AFHRL-TP-90-62

AIR FORCE

HUMAN RESOURCES LABORATORY

ARMED SERVICES VOCATIONAL APTITUDE BATTERY (ASVAB): ANALYSES OF DIFFERENTIAL ITEM FUNCTIONING ON FORMS 15, 16, AND 17

John R. Welsh, Jr.
Thomas R. Androlewicz

Operational Technologies Corporation
5825 Callaghan Road, Suite 225
San Antonio, Texas 78228-1110

Linda T. Curran

MANPOWER AND PERSONNEL DIVISION
Brooks Air Force Base, Texas 78235-5601

September 1990

Interim Technical Paper for Period January 1989 - July 1990

AIR FORCE SYSTEMS COMMAND
BROOKS AIR FORCE BASE, TEXAS 78235-5601

NOTICE

When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely Government-related procurement, the United States Government incurs no responsibility or any obligation whatsoever. The fact that the Government may have formulated or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication, or otherwise in any manner construed, as licensing the holder, or any other person or corporation; or as conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

The Public Affairs Office has reviewed this paper, and it is releasable to the National Technical Information Service, where it will be available to the general public, including foreign nationals.

This paper has been reviewed and is approved for publication.

THOMAS W. WATSON
Contract Monitor

WILLIAM E. ALLEY, Technical Director
Manpower and Personnel Division

ROGER W. ALFORD, Lt Col, USAF
Deputy Chief, Manpower and Personnel Division

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	September 1990	Interim Paper - January 1989 - July 1990

4. TITLE AND SUBTITLE
Armed Services Vocational Aptitude Battery (ASVAB): Analyses of Differential Item Functioning on Forms 15, 16, and 17

5. FUNDING NUMBERS
C - F41689-87-D-0012
PE - 63227F
PR - 2922
TA - 02
WU - 02

6. AUTHOR(S)
John R. Welsh, Jr.
Thomas R. Androlewicz
Linda T. Curran

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Operational Technologies Corporation
5825 Callaghan Road, Suite 225
San Antonio, Texas 78228-1110

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAMES(S) AND ADDRESS(ES)
Manpower and Personnel Division
Air Force Human Resources Laboratory
Brooks Air Force Base, Texas 78235-5601

10. SPONSORING/MONITORING AGENCY REPORT NUMBER
AFHRL-TP-90-62

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

This study reports the analyses of item-level data from the Initial Operational Test and Evaluation (IOT&E) of the Armed Services Vocational Aptitude Battery (ASVAB) Forms 15, 16, and 17 in order to investigate the occurrence of differential item functioning (DIF) on power subtests of the ASVAB, and to examine the effects of sample size on five indices of DIF. This study used the Camilli's Full Chi-Square, the Mantel-Haenszel Chi-Square and Odds Ration, Lord's Chi-Square, and the Modified Sum-of-Squares as indices of DIF. The results of this study indicate that ASVAB Forms 15, 16, and 17 power subtest items are relatively free of DIF. The General Science subtest tended to have the most DIF items, and DIF items tended to occur more often with gender comparisons, although the occurrence of DIF on the Auto-Shop, Mechanical Comprehension, and Electronics information subtests was minimal. The results also indicated that all five indices were consistent for sample sizes of 500, 1,000 and 2,000. The intercorrelations between the Mantel-Haenszel Chi-Square and Odds Ratio, and the Full Chi-Square were dramatically reduced in the N – 100 sample size. The results indicated that the Mantel-Haenszel Odds Ratio should probably not be used with sample sizes of 100 cases or less.

14. SUBJECT TERMS
aptitude test
Armed Services Vocational Aptitude Battery (ASVAB)
differential item functioning (DIF)
focal group
item bias
item response theory (IRT)
reference group

15. NUMBER OF PAGES
162

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UL

AFHRL Technical Paper 90-62 September 1990

ARMED SERVICES VOCATIONAL APTITUDE BATTERY (ASVAB): ANALYSES OF DIFFERENTIAL ITEM FUNCTIONING ON FORMS 15, 16, AND 17

John R. Welsh, Jr.
Thomas R. Androlewicz

OPERATIONAL TECHNOLOGIES CORPORATION
5825 Callaghan Road, Suite 225
San Antonio, Texas 78235-5601

Linda T. Curran

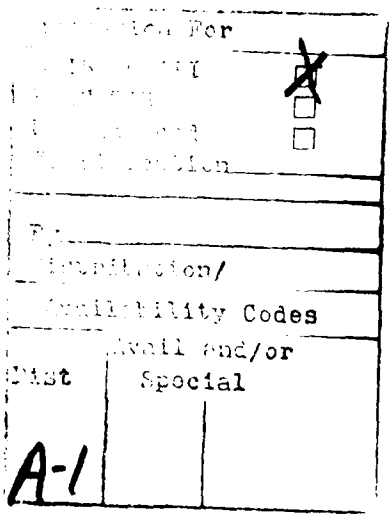
MANPOWER AND PERSONNEL DIVISION
Brooks Air Force Base, Texas 78235-5601

Reviewed by

Thomas W. Watson, Chief
Personnel Assessment Technology Function

Submitted for publication by

Lonnie D. Valentine, Jr., Chief
Force Acquisition Branch



SUMMARY

This study reports the analyses of data from the Initial Operational Test and Evaluation (IOT&E) of ASVAB Forms 15, 16, and 17 to investigate the occurrence of differentially functioning items on the power subtests and to examine the effects of sample size on five indices of differential item functioning (DIF).

Review of the literature indicated a large number of DIF indices based on differing definitions. This study used the Camilli's Full Chi-Square index based on traditional item statistics and the Mantel-Haenszel Chi-Square and Mantel-Haenszel Odds Ratio based on conditional item-to-total test score relationships. Two of the five indices were based on Item Response Theory (IRT), specifically, the three parameter logistic model. Estimates of the a, b, and c parameters were made using LOGIST5 in two random samples and were used to compute Lord's Chi-Square and the Modified Sum of Squares indices of DIF. These IRT indices were compared to the other three indices in different random samples of the same sizes, for the same comparisons.

Four comparison groups were selected. A White-White baseline comparison group was used for all five indices in order to determine chance levels of the occurance of DIF for each of the five indices. White-Black, White-Hispanic, and male–female comparison groups were used to examine for DIF on the power items of the ASVAB.

The results of this study indicate that ASVAB Forms 15, 16, and 17 power subtest items are relatively free of DIF. The General Science subtest tended to have the most DIF items, but the number of DIF items never exceeded three on any of the four versions of General Science subtest. DIF items tended to occur more often with the gender comparisons, although the occurrence of gender-related DIF on the Auto-Shop, Mechanical Comprehension, and Electronics Information subtests was minimal.

The results indicated that all five indices were consistent for sample sizes of 500, 1,000, and 2,000. The intercorrelation between the Mantel-Haenszel Chi-Square and Odds Ratio, and Camilli's Full Chi-Square was dramatically reduced in the N = 100 sample size. The results indicated that the Mantel-Haenszel Odds ratio should probably not be used with sample sizes of 100 cases or less.

PREFACE

This research and development effort was conducted under Contract No. F41689-87-D-0012, Task 12, Differential Item Functioning on ASVAB Forms 15, 16, and 17.

The authors wish to express their thanks and appreciation to Lynn Trent, whose patient and often heroic efforts in keeping track of over 11,000 data files and associated analytic runs made this project possible; and to Susan Kucinkas, whose editing of the text made the paper possible.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Table Page

THE ARMED SERVICES VOCATIONAL APTITUDE BATTERY (ASVAB): ANALYSES OF DIFFERENTIAL ITEM FUNCTIONING ON FORMS 15, 16, AND 17

I. INTRODUCTION

The investigation of test items that function differently for subgroups in the population is a central concern for test developers. The term Differential Item Functioning (DIF) is used instead of the more traditional term of item bias which has emotional as well as technical connotations. Holland and Thayer (1986) have proposed the use of the term Differential Item Functioning to avoid ambiguity and confusion of definition.

The consequences of differentially functioning items are dependent on the number of differentially functioning items, the subgroups affected, the nature of the test (the type of test: personality test, aptitude test, or achievement test, etc.), the characteristics of the test (the reliability and validity of the test instrument), and the uses of the test. Division 14 of the American Psychological Association (APA) (Society for Industrial and Organizational Psychology) in the Principles for the Use of Personnel Selection Tests (1987) states that a primary concern is that aptitude tests used for selection and classification be validated for meaningful, relevant criteria. Stated another way, performance on the test should be directly related to some relevant criterion (SIOP, 1987).

A frequently used and relevant criterion for the Armed Services Vocational Aptitude Battery (ASVAB) is success in military technical training. As part of the validation process, predictors and criteria are examined periodically for subgroup bias in the military personnel enlisted selection and classification testing systems. This type of analysis of test bias or test equity takes place at the test score-level when examining a test or testing system. More recent examination of test bias in the literature has focused on the DIF of the test item. The Standards for Educational and Psychological Testing (APA, 1985) stresses examination of bias at the item level in Standard 3.5:

> When selecting the type and content of items for tests and inventories, test developers should consider the content and type in relation to cultural backgrounds and prior experiences of the variety of ethnic, cultural, age and gender groups represented in the intended population of test takers. (p. 26)

Removing items with DIF is also desirable for purely psychometric reasons. Minimizing or eliminating DIF may be viewed as a way of maximizing the content and construct validity of an aptitude battery. By identifying and avoiding item content that consistently functions differentially in ethnic and gender subgroups, one minimizes error variance in test scores--variance attributable to the measurement of irrelevant constructs. Minimizing or balancing DIF within a given test will necessarily minimize any score-level difference, thus improving the apparent fairness of the test itself. While the elimination of DIF is useful to test developers, the construction of tests designed for minimal DIF benefits everyone, including test users and test takers.

In recent years the study of DIF has resulted in a proliferation of DIF indices. Most are an extension of item-analytic procedures that examine the item-level performance of groups with their total test score performance held constant across groups. Berk (1982) provides an excellent summary and handbook of a broad variety of test and item bias detection procedures. DIF indices can be divided into three broad categories: (a) those based on traditional item-analytic statistics, (b) those based on the conditional item-to-total test score relationship and (c) those based on Item Response Theory (IRT).

Among the traditional indices are the Camilli's Full Chi-Square Index (Camilli, 1979; Ironson, 1982), and the Chi-Square Correct (Scheuneman, 1979). Those based on the conditional relationship of the item-to-the-total test score are similar to the traditional indices in that they are based on 2 x 2 contingency tables and include the Mantel-Haenszel Chi-Square and the Mantel-Haenszel Odds Ratio (Holland & Thayer, 1986). Examples of DIF indices based on IRT are Lord's Chi-Square (Lord, 1980) and the Modified Sum of Squares (Linn, Levine, Hastings, & Wardrop, 1981; Shepard, Camilli, & Williams, 1984). These two indices, while sharing the distinction of being IRT-based, are very different in nature. The Modified Sum of Squares represents the distance between reference and comparison, or focal groups, on an item characteristic curve at observed theta (ability) levels. There are no generally accepted tests of statistical significance for the Modified Sum of Squares measure of DIF. In contrast, the Lord's Chi-Square employs a test of significance for comparing the IRT item parameters across ethnic or gender groups (Lord, 1980).

There have been a number of studies that compare the different types of DIF indices (Hills, 1989; Linn et al., 1981; Shepard et al., 1984), but only one study compared DIF indices calculated for items on the ASVAB (Linn, Hastings, Hu, & Ryan, 1988). Linn et al. (1988) compared 27 different indices of DIF in a study of ASVAB Form 14 items. Their results indicated that 2 of the 27 indices, the Mantel-Haenszel Odds Ratio and the Modified Sum of Squares, provided the most stable indexes of differential item functioning in their study. The consistency of results provided by the Mantel-Haenszel Odds Ratio and the

Modified Sum of Squares was in relative contrast to other indices which showed high variability in the degree to which they indicated high or low differential item functioning in the subgroups they investigated. There was no indication from the Linn et al. (1988) results as to the effect of sample size, except the mention of the power of the Chi-Square indices to detect small and practically minor differences in item functioning with the large sample sizes they had available.

Prior to Linn et al. (1988), a number of studies examined the equity of the ASVAB at the item-level, but none used any of the more common DIF indices currently in favor among item-bias researchers. These studies were all done on ASVAB 8a using the data set from the Profile of American Youth Study (DoD, 1982). The Profile of American Youth Study involved the administration of the ASVAB 8ax (an experimental version of ASVAB 8a) to a stratified random probability sample of American youth, males and females, 16 to 23 years old. Reports by Bock and Moore (1984), Bock and Mislevy (1981), and Mislevy and Bock (1981) indicate that the ASVAB 8a was relatively free from item-level bias, and that test item cultural bias (for ethnic and gender subgroups) in ASVAB 8a was not apparent (Bock & Mislevy, 1981). All these authors used IRT analyses of the test-item thresholds with broad, categorical ability groups.

The subject of item-level bias in the ASVAB was discussed by Bock, Gibbons, and Muraki (1985). These researchers performed a full-information factor analysis on a 10% random sample of the ASVAB 8a Profile of American Youth data set. They report some item-by-gender interaction in the General Science (GS) subtest. Results from their study which have particular relevance to the present study are that five of the eight ASVAB power subtests (GS, AR, WK, AS, and MK) contain at least two identifiable factors. Multidimensionality of a cognitive test probably has more of an adverse impact on indices based on IRT theory than those based on the more traditional statistics. However, violations of the assumption of homogeneity (which underlies the Chi-Square tests for DIF) may obscure DIF where it exists, or conversely, may falsely flag items as exhibiting DIF for certain subgroups.

A recurring issue in the DIF literature pertains to sample size. Shepard, Camilli, and Williams (1985) reviewed the literature on a number of DIF indices and recommended DIF indices for use with small sample sizes for ethnic or gender subgroups. When comparison subgroup sample size is not a problem ($N > 1,000$), Shepard et al. (1985) recommend IRT approaches, and in particular Lord's Chi-Square and the Modified Sum of Squares indices. The full Chi-Square and the "Z-score" or pseudo IRT method proposed by Camilli (1979) and by Linn and Harnisch (1981) were recommended as good approximations to the IRT approaches when sample sizes are less than 300.

Ironson (1982) has recommended that any index of DIF control for the ability of the groups in question. The implication is that any DIF index should examine for differential item functioning at the same level of ability for both comparison groups. Both the Camilli's Full Chi-Square and the Mantel-Haenszel Chi-Square contain this feature and include analysis of subgroup correct and incorrect responses at fixed or specified score-levels. Thus, the assumption underlying both of these procedures is that the overall test-score is valid, since it is used as an estimate of ability. These procedures also assume that the test as a whole is reliable and univocal.

There were two purposes for the current study of DIF in the ASVAB. The first purpose was to examine the ASVAB Forms 15, 16, and 17 to determine the nature and extent of DIF on those forms. Second, the study compared the effect of sample size on the magnitude of the five indices for ASVAB Forms 15, 16, and 17 power subtests.

Five indices were chosen as analytic measures of DIF. Three indices based on traditional item-analytic procedures and conditional relationships with the item-total test score: Camilli's Full Chi-Square (FCHI), the Mantel-Haenszel Chi-Square (MHCHI), and the Mantel-Haenszel Odds Ratio (MHODDS) and its transformed values to the Educational Testing Service Delta difference. The remaining two indices are based on IRT statistics: the Lord's Chi-Square (LCHI) and the Modified Sum of Squares (MSOS).

II. METHOD

Subjects

The data for this study come from the Initial Operational Test and Evaluation (IOT & E) of ASVAB Forms 15, 16, and 17. These forms of the ASVAB were administered nationally to a sample of 99,657 applicants to the Armed Forces between November 1987 and January 1988. These data were edited by the Air Force Human Resources Laboratory using procedures described elsewhere (Ree, Welsh, Earles, & Curran, in press). After initial editing 98,259 cases remained. From this data set, additional cases were culled because of a printing error identified for one item in Form 15b. This error was not corrected until several days after the beginning of the IOT&E study; consequently the test scores from the first 3 days of testing on Form 15b were deleted. The final data set contained 96,700 cases.

Table 1 shows the distributions and percentages of cases by each of seven ASVAB Forms (15a, 15b, 15c, 16a, 16b, 17a, 17b) for gender and ethnic groups. Form 15c was the redesignated anchor or reference test, and was identical to Form 8a. The lower number of cases for Form 15b evident in Table 1 was the result of the selective editing for the printing error. Despite the selective editing, the overall percentages by groups by form remains extremely close to the percentages obtained in the pre-editing administration. The lowest number of total cases was approximately 13,000 for Forms 15a and 17b, the largest was approximately 15,000 for Form 15a. Ethnic and gender groups were formed on the basis of self-report on the standard, operational ASVAB answer sheet.

Measures

The ASVAB is a multiple-aptitude, group-administered, paper and pencil test battery given to applicants for the U.S. Armed Services to determine aptitude qualifications. The ASVAB is used both to select and to classify qualified applicants. The battery is administered throughout the continental United States and overseas at Military Enlistment Processing Stations and their associated satellite testing sites. The operational forms of the ASVAB are periodically replaced in order to minimize exposure, reduce compromise, and update test items. The six operational forms of the ASVAB are replaced about every 4 years.

Table 1. Distribution and Percentage of Cases by ASVAB Form: IOT&E Data by Gender and Ethnicity

	Form Number							
	15a	15b	15c(8a)	16a	16b	17a	17b	Total
Gender								
Males	12,536 (84)	10,960 (84)	11,957 (84)	11,934 (84)	11,609 (84)	11,425 (84)	10,950 (84)	81,376
Females	2,397 (63)	2,034 (16)	2,221 (16)	2,331 (16)	2,186 (16)	2,123 (16)	2,032 (16)	15,324
Total*	14,933	12,994	14,178	14,265	13,795	13,548	12,982	96,700
Ethnicity								
White	9,427 (63)	8,107 (62)	8,982 (63)	8,936 (63)	8,618 (62)	8,395 (62)	8,082 (62)	60,547
Black	3,770 (25)	3,285 (25)	3,589 (25)	3,705 (26)	3,542 (26)	3,535 (26)	3,381 (26)	24,807
Hispanic	1,191 (8)	1,134 (9)	1,095 (8)	1,100 (8)	1,106 (8)	1,115 (8)	1,012 (8)	7,753
Total*	14,388	12,526	13,666	13,741	13,266	13,045	12,475	93,107

*Percentages do not add to 100% because other identified ethnic groups that also took ASVAB Forms 15, 16, and 17 were not included.

The ASVAB has 10 tests; eight are power tests of cognitive ability and two are speeded tests. A set of six ASVABs is divided into three numerically designated forms (i.e., Form 15, Form 16, and Form 17) and for each form, two versions are designated "a" or "b" (i.e., version 15a, 15b, 16a, 16b, 17a, and 17b). For ASVAB Forms 15, 16, and 17, there are four subtests that are unique to each version. These subtests are Word Knowledge (WK), Arithmetic Reasoning (AR), Paragraph Comprehension (PC), and Numerical Operations (NO--a speeded subtest). These subtests comprised the Armed Forces Qualification Test (AFQT) prior to January 1989. These four unique subtests contain no items in common with any of the other forms or versions and are referred to as the "head" of a version of the ASVAB. The other six tests form what is referred to as the "tail" of the battery and contain

scrambled order, identical to those in its sister version. Within a form, versions "a" and "b" have six subtests in common--one speeded subtest (Coding Speed, CS) and five power tests (General Science, GS; Auto & Shop Information, AS; Mechanical Comprehension, MC; Mathematics Knowledge, MK; and Electronics Information, EI). Table 2 provides a description of the ASVAB subtest content, length and time limits, as well as the subtests' commonly used abbreviations.

Table 2. Content of ASVAB Forms 8 Through 17

Subtest (ASVAB order)	Description	Number of items	Test time (mins)
General Science (GS)	Knowledge of the physical and biological sciences	25	11
Arithmetic Reasoning (AR)	Word problems emphasizing mathematical reasoning rather than mathematical knowledge	30	36
Word Knowledge (WK)	Understanding the meaning of words, i.e. vocabulary	35	11
Paragraph Comprehension (PC)	Presentation of short paragraphs followed by one or more multiple choice items	15	13
Numerical Operations (NO)	A speeded test of four arithmetic operations, i.e. addition, subtraction, multiplication and division	50	3
Coding Speed (CS)	A speeded test of matching words and four digit numbers	84	7
Auto & Shop Information (AS)	Knowledge of auto mechanics, shop practices and tool functions in verbal and pictorial items	25	11
Mathematics Knowledge (MK)	Knowledge of algebra, geometry, and fractions	25	24
Mechanical Comprehension (MC)	Understanding mechanical principles such as gears, levers, pulleys and hydraulics in verbal and pictorial items	25	19
Electronics Information (EI)	Knowledge of electronics and radio principles in verbal and pictorial items	20	9
Total		334	144

This study of DIF for ASVAB Forms 15, 16, and 17 was restricted to an examination of only the items on the eight power subtests of the ASVAB -- a total of 200 items per form. Of these 200 items, 80 items per form are unique. The remaining 120 power-test items are common between sister versions. For the purposes of this study, each of the 200 power subtest items on a given form was analyzed separately with each of the five DIF indices mentioned.

Analytic Procedure

Description of DIF Indices

There were five DIF indices identified from previous research that were used to investigate whether items on the eight power subtests of ASVAB Forms 15, 16, or 17 function differentially for gender or ethnic groups after controlling for ability. Three of these, as discussed above, are based on traditional item-analytic approaches, and have been shown to be fairly consistent in indicating DIF (Linn et al., 1988). Two other indices based on IRT statistics were also used in this study. Values of each of the five indices for each power subtest item were computed for each of four randomly drawn samples (described below) of different size.

The Mantel-Haenszel Chi-Square (MHCHI). This Chi-Square-like index was proposed by Holland and Thayer (1986). It is similar to the Camilli's Full Chi-Square as it is based on traditional right-wrong scoring and uses a 2 x 2 contingency table that breaks the right-wrong frequency for a given item by focal or reference group. The difference between this procedure and the computation of the Camilli's Full Chi-Square is that the Mantel-Haenszel Chi-Square statistic is computed at each observed total score level and summed across observed score levels. The Camilli's Full Chi-Square is computed at a priori score levels. Thus the Mantel-Haenszel Chi-Square is based on differences between the observed frequency of right-wrong answers and the expected frequency of those responses for individuals in either the focal or reference group that obtained a given total score on the test. The Mantel-Haenszel Chi-Square has one degree of freedom. Figure 1 illustrates the computational definition of the Mantel-Haenszel Chi-Square based on the 2 x 2 contingency table.

Score on the i^{th} item

	1	0	Total
Reference	A_j	B_j	N_{rj}
Focal	C_j	D_j	N_{fj}
Total	M_{lj}	M_{oj}	T_j

Figure 1. Mantel-Haenszel 2 X 2 Contingency Table.

Mantel-Haenszel

$$X^2 = \frac{\{\Sigma A_j - E(A_j) - .5\}^2}{\Sigma var(Aj)} \quad (1)$$

Where:

$$E(A_j) = \frac{N_{rj} M_{lj}}{T_j}$$

and

$$var\ (A_j) = \frac{N_{rj} N_{fj} M_{lj} M_{oj}}{(T_j)^2(Tj-1)}$$

The Mantel-Haenszel Odds Ratio (MHODDS). The Mantel-Haenszel Odds Ratio is defined by the following equation, again based on the contingency table shown in Figure 1:

$$\text{Mantel-Haenszel Odds Ratio} = \frac{\Sigma A_j D_j / T_j}{\Sigma B_j C_j / T_j} \qquad (2)$$

The Mantel-Haenszel Odds Ratio can range from zero to infinity. A value of 1.0 indicates identical functioning in focal and reference groups. Mantel-Haenszel Odds Ratio values less than one indicate that the item was relatively easier for the focal group, and values greater than one indicate the opposite -- the item was easier for the reference group. The Mantel-Haenszel Odds Ratio was transformed to a Delta difference score by the transformation shown in equation formula (3) in order to determine the extent of practical (as opposed to statistical) significance:

$$\text{Delta difference} = (-2.35)\ \ln(\text{MHODDS}) \qquad (3)$$

Values of MHODDS greater than 1.5304 and less than .6534 correspond to a Delta difference of 1, indicating a practical difference in item functioning between reference and focal groups.

Camilli's Full Chi-Square (FCHI). This Chi-Square procedure first proposed by Camilli (1979) was used to examine the data using five score intervals. The Chi-Square values that resulted from the observed and expected frequencies of right-wrong responses for the focal and the reference groups were summed across five total raw-score intervals or score groups. No attempt was made to alter the number of score groups in order to obtain minimum recommended expected frequencies in each of the score groups. The recommendation of Ironson (1982) was followed in establishing the minimum expected frequencies at five cases in each of the score groups for focal and reference groups. If the minimum number of five expected cases was not available in the random samples drawn from the total data set, the value of the full Chi-Square was not computed for that item.

The Modified Sum of Squares (MSOS). This DIF index is based on an adaptation of an IRT-based index first proposed by Linn et al. (1981) who used a priori levels of ability to calculate sum of the squared distances (deviations) between two item characteristic curves (ICCs). The deviations encompassed the ICC of an item for the reference and one for the focal group. Shepard et al. (1984) have suggested a modification to the original sum of squared distances index proposed by Linn et al. (1981). Their modification termed the modified sum of squares, calculates the distances between the ICC's at each observed (as opposed to a priori) theta value in the sample.

Lord's Chi-Square (LCHI). This Chi-Square statistic is based on the IRT three-parameter logistic model and provides a simultaneous test for the between-group differences in a and b parameters. First, a, b, and c parameter estimates were obtained for the total group using LOGIST5 (Wingersky, Barton, & Lord, 1982). The purpose of the first LOGIST run was to obtain c-parameter estimates that provide the fixed c's in subsequent LOGIST runs. The a and b parameters were then estimated separately for each group (the focal group or the reference group) using the c's from the initial run with the combined (focal and reference group) data.

The a and b parameter estimates in the focal group were then equated to have the same mean and variance as those of the reference group. This was accomplished using the procedure recommended by Linn, Levine, Hastings, and Wardrop (1980) and Shepard et al. (1984). Two scaling constants, A and B, were computed such that the means and variances of the focal group were equal to the means and variances of the reference group. The Lord's Chi-Square significance test was then computed to test the significance of any differences between the a's and b's for the focal and reference groups.

After calculation of all five indices of DIF, distributional statistics of the indices for all possible pairwise comparisons for the five groups were examined. Pearson Product-Moment correlations of each of the DIF indices with each of the other indices were calculated to obtain a measure of their similarity. The next stage of the analysis involved examination of the obtained values of the five indices for the four comparison groups across four levels of sample size (two sample sizes for the IRT indices) in order to compare the effect of sample size on the indices.

Effects of Sample Size

To examine the effects of sample size on the five DIF indices, random samples of four sizes were drawn from the data (N = 96,700). Random sample sizes of 100, 500, 1,000, and 2,000 were drawn for the traditional indices and five DIF indices for each power item in all of the seven forms were calculated for each of four comparison groups. Only two random sample sizes of 1,000 and 2,000 were drawn for the IRT-based Indices. Sample sizes less than 1,000 would have produced unstable IRT parameter estimates. Additional samples of 100, 500, 1,000, and 2,000 Whites were drawn in order to establish a baseline comparison group for each of the four sample sizes for the traditional indices. This baseline was used to establish the number of items expected to be detected by chance for each of the five indices, for each power item, on all seven forms of the ASVAB. The use of a baseline comparison group has been used most often for indices without a test of statistical significance in order to compare the magnitude of results. The baseline was used in this study to compare the magnitude and consistency of all five indices.

III. RESULTS

Descriptive Statistics

Total sample raw score descriptive statistics and KR-20 reliability estimates are shown in Table 3 by ASVAB Form number and subtest. The total sample of cases appears reasonably distributed across forms, and examination of the raw subtest means indicates that systematic sampling bias probably did not exist in the ASVAB IOT&E.

The raw subtest score descriptive statistics for the gender and ethnic groups are shown in Appendix A. These statistics include the KR-20 reliability estimates for the total sample of males and females, as well as Whites, Blacks, and Hispanics. Inspection of the KR-20 reliability estimates reveals that the values for reference group Whites and males are higher than Hispanics and Blacks and females, but not appreciably so. The same raw-score descriptive statistics for the random groups are included in Appendix B.

The raw score descriptive statistics for the subtests of all seven forms of the ASVAB by gender and ethnic groups for each of the randomly drawn samples in Appendix B indicate that the four random samples are reasonable subsamples of the parent sample from which they were drawn. None of the random subsamples appear to show anything more than sampling variance for the descriptive statistics computed.

Table 3. Descriptive Statistics of Subtest Raw Score Data for Total Sample by Form

Subtest	Mean	Standard Deviation	Median	Skew	Kurtosis	Min	Max	KR-20	N
				Form 15a					
GS	16.101	4.481	16.109	-0.103	-0.697	2	25	0.79068	14933
AR	17.984	6.243	17.464	+0.133	-0.883	2	30	0.86596	14933
WK	25.832	6.646	27.126	-0.730	-0.178	2	35	0.89175	14933
PC	11.926	2.719	12.632	-1.074	+0.733	0	15	0.74507	14933
AS	14.718	5.234	14.598	+0.012	-0.941	0	25	0.83353	14933
MK	13.785	5.504	13.119	+0.253	-0.869	0	25	0.85028	14933
MC	15.336	4.774	15.456	-0.160	-0.659	0	25	0.79350	14933
EI	11.550	3.568	11.328	+0.170	-0.465	0	20	0.70600	14933
				Form 15b					
GS	16.166	4.538	16.173	-0.126	-0.673	0	25	0.79588	12994
AR	18.082	6.294	17.759	+0.076	-0.966	0	30	0.87245	12994
WK	25.956	6.083	26.769	-0.561	-0.328	5	35	0.87054	12994
PC	11.799	2.775	12.481	-1.024	+0.587	0	15	0.75187	12994
AS	14.522	5.234	14.419	+0.035	-0.919	0	25	0.83156	12994
MK	13.618	5.537	12.976	+0.260	-0.871	0	25	0.85197	12994
MC	15.243	4.768	15.407	-0.152	-0.671	0	25	0.79182	12994
EI	11.594	3.609	11.383	+0.150	-0.502	0	20	0.71383	12994
				Form 15c					
GS	15.815	4.448	15.810	-0.057	-0.589	0	25	0.78443	14178
AR	17.547	6.432	17.056	+0.164	-0.907	2	30	0.87564	14178
WK	26.474	5.865	27.296	-0.717	+0.107	0	35	0.86635	14178
PC	11.106	2.740	11.633	-0.837	+0.294	0	15	0.69085	14178
AS	14.921	5.121	14.840	-0.013	-0.391	0	25	0.82300	14178
MK	13.465	5.620	12.600	+0.310	-0.883	0	25	0.85799	14178
MC	14.743	5.058	14.641	+0.014	-0.900	0	25	0.81423	14178
EI	11.536	3.811	11.581	-0.083	-0.634	0	20	0.74684	14178
				Form 16a					
GS	15.925	4.776	16.076	-0.154	-0.748	2	25	0.82019	14265
AR	18.143	6.001	18.032	+0.035	-0.758	1	30	0.85453	14265
WK	26.176	5.963	27.150	-0.650	-0.165	2	35	0.87034	14265
PC	11.885	2.881	12.666	-1.113	+0.769	0	15	0.77389	14265
AS	14.228	5.962	14.116	-0.004	-1.068	0	25	0.87343	14265
MK	13.555	5.687	12.635	+0.339	-0.896	0	25	0.85893	14265
MC	15.554	4.730	15.768	-0.206	-0.674	0	25	0.78540	14265
EI	11.955	3.911	11.896	-0.021	-0.622	0	20	0.75650	14265

Table 3. (Concluded)

Subtest	Mean	Standard Deviation	Median	Skew	Kurtosis	Min	Max	KR-20	N
				Form 16b					
GS	15.965	4.802	16.144	-0.168	-0.739	2	25	0.82297	13795
AR	17.945	6.447	17.606	+0.094	-0.943	0	30	0.87654	13795
WK	26.469	5.777	27.136	-0.631	+0.004	2	35	0.86895	13795
PC	11.667	2.708	12.169	-0.862	+0.329	0	15	0.72144	13795
AS	14.267	5.949	14.142	-0.007	-1.051	0	25	0.87330	13795
MK	13.627	5.694	12.799	+0.311	-0.918	0	25	0.85980	13795
MC	15.543	4.709	15.788	-0.204	-0.713	0	25	0.78345	13795
EI	12.010	3.955	11.984	-0.039	-0.657	0	20	0.76326	13795
				Form 17a					
GS	15.904	4.551	16.082	-0.201	-0.595	1	25	0.79004	13548
AR	17.866	6.633	17.567	+0.074	-0.967	2	30	0.88344	13548
WK	26.091	6.473	26.977	-0.621	-0.245	1	35	0.88809	13548
PC	11.696	2.829	12.368	-0.996	+0.533	0	15	0.74926	13548
AS	14.944	5.478	14.614	+0.051	-0.959	0	25	0.85051	13548
MK	13.861	5.351	13.136	+0.297	-0.762	0	25	0.84454	13548
MC	15.540	4.518	15.652	-0.161	-0.551	0	25	0.77365	13548
EI	11.844	3.961	11.702	+0.044	-0.668	0	20	0.76833	13548
				Form 17b					
GS	15.925	4.568	16.099	-0.196	-0.621	0	25	0.79207	12987
AR	17.718	6.360	17.667	+0.020	-0.905	1	30	0.87299	12987
WK	26.289	6.199	27.324	-0.622	-0.286	2	35	0.88149	12987
PC	11.655	2.622	12.145	-0.914	+0.574	0	15	0.71882	12987
AS	14.837	5.489	14.555	+0.069	-0.965	0	25	0.84910	12987
MK	13.650	5.316	12.961	+0.289	-0.744	0	25	0.84034	12987
MC	15.566	4.481	15.661	-0.159	-0.522	0	25	0.76980	12987
EI	11.641	3.972	11.415	+0.096	-0.563	0	20	0.76810	12987

The subtest intercorrelations for the total sample for ASVAB 15c (8a) are shown in the upper diagonal of Table 4, while the same subtest intercorrelations for the Profile of American Youth sample on ASVAB 8a are displayed in the lower diagonal. Tables 5, 6, and 7 contain the same arrangement of intercorrelations for ASVAB 15c and the Profile of American Youth sample subtest intercorrelations for the total gender and ethnic groups.

Table 4. ASVAB Power Subtest Intercorrelations for Total Sample on Forms 15c (8a) (Upper Triangle)[a] and For Profile of American Youth Sample (Lower Triangle)[b]

	ASVAB Power Subtests							
	GS	AR	WK	PC	AS	MK	MC	EI
GS	1.00	.63	.74	.60	.61	.54	.66	.71
AR	.72	1.00	.60	.59	.48	.74	.62	.56
WK	.80	.71	1.00	.69	.51	.52	.56	.64
PC	.69	.67	.80	1.00	.41	.53	.49	.51
AS	.64	.53	.52	.42	1.00	.28	.69	.68
MK	.69	.83	.67	.64	.41	1.00	.49	.44
MC	.70	.68	.59	.52	.74	.60	1.00	.68
EI	.76	.66	.68	.57	.75	.58	.74	1.00

[a]Based on total N = 14,178.
[b]Based on total N = 9,173 weighted to be representative of the American youth population, ages 18-23.

Table 5. ASVAB Power Subtest Intercorrelations for Total Sample Males on Forms 15c (8a) (Lower Triangle)[a] and Females (Upper Triangle)[b]

	ASVAB Power Subtests							
	GS	AR	WK	PC	AS	MK	MC	EI
GS	1.00	.58	.70	.55	.57	.50	.57	.60
AR	.63	1.00	.56	.54	.45	.68	.56	.50
WK	.76	.61	1.00	.67	.53	.49	.52	.60
PC	.62	.61	.70	1.00	.40	.48	.43	.47
AS	.60	.48	.54	.46	1.00	.30	.53	.54
MK	.56	.76	.53	.54	.31	1.00	.48	.42
MC	.66	.62	.58	.53	.67	.52	1.00	.52
EI	.72	.57	.67	.56	.66	.47	.67	1.00

[a]Based on total sample males N = 11,957.
[b]Based on total sample females N = 2,221.

Table 6. ASVAB Power Subtest Intercorrelations on Forms 15c (8a) for Total Whites (Lower Triangle)[a] and Total Blacks (Upper Triangle)[b]

	ASVAB Power Subtests							
	GS	AR	WK	PC	AS	MK	MC	EI
GS	1.00	.46	.66	.50	.43	.43	.48	.57
AR	.60	1.00	.46	.50	.28	.65	.42	.37
WK	.71	.58	1.00	.64	.38	.43	.39	.53
PC	.54	.57	.66	1.00	.27	.47	.32	.40
AS	.51	.38	.40	.30	1.00	.16	.49	.52
MK	.53	.75	.52	.52	.20	1.00	.33	.30
MC	.60	.57	.50	.44	.62	.47	1.00	.50
EI	.67	.51	.59	.45	.62	.41	.63	1.00

[a]Based on total sample Whites N = 8,982.
[b]Based on total sample Blacks N = 3,589.

Table 7. ASVAB Power Subtest Intercorrelations on Forms 15c (8a) for Total Whites (Lower Triangle)[a] and Total Hispanics (Upper Triangle)[b]

	ASVAB Power Subtests							
	GS	AR	WK	PC	AS	MK	MC	EI
GS	1.00	.50	.68	.57	.55	.44	.57	.61
AR	.60	1.00	.48	.52	.35	.69	.48	.43
WK	.71	.58	1.00	.65	.47	.43	.47	.54
PC	.54	.57	.66	1.00	.39	.48	.43	.45
AS	.51	.38	.40	.30	1.00	.20	.61	.58
MK	.53	.75	.52	.52	.20	1.00	.43	.38
MC	.60	.57	.50	.44	.62	.47	1.00	.60
EI	.67	.51	.59	.45	.62	.41	.63	1.00

[a]Based on total sample Whites N = 8,982.
[b]Based on total sample Hispanics N = 1,095.

The pattern of intercorrelations among the power subtests showed no surprises. The order of magnitude of the intercorrelations, as well as the pattern of the relationships among the subtests, is about the same, and shows a similar pattern in relation to the Profile of American Youth data. There are some exceptions. The correlations among MK and MC and EI are somewhat lower in the sample of applicants used in this study and those subjects in the Youth Aptitude Profile study.

The pattern of intercorrelations between the reference groups in this study (Whites and males) and the focal groups indicated some differences between the focal and reference groups. The male intercorrelations are higher than those of the total female sample. The White intercorrelations are higher and more variable than those of the Blacks and Hispanics, as would be generally expected given the subgroup means and standard deviations shown in the total subgroup descriptive statistics in Appendix A.

Differential Item Functioning

Table 8 shows the means and standard deviations of the five DIF indices for each of the four comparison groups (White-White, White-Black, White-Hispanic, and Male-Female) for ASVAB Form 15a. The means and standard deviations of the indices for the other forms are listed in Appendix C. These descriptive statistics of the five indices are shown for each of the four sample sizes.

