

An Analytical Description of Employment According to Race, Sex, Prestige, and Holland Type of Work

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The composition of employment was examined using 1970 census data for employed civilians, Holland's occupational typology, and a prestige scale. The present report extends earlier examinations of the labor force using these dimensions by studying the sex and race composition of types of work at several levels of prestige, and by examining the extent of government employment among men and women in different jobs. Results indicate areas where women and blacks are under- and over-represented. In addition, because of the association between type of work and prestige level, aspirations or interest in a type of work may have implications for the level of work that is available. Counseling and research implications of the results are discussed.

Much vocational guidance research has been devoted to providing counselors with more information and better assessment tools for helping students choose the jobs that match their interests and abilities. In contrast, little vocational guidance research has examined the availability of different kinds of jobs (Holcomb & Anderson, 1977). The US Government provides much information on the number of different kinds of jobs which currently exist in our economy and which are projected for the near future and information on who holds these jobs (e.g., US Bureau of the Census, 1973; US Bureau of Labor Statistics, 1971). Seldom, however, is this information organized according to the broad occupational categories used by vocational psychologists and counselors for assessing vocational interests.

Gottfredson, Holland, and Gottfredson (1975) studied the number of jobs in the United States as categorized according to one widely-used classification of vocational interests (Holland, 1973) and found not only

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that some types of work are much rarer than others, but also that they exist in smaller proportions than do aspirations for those types of work. This implies that all people who aspire to these types of work will not be able to fulfill their aspirations; thus counselors must be provided the tools to assess the availability as well as the desirability of different types of work for their clients.

The present study extends previous work on job availability according to Holland's classification by examining (a) the number of jobs in the US in 1970 by prestige level as well as type of work, (b) the distribution of types of jobs in and out of government service, (c) race and sex differences in type and level of work, and (d) projections for future demand for kinds of labor. Issues such as the following are raised. All things except labor demand being equal, what are the chances of getting high- vs low-level jobs if one enters a realistic rather than a social job? When the distribution of job opportunities does not match the distribution of aspirations of job seekers, how can the counselor encourage realism about job opportunities, while at the same time help individual clients to pursue their aspirations? Where have women and blacks been most likely to find work in the past, and where might opportunities be greatest in the near future?

METHOD

Employment Data

Data on employment by race and sex for detailed census occupational titles were obtained from published tables of 1970 employment (US Bureau of the Census, 1973, pp. 582-592). The data are based on a 5% sample of employed civilians aged 16 and over. No detailed occupational titles were provided in the census for approximately 6% of workers, so these cases were excluded from the analyses. Occupational titles were classified according to prestige level (Temme, 1975) as well as Holland type of work, thus providing a multi-dimensional classification of employment. Holland type and prestige levels used for each of the 440 census titles are listed elsewhere (L. Gottfredson & Brown, 1978). The Holland codes used here incorporate recent extensions and improvements of the classification. These changes account for the minor differences between the distributions shown here and those shown in earlier work using unrevised Holland codes (Gottfredson, Holland, & Gottfredson, 1975) although the same census data were used.

Job level was measured with an occupational prestige scale which ranged from 0 to 88. This prestige scale was developed from survey data on ratings of the general desirability of different occupations and the scale is described in detail by Temme (1975). Occupational prestige was used to measure job level here because prestige and the closely related socioeconomic scales are widely used in research on race and sex differ-

ences in occupational attainment (Duncan, 1961; Blau & Duncan, 1967; McClendon, 1976). Occupational prestige correlates about .9 with other measures of job level such as General Educational Development (GED) level (L. Gottfredson & Brown, 1978). The present report groups occupations into four broad levels: very low (prestige 0–19), low (20–39), moderate (40–59), and high (60 and over). Occupations classified as very low in this study range from dishwasher and bootblack to elevator operator. Occupations classified as low-level range from peddler and hospital attendant to carpenter, hairdresser, and sales clerk. Occupations classified as moderate-level include most skilled trades, managers, technicians, nurses, and clerical workers. High-level work includes most professionals (such as lawyers, physicians, and architects), scientists, college professors, and engineers. With the exception of the first table, the two lowest levels of work have been combined into a single category, because over 90% of the lowest level of work falls into a single Holland category of work.

Data were available by race for blacks and nonblacks. Whites constitute 99% of the nonblacks (US Bureau of the Census, 1973, p. 593), and the nonblacks will be referred to as whites in the following pages.

