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11 December 1973

MEMORANDUM FOR: Women's Advisory Panel

THROUGH :  Member/WAPSUBJECT : Comparison of the Grade Distribution  
of Men and Women Employed by CIA

1. The purpose of this memorandum is to report the results of statistical tests comparing the grade distribution of men and women in CIA. The data on which these comparisons were based are presented in Table 1. The analyses to be reported sought to determine if significant differences exist between the grade distribution of CIA men and women.

2. The statistical test employed for this purpose was the chi-square goodness-of-fit test. This test treats one distribution as a theoretical model and then compares the second, usually the smaller, distribution with the theoretical model. An attempt is made to determine if the second distribution is essentially the same as, or conforms to, the first distribution when sampling errors are taken into consideration. The chi-square tests were performed on: (a) the Agency as a whole; (b) the Directorate for Management and Services; (c) the Directorate for Operations; (d) the Directorate for Intelligence; and (e) the Directorate for Science and Technology. The data were not sufficient to permit tests to be made for the Office of the DCI or the CTP and TAS. Also, the small number of persons in grades 16, 17, and 18 made it necessary to combine three grades into one category for the individual directorate comparisons. Thus, the categories used for the overall Agency comparisons were grades 3 through 18, and the categories used for the individual directorate comparisons were grades 8 through 15 with grades 16, 17, and 18 combined.

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3. The chi-square for the Agency as a whole was 5518.14, which is significant far beyond the .001 level of confidence. This means that the distribution of women by grade could be expected to arise by chance from a theoretical distribution, taken in this case as the distribution of men by grade, so seldom that chance is rejected as the major factor responsible for the difference in the way men and women are distributed by grade in CIA. In short, men and women differ markedly in their distribution by grade. The higher grades contain proportionately more men than do the lower grades; conversely, the lower grades contain proportionately more women than do the higher grades (see Table 1).

4. The statistical test described above merely shows that men and women differ in terms of their grade distribution. The test itself does not tell us why this difference is there. Other analyses permit the interpretation of this difference to be narrowed down considerably. One possible explanation of this difference is that clerical and secretarial work have traditionally been regarded as female occupations and, in fact, the vast majority of clerical and secretarial positions in CIA are filled by females. This fact alone could account for significant differences in the overall grade distribution of men and women. To evaluate this possibility, chi-square tests were performed with the clerical grades omitted. These tests compared the distribution of men and women by grade in each directorate for grades 8 through 15 with grades 16, 17, and 18 treated as a single category. All four of these chi-squares were highly significant (chi-square  $\geq 154.42$ ,  $df = 8$ ,  $p < .001$ ). Thus, with the clerical and lower grades omitted, significant differences in the grade distribution of men and women remain and are highly pronounced. These differences are found in each of the four Directorates as well as for the Agency as a whole. These latter analyses show that grade distribution differences can not be accounted for by the fact that clericals occupy the lower grades and that most clericals are females.

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Additional analyses of the type reported here will be necessary to further reduce the number of possible explanations of the differences in grade distribution between men and women, and thus enable the reasons for the differences to be identified and effectively dealt with.

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Chief, Research Branch  
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