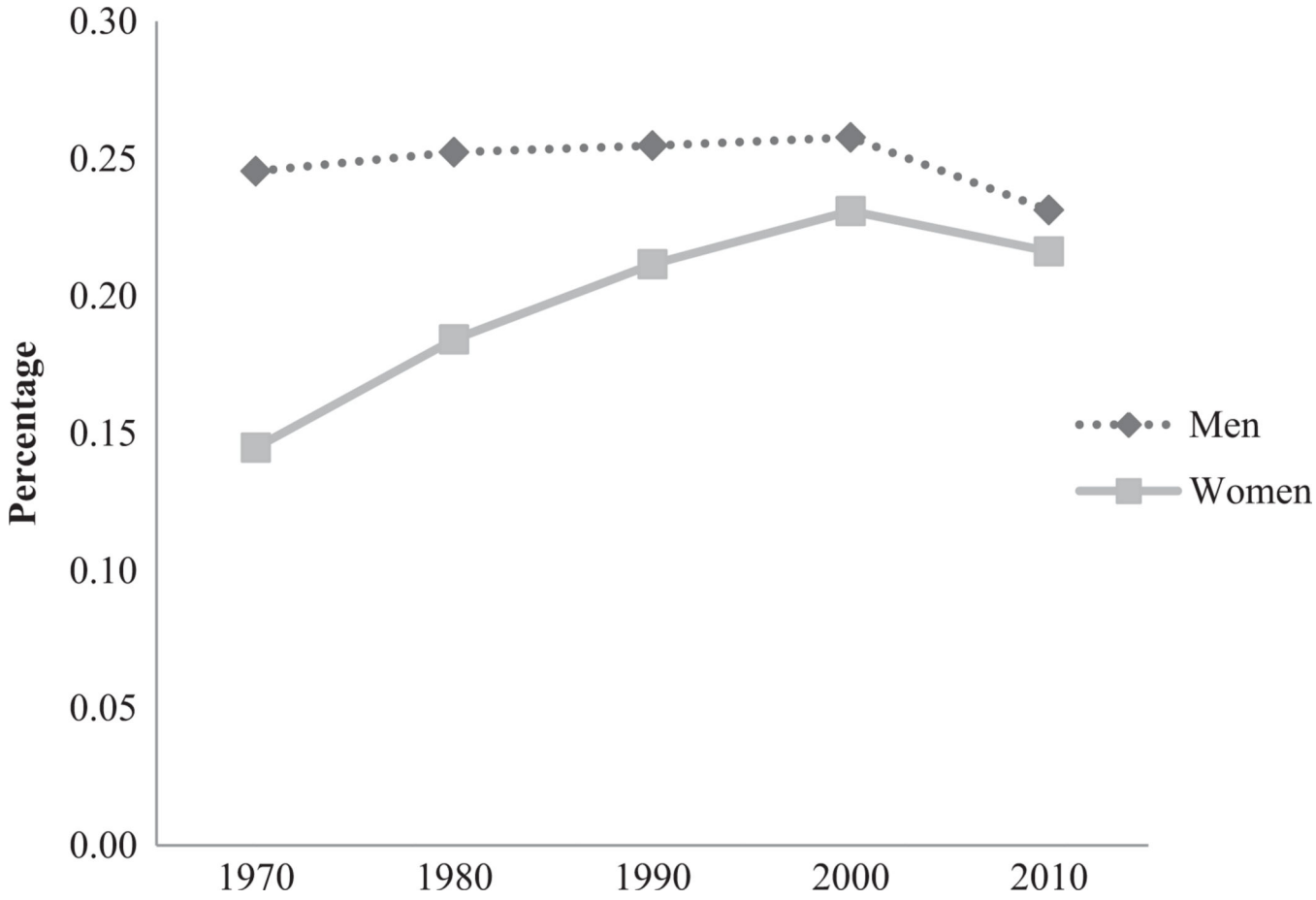

Fig. 1.
Percent of men and women working relative to total population across five decades.

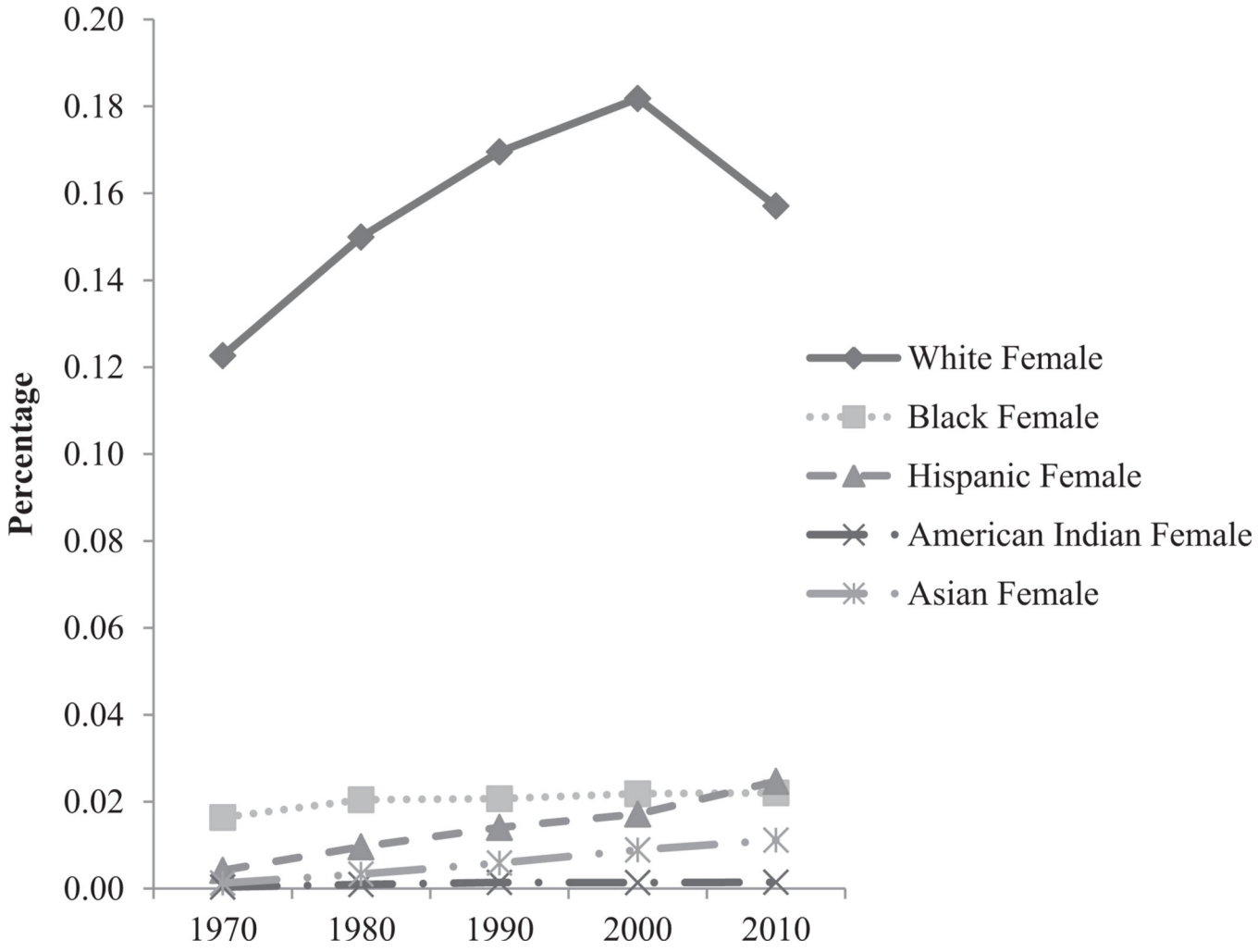

Fig. 2.
Percent of women working by race relative to total population across five decades.