The occupations listed in the national manpower projections (US Bureau of Labor Statistics, 1971, pp. 17–20) for 1970 and 1980 were coded according to Holland type and prestige level of work by assigning them the codes of the census titles to which they best corresponded. The occupations composing the detailed occupational categories in the 1970 census are fairly homogeneous with respect to Holland category (US Bureau of the Census, 1971), but some of the categories in the Bureau of Labor Statistics projections are heterogeneous with respect to Holland category. One category—professional, technical, and kindred workers, not elsewhere classified—was omitted here because it was too heterogeneous to classify (see US Bureau of Labor Statistics, 1971, pp. 21–25). Despite the differences in number and homogeneity of the Census and Bureau of Labor Statistics categories, the distributions of kinds of work estimated for 1970 are similar.

RESULTS

Type and Level of Jobs Held

Table 1 shows how workers are distributed by level and Holland type of work. Several important features of this distribution are readily apparent. First, as previously noted (Gottfredson, Holland & Gottfredson, 1975), some Holland types of work are much rarer than others. Almost half of all jobs held in 1970 were classified as realistic, but fewer than 2% were classified as artistic. Three types of work (realistic, enterprising, and conventional) account for over 80% of all jobs. Second, different Holland types of work provide very different *levels* of work. Over 80% of realistic

TABLE 1
Percentage of Workers Employed in Each Type and Prestige Level of Work, 1970

Type of work	Occupational prestige			
	0–19	20–39	40–59	60+
Realistic	7.8	31.7	7.9	0.3
Investigative	0.0	0.0	1.1	3.1
Artistic	0.0	<i>a</i>	0.8	0.5
Social	0.5	3.4	3.5	4.8
Enterprising	<i>a</i>	5.4	8.5	3.1
Conventional	<i>a</i>	8.3	8.1	1.0

Note. Weighted $N = 72,208,147$.

^a Less than 0.5%.

work is in the two lowest levels of work (prestige of 0–19 and 20–39). In contrast, 75% of investigative jobs are high-level (prestige of 60 and over). Social, enterprising, and conventional work are distributed more evenly along the prestige hierarchy. Third, the heterogeneity of *type* of work varies by the level of work considered. Almost all of the lowest level of work is realistic and 70% of the two lowest levels are realistic. A greater mix of types of work appears at moderate and high levels of work. Enterprising work predominates at moderate levels and, together with realistic and conventional work, accounts for 82% of the moderate-level jobs. Social work predominates at the highest level, and together with the next two largest groups (investigative and enterprising) accounts for 86% of high-level work.

Government Jobs

The cells of Table 2 show the percentages of workers who are employed by the government (federal, state, or local). Percentages are presented separately for different types and levels of work. (The two lowest levels of work in Table 1 have been combined in this and all subsequent tables because of the small N 's in the lowest levels of all but realistic work.) The percentage of workers in government employment varies by both level and type of work. Overall, the percentages of workers employed by government rise from 11% for men and 12% for women in low-level work to 28% and 65% for men and women in high-level work. The percentages also tend to increase within each of the six types of work, particularly for women. The major differences are between the types rather than the levels of work, however. Not surprisingly, social jobs (which include most teaching and social service jobs) are proportionately more often government jobs, with smaller proportions of investigative (e.g., scientific) and conventional (e.g., clerical) jobs being government jobs.

TABLE 2
Percentages of Male and Female Workers in Different Types and
Prestige Levels of Work who have Government Jobs, 1970

Type of work	Sex	Occupational prestige			Total	Weighted (N) ^a
		0-39	40-59	60+		
Realistic	M	9.8	13.6	10.8	10.5	(26,929)
	F	9.5	10.5	12.5	9.6	(7,481)
Investigative	M	—	21.7	22.3	22.2	(2,570)
	F	—	21.8	34.6	28.0	(465)
Artistic	M	10.5	5.9	20.2	11.3	(703)
	F	7.6	4.9	23.9	12.4	(304)
Social	M	57.4	30.0	78.3	58.5	(3,019)
	F	21.5	25.9	78.9	44.1	(5,788)
Enterprising	M	1.3	7.7	6.4	5.9	(9,262)
	F	0.9	12.6	13.3	5.9	(3,029)
Conventional	M	18.4	34.2	17.1	24.4	(2,565)
	F	16.6	18.5	24.8	17.6	(10,093)
Total	M	11.0	14.1	27.8	14.3	(45,047)
	F	12.3	18.7	65.4	19.8	(27,161)

^a Thousands of workers.