Table 8 indicates that the indices are quite variable across sample size and comparison groups. The means and standard deviations of the indices are quite small in the White-White baseline group, relative to the corresponding values in any of the three comparison groups. There are values missing for the two IRT-based indices for PC subtest on Form 15a. The LOGIST5 program could not estimate the a and b parameters for this short (15 item) subtest in the 2,000 case random sample since a large number of subjects in that sample obtained a maximum score on the subtest. For that sample and that subtest, the LCHI and MSOS could not be calculated since both indices require the a and b parameter estimates. Some of the values for the FCHI (FCHI = FCHI5 for five score intervals) also could not be calculated. This was due to a failure to obtain the minimum expected frequency of either correct or incorrect response of five cases for either the focal or reference group (Ironson, 1982) in the

Table 8. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 15a

Subtest/ Index	Random Sample Size N=2,000		N=1,000		N=500		N=100	
White vs White								
GS								
FCHI5	3.529	(1.878)	4.299	(2.465)	5.045	(3.474)	3.540	(1.759)
MHCHI	.639	(1.096)	.408	(.493)	.570	(.768)	.504	(.816)
MHODDS	1.000	(.067)	1.023	(.108)	.993	(.175)	1.180	(.507)
LCHI	4.646	(4.787)	3.193	(2.789)				
MSOS	4.011	(6.251)	9.073	(9.993)				
AR								
FCHI5	3.904	(2.625)	3.455	(2.534)	4.967	(3.155)	5.708	(3.205)
MHCHI	.610	(1.132)	.593	(.855)	.898	(.982)	.922	(1.034)
MHODDS	.999	(.068)	1.016	(.106)	1.036	(.196)	1.079	(.568)
LCHI	2.057	(1.623)	2.569	(2.966)				
MSOS	3.412	(3.283)	8.439	(8.968)				
WK								
FCHI5	4.342	(2.528)	4.418	(2.757)	4.560	(2.702)	5.433	(3.801)
MHCHI	.683	(.653)	.445	(.513)	.741	(1.747)	.969	(1.292)
MHODDS	1.024	(.115)	1.013	(.144)	1.027	(.226)	1.355	(1.526)
LCHI	3.001	(2.691)	1.635	(1.518)				
MSOS	3.601	(4.107)	53.282	(34.072)				
PC								
FCHI5	3.604	(2.124)	4.358	(2.522)	5.299	(2.605)	*	(*)
MHCHI	.544	(.781)	1.033	(1.419)	.976	(1.680)	.266	(.280)
MHODDS	1.013	(.101)	1.018	(.191)	1.054	(.257)	1.010	(.417)
LCHI	**	(**)	11.910	(10.021)				
MSOS	**	(**)	22.239	(21.678)				
AS								
FCHI5	4.506	(2.524)	3.777	(2.675)	5.629	(3.584)	6.925	(4.073)
MHCHI	.779	(.961)	.843	(.839)	.772	(1.308)	.949	(1.301)
MHODDS	1.010	(.080)	1.004	(.121)	1.013	(.168)	1.126	(.461)
LCHI	10.235	(10.143)	8.420	(13.047)				
MSOS	7.904	(7.613)	9.142	(6.488)				
MK								
FCHI5	3.608	(2.038)	4.237	(3.356)	4.353	(2.152)	4.939	(2.210)
MHCHI	.696	(1.032)	.918	(1.382)	.414	(.558)	1.056	(1.828)
MHODDS	1.003	(.070)	1.005	(.118)	1.004	(.114)	1.350	(1.630)
LCHI	1.468	(1.561)	1.923	(2.915)				
MSOS	2.556	(2.415)	6.710	(9.286)				
MC								
FCHI5	3.694	(2.290)	5.395	(4.428)	4.580	(2.415)	4.542	(3.243)
MHCHI	1.165	(1.640)	1.180	(1.967)	1.067	(1.063)	.679	(1.191)
MHODDS	1.003	(.099)	1.006	(.135)	1.009	(.178)	1.048	(.393)
LCHI	1.982	(2.095)	3.372	(3.524)				
MSOS	2.911	(2.876)	10.758	(10.484)				
EI								
FCHI5	3.837	(2.644)	3.473	(1.632)	5.442	(3.278)	7.046	(.694)
MHCHI	.582	(1.046)	.498	(.619)	.887	(1.552)	.795	(.998)
MHODDS	1.008	(.062)	1.001	(.092)	1.020	(.147)	1.068	(.444)
LCHI	2.193	(1.861)	2.304	(1.713)				
MSOS	4.274	(5.195)	7.052	(5.435)				

Table 8. (Continued)

Subtest/ Index	Random Sample Size N=2,000		N=1,000		N=500		N=100	
Black vs White								
GS								
FCHI5	19.268	(31.957)	12.967	(21.499)	7.799	(10.353)	*	(*)
MHCHI	12.311	(22.528)	6.893	(16.225)	3.060	(7.668)	1.139	(1.837)
MHODDS	1.031	(.373)	1.062	(.426)	1.042	(.420)	1.248	(.740)
LCHI	15.679	(19.290)	8.117	(14.123)				
MSOS	39.755	(66.652)	43.104	(89.587)				
AR								
FCHI5	14.464	(16.443)	8.795	(7.646)	8.920	(6.809)	2.725	(.000)
MHCHI	5.937	(8.034)	3.453	(5.209)	3.166	(3.522)	1.084	(1.100)
MHODDS	1.028	(.240)	1.040	(.258)	1.085	(.363)	1.152	(.675)
LCHI	15.014	(13.294)	7.545	(9.609)				
MSOS	30.744	(24.256)	33.319	(39.455)				
WK								
FCHI5	31.869	(47.651)	17.257	(21.254)	11.626	(12.861)	9.879	(6.488)
MHCHI	21.145	(40.747)	10.406	(19.358)	4.979	(9.617)	1.527	(1.783)
MHODDS	1.128	(.575)	1.121	(.526)	1.063	(.531)	1.064	(.783)
LCHI	26.211	(37.819)	15.760	(24.981)				
MSOS	58.000	(98.927)	330.355	(264.027)				
PC								
FCHI5	15.536	(16.684)	10.095	(9.002)	7.982	(6.652)	*	(*)
MHCHI	9.346	(10.620)	5.216	(6.708)	3.071	(3.271)	.723	(1.029)
MHODDS	1.024	(.338)	1.022	(.340)	1.016	(.363)	1.120	(.607)
LCHI	19.169	(12.837)	11.729	(10.341)				
MSOS	30.385	(22.477)	72.225	(79.780)				
AS								
FCHI5	16.894	(17.171)	10.107	(7.530)	8.753	(8.286)	*	(*)
MHCHI	7.797	(10.863)	4.230	(6.100)	2.080	(2.194)	1.198	(2.011)
MHODDS	1.056	(.308)	1.043	(.278)	1.058	(.319)	1.291	(1.161)
LCHI	18.921	(30.175)	19.518	(25.831)				
MSOS	43.549	(47.794)	55.317	(52.806)				
MK								
FCHI5	17.815	(25.083)	12.851	(12.817)	8.129	(6.407)	5.842	(3.150)
MHCHI	12.059	(21.803)	6.878	(10.266)	3.627	(5.039)	1.814	(2.702)
MHODDS	1.021	(.322)	1.024	(.308)	1.036	(.344)	1.260	(1.016)
LCHI	18.938	(22.997)	12.980	(14.723)				
MSOS	42.957	(51.124)	55.870	(54.940)				
MC								
FCHI5	19.134	(25.726)	8.894	(8.247)	6.519	(3.819)	4.199	(.000)
MHCHI	9.117	(14.081)	3.847	(5.825)	2.028	(3.021)	.906	(1.062)
MHODDS	1.035	(.286)	1.027	(.260)	1.035	(.275)	1.072	(.513)
LCHI	14.178	(18.379)	6.128	(5.741)				
MSOS	34.770	(28.765)	30.576	(25.406)				
EI								
FCHI5	13.394	(9.572)	9.977	(6.396)	7.260	(3.793)	5.177	(2.326)
MHCHI	6.000	(7.017)	4.882	(5.819)	1.975	(1.773)	.581	(.812)
MHODDS	1.028	(.214)	1.039	(.260)	1.044	(.274)	1.103	(.407)
LCHI	16.765	(15.450)	13.998	(9.591)				
MSOS	23.497	(13.382)	40.049	(37.460)				

Table 8. (Continued)

Subtest/ Index	Random Sample Size N=2,000		N=1,000		N=500		N=100	
Hispanic vs White								
GS								
FCHI5	15.390	(26.316)	11.509	(16.798)	8.245	(5.376)	*	(*)
MHCHI	11.222	(21.016)	6.510	(12.257)	3.169	(4.570)	.733	(1.155)
MHODDS	1.065	(.461)	1.112	(.603)	1.091	(.452)	1.307	(1.180)
LCHI	10.916	(15.436)	7.045	(8.635)				
MSOS	35.192	(62.453)	43.530	(72.662)				
AR								
FCHI5	7.757	(5.796)	6.080	(3.600)	7.732	(5.426)	5.960	(2.734)
MHCHI	3.156	(3.710)	2.012	(2.888)	2.178	(3.402)	.891	(1.267)
MHODDS	1.013	(.179)	1.021	(.204)	1.071	(.353)	1.080	(.502)
LCHI	6.910	(6.364)	3.731	(2.867)				
MSOS	18.262	(16.485)	20.265	(17.423)				
WK								
FCHI5	32.853	(59.612)	17.934	(30.147)	11.047	(15.449)	*	(*)
MHCHI	23.237	(50.788)	11.099	(26.198)	4.967	(11.533)	.937	(1.545)
MHODDS	1.328	(1.222)	1.321	(1.322)	1.232	(.986)	1.117	(.843)
LCHI	22.347	(31.148)	11.499	(15.497)				
MSOS	80.385	(150.272)	68.037	(131.369)				
PC								
FCHI5	9.538	(9.610)	7.557	(8.781)	6.273	(6.270)	*	(*)
MHCHI	4.904	(7.007)	4.029	(7.204)	1.256	(1.988)	.880	(1.410)
MHODDS	1.025	(.283)	1.026	(.362)	1.027	(.290)	1.041	(.562)
LCHI	8.999	(6.933)	8.133	(8.311)				
MSOS	22.193	(14.934)	55.548	(64.094)				
AS								
FCHI5	23.779	(24.420)	12.751	(14.295)	10.290	(9.288)	*	(*)
MHCHI	18.014	(22.162)	8.705	(11.719)	5.258	(6.557)	1.650	(2.262)
MHODDS	1.115	(.516)	1.097	(.491)	1.124	(.538)	1.383	(1.102)
LCHI	26.372	(34.196)	18.903	(27.400)				
MSOS	76.377	(73.075)	72.603	(72.802)				
MK								
FCHI5	8.240	(12.951)	6.110	(5.161)	6.434	(4.309)	7.309	(1.443)
MHCHI	4.007	(9.245)	1.678	(2.675)	1.842	(2.226)	1.133	(2.130)
MHODDS	1.003	(.214)	1.000	(.183)	1.029	(.261)	1.305	(1.535)
LCHI	6.516	(9.993)	3.384	(3.543)				
MSOS	16.837	(30.055)	19.573	(20.213)				
MC								
FCHI5	11.155	(9.999)	8.474	(6.648)	5.692	(4.367)	.878	(.000)
MHCHI	4.314	(4.884)	2.371	(3.301)	1.797	(2.155)	.481	(.881)
MHODDS	1.011	(.201)	1.009	(.210)	1.024	(.257)	1.049	(.385)
LCHI	10.141	(8.774)	6.703	(5.593)				
MSOS	27.769	(23.071)	36.263	(31.721)				
EI								
FCHI5	8.718	(5.737)	6.965	(3.861)	6.979	(4.043)	5.134	(.000)
MHCHI	3.229	(4.092)	1.525	(1.830)	1.475	(1.368)	1.236	(1.879)
MHODDS	1.021	(.179)	1.018	(.183)	1.038	(.278)	1.169	(.603)
LCHI	15.344	(11.216)	9.347	(6.545)				
MSOS	18.927	(15.327)	27.132	(29.934)				

Table 8. (Concluded)

Subtest/ Index	Random Sample Size							
	N=2,000		N=1,000		N=500		N=100	
Female vs Male								
GS								
FCHI5	50.055	(65.307)	25.226	(29.085)	17.864	(15.381)	7.815	(5.585)
MHCHI	40.840	(56.038)	18.240	(25.362)	10.711	(13.389)	2.020	(3.756)
MHODDS	1.127	(.701)	1.128	(.657)	1.124	(.695)	1.174	(1.015)
LCHI	46.198	(45.573)	21.904	(24.616)				
MSOS	108.722	(130.760)	100.568	(115.988)				
AR								
FCHI5	14.460	(15.088)	9.252	(5.833)	6.718	(4.931)	5.252	(4.100)
MHCHI	9.035	(13.608)	4.142	(5.311)	2.444	(3.508)	.812	(1.010)
MHODDS	1.008	(.244)	1.006	(.250)	1.008	(.287)	1.054	(.432)
LCHI	12.898	(13.871)	6.725	(5.973)				
MSOS	24.378	(23.975)	24.977	(24.927)				
WK								
FCHI5	29.756	(39.543)	19.273	(24.527)	10.916	(11.816)	4.291	(3.020)
MHCHI	25.013	(38.506)	14.465	(22.961)	5.873	(10.817)	1.646	(2.994)
MHODDS	1.094	(.638)	1.111	(.645)	1.100	(.749)	2.126	(6.428)
LCHI	29.644	(41.663)	23.425	(29.815)				
MSOS	75.078	(88.891)	149.502	(152.806)				
PC								
FCHI5	23.753	(22.084)	16.351	(13.551)	10.724	(9.115)	*	(*)
MHCHI	19.058	(21.448)	11.699	(13.554)	7.360	(9.206)	.756	(.756)
MHODDS	1.061	(.480)	1.088	(.549)	1.134	(.690)	1.043	(.510)
LCHI	22.253	(19.655)	15.333	(14.078)				
MSOS	50.925	(60.751)	71.172	(67.874)				
AS								
FCHI5	26.890	(21.678)	16.884	(11.141)	9.749	(7.994)	5.660	(5.419)
MHCHI	14.043	(15.421)	6.532	(5.964)	3.167	(3.331)	1.192	(2.111)
MHODDS	1.051	(.354)	1.052	(.339)	1.048	(.344)	1.114	(.432)
LCHI	41.392	(37.009)	21.047	(21.445)				
MSOS	69.366	(47.277)	139.012	(179.548)				
MK								
FCHI5	15.330	(12.759)	7.939	(4.963)	6.387	(3.272)	5.176	(3.398)
MHCHI	9.054	(11.507)	3.205	(3.226)	2.067	(2.218)	1.119	(1.588)
MHODDS	1.006	(.259)	1.003	(.227)	1.008	(.248)	1.059	(.461)
LCHI	11.174	(11.177)	6.325	(5.242)				
MSOS	23.248	(24.282)	18.989	(20.820)				
MC								
FCHI5	20.112	(22.078)	11.613	(10.107)	7.525	(4.986)	4.791	(.000)
MHCHI	11.221	(16.799)	6.179	(8.836)	3.115	(4.703)	1.444	(2.874)
MHODDS	1.044	(.292)	1.048	(.302)	1.049	(.288)	1.114	(.538)
LCHI	17.904	(17.812)	7.328	(7.755)				
MSOS	34.249	(31.093)	28.014	(25.665)				
EI								
FCHI5	26.684	(28.017)	15.470	(15.694)	11.557	(8.494)	6.921	(5.708)
MHCHI	17.074	(22.793)	8.151	(14.085)	4.605	(6.367)	1.359	(2.109)
MHODDS	1.049	(.366)	1.050	(.362)	1.076	(.422)	1.093	(.478)
LCHI	25.731	(26.146)	13.196	(14.846)				
MSOS	74.171	(68.395)	69.696	(72.639)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation. *Values were not computed since Full Chi-Square was not able to establish five score intervals. **Values were not computed since parameter estimates from LOGIST5 did not converge.

random samples taken from the total data set. This occurred, as one might expect, for the two smallest sizes of 500 and 100. No attempt was made to change the number of score intervals to some lower number (e.g., four), since this would alter the basis of comparison.

For the three comparison groups in Table 8, the means and standard deviations of the Camilli's Full Chi-Square and Mantel-Haenszel indices are seen to increase as a function of sample size. The larger the sample size, the larger the mean Chi-Square and its standard deviation. At first glance this may appear to be counter intuitive, but examination of these Chi–Square indices reveals that this is most likely an artifact of the way the indices are computed. With smaller sample sizes, the occurrence of zeros in the cells of observed correct and incorrect focal and reference group responses is more frequent, hence the occurrence of zero values for the contingency table is greater, and the overall mean lower. As the sample size increases, the absolute values of observed differences increases and thus the mean values of the indices increases.

Table 9 lists the Product-Moment correlations between all the possible pairs of DIF indices by comparison groups for ASVAB Form 15a, for the two largest sample sizes (N = 1,000 and N = 2,000). The correlations for each of the five indices for the subtests of the remaining ASVAB Forms are included in Appendix D. These correlations were calculated in order to determine the consistency among the five indices. Product-Moment correlations were calculated only for the two largest sample sizes, since the two IRT-based indices were computed only for these two sample sizes. Some of the correlations could not be computed as the item parameters for use in the LCHI index could not be estimated with LOGIST5 estimation procedures, as previously discussed.

The correlations in Table 9 indicate that there is not much difference in the strength of relationship among the indices between the two sample sizes in the baseline White-White comparison group for a given subtest. However, there are some differences from subtest to subtest in the baseline comparison group. This difference between subtests in the consistency of the DIF indices for the two largest sample sizes becomes more pronounced as one examines the values for the three comparison groups.

Table 9. Correlations Between DIF Indices on ASVAB Form 15a by Comparison Group and Two Sample Sizes.

	White vs White					Black vs White				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.38	-.00	.46	.51		.97*	.86*	.96*	.97*
MHCHI	.37		.12	.04	.16	.96*		.75*	.98*	.97*
MHODDS	.19	-.29		-.29	-.10	.85*	.69*		.74*	.78*
LCHI	.21	.77*	-.55		.83*	.80*	.90*	.46		.99*
MSOS	.46	.77*	-.06	.79*		.91*	.95*	.61*	.95*	
AR										
FCHI5		.57*	-.14	.67*	.66*		.86*	.74*	.44	.64*
MHCHI	.37		.07	.61*	.73*	.74*		.53	.55*	.68*
MHODDS	-.11	.16		-.20	-.02	.81*	.55*		-.03	.22
LCHI	.35	.58*	-.18		.94*	.06	.29	-.23		.91*
MSOS	.35	.68*	-.15	.93*		.69*	.77*	.51	.59*	
WK										
FCHI5		.24	-.04	.26	.07		.93*	.42	.62*	.61*
MHCHI	.43		.11	.59*	-.22	.93*		.18	.83*	.59*
MHODDS	-.36	-.30		-.39	.07	.55*	.33		-.32	.02
LCHI	.06	.09	.36		-.16	.80*	.93*	.15		.49
MSOS	.46	.28	-.19	.72*		.97*	.97*	.46	.88*	
PC										
FCHI5		.43	.45	.27	.62		.88*	.62	.41	.06
MHCHI	.68		.39	.25	.21	.91*		.30	.57	.16
MHODDS	-.13	.05		.52	.47	.80*	.59		.04	.06
LCHI	xx	xx	xx		.59	.02	.31	-.44		.80*
MSOS	.00	.00	.00	.00		.76*	.82*	.45	.50	
AS										
FCHI5		.49	.21	.29	.31		.81*	.49	.12	.51
MHCHI	.27		.25	.32	.36	.86*		.02	.12	.37
MHODDS	-.17	.29		.17	-.05	.83*	.59*		-.17	.12
LCHI	.18	.03	-.19		.53	-.08	.16	-.29		.47
MSOS	.35	.25	-.20	.82*		.65*	.63*	.38	.41	
MK										
FCHI5		.65*	.29	.49	.51		.89*	.33	.68*	.83*
MHCHI	.54		.35	.85*	.90*	.95*		.05	.75*	.72*
MHODDS	-.16	-.05		.61*	.41	.68*	.47		-.22	.31
LCHI	.48	.63*	.37		.95*	.79*	.84*	.32		.75*
MSOS	.70*	.88*	-.11	.74*		.80*	.74*	.61*	.84*	
MC										
FCHI5		.63*	.07	.57	.70*		.86*	.81*	.73*	.57
MHCHI	.66*		.28	.48	.71*	.82*		.59*	.64*	.64*
MHODDS	.10	.28		-.42	.26	.84*	.58		.64*	.54
LCHI	.63*	.77*	-.14		.70*	.94*	.82*	.76*		.83*
MSOS	.66*	.80*	-.00	.91*		.84*	.88*	.55	.86*	
EI										
FCHI5		.22	-.05	.40	.51		.83*	.04	.53	.37
MHCHI	.36		-.22	.25	.64	.64		-.33	.23	.41
MHODDS	-.43	-.45		-.32	-.34	.54	-.07		.68*	-.40
LCHI	.16	.65*	-.08		.51	.79*	.27	.74*		.18
MSOS	-.08	.39	.29	.68*		.18	.21	-.14	.37	

Table 9. (Concluded)

	Hispanic vs White					Female vs Male				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.97*	.87*	.96*	.84*		.98*	.75*	.89*	.90*
MHCHI	.98*		.81*	.93*	.92*	.98*		.72*	.91*	.92*
MHODDS	.87*	.77*		.80*	.61*	.83*	.78*		.73*	.49
LCHI	.88*	.91*	.61*		.83*	.84*	.91*	.51		.78*
MSOS	.90*	.95*	.61*	.94*		.88*	.89*	.52	.87*	
AR										
FCHI5		.69*	.46	.52	.61*		.88*	.08	.82*	.83*
MHCHI	.68*		.25	.75*	.81*	.97*		.14	.79*	.82*
MHODDS	.67*	.24		.11	.32	-.08	-.21		.11	.27
LCHI	.32	.53	-.03		.91*	.90*	.90*	-.07		.93*
MSOS	.59*	.68*	.38	.86*		.91*	.88*	.09	.94*	
WK										
FCHI5		.97*	.75*	.93*	.97*		.99*	.42	.68*	.70*
MHCHI	.99*		.70*	.96*	.98*	.99*		.40	.72*	.69*
MHODDS	.75*	.72*		.58*	.76*	.55*	.52*		-.25	-.04
LCHI	.93*	.94*	.64*		.95*	.97*	.98*	.39		.52*
MSOS	.97*	.98*	.70*	.96*		.79*	.81*	.63*	.79*	
PC										
FCHI5		.96*	.58	.78*	.10		.97*	-.07	.95*	.63
MHCHI	.95*		.48	.82*	.22	.99*		.07	.97*	.59
MHODDS	.59	.48		.58	.01	-.13	-.10		.15	-.50
LCHI	.61	.74*	-.02		.55	.89*	.90*	.31		.54
MSOS	.62	.65	-.01	.75*		.81*	.80*	-.60	.51	
AS										
FCHI5		.95*	.66*	.11	.94*		.58	.57	.78*	-.09
MHCHI	.96*		.47	.01	.92*	.67*		.14	.63*	-.09
MHODDS	.74*	.56		-.01	.54	.70*	.28		.47	-.09
LCHI	.46	.53	.05		.24	.43	.49	.18		.22
MSOS	.89*	.88*	.55	.68*		.62*	.64*	.20	.53	
MK										
FCHI5		.61*	.69*	.50	.73*		.68*	.40	.40	.54
MHCHI	.98*		.40	.61*	.72*	.95*		.34	.47	.41
MHODDS	.82*	.72*		.25	.52	.13	.19		.08	.55
LCHI	.92*	.92*	.72*		.88*	.82*	.76*	-.03		.75*
MSOS	.96*	.94*	.85*	.95*		.73*	.68*	.45	.81*	
MC										
FCHI5		.55	.52	.37	.52		.85*	.56	.78*	.69*
MHCHI	.79*		.34	.60*	.61*	.88*		.16	.66*	.82*
MHODDS	.66*	.50		-.03	.41	.67*	.30		.42	.03
LCHI	.62*	.74*	.18		.79*	.89*	.82*	.51		.81*
MSOS	.58	.67*	.19	.90*		.68*	.83*	.15	.67*	
EI										
FCHI5		.44	.33	.65	.53		.94*	.47	.75*	.83*
MHCHI	.51		.02	.09	-.08	.90*		.32	.80*	.77*
MHODDS	.49	.02		.59	.03	.66*	.36		-.01	.32
LCHI	.80*	.13	.72*		.60	.37	.61	-.24		.86*
MSOS	.60	.06	.19	.63		.68*	.73*	.05	.73*	

Note. N = 1,000 for values above the diagonal and N = 2,000 for values below the diagonal; * p<.001. 'xx'for correlation entries indicates missing values for Lord's Chi-Square and Modified Sum of Squares. These values were not computed since parameter estimates from LOGIST5 did not converge.

The correlations between DIF indices among the subtests, are more substantial for the White-Black, White-Hispanic, and male-female comparison groups than for the baseline comparison. This may be due to the lack of variance in all the indices in the baseline comparisons. Inspection of Table 8 standard deviations for Form 15a for the baseline group and the comparison group confirm that the variances in the baseline samples was substantially smaller than any of the comparison groups.

The distributions of the Chi-Square indices and the Modified Sums of Squares were divided into low, moderate, high, and extreme values indicated in Tables 10, 11, 12, and 13 respectively. The values and distributions by categories of four indices (not including the MHODDS Ratio) show that few values of any of the indices were in the extreme ranges. This result is consistent with the findings of Linn et al. 1988, for ASVAB Form 14. The overall mean values of the Chi-Square indices tend to be lower in this study than the mean values obtained in Linn et al. (1988).

The Mantel-Haenszel Odds Ratio values were grouped into three categories. Table 14 shows the frequency of MHODDS values below .6534, by subtest, for Forms 15-17 of the ASVAB, indicating the number of items on that subtest showing DIF for MHODDS in favor of the focal group. The number of items on a given subtest with MHODDS ratio values greater than 1.5304 show DIF in favor of the reference group. The number of items with MHODDS values between .6534 and 1.5304 were grouped together as items with no practically significant DIF (Linn et al., 1988). These values correspond to a Delta Difference of 1.0 (Equation 3), and after Linn et al. (1988), and is taken here to indicate a practical difference in item functioning. These values indicate that there is a rough balance in the overall direction of the DIF across subtests.

Effects of Sample Sizes on Indices of DIF

For the Hispanic subgroup, there were not enough cases to draw random samples of 100, 500, 1,000 and 2,000 per form. Instead, random samples of sizes proportional to those values were drawn and used in the comparisons involving Hispanics. Thus, the IRT-based indices for the White-Hispanic comparison group were computed on Hispanic sample sizes of approximately 1/2 the N = 1,000 and N = 2,000 sizes of the White reference group.

Table 10. Distribution of Full Chi-Square Values by Form and Subgroup Across Subtests

Range[a]	White vs White								
	Total	GS	AR	WK	PC	AS	MK	MC	EI
					Form 15a				
Low	196	25	29	34	15	24	25	25	19
Moderate	4	0	1	1	0	1	0	0	1
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 15b				
Low	194	25	29	34	15	24	24	25	18
Moderate	6	0	1	1	0	1	1	0	2
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 15c				
Low	196	24	29	35	15	23	25	25	20
Moderate	4	1	1	0	0	2	0	0	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 16a				
Low	197	24	30	34	15	24	25	25	20
Moderate	3	1	0	1	0	1	0	0	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 16b				
Low	192	25	29	33	15	23	25	22	20
Moderate	7	0	1	1	0	2	0	3	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 17a				
Low	196	25	30	34	15	24	25	24	19
Moderate	4	0	0	1	0	1	0	1	1
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 17b				
Low	198	25	29	35	15	25	24	25	20
Moderate	2	0	1	0	0	0	1	0	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0

Table 10. (Continued)

Range[a]	Female vs Male								
	Total	GS	AR	WK	PC	AS	MK	MC	EI
					Form 15a				
Low	70	2	14	14	7	6	13	9	5
Moderate	123	20	16	19	8	19	12	15	14
High	5	1	0	2	0	0	0	1	1
Extreme	2	2	0	0	0	0	0	0	0
					Form 15b				
Low	81	8	15	15	6	7	11	11	8
Moderate	112	13	15	19	9	18	14	13	11
High	6	3	0	1	0	0	0	1	1
Extreme	1	1	0	0	0	0	0	0	0
					Form 15c				
Low	83	6	13	14	10	8	7	15	10
Moderate	106	11	17	20	5	15	18	10	10
High	9	8	0	0	0	1	0	0	0
Extreme	2	0	0	1	0	1	0	0	0
					Form 16a				
Low	83	13	14	14	8	9	8	9	8
Moderate	111	10	16	20	7	14	17	16	11
High	5	1	0	1	0	2	0	0	1
Extreme	1	1	0	0	0	0	0	0	0
					Form 16b				
Low	90	12	13	18	7	8	7	14	11
Moderate	105	11	17	15	8	16	18	11	9
High	4	1	0	2	0	1	0	0	0
Extreme	1	1	0	0	0	0	0	0	0
					Form 17a				
Low	92	8	18	13	11	6	15	12	9
Moderate	106	16	12	21	4	19	10	13	11
High	1	1	0	0	0	0	0	0	0
Extreme	1	0	0	1	0	0	0	0	0
					Form 17b				
Low	80	4	14	13	8	10	13	10	8
Moderate	116	20	15	21	6	15	12	15	12
High	4	1	1	1	1	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0

Table 10. (Continued)

Range[a]	Black vs White								
	Total	GS	AR	WK	PC	AS	MK	MC	EI
					Form 15a				
Low	91	9	19	9	8	11	13	14	8
Moderate	103	15	11	23	7	14	11	10	12
High	5	1	0	2	0	0	1	1	0
Extreme	1	0	0	1	0	0	0	0	0
					Form 15b				
Low	85	8	14	12	8	11	10	15	7
Moderate	112	16	14	23	7	14	15	10	13
High	2	0	2	0	0	0	0	0	0
Extreme	1	1	0	0	0	0	0	0	0
					Form 15c				
Low	84	7	12	11	5	14	5	17	13
Moderate	114	18	18	22	10	11	20	8	7
High	2	0	0	2	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 16a				
Low	88	12	14	16	8	10	9	11	8
Moderate	109	12	16	18	7	15	16	14	11
High	3	1	0	1	0	0	0	0	1
Extreme	0	0	0	0	0	0	0	0	0
					Form 16b				
Low	93	13	12	18	8	6	9	16	11
Moderate	101	10	18	15	7	19	15	9	8
High	4	2	0	0	0	0	1	0	1
Extreme	1	0	0	1	0	0	0	0	0
					Form 17a				
Low	82	9	13	16	6	6	11	15	6
Moderate	116	16	16	19	9	18	14	10	14
High	1	0	0	0	0	1	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 17b				
Low	87	10	15	15	6	11	9	15	6
Moderate	109	14	15	18	9	13	16	10	14
High	4	1	0	2	0	1	0	0	0
Extreme	0	0	0	0	0	0	0	0	0

Table 10. (Concluded)

Range[a]	Hispanic vs White								
	Total	GS	AR	WK	PC	AS	MK	MC	EI
				Form 15a					
Low	120	17	23	11	11	9	20	16	13
Moderate	76	7	7	21	4	16	5	9	7
High	3	1	0	2	0	0	0	0	0
Extreme	1	0	0	1	0	0	0	0	0
				Form 15b					
Low	105	12	22	12	8	8	19	13	11
Moderate	91	12	8	20	7	17	6	12	9
High	4	1	0	3	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 15c					
Low	107	12	20	13	4	15	14	18	11
Moderate	89	13	10	18	11	10	11	7	9
High	3	0	0	3	0	0	0	0	0
Extreme	1	0	0	1	0	0	0	0	0
				Form 16a					
Low	110	14	23	12	9	9	16	17	10
Moderate	89	10	7	23	6	16	9	8	10
High	1	1	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 16b					
Low	107	13	20	11	8	9	16	16	14
Moderate	91	11	10	23	7	16	9	9	6
High	2	1	0	1	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 17a					
Low	112	12	20	16	8	10	18	17	11
Moderate	83	12	9	18	7	13	7	8	9
High	4	1	0	1	0	2	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 17b					
Low	110	12	22	11	10	8	18	18	11
Moderate	84	12	8	21	5	15	7	7	9
High	6	1	0	3	0	2	0	0	0
Extreme	0	0	0	0	0	0	0	0	0

Note. N = 2,000.
[a]Low: Full Chi-Sq < 10.
Moderate: 10 ≤ Full Chi-Sq < 100.
High: 100 ≤ Full Chi-Sq < 200.
Extreme: 200 ≤ Full Chi-Sq.

Table 11. Distribution of Mantel-Haenszel Chi-Square Values by Form and Subgroup Across Subtests

	White vs White								
Range[a]	Total	GS	AR	WK	PC	AS	MK	MC	EI
				Form 15a					
Low	200	25	30	35	15	25	25	25	20
Moderate	0	0	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 15b					
Low	200	25	30	35	15	25	25	25	20
Moderate	0	0	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 15c					
Low	200	25	30	35	15	25	25	25	20
Moderate	0	0	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 16a					
Low	200	25	30	35	15	25	25	25	20
Moderate	0	0	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 16b					
Low	200	25	30	35	15	25	25	25	20
Moderate	0	0	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 17a					
Low	200	25	30	35	15	25	25	25	20
Moderate	0	0	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 17b					
Low	200	25	30	35	15	25	25	25	20
Moderate	0	0	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0

Table 11. (Continued)

Range[a]	Total	GS	AR	WK	PC	AS	MK	MC	EI
				Female vs Male					
				Form 15a					
Low	112	6	21	18	7	14	16	19	11
Moderate	82	15	9	15	8	11	9	6	9
High	6	4	0	2	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 15b					
Low	124	9	21	23	11	14	16	17	13
Moderate	71	12	9	12	4	11	9	8	6
High	5	4	0	0	0	0	0	0	1
Extreme	0	0	0	0	0	0	0	0	0
				Form 15c					
Low	117	8	23	17	13	10	15	18	13
Moderate	75	12	7	17	2	13	10	7	7
High	7	5	0	0	0	2	0	0	0
Extreme	1	0	0	1	0	0	0	0	0
				Form 16a					
Low	122	13	21	16	13	16	12	19	12
Moderate	72	7	9	18	2	9	13	6	8
High	4	3	0	1	0	0	0	0	0
Extreme	2	2	0	0	0	0	0	0	
				Form 16b					
Low	124	14	20	24	10	14	11	19	12
Moderate	72	9	10	9	5	11	14	6	8
High	3	1	0	2	0	0	0	0	0
Extreme	1	1	0	0	0	0	0	0	0
				Form 17a					
Low	131	10	20	18	15	15	20	21	12
Moderate	67	14	10	16	0	10	5	4	8
High	1	1	0	0	0	0	0	0	0
Extreme	1	0	0	1	0	0	0	0	0
				Form 17b					
Low	133	10	23	19	10	18	19	19	15
Moderate	63	14	6	15	4	7	6	6	5
High	4	1	1	1	1	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0

Table 11. (Continued)

Range[a]	Black vs White								
	Total	GS	AR	WK	PC	AS	MK	MC	EI
				Form 15a					
Low	141	16	23	20	11	20	18	18	15
Moderate	56	8	7	13	4	5	7	7	5
High	3	1	0	2	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 15b					
Low	132	14	22	22	9	18	16	18	13
Moderate	67	10	8	13	6	7	9	7	7
High	1	1	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 15c					
Low	134	13	26	18	10	17	10	23	17
Moderate	65	12	4	16	5	8	15	2	3
High	1	0	0	1	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 16a					
Low	136	16	19	23	10	20	13	22	13
Moderate	63	8	11	12	5	5	12	3	7
High	1	1	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 16b					
Low	140	16	21	26	11	16	15	22	13
Moderate	57	9	9	7	4	9	9	3	7
High	2	0	0	1	0	0	1	0	0
Extreme	1	0	0	1	0	0	0	0	0
				Form 17a					
Low	144	18	25	23	11	18	17	21	11
Moderate	55	7	5	12	4	6	8	4	9
High	1	0	0	0	0	1	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 17b					
Low	144	16	25	26	9	17	13	22	16
Moderate	53	8	5	8	6	7	12	3	4
High	3	1	0	1	0	1	0	0	0

Table 11. (Concluded)

Range[a]	Hispanic vs White								
	Total	GS	AR	WK	PC	AS	MK	MC	EI
					Form 15a				
Low	157	19	28	20	14	14	23	21	18
Moderate	42	6	2	14	1	11	2	4	2
High	0	0	0	0	0	0	0	0	0
Extreme	1	0	0	1	0	0	0	0	0
					Form 15b				
Low	133	16	24	15	10	13	23	17	15
Moderate	65	9	6	18	5	12	2	8	5
High	2	0	0	2	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 15c				
Low	148	16	27	17	12	17	20	23	16
Moderate	50	9	3	16	3	8	5	2	4
High	1	0	0	1	0	0	0	0	0
Extreme	1	0	0	1	0	0	0	0	0
					Form 16a				
Low	154	17	26	17	13	19	22	24	16
Moderate	45	7	4	18	2	6	3	1	4
High	1	1	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 16b				
Low	161	14	29	22	13	20	24	24	15
Moderate	38	11	1	12	2	5	1	1	5
High	1	0	0	1	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 17a				
Low	163	21	27	24	15	14	23	22	17
Moderate	34	3	3	10	0	10	2	3	3
High	3	1	0	1	0	1	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 17b				
Low	147	18	26	18	14	11	21	22	17
Moderate	49	6	4	16	1	12	4	3	3
High	4	1	0	1	0	2	0	0	0
Extreme	0	0	0	0	0	0	0	0	0

Note. N = 2,000.
[a]Low: MH Chi-Sq < 10.
Moderate: 10 ≤ MH Chi-Sq < 100.
High: 100 ≤ MH Chi-Sq < 200.
Extreme: 200 ≤ MH Chi-Sq.

Table 12. Distribution of Lord's Chi-Square Values by Form and Subgroup Across Subtests

	White vs White								
Range[a]	Total	GS	AR	WK	PC	AS	MK	MC	EI
				Form 15a					
Low	174	24	30	34	0	16	25	25	20
Moderate	11	1	0	1	0	9	0	0	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 15b					
Low	99	15	21	12	0	17	15	14	5
Moderate	62	7	8	16	0	8	6	6	11
High	20	3	1	5	0	0	2	5	4
Extreme	4	0	0	2	0	0	2	0	0
				Form 15c					
Low	95	13	14	24	9	11	9	7	8
Moderate	83	11	14	7	3	13	14	12	9
High	18	1	2	4	2	1	2	5	1
Extreme	3	0	0	0	1	0	0	1	1
				Form 16a					
Low	114	13	18	24	6	14	15	15	9
Moderate	67	8	11	9	6	10	9	6	8
High	15	4	1	2	3	0	0	3	2
Extreme	4	0	0	0	0	1	1	1	1
				Form 16b					
Low	98	13	15	21	4	15	11	8	11
Moderate	78	9	10	14	9	9	10	10	7
High	21	3	5	0	2	0	4	6	1
Extreme	3	0	0	0	0	1	0	1	1
				Form 17a					
Low	84	5	7	22	4	10	12	14	10
Moderate	89	15	17	13	7	12	10	8	7
High	19	2	5	0	2	3	2	2	3
Extreme	8	3	1	0	2	0	1	1	0
				Form 17b					
Low	84	8	14	18	0	11	16	12	5
Moderate	78	14	12	16	0	13	5	8	10
High	17	1	3	1	0	1	3	4	4
Extreme	6	2	1	0	0	0	1	1	1

Table 12. (Continued)

Range[a]	Total	GS	AR	WK	PC	AS	MK	MC	EI
				Female vs Male					
				Form 15a					
Low	78	6	18	12	5	5	17	10	5
Moderate	94	12	11	16	7	13	8	14	13
High	17	3	1	4	3	4	0	1	1
Extreme	10	4	0	2	0	3	0	0	1
				Form 15b					
Low	85	8	19	12	9	10	10	10	7
Moderate	91	11	9	17	5	10	15	14	10
High	16	2	2	5	0	4	0	1	2
Extreme	8	4	0	1	1	1	0	0	1
				Form 15c					
Low	70	4	18	9	7	10	6	6	10
Moderate	104	10	11	20	7	11	18	18	9
High	18	6	1	4	1	3	1	1	1
Extreme	8	5	0	2	0	1	0	0	0
				Form 16a					
Low	83	11	19	12	5	10	8	13	5
Moderate	93	10	10	16	9	11	15	10	12
High	20	3	1	4	1	4	2	2	3
Extreme	4	1	0	3	0	0	0	0	0
				Form 16b					
Low	73	7	16	5	8	8	5	15	9
Moderate	99	12	12	20	7	12	18	8	10
High	22	3	2	7	0	5	2	2	1
Extreme	6	3	0	3	0	0	0	0	0
				Form 17a					
Low	92	9	21	17	3	8	16	13	5
Moderate	82	9	9	14	10	9	9	12	10
High	22	6	0	2	2	7	0	0	5
Extreme	4	1	0	2	0	1	0	0	0
				Form 17b					
Low	78	9	9	13	8	7	13	9	10
Moderate	97	10	19	16	5	10	11	16	10
High	21	5	1	5	1	8	1	0	0
Extreme	4	1	1	1	1	0	0	0	0

Table 12. (Continued)

Range[a]	Total	GS	AR	WK	PC	AS	MK	MC	EI
				Black vs White					
				Form 15a					
Low	95	13	14	14	5	14	14	14	7
Moderate	91	11	15	18	10	8	7	10	12
High	11	1	1	1	0	2	4	1	1
Extreme	3	0	0	2	0	1	0	0	0
				Form 15b					
Low	76	10	15	6	0	16	8	14	7
Moderate	88	13	12	17	0	9	15	10	12
High	18	1	3	10	0	0	2	1	1
Extreme	3	1	0	2	0	0	0	0	0
				Form 15c					
Low	86	11	16	17	3	10	7	12	10
Moderate	99	13	14	14	6	15	15	13	9
High	10	1	0	2	4	0	3	0	0
Extreme	4	0	0	2	2	0	0	0	0
				Form 16a					
Low	75	9	11	18	4	0	10	12	11
Moderate	80	12	17	11	10	0	11	12	7
High	17	2	2	6	1	0	3	1	2
Extreme	3	2	0	0	0	0	1	0	0
				Form 16b					
Low	80	14	9	5	6	10	10	15	11
Moderate	97	9	20	19	7	12	12	10	8
High	17	2	1	7	2	1	3	0	1
Extreme	5	0	0	4	0	1	0	0	0
				Form 17a					
Low	92	7	16	18	10	8	12	15	6
Moderate	90	13	14	12	3	14	11	10	13
High	15	4	0	4	1	3	2	0	1
Extreme	1	0	0	1	0	0	0	0	0
				Form 17b					
Low	71	8	16	15	0	1	9	17	5
Moderate	99	15	14	17	0	17	14	8	14
High	11	1	0	1	0	6	2	0	1
Extreme	4	1	0	2	0	1	0	0	0

Table 12. (Concluded)

Range[a]	Total	GS	AR	WK	PC	AS	MK	MC	EI
				Hispanic vs White					
				Form 15a					
Low	119	18	19	15	9	11	20	17	10
Moderate	74	6	11	17	6	11	5	8	10
High	4	1	0	2	0	1	0	0	0
Extreme	3	0	0	1	0	2	0	0	0
				Form 15b					
Low	92	13	21	5	0	9	20	12	12
Moderate	67	9	7	12	0	13	5	13	8
High	22	3	2	14	0	3	0	0	0
Extreme	4	0	0	4	0	0	0	0	0
				Form 15c					
Low	114	18	20	12	9	13	12	18	12
Moderate	74	7	9	15	5	11	13	7	7
High	8	0	1	6	0	1	0	0	0
Extreme	2	0	0	2	0	0	0	0	0
				Form 16a					
Low	111	16	19	14	5	7	16	21	13
Moderate	76	8	11	14	10	13	9	4	7
High	10	0	0	7	0	3	0	0	0
Extreme	3	1	0	0	0	2	0	0	0
				Form 16b					
Low	98	12	15	5	9	15	15	13	14
Moderate	82	12	15	17	5	6	10	12	5
High	18	1	0	12	1	3	0	0	1
Extreme	2	0	0	1	0	1	0	0	0
				Form 17a					
Low	119	13	21	20	4	11	21	21	8
Moderate	72	11	9	13	10	10	4	4	11
High	7	1	0	1	1	3	0	0	1
Extreme	2	0	0	1	0	1	0	0	0
				Form 17b					
Low	94	15	23	8	0	6	19	17	6
Moderate	76	8	7	20	0	14	6	8	13
High	8	1	0	4	0	3	0	0	0
Extreme	7	1	0	3	0	2	0	0	1

Note. N = 2,000.
[a]Low: Lord's Chi-Sq < 10.
Moderate: 10 ≤ Lord's Chi-Sq < 50.
High: 50 ≤ LOrd's Chi-Sq < 100.
Extreme: 100 ≤ Lord's Chi-Sq.