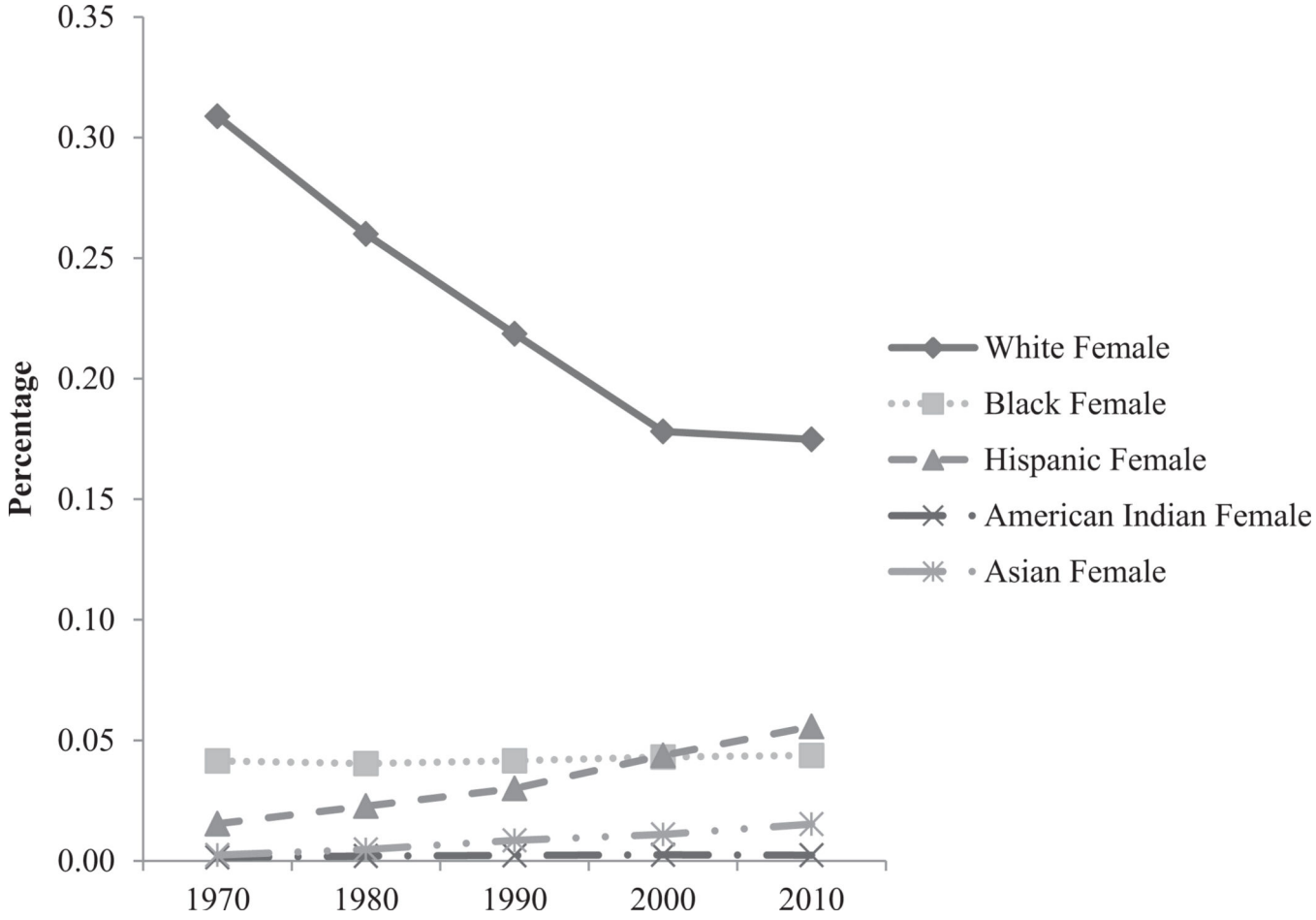

Fig. 3.
Percent of women not working by race relative to total population across five decades.

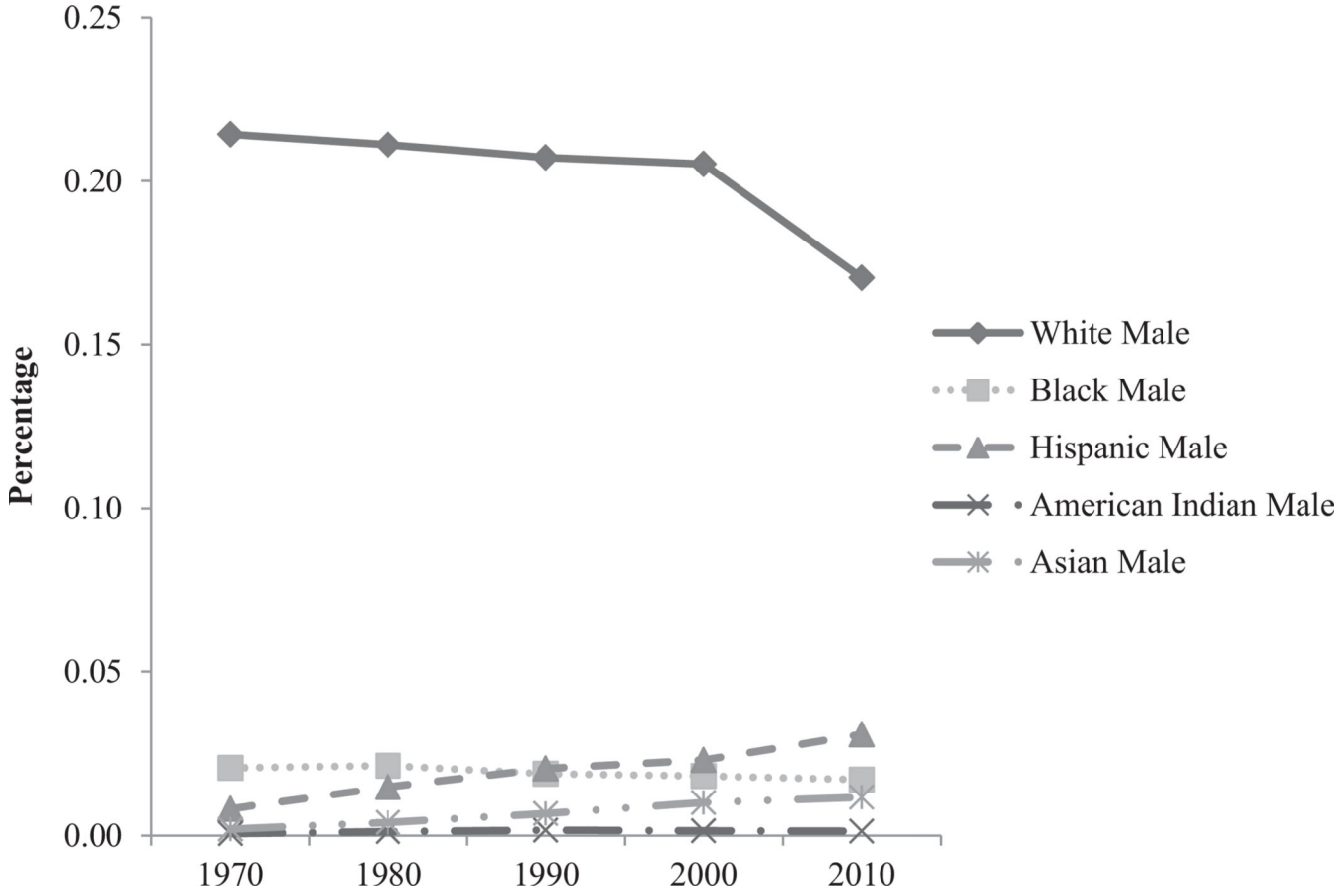

Fig. 4.
Percent of men working by race relative to total population across five decades.