Overall, a greater proportion of women than men are employed by the government (20% vs 14%). The greater percentage of government work among women than men does not hold, however, at all levels of the six different types of work. In high-level jobs a larger proportion of the women are government employees, but in low-level work a larger proportion of the men are employed by the government. These sex differences are primarily the result of women being employed in different occupations than men, because sex differences in government employment are much smaller when individual occupations are considered. This is illustrated by a closer examination of two occupational groups with large sex differences, high-level investigative and moderate-level conventional work. Among high-level investigative workers, 22% of the men but 35% of the women are employed by the government. Examples of investigative workers include scientists, many college professors, many engineers, and airplane pilots. Up to two-thirds of the first two groups of employees, but generally fewer than 20% of the latter two, are employed by the government. However, a much larger proportion of women than men are scientists or professors rather than engineers or pilots. Among moderate-level conventional workers, a much higher proportion of males than females are government employees. This difference occurs primarily because close to one-fifth of the men in this group are postal clerks (100% of whom are government employees). The proportion of women who are postal clerks is extremely small. Instead women fill most of the many secretarial

and other clerical jobs (of which rarely more than 20% are government jobs).

Composition by Sex

Approximately 38% of all workers in 1970 were women. Table 3 shows the composition by sex for jobs when broken down by level and type of work. If we assume that 38% of workers in all types and levels of work can be expected by chance to be women, then the percentages in Table 3 indicate a dramatic over-representation of women in some groups of work but a dramatic under-representation in others. The proportion of workers who are women tends to decrease as the level of work increases; overall, the percentage falls from 38% in low-level work to 31% in high-level work. If low-level investigative and artistic jobs (only 1% of all jobs) are ignored, this pattern is repeated in all types of work. But the largest sex differences are not by level of work; they are instead among the different Holland types of work. Women are clearly under-represented in realistic jobs and over-represented in social jobs at all levels of work. For example, only 25% of low-level realistic but 62% of high-level social workers are women. The patterns vary among the other types of work. Among enterprising jobs the proportion of women ranges from 44% (over-representation) among low-level jobs (e.g., sales clerks) to 8% (under-representation) in high-level enterprising work (e.g., lawyers). Women hold about 80% of conventional jobs, being under-represented only in the highest level jobs (most high-level work being in accounting).

Composition by Race

Table 4 shows the percentage of workers who are black in different types and levels of work. Overall, 8% of male workers and 11% of female workers are black. Two patterns are prominent. First, looking across the

TABLE 3
Percentage of Workers in Different Types and
Prestige Levels of Work who are Women, 1970

Type of work	Occupational prestige			Total	Weighted (N) ^a
	0-39	40-59	60+		
Realistic	25.2	5.1	0.9	21.7	(34,410)
Investigative	—	30.1	10.0	15.3	(3,035)
Artistic	9.8	30.6	30.8	30.2	(1,007)
Social	69.5	66.1	62.4	65.7	(8,807)
Enterprising	43.8	18.1	8.4	24.6	(12,291)
Conventional	83.4	82.6	25.4	79.7	(12,658)
Total	38.5	38.6	31.1	37.6	(72,208)

^a Thousands of workers.

TABLE 4
Percentage of Male and Female Workers in Different Types and
Prestige Levels of Work who are Black, 1970

Type of work	Sex	Occupational prestige			Total	Weighted (N) ^a
		0-39	40-59	60+		
Realistic	M	12.6	3.6	1.0	10.7	(26,929)
	F	19.8	7.4	2.1	19.3	(7,481)
Investigative	M	—	4.9	1.9	2.5	(2,570)
	F	—	8.6	4.9	6.8	(465)
Artistic	M	3.8	3.4	2.1	3.0	(703)
	F	10.5	3.3	3.4	3.4	(304)
Social	M	10.3	6.1	6.2	7.3	(3,019)
	F	17.2	9.5	9.4	12.0	(5,788)
Enterprising	M	4.9	1.9	1.2	2.5	(9,262)
	F	3.8	4.1	3.9	3.9	(3,029)
Conventional	M	9.1	7.0	1.7	6.7	(2,565)
	F	8.6	4.0	4.3	6.3	(10,093)
Total	M	11.7	3.4	2.5	8.0	(45,047)
	F	14.2	5.4	8.1	10.8	(27,161)

^a Thousands of workers.

rows, percent black almost always decreases with increasing job level, and blacks are under-represented in all except the lowest level of work. Black males are grossly under-represented in all types of high-level jobs (usually fewer than 2% of such jobs among males being held by blacks). Black females are not as under-represented for their sex in high-level work as are black males. Blacks appear to be best represented in social jobs and most poorly represented in enterprising work. This is true for both men and women.