Table 13. Distribution of Modified Sum of Squares Values by Form and Subgroup Across Subtests

	White vs White								
Range[a]	Total	GS	AR	WK	PC	AS	MK	MC	ET
				Form 15a					
Low	185	25	30	35	0	25	25	25	20
Moderate	0	0	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 15b					
Low	177	24	28	35	0	25	21	24	20
Moderate	8	1	2	0	0	0	4	1	0
High	0	0	0	0	0	0	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 15c					
Low	185	25	29	35	6	24	23	23	20
Moderate	11	0	1	0	6	1	1	?	C
High	2	0	0	0	1	0	1	0	0
Extreme	2	0	0	0	2	0	0	0	0
				Form 16a					
Low	194	24	30	35	13	24	24	25	19
Moderate	5	1	0	0	2	1	0	0	1
High	1	0	0	0	0	0	1	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 16b					
Low	193	25	28	34	14	24	23	25	20
Moderate	5	0	2	1	1	1	0	0	0
High	2	0	0	0	0	0	2	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 17a					
Low	195	25	30	34	14	25	22	25	20
Moderate	4	0	0	1	1	0	2	0	0
High	1	0	0	0	0	0	1	0	0
Extreme	0	0	0	0	0	0	0	0	0
				Form 17b					
Low	182	25	30	34	0	25	24	24	20
Moderate	1	0	0	1	0	0	0	0	0
High	2	0	0	0	0	0	1	1	0
Extreme	0	0	0	0	0	0	0	0	0

Table 13. (Continued)

Range[a]	Total	GS	AR	WK	PC	AS	MK	MC	EI
				Female vs Male					
				Form 15a					
Low	166	18	30	24	12	18	25	23	16
Moderate	24	3	0	8	2	7	0	2	2
High	9	3	0	3	1	0	0	0	2
Extreme	1	1	0	0	0	0	0	0	0
				Form 15b					
Low	173	19	30	29	13	19	25	24	14
Moderate	20	2	0	5	2	6	0	1	4
High	6	3	0	1	0	0	0	0	2
Extreme	1	1	0	0	0	0	0	0	0
				Form 15c					
Low	164	14	30	32	4	18	23	24	19
Moderate	21	6	0	2	5	4	2	1	1
High	11	3	0	0	5	3	0	0	0
Extreme	4	2	0	1	1	0	0	0	0
				Form 16a					
Low	171	23	29	28	14	19	22	22	14
Moderate	19	0	1	5	1	2	3	3	4
High	9	1	0	2	0	4	0	0	2
Extreme	1	1	0	0	0	0	0	0	0
				Form 16b					
Low	178	23	29	28	15	20	23	22	18
Moderate	16	0	1	5	0	3	2	3	2
High	5	1	0	2	0	2	0	0	0
Extreme	1	1	0	0	0	0	0	0	0
				Form 17a					
Low	166	6	29	31	15	19	25	24	17
Moderate	19	6	1	3	0	5	0	1	3
High	9	8	0	0	0	1	0	0	0
Extreme	6	5	0	1	0	0	0	0	0
				Form 17b					
Low	178	18	29	32	13	19	24	23	20
Moderate	16	5	0	2	1	5	1	2	0
High	6	2	1	1	1	1	0	0	0
Extreme	0	0	0	0	0	0	0	0	0

Table 13. (Continued)

Range[a]	Black vs White								
	Total	GS	AR	WK	PC	AS	MK	MC	EI
					Form 15a				
Low	183	23	29	30	15	22	21	23	20
Moderate	13	1	1	3	0	2	4	2	0
High	3	1	0	1	0	1	0	0	0
Extreme	1	0	0	1	0	0	0	0	0
					Form 15b				
Low	175	23	27	34	0	24	23	24	20
Moderate	6	1	2	0	0	0	2	1	0
High	4	1	1	1	0	1	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 15c				
Low	168	24	30	29	11	22	20	25	7
Moderate	22	1	0	4	4	3	4	0	6
High	10	0	0	2	0	0	1	0	7
Extreme	0	0	0	0	0	0	0	0	0
					Form 16a				
Low	154	21	26	32	15	0	18	24	18
Moderate	17	3	3	3	0	0	6	1	1
High	4	1	1	0	0	0	1	0	1
Extreme	0	0	0	0	0	0	0	0	0
					Form 16b				
Low	174	22	28	31	13	17	21	24	18
Moderate	22	2	2	3	2	7	3	1	2
High	3	1	0	0	0	1	1	0	0
Extreme	1	0	0	1	0	0	0	0	0
					Form 17a				
Low	173	16	30	31	13	19	22	23	19
Moderate	21	6	0	3	1	5	3	2	1
High	4	2	0	1	1	0	0	0	0
Extreme	2	1	0	0	0	1	0	0	0
					Form 17b				
Low	170	23	29	30	0	21	24	23	20
Moderate	10	1	1	2	0	3	1	2	0
High	3	1	0	2	0	0	0	0	0
Extreme	2	0	0	1	0	1	0	0	0

Table 13. (Concluded)

Range[a]	Hispanic vs White								
	Total	GS	AR	WK	PC	AS	MK	MC	EI
					Form 15a				
Low	182	22	30	29	15	17	24	25	20
Moderate	13	2	0	3	0	7	1	0	0
High	4	1	0	2	0	1	0	0	0
Extreme	1	0	0	1	0	0	0	0	0
					Form 15b				
Low	160	20	28	26	0	17	24	25	20
Moderate	16	3	1	4	0	7	1	0	0
High	8	2	1	4	0	1	0	0	0
Extreme	1	0	0	1	0	0	0	0	0
					Form 15c				
Low	177	24	29	23	14	21	23	24	19
Moderate	14	0	1	5	1	3	2	1	1
High	8	1	0	6	0	1	0	0	0
Extreme	1	0	0	1	0	0	0	0	0
					Form 16a				
Low	186	22	30	30	14	21	24	25	20
Moderate	12	3	0	4	1	3	1	0	0
High	2	0	0	1	0	1	0	0	0
Extreme	0	0	0	0	0	0	0	0	0
					Form 16b				
Low	187	22	30	29	15	21	25	25	20
Moderate	9	2	0	4	0	3	0	0	0
High	3	1	0	1	0	1	0	0	0
Extreme	1	0	0	1	0	0	0	0	0
					Form 17a				
Low	182	24	30	29	14	18	25	24	18
Moderate	14	0	0	6	1	4	0	1	2
High	2	0	0	0	0	2	0	0	0
Extreme	2	1	0	0	0	1	0	0	0
					Form 17b				
Low	164	23	29	25	0	17	25	25	20
Moderate	14	1	1	7	0	5	0	0	0
High	5	0	0	3	0	2	0	0	0
Extreme	2	1	0	0	0	1	0	0	0

Note. N = 2,000.
[a]Low: MSOS < .01.
Moderate: .01 ≤ MSOS < .02.
High: .02 ≤ MSOS < .04.
Extreme: .04 ≤ < SOS.

Table 14. Distribution of Mantel-Haenszel Odds Ratio Values by Form and Subgroup Across Subtests

Range[a]	White vs White								
	Total	GS	AR	WK	PC	AS	MK	MC	EI
				Form 15a					
Focal > Reference	0	0	0	0	0	0	0	0	0
Approximately Equal	200	25	30	35	15	25	25	25	20
Reference > Focal	0	0	0	0	0	0	0	0	0
				Form 15b					
Focal > Reference	0	0	0	0	0	0	0	0	0
Approximately Equal	199	25	30	34	15	25	25	25	20
Reference > Focal	1	0	0	1	0	0	0	0	0
				Form 15c					
Focal > Reference	0	0	0	0	0	0	0	0	0
Approximately Equal	200	25	30	35	15	25	25	25	20
Reference > Focal	0	0	0	0	0	0	0	0	0
				Form 16a					
Focal > Reference	0	0	0	0	0	0	0	0	0
Approximately Equal	200	25	30	35	15	25	25	25	20
Reference > Focal	0	0	0	0	0	0	0	0	0
				Form 16b					
Focal > Reference	0	0	0	0	0	0	0	0	0
Approximately Equal	200	25	30	35	15	25	25	25	20
Reference > Focal	0	0	0	0	0	0	0	0	0
				Form 17a					
Focal > Reference	1	0	0	1	0	0	0	0	0
Approximately Equal	199	25	30	34	15	25	25	25	20
Reference > Focal	0	0	0	0	0	0	0	0	0
				Form 17b					
Focal > Reference	0	0	0	0	0	0	0	0	0
Approximately Equal	200	25	30	35	15	25	25	25	20
Reference > Focal	0	0	0	0	0	0	0	0	0

Table 14. (Continued)

Range[a]	Female vs Male								
	Total	GS	AR	WK	PC	AS	MK	MC	EI
				Form 15a					
Focal > Reference	21	4	1	4	4	2	2	2	2
Approximately Equal	156	15	29	24	8	20	22	22	16
Reference > Focal	23	6	0	7	3	3	1	1	2
				Form 15b					
Focal > Reference	19	5	0	5	2	4	0	1	2
Approximately Equal	160	15	28	25	12	18	24	23	15
Reference > Focal	21	5	2	5	1	3	1	1	3
				Form 15c					
Focal > Reference	19	5	1	7	1	3	1	0	1
Approximately Equal	155	11	28	23	13	18	22	24	16
Reference > Focal	26	9	1	5	1	4	2	1	3
				Form 16a					
Focal > Reference	21	5	1	7	0	3	3	1	1
Approximately Equal	157	14	27	23	14	20	19	22	18
Reference > Focal	22	6	2	5	1	2	3	2	1
				Form 16b					
Focal > Reference	22	4	4	6	2	2	3	1	0
Approximately Equal	165	19	25	26	13	20	21	22	19
Reference > Focal	13	2	1	3	0	3	1	2	1
				Form 17a					
Focal > Reference	13	3	0	5	0	1	1	0	3
Approximately Equal	176	18	29	25	15	23	24	25	17
Reference > Focal	11	4	1	5	0	1	0	0	0
				Form 17b					
Focal > Reference	16	4	0	5	2	1	1	1	2
Approximately Equal	165	16	29	22	11	23	22	24	18
Reference > Focal	19	5	1	8	2	1	2	0	0

Table 14. (Continued)

Range[a]	Black vs White								
	Total	GS	AR	WK	PC	AS	MK	MC	EI
				Form 15a					
Focal > Reference	10	1	0	5	0	1	2	1	0
Approximately Equal	174	23	28	23	14	22	22	22	20
Reference > Focal	16	1	2	7	1	2	1	2	0
				Form 15b					
Focal > Reference	14	1	4	4	2	0	2	0	1
Approximately Equal	166	22	24	24	11	23	20	23	19
Reference > Focal	20	2	2	7	2	2	3	2	0
				Form 15c					
Focal > Reference	12	2	0	6	2	1	1	0	0
Approximately Equal	169	18	29	23	11	23	20	25	20
Reference > Focal	19	5	1	6	2	1	4	0	0
				Form 16a					
Focal > Reference	19	4	3	4	1	2	3	1	1
Approximately Equal	161	18	25	26	12	21	19	24	16
Reference > Focal	20	3	2	5	2	2	3	0	3
				Form 16b					
Focal > Reference	15	2	2	3	2	3	2	0	1
Approximately Equal	170	20	27	29	12	19	21	25	17
Reference > Focal	15	3	1	3	1	3	2	0	2
				Form 17a					
Focal > Reference	13	1	1	5	3	2	1	0	0
Approximately Equal	174	21	29	24	12	21	23	25	19
Reference > Focal	13	3	0	6	0	2	1	0	1
				Form 17b					
Focal > Reference	14	2	1	5	2	2	1	0	1
Approximately Equal	175	20	29	26	12	21	24	24	19
Reference > Focal	11	3	0	4	1	2	0	1	0

Table 14. (Concluded)

Range[a]	Hispanic vs White								
	Total	GS	AR	WK	PC	AS	MK	MC	EI
				Form 15a					
Focal > Reference	11	2	0	5	1	3	0	0	0
Approximately Equal	173	20	30	23	13	18	24	25	20
Reference > Focal	16	3	0	7	1	4	1	0	0
				Form 15b					
Focal > Reference	17	4	0	6	2	4	1	0	0
Approximately Equal	157	17	27	18	11	17	23	25	19
Reference > Focal	26	4	3	11	2	4	1	0	1
				Form 15c					
Focal > Reference	14	0	0	9	1	2	1	0	1
Approximately Equal	168	21	29	19	13	21	22	24	19
Reference > Focal	18	4	1	7	1	2	2	1	0
				Form 16a					
Focal > Reference	12	2	0	7	0	3	0	0	0
Approximately Equal	169	19	30	19	14	20	24	25	18
Reference > Focal	19	4	0	9	1	2	1	0	2
				Form 16b					
Focal > Reference	9	2	0	5	0	2	0	0	0
Approximately Equal	177	20	30	23	14	23	24	25	18
Reference > Focal	14	3	0	7	1	0	1	0	2
				Form 17a					
Focal > Reference	9	1	0	4	1	3	0	0	0
Approximately Equal	176	22	30	26	14	17	25	24	18
Reference > Focal	15	2	0	5	0	5	0	1	2
				Form 17b					
Focal > Reference	18	2	2	9	1	4	0	0	0
Approximately Equal	162	20	27	17	14	17	24	24	19
Reference > Focal	20	3	1	9	0	4	1	1	1

Note. N = 2,000.

[a]Focal > Reference: MHODDS < .6534.
Approximately Equal: .6534 ≤ MHODDS < 1.5304.
Reference > Focal: 1.5304 ≤ MHODDS.

To visualize the effects of sample size on the order of magnitude of each of the indices, the calculated values of each of the indices were plotted for all the subtests and all five indices on Form 15a. Since the distribution of each of the indices was similar across all forms, selected plots were identified for inclusion in this report. These plots for Form 15a are shown in Figures 2 through 10. These results show the phenomenon mentioned earlier regarding the increasing means and standard deviations of the Chi-Square measures as a function of sample size. The plots in Figures 2 through 4 show the origin of this effect at the item level. The reader will notice that for the three Chi-Square indices, FCHI5, MHCHI, and LCHI, the magnitude of these indices increases as the sample size increases for a given item that is indicated as having DIF. This increase can be viewed as showing the increasing power of the Chi-Square indices to detect differences in item functioning--regardless of whether the indices are based on the more traditional item statistics (FCHI5), conditional relationships to total test score (MHCHI), or IRT (LCHI).

As indicated by examination of the other plots of the three Chi-Square indices, the increase in absolute value of the Chi-Square indices appears to be a function strictly of sample size, since the effect is present across the three comparison groups. The magnitude of the effects is different for each of the three indices, but is consistent with respect to direction. Figure 2 indicates that for the FCHI5, there were many missing values for the N = 100 sample size since too many cells failed to meet the minimum expected frequency of five cases in each of the five score groups.

The MHODDS is treated separately because it is the only directional index of the five examined. Figure 5 shows the variability of the MHODDS as a function of sample size. The two horizontal lines in Figure 5 correspond to MHODDS values of .6534 and 1.5304--values of one in the Delta Difference metric indicates practical significance.

The variability of the MHODDS for the N = 100 sample size can be seen in Figure 5 for the White-White baseline comparison group. For the three sample sizes greater than 100, the MHODDS appears to vary consistently around an MHODDS value of one, indicating, as expected in a White-White group comparison, no DIF. The MHODDS values occasionally exceed those values which indicate practical significance for the N = 100 sample. This inconsistency of the MHODDS in the N = 100 sample is noted across all power subtests, and across all forms.

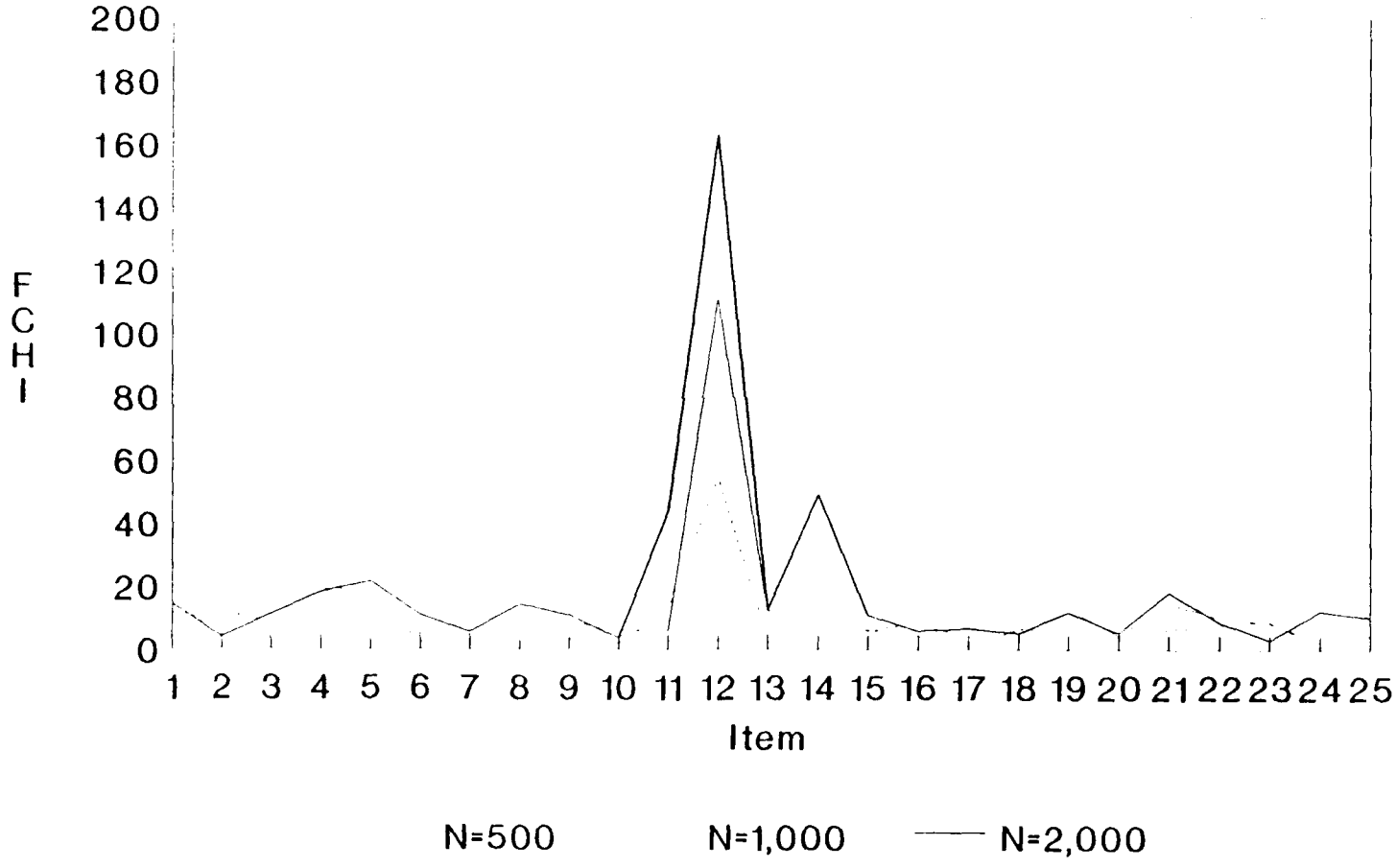


Figure 2. Form 15a, GS, Black vs White

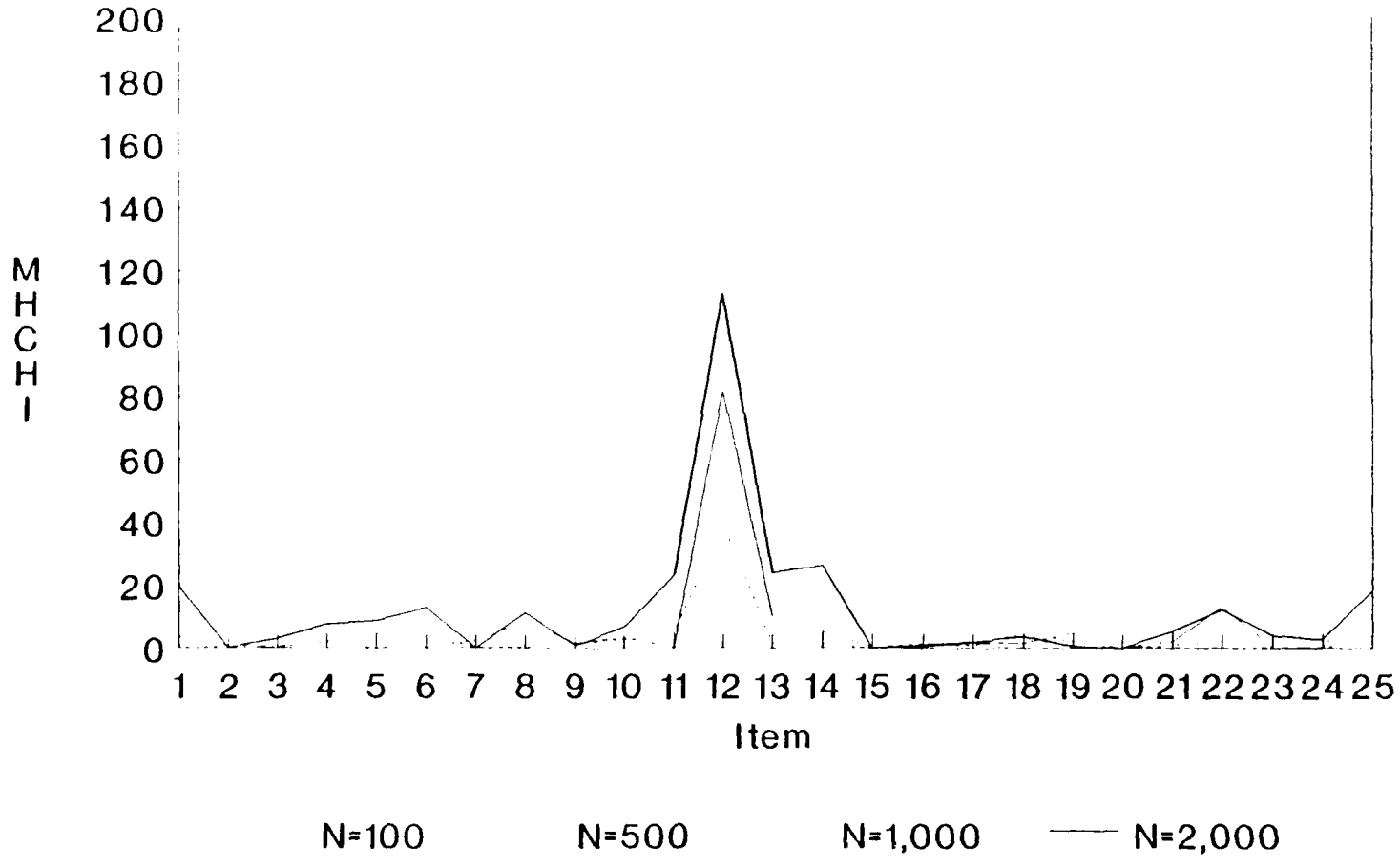


Figure 3. Form 15a, GS, Black vs White

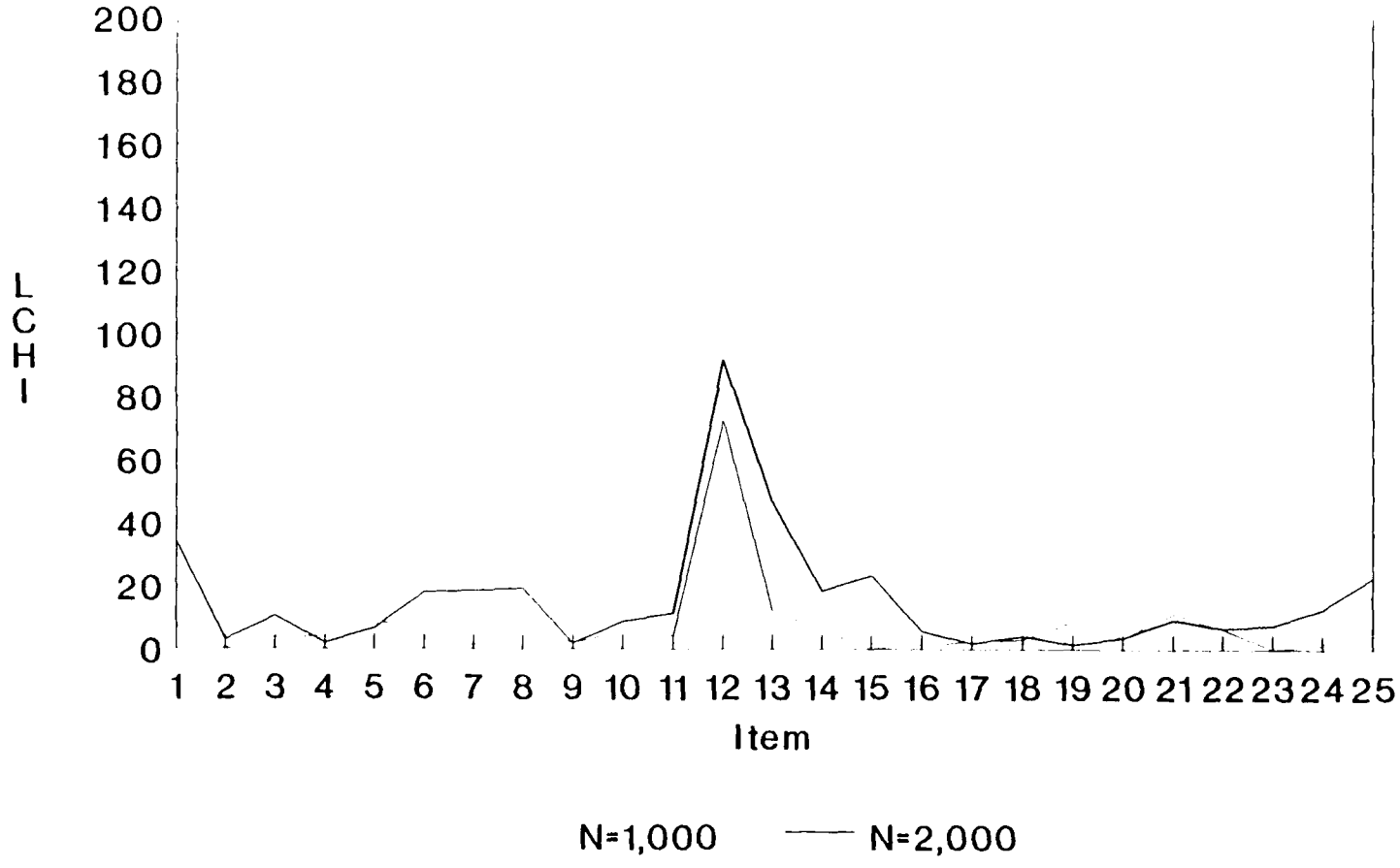


Figure 4. Form 15a, GS, Black vs White

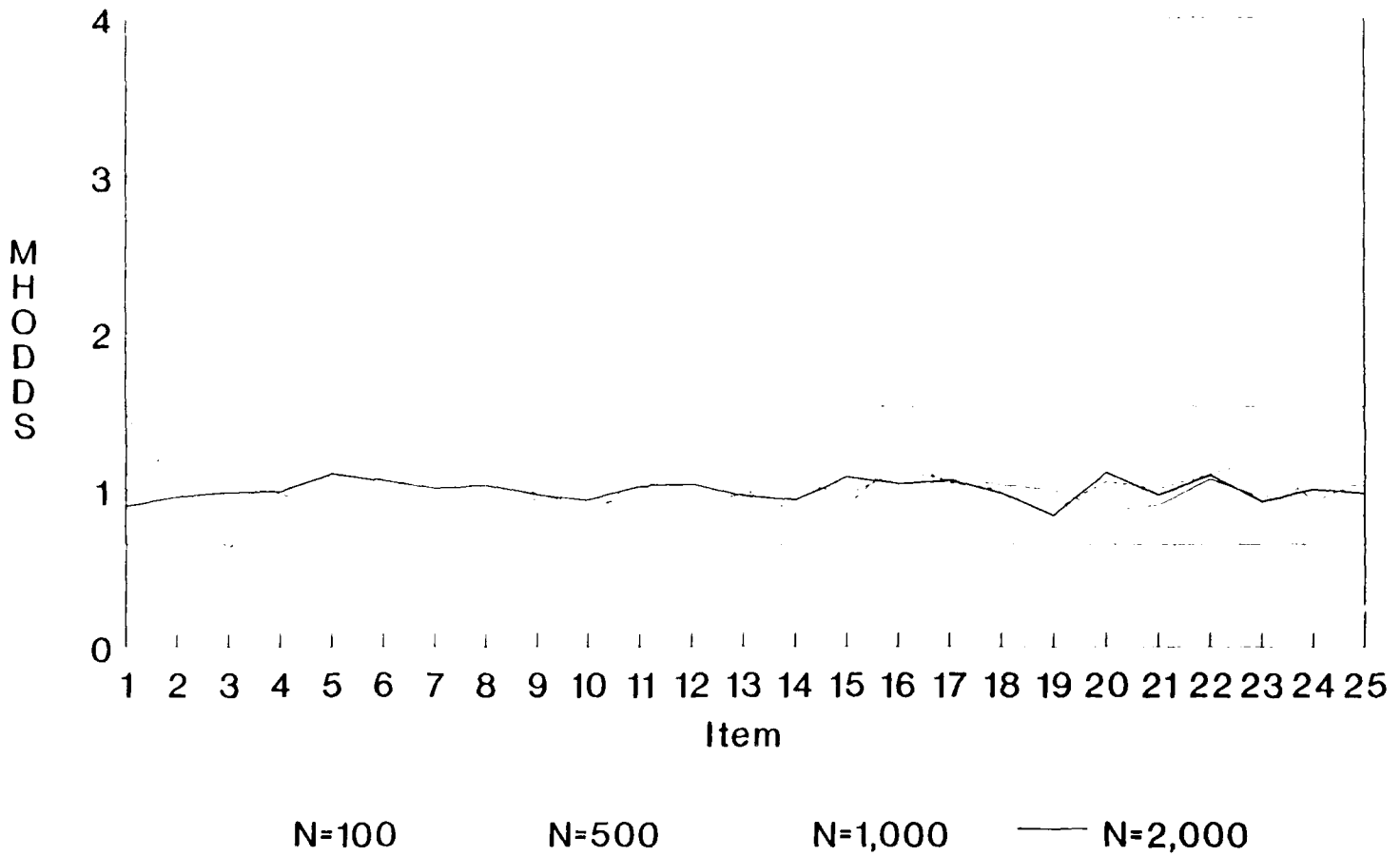


Figure 5. Form 15a, GS, White vs White

Figure 6 presents the sample size comparison for the White-Black comparison group for the MHODDS as a function of sample size. Here, for the same test items, the MHODDS shows the same inconsistencies for the smallest sample size (N = 100), while showing slightly better consistency for the three larger sample sizes. This phenomenon is consistent with the results indicated in Table 15, which show that the correlation of the traditional (FCHI5) and conditional indexes (MHCHI and MHODDS) drops as a function of the sample size. The three correlation matrices presented in Table 15 represent the correlation of a given index in one of the four random sample sizes with the same index values computed on the 200 power subtest items, across the seven forms and the four comparison groups (N = 5,600). The N = 1,114 for the FCHI5 is a result of the pairwise deletion of values that could not be computed for the FCHI5. The intercorrelations of the three indices presented in Table 15 are high for the larger sample sizes, and all show a dramatic drop for the N = 100 sample size.

Figures 7 and 8 show the plots of the MSOS values for the GS subtest from ASVAB Form 15a for two sample sizes (since the MSOS is an IRT-based index and was computed only for the N = 1,000 and N = 2,000 samples). Figure 7 shows that all MSOS values were all extremely small for the White-White comparison group, with slightly more variability for the N = 1,000 group. The same MSOS values for the same items in the White-Black comparison group are presented in Figure 8, with a change in vertical scale range. For both Figures 7 and 8, the vertical axis represents the MSOS values multiplied by 1,000. These two figures show that the MSOS is reasonably consistent across the two sample sizes. The MSOS index indicated the same item (Number 12) as having DIF. This item was consistently identified as functioning differently by all the indices. Figure 8 shows that the MSOS value for the N = 1,000 sample size for item No. 12 was larger than that for the N = 2,000 value, but both MSOS values were larger than the .02 value taken as the arbitrary indication of significant DIF for the MSOS index. However, the MSOS values, when computed across forms and subtests, are generally consistent between samples.

DIF Within ASVAB Forms 15, 16 and 17

The results of the analysis of DIF within ASVAB Forms 15, 16 and 17 are presented below. An item was considered as functioning differentially for the comparison groups if all five of the DIF indices indicated significant DIF. For the two indices with no statistical test of

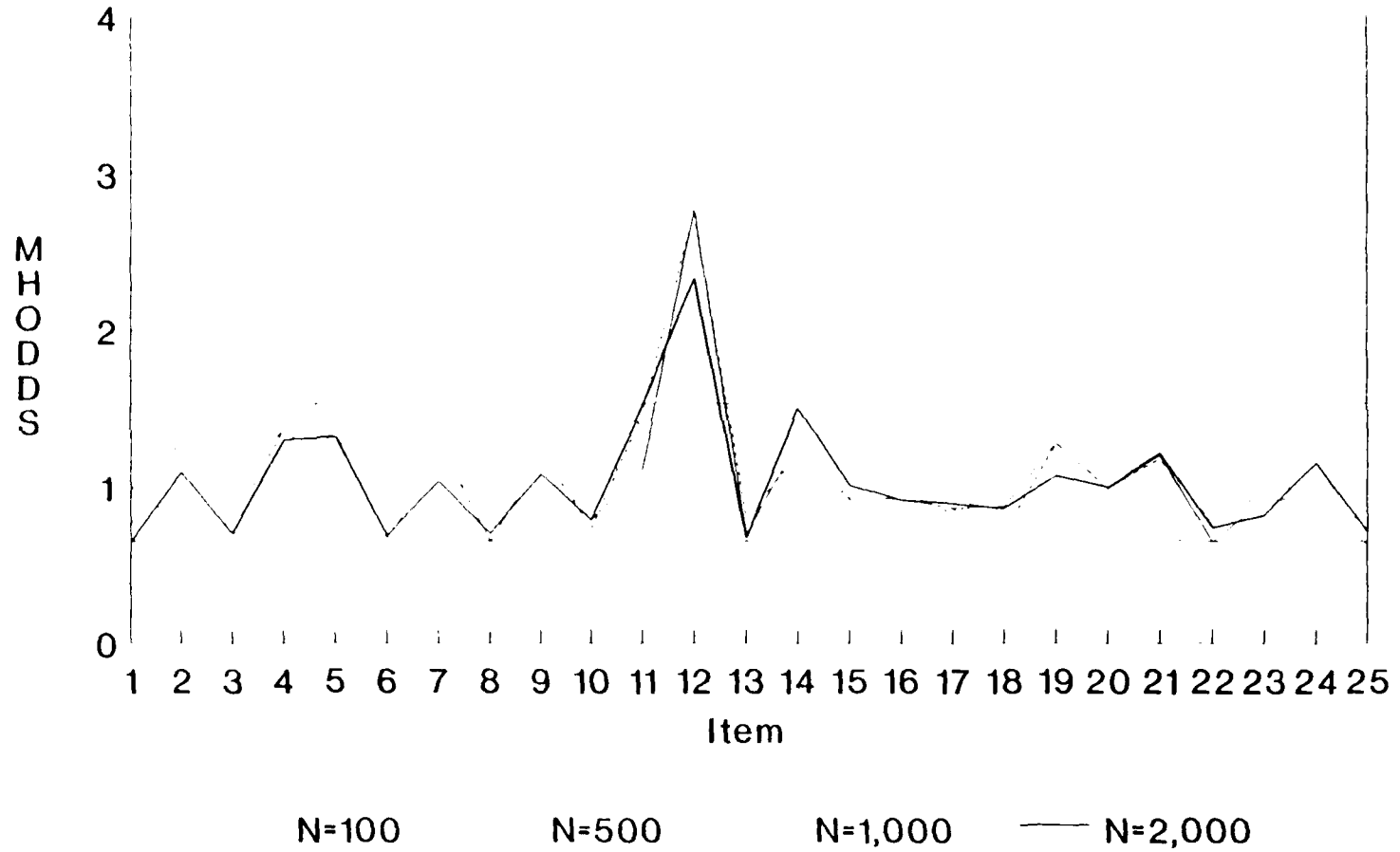
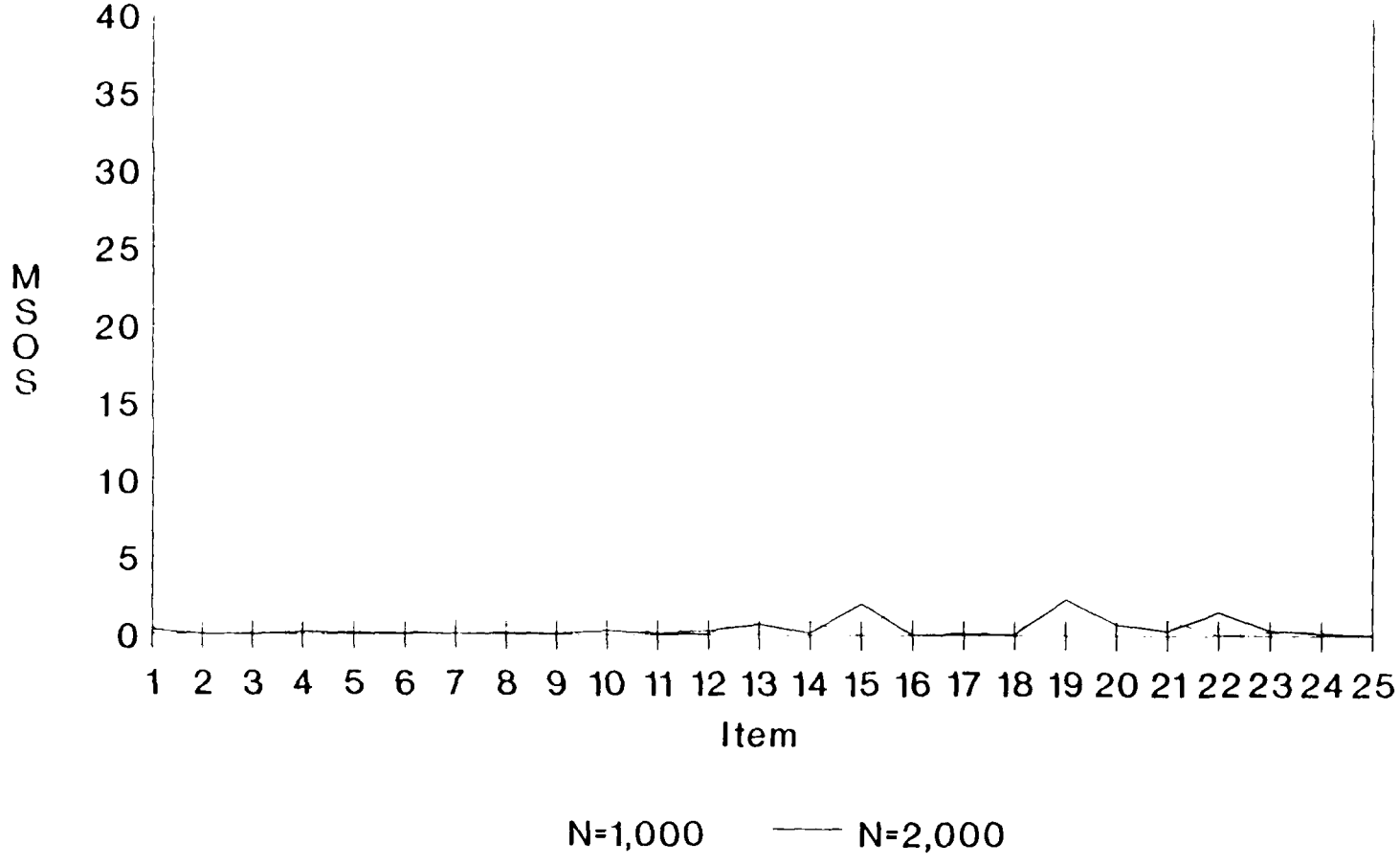
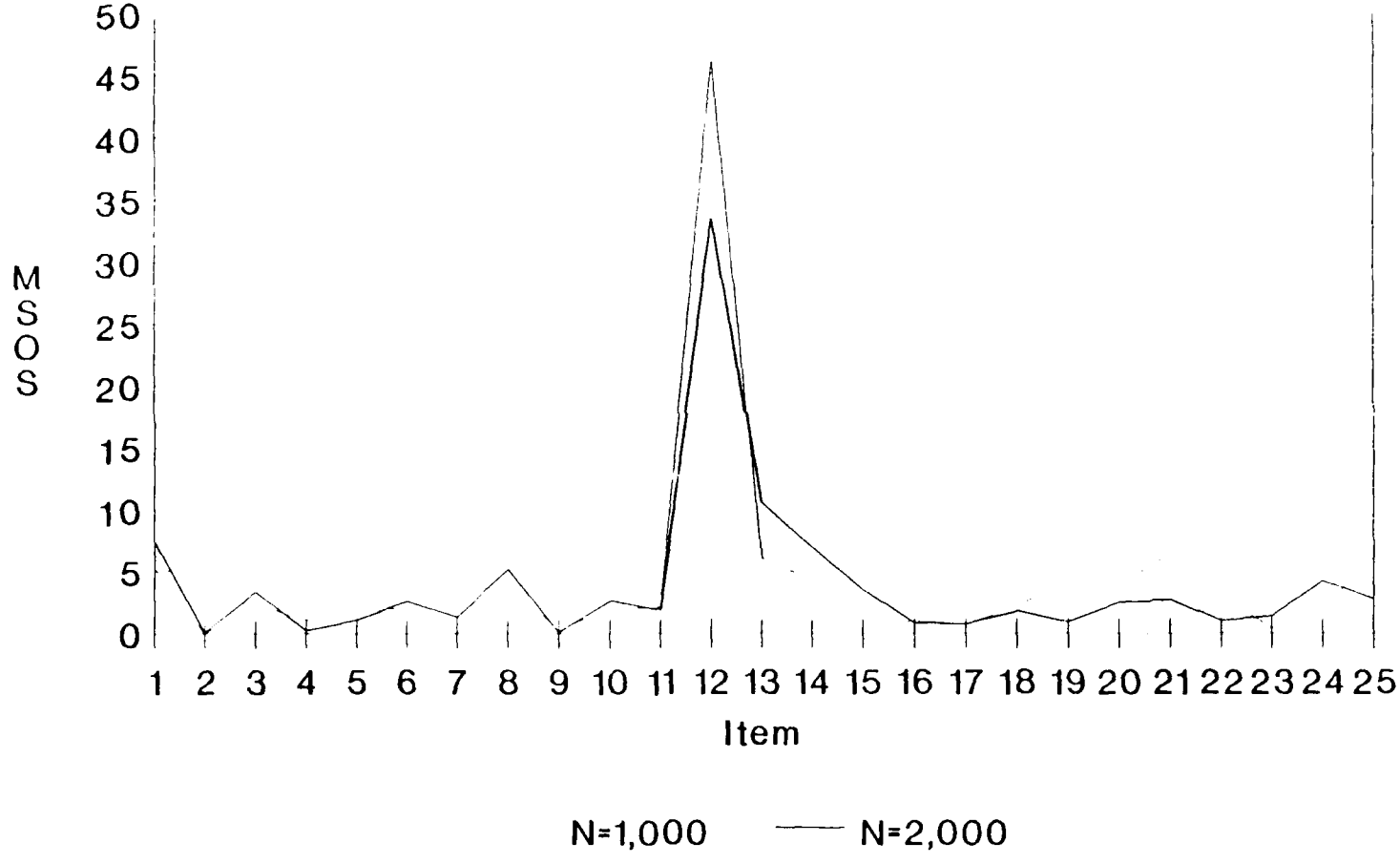


Figure 6. Form 15a, GS, Black vs White



Note. Msos x 0.001

Figure 7. Form 15a, GS, White vs White



Note. Msos x 0.001

Figure 8. Form 15a, GS, Black vs White

Table 15. Correlations of Three DIF Indices as a Function of Sample Size

	Sample Size			
	1	2	3	4
N	100	500	1000	2000
		Full Chi-Square		
1		.30	.32	.35
2			.76	.81
3				.91
4				
		Mantel-Haenszal Chi-Square		
1		.35	.38	.38
2			.81	.79
3				.86
4				
		Mantel-Haenszel Odds Ratio		
1		.34	.35	.36
2			.77	.80
3				.89
4				

significance--the MHODDS and the MSOS--values were chosen for flagging items that indicated practical significance. These values for the MHODDS and MSOS were taken from Linn et al. (1988). For the MHODDS, an item was flagged if the computed value on the index exceeded 1.5304 or was less than .6534. Items with MSOS values greater than .02 were flagged. The subtest by subtest results are presented in terms of the number of items flagged by all five indices on a given subtest, across all seven forms, and by taxonomic areas. Because these forms of the ASVAB are currently operational, none of the items were discussed in specific detail. Items were discussed only in terms of their general taxonomic classification.

General Science. There was some variability across forms in the number of items flagged by all five indices. Form 17a had nine items flagged, while Form 16a only had one item flagged. In general terms, if an item exhibited DIF on one version, it exhibited DIF on the sister version of GS. The DIF, with some exceptions, was in favor of the reference group and generally occurred for items in the physical and earth science taxonomic areas. The

occurrence of DIF across the White-Black and White-Hispanic comparison groups was evenly distributed. There was only one, occasionally two, items flagged and these were evenly balanced between the two comparison groups. This was not the case for the gender-group comparisons, however.

Forms 15a, 15b, and 17a had 3, 3, and 4 items flagged, respectively, with gender DIF. These were items in taxonomic areas dealing with physical and earth sciences. These items were not necessarily balanced with the same number of items favoring the focal-group.

Item 12, shown in Figures 5 through 8 as consistently showing DIF across all comparison groups, illustrates a problem with the use of any DIF index, or combination of indexes. Examination of the item content provides no clue as to differential functioning related to ethnicity or gender. The item is a physical science-type item related to expansion and contraction of solids, and has no person or group related references in the stem or the distractors. The identified differential functioning may be related to rural-urban differences, but this is pure speculation. If DIF for a given item cannot be identified with some obvious type of content, or some reason for the gender or ethnicity bias identified, it is most likely that the item is measuring what it was intended to measure. When faced with this type of dilemma, a prudent course is to follow the advice of Hills (1989), "If you cannot verify that the difference in performance between groups is due to a factor irrelevant to what is being measured, the item cannot be regarded as biased" (p. 7).