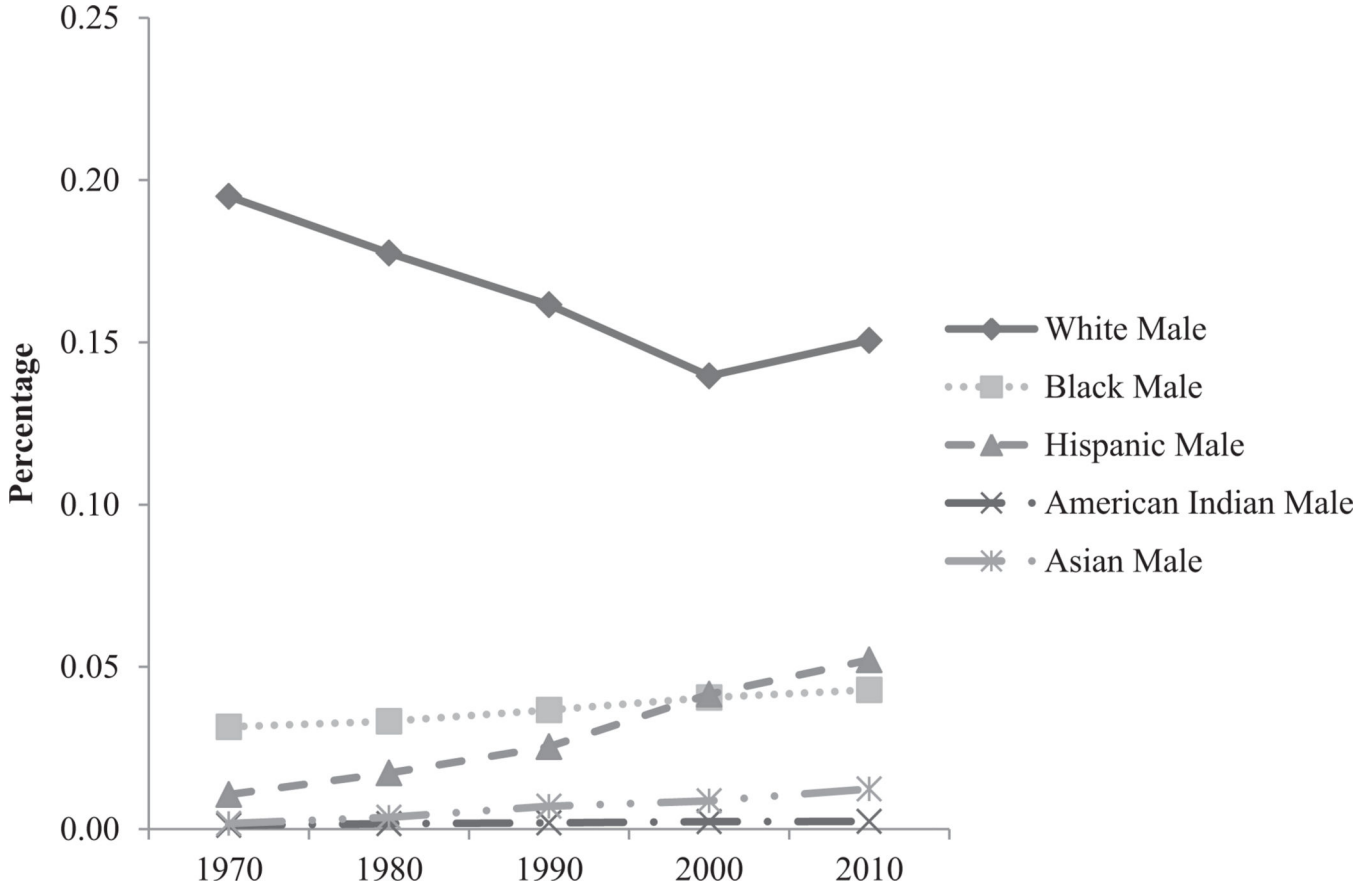

Fig. 5.
Percent of men not working by race relative to total population across five decades.

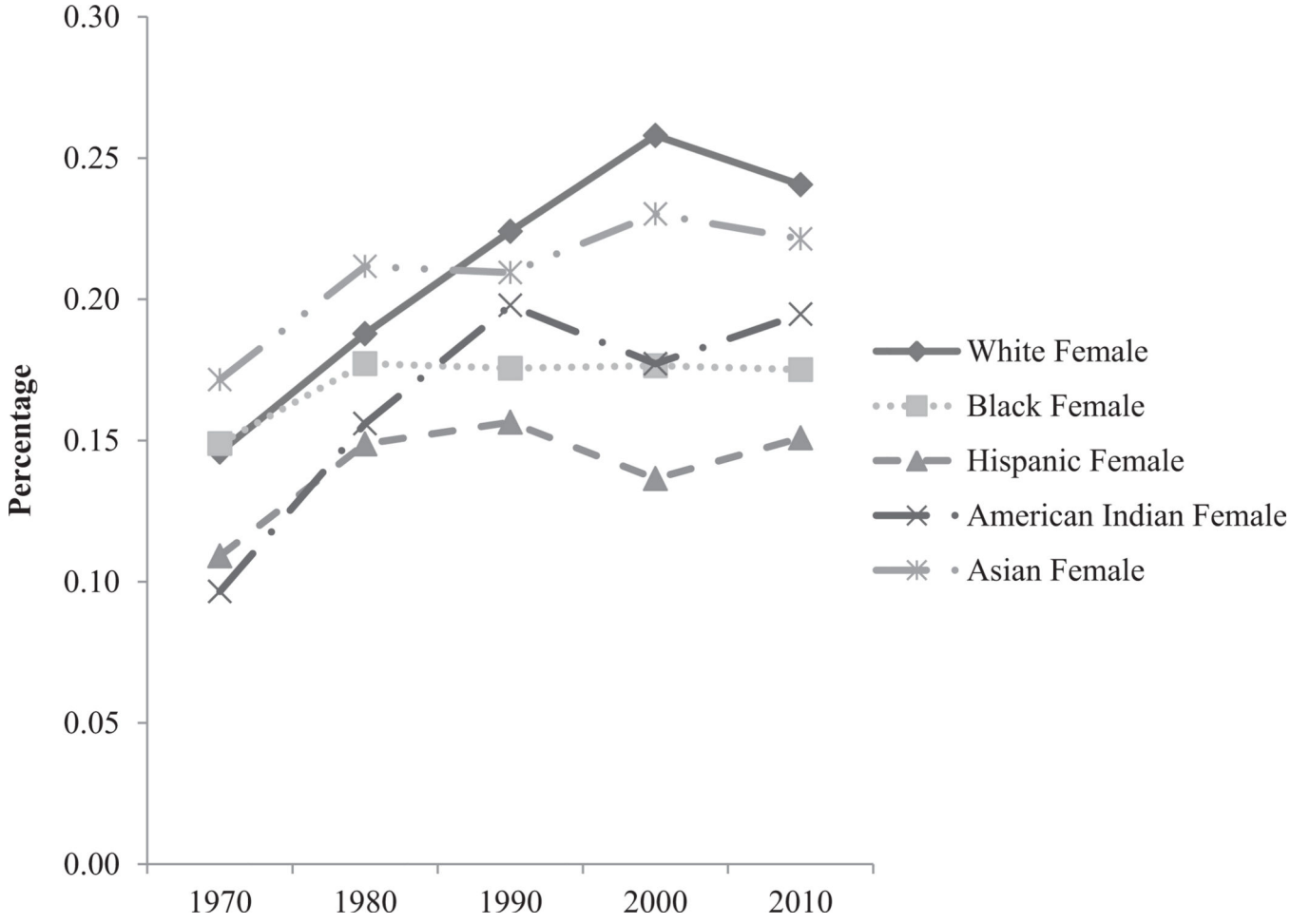

Fig. 6.
Percent of women working in labor force by race across five decades.