DISCUSSION

The results reveal the current access to different kinds of work in only a limited way. The tables show the sorts of jobs that were held by all American workers in 1970, and so include jobs held by part-time workers as well as full-time workers and by people of all ages. The tables do not show the types of job openings that occur during a year nor the jobs that are available for young people seeking their first full-time jobs. Nevertheless, they can provide some important clues about where competition for jobs may be most severe and where blacks and women may have experienced the most difficulty in obtaining jobs in the past.

Where Are the Jobs?

Gottfredson, Holland, and Gottfredson (1975) have already shown that some types of work are rarer than others, artistic jobs being particularly scarce. This finding, together with their data on aspirations among high

school and college students, suggests that young people will have more difficulty in fulfilling aspirations for some types of work than for others. The results presented here, however, show that the six Holland types of work are found not only in very different numbers and at different educational levels, but also at different levels of prestige.

This has implications not only for the prospects, but also the consequences, of fulfilling aspirations for different *types* of work. Realistic work is found primarily at the lowest levels of prestige. So although half of all work is realistic, realistic work is a source of only a small fraction of high-level jobs. An individual therefore is unlikely to be able to satisfy aspirations for both realistic and high-level work at the same time. In contrast, a person with aspirations for investigative work probably has to find a high-level job in order to get investigative work. Social and enterprising work are distributed more evenly across levels of work, so interests in these two kinds of work may be more easily satisfied at a variety of levels.

Who controls, or who provides, these jobs? To some extent individuals can create their own jobs by being self-employed, but by far most jobs are created by private industry or by government, and success in self-employment is also dependent upon demand for goods and services. Government jobs are probably less sensitive to the ups and downs of the business cycle than are those in private industry and it is likely that the recruiting and hiring process also differs in these two sectors. Knowing where government employment is most frequent will help counselors to anticipate the effects of business cycles on the prospects for promoting certain types of person-job matches. One implication of Table 2 is that higher level jobs, and social and conventional jobs, because of their prevalence in government, are probably the least sensitive to economic ups and downs, therefore providing the most secure employment and the least deterioration in rate of job openings in economic downturns.

It is not clear how the availability of jobs by type and level changes with short term economic fluctuations, but evidence suggests that the availability of jobs by type of work is changing only slowly, if at all, over the long run. Table 5 shows that the types of jobs projected for 1980 are largely the same as those in 1970. This suggests that the conclusions about the 1970 distribution of work may apply with little change to the coming decade as well.

Who Gets These Jobs?

Although it is not clear what a fair distribution of jobs would be, it is possible to describe who has the jobs now. Information about the composition of working populations by race and sex, for example, provides some clues about where inequities may have occurred in the past and where barriers may still exist.

TABLE 5
Actual Employment in Different Types of Work in 1970
and Projected Employment in 1980 (Percent)

Type of work	Census ^a	Manpower projections ^b	
	1970	1970	1980
Realistic	47.7	49.9	47.5
Investigative	4.2	3.4	4.1
Artistic	1.4	1.4	1.4
Social	12.2	8.2	9.0
Enterprising	17.0	18.4	18.1
Conventional	17.4	18.6	19.9

^a Based on a recode of occupational titles from 1970 Census (Bureau of the Census, 1973, pp. 582-592).

^b Based on a recode of data presented by the Bureau of Labor Statistics (1971, pp. 17-20).

Tables 3 and 4 suggested that women and blacks are over-represented in some categories of work but under-represented in others. The inverse relation between occupational level and proportion of women and blacks has been widely investigated, particularly by sociologists (Hodge & Hodge, 1965; Treiman & Terrell, 1975) and economists (Ashenfelter & Rees, 1973). What has not been so apparent before, however, is the finding in Tables 3 and 4 that over- or under-representation of blacks or women is associated not only with level of work but is associated with *both* type and level.

Social jobs appear to have been the most frequent source of high-level jobs for both blacks and women in the past, and conventional jobs have been the source of many moderate-level jobs. Although a large proportion of all workers are in enterprising work, it appears to have been an especially poor source of jobs at all levels for blacks.