Arithmetic Reasoning. This subtest had very few DIF items indicated from the results. No items exhibited DIF on 15a, 16b, and 17a, and there was only one item identified each on Forms 15b, 16a, and 17b. Of the three items with DIF out of the 210 unique AR items, one was in favor of the Black focal group and one in favor of the White reference group in the White-Black comparison. One item favoring males in the male-female comparison was found on 17b.

Word Knowledge. The occurrence of DIF items on WK was sparse and unsystematic, both across the three comparison groups and across forms. There were as many as five items flagged on Form 15b for the White-Hispanic comparison group, but three of these favored the Hispanic focal group and two favored the White reference group. The items favoring the focal group were of the "most nearly means" stem format and tended to be verbs or adjectives. Of the remaining forms, the occurrence of DIF was evenly divided between the ethnic and gender groups, and almost always balanced in terms of the direction of DIF for the focal and reference groups. Other than Form 15b, there were never more than two DIF items in either ethnic or gender comparisons for any of the forms.

Paragraph Comprehension. The Paragraph Comprehension subtest had only one item that met the study criteria for DIF out of a total of 105 items across all seven forms of the ASVAB. The single item favored the female focal group on Form 15a and was in the recall of textual-detail taxonomic-category.

Auto and Shop Information. The occurrence of DIF items on this subtest across forms ranged from three items on Forms 16a, 17a and 17b for the male-female comparison groups and the White-Hispanic comparison group; to no DIF for the White-Black comparison groups on 15a, 15b, 16a, and male-female comparison group for 17b. The most noteworthy comment about the AS subtest is about the DIF that was not observed. AS in Forms 15a, 15b, 17a and 17b showed no DIF for the male-female comparison group. On Forms 16a there were three items showing DIF. Two of the items showed DIF in favor of the male reference group, and one item favored the female reference group. One of the two male–favoring items were in the Auto/Engine taxonomic category, the other in the Shop/Tools category. Only one of the two reference group or Male DIF items also showed DIF on the sister version of the subtest (Form 16b). The female-favoring item on Form 16a did not show corresponding DIF on the 16b version of the battery. The one consistent DIF item was in the Shop/Tools Category.

Mathematics Knowledge. Of the 75 unique items in the MK subtest, only one showed DIF across all three ethnic and gender comparison groups. The item, from 16a-16b, was in the analytic geometry taxonomic category.

Mechanical Comprehension. No items on MC for any of the forms met the criteria established for DIF. As with AS, it is noteworthy that none of the items showed gender differences.

Electronics Information. Seven of the 75 unique EI items displayed DIF. Six of these items were in the male-female comparison group and were balanced in direction on Forms 15a, 15b, and 16a. One item on each of these three forms favored males and one item favored females. There were no DIF items on either version of Form 17 . Only one item was flagged as DIF for the White-Black comparison group. Those items indicating DIF for the male reference group were from the tools/power supply taxonomic-category, while those favoring females were all from the theory taxonomic category. None of the seven DIF items replicated the DIF on a sister version of the subtest.

IV. DISCUSSION AND CONCLUSIONS

Three DIF indices based on traditional item statistics and conditional item-to-total-score relationships and two DIF indices based on IRT item analysis were computed for each of the 200 power subtest items on each of seven ASVAB Forms 15 a/b/c, 16a/b, and 17a/b. The five DIF indices were computed in four White-White baseline comparison samples of N = 100, N = 500, N = 1,000, and N = 2,000 for the Mantel-Haenszel Chi-Square, Mantel-Haenszel Odds Ratio, and Camilli's Full Chi-Square; and in two random samples of N = 1,000 and N = 2,000 for the Modified Sum of Squares and the Lord's Chi-Square indices. Also, all five indices were computed, in random samples of corresponding size, for White-Black, White-Hispanic, and male-female comparison groups.

The purposes of the study were to examine the power items on the ASVAB Forms 15, 16, and 17 for DIF and to examine the effect of sample size on the five DIF indices. Both purposes were served by the use of White-White baseline comparisons for each of four random samples for the MCHI, Camilli's FCHI, and MHODDS ratio; and two White-White random samples for the IRT indices--the LCHI and the MSOS. Baseline results were used to compare the magnitude of the values of all five indices. The use of baseline values has been typically used to compare results where no statistical tests of significance are available--such as the case for the MHODD ratio and the MSOS used in this study (Ironson & Subkoviak, 1979; Rudner, Getson, & Knight, 1980; Shepard, Camilli, & Williams, 1984).

However, as Hills (1989) noted, when sample sizes are large, tests of statistical significance are not very useful, since minor differences due to unidentifiable and irrelevant causes between focal and reference groups often result in statistically significant DIF. For this reason, distributions of all the DIF indices in this study were examined in baseline comparison groups to evaluate the magnitude of index values obtained in focal group comparisons on ASVAB Forms 15, 16, and 17, and to evaluate the effect of sample size on the DIF indices.

To evaluate the occurrence of DIF on the ASVAB, an item was flagged if DIF was indicated on all five indices. In effect, all other indices were used to judge the practical significance of DIF indicated with a given index. The distributional information of the five indices, and the rules of thumb used by Linn et al. (1988), provided general orders of magnitude for low, moderate, high, and extreme DIF. The results of this study indicated that the power subtest items on the ASVAB Forms 15, 16, and 17 were relatively free of DIF.

Items that were found to indicate practically significant DIF did not always have an identifiable cause that was irrelevant to the measured trait. As Hills (1989) has warned, if one can not find an *identifiable, irrelevant cause for* DIF on an item, the item is best considered as measuring true between group differences.

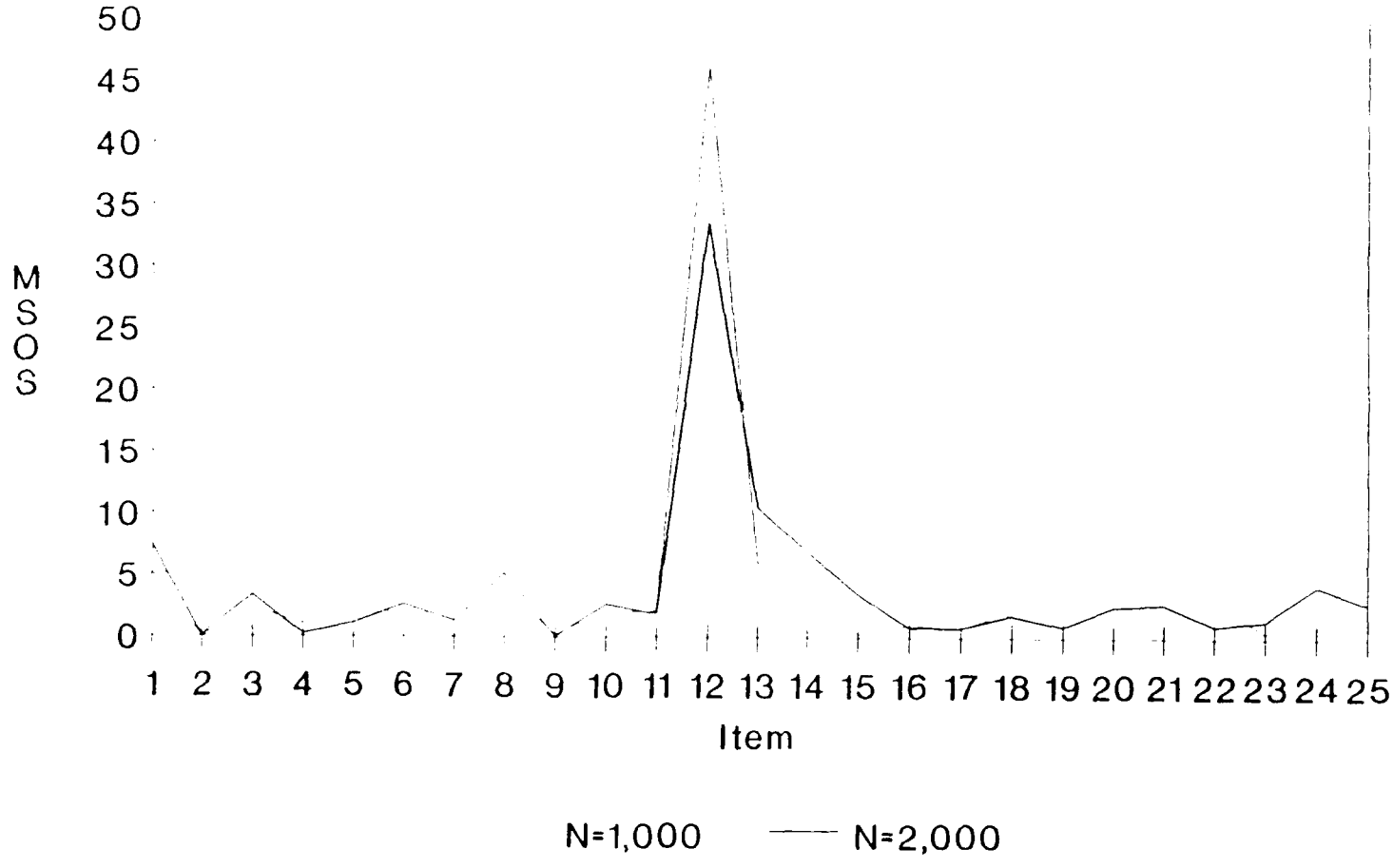
After elimination of those items for which no identifiable factors irrelevant to the ability being measured could be found, the occurrence of DIF on ASVAB Forms 15, 16, and 17 was infrequent. Items on the GS subtest with DIF generally favored the White or male reference groups, with gender differences in favor of male reference groups predominantly in the earth and physical sciences. This result is consistent with the findings of Linn et al. (1988). The lack of DIF on the AR and MK subtests is also consistent with previous research on DIF in the ASVAB (Linn et al., 1988).

The lack of occurrence of gender-related DIF on the MC and EI subtests is in contrast to the results reported by Linn et al. (1988). Only 7 of the 140 EI items for example, were slightly easier for males. This was not a significant effect.

There are two possible reasons for the relative lack of DIF on the EI subtests in this study and that found by Linn et al. (1988) for the EI subtest on Form 14. The first and most obvious is that the EI and MC subtests in the present study are different from the EI and MC in the Linn et al. (1988) effort. It is possible that ASVAB Forms 15, 16, and 17 Electronics Information and Mechanical Comprehension subtests rely less on the specialized vocabulary found in shop and math texts that Linn et al. attributed to DIF in the case of ASVAB Form 14.

The second reason for the difference in results between the present study and the Linn et al. (1988) research is also important. The criteria used in this study to flag a DIF item could be considered as much more stringent. Linn et al. (1988) used the occurrence of DIF on two indices for interpretive purposes--the MHODDS ratio and the MSOS. An item was flagged as DIF in the present study if it was associated with a practically significant DIF value on all five DIF indices.

When just the MHODDS and MSOS values computed in this study are examined, there are items identified as having gender related DIF. Figures 9 and 10 show that three items *indicate* DIF. *In Figure* 9, the MHODDS exceeds the Delta difference bands for items 12, 13, and 15. But item 15 is slightly easier for females. Examination of the MSOS values in Figure 10 shows these same items exceeded the .02 value taken as the arbitrary indication of DIF for the MSOS index. Of course, the MSOS index is nondirectional. Thus, if one were to look



Note Msos x 0.001

Figure 8. Form 15a, GS, Black vs White

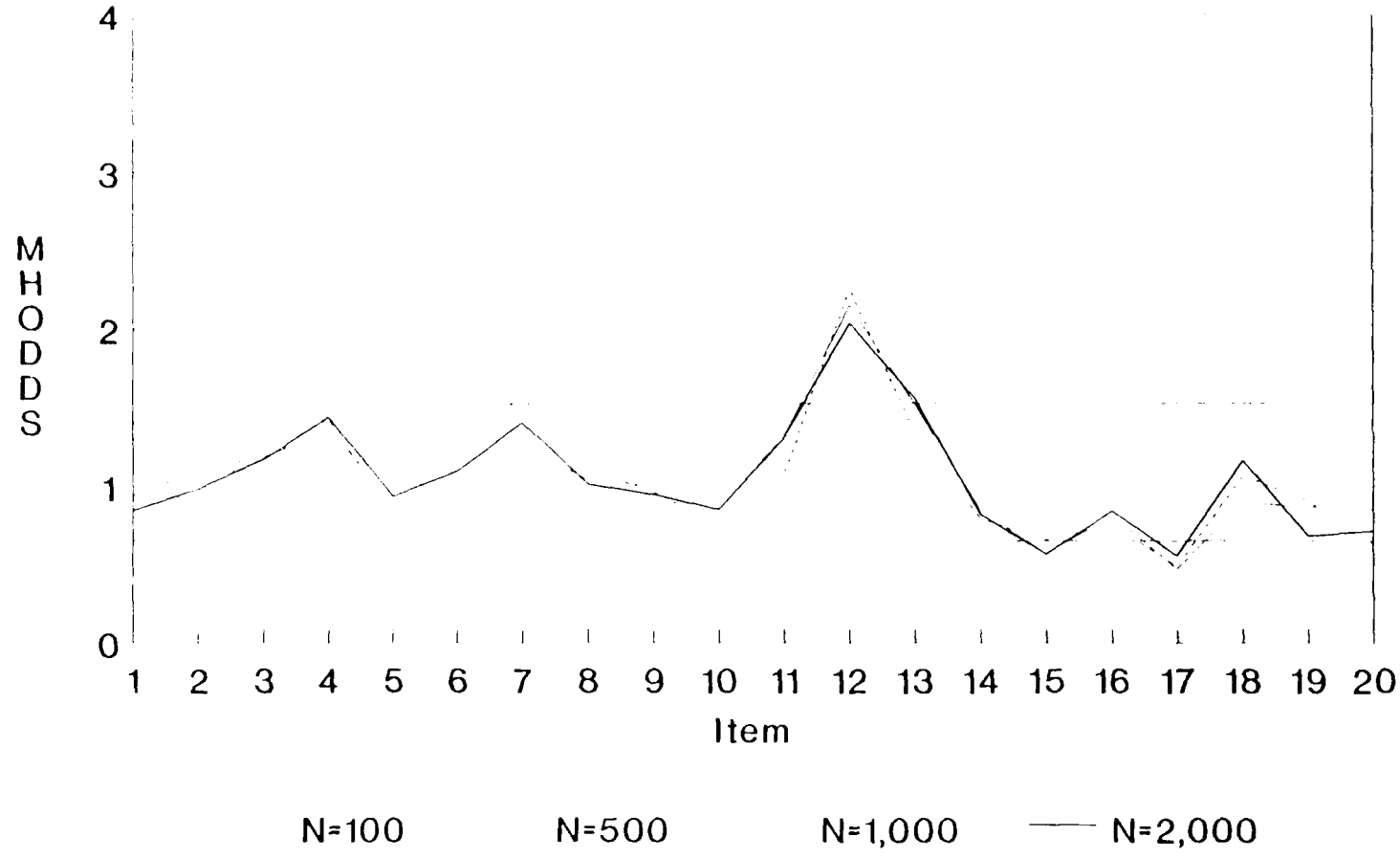


Figure 9. Form 15a, EI, Female vs Male

only at the two indexes used in the Linn et al. (1988) study, some gender differences in EI would be noted. However, the arbitrary nature of the criteria for DIF for these two indices has to be taken into consideration along with other judgments on the part of the researcher as to whether an individual item should be considered to have DIF. The point is that decisions about DIF in a given item begin and end with a judgment on the part of either the test developer or the researcher about whether an item demonstrates differential functioning and what is causing the differential functioning.

Summarizing the effects of sample size on the five DIF indices also involves judgments. The most notable finding from this study is that the consistency among the indices decreases dramatically as the sample size decreased from 500 to 100. This was manifest in the reduction of the correlations between the indices, and in the increasing variability of the indices in the smaller sample sizes. The plot of the MHODDS ratio in Figure 9, as well as Figures 5 and 6 in the Results section, show relative consistency of the index at sample sizes of 500 to 2,000, but spuriously large MHODDS values indicating DIF for sample sizes of 100. It was impossible to tell at what sample size between 100 and 500 the MHODDS would become unstable, since this study did not examine the behavior of the MHODDS at any of those intermediate values. Based on the results of this study however, it appears that the MHODDS should probably not be used for sample sizes as small as 100 cases.

In sum, it is important to echo the warning of others (Berk, 1982; Hills, 1989;) that the DIF researcher or test developer should not rely only any one DIF index, nor rely solely on tests of statistical significance to flag items for DIF. Rather, careful judgments while examining specific test items for DIF are necessary, for the quality of those judgments depends on the use of all available information about an item and the characteristics of the population responding to the item.

REFERENCES

American Psychological Association. (1985). Standards for educational and psychological testing. Washington, D.C.: Author.

Berk, R.A. (1982). Handbook of methods for detecting item bias. Baltimore, MD: The Johns Hopkins University Press.

Bock, R.D., Gibbons, R., & Muraki, E. (1985). Full information item factor analysis. Chicago, IL: National Opinion Research Center.

Bock, R.D. & Mislevy, R.J. (1981). The profile of American youth study: Data quality analysis of the Armed Services Vocational Aptitude Battery. Chicago, IL: National Opinion Research Center.

Bock, R.D. & Moore, E. (1984). Profile of American youth study: Demographic influences in ASVAB test performance. Washington, DC: Office of the Assistant Secretary of Defense (MRA & L).

Camilli, G. (1979). A critique of the chi-square method for assessing item bias. Unpublished paper, Laboaratory of Educational Research, University of Colorado, Boulder.

Department of Defense. (1982). Profile of American youth: 1980 administration of the Armed Services Vocational Aptitude Battery. Washington, DC: Office of the Assistant Secretary of Defense (MRA & L).

Hills, J.R. (1989, Winter). Screening for potentially biased items in testing programs. Educational Measurement: Issues and Practice. 8(4). Washington, DC: National Council on Measurement in Education.

Holland, P.W., & Thayer, D.T. (1986). Differential item functioning and the Mantel-Haenszel procedure. (Technical Report No. 86-89). Princeton, NJ: Educational Testing Service.

Ironson, G.H. (1982). Use of Chi-Square and latent trait approaches for deter for detecting item bias. In R.A. Berk (Ed.), Handbook of methods for detecting Item Bias. Baltimore, MD: The Johns Hopkins University Press.

Ironson, G.H., & Subkoviak, M.A. (1979). Comparison of several methods of assessing item bias. Journal of Educational Measurement, 16, 209-225.

Linn, R.L., & Harnisch, D.L. (1981). Interactions between item content and group membership on achievement test items. Journal of Educational Measurement, 18, 109-118.

Linn, R.L., Hastings, C.N., Hu, P.G., & Ryan, K.E.(1988). Armed Services Vocational Aptitude Battery: Differential item functioning on the high school form (AFHRL-TR-87-45, AD-A193 693). Brooks AFB, TX: Manpower and Personnel Division, Air Force Human Resources Laboratory.

Linn, R.L., Levine, M.V., Hastings, C.N., & Wardrop, J.R. (1980). An investigation of item bias in a test of reading comprehension (Technical Report No. 163). Champaign, IL: University of Illinois, Center for the Study of Reading.

Linn, R.L., Levine, M.V., Hastings, C.N., & Wardrop, J.R. (1981). Item bias in a test of reading comprehension. Applied Psychological Measurement, 5(2), 159-173.

Lord, F.M. (1980). Applications of item response theory to practical testing problems. Hillsdale, NJ: Lawrence Erlbaum.

Mislevy, R.J., & Bock, R.D. (1981). Item operating characteristics of the Armed Services Vocational Aptitude Battery (ASVAB), Form 8a. Chicago, IL: National Opinion Research Center.

Ree, M.J., Welsh, J.R., Earles, J.A., & Curran, L.T. Equating and implementation of the Armed Services Vocational Aptitude Battery (ASVAB): Forms 15, 16, & 17 in the 1980 youth population metric (AFHRL-TR-In Press). Brooks AFB, TX: Manpower and Personnel Division, Air Force Human Resources Laboratory.

Rudner, L.M., Getson, P.R., & Knight, D.L. (1980). A montecarlo comparison of seven biased item detection techniques. Journal of Educational Measurement, 17, p. 1-10.

Scheuneman, J. (1979). A method of assessing bias in test items. Journal of Educational Measurement, 16, 143-152.

Shepard, L.A., Camilli, G., & Williams, D.M. (1984). Accounting for statistical artifacts in item bias research. Journal of Educational Statistics, 9(2), 93-128.

Shepard, L.A., Camilli, G., & Williams, D.M. (1985). Validity of approximation techniques for detecting item bias. Journal of Educational Measurement, 22(2), 77-105.

Society for Industrial and Organizational Psychology Inc. (1987). Principles for the Validation and Use of Personnel Selection Procedures (Third edition). College Park, MD: Author.

Wingersky, M.S., Barton, M.A., & Lord, F.M. (1982). LOGIST5, Version 1.0 (Modified for Sperry-Univac). Princeton, NJ: Educational Testing Service.

APPENDIX A: TOTAL SAMPLE RAW SCORE DESCRIPTIVE STATISTICS FOR GENDER AND ETHNIC GROUPS BY FORM

Table A-1. Descriptive Statistics of Subtest Raw Score Data for Total Sample- Males by Form

	Mean	Standard Deviation	Median	Skew	Kurtosis	Min	Max	KR-20	N
Form 15a									
GS	16.361	4.513	16.454	-0.168	-0.696	2	25	0.79631	12536
AR	18.217	6.309	17.772	+0.084	-0.913	2	30	0.86994	12536
WK	25.873	6.650	27.195	-0.749	-0.149	2	35	0.89240	12536
PC	11.861	2.771	12.590	-1.051	+0.633	0	15	0.75134	12536
AS	15.647	5.005	15.851	-0.147	-0.849	0	25	0.82320	12536
MK	13.732	5.573	13.008	+0.263	-0.894	0	25	0.85424	12536
MC	15.928	4.666	16.166	-0.263	-0.569	0	25	0.78942	12536
EI	11.982	3.549	11.848	+0.076	-0.507	0	20	0.70988	12536
Form 15b									
GS	16.428	4.581	16.556	-0.197	-0.675	0	25	0.80252	10960
AR	18.289	6.338	18.036	+0.034	-0.982	0	30	0.87510	10960
WK	25.922	6.166	26.766	-0.572	-0.333	5	35	0.87450	10960
PC	11.754	2.826	12.460	-1.007	+0.505	0	15	0.75941	10960
AS	15.406	5.027	15.550	-0.113	-0.848	0	25	0.82211	10960
MK	13.605	5.611	12.900	+0.268	-0.904	0	25	0.85625	10960
MC	15.840	4.640	16.097	-0.256	-0.567	0	25	0.78564	10960
EI	12.026	3.589	11.912	+0.044	-0.506	0	20	0.71764	10960
Form 15c									
GS	16.116	4.477	16.214	-0.124	-0.592	0	25	0.79202	11957
AR	17.828	6.491	17.418	+0.118	-0.950	2	30	0.87885	11957
WK	26.555	5.859	27.401	-0.758	+0.206	3	35	0.86758	11957
PC	11.059	2.779	11.601	-0.822	+0.227	0	15	0.69780	11957
AS	15.714	4.959	15.871	-0.160	-0.804	0	25	0.81631	11957
MK	13.420	5.677	12.466	+0.333	-0.893	0	25	0.86124	11957
MC	15.338	4.998	15.456	-0.102	-0.876	0	25	0.81388	11957
EI	11.999	3.729	12.157	-0.176	-0.585	0	20	0.74113	11957
Form 16a									
GS	16.103	4.317	16.299	-0.191	-0.766	2	25	0.82549	11934
AR	18.337	6.070	18.243	+0.009	-0.791	1	30	0.85956	11934
WK	26.158	5.989	27.142	-0.660	-0.145	2	35	0.87197	11934
PC	11.834	2.932	12.641	-1.086	+0.652	0	15	0.78004	11934
AS	15.345	5.669	15.613	-0.182	-0.967	0	25	0.86225	11934
MK	13.467	5.766	12.441	+0.363	-0.906	0	25	0.86336	11934
MC	16.089	4.644	16.451	-0.309	-0.579	0	25	0.78247	11934
EI	12.456	3.859	12.503	-0.131	-0.575	0	20	0.75677	11934

Table A-1. (Concluded)

	Mean	Standard Deviation	Median	Skew	Kurtosis	Min	Max	KR-20	N
Form 16b									
GS	16.165	4.841	16.426	-0.219	-0.725	2	25	0.82796	11609
AR	18.134	6.534	17.873	+0.059	-0.975	0	30	0.88105	11609
WK	26.378	5.864	27.072	-0.626	-0.037	2	35	0.87290	11609
PC	11.597	2.750	12.102	-0.837	+0.252	0	15	0.72711	11609
AS	15.360	5.649	15.620	-0.176	-0.946	0	25	0.86175	11609
MK	13.558	5.770	12.597	+0.335	-0.924	0	25	0.86404	11609
MC	16.076	4.615	16.463	-0.314	-0.602	0	25	0.77969	11609
EI	12.512	3.883	12.596	-0.151	-0.589	0	20	0.76056	11609
Form 17a									
GS	16.156	4.555	16.372	-0.239	-0.579	1	25	0.79492	11425
AR	18.073	6.679	17.848	+0.037	-0.979	2	30	0.88606	11425
WK	26.145	6.535	27.103	-0.643	-0.233	1	35	0.89122	11425
PC	11.618	2.884	12.299	-0.969	+0.424	0	15	0.75568	11425
AS	15.853	5.283	15.872	-0.101	-0.903	0	25	0.84367	11425
MK	13.827	5.412	13.030	+0.316	-0.772	0	25	0.84813	11425
MC	16.035	4.458	16.221	-0.263	-0.463	0	25	0.77248	11425
EI	12.352	3.903	12.345	-0.076	-0.622	0	20	0.76752	11425
Form 17b									
GS	16.134	4.594	16.358	-0.238	-0.621	0	25	0.79873	10955
AR	17.938	6.417	18.055	-0.025	-0.930	1	30	0.87643	10955
WK	26.154	6.243	27.179	-0.611	-0.310	2	35	0.88238	10955
PC	11.603	2.691	12.132	-0.898	+0.449	0	15	0.72959	10955
AS	15.751	5.284	15.800	-0.068	-0.939	0	25	0.84131	10955
MK	13.588	5.373	12.845	+0.306	-0.746	0	25	0.84366	10955
MC	16.076	4.408	16.262	-0.261	-0.428	0	25	0.76726	10955
EI	12.133	3.922	12.019	-0.003	-0.668	0	20	0.76768	10955

Table A-2. Descriptive Statistics of Subtest Raw Score Data for Total Sample- Females by Form

	Mean	Standard Deviation	Median	Skew	Kurtosis	Min	Max	KR-20	N
Form 15a									
GS	14.744	4.048	14.515	+0.131	-0.429	2	25	0.73751	2397
AR	16.769	5.736	15.997	+0.361	-0.584	3	30	0.83521	2397
WK	25.620	6.621	26.792	-0.632	-0.313	3	35	0.89054	2397
PC	12.270	2.407	12.831	-1.135	+1.127	1	15	0.70012	2397
AS	9.861	3.400	9.516	+0.543	+0.493	0	23	0.56135	2397
MK	14.062	5.120	13.620	+0.219	-0.718	0	25	0.82680	2397
MC	12.239	4.087	12.028	+0.185	-0.335	0	24	0.68614	2397
EI	9.290	2.710	9.140	+0.295	+0.473	0	20	0.44146	2397
Form 15b									
GS	14.751	4.011	14.552	+0.131	-0.305	3	25	0.73035	2034
AR	16.966	5.932	16.480	+0.282	-0.773	4	30	0.85221	2034
WK	26.138	5.612	26.785	-0.458	-0.424	8	35	0.84700	2034
PC	12.042	2.470	12.559	-1.069	+0.924	2	15	0.69970	2034
AS	9.759	3.457	9.491	+0.557	+0.508	0	24	0.57538	2034
MK	13.687	5.125	13.343	+0.213	-0.679	0	25	0.82574	2034
MC	12.023	4.119	11.727	+0.291	-0.236	0	25	0.68948	2034
EI	9.266	2.719	9.080	+0.400	+0.426	0	20	0.44561	2034
Form 15c									
GS	14.194	3.905	14.056	+0.140	-0.271	3	25	0.70056	2221
AR	16.038	5.880	15.477	+0.364	-0.534	3	30	0.84623	2221
WK	26.038	5.879	26.629	-0.500	-0.341	0	35	0.86159	2221
PC	11.357	2.505	11.793	-0.886	+0.622	0	15	0.64318	2221
AS	10.647	3.655	10.265	+0.523	+0.256	0	25	0.61892	2221
MK	13.710	5.298	13.221	+0.176	-0.816	0	25	0.83905	2221
MC	11.541	4.083	11.031	+0.469	-0.144	0	25	0.68496	2221
EI	9.041	3.239	8.838	+0.270	-0.012	0	20	0.61724	2221
Form 16a									
GS	15.015	4.453	15.019	-0.023	-0.551	2	25	0.78427	2331
AR	17.149	5.527	17.004	+0.104	-0.559	3	30	0.81916	2331
WK	26.269	5.328	27.193	-0.592	-0.291	8	35	0.86459	2331
PC	12.151	2.590	12.781	-1.227	+1.408	1	15	0.73256	2331
AS	8.505	3.726	8.073	+0.606	+0.257	0	24	0.65759	2331
MK	14.005	5.237	13.555	+0.236	-0.819	1	25	0.83309	2331
MC	12.815	4.184	12.636	+0.157	-0.422	0	25	0.69845	2331
EI	9.392	3.084	9.308	+0.199	-0.171	0	19	0.55955	2331

Table A-2. (Concluded)

	Mean	Standard Deviation	Median	Skew	Kurtosis	Min	Max	KR-20	N
Form 16b									
GS	14.901	4.441	14.805	+0.043	-0.661	4	25	0.78425	2186
AR	16.941	5.863	16.390	+0.236	-0.715	3	30	0.84404	2186
WK	26.952	5.266	27.476	-0.605	+0.116	5	35	0.84493	2186
PC	12.038	2.440	12.506	-0.954	+0.689	2	15	0.67738	2186
AS	8.460	3.717	7.961	+0.622	+0.284	0	23	0.65504	2186
MK	13.991	5.259	13.707	+0.179	-0.876	3	25	0.83429	2186
MC	12.713	4.162	12.448	+0.242	-0.403	0	25	0.69323	2186
EI	9.344	3.196	9.187	+0.332	-0.016	1	20	0.59456	2186
Form 17a									
GS	14.550	4.288	14.611	-0.083	-0.574	2	25	0.74095	2123
AR	16.756	6.264	16.243	+0.247	-0.833	3	30	0.86407	2123
WK	25.802	6.123	26.331	-0.498	-0.317	6	35	0.87144	2123
PC	12.119	2.468	12.680	-1.062	+1.000	0	15	0.69424	2123
AS	10.052	3.595	9.719	+0.576	+0.428	0	24	0.60636	2123
MK	14.042	5.012	13.624	+0.188	-0.712	1	25	0.82325	2123
MC	12.875	3.862	12.741	+0.158	-0.198	2	25	0.65712	2123
EI	9.114	3.046	8.901	+0.440	+0.241	1	20	0.56230	2123
Form 17b									
GS	14.800	4.252	14.820	-0.056	-0.481	1	25	0.73810	2032
AR	16.535	5.906	16.154	+0.226	-0.637	2	30	0.84677	2032
WK	27.016	5.905	28.015	-0.666	-0.186	3	35	0.87579	2032
PC	11.935	2.192	12.203	-0.849	+0.992	2	15	0.63226	2032
AS	9.906	3.639	9.523	+0.527	+0.220	0	23	0.61314	2032
MK	13.987	4.989	13.568	+0.206	-0.733	0	25	0.82037	2032
MC	12.813	3.823	12.598	+0.166	-0.120	0	25	0.64945	2032
EI	8.990	3.097	8.804	+0.385	+0.192	0	20	0.57594	2032

Table A-3. Descriptive Statistics of Subtest Raw Score Data for Total Sample - Whites by Form

	Mean	Standard Deviation	Median	Skew	Kurtosis	Min	Max	KR-20	N
Form 15a									
GS	17.498	4.130	17.743	-0.337	-0.447	2	25	0.77319	9427
AR	19.676	6.087	19.740	-0.134	-0.867	2	30	0.86753	9427
WK	27.741	5.739	29.042	-1.042	+0.825	3	35	0.87440	9427
PC	12.501	2.446	13.179	-1.379	+1.842	1	15	0.72605	9427
AS	16.617	4.786	17.036	-0.319	-0.681	0	25	0.81613	9427
MK	14.665	5.588	14.334	+0.081	-0.984	0	25	0.85966	9427
MC	16.831	4.416	17.218	-0.419	-0.343	0	25	0.77476	9427
EI	12.456	3.474	12.387	-0.011	-0.451	0	20	0.70379	9427
Form 15b									
GS	17.595	4.161	17.880	-0.368	-0.378	2	25	0.77716	8107
AR	19.864	6.064	20.201	-0.215	-0.874	3	30	0.87037	8107
WK	27.691	5.373	28.606	-0.805	+0.327	5	35	0.85489	8107
PC	12.378	2.472	12.988	-1.288	+1.615	0	15	0.72760	8107
AS	16.515	4.750	16.885	-0.288	-0.703	0	25	0.81111	8107
MK	14.502	5.664	14.230	+0.081	-0.992	0	25	0.86326	8107
MC	16.800	4.378	17.182	-0.403	-0.382	0	25	0.76972	8107
EI	12.552	3.503	12.523	-0.052	-0.520	0	20	0.71077	8107
Form 15c									
GS	17.239	4.065	17.384	-0.221	-0.450	4	25	0.76358	8982
AR	19.338	6.256	19.327	-0.111	-0.896	2	30	0.87573	8982
WK	28.160	5.102	28.995	-1.018	+1.221	3	35	0.84833	8982
PC	11.758	2.466	12.247	-1.145	+1.425	0	15	0.65763	8982
AS	16.826	4.576	17.156	-0.311	-0.592	0	25	0.79205	8982
MK	14.452	5.712	13.954	+0.127	-1.033	0	25	0.86715	8982
MC	16.454	4.680	16.822	-0.296	-0.653	0	25	0.79511	8982
EI	12.750	3.514	12.992	-0.312	-0.364	0	20	0.71734	8982
Form 16a									
GS	17.328	4.437	17.717	-0.406	-0.454	2	25	0.80654	8936
AR	19.696	5.803	19.806	-0.161	-0.709	1	30	0.85350	8936
WK	27.940	5.219	28.955	-0.948	+0.702	4	35	0.85364	8936
PC	12.600	2.461	13.266	-1.497	+2.455	0	15	0.73554	8936
AS	16.504	5.330	17.076	-0.357	-0.785	0	25	0.84997	8936
MK	14.307	5.829	13.600	+0.203	-1.044	0	25	0.87047	8936
MC	17.066	4.329	17.573	-0.483	-0.248	0	25	0.76075	8936
EI	13.031	3.675	13.125	-0.215	-0.437	0	20	0.74113	8936

Table A-3. (Concluded)

	Mean	Standard Deviation	Median	Skew	Kurtosis	Min	Max	KR-20	N
Form 16b									
GS	17.374	4.479	17.832	-0.427	-0.408	2	25	0.81136	8618
AR	19.729	6.254	19.934	-0.183	-0.875	0	30	0.87669	8618
WK	28.085	5.172	28.908	-0.847	+0.516	2	35	0.85482	8618
PC	12.254	2.447	12.778	-1.100	+1.114	0	15	0.69888	8618
AS	16.555	5.349	17.146	-0.372	-0.767	0	25	0.85210	8618
MK	14.444	5.806	13.913	+0.153	-1.061	0	25	0.86989	8618
MC	17.043	4.318	17.577	-0.465	-0.386	0	25	0.76027	8618
EI	13.145	3.697	13.260	-0.215	-0.540	0	20	0.74718	8618
Form 17a									
GS	17.425	4.062	17.723	-0.402	-0.269	3	25	0.76235	8395
AR	19.807	6.387	20.072	-0.229	-0.848	3	30	0.88259	8395
WK	28.018	5.630	28.972	-0.906	+0.539	1	35	0.87317	8395
PC	12.329	2.519	12.960	-1.286	+1.549	1	15	0.72257	8395
AS	17.048	4.986	17.389	-0.300	-0.737	0	25	0.83353	8395
MK	14.643	5.504	14.077	+0.151	-0.924	0	25	0.85800	8395
MC	16.942	4.198	17.235	-0.391	-0.303	0	25	0.75377	8395
EI	12.985	3.765	13.078	-0.180	-0.571	0	20	0.75894	8395
Form 17b									
GS	17.393	4.090	17.730	-0.408	-0.256	0	25	0.76494	8082
AR	19.440	6.133	19.889	-0.256	-0.738	2	30	0.87150	8082
WK	28.148	5.291	29.120	-0.892	+0.553	2	35	0.85943	8082
PC	12.221	2.400	12.729	-1.127	+1.312	0	15	0.69978	8082
AS	16.927	4.983	17.264	-0.265	-0.765	2	25	0.83015	8082
MK	14.342	5.428	13.833	+0.162	-0.862	0	25	0.85109	8082
MC	16.940	4.149	17.184	-0.358	-0.300	0	25	0.74772	8082
EI	12.721	3.788	12.699	-0.095	-0.619	0	20	0.75771	8082

Table A-4. Descriptive Statistics of Subtest Raw Score Data for Total Sample - Blacks by Form

	Mean	Standard Deviation	Median	Skew	Kurtosis	Min	Max	KR-20	N
Form 15a									
GS	13.362	3.817	13.110	+0.307	-0.133	2	25	0.67776	3770
AR	14.354	4.913	13.821	+0.559	+0.129	2	30	0.75896	3770
WK	22.481	6.606	23.046	-0.285	-0.670	2	35	0.86841	3770
PC	10.818	2.853	11.251	-0.657	-0.093	0	15	0.71408	3770
AS	10.809	3.879	10.316	+0.571	+0.167	0	24	0.65800	3770
MK	11.782	4.721	11.051	+0.562	-0.229	0	25	0.78427	3770
MC	12.086	3.963	11.914	+0.194	-0.201	0	25	0.66536	3770
EI	9.690	2.961	9.408	+0.485	+0.406	0	20	0.53930	3770
Form 15b									
GS	13.464	3.854	13.181	+0.284	-0.157	0	25	0.68345	3285
AR	14.386	5.100	13.667	+0.597	-0.023	0	30	0.78811	3285
WK	22.994	5.826	23.155	-0.183	-0.497	5	35	0.83303	3285
PC	10.803	2.912	11.331	-0.672	-0.161	1	15	0.72743	3285
AS	10.561	3.846	10.125	+0.552	+0.233	0	25	0.65108	3285
MK	11.621	4.683	10.941	+0.545	-0.193	0	25	0.78094	3285
MC	12.017	3.986	11.830	+0.168	-0.216	0	25	0.66813	3285
EI	9.627	2.996	9.347	+0.497	+0.633	0	20	0.55174	3285
Form 15c									
GS	12.979	3.786	12.722	+0.319	+0.000	0	25	0.65969	3589
AR	13.709	5.106	12.920	+0.641	+0.083	3	30	0.78437	3589
WK	23.192	5.902	23.317	-0.237	-0.417	0	35	0.83785	3589
PC	9.897	2.776	10.186	-0.432	-0.359	0	15	0.64798	3589
AS	11.003	3.843	10.504	+0.599	+0.219	0	25	0.65431	3589
MK	11.402	4.751	10.553	+0.651	-0.123	0	25	0.78978	3589
MC	11.086	3.865	10.596	+0.558	+0.020	0	24	0.65128	3589
EI	9.063	3.174	8.845	+0.301	-0.067	0	20	0.60450	3589
Form 16a									
GS	13.188	4.216	12.929	+0.248	-0.417	2	25	0.74528	3705
AR	14.905	5.052	14.525	+0.299	-0.345	3	30	0.77303	3705
WK	22.915	5.801	23.180	-0.221	-0.447	2	35	0.83560	3705
PC	10.584	3.050	11.064	-0.592	-0.327	0	15	0.74584	3705
AS	9.630	4.423	8.952	+0.693	+0.222	0	25	0.75063	3705
MK	11.847	4.889	10.947	+0.586	-0.311	0	25	0.79738	3705
MC	12.415	4.027	12.180	+0.214	-0.349	0	25	0.66943	3705
EI	9.729	3.459	9.476	+0.375	-0.073	0	20	0.65392	3705

Table A-4. (Concluded)

	Mean	Standard Deviation	Median	Skew	Kurtosis	Min	Max	KR-20	N
Form 16b									
GS	13.263	4.247	12.980	+0.229	-0.482	3	25	0.75039	3542
AR	14.323	5.327	13.603	+0.547	-0.128	1	30	0.80153	3542
WK	23.830	5.414	24.074	-0.325	-0.113	4	35	0.83270	3542
PC	10.603	2.799	10.897	-0.500	-0.233	0	15	0.68853	3542
AS	9.715	4.441	9.052	+0.619	+0.034	0	25	0.75297	3542
MK	11.836	4.977	10.910	+0.601	-0.321	1	25	0.80535	3542
MC	12.419	4.016	12.207	+0.187	-0.346	0	25	0.66590	3542
EI	9.727	3.475	9.537	+0.311	-0.147	0	20	0.65633	3542
Form 17a									
GS	13.084	4.055	12.955	+0.166	-0.303	2	25	0.69583	3535
AR	13.995	5.445	13.116	+0.604	-0.151	2	30	0.80838	3535
WK	22.699	6.411	22.913	-0.177	-0.532	2	35	0.86215	3535
PC	10.558	2.965	10.965	-0.619	-0.124	0	15	0.72466	3535
AS	10.828	3.997	10.353	+0.652	+0.410	0	25	0.68701	3535
MK	12.210	4.585	11.594	+0.494	-0.194	0	25	0.77727	3535
MC	12.689	3.843	12.614	+0.101	-0.127	0	25	0.65347	3535
EI	9.538	3.361	9.184	+0.471	+0.191	0	20	0.64599	3535
Form 17b									
GS	13.146	4.073	12.903	+0.225	-0.325	2	25	0.70076	3381
AR	14.163	5.298	13.515	+0.473	-0.313	1	30	0.79799	3381
WK	23.133	6.200	23.210	-0.181	-0.602	4	35	0.85919	3381
PC	10.618	2.611	10.982	-0.626	+0.076	0	15	0.67000	3381
AS	10.726	4.010	10.221	+0.686	+0.411	0	25	0.68725	3381
MK	12.063	4.589	11.391	+0.492	-0.278	0	25	0.77548	3381
MC	12.814	3.833	12.638	+0.121	-0.179	0	25	0.65003	3381
EI	9.498	3.424	9.207	+0.478	+0.119	0	20	0.66097	3381

Table A-5. Descriptive Statistics of Subtest Raw Score Data for Total Sample - Hispanics by Form