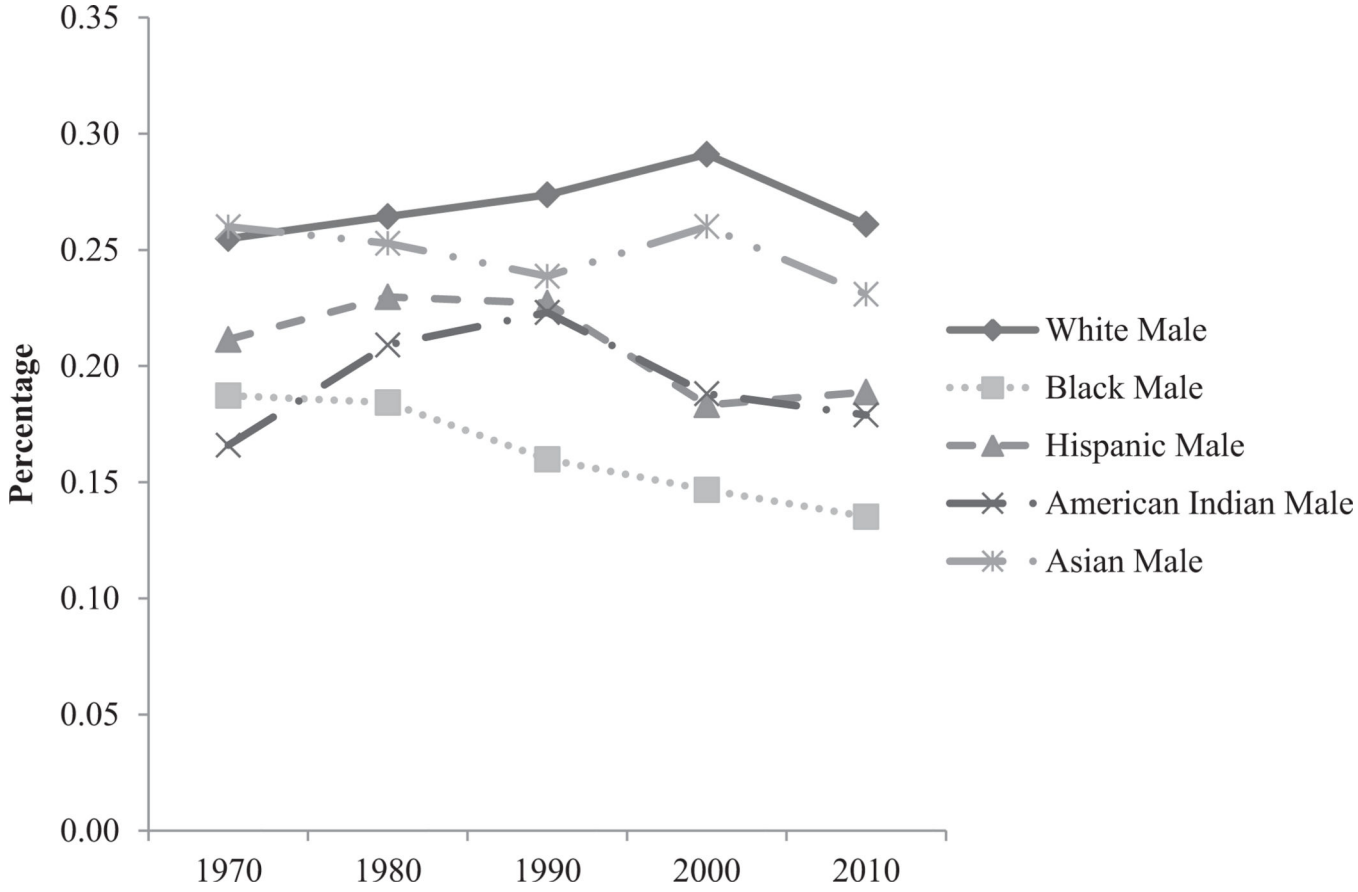

Fig. 7.
Percent of men working in labor force by race across five decades.

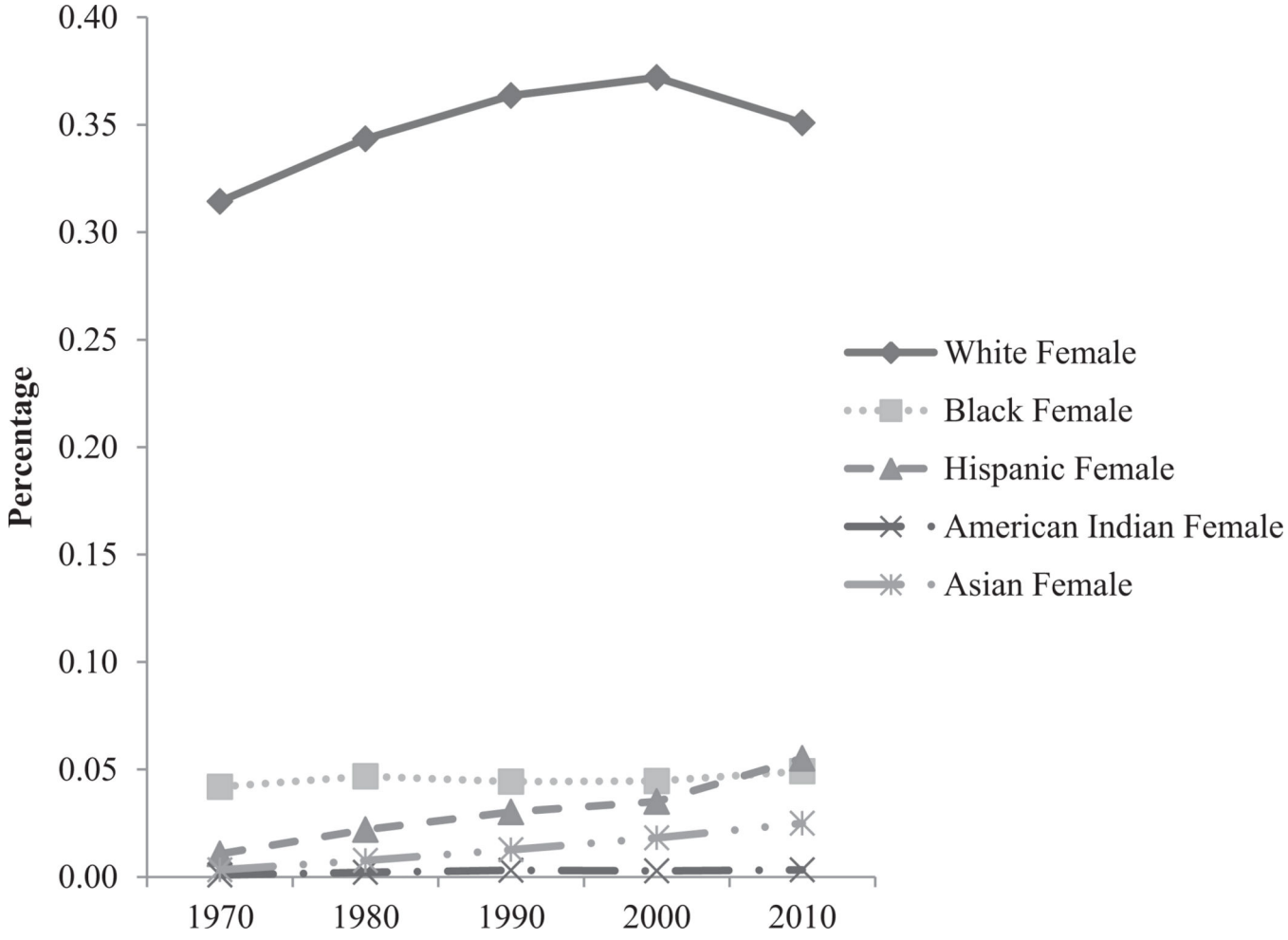

Fig. 8.
Female proportion of workforce by race across five decades.