The present results describe what is and has been, not what should or might be, the structure of the work force. They are presented to suggest where to start looking for inequities in the system. Another caution should be raised here as well. That women, blacks, or any other group are under-represented in an occupational group does not demonstrate that discrimination against these groups exists. It only raises that possibility. Differences in representation could occur for many reasons, such as race-sex differences in skills or preferences for either type or level of work. The employment differences in level presented here cannot clearly be explained by differences in aspirations for level of work, because black and female youngsters appear to have vocational aspirations at least as high as do white males (Cosby, 1971; Kuvlesky, Wright, & Juarez, 1971). Differences in preferences for type or field of work may be important, though, in explaining some employment differences by race and sex, because there is ample evidence that interests for type of work differ by

both race and sex (Kimball, Sedlacek, & Brooks, 1973; Hager & Elton, 1971; Doughtie, Chang, Alston, Wakefield, & Yom, 1976; Birk, 1975; G. Gottfredson & Holland, 1975).

Regardless of why these patterns of race and sex composition have occurred, they have some practical implications for helping blacks and women. First, it is not clear that it is to the advantage of women to increase their representation in realistic work because most realistic work is low-level work. Such a strategy is implied by those who argue that inventories are probably sex biased if they identify few realistic women and who urge that more women be assessed as having realistic interests. Such strategies would suggest to more women that they explore careers in types of work where high prestige occupations are rare. Second, women already constitute 62% of workers in high-level social jobs even though they constitute only 38% of all workers. Therefore, although social jobs constitute the largest pool of high-level jobs, women may more likely be able to improve their representation in high-level work by competing for enterprising or investigative jobs. In contrast, although blacks are best represented in social jobs, they are still under-represented in all types of moderate- and high-level work.

Finally, Tables 3 and 4 suggest that women and particularly blacks may have faced strong barriers to employment in enterprising work, but enterprising work may nevertheless be a good source of jobs for blacks and women in the future if these barriers can be surmounted. Enterprising work may be a good source of high prestige work for several reasons: (a) there are now strong social pressures to increase the representation of blacks and women in this type of work, (b) it constitutes a large pool of jobs in the labor market, and (c) it is found at all levels of prestige and so may be an important channel for promoting women and blacks over time. It should be realized, however, that job adjustment may be more difficult in enterprising work for blacks and women if they are now under-represented because it has been an inhospitable environment for them. Adjustment will be easiest for workers with enterprising interests and competencies.

The limitations imposed by the distribution of jobs raises a very important issue not yet fully faced by counselors. What should be done when it is clear that all individuals cannot get jobs congruent with their interests and abilities? Better training and more education may be useful for some individuals, but if aspirations remain unchanged the economic system as a whole cannot provide every worker a job he or she desires. Although the counselor must be sensitive to this reality, it is not clear how this should affect advice to counselees. For example, should the counselor attempt to encourage more "realistic" aspirations? If so, among whom should the counselor foster such realism? Counselors have been severely criticized in the past for selectively encouraging "realism" among minority and

female students (Birk, 1975). Alternatively, should counselors encourage everyone to pursue their aspirations, no matter how low the probabilities of their being realized, and then deal with the casualties in the subsequent competition for jobs? One possible resolution of this dilemma is to provide clients with understandable information about their interest and abilities and understandable summaries of the structure of the labor market. A clear picture of biases or obstacles to be overcome may help prepare counselees to meet these challenges.

Theoretical Implications

The results raise theoretical as well as practical and ethical issues. Specifically, the differences in the average job level of Holland's categories should be taken into account in future tests of Holland's typology and theory of careers. Job satisfaction, educational level, family socioeconomic status, income, and many other variables are correlated with job level. Because the six types of work differ in level, they will consequently be correlated with such variables (Kelso, Note 2). Unless level of work is controlled, it is possible that observed differences among the six types are only reflections of differences in level.

Further research should examine questions such as the following. (a) What types and levels of *job openings* are available to young people entering the labor market and for workers settling into a career, and at what rate do different jobs become available? Although openings are strongly related to the number of jobs in a category (Kelley, Chirikos, & Finn, 1975), this is not the only determinant of openings. (b) What proportion of workers (males and females, blacks and whites) are able to find jobs congruent with their vocational interests? G. Gottfredson (Note 1) has summarized some preliminary evidence on this question. (c) How often do aspirations change when workers find themselves in incongruent jobs? Government and industry provide much data on current and projected job openings. The classification of census occupational titles according to level and Holland's typology of work provides a way to better use these data to answer the foregoing questions.

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