	Mean	Standard Deviation	Median	Skew	Kurtosis	Min	Max	KR-20	N
Form 15a									
GS	14.301	4.193	14.075	+0.119	-0.506	3	25	0.73642	1191
AR	16.303	5.647	15.719	+0.331	-0.466	3	30	0.82537	1191
WK	22.615	6.929	23.170	-0.256	-0.795	3	35	0.87867	1191
PC	11.196	2.863	11.689	-0.758	-0.005	2	15	0.73195	1191
AS	.834	4.690	12.179	+0.298	-0.636	1	25	0.77471	1191
MK	13.004	5.158	12.332	+0.390	-0.547	0	25	0.82184	1191
MC	14.101	4.258	14.083	-0.023	-0.310	0	25	0.72245	1191
EI	10.458	3.426	10.230	+0.350	-0.206	0	20	0.66934	1191
Form 15b									
GS	14.318	4.442	13.980	+0.158	-0.522	3	25	0.76670	1134
AR	16.312	5.837	15.672	+0.296	-0.669	3	30	0.84411	1134
WK	23.131	6.799	23.160	-0.130	-0.869	6	35	0.86057	1134
PC	10.868	3.117	11.514	-0.652	-0.368	1	15	0.76716	1134
AS	12.541	4.523	12.204	+0.280	-0.563	2	25	0.75307	1134
MK	12.787	5.229	11.690	+0.439	-0.674	2	25	0.82870	1134
MC	13.805	4.337	13.871	+0.040	-0.506	2	25	0.73352	1134
EI	10.631	3.336	10.528	+0.285	-0.096	1	20	0.64470	1134
Form 15c									
GS	13.889	4.024	13.684	+0.084	-0.346	2	24	0.70618	1095
AR	15.556	5.526	14.797	+0.486	-0.300	4	30	0.81812	1095
WK	24.305	5.485	24.694	-0.367	-0.266	7	35	0.81995	1095
PC	10.014	2.878	10.430	-0.483	-0.388	0	15	0.67540	1095
AS	12.915	4.691	12.482	+0.290	-0.531	0	25	0.77429	1095
MK	11.980	5.191	11.173	+0.469	-0.447	0	25	0.82591	1095
MC	12.935	4.472	12.454	+0.258	-0.460	0	25	0.74710	1095
EI	10.075	3.467	9.949	+0.054	-0.386	0	20	0.67372	1095
Form 16a									
GS	14.106	4.405	13.949	+0.169	-0.541	3	25	0.76900	1100
AR	16.487	5.516	16.325	+0.131	-0.558	3	30	0.81819	1100
WK	23.577	6.021	24.125	-0.319	-0.520	6	35	0.84841	1100
PC	10.870	3.224	11.588	-0.729	-0.270	1	15	0.78575	1100
AS	11.705	5.338	11.027	+0.344	-0.816	1	25	0.83136	1100
MK	12.665	5.450	11.636	+0.422	-0.738	1	25	0.83967	1100
MC	13.987	4.313	13.886	+0.000	-0.554	2	25	0.72142	1100
EI	10.862	3.707	10.631	+0.198	-0.554	1	20	0.71069	1100

Table A-5. (Concluded)

	Mean	Standard Deviation	Median	Skew	Kurtosis	Min	Max	KR-20	N
Form 16b									
GS	14.126	4.451	13.909	+0.123	-0.564	2	25	0.77552	1106
AR	15.981	5.813	15.265	+0.384	-0.630	4	30	0.83749	1106
WK	23.327	6.252	23.610	-0.349	-0.311	5	35	0.86318	1106
PC	10.809	2.880	11.248	-0.608	-0.229	1	15	0.71133	1106
AS	11.650	5.200	11.205	+0.383	-0.633	1	25	0.82097	1106
MK	12.665	5.313	11.838	+0.420	-0.573	0	25	0.83086	1106
MC	14.216	4.430	14.293	-0.060	-0.547	0	25	0.73973	1106
EI	10.723	3.796	10.686	+0.114	-0.578	0	20	0.72585	1106
Form 17a									
GS	13.726	4.416	13.452	+0.157	-0.497	1	25	0.75098	1115
AR	15.881	5.832	15.388	+0.310	-0.497	4	30	0.83679	1115
WK	23.357	6.580	23.478	-0.231	-0.540	5	35	0.86946	1115
PC	10.813	3.096	11.340	-0.636	-0.325	0	15	0.75736	1115
AS	12.842	4.730	12.413	+0.357	-0.437	2	25	0.77814	1115
MK	12.977	4.931	12.415	+0.410	-0.471	1	25	0.80707	1115
MC	14.229	4.213	14.197	+0.021	-0.445	4	25	0.72263	1115
EI	10.708	3.677	10.504	+0.212	-0.327	0	20	0.71608	1115
Form 17b									
GS	13.946	4.362	13.651	+0.154	-0.427	2	25	0.74515	1012
AR	16.019	5.879	15.449	+0.251	-0.723	4	30	0.84167	1012
WK	23.253	6.420	23.025	-0.049	-0.890	8	35	0.86562	1012
PC	10.885	2.842	11.513	-0.813	+0.218	0	15	0.72736	1012
AS	12.827	4.886	12.227	+0.370	-0.536	2	25	0.79304	1012
MK	13.083	5.159	12.487	+0.329	-0.601	0	25	0.82330	1012
MC	14.196	4.229	14.216	-0.082	-0.233	0	25	0.72650	1012
EI	10.575	3.815	10.098	+0.360	-0.496	0	20	0.73969	1012

APPENDIX B: RANDOM SAMPLE DESCRIPTIVE STATISTICS FOR SUBTEST RAW SCORES FOR GENDER AND ETHNIC GROUPS BY FORM

Table B-1. Descriptive Statistics of Random Samples of Males, Form 15a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	15.570	4.695	15.583	-0.122	-0.493	4.000	25.000	0.79963	100
	16.692	4.402	16.742	-0.216	-0.620	6.000	25.000	0.78607	500
	16.235	4.471	16.241	-0.122	-0.638	4.000	25.000	0.79014	1000
	16.402	4.495	16.622	-0.216	-0.647	2.000	25.000	0.79533	2000
AR	17.600	6.653	16.929	+0.019	-0.917	4.000	29.000	0.88250	100
	18.052	6.066	17.333	+0.115	-0.803	4.000	30.000	0.85657	500
	18.279	6.243	17.827	+0.104	-0.922	3.000	30.000	0.86601	1000
	18.054	6.284	17.580	+0.097	-0.869	2.000	30.000	0.86809	2000
WK	26.950	6.076	27.955	-0.946	+0.384	8.000	35.000	0.88237	100
	26.754	6.143	28.150	-0.811	+0.020	7.000	35.000	0.87986	500
	26.123	6.662	27.521	-0.803	-0.099	6.000	35.000	0.89490	1000
	26.051	6.561	27.444	-0.794	-0.085	3.000	35.000	0.89071	2000
PC	11.360	2.820	11.900	-0.865	+0.314	4.000	15.000	0.73305	100
	11.748	2.824	12.513	-0.900	+0.071	2.000	15.000	0.75676	500
	11.884	2.794	12.625	-1.143	+0.972	0.000	15.000	0.75668	1000
	11.868	2.716	12.531	-0.984	+0.418	2.000	15.000	0.73944	2000
AS	15.180	5.106	14.833	+0.134	-0.862	4.000	25.000	0.82670	100
	15.586	4.916	15.887	-0.179	-0.841	4.000	25.000	0.81462	500
	15.708	4.994	15.955	-0.177	-0.809	3.000	25.000	0.82189	1000
	15.580	4.970	15.761	-0.146	-0.830	0.000	25.000	0.82033	2000
MK	13.500	5.577	12.700	+0.305	-1.014	4.000	25.000	0.85266	100
	14.098	5.775	13.533	+0.185	-1.055	2.000	25.000	0.86689	500
	13.934	5.629	13.125	+0.278	-0.980	2.000	25.000	0.85852	1000
	13.672	5.535	12.900	+0.295	-0.889	1.000	25.000	0.85122	2000
MC	15.940	4.343	16.250	-0.187	-0.701	4.000	24.000	0.75099	100
	15.750	4.895	16.177	-0.291	-0.626	3.000	25.000	0.80809	500
	16.034	4.744	16.066	-0.144	-0.759	3.000	25.000	0.79849	1000
	15.898	4.675	16.182	-0.264	-0.587	1.000	25.000	0.78912	2000
EI	12.400	3.528	12.045	+0.340	-0.791	6.000	20.000	0.71861	100
	12.222	3.471	11.958	+0.101	-0.793	5.000	20.000	0.69715	500
	11.974	3.556	11.776	+0.206	-0.556	3.000	20.000	0.71090	1000
	12.024	3.508	11.897	+0.106	-0.566	3.000	20.000	0.70178	2000

Table B-2. Descriptive Statistics of Random Samples of Males, Form 15b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	16.260	4.507	16.625	-0.127	-0.754	6.000	25.000	0.78948	100
	16.388	4.461	16.569	-0.257	-0.531	2.000	25.000	0.79042	500
	16.714	4.627	16.823	-0.242	-0.718	3.000	25.000	0.81035	1000
	16.471	4.559	16.657	-0.230	-0.675	3.000	25.000	0.80025	2000
AR	18.010	6.545	17.900	-0.017	-1.032	5.000	30.000	0.88558	100
	18.226	6.201	18.028	+0.100	-0.960	3.000	30.000	0.86817	500
	18.282	6.350	18.020	+0.012	-0.942	3.000	30.000	0.87637	1000
	18.246	6.389	17.941	+0.049	-1.033	2.000	30.000	0.87656	2000
WK	25.670	6.745	26.500	-0.450	-0.540	8.000	35.000	0.89380	100
	26.130	6.362	27.094	-0.637	-0.210	7.000	35.000	0.88461	500
	25.645	6.155	26.276	-0.504	-0.396	7.000	35.000	0.86982	1000
	25.818	6.156	26.671	-0.526	-0.427	5.000	35.000	0.87251	2000
PC	11.800	2.712	12.389	-1.043	+0.617	3.000	15.000	0.73196	100
	11.688	2.772	12.253	-0.955	+0.519	2.000	15.000	0.74222	500
	11.672	2.806	12.403	-0.863	+0.133	1.000	15.000	0.74871	1000
	11.775	2.790	12.475	-0.954	+0.372	0.000	15.000	0.75266	2000
AS	14.660	4.932	14.625	+0.051	-0.973	4.000	24.000	0.80214	100
	15.582	4.742	15.763	-0.106	-0.762	3.000	25.000	0.80044	500
	15.302	5.053	15.669	-0.127	-0.853	2.000	25.000	0.82394	1000
	15.395	5.071	15.616	-0.141	-0.854	0.000	25.000	0.82534	2000
MK	12.560	5.507	11.375	+0.379	-0.679	2.000	25.000	0.84857	100
	13.508	5.472	12.780	+0.255	-0.888	2.000	25.000	0.84827	500
	13.597	5.583	13.032	+0.274	-0.892	1.000	25.000	0.85355	1000
	13.664	5.712	12.881	+0.271	-0.944	1.000	25.000	0.86310	2000
MC	16.550	3.846	16.250	-0.122	+0.104	6.000	25.000	0.68098	100
	15.980	4.604	16.357	-0.295	-0.393	2.000	25.000	0.78309	500
	15.874	4.566	16.075	-0.223	-0.531	0.000	25.000	0.78016	1000
	15.778	4.664	15.957	-0.274	-0.415	0.000	25.000	0.78765	2000
EI	11.350	3.831	11.200	-0.148	-0.490	2.000	19.000	0.75213	100
	12.020	3.466	11.907	+0.038	-0.487	3.000	20.000	0.69512	500
	12.068	3.513	11.846	+0.113	-0.632	4.000	20.000	0.70401	1000
	12.078	3.603	11.901	+0.104	-0.572	0.000	20.000	0.72057	2000

Table B-3. Descriptive Statistics of Random Samples of Males, Form 15c

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	15.740	4.679	15.214	+0.119	-1.027	6.000	25.000	0.80206	100
	16.190	4.477	16.321	-0.192	-0.511	4.000	25.000	0.79527	500
	16.093	4.613	16.152	-0.123	-0.566	3.000	25.000	0.80463	1000
	15.987	4.493	16.103	-0.077	-0.669	4.000	25.000	0.79274	2000
AR	17.410	6.898	16.500	+0.209	-1.039	5.000	30.000	0.89290	100
	17.904	6.432	17.689	+0.077	-0.912	3.000	30.000	0.87577	500
	17.823	6.616	17.321	+0.098	-0.972	3.000	30.000	0.88386	1000
	17.710	6.504	17.327	+0.124	-0.985	4.000	30.000	0.87882	2000
WK	26.170	5.551	26.278	-0.427	-0.412	12.000	35.000	0.84449	100
	26.780	5.455	27.500	-0.631	+0.016	8.000	35.000	0.84739	500
	26.303	5.849	26.903	-0.706	+0.127	7.000	35.000	0.86363	1000
	26.851	5.668	27.801	-0.835	+0.470	3.000	35.000	0.86066	2000
PC	11.030	2.630	11.333	-1.100	+1.310	3.000	15.000	0.66024	100
	10.980	2.877	11.586	-0.839	+0.159	2.000	15.000	0.71821	500
	11.087	2.784	11.704	-0.894	+0.378	0.000	15.000	0.70290	1000
	11.037	2.804	11.540	-0.857	+0.386	1.000	15.000	0.70569	2000
AS	14.420	4.759	13.875	+0.269	-0.841	6.000	25.000	0.78867	100
	15.824	5.029	15.932	-0.132	-0.884	4.000	25.000	0.82269	500
	15.830	4.899	15.947	-0.184	-0.739	3.000	25.000	0.81130	1000
	15.685	4.938	15.942	-0.175	-0.781	0.000	25.000	0.81481	2000
MK	12.680	5.083	11.929	+0.471	-0.426	3.000	24.000	0.81336	100
	13.334	5.559	12.352	+0.414	-0.813	3.000	25.000	0.85119	500
	13.365	5.468	12.345	+0.366	-0.795	0.000	25.000	0.84836	1000
	13.470	5.509	12.560	+0.381	-0.807	0.000	25.000	0.85173	2000
MC	15.200	4.956	15.625	-0.290	-0.620	4.000	25.000	0.80803	100
	15.100	5.076	15.130	-0.082	-0.769	2.000	25.000	0.81649	500
	14.991	4.951	14.815	-0.045	-0.776	0.000	25.000	0.80699	1000
	15.241	5.040	15.274	-0.075	-0.944	2.000	25.000	0.81634	2000
EI	11.460	3.948	11.900	-0.187	-0.688	1.000	19.000	0.76298	100
	11.844	3.831	12.011	-0.275	-0.419	0.000	20.000	0.75319	500
	12.057	3.793	12.245	-0.247	-0.503	1.000	20.000	0.75207	1000
	11.967	3.711	12.150	-0.191	-0.513	0.000	20.000	0.73868	2000

Table B-4. Descriptive Statistics of Random Samples of Males, Form 16a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	16.970	4.691	17.227	-0.381	-0.537	5.000	25.000	0.82651	100
	16.074	4.674	16.314	-0.299	-0.663	4.000	25.000	0.81250	500
	15.969	4.733	16.081	-0.092	-0.799	3.000	25.000	0.81804	1000
	16.265	4.728	16.396	-0.167	-0.774	2.000	25.000	0.81955	2000
AR	18.130	5.764	18.250	+0.071	+0.095	1.000	30.000	0.84587	100
	18.238	6.077	17.923	-0.003	-0.640	2.000	30.000	0.85884	500
	18.478	6.011	18.336	+0.029	-0.832	3.000	30.000	0.85678	1000
	18.323	6.116	18.077	+0.022	-0.762	3.000	30.000	0.86120	2000
WK	25.340	6.504	25.875	-0.439	-0.910	11.000	35.000	0.88820	100
	25.656	6.137	26.321	-0.512	-0.366	8.000	35.000	0.87487	500
	25.932	6.260	26.875	-0.646	-0.191	5.000	35.000	0.88277	1000
	26.290	5.889	27.290	-0.677	-0.057	2.000	35.000	0.86811	2000
PC	12.430	2.705	13.400	-1.206	+0.765	4.000	15.000	0.77707	100
	11.702	2.835	12.464	-0.919	+0.240	1.000	15.000	0.75237	500
	11.811	2.921	12.513	-1.136	+0.930	0.000	15.000	0.77641	1000
	11.869	2.911	12.704	-1.054	+0.485	0.000	15.000	0.77801	2000
AS	14.490	5.370	14.500	-0.183	-0.845	3.000	25.000	0.83879	100
	15.064	5.532	15.132	-0.137	-0.855	0.000	25.000	0.85079	500
	15.316	5.684	15.580	-0.215	-0.949	0.000	25.000	0.86317	1000
	15.270	5.685	15.647	-0.177	-0.995	0.000	25.000	0.86304	2000
MK	13.480	5.835	12.300	+0.348	-0.861	2.000	25.000	0.87010	100
	13.680	5.807	13.000	+0.279	-0.903	1.000	25.000	0.86613	500
	13.523	5.796	12.321	+0.394	-0.853	0.000	25.000	0.86406	1000
	13.382	5.753	12.241	+0.383	-0.873	0.000	25.000	0.86237	2000
MC	16.220	4.968	17.167	-0.375	-0.785	4.000	25.000	0.81412	100
	16.536	4.525	16.853	-0.477	-0.263	1.000	25.000	0.77575	500
	16.135	4.697	16.673	-0.308	-0.705	3.000	25.000	0.78839	1000
	15.980	4.679	16.401	-0.308	-0.590	3.000	25.000	0.78429	2000
EI	12.270	4.062	12.250	-0.175	-0.518	3.000	20.000	0.77862	100
	12.562	4.048	12.525	-0.119	-0.650	1.000	20.000	0.78258	500
	12.305	3.851	12.373	-0.187	-0.500	0.000	20.000	0.75622	1000
	12.462	3.896	12.469	-0.134	-0.624	0.000	20.000	0.76241	2000

Table B-5. Descriptive Statistics of Random Samples of Males, Form 16b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	15.680	4.767	15.300	-0.251	-0.524	3.000	24.000	0.81697	100
	16.388	4.799	16.614	-0.225	-0.800	3.000	25.000	0.82605	500
	16.063	4.794	16.236	-0.165	-0.757	3.000	25.000	0.82161	1000
	16.261	4.825	16.556	-0.256	-0.752	3.000	25.000	0.82773	2000
AR	17.370	6.449	16.500	+0.383	-0.865	6.000	30.000	0.87678	100
	18.366	6.800	18.239	+0.003	-1.092	3.000	30.000	0.89253	500
	18.267	6.667	17.895	+0.069	-1.071	2.000	30.000	0.88723	1000
	17.730	6.493	17.344	+0.131	-0.919	2.000	30.000	0.87731	2000
WK	25.890	6.364	26.500	-0.714	+0.090	9.000	35.000	0.89044	100
	26.414	6.020	26.952	-0.573	-0.271	7.000	35.000	0.88096	500
	26.240	5.965	27.232	-0.548	-0.373	6.000	35.000	0.87543	1000
	26.577	5.971	27.364	-0.739	+0.172	5.000	35.000	0.87934	2000
PC	11.640	2.706	12.000	-0.711	-0.069	4.000	15.000	0.71488	100
	11.574	2.706	12.015	-0.722	-0.077	2.000	15.000	0.71783	500
	11.470	2.797	12.008	-0.763	-0.012	1.000	15.000	0.72887	1000
	11.491	2.795	11.988	-0.873	+0.436	0.000	15.000	0.73124	2000
AS	15.330	5.902	15.375	-0.230	-0.907	3.000	25.000	0.87545	100
	15.202	5.726	15.500	-0.146	-1.032	2.000	25.000	0.86643	500
	15.218	5.619	15.623	-0.157	-1.045	3.000	25.000	0.85808	1000
	15.428	5.631	15.665	-0.172	-0.996	0.000	25.000	0.86095	2000
MK	14.230	5.949	13.500	+0.241	-1.064	3.000	25.000	0.87591	100
	13.626	5.668	12.882	+0.305	-0.919	4.000	25.000	0.85721	500
	13.406	5.980	12.231	+0.384	-0.962	1.000	25.000	0.87427	1000
	13.748	5.811	12.896	+0.288	-0.974	1.000	25.000	0.86755	2000
MC	16.280	4.630	16.250	-0.282	-0.337	2.000	25.000	0.78468	100
	15.976	4.625	16.400	-0.295	-0.579	0.000	25.000	0.77819	500
	16.199	4.656	16.683	-0.303	-0.747	2.000	25.000	0.78516	1000
	16.146	4.557	16.494	-0.293	-0.603	2.000	25.000	0.77353	2000
EI	12.960	3.782	13.000	-0.258	-0.305	3.000	20.000	0.74854	100
	12.676	3.848	12.929	-0.231	-0.519	0.000	20.000	0.75744	500
	12.537	4.022	12.560	-0.181	-0.581	1.000	20.000	0.78141	1000
	12.564	3.952	12.701	-0.157	-0.664	0.000	20.000	0.76922	2000

Table B-6. Descriptive Statistics of Random Samples of Males, Form 17a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	15.170	4.088	15.071	+0.071	-0.584	6.000	24.000	0.72455	100
	16.266	4.673	16.622	-0.286	-0.594	3.000	25.000	0.80646	500
	15.898	4.670	16.093	-0.285	-0.550	2.000	25.000	0.80464	1000
	16.133	4.584	16.359	-0.274	-0.576	2.000	25.000	0.79725	2000
AR	17.800	6.174	17.786	+0.213	-0.761	7.000	30.000	0.86299	100
	17.954	6.488	17.722	+0.089	-0.963	4.000	30.000	0.87672	500
	18.202	6.660	18.000	+0.021	-0.973	2.000	30.000	0.88589	1000
	18.065	6.537	17.942	+0.045	-0.947	3.000	30.000	0.87966	2000
WK	26.190	6.669	27.333	-0.587	-0.567	9.000	35.000	0.89187	100
	26.154	6.556	27.500	-0.668	-0.289	7.000	35.000	0.89080	500
	26.001	6.524	27.036	-0.622	-0.257	5.000	35.000	0.88975	1000
	26.111	6.525	26.900	-0.582	-0.376	6.000	35.000	0.89045	2000
PC	11.780	3.196	12.800	-1.133	+0.572	2.000	15.000	0.82018	100
	11.590	2.928	12.338	-1.089	+0.894	0.000	15.000	0.76535	500
	11.668	2.767	12.281	-0.900	+0.231	3.000	15.000	0.73384	1000
	11.615	2.863	12.283	-0.986	+0.487	0.000	15.000	0.75168	2000
AS	15.760	5.027	15.250	-0.062	-0.854	4.000	25.000	0.82324	100
	15.982	5.180	16.063	-0.167	-0.754	0.000	25.000	0.83613	500
	15.681	5.258	15.833	-0.064	-0.884	0.000	25.000	0.84135	1000
	15.845	5.288	15.836	-0.140	-0.818	0.000	25.000	0.84427	2000
MK	14.100	5.825	13.333	+0.237	-0.985	3.000	25.000	0.86956	100
	14.090	5.634	13.438	+0.217	-0.877	1.000	25.000	0.86410	500
	14.034	5.381	13.276	+0.258	-0.812	2.000	25.000	0.84512	1000
	13.735	5.400	12.896	+0.324	-0.755	0.000	25.000	0.84713	2000
MC	16.690	4.480	17.357	-0.324	-0.718	6.000	25.000	0.78538	100
	16.378	4.315	16.386	-0.247	-0.385	4.000	25.000	0.75696	500
	15.898	4.483	16.088	-0.191	-0.535	3.000	25.000	0.77416	1000
	16.107	4.387	16.216	-0.234	-0.499	0.000	25.000	0.76523	2000
EI	11.760	3.864	11.929	-0.268	-0.448	2.000	19.000	0.75969	100
	12.634	3.656	12.718	+0.017	-0.706	3.000	20.000	0.73366	500
	12.484	3.940	12.500	-0.093	-0.607	0.000	20.000	0.77568	1000
	12.470	3.965	12.510	-0.099	-0.564	0.000	20.000	0.77721	2000

Table B-7. Descriptive Statistics of Random Samples of Males, Form 17b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	15.810	4.296	15.750	+0.127	-1.010	8.000	24.000	0.76171	100
	16.128	4.616	16.283	-0.188	-0.574	2.000	25.000	0.79910	500
	16.121	4.604	16.386	-0.216	-0.645	3.000	25.000	0.80199	1000
	16.251	4.611	16.605	-0.285	-0.642	2.000	25.000	0.80215	2000
AR	18.040	6.613	17.700	-0.071	-1.001	5.000	30.000	0.88548	100
	18.440	6.442	18.457	-0.069	-0.936	3.000	30.000	0.88114	500
	18.079	6.535	18.128	-0.015	-0.953	2.000	30.000	0.88246	1000
	17.914	6.436	18.071	-0.022	-0.965	3.000	30.000	0.87677	2000
WK	26.200	6.849	28.071	-0.865	+0.292	4.000	35.000	0.90450	100
	25.978	6.483	27.214	-0.621	-0.446	7.000	35.000	0.89028	500
	26.077	6.042	27.093	-0.567	-0.380	8.000	35.000	0.87191	1000
	26.033	6.346	27.083	-0.589	-0.381	7.000	35.000	0.88522	2000
PC	11.690	2.541	12.125	-0.722	-0.078	4.000	15.000	0.69770	100
	11.648	2.711	12.176	-1.028	+1.087	0.000	15.000	0.74027	500
	11.654	2.569	12.066	-0.774	+0.107	2.000	15.000	0.70373	1000
	11.568	2.682	12.106	-0.864	+0.322	2.000	15.000	0.72576	2000
AS	15.810	5.875	16.000	-0.173	-1.006	3.000	25.000	0.87902	100
	16.078	5.096	16.014	-0.185	-0.725	2.000	25.000	0.83002	500
	15.710	5.369	15.694	-0.021	-0.999	3.000	25.000	0.84748	1000
	15.757	5.244	15.743	-0.073	-0.935	0.000	25.000	0.83898	2000
MK	13.360	5.542	12.300	+0.423	-0.624	4.000	25.000	0.85631	100
	13.316	5.404	12.579	+0.348	-0.753	2.000	25.000	0.84553	500
	13.323	5.353	12.527	+0.390	-0.651	0.000	25.000	0.84119	1000
	13.540	5.324	12.727	+0.358	-0.677	1.000	25.000	0.83979	2000
MC	16.060	4.724	16.100	-0.244	-0.625	5.000	25.000	0.80074	100
	16.184	4.483	16.289	-0.226	-0.550	2.000	25.000	0.77924	500
	16.172	4.487	16.401	-0.288	-0.468	2.000	25.000	0.77640	1000
	16.092	4.457	16.331	-0.268	-0.524	0.000	25.000	0.77234	2000
EI	12.430	4.164	12.400	-0.007	-0.685	3.000	20.000	0.80143	100
	12.448	3.876	12.326	+0.003	-0.610	2.000	20.000	0.76338	500
	11.859	4.003	11.681	+0.011	-0.658	0.000	20.000	0.77713	1000
	12.089	3.939	11.994	+0.005	-0.746	1.000	20.000	0.76901	2000

Table B-8. Descriptive Statistics of Random Samples of Females, Form 15a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	15.290	3.663	15.375	-0.256	+0.613	5.000	25.000	0.68622	100
	14.970	4.198	14.826	+0.116	-0.544	4.000	25.000	0.75801	500
	14.667	4.016	14.397	+0.129	-0.372	4.000	25.000	0.73290	1000
	14.677	4.058	14.396	+0.159	-0.392	2.000	25.000	0.73789	2000
AR	16.870	5.608	15.900	+0.304	-0.568	7.000	30.000	0.83211	100
	16.692	5.838	15.894	+0.393	-0.555	4.000	30.000	0.84193	500
	16.831	5.649	16.203	+0.299	-0.492	3.000	30.000	0.82981	1000
	16.818	5.723	16.084	+0.369	-0.579	3.000	30.000	0.83451	2000
WK	24.910	6.581	26.000	-0.534	-0.657	9.000	35.000	0.88420	100
	25.708	6.522	26.844	-0.641	-0.184	3.000	35.000	0.88671	500
	25.565	6.564	26.725	-0.623	-0.317	5.000	35.000	0.88811	1000
	25.533	6.618	26.628	-0.618	-0.300	3.000	35.000	0.88971	2000
PC	12.270	2.356	12.767	-1.007	+0.467	5.000	15.000	0.68085	100
	12.360	2.371	12.909	-1.290	+2.009	1.000	15.000	0.70215	500
	12.298	2.466	12.936	-1.126	+1.006	1.000	15.000	0.71691	1000
	12.281	2.385	12.820	-1.148	+1.263	1.000	15.000	0.69492	2000
AS	10.330	3.458	9.875	+0.378	-0.150	2.000	19.000	0.57631	100
	9.948	3.455	9.632	+0.542	+0.736	2.000	23.000	0.57712	500
	9.955	3.323	9.726	+0.397	+0.158	0.000	22.000	0.53224	1000
	9.854	3.369	9.533	+0.538	+0.472	0.000	23.000	0.55240	2000
MK	13.790	5.317	13.071	+0.306	-0.624	0.000	25.000	0.84185	100
	13.776	5.107	13.179	+0.178	-0.772	0.000	25.000	0.82294	500
	14.068	5.011	13.635	+0.232	-0.636	0.000	25.000	0.81870	1000
	14.036	5.132	13.582	+0.225	-0.721	0.000	25.000	0.82747	2000
MC	11.640	4.225	11.333	+0.245	-0.609	4.000	22.000	0.71086	100
	12.062	4.091	11.755	+0.253	-0.322	2.000	24.000	0.68674	500
	12.204	4.134	11.988	+0.274	-0.366	2.000	23.000	0.69232	1000
	12.246	4.058	12.054	+0.174	-0.299	0.000	24.000	0.68176	2000
EI	10.010	3.083	9.654	+0.153	+0.682	0.000	18.000	0.58201	100
	9.402	2.588	9.402	+0.075	+0.188	0.000	18.000	0.37767	500
	9.382	2.855	9.215	+0.334	+0.485	0.000	20.000	0.50266	1000
	9.262	2.707	9.128	+0.276	+0.547	0.000	20.000	0.44087	2000

Table B-9. Descriptive Statistics of Random Samples of Females, Form 15b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	14.750	3.846	14.591	+0.138	-0.851	7.000	23.000	0.70551	100
	15.092	4.109	15.023	+0.041	-0.328	3.000	25.000	0.74880	500
	14.648	4.010	14.401	+0.179	-0.327	3.000	25.000	0.72772	1000
	14.765	4.006	14.573	+0.122	-0.298	3.000	25.000	0.72998	2000
AR	17.000	6.348	16.900	+0.098	-0.993	6.000	29.000	0.87340	100
	17.208	6.012	16.700	+0.220	-0.816	5.000	30.000	0.85741	500
	16.675	6.083	15.913	+0.325	-0.837	4.000	30.000	0.85934	1000
	16.974	5.938	16.471	+0.285	-0.771	4.000	30.000	0.85252	2000
WK	25.870	6.165	26.500	-0.566	-0.425	10.000	35.000	0.87110	100
	26.292	5.737	27.136	-0.488	-0.545	10.000	35.000	0.85647	500
	26.270	5.442	26.924	-0.478	-0.318	8.000	35.000	0.83776	1000
	26.120	5.625	26.770	-0.456	-0.431	8.000	35.000	0.84751	2000
PC	12.200	2.391	12.583	-0.789	+0.299	4.000	15.000	0.68958	100
	12.046	2.476	12.554	-1.074	+0.845	4.000	15.000	0.70399	500
	11.997	2.515	12.505	-1.069	+0.985	2.000	15.000	0.70737	1000
	12.028	2.480	12.550	-1.064	+0.897	2.000	15.000	0.70105	2000
AS	9.810	3.212	9.591	+0.293	+0.030	2.000	18.000	0.50236	100
	9.696	3.428	9.373	+0.518	+0.336	2.000	23.000	0.56678	500
	9.757	3.388	9.539	+0.521	+0.529	0.000	22.000	0.55643	1000
	9.772	3.454	9.508	+0.548	+0.495	0.000	24.000	0.57421	2000
MK	13.790	4.837	13.389	+0.253	-0.665	5.000	25.000	0.79758	100
	13.770	4.963	13.583	+0.237	-0.348	0.000	25.000	0.81202	500
	13.797	5.205	13.515	+0.192	-0.761	0.000	25.000	0.83293	1000
	13.708	5.116	13.350	+0.214	-0.672	0.000	25.000	0.82499	2000
MC	11.940	4.045	11.875	+0.289	-0.059	4.000	22.000	0.67291	100
	12.166	4.242	11.865	+0.365	-0.204	3.000	25.000	0.70854	500
	12.005	4.086	11.700	+0.277	-0.113	0.000	25.000	0.68351	1000
	11.996	4.106	11.704	+0.297	-0.218	0.000	25.000	0.68732	2000
EI	9.160	2.820	8.786	+0.479	-0.190	4.000	17.000	0.48044	100
	9.210	2.625	8.948	+0.536	+0.264	3.000	18.000	0.40282	500
	9.261	2.697	9.107	+0.435	+0.370	0.000	19.000	0.43591	1000
	9.259	2.720	9.079	+0.399	+0.438	0.000	20.000	0.44644	2000

Table B-10. Descriptive Statistics of Random Samples of Females, Form 15c

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	14.430	4.103	14.115	+0.458	-0.404	7.000	25.000	0.73749	100
	14.202	4.052	13.981	+0.166	-0.282	4.000	25.000	0.72479	500
	14.302	3.803	14.255	+0.114	-0.212	5.000	25.000	0.68303	1000
	14.192	3.919	14.031	+0.160	-0.262	3.000	25.000	0.70226	2000
AR	16.010	5.627	15.000	+0.512	-0.183	5.000	30.000	0.82819	100
	16.046	5.796	15.382	+0.357	-0.557	3.000	30.000	0.84060	500
	15.914	5.922	15.353	+0.375	-0.485	3.000	30.000	0.84772	1000
	16.061	5.879	15.478	+0.367	-0.540	3.000	30.000	0.84599	2000
WK	26.070	5.571	27.000	-0.518	-0.134	11.000	35.000	0.84410	100
	26.092	5.906	26.944	-0.447	-0.607	9.000	35.000	0.86256	500
	26.309	5.775	26.893	-0.518	-0.366	9.000	35.000	0.85995	1000
	26.089	5.835	26.645	-0.509	-0.286	0.000	35.000	0.85975	2000
PC	11.480	2.355	11.833	-0.775	+0.547	4.000	15.000	0.60828	100
	11.182	2.504	11.574	-0.810	+0.306	2.000	15.000	0.63114	500
	11.452	2.439	11.827	-0.934	+0.929	0.000	15.000	0.62737	1000
	11.340	2.515	11.770	-0.881	+0.632	0.000	15.000	0.64618	2000
AS	10.500	3.886	10.136	+0.414	-0.428	4.000	22.000	0.67177	100
	10.388	3.634	9.877	+0.597	+0.416	0.000	23.000	0.61959	500
	10.704	3.638	10.372	+0.451	+0.007	2.000	24.000	0.61528	1000
	10.617	3.660	10.226	+0.538	+0.261	0.000	25.000	0.62020	2000
MK	12.550	5.799	11.700	+0.319	-0.929	0.000	25.000	0.86975	100
	13.708	5.309	13.311	+0.223	-0.774	0.000	25.000	0.84092	500
	13.417	5.418	12.852	+0.285	-0.777	2.000	25.000	0.84685	1000
	13.699	5.266	13.209	+0.177	-0.809	0.000	25.000	0.83653	2000
MC	11.840	4.131	11.318	+0.346	-0.733	4.000	21.000	0.68716	100
	11.696	4.302	11.208	+0.318	-0.320	0.000	25.000	0.71707	500
	11.366	3.911	10.948	+0.367	-0.281	0.000	23.000	0.65335	1000
	11.530	4.069	11.038	+0.452	-0.141	0.000	25.000	0.68317	2000
EI	8.900	3.492	8.773	+0.634	+1.353	2.000	20.000	0.67756	100
	9.012	3.351	8.777	+0.323	+0.090	0.000	20.000	0.64415	500
	9.139	3.307	8.876	+0.283	+0.011	0.000	20.000	0.63387	1000
	9.049	3.235	8.856	+0.270	+0.006	0.000	20.000	0.61623	2000

Table B-11. Descriptive Statistics of Random Samples of Females, Form 16a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	14.570	4.379	14.929	-0.081	-1.023	6.000	23.000	0.76732	100
	15.160	4.523	14.763	+0.067	-0.575	4.000	25.000	0.79311	500
	14.884	4.502	14.863	-0.001	-0.541	2.000	25.000	0.78747	1000
	15.018	4.475	15.101	-0.045	-0.574	2.000	25.000	0.78642	2000
AR	17.840	5.037	17.667	-0.052	-0.292	5.000	29.000	0.78967	100
	17.144	5.435	17.000	+0.149	-0.541	3.000	30.000	0.81093	500
	16.914	5.656	16.759	+0.129	-0.613	3.000	30.000	0.82764	1000
	17.206	5.513	17.088	+0.105	-0.526	3.000	30.000	0.81819	2000
WK	26.100	6.114	26.667	-0.554	-0.433	11.000	35.000	0.87439	100
	26.388	5.719	27.147	-0.523	-0.386	9.000	35.000	0.85856	500
	25.999	5.960	26.759	-0.521	-0.439	8.000	35.000	0.86892	1000
	26.291	5.831	27.257	-0.605	-0.285	8.000	35.000	0.86493	2000
PC	12.070	2.694	12.850	-1.281	+1.459	3.000	15.000	0.74535	100
	12.036	2.692	12.644	-1.300	+1.650	2.000	15.000	0.74637	500
	12.095	2.624	12.740	-1.231	+1.464	1.000	15.000	0.73843	1000
	12.193	2.581	12.342	-1.225	+1.386	1.000	15.000	0.73424	2000
AS	8.400	4.447	7.722	+0.974	+0.983	1.000	23.000	0.77062	100
	8.606	3.799	8.032	+0.727	+0.717	0.000	24.000	0.66862	500
	8.555	3.721	8.126	+0.647	+0.423	0.000	23.000	0.65452	1000
	8.527	3.769	8.077	+0.616	+0.267	0.000	24.000	0.66665	2000
MK	13.910	4.593	13.409	+0.281	-0.467	5.000	24.000	0.78017	100
	13.868	5.386	13.139	+0.287	-0.751	1.000	25.000	0.84287	500
	13.947	5.201	13.567	+0.175	-0.829	1.000	25.000	0.83041	1000
	14.043	5.250	13.591	+0.236	-0.836	3.000	25.000	0.83418	2000
MC	12.930	4.098	13.167	-0.032	-0.713	4.000	22.000	0.68472	100
	12.802	4.294	12.622	+0.221	-0.389	0.000	24.000	0.71486	500
	12.630	4.076	12.489	+0.074	-0.400	0.000	24.000	0.67932	1000
	12.831	4.164	12.678	+0.175	-0.436	0.000	25.000	0.69550	2000
EI	10.030	3.515	10.000	+0.081	-0.331	2.000	19.000	0.66630	100
	9.260	3.233	9.156	+0.207	-0.125	0.000	19.000	0.60460	500
	9.409	3.120	9.326	+0.136	-0.163	0.000	19.000	0.57044	1000
	9.358	3.067	9.287	+0.183	-0.148	0.000	19.000	0.55534	2000

Table B-12. Descriptive Statistics of Random Samples of Females, Form 16b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	14.870	4.355	14.750	+0.041	-0.239	5.000	25.000	0.77420	100
	15.004	4.478	14.864	+0.026	-0.633	5.000	25.000	0.78837	500
	14.802	4.427	14.669	+0.077	-0.605	4.000	25.000	0.78312	1000
	14.951	4.424	14.825	+0.054	-0.670	4.000	25.000	0.78304	2000
AR	17.480	5.615	17.250	+0.163	-0.962	8.000	28.000	0.82879	100
	16.534	5.895	15.786	+0.336	-0.607	3.000	30.000	0.84478	500
	16.998	5.893	16.518	+0.193	-0.725	3.000	30.000	0.84637	1000
	16.951	5.837	16.375	+0.248	-0.716	3.000	30.000	0.84264	2000
WK	26.380	5.981	27.300	-0.762	+0.238	7.000	35.000	0.87585	100
	27.064	5.237	27.525	-0.588	+0.210	6.000	35.000	0.84578	500
	26.977	5.207	27.482	-0.627	+0.219	6.000	35.000	0.84148	1000
	26.973	5.271	27.542	-0.619	+0.167	5.000	35.000	0.84558	2000
PC	11.770	2.752	12.300	-0.817	+0.389	2.000	15.000	0.74366	100
	12.142	2.297	12.626	-0.909	+0.652	3.000	15.000	0.63843	500
	12.061	2.367	12.523	-0.881	+0.446	3.000	15.000	0.65658	1000
	12.058	2.426	12.518	-0.945	+0.701	2.000	15.000	0.67467	2000
AS	7.670	3.590	6.955	+0.574	-0.351	2.000	17.000	0.64175	100
	8.374	3.666	7.992	+0.622	+0.372	1.000	22.000	0.64540	500
	8.448	3.768	7.926	+0.530	-0.047	0.000	21.300	0.66523	1000
	8.483	3.741	7.977	+0.632	+0.303	0.000	23.000	0.65920	2000
MK	14.110	5.606	13.600	+0.371	-0.960	5.000	25.000	0.85588	100
	13.966	5.230	13.534	+0.209	-0.845	3.000	25.000	0.83082	500
	14.157	5.239	13.844	+0.208	-0.908	4.000	25.000	0.83437	1000
	13.976	5.258	13.693	+0.186	-0.871	3.000	25.000	0.83423	2000
MC	12.500	3.700	12.722	-0.136	-0.592	3.000	20.000	0.59837	100
	13.032	4.084	12.628	+0.251	-0.374	0.000	24.000	0.68134	500
	12.695	4.147	12.476	+0.258	-0.387	2.000	25.000	0.69178	1000
	12.720	4.152	12.456	+0.252	-0.361	0.000	25.000	0.69178	2000
EI	9.340	3.500	9.000	+0.444	+0.652	1.000	20.000	0.66583	100
	9.230	3.201	9.036	+0.268	-0.052	1.000	19.000	0.59766	500
	9.399	3.289	9.267	+0.313	-0.011	1.000	20.000	0.62011	1000
	9.358	3.191	9.194	+0.332	-0.025	1.000	20.000	0.59275	2000

Table B-13. Descriptive Statistics of Random Samples of Females, Form 17a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	14.120	4.115	13.700	-0.052	-0.328	5.000	23.000	0.70930	100
	14.454	4.344	14.656	-0.142	-0.534	2.000	25.000	0.74969	500
	14.592	4.412	14.715	-0.091	-0.653	2.000	25.000	0.75768	1000
	14.490	4.291	14.543	-0.073	-0.594	2.000	25.000	0.74060	2000
AR	16.840	6.786	16.000	+0.239	-1.162	6.000	30.000	0.88466	100
	16.740	6.450	16.352	+0.165	-0.884	3.000	30.000	0.87148	500
	16.677	6.114	16.245	+0.237	-0.775	3.000	30.000	0.85563	1000
	16.764	6.243	16.279	+0.250	-0.811	3.000	30.000	0.86305	2000
WK	25.490	6.325	26.500	-0.436	-0.656	8.000	35.000	0.87651	100
	25.648	6.189	25.860	-0.429	-0.408	6.000	35.000	0.87410	500
	26.110	6.132	26.731	-0.554	-0.223	6.000	35.000	0.87418	1000
	25.829	6.057	26.363	-0.480	-0.355	6.000	35.000	0.86858	2000
PC	12.270	2.322	12.813	-0.755	-0.314	6.000	15.000	0.65838	100
	12.112	2.468	12.728	-0.990	+0.506	3.000	15.000	0.69290	500
	12.158	2.465	12.694	-1.105	+1.304	0.000	15.000	0.69607	1000
	12.107	2.481	12.674	-1.058	+0.989	0.000	15.000	0.69711	2000
AS	10.640	3.436	10.625	+0.432	+0.500	3.000	20.000	0.57615	100
	10.070	3.688	9 711	+0.537	+0.251	2.000	23.000	0.62555	500
	9.927	3.460	9.650	+0.520	+0.437	0.000	22.000	0.57305	1000
	10.061	3.594	9.712	+0.599	+0.453	2.000	24.000	0.60557	2000
MK	13.790	4.685	13.278	+0.306	-0.233	3.000	25.000	0.79874	100
	14.048	5.008	13.826	+0.133	-0.710	3.000	25.000	0.82059	500
	14.139	5.110	13.766	+0.185	-0.849	2.000	25.000	0.83068	1000
	14.058	5.007	13.606	+0.186	-0.713	1.000	25.000	0.82271	2000
MC	13.150	3.854	13.000	+0.313	-0.496	6.000	23.000	0.65567	100
	12.936	3.876	12.783	+0.153	-0.300	4.000	23.000	0.66217	500
	12.882	3.968	12.657	+0.147	-0.303	2.000	25.000	0.67586	1000
	12.885	3.852	12.749	+0.152	-0.187	2.000	25.000	0.65563	2000
EI	9.670	2.663	9.278	+0.134	-0.148	3.000	16.000	0.42920	100
	9.116	3.021	8.880	+0.449	+0.325	2.000	19.000	0.54942	500
	9.010	3.011	8.803	+0.391	+0.234	1.000	20.000	0.54980	1000
	9.113	3.038	8.898	+0.445	+0.283	1.000	20.000	0.56039	2000