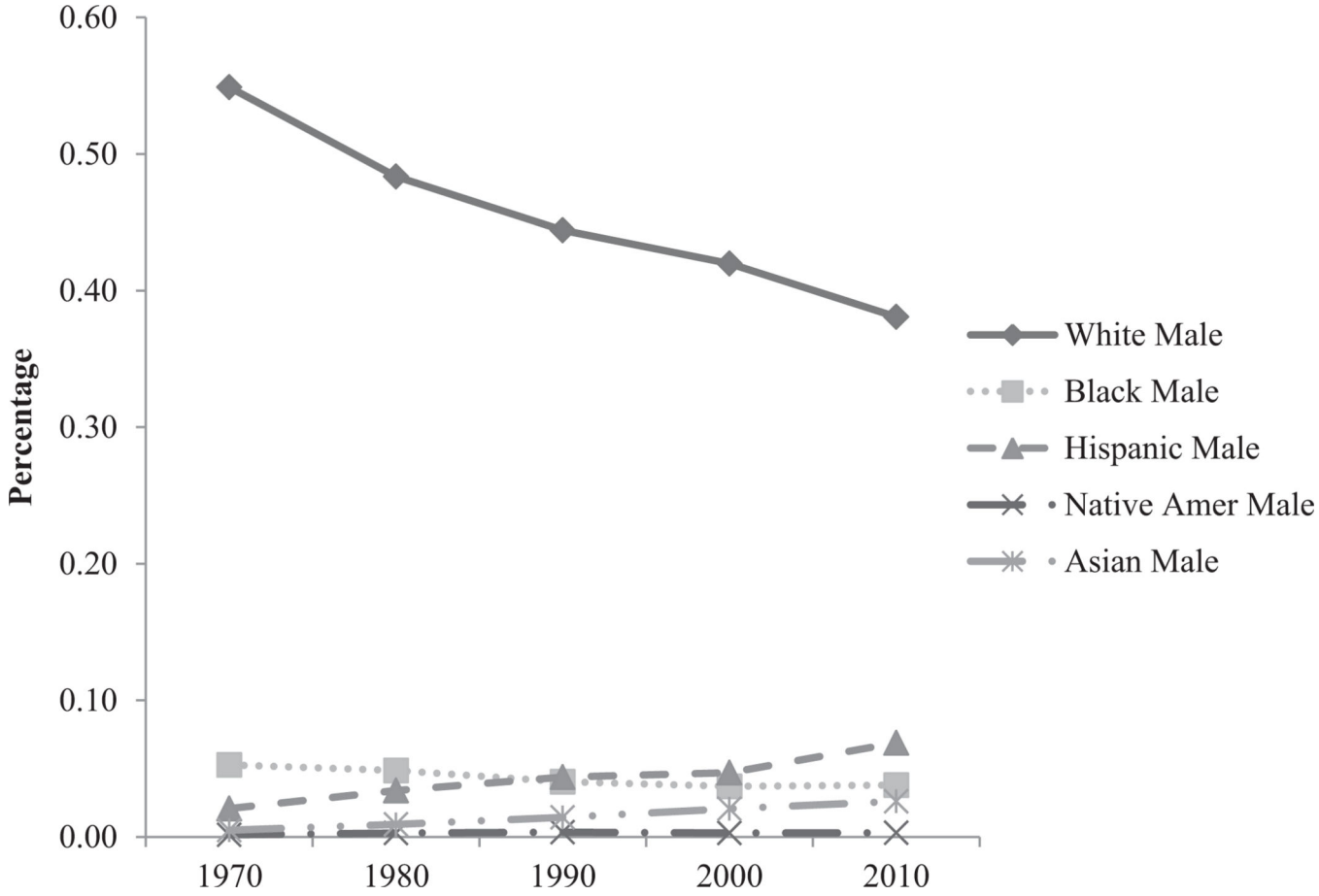

Fig. 9.
Male proportion of workforce by race across five decades.

Table 1

Effect sizes for race/ethnicity × sex representation in 35 occupations in 1970 and 2010.

Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
Accountants	White male	499,000	70.83	54.89	641,246	30.81	38.08
	White female	168,500	23.92	31.43	906,435	43.55	35.08
	Black male	8300	1.18	5.28	56,069	2.69	3.80
	Black female	6900	0.98	4.19	126,766	6.09	4.92
	Native Am male	200	0.03	0.15	2557	0.12	0.30
	Native Am female	300	0.04	0.09	6142	0.30	0.33
	Hispanic male	9200	1.31	2.08	41,576	2.00	6.89
	Hispanic female	3000	0.43	1.07	71,065	3.41	5.51
	Asian male	7000	0.99	0.49	76,477	3.67	2.60
	Asian female	2100	0.30	0.33	152,900	7.35	2.49
Effect size				**0.37**			**43.00**
Computer scientists	White male	73,200	81.24	54.89	1,022,592	51.80	38.08
	White female	11,100	12.32	31.43	402,126	20.37	35.08
	Black male	1700	1.89	5.28	121,581	6.16	3.80
	Black female	1000	1.11	4.19	71,399	3.62	4.92
	Native Am male	0	0.00	0.15	4055	0.21	0.30
	Native Am female	0	0.00	0.09	2372	0.12	0.33
	Hispanic male	1500	1.66	2.08	78,770	3.99	6.89
	Hispanic female	400	0.44	1.07	25,563	1.30	5.51
	Asian male	900	1.00	0.49	178,977	9.07	2.60
	Asian female	300	0.33	0.33	66,519	3.37	2.49
Effect size				**0.55**			**0.58**
Construction trades	White male	2,707,300	87.25	54.89	3,888,529	71.02	38.08
	White female	50,700	1.63	31.43	112,411	2.05	35.08
	Black male	211,000	6.80	5.28	339,159	6.19	3.80
	Black female	5500	0.18	4.19	16,110	0.29	4.92

Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
	Native Am male	10,500	0.34	0.15	41,691	0.76	0.30
	Native Am female	100	0.00	0.09	2159	0.04	0.33
	Hispanic male	99,400	3.20	2.08	970,976	17.73	6.89
	Hispanic female	2400	0.08	1.07	19,128	0.35	5.51
	Asian male	15,500	0.50	0.49	81,056	1.48	2.60
	Asian female	600	0.02	0.33	3958	0.07	2.49
Effect size				**0.73**			**0.95**
Dentists	White male	81,400	92.08	54.89	96,813	60.72	38.08
	White female	2500	2.83	31.43	25,583	16.04	35.08
	Black male	2200	2.49	5.28	3945	2.47	3.80
	Black female	300	0.34	4.19	1919	1.20	4.92
	Native Am male	100	0.11	0.15	57	0.04	0.30
	Native Am female	0	0.00	0.09	0	0.00	0.33
	Hispanic male	800	0.90	2.08	5108	3.20	6.89
	Hispanic female	100	0.11	1.07	2886	1.81	5.51
	Asian male	1000	1.13	0.49	13,854	8.69	2.60
	Asian female	0	0.00	0.33	9283	5.82	2.49
Effect size				**0.77**			**0.71**
Dietitians & nutritionists	White male	2300	5.65	54.89	5405	6.29	38.08
	White female	29,100	71.50	31.43	56,862	66.14	35.08
	Black male	300	0.74	5.28	630	0.73	3.80
	Black female	7100	17.44	4.19	10,287	11.96	4.92
	Native Am male	0	0.00	0.15	75	0.09	0.30
	Native Am female	0	0.00	0.09	553	0.64	0.33
	Hispanic male	0	0.00	2.08	464	0.54	6.89
	Hispanic female	800	1.97	1.07	5987	6.96	5.51
	Asian male	200	0.49	0.49	203	0.24	2.60
	Asian female	900	2.21	0.33	5510	6.41	2.49
Effect size				**1.24**			**0.90**

Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
Economists	White male	54,500	84.23	54.89	97,199	37.42	38.08
	White female	6100	9.43	31.43	112,703	43.38	35.08
	Black male	1300	2.01	5.28	6518	2.51	3.80
	Black female	100	0.15	4.19	7459	2.87	4.92
	Native Am male	200	0.31	0.15	303	0.12	0.30
	Native Am female	0	0.00	0.09	51	0.02	0.33
	Hispanic male	1400	2.16	2.08	6753	2.60	6.89
	Hispanic female	200	0.31	1.07	6983	2.69	5.51
	Asian male	800	1.24	0.49	11,597	4.46	2.60
	Asian female	100	0.15	0.33	10,220	3.93	2.49
Effect size				**0.62**			**0.32**
Engineers	White male	1,118,400	94.16	54.89	1,178,237	68.35	38.08
	White female	17,600	1.48	31.43	141,456	8.21	35.08
	Black male	16,100	1.36	5.28	58,386	3.39	3.80
	Black female	700	0.06	4.19	15,739	0.91	4.92
	Native Am male	900	0.08	0.15	6787	0.39	0.30
	Native Am female	100	0.01	0.09	453	0.03	0.33
	Hispanic male	15,700	1.32	2.08	68,287	3.96	6.89
	Hispanic female	400	0.03	1.07	10,723	0.62	5.51
	Asian male	17,500	1.47	0.49	199,845	11.59	2.60
	Asian female	400	0.03	0.33	43,971	2.55	2.49
Effect size				**0.82**			**0.92**
Extractive occupations	White male	153,400	87.71	54.89	145,534	77.33	38.08
	White female	3900	2.23	31.43	1976	1.05	35.08
	Black male	8900	5.09	5.28	8947	4.75	3.80
	Black female	700	0.40	4.19	51	0.03	4.92
	Native Am male	800	0.46	0.15	2240	1.19	0.30
	Native Am female	0	0.00	0.09	112	0.06	0.33
	Hispanic male	6800	3.89	2.08	28,047	14.90	6.89

Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
	Hispanic female	100	0.06	1.07	751	0.40	5.51
	Asian male	200	0.11	0.49	467	0.25	2.60
	Asian female	100	0.06	0.33	70	0.04	2.49
Effect size				**0.74**			**1.00**
Farming, forestry, fishing	White male	2,304,800	75.20	54.89	1,761,802	53.70	38.08
	White female	215,500	7.03	31.43	381,627	11.63	35.08
	Black male	280,300	9.15	5.28	183,511	5.59	3.80
	Black female	56,900	1.86	4.19	25,680	0.78	4.92
	Native Am male	15,300	0.50	0.15	19,578	0.60	0.30
	Native Am female	2000	0.07	0.09	5038	0.15	0.33
	Hispanic male	131,900	4.30	2.08	724,116	22.07	6.89
	Hispanic female	24,900	0.81	1.07	126,418	3.85	5.51
	Asian male	27,900	0.91	0.49	38,693	1.18	2.60
	Asian female	5300	0.17	0.33	14,436	0.44	2.49
Effect size				**0.59**			**0.79**
Fire fighters, prevention	White male	165,300	93.44	54.89	274,582	79.64	38.08
workers, inspection	White female	1900	1.07	31.43	14,182	4.11	35.08
	Black male	5100	2.88	5.28	25,921	7.52	3.80
	Black female	0	0.00	4.19	1414	0.41	4.92
	Native Am male	500	0.28	0.15	3620	1.05	0.30
	Native Am female	0	0.00	0.09	118	0.03	0.33
	Hispanic male	3200	1.81	2.08	20,491	5.94	6.89
	Hispanic female	0	0.00	1.07	740	0.21	5.51
	Asian male	900	0.51	0.49	3584	1.04	2.60
	Asian female	0	0.00	0.33	131	0.04	2.49
Effect size				**0.80**			**0.95**
Food preparation and	White male	464,100	20.54	54.89	1,414,339	25.32	38.08
serving related	White female	1,400,400	61.97	31.43	2,143,409	38.38	35.08
occupations	Black male	76,500	3.39	5.28	343,524	6.15	3.80

Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
	Black female	187,700	8.31	4.19	370,675	6.64	4.92
	Native Am male	900	0.04	0.15	12,959	0.23	0.30
	Native Am female	5600	0.25	0.09	25,691	0.46	0.33
	Hispanic male	43,300	1.92	2.08	493,491	8.84	6.89
	Hispanic female	37,100	1.64	1.07	412,679	7.39	5.51
	Asian male	27,600	1.22	0.49	216,964	3.88	2.60
	Asian female	16,500	0.73	0.33	151,609	2.71	2.49
Effect size				**0.76**			**0.29**
Handlers, equipment	White male	2,605,200	68.70	54.89	2,632,072	51.75	38.08
cleaners, helpers,	White female	271,000	7.15	31.43	437,754	8.61	35.08
laborers	Black male	640,200	16.88	5.28	644,815	12.68	3.80
	Black female	56,000	1.48	4.19	132,316	2.60	4.92
	Native Am male	17,200	0.45	0.15	37,649	0.74	0.30
	Native Am female	1400	0.04	0.09	7301	0.14	0.33
	Hispanic male	164,700	4.34	2.08	872,880	17.16	6.89
	Hispanic female	13,000	0.34	1.07	169,500	3.33	5.51
	Asian male	21,400	0.56	0.49	114,588	2.25	2.60
	Asian female	2300	0.06	0.33	36,980	0.73	2.49
Effect size				**0.73**			**0.81**
Health technicians	White male	65,700	24.79	54.89	289,771	22.57	38.08
	White female	162,100	61.17	31.43	669,630	52.17	35.08
	Black male	7400	2.79	5.28	43,052	3.35	3.80
Health technicians	Black female	16,300	6.15	4.19	90,942	7.08	4.92
	Native Am male	500	0.19	0.15	2591	0.20	0.30
	Native Am female	200	0.08	0.09	7024	0.55	0.33
	Hispanic male	3700	1.40	2.08	36,755	2.86	6.89
	Hispanic female	4000	1.51	1.07	54,351	4.23	5.51
	Asian male	1400	0.53	0.49	33,991	2.65	2.60
	Asian female	3700	1.40	0.33	55,501	4.32	2.49

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Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
Effect size				**0.71**			**0.45**
Lawyers & judges	White male	258,500	92.19	54.89	625,645	59.76	38.08
	White female	13,500	4.81	31.43	285,759	27.29	35.08
	Black male	3400	1.21	5.28	19,789	1.89	3.80
	Black female	400	0.14	4.19	30,333	2.90	4.92
	Native Am male	200	0.07	0.15	1176	0.11	0.30
	Native Am female	0	0.00	0.09	1436	0.14	0.33
	Hispanic male	2600	0.93	2.08	23,356	2.23	6.89
	Hispanic female	200	0.07	1.07	17,620	1.68	5.51
	Asian male	1400	0.50	0.49	20,354	1.94	2.60
	Asian female	200	0.07	0.33	21,495	2.05	2.49
Effect size				**0.75**			**0.83**
*Legal assistants,	White male	20,420	26.15	48.25	90,624	14.94	38.08
paralegals, legal support	White female	48,900	62.61	34.34	377,261	62.21	35.08
workers* = starting	Black male	1720	2.20	4.87	13,119	2.16	3.80
decade is 1980	Black female	2880	3.69	4.68	45,812	7.55	4.92
	Native Am male	40	0.05	0.28	910	0.15	0.30
	Native Am female	120	0.15	0.21	2103	0.35	0.33
	Hispanic male	1420	1.82	3.39	10,325	1.70	6.89
	Hispanic female	1620	2.07	2.20	42,325	6.98	5.51
	Asian male	400	0.51	0.91	8321	1.37	2.60
	Asian female	580	0.74	0.76	15,633	2.58	2.49
Effect size				**0.60**			**0.65**
Licensed practical nurses	White male	6600	2.70	54.89	23,363	3.61	38.08
	White female	175,800	71.99	31.43	404,969	62.64	35.08
	Black male	1900	0.78	5.28	12,741	1.97	3.80
	Black female	51,000	20.88	4.19	141,859	21.94	4.92
	Native Am male	0	0.00	0.15	295	0.05	0.30
	Native Am female	900	0.37	0.09	3038	0.47	0.33

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Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
	Hispanic male	500	0.20	2.08	4947	0.77	6.89
	Hispanic female	6000	2.46	1.07	32,558	5.04	5.51
	Asian male	0	0.00	0.49	4837	0.75	2.60
	Asian female	1500	0.61	0.33	17,938	2.77	2.49
Effect size				**1.33**			**1.09**
Machine operators,	White male	5,241,700	49.06	54.89	2,722,529	45.60	38.08
fabricators, inspectors	White female	3,397,300	31.80	31.43	1,037,269	17.37	35.08
	Black male	798,200	7.47	5.28	518,396	8.68	3.80
	Black female	580,400	5.43	4.19	346,804	5.81	4.92
	Native Am male	18,500	0.17	0.15	24,380	0.41	0.30
	Native Am female	13,900	0.13	0.09	10,608	0.18	0.33
	Hispanic male	311,400	2.91	2.08	599,193	10.03	6.89
	Hispanic female	255,700	2.39	1.07	317,241	5.31	5.51
	Asian male	27,800	0.26	0.49	208,933	3.50	2.60
	Asian female	38,500	0.36	0.33	185,691	3.11	2.49
Effect size				**0.20**			**0.43**
Mechanics & repairers	White male	3,206,300	86.61	54.89	3,339,797	73.87	38.08
	White female	91,600	2.47	31.43	131,054	2.90	35.08
	Black male	247,000	6.67	5.28	349,239	7.72	3.80
	Black female	10,300	0.28	4.19	31,281	0.69	4.92
	Native Am male	8800	0.24	0.15	26,742	0.59	0.30
	Native Am female	200	0.01	0.09	1924	0.04	0.33
	Hispanic male	111,000	3.00	2.08	484,363	10.71	6.89
	Hispanic female	3200	0.09	1.07	19,941	0.44	5.51
	Asian male	22,900	0.62	0.49	128,899	2.85	2.60
	Asian female	800	0.02	0.33	8169	0.18	2.49
Effect size				**0.71**			**0.90**
Optometrists	White male	15,600	91.76	54.89	16,265	49.34	38.08
	White female	300	1.76	31.43	9425	28.59	35.08

Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
	Black male	100	0.59	5.28	84	0.25	3.80
	Black female	100	0.59	4.19	948	2.88	4.92
	Native Am male	0	0.00	0.15	367	1.11	0.30
	Native Am female	0	0.00	0.09	98	0.30	0.33
	Hispanic male	600	3.53	2.08	349	1.06	6.89
	Hispanic female	0	0.00	1.07	1002	3.04	5.51
	Asian male	200	1.18	0.49	1676	5.08	2.60
	Asian female	100	0.59	0.33	2748	8.34	2.49
Effect size				**0.80**			**0.57**
Pharmacists	White male	90,200	82.07	54.89	95,520	37.45	38.08
	White female	12,500	11.37	31.43	92,065	36.10	35.08
	Black male	1900	1.73	5.28	5159	2.02	3.80
	Black female	700	0.64	4.19	9026	3.54	4.92
	Native Am male	0	0.00	0.15	288	0.11	0.30
	Native Am female	0	0.00	0.09	111	0.04	0.33
	Hispanic male	2400	2.18	2.08	3052	1.20	6.89
	Hispanic female	300	0.27	1.07	5674	2.22	5.51
	Asian male	1400	1.27	0.49	15,200	5.96	2.60
	Asian female	500	0.45	0.33	28,933	11.35	2.49
Effect size				**0.56**			**0.66**
*Physical	White male	10,220	23.77	48.25	58,823	22.63	38.08
therapists* = starting	White female	27,820	64.70	34.34	150,505	57.90	35.08
decade is 1980	Black male	840	1.95	4.87	4213	1.62	3.80
	Black female	2300	5.35	4.68	8529	3.28	4.92
	Native Am male	20	0.05	0.28	72	0.03	0.30
	Native Am female	80	0.19	0.21	591	0.23	0.33
	Hispanic male	280	0.65	3.39	4109	1.58	6.89
	Hispanic female	620	1.44	2.20	8732	3.36	5.51
	Asian male	180	0.42	0.91	10,779	4.15	2.60

Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
	Asian female	640	1.49	0.76	13,606	5.23	2.49
Effect size				**0.67**			**0.57**
Physicians	White male	235,100	81.58	54.89	403,488	48.47	38.08
	White female	20,700	7.18	31.43	183,685	22.07	35.08
	Black male	5800	2.01	5.28	22,939	2.76	3.80
	Black female	1000	0.35	4.19	18,843	2.26	4.92
	Native Am male	100	0.03	0.15	1527	0.18	0.30
	Native Am female	0	0.00	0.09	440	0.05	0.33
	Hispanic male	10,800	3.75	2.08	24,726	2.97	6.89
	Hispanic female	1100	0.38	1.07	15,155	1.82	5.51
	Asian male	9900	3.44	0.49	96,839	11.63	2.60
	Asian female	3700	1.28	0.33	64,739	7.78	2.49
Effect size				**0.77**			**0.75**
Police, detectives, & private	White male	335,800	87.84	54.89	607,197	63.68	38.08
investigators	White female	13,300	3.48	31.43	106,179	11.14	35.08
	Black male	22,800	5.96	5.28	76,684	8.04	3.80
	Black female	1400	0.37	4.19	39,236	4.11	4.92
	Native Am male	1300	0.34	0.15	4703	0.49	0.30
	Native Am female	0	0.00	0.09	1562	0.16	0.33
	Hispanic male	6000	1.57	2.08	77,514	8.13	6.89
	Hispanic female	200	0.05	1.07	20,759	2.18	5.51
	Asian male	1400	0.37	0.49	16,969	1.78	2.60
	Asian female	100	0.03	0.33	2693	0.28	2.49
Effect size				**0.71**			**0.66**
Precision production	White male	2,833,600	80.61	54.89	1,495,085	49.61	38.08
workers	White female	361,600	10.29	31.43	680,894	22.60	35.08
	Black male	143,000	4.07	5.28	186,270	6.18	3.80
	Black female	36,400	1.04	4.19	127,300	4.22	4.92
	Native Am male	5000	0.14	0.15	9768	0.32	0.30

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Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
	Native Am female	1200	0.03	0.09	7045	0.23	0.33
	Hispanic male	94,800	2.70	2.08	241,656	8.02	6.89
	Hispanic female	20,500	0.58	1.07	111,903	3.71	5.51
	Asian male	15,500	0.44	0.49	93,717	3.11	2.60
	Asian female	3700	0.11	0.33	59,766	1.98	2.49
Effect size				**0.54**			**0.32**
Private household workers	White male	132,300	15.85	54.89	61,669	4.50	38.08
	White female	365,400	43.79	31.43	502,559	36.67	35.08
	Black male	67,700	8.11	5.28	47,096	3.44	3.80
	Black female	211,300	25.32	4.19	228,295	16.66	4.92
	Native Am male	200	0.02	0.15	2255	0.16	0.30
	Native Am female	3600	0.43	0.09	14,076	1.03	0.33
Lawyers & judges	Hispanic male	14,800	1.77	2.08	44,065	3.21	6.89
	Hispanic female	29,500	3.54	1.07	404,725	29.53	5.51
	Asian male	1400	0.17	0.49	15,525	1.13	2.60
	Asian female	8300	0.99	0.33	50,361	3.67	2.49
Effect size				**1.22**			**1.29**
Registered nurses	White male	19,200	2.22	54.89	179,042	6.43	38.08
	White female	756,000	87.50	31.43	1,970,390	70.76	35.08
	Black male	3000	0.35	5.28	23,132	0.83	3.80
	Black female	60,300	6.98	4.19	254,820	9.15	4.92
	Native Am male	100	0.01	0.15	1024	0.04	0.30
	Native Am female	1800	0.21	0.09	8366	0.30	0.33
	Hispanic male	500	0.06	2.08	16,697	0.60	6.89
	Hispanic female	12,700	1.47	1.07	97,179	3.49	5.51
	Asian male	200	0.02	0.49	33,653	1.21	2.60
	Asian female	10,200	1.18	0.33	200,352	7.19	2.49
Effect size				**1.27**			**0.92**
Retail sales clerks	White male	824,500	31.78	54.89	1,318,920	36.81	38.08