Table B-14. Descriptive Statistics of Random Samples of Females, Form 17b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	14.540	4.111	14.375	+0.205	-0.204	5.000	25.000	0.71550	100
	15.066	4.283	15.014	-0.091	-0.334	1.000	24.000	0.74462	500
	14.790	4.227	14.770	+0.002	-0.528	3.000	25.000	0.73591	1000
	14.792	4.255	14.805	-0.054	-0.480	1.000	25.000	0.73849	2000
AR	16.360	5.972	16.100	+0.259	-0.623	4.000	29.000	0.84890	100
	16.182	6.111	16.016	+0.237	-0.704	2.000	30.000	0.85639	500
	16.494	6.026	16.000	+0.219	-0.727	2.000	30.000	0.85301	1000
	16.529	5.904	16.156	+0.223	-0.638	2.000	30.000	0.84677	2000
WK	29.010	5.281	30.125	-1.156	+1.395	10.000	35.000	0.87129	100
	27.222	5.876	28.526	-0.715	-0.140	10.000	35.000	0.87552	500
	26.931	5.954	28.049	-0.701	-0.102	3.000	35.000	0.87759	1000
	27.033	5.891	28.040	-0.670	-0.173	3.000	35.000	0.87532	2000
PC	12.070	2.271	12.147	-0.648	+0.174	5.000	15.000	0.67663	100
	11.960	2.259	12.248	-1.053	+1.702	2.000	15.000	0.66190	500
	11.955	2.168	12.204	-0.888	+1.152	3.000	15.000	0.62474	1000
	11.932	2.190	12.193	-0.850	+1.012	2.000	15.000	0.63070	2000
AS	10.720	3.635	10.188	+0.390	-0.569	4.000	19.000	0.60862	100
	9.836	3.572	9.675	+0.268	-0.203	1.000	20.000	0.59853	500
	9.826	3.563	9.412	+0.548	+0.421	1.000	23.000	0.59509	1000
	9.930	3.640	9.538	+0.535	+0.212	0.000	23.000	0.61326	2000
MK	14.080	5.096	13.600	+0.324	-0.831	5.000	25.000	0.83492	100
	14.124	5.131	13.833	+0.096	-0.768	0.000	25.000	0.83483	500
	14.154	4.976	13.828	+0.174	-0.725	3.000	25.000	0.82025	1000
	13.992	4.982	13.570	+0.207	-0.729	0.000	25.000	0.81963	2000
MC	12.720	3.613	12.921	+0.020	+0.097	4.000	22.000	0.60988	100
	12.892	3.690	12.658	+0.126	-0.077	0.000	24.000	0.62050	500
	12.757	3.808	12.588	+0.271	-0.139	3.000	24.000	0.64574	1000
	12.811	3.819	12.591	+0.162	-0.131	0.000	25.000	0.64862	2000
EI	8.870	2.970	8.667	+0.325	+0.092	3.000	18.000	0.53384	100
	9.112	3.047	9.074	+0.264	+0.194	0.000	20.000	0.56516	500
	8.966	3.081	8.821	+0.354	+0.164	0.000	20.000	0.57147	1000
	8.982	3.104	8.785	+0.393	+0.200	0.000	20.000	0.57819	2000

Table B-15. Descriptive Statistics of Random Samples of Whites, Form 15a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	17.590	4.395	18.333	-0.775	+0.561	4.000	25.000	0.80345	100
	17.182	4.377	17.500	-0.426	-0.324	4.000	25.000	0.79434	500
	17.343	4.181	17.547	-0.251	-0.568	4.000	25.000	0.77726	1000
	17.523	4.073	17.727	-0.356	-0.407	4.000	25.000	0.76594	2000
	17.610	4.051	17.858	-0.358	-0.374	4.000	25.000	0.76320	2000
	17.000	4.033	17.125	-0.434	+0.136	6.000	24.000	0.74805	100
	17.390	4.206	17.577	-0.244	-0.531	4.000	25.000	0.78292	500
	17.585	4.139	17.788	-0.320	-0.500	4.000	25.000	0.77557	1000
	17.467	4.090	17.639	-0.328	-0.395	2.000	25.000	0.76731	2000
AR	19.800	6.251	19.722	-0.144	-0.852	6.000	30.000	0.87489	100
	19.690	6.131	19.615	-0.135	-0.787	4.000	30.000	0.87040	500
	19.335	5.982	19.063	-0.052	-0.851	4.000	30.000	0.86072	1000
	19.750	6.030	19.931	-0.176	-0.768	3.000	30.000	0.86484	2000
	19.622	6.172	19.647	-0.114	-0.919	2.000	30.000	0.87186	2000
	20.220	5.854	20.625	-0.374	-0.619	7.000	30.000	0.85853	100
	18.924	6.090	18.810	+0.019	-0.941	4.000	30.000	0.86310	500
	20.012	5.960	20.324	-0.253	-0.788	4.000	30.000	0.86306	1000
	19.723	6.076	19.799	-0.147	-0.841	2.000	30.000	0.86752	2000
WK	28.390	4.960	29.357	-0.700	-0.152	14.000	35.000	0.84187	100
	27.878	5.432	29.035	-1.109	+1.124	7.000	35.000	0.85955	500
	27.578	5.743	28.993	-0.983	+0.644	7.000	35.000	0.87238	1000
	27.649	5.762	28.957	-1.072	+0.965	3.000	35.000	0.87452	2000
	27.478	5.859	28.812	-1.024	+0.707	5.000	35.000	0.87658	2000
	28.130	5.146	29.167	-0.589	-0.730	17.000	35.000	0.84395	100
	27.412	6.056	29.014	-1.005	+0.546	5.000	35.000	0.88417	500
	27.858	5.688	29.080	-1.048	+0.876	5.000	35.000	0.87314	1000
	27.669	5.796	28.895	-1.033	+0.825	4.000	35.000	0.87608	2000
PC	12.380	2.407	12.857	-1.466	+2.607	3.000	15.000	0.70260	100
	12.360	2.607	12.981	-1.490	+2.316	2.000	15.000	0.75445	500
	12.557	2.398	13.209	-1.307	+1.559	2.000	15.000	0.71656	1000
	12.570	2.373	13.189	-1.410	+2.056	2.000	15.000	0.71386	2000
	12.483	2.482	13.160	-1.478	+2.312	1.000	15.000	0.73404	2000
	12.530	2.564	13.333	-1.633	+2.750	3.000	15.000	0.76436	100
	12.554	2.508	13.310	-1.621	+2.762	2.000	15.000	0.74459	500
	12.570	2.457	13.292	-1.441	+1.984	2.000	15.000	0.73370	1000
	12.524	2.476	13.216	-1.414	+1.923	2.000	15.000	0.73663	2000
AS	16.650	4.802	16.875	-0.147	-0.784	6.000	25.000	0.81703	100
	16.672	4.669	17.265	-0.439	-0.455	0.000	25.000	0.80650	500
	16.386	4.783	16.799	-0.272	-0.743	3.000	25.000	0.81223	1000
	16.548	4.703	16.861	-0.304	-0.623	0.000	25.000	0.80868	2000
	16.571	4.779	16.934	-0.273	-0.696	0.000	25.000	0.81358	2000
	16.680	4.594	17.000	-0.148	-0.701	6.000	25.000	0.79486	100
	16.606	4.732	16.848	-0.238	-0.718	5.000	25.000	0.81296	500
	16.672	4.818	17.197	-0.307	-0.731	4.000	25.000	0.81924	1000
	16.642	4.809	17.076	-0.331	-0.735	0.000	25.000	0.81863	2000

Table B-15. (Concluded)

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
MK	14.700	5.584	14.000	+0.100	-0.967	5.000	25.000	0.85959	100
	14.512	5.460	14.015	+0.112	-0.950	3.000	25.000	0.85091	500
	14.622	5.564	14.221	+0.104	-0.987	2.000	25.000	0.85668	1000
	14.516	5.544	14.246	+0.092	-0.942	0.000	25.000	0.85560	2000
	14.865	5.585	14.592	+0.030	-1.016	1.000	25.000	0.86060	2000
	15.440	5.614	15.000	+0.061	-1.087	5.000	25.000	0.86465	100
	14.638	5.806	13.808	+0.202	-1.101	4.000	25.000	0.87240	500
	14.681	5.715	14.230	+0.069	-0.986	0.000	25.000	0.86612	1000
	14.653	5.565	14.326	+0.068	-0.986	1.000	25.000	0.85793	2000
MC	16.830	4.146	17.045	-0.278	-0.400	6.000	25.000	0.74231	100
	16.592	4.358	16.738	-0.282	-0.507	5.000	25.000	0.76384	500
	16.870	4.453	17.256	-0.481	-0.131	0.000	25.000	0.77899	1000
	16.853	4.361	17.212	-0.422	-0.321	0.000	25.000	0.76784	2000
	16.676	4.466	17.071	-0.388	-0.431	2.000	25.000	0.77745	2000
	17.430	4.558	18.136	-0.459	-0.547	6.000	25.000	0.80009	100
	16.900	4.281	17.344	-0.474	-0.211	4.000	25.000	0.76213	500
	16.902	4.452	17.329	-0.411	-0.508	3.000	25.000	0.77846	1000
	16.943	4.395	17.306	-0.426	-0.346	0.000	25.000	0.77398	2000
EI	11.580	3.644	11.773	-0.093	-0.480	3.000	20.000	0.71865	100
	12.760	3.546	12.833	-0.078	-0.609	3.000	20.000	0.72096	500
	12.325	3.533	12.126	+0.029	-0.473	1.000	20.000	0.71347	1000
	12.472	3.383	12.408	-0.008	-0.369	0.000	20.000	0.68572	2000
	12.473	3.435	12.381	-0.061	-0.459	0.000	20.000	0.69621	2000
	13.530	3.471	13.618	-0.091	-0.309	5.000	20.000	0.72514	100
	12.622	3.416	12.364	+0.089	-0.582	5.000	20.000	0.69358	500
	12.294	3.420	12.060	+0.165	-0.575	3.000	20.000	0.69246	1000
	12.478	3.512	12.372	+0.043	-0.551	2.000	20.000	0.71035	2000

Table B-16. Descriptive Statistics of Random Samples of Whites, Form 15b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	17.240	4.262	17.400	-0.325	+0.158	4.000	25.000	0.77619	100
	17.610	3.994	17.940	-0.285	-0.545	6.000	25.000	0.75628	500
	17.641	4.128	17.894	-0.349	-0.296	2.000	25.000	0.77569	1000
	17.430	4.254	17.666	-0.310	-0.505	3.000	25.000	0.78492	2000
	17.625	4.144	17.932	-0.373	-0.322	3.000	25.000	0.77618	2000
	18.230	4.144	18.167	-0.287	-0.892	8.000	25.000	0.78235	100
	17.774	4.084	18.105	-0.347	-0.610	7.000	25.000	0.77225	500
	17.542	4.153	17.871	-0.298	-0.497	4.000	25.000	0.77388	1000
	17.609	4.062	17.881	-0.373	-0.298	2.000	25.000	0.76611	2000
AR	19.750	6.833	19.167	-0.233	-0.956	3.000	30.000	0.90471	100
	20.026	5.943	20.231	-0.236	-0.845	4.000	30.000	0.86579	500
	19.792	6.150	20.269	-0.232	-0.854	3.000	30.000	0.87370	1000
	19.752	6.112	20.023	-0.203	-0.893	4.000	30.000	0.87216	2000
	19.826	6.055	20.164	-0.204	-0.896	3.000	30.000	0.87037	2000
	20.000	6.044	21.100	-0.574	-0.478	6.000	30.000	0.87091	100
	19.688	6.041	19.860	-0.264	-0.734	3.000	30.000	0.86743	500
	19.896	6.132	20.065	-0.193	-0.924	5.000	30.000	0.87407	1000
	19.899	6.167	20.192	-0.208	-0.911	3.000	30.000	0.87561	2000
WK	26.430	5.737	27.786	-0.529	-0.614	13.000	35.000	0.85934	100
	27.996	5.394	29.025	-0.921	+0.724	6.000	35.000	0.86047	500
	27.768	5.318	28.671	-0.757	+0.206	8.000	35.000	0.85231	1000
	27.550	5.301	28.353	-0.761	+0.259	5.000	35.000	0.84866	2000
	27.596	5.458	28.493	-0.757	+0.137	6.000	35.000	0.85849	2000
	27.350	5.546	28.300	-0.860	+0.358	9.000	35.000	0.86110	100
	27.430	5.292	28.305	-0.765	+0.221	9.000	35.000	0.84460	500
	27.532	5.437	28.247	-0.742	+0.178	7.000	35.000	0.85620	1000
	27.870	5.364	28.801	-0.831	+0.428	5.000	35.000	0.85761	2000
PC	12.730	2.074	13.200	-1.267	+2.534	4.000	15.000	0.63685	100
	12.378	2.564	13.005	-1.445	+2.194	2.000	15.000	0.75092	500
	12.568	2.300	13.082	-1.360	+2.052	3.000	15.000	0.69889	1000
	12.416	2.454	13.007	-1.313	+1.796	2.000	15.000	0.72825	2000
	12.342	2.461	12.925	-1.209	+1.314	2.000	15.000	0.72176	2000
	12.260	2.646	13.000	-1.218	+0.988	4.000	15.000	0.76161	100
	12.170	2.758	12.895	-1.295	+1.361	2.000	15.000	0.77507	500
	12.525	2.375	13.098	-1.440	+2.532	0.000	15.000	0.71432	1000
	12.271	2.568	12.927	-1.304	+1.638	0.000	15.000	0.74276	2000
AS	16.030	4.792	16.833	-0.314	-0.588	5.000	25.000	0.81382	100
	16.858	4.612	17.306	-0.235	-0.809	4.000	25.000	0.80244	500
	16.555	4.689	16.965	-0.261	-0.742	4.000	25.000	0.80702	1000
	16.541	4.818	16.943	-0.303	-0.728	2.000	25.000	0.81655	2000
	16.540	4.770	16.842	-0.285	-0.702	0.000	25.000	0.81257	2000
	16.810	4.728	17.056	-0.360	-0.622	5.000	25.000	0.81410	100
	16.246	4.820	16.619	-0.275	-0.688	4.000	25.000	0.81476	500
	16.471	4.860	16.797	-0.262	-0.774	3.000	25.000	0.82004	1000
	16.312	4.790	16.756	-0.261	-0.738	0.000	25.000	0.81265	2000

Table B-16. (Concluded)

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
MK	14.550	6.059	15.000	-0.072	-1.249	3.000	25.000	0.88289	100
	14.400	5.786	14.000	+0.135	-0.997	2.000	25.000	0.87016	500
	14.584	5.637	14.357	+0.107	-1.008	2.000	25.000	0.86215	1000
	14.536	5.599	14.261	+0.084	-1.005	0.000	25.000	0.85960	2000
	14.733	5.647	14.610	+0.048	-1.040	2.000	25.000	0.86365	2000
	14.870	5.572	14.389	+0.076	-1.256	5.000	25.000	0.86273	100
	15.026	5.661	14.463	+0.010	-1.068	2.000	25.000	0.86467	500
	14.242	5.542	13.759	+0.135	-0.910	0.000	25.000	0.85372	1000
	14.542	5.704	14.214	+0.096	-0.999	1.000	25.000	0.86615	2000
MC	16.780	4.865	17.250	-0.543	-0.436	4.000	25.000	0.81932	100
	16.820	4.458	17.080	-0.346	-0.508	3.000	25.000	0.77961	500
	16.680	4.368	17.244	-0.476	-0.113	0.000	25.000	0.76697	1000
	16.762	4.341	17.142	-0.432	-0.375	3.000	25.000	0.76371	2000
	16.664	4.365	17.003	-0.383	-0.405	3.000	25.000	0.76600	2000
	16.270	4.763	17.250	-0.365	-0.840	7.000	25.000	0.80224	100
	16.910	4.266	17.330	-0.545	-0.285	4.000	24.000	0.75625	500
	16.911	4.370	17.289	-0.458	-0.165	0.000	25.000	0.77000	1000
	16.849	4.364	17.252	-0.411	-0.377	1.000	25.000	0.76842	2000
EI	12.260	3.413	12.500	-0.028	-0 699	5.000	20.000	0.69310	100
	12.726	3.542	12.786	-0.132	-0.512	2.000	20.000	0.72094	500
	12.419	3.455	12.369	-0.017	-0.411	0.000	20.000	0.69683	1000
	12.553	3.519	12.568	-0.053	-0.573	2.000	20.000	0.71572	2000
	12.525	3.491	12.505	-0.107	-0.398	0.000	20.000	0.70761	2000
	12.290	3.788	12.357	-0.119	-0.667	2.000	20.000	0.75041	100
	12.634	3.477	12.466	+0.023	-0.654	4.000	20.000	0.71008	500
	12.646	3.474	12.643	-0.178	-0.371	0.000	20.000	0.70845	1000
	12.527	3.464	12.569	-0.098	-0.431	0.000	20.000	0.70134	2000

Table B-17. Descriptive Statistics of Random Samples of Whites, Form 15c

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	16.960	3.921	16.900	-0.235	-0.313	7.000	25.000	0.72479	100
	17.060	4.016	17.023	-0.131	-0.526	6.000	25.000	0.75252	500
	17.281	4.206	17.551	-0.211	-0.601	5.000	25.000	0.78142	1000
	17.292	4.126	17.488	-0.229	-0.486	5.000	25.000	0.77229	2000
	17.232	4.083	17.382	-0.259	-0.379	4.000	25.000	0.76389	2000
	18.050	3.849	18.500	-0.093	-0.908	11.000	25.000	0.75447	100
	16.920	4.063	16.858	-0.178	-0.265	4.000	25.000	0.75851	500
	17.171	4.055	17.252	-0.196	-0.426	5.000	25.000	0.76150	1000
	17.204	4.063	17.459	-0.241	-0.461	5.000	25.000	0.76300	2000
AR	19.880	6.617	21.000	-0.252	-1.038	6.000	30.000	0.89406	100
	19.438	5.972	19.155	-0.102	-0.842	6.000	30.000	0.86240	500
	19.381	6.428	19.432	-0.167	-0.851	2.000	30.000	0.88315	1000
	19.404	6.154	19.407	-0.150	-0.832	2.000	30.000	0.87152	2000
	19.360	6.225	19.377	-0.122	-0.854	2.000	30.000	0.87433	2000
	20.080	6.161	21.500	-0.264	-0.991	8.000	30.000	0.87572	100
	19.370	6.090	19.423	-0.099	-0.768	2.000	30.000	0.86891	500
	19.069	6.312	19.033	-0.109	-0.842	2.000	30.000	0.87803	1000
	19.376	6.294	19.344	-0.100	-0.935	2.000	30.000	0.87762	2000
WK	27.970	5.661	29.000	-0.900	+0.392	12.000	35.000	0.87239	100
	28.650	4.911	29.682	-0.981	+1.071	9.000	35.000	0.84304	500
	28.109	5.403	29.107	-1.017	+1.063	3.000	35.000	0.86462	1000
	28.279	5.029	29.121	-0.962	+0.968	5.000	35.000	0.84619	2000
	28.248	5.142	29.195	-1.088	+1.407	4.000	35.000	0.85310	2000
	27.840	4.798	28.250	-0.667	+0.038	13.000	35.000	0.82208	100
	28.270	5.454	29.548	-1.130	+1.341	6.000	35.000	0.86861	500
	28.183	5.080	28.833	-0.842	+0.599	6.000	35.000	0.84633	1000
	28.158	5.140	28.938	-1.057	+1.486	3.000	35.000	0.85155	2000
PC	11.490	2.615	11.833	-0.888	+0.479	4.000	15.000	0.67414	100
	11.660	2.623	12.253	-1.088	+1.070	2.000	15.000	0.69712	500
	11.833	2.510	12.394	-1.275	+1.977	0.000	15.000	0.68323	1000
	11.780	2.477	12.280	-1.140	+1.511	0.000	15.000	0.66214	2000
	11.774	2.452	12.244	-1.130	+1.277	1.000	15.000	0.65572	2000
	11.830	2.340	12.119	-1.089	+1.433	4.000	15.000	0.61838	100
	11.758	2.453	12.265	-1.038	+1.050	2.000	15.000	0.65290	500
	11.660	2.561	12.148	-1.091	+1.061	2.000	15.000	0.67722	1000
	11.703	2.514	12.159	-1.153	+1.441	0.000	15.000	0.66766	2000
AS	16.940	4.362	17.100	-0.166	-0.866	8.000	25.000	0.76928	100
	16.768	4.791	17.136	-0.331	-0.677	3.000	25.000	0.81112	500
	16.704	4.627	16.798	-0.224	-0.752	4.000	25.000	0.79548	1000
	16.765	4.554	17.122	-0.305	-0.589	1.000	25.000	0.78903	2000
	16.911	4.556	17.252	-0.330	-0.504	0.000	25.000	0.79158	2000
	17.140	4.774	18.083	-0.578	-0.640	6.000	25.000	0.81558	100
	16.400	4.656	16.500	-0.269	-0.594	2.000	25.000	0.79412	500
	16.864	4.543	17.303	-0.312	-0.569	1.000	25.000	0.78870	1000
	16.622	4.664	16.892	-0.332	0.367	0.000	25.000	0.79848	2000

Table B-17. (Concluded)

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
MK	15.280	6.265	15.500	-0.068	-1.234	4.000	25.000	0.89618	100
	14.436	5.637	13.984	+0.104	-1.040	2.000	25.000	0.86363	500
	14.556	5.667	14.172	+0.119	-0.995	2.000	25.000	0.86411	1000
	14.384	5.760	13.830	+0.122	-1.041	0.000	25.000	0.86926	2000
	14.313	5.736	13.858	+0.122	-0.998	0.000	25.000	0.86903	2000
	14.310	5.550	13.500	+0.188	-1.176	4.000	25.000	0.85282	100
	14.128	5.847	13.385	+0.215	-1.121	3.000	25.000	0.87230	500
	14.370	5.743	13.778	+0.128	-1.026	1.000	25.000	0.86818	1000
	14.627	5.734	14.225	+0.098	-1.019	0.000	25.000	0.86930	2000
MC	16.570	4.732	17.000	-0.107	-1.209	8.000	25.000	0.79991	100
	16.836	4.462	17.105	-0.250	-0.677	5.000	25.000	0.77852	500
	16.655	4.711	17.016	-0.364	-0.561	3.000	25.000	0.80092	1000
	16.590	4.566	16.976	-0.331	-0.595	0.000	25.000	0.78497	2000
	16.315	4.682	16.575	-0.247	-0.620	0.000	25.000	0.79336	2000
	16.930	4.520	17.750	-0.342	-0.773	6.000	24.000	0.78989	100
	16.754	4.673	17.313	-0.363	-0.649	3.000	25.000	0.79807	500
	16.614	4.642	17.000	-0.272	-0.706	4.000	25.000	0.79299	1000
	16.558	4.671	16.983	-0.313	-0.680	2.000	25.000	0.79542	2000
EI	12.840	3.311	13.125	-0.260	-0.360	5.000	20.000	0.66579	100
	12.538	3.520	12.949	-0.328	-0.585	3.000	19.000	0.71122	500
	12.855	3.533	13.134	-0.403	-0.155	0.000	20.000	0.72414	1000
	12.722	3.521	12.917	-0.283	-0.374	2.000	20.000	0.71645	2000
	12.819	3.522	13.092	-0.279	-0.489	2.000	20.000	0.71943	2000
	12.790	3.543	12.625	-0.261	-0.647	3.000	19.000	0.71750	100
	12.748	3.369	13.041	-0.305	-0.252	2.000	20.000	0.69508	500
	12.886	3.404	13.202	-0.285	-0.434	2.000	20.000	0.69876	1000
	12.652	3.513	12.906	-0.291	-0.419	2.000	20.000	0.71653	2000

Table B-18. Descriptive Statistics of Random Samples of Whites, Form 16a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	17.860	4.404	17.700	-0.305	-0.807	7.000	25.000	0.80960	100
	17.618	4.388	17.700	-0.386	-0.465	6.000	25.000	0.80835	500
	17.499	4.358	17.953	-0.451	-0.400	5.000	25.000	0.80317	1000
	17.386	4.425	17.874	-0.443	-0.383	3.000	25.000	0.80730	2000
	17.132	4.397	17.475	-0.421	-0.306	2.000	25.000	0.80073	2000
	17.330	4.513	18.125	-0.635	+0.235	4.000	25.000	0.81148	100
	17.562	4.539	17.929	-0.469	-0.364	4.000	25.000	0.81720	500
	17.186	4.493	17.696	-0.426	-0.366	3.000	25.000	0.80926	1000
	17.306	4.485	17.811	-0.468	-0.412	2.000	25.000	0.80934	2000
AR	19.680	6.123	19.300	-0.100	-0.689	5.000	30.000	0.87220	100
	19.578	5.762	19.675	-0.141	-0.557	1.000	30.000	0.85031	500
	19.664	5.924	19.929	-0.187	-0.724	4.000	30.000	0.85929	1000
	19.734	5.781	19.785	-0.165	-0.716	4.000	30.000	0.85258	2000
	19.575	5.819	19.783	-0.184	-0.695	1.000	30.000	0.85324	2000
	20.230	5.218	19.500	-0.274	-0.173	7.000	30.000	0.81611	100
	19.630	5.848	19.667	-0.141	-0.619	4.000	30.000	0.85645	500
	19.690	5.738	19.713	-0.141	-0.794	4.000	30.000	0.84940	1000
	19.635	5.812	19.720	-0.159	-0.674	1.000	30.000	0.85477	2000
WK	28.180	5.194	29.000	-0.652	-0.154	13.000	35.000	0.85862	100
	27.962	5.167	29.204	-0.886	+0.419	8.000	35.000	0.85078	500
	27.935	5.231	28.993	-1.018	+0.886	8.000	35.000	0.85360	1000
	27.955	5.131	28.915	-0.873	+0.454	9.000	35.000	0.84858	2000
	28.001	5.148	28.923	-0.931	+0.597	8.000	35.000	0.84962	2000
	27.710	5.518	28.500	-0.937	+0.979	10.000	35.000	0.86812	100
	28.174	5.226	29.375	-0.957	+0.602	8.000	35.000	0.85668	500
	27.847	5.153	28.734	-0.849	+0.414	9.000	35.000	0.84865	1000
	28.074	5.016	29.032	-0.968	+0.930	4.000	35.000	0.84267	2000
PC	12.380	2.651	13.083	-1.517	+2.297	3.000	15.000	0.75873	100
	12.460	2.546	13.063	-1.646	+3.335	2.000	15.000	0.74100	500
	12.518	2.647	13.336	-1.479	+2.076	0.000	15.000	0.77251	1000
	12.546	2.470	13.216	-1.413	+2.065	0.000	15.000	0.73295	2000
	12.681	2.422	13.337	-1.553	+2.670	1.000	15.000	0.73219	2000
	12.550	2.371	13.200	-1.357	+1.419	5.000	15.000	0.70511	100
	12.680	2.481	13.420	-1.536	+2.561	1.000	15.000	0.74746	500
	12.635	2.444	13.341	-1.527	+2.606	2.000	15.000	0.73260	1000
	12.592	2.475	13.279	-1.451	+2.135	0.000	15.000	0.73825	2000
AS	16.980	5.284	18.500	-0.619	-0.514	4.000	25.000	0.85248	100
	16.630	5.447	17.382	-0.500	-0.640	2.000	25.000	0.86007	500
	16.390	5.263	16.833	-0.329	-0.766	0.000	25.000	0.84343	1000
	16.250	5.353	16.686	-0.297	-0.823	2.000	25.000	0.84897	2000
	16.412	5.376	17.009	-0.346	-0.841	2.000	25.000	0.85197	2000
	17.050	5.048	17.833	-0.373	-0.559	4.000	25.000	0.83462	100
	16.820	5.050	17.167	-0.305	-0.773	2.000	25.000	0.83281	500
	16.706	5.332	17.259	-0.333	-0.869	3.000	25.000	0.85238	1000
	16.576	5.316	17.226	-0.347	-0.812	2.000	25.000	0.84959	2000

Table B-18. (Concluded)

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
MK	14.880	5.885	14.167	+0.155	-1.231	4.000	25.000	0.87319	100
	14.520	5.803	13.700	+0.194	-1.096	3.000	25.000	0.86981	500
	14.420	5.993	13.482	+0.209	-1.103	3.000	25.000	0.87959	1000
	14.132	5.703	13.376	+0.256	-0.974	1.000	25.000	0.86285	2000
	14.142	5.872	13.310	+0.249	-1.049	0.000	25.000	0.87196	2000
	14.460	5.582	13.833	+0.108	-1.106	4.000	25.000	0.85684	100
	14.064	5.898	13.152	+0.275	-0.983	1.000	25.000	0.87374	500
	14.054	5.774	13.212	+0.272	-1.043	1.000	25.000	0.86634	1000
	14.301	5.873	13.690	+0.168	-1.073	1.000	25.000	0.87213	2000
MC	17.110	4.131	17.389	-0.304	-0.352	6.000	25.000	0.73130	100
	16.822	4.336	17.245	-0.340	-0.490	4.000	25.000	0.75736	500
	17.322	4.240	17.919	-0.529	-0.299	3.000	25.000	0.75488	1000
	17.215	4.359	17.777	-0.505	-0.298	0.000	25.000	0.76727	2000
	17.206	4.275	17.675	-0.526	-0.035	0.000	25.000	0.75555	2000
	16.820	4.324	17.100	-0.371	-0.075	4.000	25.000	0.75371	100
	16.976	4.519	17.429	-0.432	-0.471	4.000	25.000	0.78023	500
	16.976	4.371	17.295	-0.374	-0.300	0.000	25.000	0.76454	1000
	17.090	4.237	17.566	-0.487	-0.195	0.000	25.000	0.74953	2000
EI	13.850	3.328	14.083	-0.093	-0.692	6.000	20.000	0.69908	100
	12.956	3.714	13.077	-0.252	-0.383	2.000	20.000	0.74521	500
	13.079	3.628	13.276	-0.227	-0.529	2.000	20.000	0.73354	1000
	13.000	3.711	12.998	-0.136	-0.588	2.000	20.000	0.74584	2000
	13.014	3.718	13.091	-0.243	-0.419	0.000	20.000	0.74687	2000
	13.130	3.689	13.227	-0.350	-0.470	4.000	20.000	0.75222	100
	13.068	3.741	13.200	-0.207	-0.576	3.000	20.000	0.75237	500
	13.049	3.752	13.110	-0.232	-0.317	0.000	20.000	0.75382	1000
	12.996	3.728	13.066	-0.249	-0.351	0.000	20.000	0.74906	2000

Table B-19. Descriptive Statistics of Random Samples of Whites, Form 16b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	17.460	4.274	17.722	-0.429	-0.184	6.000	25.000	0.79357	100
	17.414	4.392	17.862	-0.482	-0.272	4.000	25.000	0.80530	500
	17.619	4.320	18.196	-0.430	-0.509	4.000	25.000	0.79784	1000
	17.470	4.442	17.960	-0.524	-0.180	2.000	25.000	0.80969	2000
	17.379	4.507	17.893	-0.463	-0.420	3.000	25.000	0.81306	2000
	17.300	4.437	17.929	-0.517	-0.001	4.000	25.000	0.80403	100
	17.214	4.688	17.524	-0.326	-0.584	3.000	25.000	0.82666	500
	17.450	4.399	17.856	-0.373	-0.499	3.000	25.000	0.80522	1000
	17.557	4.526	18.061	-0.425	-0.427	2.000	25.000	0.81795	2000
AR	19.890	5.833	20.136	-0.204	-0.649	6.000	30.000	0.85255	100
	19.218	6.494	19.132	-0.050	-1.006	6.000	30.000	0.88565	500
	19.858	6.282	20.088	-0.234	-0.877	2.000	30.000	0.87847	1000
	19.880	6.267	20.084	-0.221	-0.840	2.000	30.000	0.87824	2000
	19.741	6.304	19.912	-0.190	-0.889	3.000	30.000	0.87937	2000
	19.220	6.447	19.300	-0.128	-0.788	6.000	30.000	0.88449	100
	19.560	6.375	20.036	-0.211	-0.853	3.000	30.000	0.88024	500
	19.864	6.199	20.153	-0.229	-0.821	3.000	30.000	0.87358	1000
	19.768	6.250	19.917	-0.180	-0.890	3.000	30.000	0.87690	2000
WK	28.430	4.504	29.000	-0.620	-0.339	18.000	35.000	0.81122	100
	27.936	5.266	28.705	-0.743	-0.046	11.000	35.000	0.86048	500
	28.097	5.082	28.879	-0.765	+0.165	10.000	35.000	0.84850	1000
	28.039	5.322	28.960	-0.915	+0.588	7.000	35.000	0.86298	2000
	28.077	5.302	29.051	-0.927	+0.765	5.000	35.000	0.86220	2000
	28.560	4.393	28.700	-0.589	-0.141	15.000	35.000	0.80481	100
	28.038	5.275	29.036	-0.913	+0.725	8.000	35.000	0.86115	500
	28.019	5.198	28.792	-0.927	+0.908	2.000	35.000	0.85614	1000
	28.085	5.287	28.966	-0.928	+0.872	2.000	35.000	0.86236	2000
PC	12.250	2.254	12.389	-0.740	+0.368	5.000	15.000	0.64126	100
	12.208	2.475	12.764	-1.263	+1.726	2.000	15.000	0.70843	500
	12.351	2.442	12.914	-1.181	+1.221	2.000	15.000	0.70361	1000
	12.222	2.453	12.767	-1.079	+0.949	2.000	15.000	0.69821	2000
	12.262	2.440	12.791	-1.121	+1.218	2.000	15.000	0.69744	2000
	11.860	3.178	12.500	-1.451	+1.930	2.000	15.000	0.81961	100
	12.124	2.581	12.778	-0.953	+0.249	4.000	15.000	0.72282	500
	12.297	2.439	12.825	-1.135	+1.152	2.000	15.000	0.70040	1000
	12.171	2.535	12.718	-1.094	+1.160	0.000	15.000	0.71472	2000
AS	16.870	5.247	17.357	-0.361	-0.770	5.000	25.000	0.84662	100
	16.506	5.363	17.186	-0.405	-0.757	3.000	25.000	0.85230	500
	16.557	5.197	16.986	-0.291	-0.893	3.000	25.000	0.84121	1000
	16.538	5.356	17.231	-0.383	-0.748	0.000	25.000	0.85257	2000
	16.527	5.331	17.144	-0.387	-0.751	0.000	25.000	0.85073	2000
	16.010	6.325	16.250	-0.333	-0.992	0.000	25.000	0.89999	100
	16.950	5.210	17.629	-0.420	-0.712	4.000	25.000	0.84588	500
	16.404	5.396	16.908	-0.358	-0.699	0.000	25.000	0.85372	1000
	16.562	5.370	17.175	-0.335	-0.842	0.000	25.000	0.85457	2000

Table B-19. (Concluded)

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
MK	13.910	5.719	13.500	+0.138	-1.139	4.000	25.000	0.86357	100
	14.700	5.977	14.196	+0.081	-1.140	0.000	25.000	0.87951	500
	14.273	5.814	13.783	+0.159	-1.051	2.000	25.000	0.86934	1000
	14.506	5.754	13.980	+0.151	-1.026	0.000	25.000	0.86703	2000
	14.476	5.752	14.055	+0.113	-1.043	0.000	25.000	0.86706	2000
	14.760	6.128	13.929	+0.157	-1.195	4.000	25.000	0.88921	100
	14.646	5.998	14.033	+0.109	-1.138	3.000	25.000	0.88112	500
	14.632	5.852	14.104	+0.111	-1.045	1.000	25.000	0.87273	1000
	14.251	5.775	13.679	+0.181	-1.012	0.000	25.000	0.86792	2000
MC	16.850	4.328	17.722	-0.592	-0.644	6.000	23.000	0.76320	100
	16.972	4.289	17.543	-0.454	-0.566	5.000	25.000	0.75522	500
	17.204	4.339	17.900	-0.530	-0.396	3.000	25.000	0.76700	1000
	16.883	4.319	17.388	-0.461	-0.303	2.000	25.000	0.75538	2000
	17.098	4.264	17.571	-0.426	-0.418	0.000	25.000	0.75429	2000
	17.020	4.429	17.667	-0.516	-0.547	6.000	25.000	0.77612	100
	17.220	4.170	17.827	-0.541	-0.238	4.000	25.000	0.74529	500
	16.854	4.428	17.372	-0.448	-0.549	4.000	25.000	0.77059	1000
	17.109	4.313	17.577	-0.482	-0.273	0.000	25.000	0.76211	2000
EI	13.250	3.462	13.136	-0.330	-0.150	4.000	20.000	0.71603	100
	13.098	3.810	13.360	-0.308	-0.583	3.000	20.000	0.76150	500
	13.089	3.606	13.060	-0.135	-0.417	2.000	20.000	0.72891	1000
	13.195	3.659	13.293	-0.221	-0.560	1.000	20.000	0.74105	2000
	13.064	3.739	13.155	-0.172	-0.585	0.000	20.000	0.75155	2000
	12.810	3.581	12.773	+0.079	-0.664	5.000	20.000	0.71928	100
	13.230	3.826	13.333	-0.377	-0.405	2.000	20.000	0.76949	500
	13.111	3.753	13.305	-0.252	-0.521	3.000	20.000	0.75508	1000
	13.145	3.728	13.272	-0.245	-0.504	0.000	20.000	0.75146	2000

Table B-20. Descriptive Statistics of Random Samples of Whites, Form 17a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	16.920	4.225	17.583	-0.513	-0.323	5.000	24.000	0.77494	100
	17.290	4.028	17.545	-0.401	-0.345	6.000	25.000	0.75218	500
	17.231	4.052	17.488	-0.342	-0.419	4.000	25.000	0.76084	1000
	17.464	4.058	17.731	-0.421	-0.230	4.000	25.000	0.76213	2000
	17.273	4.098	17.580	-0.397	-0.271	3.000	25.000	0.76501	2000
	17.160	3.969	17.278	-0.453	-0.004	5.000	25.000	0.74692	100
	17.200	3.902	17.378	-0.232	-0.460	6.000	25.000	0.73368	500
	17.521	3.994	17.735	-0.396	-0.116	3.000	25.000	0.75489	1000
	17.313	4.039	17.727	-0.416	-0.290	5.000	25.000	0.75523	2000
AR	20.360	6.489	20.700	-0.194	-1.033	6.000	30.000	0.88871	100
	19.972	6.249	20.156	-0.233	-0.789	5.000	30.000	0.87690	500
	19.881	6.488	20.152	-0.210	-0.926	4.000	30.000	0.88767	1000
	19.808	6.390	20.098	-0.210	-0.890	4.000	30.000	0.88329	2000
	19.792	6.235	20.127	-0.257	-0.761	3.000	30.000	0.87492	2000
	20.210	6.517	19.750	-0.183	-0.853	6.000	30.000	0.89019	100
	19.838	6.247	19.981	-0.266	-0.787	4.000	30.000	0.87721	500
	19.971	6.347	20.444	-0.277	-0.777	4.000	30.000	0.88186	1000
	19.859	6.386	20.071	-0.226	-0.857	3.000	30.000	0.88270	2000
WK	28.890	5.297	30.167	-0.617	-0.728	16.000	35.000	0.86533	100
	28.124	5.689	29.167	-0.897	+0.464	6.000	35.000	0.87623	500
	27.961	5.573	28.715	-0.756	+0.003	9.000	35.000	0.86836	1000
	28.198	5.659	29.248	-0.958	+0.670	5.000	35.000	0.87730	2000
	27.995	5.737	29.097	-0.871	+0.345	5.000	35.000	0.87834	2000
	27.760	6.535	29.611	-0.891	+0.131	8.000	35.000	0.90729	100
	27.922	5.432	28.474	-0.672	-0.028	10.000	35.000	0.86024	500
	28.185	5.397	28.964	-0.779	+0.176	9.000	35.000	0.86313	1000
	27.959	5.639	28.843	-0.888	+0.556	5.000	35.000	0.87261	2000
PC	12.130	2.308	12.643	-0.952	+1.082	4.000	15.000	0.62805	100
	12.376	2.373	12.933	-1.161	+1.157	3.000	15.000	0.68457	500
	12.128	2.684	12.860	-1.132	+0.803	3.000	15.000	0.74688	1000
	12.317	2.558	12.988	-1.303	+1.463	2.000	15.000	0.73143	2000
	12.354	2.462	12.964	-1.132	+0.873	3.000	15.000	0.70795	2000
	12.440	2.660	13.333	-1.203	+1.062	4.000	15.000	0.76644	100
	12.442	2.374	13.018	-1.141	+1.065	3.000	15.000	0.69273	500
	12.371	2.406	12.982	-1.277	+1.653	2.000	15.000	0.69494	1000
	12.292	2.568	12.954	-1.316	+1.643	1.000	15.000	0.73194	2000
AS	17.350	4.730	18.167	-0.526	-0.347	4.000	25.000	0.81759	100
	17.116	5.129	17.667	-0.294	-0.961	4.000	25.000	0.84600	500
	17.048	4.992	17.321	-0.325	-0.607	0.000	25.000	0.83410	1000
	17.158	4.966	17.508	-0.310	-0.763	0.000	25.000	0.83374	2000
	17.079	4.966	17.410	-0.329	-0.643	0.000	25.000	0.83244	2000
	16.650	5.422	17.000	-0.227	-0.944	5.000	25.000	0.85841	100
	17.264	4.904	17.773	-0.353	-0.771	3.000	25.000	0.82928	500
	17.151	5.122	17.663	-0.399	-0.694	0.000	25.000	0.84563	1000
	16.979	4.982	17.217	-0.298	-0.741	0.000	25.000	0.83278	2000

Table B-20. (Concluded)

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
MK	15.160	5.118	14.500	+0.228	-0.468	3.000	25.000	0.83115	100
	14.604	5.469	14.076	+0.135	-0.928	2.000	25.000	0.85572	500
	14.489	5.605	13.973	+0.108	-0.859	0.000	25.000	0.86377	1000
	14.535	5.490	13.813	+0.198	-0.918	0.000	25.000	0.85630	2000
	14.704	5.529	14.210	+0.116	-0.907	0.000	25.000	0.85993	2000
	14.310	5.983	13.722	+0.285	-0.965	2.000	25.000	0.88168	100
	14.492	5.404	13.712	+0.243	-0.935	4.000	25.000	0.85085	500
	14.603	5.561	14.038	+0.120	-0.922	0.000	25.000	0.86012	1000
	14.872	5.429	14.305	+0.145	-0.933	1.000	25.000	0.85491	2000
MC	16.300	4.282	16.278	-0.090	-0.858	6.000	24.000	0.75386	100
	16.886	4.227	17.257	-0.343	-0.408	3.000	25.000	0.75511	500
	16.808	4.164	17.159	-0.350	-0.330	3.000	25.000	0.74581	1000
	16.849	4.281	17.217	-0.445	-0.259	2.000	25.000	0.76186	2000
	16.781	4.257	17.052	-0.373	-0.365	2.000	25.000	0.75844	2000
	17.460	3.820	17.600	-0.224	-0.381	8.000	25.000	0.70472	100
	16.958	4.324	17.243	-0.384	-0.214	2.000	25.000	0.76898	500
	16.938	4.259	17.218	-0.442	-0.177	2.000	25.000	0.76138	1000
	16.931	4.173	17.256	-0.388	-0.317	0.000	25.000	0.74918	2000
EI	13.370	3.714	13.786	-0.309	-0.569	4.000	20.000	0.76213	100
	12.880	3.833	13.028	-0.173	-0.532	0.000	20.000	0.76638	500
	12.862	3.651	12.927	-0.136	-0.560	0.000	20.000	0.73897	1000
	13.031	3.762	13.045	-0.143	-0.616	2.000	20.000	0.75836	2000
	13.105	3.780	13.222	-0.201	-0.614	2.000	20.000	0.76482	2000
	13.070	3.880	13.643	-0.326	-0.731	4.000	20.000	0.77337	100
	12.962	3.878	13.143	-0.220	-0.613	2.000	20.000	0.77333	500
	12.920	3.833	13.081	-0.188	-0.527	1.000	20.000	0.76747	1000
	12.852	3.748	12.972	-0.172	-0.580	2.000	20.000	0.75531	2000

Table B-21. Descriptive Statistics of Random Samples of Whites, Form 17b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	17.920	4.211	18.417	-0.346	-0.684	7.000	24.000	0.78883	100
	17.510	4.064	17.700	-0.407	-0.300	6.000	25.000	0.76267	500
	17.487	4.120	17.944	-0.525	-0.148	4.000	25.000	0.77040	1000
	17.292	4.144	17.617	-0.343	-0.467	4.000	25.000	0.76929	2000
	17.416	4.003	17.744	-0.441	-0.087	0.000	25.000	0.75465	2000
	17.460	3.963	18.045	-0.657	+0.278	4.000	24.000	0.74824	100
	17.612	4.066	18.077	-0.500	-0.118	4.000	25.000	0.76696	500
	17.286	3.948	17.444	-0.316	-0.345	4.000	25.000	0.74438	1000
	17.373	4.172	17.816	-0.442	-0.285	4.000	25.000	0.77505	2000
AR	18.690	6.832	19.833	-0.238	-1.071	3.000	30.000	0.89396	100
	19.536	6.231	19.957	-0.283	-0.734	4.000	30.000	0.87671	500
	19.537	6.138	19.982	-0.295	-0.738	3.000	30.000	0.87216	1000
	19.537	6.161	20.014	-0.261	-0.747	2.000	30.000	0.87368	2000
	19.222	6.136	19.662	-0.196	-0.774	3.000	30.000	0.86960	2000
	19.090	5.958	18.900	-0.112	-0.769	3.000	30.000	0.85876	100
	19.356	6.327	19.731	-0.231	-0.898	3.000	30.000	0.87998	500
	19.269	6.311	19.730	-0.278	-0.683	2.000	30.000	0.87821	1000
	19.504	6.167	20.070	-0.256	-0.770	2.000	30.000	0.87378	2000
WK	29.010	5.217	30.722	-0.839	-0.132	14.000	35.000	0.86472	100
	28.096	5.309	28.671	-0.918	+0.880	7.000	35.000	0.85933	500
	28.117	5.141	29.006	-0.914	+0.801	2.000	35.000	0.84927	1000
	27.869	5.340	28.820	-0.788	+0.189	8.000	35.000	0.85910	2000
	28.166	5.223	29.079	-0.835	+0.367	5.000	35.000	0.85567	2000
	28.770	5.009	29.875	-0.899	+0.258	13.000	35.000	0.84800	100
	28.486	4.838	29.375	-0.776	+0.114	10.000	35.000	0.83556	500
	27.874	5.327	28.824	-0.928	+0.804	2.000	35.000	0.85811	1000
	28.239	5.308	29.323	-0.928	+0.555	6.000	35.000	0.86155	2000
PC	12.430	2.180	12.857	-0.855	+0.181	6.000	15.000	0.66243	100
	12.054	2.490	12.597	-1.187	+1.738	0.000	15.000	0.71091	500
	12.246	2.327	12.775	-1.061	+1.080	3.000	15.000	0.67883	1000
	12.240	2.401	12.783	-1.146	+1.265	2.000	15.000	0.70074	2000
	12.247	2.368	12.741	-1.056	+1.021	3.000	15.000	0.69354	2000
	12.780	2.111	13.389	-1.117	+0.673	6.000	15.000	0.66171	100
	12.186	2.528	12.698	-1.392	+2.470	0.000	15.000	0.73370	500
	12.225	2.296	12.634	-1.029	+1.103	3.000	15.000	0.66675	1000
	12.219	2.431	12.742	-1.135	+1.316	0.000	15.000	0.71017	2000
AS	16.650	5.022	16.643	-0.109	-0.953	5.000	25.000	0.82968	100
	16.758	5.086	17.052	-0.236	-0.841	5.000	25.000	0.83672	500
	16.781	5.041	17.061	-0.263	-0.841	4.000	25.000	0.83344	1000
	16.799	5.066	17.013	-0.259	-0.731	2.000	25.000	0.83464	2000
	16.875	4.998	17.048	-0.214	-0.816	2.000	25.000	0.83153	2000
	17.260	4.886	17.500	-0.175	-0.969	8.000	25.000	0.82682	100
	16.778	4.942	17.288	-0.258	-0.733	2.000	25.000	0.82504	500
	17.007	4.927	17.330	-0.280	-0.751	3.000	25.000	0.82648	1000
	16.978	5.063	17.331	-0.270	-0.818	3.000	25.000	0.83720	2000

Table B-21. (Concluded)

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
MK	14.470	5.246	13.833	+0.283	-0.809	2.000	25.000	0.83702	100
	14.452	5.425	14.106	+0.092	-0.873	0.000	25.000	0.85144	500
	14.361	5.311	13.733	+0.185	-0.845	2.000	25.000	0.84343	1000
	14.262	5.334	13.738	+0.184	-0.799	1.000	25.000	0.84457	2000
	14.395	5.479	13.893	+0.143	-0.948	0.000	25.000	0.85445	2000
	14.880	5.319	14.500	+0.192	-1.076	5.000	25.000	0.84682	100
	14.520	5.411	13.986	+0.138	-0.926	3.000	25.000	0.85151	500
	14.580	5.464	14.167	+0.077	-0.865	1.000	25.000	0.85394	1000
	14.184	5.425	13.644	+0.194	-0.894	0.000	25.000	0.85078	2000
MC	16.610	3.897	16.682	-0.220	-0.357	7.000	25.000	0.70921	100
	16.778	4.098	17.148	-0.513	-0.140	4.000	25.000	0.73929	500
	17.258	4.024	17.595	-0.416	-0.196	4.000	25.000	0.73469	1000
	16.839	4.096	17.134	-0.318	-0.409	3.000	25.000	0.73877	2000
	17.007	4.099	17.197	-0.296	-0.444	3.000	25.000	0.74203	2000
	16.840	4.568	17.700	-0.342	-0.784	4.000	25.000	0.79576	100
	16.982	4.012	17.183	-0.150	-0.638	7.000	25.000	0.72704	500
	17.043	4.201	17.399	-0.455	-0.168	3.000	25.000	0.75716	1000
	16.973	4.063	17.169	-0.396	-0.099	0.000	25.000	0.73551	2000
EI	12.550	4.111	12.800	-0.066	-0.728	3.000	20.000	0.79889	100
	12.780	3.840	12.679	-0.079	-0.496	1.000	20.000	0.76813	500
	12.732	3.802	12.618	-0.089	-0.587	3.000	20.000	0.75894	1000
	12.732	3.771	12.809	-0.142	-0.537	0.000	20.000	0.75476	2000
	12.788	3.750	12.778	-0.099	-0.601	0.000	20.000	0.75453	2000
	12.590	3.758	12.417	+0.084	-0.761	5.000	20.000	0.74858	100
	12.694	3.545	12.521	-0.027	-0.534	3.000	20.000	0.71874	500
	12.856	3.651	12.671	+0.022	-0.678	3.000	20.000	0.73652	1000
	12.772	3.833	12.797	-0.133	-0.614	0.000	20.000	0.76569	2000

Table B-22. Descriptive Statistics of Random Samples of Blacks, Form 15a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	13.040	3.393	13.000	+0.149	+0.817	3.000	24.000	0.58528	100
	13.486	3.801	13.080	+0.443	-0.219	4.000	24.000	0.67340	500
	13.418	3.794	13.295	+0.261	-0.185	3.000	24.000	0.67276	1000
	13.351	3.874	13.082	+0.327	-0.089	2.000	25.000	0.68759	2000
AR	13.880	4.457	13.227	+0.394	-0.069	4.000	25.000	0.70300	100
	14.302	4.847	13.900	+0.463	+0.269	3.000	29.000	0.75156	500
	14.370	4.936	13.994	+0.461	+0.023	3.000	30.000	0.76082	1000
	14.346	4.986	13.852	+0.528	+0.099	2.000	30.000	0.76676	2000
WK	22.270	6.650	22.700	-0.160	-0.797	7.000	34.000	0.86792	100
	22.710	6.537	23.278	-0.291	-0.654	6.000	35.000	0.86760	500
	22.592	6.589	23.173	-0.277	-0.605	3.000	35.000	0.86798	1000
	22.651	6.546	23.306	-0.305	-0.653	5.000	35.000	0.86604	2000
PC	10.330	3.124	10.700	-0.356	-0.784	2.000	15.000	0.74330	100
	10.928	2.948	11.537	-0.796	+0.191	1.000	15.000	0.74280	500
	10.657	2.923	11.025	-0.559	-0.356	1.000	15.000	0.71973	1000
	10.865	2.831	11.298	-0.669	-0.071	0.000	15.000	0.71119	2000
AS	10.770	3.798	10.423	+0.535	-0.059	4.000	23.000	0.63235	100
	10.714	3.712	10.103	+0.647	+0.347	2.000	22.000	0.62491	500
	10.887	3.909	10.520	+0.608	+0.269	2.000	23.000	0.66139	1000
	10.855	3.899	10.367	+0.572	+0.125	1.000	24.000	0.66088	2000
MK	11.600	4.708	10.667	+0.716	+0.478	3.000	25.000	0.78655	100
	11.646	4.773	10.900	+0.718	+0.048	2.000	25.000	0.78931	500
	11.621	4.629	10.829	+0.607	-0.168	2.000	25.000	0.77576	1000
	11.659	4.732	10.976	+0.569	-0.246	2.000	25.000	0.78509	2000
MC	11.920	4.364	11.250	+0.505	-0.306	3.000	23.000	0.72941	100
	12.036	3.829	11.931	+0.142	-0.013	0.000	24.000	0.63845	500
	12.182	4.012	11.856	+0.322	-0.224	1.000	24.000	0.67239	1000
	12.099	4.071	11.820	+0.244	-0.256	0.000	25.000	0.68377	2000
EI	9.550	3.083	9.029	+0.996	+1.270	4.000	19.000	0.57045	100
	9.684	2.887	9.445	+0.439	+0.564	2.000	20.000	0.51249	500
	9.598	2.879	9.301	+0.512	+0.484	2.000	20.000	0.50888	1000
	9.664	2.977	9.331	+0.558	+0.426	2.000	20.000	0.54372	2000

Table B-23. Descriptive Statistics of Random Samples of Blacks, Form 15b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	13.660	3.968	13.214	+0.541	-0.366	6.000	23.000	0.70736	100
	13.410	3.808	13.021	+0.351	-0.268	5.000	24.000	0.67584	500
	13.553	3.958	13.214	+0.316	-0.156	0.000	24.000	0.69775	1000
	13.510	3.923	13.225	+0.290	-0.191	0.000	25.000	0.69624	2000
AR	13.500	4.284	13.100	+0.344	-0.340	5.000	25.000	0.69141	100
	14.244	5.139	13.544	+0.642	+0.144	3.000	30.000	0.79377	500
	14.508	5.233	13.674	+0.582	-0.143	2.000	30.000	0.80030	1000
	14.465	5.185	13.654	+0.582	-0.159	3.000	30.000	0.79571	2000
WK	23.510	6.503	24.000	-0.307	-0.568	7.000	35.000	0.87346	100
	22.950	5.637	23.346	-0.235	-0.376	8.000	35.000	0.82015	500
	22.971	5.754	23.057	-0.121	-0.587	5.000	35.000	0.82901	1000
	22.952	5.740	23.100	-0.171	-0.453	5.000	35.000	0.82708	2000
PC	10.240	3.337	11.000	-0.707	-0.302	1.000	15.000	0.77958	100
	10.766	2.990	11.306	-0.634	-0.393	1.000	15.000	0.74180	500
	10.912	2.914	11.484	-0.779	+0.043	1.000	15.000	0.73144	1000
	10.837	2.880	11.351	-0.690	-0.055	1.000	15.000	0.72209	2000
AS	10.670	4.463	10.250	+0.559	+0.246	2.000	24.000	0.75312	100
	10.684	3.942	10.436	+0.441	+0.248	1.000	24.000	0.66895	500
	10.573	3.864	10.187	+0.523	+0.181	1.000	24.000	0.65420	1000
	10.537	3.823	10.109	+0.551	+0.202	1.000	25.000	0.64640	2000
MK	11.960	4.866	11.167	+0.557	-0.494	3.000	24.000	0.80083	100
	11.696	4.592	11.151	+0.468	-0.264	0.000	25.000	0.76934	500
	11.519	4.578	10.657	+0.606	-0.180	2.000	25.000	0.77010	1000
	11.599	4.699	10.913	+0.534	-0.208	0.000	25.000	0.78225	2000
MC	12.470	3.791	12.100	+0.376	+0.316	3.000	24.000	0.62901	100
	11.578	3.964	11.209	+0.370	+0.154	1.000	24.000	0.66072	500
	11.974	3.891	11.863	+0.257	-0.098	0.000	25.000	0.65100	1000
	11.920	3.934	11.716	+0.188	-0.176	0.000	25.000	0.65734	2000
EI	9.210	2.504	9.357	+0.552	+0.878	5.000	17.000	0.32770	100
	9.810	3.065	9.650	+0.424	+0.348	0.000	19.000	0.57302	500
	9.569	3.128	9.339	+0.365	+0.676	0.000	20.000	0.59205	1000
	9.581	2.952	9.362	+0.424	+0.589	0.000	20.000	0.53779	2000

Table B-24. Descriptive Statistics of Random Samples of Blacks, Form 15c

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	12.020	3.496	11.625	+0.242	-0.487	5.000	21.000	0.59117	100
	13.172	3.787	12.833	+0.326	+0.354	0.000	25.000	0.66134	500
	13.056	3.671	12.850	+0.299	-0.092	3.000	25.000	0.63907	1000
	12.997	3.761	12.714	+0.333	-0.038	3.000	25.000	0.65503	2000
AR	13.980	5.572	13.167	+0.695	-0.035	5.000	30.000	0.82548	100
	13.468	4.954	12.827	+0.591	-0.070	3.000	30.000	0.77118	500
	13.832	5.183	13.152	+0.617	+0.044	3.000	30.000	0.78865	1000
	13.909	5.144	13.162	+0.603	+0.048	3.000	30.000	0.78813	2000
WK	23.330	5.267	22.700	+0.039	-0.256	8.000	35.000	0.79061	100
	23.288	5.452	23.280	-0.391	+0.256	0.000	35.000	0.80970	500
	23.199	5.939	23.234	-0.216	-0.407	5.000	35.000	0.84030	1000
	23.207	5.914	23.406	-0.290	-0.324	0.000	35.000	0.83903	2000
PC	10.190	2.707	10.300	-0.255	-0.376	3.000	15.000	0.63510	100
	9.904	2.853	10.307	-0.439	-0.541	2.000	15.000	0.66718	500
	9.980	2.763	10.227	-0.385	-0.467	2.000	15.000	0.64578	1000
	9.864	2.752	10.132	-0.409	-0.327	0.000	15.000	0.64109	2000
AS	11.100	4.111	10.667	+0.685	+0.704	3.000	24.000	0.70473	100
	11.126	3.959	10.585	+0.625	+0.256	2.000	24.000	0.67570	500
	10.891	3.897	10.433	+0.569	+0.135	0.000	24.000	0.66550	1000
	10.974	3.845	10.513	+0.586	+0.235	0.000	24.000	0.65393	2000
MK	12.480	4.929	11.286	+0.691	-0.116	3.000	25.000	0.80206	100
	11.346	4.498	10.594	+0.632	-0.192	3.000	25.000	0.76307	500
	11.324	4.645	10.472	+0.598	-0.204	1.000	24.000	0.77740	1000
	11.459	4.753	10.616	+0.626	-0.174	0.000	25.000	0.78921	2000
MC	11.530	3.463	10.889	+0.463	+0.014	5.000	22.000	0.54385	100
	11.038	3.842	10.730	+0.474	-0.037	0.000	22.000	0.64904	500
	11.191	3.944	10.625	+0.570	-0.117	3.000	24.000	0.66481	1000
	11.167	3.932	10.677	+0.550	-0.027	0.000	24.000	0.66282	2000
EI	8.700	2.834	8.300	+0.513	-0.001	3.000	16.000	0.49435	100
	9.214	3.171	9.010	+0.309	+0.110	1.000	19.000	0.60209	500
	9.164	3.149	8.953	+0.286	-0.041	0.000	19.000	0.59764	1000
	9.060	3.163	8.816	+0.269	-0.142	0.000	19.000	0.60075	2000

Table B-24. Descriptive Statistics of Random Samples of Blacks, Form 16a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	14.220	4.320	14.583	+0.078	-0.532	5.000	24.000	0.75421	100
	12.894	4.237	12.851	+0.189	-0.373	3.000	25.000	0.74990	500
	13.078	4.194	12.827	+0.283	-0.452	4.000	25.000	0.74085	1000
	13.158	4.203	12.904	+0.286	-0.382	2.000	25.000	0.74438	2000
AR	14.550	5.396	14.300	+0.165	-0.611	3.000	27.000	0.80265	100
	14.628	5.178	14.088	+0.270	-0.606	4.000	28.000	0.78247	500
	14.613	5.059	14.090	+0.377	-0.350	3.000	30.000	0.77275	1000
	14.785	5.016	14.391	+0.294	-0.304	3.000	30.000	0.76953	2000
WK	23.390	5.877	23.500	-0.334	-0.219	6.000	35.000	0.84619	100
	22.940	5.782	23.111	-0.265	-0.438	5.000	35.000	0.83404	500
	23.253	5.503	23.439	-0.178	-0.434	5.000	35.000	0.81874	1000
	23.027	5.808	23.297	-0.251	-0.421	2.000	35.000	0.83732	2000
PC	10.770	3.021	11.577	-0.573	-0.734	3.000	15.000	0.75045	100
	10.610	3.112	11.190	-0.684	-0.161	1.000	15.000	0.75965	500
	10.558	2.978	10.966	-0.613	-0.164	1.000	15.000	0.72750	1000
	10.637	3.031	11.094	-0.583	-0.326	0.000	15.000	0.74500	2000
AS	9.830	5.313	8.500	+0.978	+0.112	2.000	23.000	0.83406	100
	9.562	4.368	8.867	+0.704	+0.306	1.000	24.000	0.74364	500
	9.654	4.372	8.900	+0.645	+0.012	1.000	24.000	0.74338	1000
	9.575	4.460	8.837	+0.715	+0.233	0.000	25.000	0.75581	2000
MK	11.480	4.717	10.833	+0.460	-0.396	2.000	24.000	0.77847	100
	11.758	4.914	10.689	+0.696	-0.237	3.000	25.000	0.80052	500
	11.937	4.874	11.059	+0.593	-0.312	1.000	25.000	0.79514	1000
	11.842	4.873	10.973	+0.589	-0.339	0.000	25.000	0.79597	2000
MC	12.690	4.208	12.773	+0.029	-0.708	4.000	22.000	0.70177	100
	12.440	3.883	12.172	+0.178	-0.314	2.000	24.000	0.64193	500
	12.316	3.939	12.093	+0.283	-0.225	2.000	24.000	0.65238	1000
	12.297	4.027	12.112	+0.173	-0.285	0.000	24.000	0.66943	2000
EI	9.460	3.713	9.591	+0.540	+0.298	2.000	20.000	0.69997	100
	9.686	3.368	9.435	+0.295	-0.087	0.000	20.000	0.62975	500
	9.794	3.615	9.447	+0.402	-0.150	0.000	20.000	0.68528	1000
	9.784	3.526	9.467	+0.438	-0.053	1.000	20.000	0.66868	2000

Table B-26. Descriptive Statistics of Random Samples of Blacks, Form 16b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	13.390	4.254	12.955	+0.354	+0.205	4.000	24.000	0.74386	100
	13.250	4.193	13.056	+0.207	-0.382	4.000	24.000	0.74298	500
	13.389	4.235	13.160	+0.182	-0.441	3.000	25.000	0.75174	1000
	13.180	4.273	12.905	+0.234	-0.468	3.000	25.000	0.75356	2000
AR	14.730	5.436	13.409	+0.743	-0.180	5.000	29.000	0.80580	100
	14.434	5.248	13.803	+0.569	-0.068	3.000	30.000	0.79424	500
	14.063	5.292	13.183	+0.632	-0.065	3.000	30.000	0.79848	1000
	14.172	5.328	13.403	+0.532	-0.183	1.000	30.000	0.80170	2000
WK	23.190	5.829	23.100	-0.165	-0.596	10.000	35.000	0.85386	100
	23.838	5.315	23.947	-0.305	-0.024	5.000	35.000	0.82824	500
	23.857	5.320	24.061	-0.356	+0.014	5.000	35.000	0.82626	1000
	23.780	5.420	24.031	-0.354	-0.086	4.000	35.000	0.83279	2000
PC	10.760	3.026	11.167	-0.724	+0.530	0.000	15.000	0.74486	100
	10.650	2.788	10.923	-0.503	-0.244	1.000	15.000	0.68922	500
	10.642	2.729	10.854	-0.457	-0.203	1.000	15.000	0.66907	1000
	10.608	2.796	10.924	-0.529	-0.187	0.000	15.000	0.68791	2000
AS	8.530	4.026	7.667	+0.985	+0.807	2.000	21.000	0.70254	100
	9.708	4.468	9.202	+0.580	-0.054	0.000	23.000	0.75800	500
	9.603	4.478	8.948	+0.656	+0.079	0.000	24.000	0.75857	1000
	9.716	4.436	9.028	+0.656	+0.105	0.000	25.000	0.75226	2000
MK	10.620	4.526	9.864	+0.894	+0.348	4.000	23.000	0.76052	100
	11.820	4.867	11.100	+0.571	-0.284	1.000	24.000	0.79507	500
	11.736	4.887	10.837	+0.625	-0.287	1.000	25.000	0.79673	1000
	11.913	4.965	11.026	+0.602	-0.306	1.000	25.000	0.80386	2000
MC	12.020	4.154	12.318	+0.019	-0.088	3.000	23.000	0.68460	100
	12.538	4.027	12.250	+0.165	-0.275	0.000	24.000	0.66676	500
	12.441	4.066	12.104	+0.187	-0.420	1.000	25.000	0.67352	1000
	12.479	4.016	12.309	+0.195	-0.350	1.000	25.000	0.66532	2000
EI	9.890	3.590	9.192	+0.498	-0.656	4.000	18.000	0.67988	100
	9.866	3.409	9.726	+0.296	-0.050	0.000	20.000	0.63999	500
	9.625	3.464	9.483	+0.321	-0.050	1.000	20.000	0.65177	1000
	9.761	3.485	9.601	+0.308	-0.196	0.000	20.000	0.65798	2000

Table B-27. Descriptive Statistics of Random Samples of Blacks, Form 17a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	13.730	4.206	13.667	+0.184	-0.518	6.000	23.000	0.71932	100
	13.114	4.164	12.969	+0.214	-0.339	4.000	24.000	0.71541	500
	13.183	4.093	12.930	+0.192	-0.347	2.000	25.000	0.70167	1000
	12.988	4.011	12.833	+0.201	-0.263	2.000	25.000	0.68698	2000
AR	14.320	4.882	13.929	+0.354	-0.392	5.000	28.000	0.75184	100
	14.154	5.733	13.203	+0.636	-0.208	3.000	30.000	0.82950	500
	14.152	5.465	13.516	+0.516	-0.302	2.000	30.000	0.81089	1000
	13.934	5.466	13.026	+0.615	-0.131	2.000	30.000	0.80996	2000
WK	21.860	6.291	21.900	-0.284	-0.597	5.000	33.000	0.84783	100
	22.718	6.516	22.964	-0.203	-0.545	5.000	35.000	0.86864	500
	22.645	6.459	22.775	-0.148	-0.647	6.000	35.000	0.86472	1000
	22.932	6.446	23.161	-0.187	-0.583	5.000	35.000	0.86510	2000
PC	10.780	2.953	11.313	-1.025	+1.267	0.000	15.000	0.73700	100
	10.392	3.023	10.737	-0.570	-0.209	1.000	15.000	0.72799	500
	10.392	3.060	10.841	-0.568	-0.328	0.000	15.000	0.73906	1000
	10.509	2.975	10.917	-0.572	-0.262	0.000	15.000	0.72521	2000
AS	11.040	3.897	10.688	+0.745	+0.347	4.000	21.000	0.67943	100
	10.990	4.046	10.444	+0.697	+0.740	0.000	25.000	0.69451	500
	10.840	4.103	10.255	+0.699	+0.397	2.000	25.000	0.70462	1000
	10.773	3.884	10.358	+0.638	+0.354	2.000	25.000	0.66703	2000
MK	12.780	4.373	12.056	+0.645	-0.162	5.000	24.000	0.75955	100
	12.476	4.911	11.944	+0.366	-0.316	0.000	25.000	0.80891	500
	12.358	4.812	11.727	+0.441	-0.345	2.000	25.000	0.80035	1000
	12.108	4.532	11.607	+0.442	-0.098	0.000	25.000	0.77165	2000
MC	12.570	3.916	12.346	+0.092	-0.507	5.000	21.000	0.67506	100
	12.528	3.962	12.465	+0.042	-0.221	2.000	23.000	0.67398	500
	12.767	3.859	12.628	+0.071	-0.025	0.000	23.000	0.65402	1000
	12.748	3.833	12.736	+0.095	-0.047	0.000	25.000	0.65104	2000
EI	10.000	3.169	9.808	+0.391	+0.588	2.000	20.000	0.60362	100
	9.454	3.191	9.254	+0.403	+0.238	2.000	20.000	0.60266	500
	9.570	3.419	9.257	+0.444	+0.176	0.000	20.000	0.65724	1000
	9.587	3.334	9.219	+0.452	+0.163	0.000	20.000	0.63898	2000

Table B-28. Descriptive Statistics of Random Samples of Blacks, Form 17b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	13.440	4.140	12.955	+0.422	-0.091	4.000	25.000	0.71349	100
	13.038	4.042	12.690	+0.344	-0.277	4.000	25.000	0.69482	500
	13.130	3.986	12.796	+0.247	-0.325	2.000	25.000	0.68538	1000
	13.104	4.008	12.851	+0.241	-0.243	2.000	25.000	0.68989	2000
AR	13.660	4.753	12.500	+0.333	-0.536	5.000	25.000	0.74659	100
	14.228	5.000	13.667	+0.390	-0.420	3.000	29.000	0.77257	500
	14.292	5.261	13.583	+0.480	-0.372	2.000	29.000	0.79499	1000
	14.273	5.314	13.619	+0.486	-0.248	1.000	30.000	0.79938	2000
WK	22.280	5.795	22.071	-0.021	-0.540	10.000	34.000	0.83030	100
	22.680	6.227	22.621	-0.099	-0.698	7.000	35.000	0.85784	500
	22.953	6.323	23.287	-0.192	-0.636	5.000	35.000	0.86320	1000
	23.279	6.215	23.408	-0.199	-0.546	4.000	35.000	0.86115	2000
PC	10.530	3.060	10.967	-0.422	-0.734	3.000	15.000	0.75696	100
	10.738	2.649	11.059	-0.694	+0.217	2.000	15.000	0.68693	500
	10.651	2.570	10.984	-0.598	-0.008	1.000	15.000	0.66160	1000
	10.613	2.607	10.969	-0.606	-0.034	2.000	15.000	0.66748	2000
AS	11.170	4.015	10.773	+0.728	+0.473	3.000	23.000	0.68457	100
	10.610	4.090	10.198	+0.634	+0.280	1.000	25.000	0.70328	500
	10.585	4.100	9.911	+0.786	+0.411	2.000	24.000	0.70333	1000
	10.745	4.067	10.235	+0.718	+0.431	0.000	25.000	0.69695	2000
MK	11.250	4.298	11.000	+0.502	+0.378	1.000	23.000	0.73551	100
	11.820	4.566	11.104	+0.514	-0.330	2.000	25.000	0.77574	500
	12.232	4.595	11.443	+0.479	-0.292	0.000	25.000	0.77576	1000
	12.059	4.586	11.388	+0.503	-0.332	2.000	25.000	0.77420	2000
MC	12.620	3.824	12.500	+0.168	-0.597	4.000	21.000	0.64358	100
	13.030	3.763	12.765	+0.188	-0.381	4.000	23.000	0.64010	500
	12.809	3.875	12.639	+0.231	-0.035	0.000	25.000	0.65949	1000
	12.843	3.849	12.690	+0.098	-0.211	0.000	25.000	0.65363	2000
EI	9.530	3.844	8.900	+0.642	-0.170	3.000	20.000	0.73805	100
	9.540	3.402	9.300	+0.546	+0.227	1.000	20.000	0.65608	500
	9.479	3.375	9.167	+0.489	+0.116	1.000	20.000	0.64736	1000
	9.502	3.450	9.236	+0.498	+0.101	1.000	20.000	0.66622	2000

Table B-29. Descriptive Statistics of Random Samples of Hispanics, Form 15a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	14.317	4.119	13.700	+0.174	-0.304	6.000	25.000	0.71537	60
	14.329	4.168	14.063	+0.094	-0.198	3.000	25.000	0.73012	298
	14.258	4.155	13.900	+0.200	-0.531	5.000	25.000	0.73099	596
	14.301	4.193	14.075	+0.119	-0.506	3.000	25.000	0.73642	1191
AR	17.600	5.195	17.333	-0.305	-0.359	6.000	27.000	0.80009	60
	15.829	5.663	15.574	+0.334	-0.419	4.000	30.000	0.82656	298
	16.280	5.762	15.656	+0.367	-0.509	4.000	30.000	0.83379	596
	16.303	5.647	15.719	+0.331	-0.466	3.000	30.000	0.82537	1191
WK	24.083	6.995	24.500	-0.356	-0.872	8.000	35.000	0.88638	60
	22.416	7.044	22.571	-0.163	-0.894	3.000	35.000	0.88322	298
	22.646	6.900	23.071	-0.271	-0.747	4.000	35.000	0.87765	596
	22.615	6.929	23.170	-0.256	-0.795	3.000	35.000	0.87867	1191
PC	10.917	2.683	11.654	-0.851	+0.071	4.000	15.000	0.68571	60
	11.295	2.877	11.816	-0.912	+0.405	2.000	15.000	0.74356	298
	11.183	2.790	11.682	-0.718	-0.003	2.000	15.000	0.71612	596
	11.196	2.863	11.689	-0.758	-0.005	2.000	15.000	0.73195	1191
AS	12.750	4.939	12.167	+0.261	-0.671	4.000	24.000	0.79227	60
	12.839	4.688	12.281	+0.282	-0.646	4.000	24.000	0.77536	298
	12.963	4.657	12.337	+0.286	-0.526	1.000	25.000	0.77117	596
	12.834	4.690	12.179	+0.298	-0.636	1.000	25.000	0.77471	1191
MK	13.967	4.971	13.100	+0.433	-0.594	5.000	25.000	0.81032	60
	12.883	5.073	12.180	+0.435	-0.510	2.000	25.000	0.81295	298
	12.955	5.101	12.291	+0.456	-0.427	0.000	25.000	0.81651	596
	13.004	5.158	12.332	+0.390	-0.547	0.000	25.000	0.82184	1191
MC	13.350	4.325	13.900	-0.248	+0.114	2.000	23.000	0.72553	60
	13.869	4.362	13.625	+0.000	-0.453	2.000	25.000	0.73494	298
	14.154	4.159	14.220	-0.093	-0.140	0.000	25.000	0.71003	596
	14.101	4.258	14.083	-0.023	-0.310	0.000	25.000	0.72245	1191
EI	10.133	3.789	9.929	+0.443	-0.287	3.000	20.000	0.72924	60
	10.584	3.323	10.438	+0.255	-0.018	0.000	20.000	0.64643	298
	10.408	3.397	10.180	+0.312	-0.335	3.000	20.000	0.66335	596
	10.458	3.426	10.230	+0.350	-0.206	0.000	20.000	0.66934	1191

Table B-30. Descriptive Statistics of Random Samples of Hispanics, Form 15b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	13.842	4.862	13.750	+0.207	-0.712	5.000	23.000	0.80385	57
	14.609	4.512	14.224	+0.202	-0.560	4.000	25.000	0.77036	284
	14.406	4.387	14.090	+0.119	-0.512	3.000	25.000	0.75991	567
	14.318	4.442	13.980	+0.158	-0.522	3.000	25.000	0.76670	1134
AR	15.386	5.936	14.750	+0.112	-0.674	3.000	29.000	0.84204	57
	15.482	5.573	14.976	+0.410	-0.467	5.000	30.000	0.82725	284
	16.423	5.848	15.606	+0.328	-0.694	3.000	30.000	0.84574	567
	16.312	5.837	15.672	+0.296	-0.669	3.000	30.000	0.84411	1134
WK	24.158	6.380	24.333	-0.397	-0.660	8.000	35.000	0.86488	57
	23.246	6.430	23.071	-0.148	-0.880	7.000	35.000	0.86108	284
	23.109	6.419	23.229	-0.183	-0.863	6.000	35.000	0.86129	567
	23.131	6.399	23.160	-0.130	-0.869	6.000	35.000	0.86057	1134
PC	11.404	2.604	11.850	-0.845	+0.686	3.000	15.000	0.68947	57
	10.891	3.007	11.549	-0.675	-0.345	2.000	15.000	0.74960	284
	10.739	3.164	11.330	-0.612	-0.460	2.000	15.000	0.76943	567
	10.868	3.117	11.514	-0.652	-0.368	1.000	15.000	0.76716	1134
AS	11.667	4.576	11.400	+0.528	+0.435	2.000	25.000	0.75676	57
	12.542	4.508	12.300	+0.103	-0.664	2.000	24.000	0.75102	284
	12.621	4.609	12.200	+0.287	-0.660	2.000	25.000	0.76253	567
	12.541	4.523	12.204	+0.280	-0.563	2.000	25.000	0.75307	1134
MK	13.105	5.640	12.125	+0.333	-0.807	4.000	25.000	0.85666	57
	12.630	5.151	11.688	+0.334	-0.700	2.000	25.000	0.82224	284
	12.808	5.215	11.586	+0.521	-0.599	2.000	25.000	0.82860	567
	12.787	5.229	11.690	+0.439	-0.674	2.000	25.000	0.82870	1134
MC	13.596	4.255	13.583	+0.126	-0.868	6.000	22.000	0.71908	57
	13.859	4.329	14.065	-0.027	-0.573	3.000	24.000	0.73214	284
	13.713	4.384	13.451	+0.120	-0.560	3.000	25.000	0.73805	567
	13.805	4.337	13.871	+0.040	-0.506	2.000	25.000	0.73352	1134
EI	10.439	3.699	10.375	+0.391	-0.112	4.000	20.000	0.70891	57
	10.521	3.303	10.313	+0.491	+0.260	2.000	20.000	0.64163	284
	10.600	3.326	10.394	+0.362	-0.103	2.000	20.000	0.64363	567
	10.631	3.336	10.528	+0.285	-0.096	1.000	20.000	0.64470	1134

Table B-31. Descriptive Statistics of Random Samples of Hispanics, Form 15c

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	14.345	4.652	15.000	-0.394	-0.104	2.000	24.000	0.79350	55
	14.062	4.009	14.024	+0.090	-0.434	4.000	24.000	0.70329	274
	14.049	3.967	13.917	+0.072	-0.457	4.000	24.000	0.69650	548
	13.889	4.024	13.684	+0.084	-0.346	2.000	24.000	0.70618	1095
AR	14.636	3.964	13.800	+0.621	+0.372	6.000	25.000	0.62548	55
	15.314	5.086	14.603	+0.679	+0.200	6.000	30.000	0.78227	274
	15.546	5.673	14.621	+0.510	-0.383	4.000	30.000	0.82787	548
	15.556	5.526	14.797	+0.486	-0.300	4.000	30.000	0.81812	1095
WK	23.164	5.534	23.286	-0.363	-0.515	11.000	33.000	0.81679	55
	24.456	5.573	24.881	-0.421	-0.141	9.000	35.000	0.82930	274
	24.414	5.384	24.691	-0.319	-0.305	9.000	35.000	0.81434	548
	24.305	5.485	24.694	-0.367	-0.266	7.000	35.000	0.81995	1095
PC	10.527	2.768	10.857	-0.493	-0.659	4.000	15.000	0.67279	55
	9.912	2.913	10.210	-0.396	-0.518	2.000	15.000	0.67915	274
	9.863	2.959	10.183	-0.411	-0.556	0.000	15.000	0.69052	548
	10.014	2.878	10.430	-0.483	-0.388	0.000	15.000	0.67540	1095
AS	12.309	4.594	12.000	+0.400	-0.164	4.000	25.000	0.76369	55
	12.737	4.534	12.350	+0.212	-0.649	0.000	24.000	0.75823	274
	12.870	4.601	12.500	+0.311	-0.434	0.000	25.000	0.76596	548
	12.915	4.691	12.482	+0.290	-0.531	0.000	25.000	0.77429	1095
MK	11.564	5.021	11.000	+0.613	-0.441	4.000	22.000	0.81253	55
	12.277	5.374	11.375	+0.408	-0.643	0.000	25.000	0.83814	274
	12.115	5.187	11.181	+0.515	-0.491	0.000	25.000	0.82574	548
	11.980	5.191	11.173	+0.469	-0.447	0.000	25.000	0.82591	1095
MC	13.782	5.102	12.917	+0.453	-0.595	5.000	25.000	0.81731	55
	12.693	4.374	12.048	+0.325	-0.492	2.000	24.000	0.73041	274
	12.849	4.465	12.480	+0.169	-0.389	0.000	24.000	0.74638	548
	12.935	4.472	12.454	+0.258	-0.460	0.000	25.000	0.74710	1095
EI	10.218	3.010	10.000	+0.129	+0.575	3.000	18.000	0.54258	55
	9.872	3.554	9.733	+0.170	-0.335	2.000	20.000	0.69370	274
	10.157	3.436	10.022	+0.043	-0.436	0.000	20.000	0.66853	548
	10.075	3.467	9.949	+0.054	-0.386	0.000	20.000	0.67372	1095

Table B-32. Descriptive Statistics of Random Samples of Hispanics, Form 16a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	13.927	4.768	13.800	+0.056	-0.739	5.000	23.000	0.80922	55
	13.964	4.290	13.932	+0.124	-0.428	3.000	24.000	0.75377	275
	14.365	4.450	14.147	+0.202	-0.632	5.000	25.000	0.77471	550
	14.106	4.405	13.949	+0.169	-0.541	3.000	25.000	0.76900	1100
AR	16.927	5.731	16.750	+0.171	-0.611	5.000	29.000	0.83640	55
	16.120	5.842	15.781	+0.296	-0.446	3.000	30.000	0.83838	275
	16.329	5.577	16.177	+0.184	-0.488	3.000	30.000	0.82347	550
	16.487	5.516	16.325	+0.131	-0.558	3.000	30.000	0.81819	1100
WK	23.764	5.584	23.600	-0.144	-0.383	12.000	35.000	0.82063	55
	24.044	5.711	24.059	-0.228	-0.466	7.000	35.000	0.83124	275
	23.309	6.014	23.643	-0.255	-0.552	6.000	35.000	0.84671	550
	23.577	6.021	24.125	-0.319	-0.520	6.000	35.000	0.84841	1100
PC	10.873	3.163	11.563	-1.180	+1.263	1.000	15.000	0.77423	55
	11.047	3.149	11.839	-0.818	-0.064	1.000	15.000	0.77812	275
	10.911	3.220	11.639	-0.764	-0.172	1.000	15.000	0.78650	550
	10.870	3.224	11.588	-0.729	-0.270	1.000	15.000	0.78575	1100
AS	12.527	5.718	11.143	+0.604	-0.627	3.000	25.000	0.85780	55
	12.087	5.459	11.462	+0.304	-0.873	1.000	25.000	0.83973	275
	11.842	5.431	11.167	+0.321	-0.826	1.000	25.000	0.83882	550
	11.705	5.338	11.027	+0.344	-0.816	1.000	25.000	0.83136	1100
MK	13.218	5.846	12.000	+0.463	-0.940	5.000	25.000	0.86350	55
	13.189	5.586	12.344	+0.341	-0.837	2.000	25.000	0.84947	275
	12.715	5.429	11.743	+0.412	-0.670	1.000	25.000	0.83844	550
	12.665	5.450	11.636	+0.422	-0.738	1.000	25.000	0.83967	1100
MC	14.673	4.497	14.250	+0.004	-0.928	5.000	22.000	0.74664	55
	14.207	4.368	14.250	-0.117	-0.624	3.000	25.000	0.73176	275
	14.089	4.294	14.000	+0.008	-0.603	3.000	25.000	0.71916	550
	13.987	4.313	13.886	+0.000	-0.554	2.000	25.000	0.72142	1100
EI	10.600	3.670	10.563	+0.299	-0.556	4.000	19.000	0.70265	55
	10.913	3.637	10.661	+0.220	-0.718	3.000	19.000	0.69821	275
	10.882	3.578	10.559	+0.280	-0.546	3.000	20.000	0.68728	550
	10.862	3.707	10.631	+0.198	-0.554	1.000	20.000	0.71069	1100