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Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
	White female	1,576,400	60.77	31.43	1,288,594	35.96	35.08
	Black male	37,300	1.44	5.28	183,467	5.12	3.80
	Black female	70,100	2.70	4.19	242,035	6.76	4.92
	Native Am male	800	0.03	0.15	6494	0.18	0.30
	Native Am female	2400	0.09	0.09	10,902	0.30	0.33
	Hispanic male	27,700	1.07	2.08	162,436	4.53	6.89
	Hispanic female	37,600	1.45	1.07	199,009	5.55	5.51
	Asian male	6200	0.24	0.49	80,737	2.25	2.60
	Asian female	11,200	0.43	0.33	90,387	2.52	2.49
Effect size				**0.64**			**0.15**
Sales reps, insurance, real	White male	720,400	78.78	54.89	863,288	44.61	38.08
estate, financial,	White female	157,300	17.20	31.43	735,738	38.02	35.08
advertising	Black male	14,000	1.53	5.28	58,021	3.00	3.80
	Black female	6300	0.69	4.19	64,026	3.31	4.92
	Native Am male	500	0.05	0.15	2277	0.12	0.30
	Native Am female	100	0.01	0.09	2442	0.13	0.33
	Hispanic male	10,500	1.15	2.08	62,467	3.23	6.89
	Hispanic female	1900	0.21	1.07	67,048	3.46	5.51
	Asian male	2800	0.31	0.49	46,891	2.42	2.60
	Asian female	600	0.07	0.33	33,099	1.71	2.49
Effect size				**0.49**			**0.23**
Scientists	White male	233,400	79.85	54.89	319,647	45.45	38.08
	White female	36,600	12.52	31.43	187,445	26.65	35.08
	Black male	6700	2.29	5.28	13,573	1.93	3.80
	Black female	2500	0.86	4.19	16,280	2.31	4.92
	Native Am male	1100	0.38	0.15	1632	0.23	0.30
	Native Am female	0	0.00	0.09	1017	0.14	0.33
	Hispanic male	4900	1.68	2.08	14,677	2.09	6.89
	Hispanic female	500	0.17	1.07	11,391	1.62	5.51

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Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
	Asian male	4900	1.68	0.49	74,095	10.53	2.60
	Asian female	1700	0.58	0.33	63,585	9.04	2.49
Effect size				**0.56**			**0.73**
Social workers	White male	62,400	28.03	54.89	92,939	12.00	38.08
	White female	113,100	50.81	31.43	407,298	52.61	35.08
	Black male	10,900	4.90	5.28	36,024	4.65	3.80
	Black female	25,500	11.46	4.19	140,068	18.09	4.92
	Native Am male	200	0.09	0.15	579	0.07	0.30
	Native Am female	500	0.22	0.09	6672	0.86	0.33
	Hispanic male	3700	1.66	2.08	15,606	2.02	6.89
	Hispanic female	3900	1.75	1.07	54,428	7.03	5.51
	Asian male	1000	0.45	0.49	5550	0.72	2.60
	Asian female	1400	0.63	0.33	15,046	1.94	2.49
Effect size				**0.62**			**0.83**
Supervisors & proprietors = starting decade is 1980	White male	1,027,060	65.20	48.25	1,927,450	46.51	38.08
	White female	403,860	25.64	34.34	1,269,753	30.64	35.08
	Black male	36,500	2.32	4.87	160,634	3.88	3.80
	Black female	18,200	1.16	4.68	167,200	4.03	4.92
	Native Am male	3120	0.20	0.28	10,071	0.24	0.30
	Native Am female	1700	0.11	0.21	7706	0.19	0.33
	Hispanic male	42,360	2.69	3.39	214,148	5.17	6.89
	Hispanic female	14,540	0.92	2.20	149,743	3.61	5.51
	Asian male	19,940	1.27	0.91	153,830	3.71	2.60
	Asian female	7980	0.51	0.76	83,727	2.02	2.49
Effect size				**0.37**			**0.21**
Supervisors, office	White male	53,300	48.68	54.89	379,298	27.08	38.08
	White female	43,700	39.91	31.43	673,092	48.05	35.08
	Black male	4800	4.38	5.28	56,980	4.07	3.80
	Black female	4600	4.20	4.19	101,950	7.28	4.92

Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
	Native Am male	100	0.09	0.15	865	0.06	0.30
	Native Am female	100	0.09	0.09	4434	0.32	0.33
	Hispanic male	1200	1.10	2.08	48,718	3.48	6.89
	Hispanic female	1000	0.91	1.07	80,204	5.73	5.51
	Asian male	200	0.18	0.49	24,331	1.74	2.60
	Asian female	500	0.46	0.33	30,871	2.20	2.49
Effect size				**0.20**			**0.34**
Teachers	White male	868,500	31.53	54.89	1,378,492	24.53	38.08
	White female	1,617,500	58.72	31.43	3,176,200	56.52	35.08
	Black male	50,700	1.84	5.28	133,007	2.37	3.80
	Black female	162,700	5.91	4.19	334,314	5.95	4.92
	Native Am male	1300	0.05	0.15	7208	0.13	0.30
	Native Am female	2300	0.08	0.09	15,679	0.28	0.33
	Hispanic male	14,800	0.54	2.08	98,708	1.76	6.89
	Hispanic female	19,300	0.70	1.07	225,094	4.01	5.51
	Asian male	6200	0.23	0.49	108,238	1.93	2.60
	Asian female	11,100	0.40	0.33	143,042	2.55	2.49
Effect size				**0.62**			**0.48**
Transportation & material	White male	2,881,800	79.85	54.89	3,334,947	59.92	38.08
moving	White female	126,500	3.51	31.43	407,736	7.33	35.08
	Black male	440,600	12.21	5.28	817,252	14.68	3.80
	Black female	14,400	0.40	4.19	145,649	2.62	4.92
	Native Am male	9300	0.26	0.15	32,989	0.59	0.30
	Native Am female	400	0.01	0.09	6178	0.11	0.33
	Hispanic male	119,000	3.30	2.08	616,588	11.08	6.89
	Hispanic female	2200	0.06	1.07	55,190	0.99	5.51
	Asian male	14,100	0.39	0.49	139,803	2.51	2.60
	Asian female	700	0.02	0.33	9228	0.17	2.49
Effect size				**0.71**			**0.87**

Occupation	Race/ethnicity & sex	1970			2010		
		Total	Percent of occupation	Percent of labor force	Total	Percent of occupation	Percent of labor force
Veterinarian	White male	16,900	93.37	54.89	32,573	43.22	38.08
	White female	900	4.97	31.43	35,930	47.68	35.08
	Black male	0	0.00	5.28	547	0.73	3.80
	Black female	0	0.00	4.19	1511	2.00	4.92
	Native Am male	0	0.00	0.15	77	0.10	0.30
	Native Am female	0	0.00	0.09	60	0.08	0.33
	Hispanic male	100	0.55	2.08	1064	1.41	6.89
	Hispanic female	100	0.55	1.07	1581	2.10	5.51
	Asian male	100	0.55	0.49	1025	1.36	2.60
	Asian female	0	0.00	0.33	996	1.32	2.49
Effect size				**0.78**			**0.42**