Table B-33. Descriptive Statistics of Random Samples of Hispanics, Form 16b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	13.554	4.289	12.875	+0.448	-0.376	5.000	23.000	0.75487	56
	14.614	4.640	14.286	+0.089	-0.653	3.000	25.000	0.79735	277
	14.215	4.465	14.044	+0.116	-0.582	3.000	25.000	0.77758	553
	14.126	4.451	1[illegible].909	+0.123	-0.564	2.000	25.000	0.77552	1106
AR	15.857	6.411	16.000	+0.319	-0.877	6.000	30.000	0.87666	56
	15.827	5.867	14.750	+0.441	-0.556	4.000	30.000	0.84173	277
	16.065	5.962	15.280	+0.425	-0.687	5.000	30.000	0.84614	553
	15.981	5.813	15.265	+0.384	-0.630	4.000	30.000	0.83749	1106
WK	24.143	5.962	24.700	-0.364	-0.368	12.000	35.000	0.85737	56
	23.827	6.392	23.906	-0.336	-0.525	7.000	35.000	0.87088	277
	23.427	6.282	23.654	-0.373	-0.326	5.000	35.000	0.86502	553
	23.327	6.252	23.610	-0.349	-0.311	5.000	35.000	0.86318	1106
PC	10.875	3.045	11.600	-0.914	+0.491	2.000	15.000	0.74899	56
	10.993	2.737	11.298	-0.561	-0.108	1.000	15.000	0.68509	277
	10.850	2.862	11.291	-0.659	-0.[illegible]	2.000	15.000	0.70919	553
	10.809	2.880	11.248	-0.608	-0.[illegible]	1.000	15.000	0.71133	1106
AS	12.214	4.931	12.000	+0.235	+0.024	1.000	25.000	0.80459	56
	12.072	5.219	11.386	+0.407	-0.583	2.000	25.000	0.82069	277
	11.528	5.114	10.857	+0.452	-0.611	2.000	25.000	0.81477	553
	11.850	5.200	11.205	+0.383	-0.633	1.000	25.000	0.82097	1106
MK	13.893	5.239	13.500	+0.186	-0.937	4.000	24.000	0.82814	56
	12.805	5.469	11.841	+0.488	-0.623	3.000	25.000	0.84214	277
	12.315	5.121	11.443	+0.531	-0.337	1.000	25.000	0.81495	553
	12.665	5.315	11.838	+0.420	-0.573	0.000	25.000	0.83086	1106
MC	14.643	4.653	15.000	+0.004	-0.755	5.000	24.000	0.76675	56
	13.877	4.413	14.094	-0.114	-0.588	3.000	24.000	0.73500	277
	14.107	4.421	14.462	-0.164	-0.359	0.000	25.000	0.73850	553
	14.216	4.430	14.293	-0.060	-0.547	0.000	25.000	0.73973	1106
EI	10.982	3.797	10.643	+0.576	-0.188	5.000	20.000	0.73023	56
	10.383	3.955	10.333	+0.106	-0.459	0.000	20.000	0.74562	277
	10.620	3.870	10.412	+0.193	-0.628	0.000	20.000	0.73749	553
	10.723	3.796	10.686	+0.114	-0.578	0.000	20.000	0.72585	1106

Table B-35. Descriptive Statistics of Random Samples of Hispanics, Form 17a

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	14.036	4.675	14.100	-0.026	-0.418	3.000	24.000	0.78845	56
	13.789	4.538	13.296	+0.181	-0.760	3.000	24.000	0.76322	279
	13.493	4.497	13.010	+0.279	-0.471	3.000	25.000	0.75713	558
	13.726	4.416	13.452	+0.157	-0.497	1.000	25.000	0.75098	1115
AR	15.107	5.399	14.214	+0.467	-0.421	5.000	28.000	0.80507	56
	16.176	5.913	15.792	+0.216	-0.580	4.000	30.000	0.84378	279
	15.704	5.824	15.109	+0.389	-0.327	4.000	30.000	0.83517	558
	15.881	5.832	15.388	+0.310	-0.497	4.000	30.000	0.83679	1115
WK	22.518	7.086	22.000	-0.060	-0.557	5.000	35.000	0.88010	56
	23.412	6.513	23.361	-0.183	-0.675	7.000	35.000	0.86552	279
	23.360	6.737	23.500	-0.189	-0.674	5.000	35.000	0.87614	558
	23.357	6.580	23.478	-0.231	-0.540	5.000	35.000	0.86946	1115
PC	10.196	3.095	10.389	-0.504	-0.328	3.000	15.000	0.74026	56
	10.896	3.040	11.563	-0.709	-0.247	2.000	15.000	0.75263	279
	10.703	3.098	11.173	-0.541	-0.425	0.000	15.000	0.75299	558
	10.813	3.096	11.340	-0.636	-0.325	0.000	15.000	0.75736	1115
AS	13.375	5.175	13.071	+0.170	-0.593	3.000	24.000	0.81722	56
	12.918	4.933	12.417	+0.527	-0.374	3.000	25.000	0.79819	279
	13.108	4.960	12.577	+0.334	-0.562	2.000	25.000	0.80101	558
	12.842	4.730	12.413	+0.357	-0.437	2.000	25.000	0.77814	1115
MK	12.500	5.152	11.214	+0.665	-0.506	5.000	24.000	0.82928	56
	12.638	4.871	12.040	+0.482	-0.394	3.000	25.000	0.79890	279
	13.267	4.956	12.745	+0.420	-0.545	2.000	25.000	0.80916	558
	12.977	4.931	12.415	+0.410	-0.471	1.000	25.000	0.80707	1115
MC	14.839	4.310	13.900	+0.452	-0.321	7.000	25.000	0.74153	56
	13.953	4.459	13.857	+0.046	-0.537	4.000	25.000	0.75293	279
	14.151	4.241	14.065	+0.061	-0.431	4.000	25.000	0.72544	558
	14.229	4.213	14.197	+0.021	-0.445	4.000	25.000	0.72263	1115
EI	11.268	3.392	10.750	+0.399	-0.715	6.000	19.000	0.67131	56
	10.606	3.567	10.484	+0.158	-0.376	1.000	19.000	0.69753	279
	10.785	3.700	10.611	+0.193	-0.296	0.000	20.000	0.71831	558
	10.708	3.677	10.504	+0.212	-0.327	0.000	20.000	0.71608	1115

Table B-35. Descriptive Statistics of Random Samples of Hispanics, Form 17b

Subtest	Mean	Standard deviation	Median	Skew	Kurtosis	Minimum	Maximum	KR-20	N
GS	13.784	4.206	12.750	+0.761	-0.432	8.000	24.000	0.72549	51
	13.779	4.393	13.370	+0.208	-0.539	4.000	25.000	0.74930	253
	13.767	4.454	13.500	+0.035	-0.563	2.000	24.000	0.75781	506
	13.946	4.362	13.651	+0.154	-0.427	2.000	25.000	0.74515	1012
AR	14.882	6.141	14.750	+0.317	-0.665	4.000	29.000	0.85392	51
	15.945	5.966	15.156	+0.314	-0.841	5.000	30.000	0.84578	253
	16.032	5.981	15.500	+0.259	-0.702	4.000	30.000	0.84827	506
	16.019	5.879	15.449	+0.251	-0.723	4.000	30.000	0.84167	1012
WK	23.490	6.682	24.000	-0.123	-1.098	11.000	35.000	0.88204	51
	23.407	6.518	23.313	-0.107	-0.981	8.000	35.000	0.86999	253
	23.573	6.498	23.313	-0.102	-0.950	8.000	35.000	0.87093	506
	23.253	6.420	23.025	-0.049	-0.890	8.000	35.000	0.86562	1012
PC	10.431	2.837	10.625	-0.557	-0.029	3.000	15.000	0.68948	51
	10.791	2.988	11.648	-0.933	+0.417	0.000	15.000	0.75222	253
	10.980	2.876	11.692	-0.787	-0.100	2.000	15.000	0.73814	506
	10.885	2.842	11.513	-0.813	+0.218	0.000	15.000	0.72736	1012
AS	13.529	4.549	13.600	+0.100	-0.197	4.000	25.000	0.76105	51
	12.747	4.905	12.339	+0.255	-0.639	4.000	23.000	0.79546	253
	13.168	4.938	12.729	+0.299	-0.584	4.000	25.000	0.79988	506
	12.827	4.886	12.227	+0.370	-0.536	2.000	25.000	0.79304	1012
MK	12.784	4.892	12.667	+0.422	-0.658	5.000	24.000	0.79970	51
	12.822	5.187	12.194	+0.512	-0.404	3.000	25.000	0.82628	253
	13.109	5.278	12.321	+0.392	-0.641	0.000	25.000	0.83334	506
	13.083	5.159	12.487	+0.329	-0.601	0.000	25.000	0.82330	1012
MC	13.961	4.015	14.000	+0.095	-0.395	6.000	24.000	0.69157	51
	14.482	4.351	14.571	-0.320	+0.408	0.000	24.000	0.75045	253
	14.170	4.215	14.174	+0.046	-0.388	1.000	24.000	0.72310	506
	14.196	4.229	14.216	-0.082	-0.233	0.000	25.000	0.72650	1012
EI	9.863	3.644	8.750	+0.848	+0.023	4.000	19.000	0.70439	51
	10.834	3.990	10.360	+0.246	-0.679	1.000	20.000	0.76625	253
	10.591	3.783	10.080	+0.409	-0.540	0.000	20.000	0.73447	506
	10.575	3.815	10.098	+0.360	-0.496	0.000	20.000	0.73969	1012

APPENDIX C: MEANS AND STANDARD DEVIATIONS OF FIVE DIF INDICES BY ASVAB FORM, SUBTEST, AND SAMPLE SIZE

Table C-1. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 15B, Subgroup White vs White

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	3.370	(2.060)	4.123	(2.339)	5.932	(3.224)	5.175	(3.215)
MHCHI	.362	(.507)	.558	(.562)	.488	(.811)	.700	(.303)
MHODDS	1.000	(.053)	1.024	(.119)	1.018	(.155)	1.082	(.488)
LCHI	19.181	(21.953)	10.409	(12.346)				
MSOS	17.818	(38.360)	17.848	(36.583)				
AR								
FCHI5	3.717	(2.767)	4.502	(2.909)	4.361	(2.710)	6.25	(3.626)
MHCHI	.508	(.691)	.860	(1.505)	.910	(1.074)	.830	(1.254)
MHODDS	1.009	(.080)	1.016	(.145)	1.029	(.196)	1.105	(.552)
LCHI	9.958	(13.705)	7.582	(7.859)				
MSOS	24.886	(36.155)	31.971	(35.419)				
WK								
FCHI5	3.671	(2.605)	4.517	(2.577)	4.073	(2.014)	4.772	(3.315)
MHCHI	.643	(1.085)	.800	(1.061)	.583	(.798)	.689	(1.324)
MHODDS	1.008	(.142)	1.033	(.207)	.998	(.238)	1.084	(.687)
LCHI	30.067	(34.770)	21.662	(17.730)				
MSOS	15.658	(16.977)	21.954	(24.462)				
PC								
FCHI5	2.643	(1.406)	5.369	(3.373)	3.950	(1.971)	*	(*)
MHCHI	.331	(.362)	1.285	(1.632)	.449	(.486)	1.087	(1.923)
MHODDS	1.023	(.072)	1.013	(.171)	1.009	(.200)	1.094	(.883)
LCHI	**	(**)	14.438	(10.310)				
MSOS	**	(**)	67.989	(70.594)				
AS								
FCHI5	4.218	(2.674)	4.301	(3.423)	4.946	(3.260)	6.110	(3.735)
MHCHI	1.007	(1.387)	.982	(1.772)	.872	(1.380)	.928	(1.329)
MHODDS	.992	(.093)	1.008	(.118)	1.008	(.168)	1.111	(.528)
LCHI	8.056	(10.100)	5.794	(6.323)				
MSOS	6.640	(4.837)	12.168	(12.372)				
MK								
FCHI5	4.274	(2.767)	5.199	(2.835)	4.525	(2.553)	5.021	(3.011)
MHCHI	.961	(1.386)	.898	(1.561)	.843	(1.102)	.497	(.854)
MHODDS	1.000	(.079)	1.010	(.111)	1.018	(.167)	1.013	(.364)
LCHI	26.768	(47.294)	15.270	(25.699)				
MSOS	38.663	(47.980)	45.724	(65.349)				
MC								
FCHI5	3.200	(2.216)	4.886	(2.621)	4.777	(3.848)	5.877	(3.773)
MHCHI	.625	(.945)	1.073	(1.430)	1.147	(1.916)	.396	(.549)
MHODDS	1.001	(.066)	1.023	(.146)	1.023	(.184)	1.059	(.351)
LCHI	19.093	(22.574)	16.626	(20.731)				
MSOS	20.485	(35.886)	25.082	(33.348)				
EI								
FCHI5	4.929	(3.789)	4.933	(2.754)	4.426	(3.118)	4.424	(2.659)
MHCHI	1.249	(1.278)	.683	(1.231)	1.044	(1.868)	1.008	(1.519)
MHODDS	1.015	(.101)	1.002	(.102)	1.004	(.183)	1.147	(.556)
LCHI	26.378	(23.606)	10.751	(7.867)				
MSOS	15.608	(20.350)	29.709	(33.554)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

*Values were not computed since Full Chi-Square was not able to establish five score intervals.

**Values were not computed since parameter estimates from LOGIST5 did not converge.

Table C-2. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 15B, Subgroup White vs Black

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	25.468	(42.678)	13.355	(22.919)	9.022	(10.084)	5.448	(4.441)
MHCHI	15.893	(32.730)	7.341	(16.545)	3.514	(7.839)	1.136	(2.359)
MHODDS	1.054	(.448)	1.075	(.461)	1.053	(.431)	1.076	(.684)
LCHI	28.198	(44.415)	13.709	(22.313)				
MSOS	44.055	(74.888)	49.223	(67.459)				
AR								
FCHI5	21.208	(33.032)	14.344	(15.735)	9.579	(9.304)	*	(*)
MHCHI	13.178	(23.070)	7.388	(11.550)	3.783	(6.144)	.690	(.953)
MHODDS	1.049	(.369)	1.053	(.358)	1.043	(.411)	1.067	(.455)
LCHI	18.774	(22.115)	11.857	(12.434)				
MSOS	39.710	(67.528)	49.597	(66.861)				
WK								
FCHI5	20.904	(18.668)	13.021	(8.664)	9.299	(6.389)	6.310	(3.319)
MHCHI	11.775	(16.401)	5.244	(7.204)	2.895	(5.829)	.854	(1.058)
MHODDS	1.103	(.403)	1.090	(.387)	1.072	(.383)	1.139	(.573)
LCHI	42.829	(36.678)	25.496	(21.187)				
MSOS	33.509	(41.291)	36.220	(40.632)				
PC								
FCHI5	15.441	(12.640)	11.377	(6.552)	11.557	(8.320)	*	(*)
MHCHI	9.083	(10.774)	5.237	(5.570)	5.416	(7.761)	.610	(.964)
MHODDS	1.092	(.324)	1.140	(.432)	1.147	(.601)	1.210	(.715)
LCHI	**	(**)	9.689	(8.510)				
MSOS	**	(**)	52.649	(49.740)				
AS								
FCHI5	17.839	(17.625)	11.460	(9.926)	8.507	(6.042)	11.187	(.000)
MHCHI	7.131	(9.254)	3.684	(3.973)	1.552	(2.183)	.817	(1.289)
MHODDS	1.041	(.277)	1.050	(.287)	1.036	(.266)	1.161	(.677)
LCHI	10.011	(9.912)	8.024	(9.211)				
MSOS	37.188	(63.587)	43.498	(58.407)				
MK								
FCHI5	21.313	(20.525)	14.139	(17.225)	8.309	(8.787)	8.295	(3.169)
MHCHI	14.639	(20.651)	7.624	(14.585)	3.637	(7.529)	.955	(1.574)
MHODDS	1.038	(.330)	1.045	(.361)	1.054	(.398)	1.063	(.412)
LCHI	20.569	(21.133)	12.332	(14.255)				
MSOS	42.198	(41.999)	48.402	(62.841)				
MC								
FCHI5	16.968	(19.872)	9.224	(8.063)	7.789	(6.435)	2.388	(1.099)
MHCHI	8.894	(12.397)	4.142	(5.593)	3.231	(4.106)	.897	(1.831)
MHODDS	1.037	(.289)	1.037	(.265)	1.054	(.354)	1.074	(.431)
LCHI	11.998	(14.053)	7.242	(7.986)				
MSOS	33.679	(31.699)	34.481	(29.290)				
EI								
FCHI5	16.747	(10.802)	7.399	(5.791)	8.090	(5.077)	*	(*)
MHCHI	7.879	(8.201)	2.572	(3.096)	2.596	(2.592)	.415	(.418)
MHODDS	1.024	(.242)	1.010	(.193)	1.033	(.297)	1.061	(.352)
LCHI	17.765	(14.421)	6.247	(6.313)				
MSOS	36.867	(31.757)	27.243	(24.767)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

*Values were not computed since Full Chi-Square was not able to establish five score intervals.

**Values were not computed since parameter estimates from LOGIST5 did not converge.

Table C-3. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 15B, Subgroup White vs Hispanic

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	22.064	(29.065)	13.162	(17.625)	10.972	(8.646)	*	(*)
MHCHI	14.051	(21.879)	8.252	(13.244)	4.894	(6.128)	1.644	(3.116)
MHODDS	1.098	(.516)	1.139	(.562)	1.154	(.618)	1.191	(.750)
LCHI	17.534	(23.906)	10.792	(15.537)				
MSOS	48.687	(65.012)	57.291	(81.768)				
AR								
FCHI5	12.863	(18.032)	10.070	(8.738)	6.605	(5.865)	7.849	(.000)
MHCHI	7.532	(14.200)	4.260	(6.891)	1.998	(3.388)	.724	(.965)
MHODDS	1.036	(.336)	1.037	(.353)	1.036	(.345)	1.122	(.547)
LCHI	11.748	(17.590)	6.976	(7.883)				
MSOS	30.628	(53.536)	37.542	(52.484)				
WK								
FCHI5	33.534	(35.749)	20.006	(20.400)	13.313	(9.606)	5.100	(.434)
MHCHI	25.558	(32.108)	13.040	(17.987)	5.700	(6.403)	1.329	(1.817)
MHODDS	1.462	(1.258)	1.441	(1.123)	1.455	(1.163)	1.339	(1.080)
LCHI	52.102	(37.556)	28.232	(20.352)				
MSOS	93.236	(111.163)	553.979	(417.479)				
PC								
FCHI5	15.909	(14.766)	13.786	(10.430)	8.103	(5.768)	*	(*)
MHCHI	10.099	(14.762)	6.576	(9.615)	2.853	(4.454)	.588	(.884)
MHODDS	1.112	(.365)	1.171	(.552)	1.116	(.440)	1.051	(.720)
LCHI	**	(**)	13.011	(17.332)				
MSOS	**	(**)	97.069	(133.785)				
AS								
FCHI5	24.742	(25.219)	18.128	(16.659)	11.036	(8.409)	*	(*)
MHCHI	17.154	(21.807)	12.165	(15.563)	3.808	(4.168)	1.252	(1.494)
MHODDS	1.091	(.454)	1.143	(.582)	1.098	(.481)	1.372	(1.141)
LCHI	23.428	(21.998)	14.369	(14.297)				
MSOS	63.578	(65.579)	98.258	(102.632)				
MK								
FCHI5	8.343	(8.568)	5.863	(4.871)	5.257	(4.303)	7.044	(5.142)
MHCHI	4.413	(8.771)	1.847	(3.295)	1.156	(3.158)	1.272	(2.048)
MHODDS	1.004	(.228)	1.000	(.207)	1.018	(.270)	1.176	(.900)
LCHI	8.330	(11.336)	4.432	(5.856)				
MSOS	21.986	(34.804)	20.828	(30.490)				
MC								
FCHI5	13.400	(10.337)	8.933	(5.806)	6.760	(4.786)	4.559	(.000)
MHCHI	7.165	(6.870)	3.395	(4.097)	1.899	(2.914)	.788	(1.040)
MHODDS	1.018	(.253)	1.025	(.248)	1.028	(.288)	1.116	(.548)
LCHI	13.504	(10.780)	5.917	(4.824)				
MSOS	37.160	(23.938)	36.032	(31.786)				
EI								
FCHI5	9.984	(6.431)	5.145	(4.119)	7.734	(3.470)	*	(*)
MHCHI	4.716	(6.781)	1.220	(1.314)	2.867	(3.109)	1.086	(1.578)
MHODDS	1.035	(.227)	1.020	(.153)	1.058	(.374)	1.140	(.577)
LCHI	8.959	(7.715)	4.812	(5.181)				
MSOS	19.704	(20.301)	27.717	(32.823)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500: therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

*Values were not computed since Full Chi-Square was not able to establish five score intervals.

**Values were not computed since parameter estimates from LOGIST5 did not converge.

Table C-4. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 15B, Subgroup Male vs Female

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	44.367	(63.472)	23.535	(23.317)	13.884	(17.710)	8.294	(6.207)
MHCHI	36.169	(51.119)	16.493	(19.808)	9.754	(14.959)	1.978	(2.854)
MHODDS	1.099	(.626)	1.088	(.596)	1.112	(.746)	1.212	(.963)
LCHI	43.538	(63.951)	22.549	(27.143)				
MSOS	90.744	(114.119)	94.992	(95.548)				
AR								
FCHI5	14.213	(12.047)	8.959	(7.488)	6.682	(3.758)	4.851	(2.876)
MHCHI	7.824	(10.775)	5.030	(6.241)	2.597	(3.091)	.919	(1.534)
MHODDS	1.018	(.244)	1.033	(.283)	1.067	(.349)	1.120	(.559)
LCHI	14.888	(15.103)	8.546	(9.076)				
MSOS	20.957	(24.088)	28.473	(30.943)				
WK								
FCHI5	23.660	(26.368)	13.615	(11.740)	9.655	(7.858)	7.285	(5.264)
MHCHI	17.654	(26.034)	8.458	(11.628)	4.290	(7.235)	1.749	(3.070)
MHODDS	1.062	(.442)	1.053	(.484)	1.087	(.518)	1.170	(.743)
LCHI	24.785	(29.686)	16.454	(17.675)				
MSOS	42.886	(53.402)	45.333	(54.975)				
PC								
FCHI5	18.704	(21.259)	9.651	(5.869)	9.256	(10.051)	1.267	(.000)
MHCHI	13.868	(24.022)	5.189	(6.255)	5.528	(9.660)	.516	(.915)
MHODDS	1.065	(.485)	1.027	(.340)	1.077	(.753)	1.081	(.513)
LCHI	23.451	(38.072)	14.538	(11.679)				
MSOS	31.977	(46.259)	438.097	(418.372)				
AS								
FCHI5	24.524	(21.494)	14.303	(12.601)	12.111	(9.703)	1.610	(.000)
MHCHI	14.520	(16.601)	7.270	(11.168)	3.967	(4.913)	1.410	(2.354)
MHODDS	1.052	(.336)	1.051	(.366)	1.069	(.399)	1.128	(.594)
LCHI	26.384	(25.826)	13.620	(17.572)				
MSOS	58.171	(55.659)	75.595	(96.857)				
MK								
FCHI5	13.852	(10.858)	9.614	(7.273)	8.494	(5.365)	4.834	(2.059)
MHCHI	8.271	(9.326)	5.557	(7.201)	2.128	(2.539)	.595	(1.111)
MHODDS	1.011	(.246)	1.014	(.296)	1.030	(.271)	1.032	(.343)
LCHI	11.625	(7.554)	6.771	(6.772)				
MSOS	21.104	(15.735)	24.450	(23.022)				
MC								
FCHI5	17.628	(19.798)	13.397	(14.935)	9.291	(8.440)	1.843	(.000)
MHCHI	10.144	(14.758)	6.932	(9.713)	4.305	(6.027)	1.326	(1.173)
MHODDS	1.045	(.279)	1.064	(.344)	1.080	(.411)	1.139	(.603)
LCHI	19.907	(20.641)	8.192	(7.648)				
MSOS	26.016	(28.869)	235.787	(133.720)				
EI								
FCHI5	27.952	(33.908)	19.786	(20.601)	12.471	(9.831)	3.166	(1.955)
MHCHI	20.009	(29.944)	12.384	(18.383)	6.178	(8.635)	1.225	(1.643)
MHODDS	1.071	(.438)	1.073	(.490)	1.085	(.464)	1.077	(.542)
LCHI	27.075	(28.544)	15.929	(15.871)				
MSOS	72.990	(85.541)	85.039	(101.175)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

Table C-5. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 15C, Subgroup White vs White

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	3.859	(2.458)	3.981	(2.641)	4.308	(2.470)	4.929	(2.437)
MHCHI	.725	(.989)	.484	(.763)	.509	(.691)	.711	(1.168)
MHODDS	.997	(.083)	1.033	(.136)	.989	(.147)	.999	(.418)
LCHI	16.725	(20.890)	11.244	(12.271)				
MSOS	19.348	(16.086)	28.838	(23.140)				
AR								
FCHI5	3.805	(2.896)	5.537	(3.379)	5.291	(2.353)	4.406	(2.278)
MHCHI	.782	(1.212)	1.039	(1.300)	.973	(1.300)	.698	(.842)
MHODDS	.993	(.094)	.995	(.135)	1.018	(.183)	1.111	(.543)
LCHI	15.780	(15.634)	13.837	(11.784)				
MSOS	20.135	(27.712)	26.689	(28.910)				
WK								
FCHI5	3.502	(1.927)	3.960	(2.583)	5.035	(3.309)	6.361	(4.358)
MHCHI	.573	(.585)	.418	(.670)	.537	(1.013)	.873	(1.449)
MHODDS	1.015	(.105)	1.026	(.168)	1.065	(.250)	1.264	(1.190)
LCHI	13.415	(19.761)	11.046	(13.648)				
MSOS	9.266	(12.523)	11.917	(13.452)				
PC								
FCHI5	3.855	(3.021)	4.910	(3.615)	6.534	(3.993)	*	(*)
MHCHI	.468	(.765)	1.074	(1.470)	.834	(1.442)	.456	(.610)
MHODDS	1.013	(.086)	1.022	(.162)	1.006	(.182)	1.111	(.543)
LCHI	28.074	(37.268)	28.966	(42.095)				
MSOS	170.917	(169.393)	343.242	(220.977)				
AS								
FCHI5	4.527	(2.821)	4.098	(2.581)	5.057	(3.727)	3.804	(2.720)
MHCHI	.599	(.745)	.664	(1.158)	1.030	(1.415)	.945	(1.323)
MHODDS	.999	(.064)	1.011	(.097)	1.022	(.189)	1.082	(.526)
LCHI	14.371	(14.335)	8.382	(8.252)				
MSOS	20.194	(30.151)	24.371	(32.253)				
MK								
FCHI5	3.668	(2.213)	4.154	(2.595)	5.544	(4.142)	4.932	(2.147)
MHCHI	.364	(.362)	.805	(1.242)	.895	(1.009)	.596	(.970)
MHODDS	1.001	(.051)	.999	(.116)	1.013	(.160)	1.079	(.381)
LCHI	19.613	(21.222)	13.483	(19.178)				
MSOS	39.958	(70.855)	43.672	(71.590)				
MC								
FCHI5	4.335	(2.366)	3.880	(2.252)	3.907	(1.851)	4.069	(2.968)
MHCHI	.467	(.868)	.910	(1.389)	.482	(.811)	.597	(.720)
MHODDS	1.002	(.055)	1.013	(.122)	1.007	(.129)	1.026	(.380)
LCHI	34.700	(33.568)	16.903	(16.275)				
MSOS	28.855	(34.186)	39.580	(38.896)				
EI								
FCHI5	3.806	(2.341)	4.610	(2.790)	4.739	(3.842)	4.814	(1.724)
MHCHI	.957	(1.317)	.698	(1.083)	1.111	(2.331)	.717	(.774)
MHODDS	1.002	(.083)	1.007	(.117)	.996	(.181)	1.027	(.393)
LCHI	20.496	(26.947)	13.299	(17.753)				
MSOS	11.781	(13.207)	22.275	(22.858)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-6. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 15C, Subgroup White vs Black

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	23.165	(24.511)	15.724	(13.644)	8.564	(7.793)	*	(*)
MHCHI	14.067	(16.459)	9.313	(10.041)	4.018	(5.355)	1.324	(1.541)
MHODDS	1.116	(.440)	1.179	(.616)	1.196	(.782)	1.290	(.933)
LCHI	14.823	(13.073)	9.571	(7.839)				
MSOS	42.128	(34.486)	61.771	(69.421)				
AR								
FCHI5	13.559	(10.463)	8.802	(7.291)	8.222	(6.342)	8.290	(5.715)
MHCHI	4.992	(5.940)	2.914	(3.827)	1.984	(2.892)	.819	(1.249)
MHODDS	1.014	(.210)	1.033	(.240)	1.033	(.287)	1.087	(.515)
LCHI	12.233	(12.121)	7.339	(6.797)				
MSOS	23.784	(21.136)	32.284	(33.910)				
WK								
FCHI5	29.813	(39.114)	15.392	(15.995)	11.084	(10.977)	7.174	(2.826)
MHCHI	18.537	(30.079)	6.878	(12.138)	3.499	(6.892)	.990	(2.672)
MHODDS	1.127	(.558)	1.066	(.462)	1.088	(.526)	1.238	(.950)
LCHI	23.024	(35.252)	9.737	(11.541)				
MSOS	47.869	(61.727)	42.810	(57.475)				
PC								
FCHI5	27.850	(28.140)	15.033	(12.767)	9.655	(8.319)	6.151	(.000)
MHCHI	20.090	(25.536)	6.948	(9.660)	5.081	(6.608)	1.284	(1.807)
MHODDS	1.062	(.431)	1.062	(.378)	1.068	(.458)	1.115	(.558)
LCHI	49.370	(42.185)	12.797	(13.933)				
MSOS	58.437	(56.611)	77.125	(52.199)				
AS								
FCHI5	16.104	(16.086)	12.118	(11.698)	8.643	(7.336)	*	(*)
MHCHI	8.463	(10.716)	5.679	(8.659)	2.772	(3.480)	.961	(1.293)
MHODDS	1.023	(.276)	1.035	(.315)	1.036	(.313)	1.116	(.563)
LCHI	14.201	(10.128)	9.689	(10.359)				
MSOS	44.213	(39.696)	54.897	(61.590)				
MK								
FCHI5	26.964	(19.867)	16.285	(11.432)	10.750	(6.629)	7.702	(4.039)
MHCHI	17.475	(13.657)	8.197	(8.538)	4.313	(4.801)	1.025	(1.204)
MHODDS	1.087	(.403)	1.086	(.408)	1.084	(.390)	1.171	(.595)
LCHI	27.031	(22.768)	13.442	(12.081)				
MSOS	63.400	(62.224)	66.330	(73.454)				
MC								
FCHI5	12.513	(12.602)	8.186	(6.448)	6.671	(4.863)	7.041	(.000)
MHCHI	4.030	(5.675)	1.625	(2.501)	1.447	(2.875)	.589	(1.288)
MHODDS	1.016	(.182)	1.009	(.169)	1.026	(.244)	1.055	(.377)
LCHI	13.800	(12.634)	7.552	(6.980)				
MSOS	18.641	(14.794)	23.299	(20.066)				
EI								
FCHI5	11.575	(12.119)	11.208	(12.299)	5.853	(3.127)	*	(*)
MHCHI	5.368	(7.018)	4.650	(7.095)	1.295	(1.918)	.426	(.740)
MHODDS	1.021	(.215)	1.044	(.331)	1.017	(.206)	1.031	(.326)
LCHI	12.262	(11.138)	16.930	(19.978)				
MSOS	167.830	(112.630)	48.236	(50.573)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-7. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 15C, Subgroup White vs Hispanic

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	15.535	(14.968)	11.906	(9.536)	6.554	(3.550)	*	(*)
MHCHI	8.354	(10.813)	5.745	(6.629)	2.404	(2.985)	.459	(.700)
MHODDS	1.104	(.391)	1.156	(.522)	1.123	(.484)	1.078	(.377)
LCHI	9.458	(10.245)	7.014	(5.556)				
MSOS	32.108	(45.455)	45.102	(45.096)				
AR								
FCHI5	9.446	(9.280)	7.231	(5.922)	6.430	(4.568)	*	(*)
MHCHI	3.829	(7.788)	2.177	(3.579)	1.231	(2.173)	.887	(1.257)
MHODDS	1.016	(.226)	1.023	(.241)	1.025	(.278)	1.209	(.718)
LCHI	11.920	(12.947)	8.389	(7.499)				
MSOS	19.936	(24.843)	28.862	(28.321)				
WK								
FCHI5	42.195	(63.786)	23.646	(30.155)	14.845	(17.825)	*	(*)
MHCHI	32.933	(56.320)	14.858	(24.701)	6.848	(12.434)	1.463	(2.046)
MHODDS	1.350	(1.250)	1.279	(1.079)	1.223	(1.091)	1.197	(1.000)
LCHI	34.097	(48.224)	14.233	(16.947)				
MSOS	106.564	(127.120)	100.916	(108.737)				
PC								
FCHI5	13.613	(7.979)	9.367	(5.685)	7.215	(7.262)	*	(*)
MHCHI	7.147	(7.095)	2.559	(2.258)	2.239	(4.319)	1.252	(1.620)
MHODDS	1.054	(.320)	1.048	(.262)	1.042	(.383)	1.213	(.928)
LCHI	11.448	(9.171)	8.914	(6.570)				
MSOS	38.734	(34.757)	62.961	(34.570)				
AS								
FCHI5	15.874	(17.225)	11.409	(8.497)	7.792	(6.530)	*	(*)
MHCHI	10.341	(14.453)	8.707	(10.674)	2.897	(3.691)	1.377	(2.400)
MHODDS	1.034	(.321)	1.044	(.346)	1.053	(.379)	1.236	(1.068)
LCHI	14.648	(15.696)	8.914	(9.231)				
MSOS	53.032	(66.692)	62.440	(67.641)				
MK								
FCHI5	13.030	(11.495)	9.498	(6.373)	7.397	(4.677)	7.675	(.000)
MHCHI	6.798	(8.713)	4.606	(5.680)	2.631	(3.758)	1.347	(2.247)
MHODDS	1.053	(.292)	1.063	(.346)	1.073	(.337)	1.260	(.780)
LCHI	11.635	(9.651)	7.159	(6.098)				
MSOS	35.894	(44.243)	47.516	(51.801)				
MC								
FCHI5	9.718	(11.713)	6.099	(5.056)	6.583	(3.991)	*	(*)
MHCHI	4.475	(7.472)	1.975	(3.658)	1.262	(2.255)	1.272	(1.815)
MHODDS	1.015	(.228)	1.012	(.222)	1.031	(.261)	1.148	(.734)
LCHI	7.467	(7.468)	4.815	(4.162)				
MSOS	23.043	(24.999)	27.556	(25.766)				
EI								
FCHI5	9.669	(7.675)	9.725	(8.959)	6.496	(4.921)	*	(*)
MHCHI	5.607	(6.483)	4.287	(5.699)	2.172	(4.066)	.426	(.500)
MHODDS	1.024	(.237)	1.043	(.347)	1.040	(.316)	1.048	(.371)
LCHI	9.486	(10.429)	12.642	(14.030)				
MSOS	32.842	(43.122)	65.770	(73.958)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-8. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 15C, Subgroup Male vs Female

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	60.364	(56.005)	32.358	(29.178)	16.720	(15.219)	5.938	(2.999)
MHCHI	49.779	(52.358)	25.834	(25.697)	11.405	(13.374)	3.045	(4.183)
MHODDS	1.183	(.651)	1.190	(.676)	1.182	(.678)	1.215	(.918)
LCHI	55.919	(57.869)	29.673	(26.383)				
MSOS	123.399	(133.987)	132.183	(125.154)				
AR								
FCHI5	13.901	(14.628)	8.095	(6.213)	5.777	(3.974)	6.250	(3.777)
MHCHI	9.003	(14.109)	4.133	(5.870)	1.851	(2.679)	.829	(1.037)
MHODDS	1.030	(.250)	1.031	(.240)	1.023	(.249)	1.079	(.440)
LCHI	10.215	(11.292)	11.974	(17.442)				
MSOS	25.961	(22.275)	24.029	(25.390)				
WK								
FCHI5	26.458	(41.755)	17.573	(24.939)	10.920	(10.359)	5.800	(5.430)
MHCHI	21.201	(40.182)	12.418	(25.503)	5.741	(10.252)	1.522	(2.261)
MHODDS	1.083	(.648)	1.120	(.779)	1.105	(.676)	1.164	(.804)
LCHI	30.761	(37.512)	15.915	(25.113)				
MSOS	46.431	(76.227)	57.688	(92.332)				
PC								
FCHI5	12.558	(13.907)	8.993	(5.754)	7.087	(6.335)	5.906	(.000)
MHCHI	8.143	(13.138)	3.999	(5.622)	3.920	(5.484)	.757	(1.303)
MHODDS	1.012	(.293)	1.012	(.293)	1.056	(.400)	1.061	(.526)
LCHI	21.210	(22.367)	28.622	(32.846)				
MSOS	265.120	(334.340)	35.891	(27.556)				
AS								
FCHI5	38.384	(57.325)	21.379	(27.275)	14.883	(10.918)	7.675	(3.949)
MHCHI	27.278	(43.608)	12.019	(19.053)	5.814	(7.471)	1.477	(2.176)
MHODDS	1.158	(.660)	1.140	(.602)	1.171	(.664)	1.264	(1.033)
LCHI	28.797	(34.185)	13.771	(15.833)				
MSOS	85.215	(75.382)	78.362	(66.144)				
MK								
FCHI5	16.348	(11.547)	10.508	(7.042)	7.907	(4.477)	6.364	(4.087)
MHCHI	9.795	(10.909)	4.649	(4.293)	2.240	(2.957)	.892	(.951)
MHODDS	1.057	(.289)	1.052	(.268)	1.060	(.303)	1.097	(.454)
LCHI	20.012	(17.632)	10.690	(8.839)				
MSOS	34.103	(36.619)	33.606	(27.660)				
MC								
FCHI5	14.792	(14.986)	10.816	(9.935)	7.984	(5.386)	5.487	(2.524)
MHCHI	6.900	(9.203)	4.932	(7.451)	2.372	(3.829)	.935	(1.562)
MHODDS	1.029	(.228)	1.048	(.300)	1.037	(.253)	1.075	(.486)
LCHI	18.379	(12.741)	10.883	(9.257)				
MSOS	37.668	(41.314)	55.392	(46.422)				
EI								
FCHI5	20.392	(21.072)	11.427	(11.981)	8.458	(5.358)	*	(*)
MHCHI	11.959	(16.322)	5.827	(8.448)	2.670	(4.733)	1.251	(2.293)
MHODDS	1.056	(.326)	1.050	(.317)	1.043	(.272)	1.135	(.661)
LCHI	15.984	(13.948)	10.732	(8.718)				
MSOS	36.333	(29.755)	233.773	(157.104)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-9. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 16A, Subgroup White vs White

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	3.912	(2.637)	5.056	(3.390)	4.511	(2.738)	5.432	(2.366)
MHCHI	.841	(1.373)	.846	(1.657)	.773	(1.224)	.476	(.863)
MHODDS	1.018	(.088)	1.011	(.128)	1.024	(.176)	1.083	(.496)
LCHI	19.198	(21.822)	9.303	(11.319)				
MSOS	16.175	(35.514)	22.681	(31.783)				
AR								
FCHI5	3.443	(2.435)	4.342	(2.366)	4.276	(2.409)	4.797	(2.851)
MHCHI	.652	(.844)	.901	(1.239)	.847	(1.176)	.674	(.942)
MHODDS	.997	(.074)	1.008	(.113)	1.015	(.169)	1.121	(.519)
LCHI	13.781	(17.134)	8.320	(11.959)				
MSOS	12.436	(18.261)	17.506	(17.009)				
WK								
FCHI5	4.135	(2.392)	3.832	(2.361)	3.682	(1.844)	4.342	(2.787)
MHCHI	.367	(.499)	.442	(.636)	.484	(.730)	.564	(1.454)
MHODDS	1.001	(.092)	.955	(.130)	.950	(.259)	1.101	(.725)
LCHI	11.008	(16.888)	8.415	(12.319)				
MSOS	9.332	(13.552)	15.084	(22.098)				
PC								
FCHI5	4.540	(2.215)	5.102	(2.361)	5.963	(3.498)	*	(*)
MHCHI	.694	(.834)	.810	(1.197)	.899	(1.160)	.807	(1.247)
MHODDS	1.022	(.120)	1.028	(.160)	1.011	(.215)	1.146	(.644)
LCHI	28.837	(27.997)	14.909	(20.584)				
MSOS	52.234	(57.550)	64.572	(75.524)				
AS								
FCHI5	3.771	(2.769)	4.443	(3.070)	5.030	(3.049)	4.830	(2.549)
MHCHI	.692	(1.034)	.847	(1.540)	.782	(1.076)	1.585	(2.022)
MHODDS	.999	(.072)	1.015	(.131)	1.043	(.217)	1.198	(.749)
LCHI	17.046	(27.630)	11.423	(18.544)				
MSOS	21.888	(25.456)	29.475	(30.965)				
MK								
FCHI5	3.799	(1.659)	3.962	(2.103)	5.081	(3.548)	5.306	(2.838)
MHCHI	.852	(1.083)	.819	(.873)	.544	(.982)	.482	(.849)
MHODDS	1.012	(.080)	1.005	(.111)	1.002	(.143)	1.025	(.335)
LCHI	16.009	(24.014)	9.125	(8.688)				
MSOS	28.979	(70.175)	29.642	(49.808)				
MC								
FCHI5	3.534	(2.063)	4.873	(3.519)	4.401	(2.595)	5.632	(4.020)
MHCHI	.816	(.948)	.664	(1.162)	1.348	(1.821)	.794	(1.299)
MHODDS	1.003	(.075)	1.004	(.092)	1.026	(.204)	1.048	(.431)
LCHI	20.578	(32.682)	11.690	(14.788)				
MSOS	12.982	(12.969)	18.999	(17.627)				
EI								
FCHI5	3.182	(1.907)	5.160	(2.934)	4.401	(2.423)	5.871	(3.204)
MHCHI	.644	(.789)	.684	(.767)	.698	(.879)	.785	(.766)
MHODDS	1.003	(.071)	1.007	(.113)	1.005	(.143)	1.029	(.434)
LCHI	22.199	(27.749)	13.181	(17.988)				
MSOS	19.670	(28.065)	26.057	(29.471)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-10. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 16A, Subgroup White vs Black

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	25.109	(31.466)	15.337	(15.699)	11.051	(8.803)	3.946	(.000)
MHCHI	17.534	(27.004)	9.327	(13.062)	5.165	(7.030)	.800	(1.025)
MHODDS	1.088	(.518)	1.084	(.502)	1.104	(.533)	1.146	(.616)
LCHI	25.764	(30.910)	13.940	(14.244)				
MSOS	45.400	(63.915)	56.840	(57.615)				
AR								
FCHI5	18.565	(20.661)	12.306	(11.194)	9.283	(6.980)	5.108	(5.081)
MHCHI	10.165	(14.087)	4.003	(6.219)	3.524	(4.187)	1.786	(2.151)
MHODDS	1.047	(.306)	1.031	(.250)	1.072	(.389)	1.193	(.685)
LCHI	19.122	(18.586)	9.213	(12.687)				
MSOS	42.299	(47.370)	307.482	(185.252)				
WK								
FCHI5	22.669	(25.616)	12.898	(12.870)	9.577	(8.342)	6.084	(4.019)
MHCHI	13.180	(18.079)	5.681	(9.066)	2.397	(3.273)	1.395	(1.916)
MHODDS	1.049	(.420)	1.024	(.393)	1.079	(.426)	1.237	(1.026)
LCHI	22.367	(27.557)	14.617	(14.867)				
MSOS	34.228	(41.683)	35.994	(39.476)				
PC								
FCHI5	14.316	(14.869)	10.778	(13.821)	6.730	(4.096)	*	(*)
MHCHI	7.188	(9.130)	5.028	(8.811)	2.536	(3.347)	1.199	(2.728)
MHODDS	1.039	(.319)	1.030	(.357)	1.025	(.331)	1.147	(1.047)
LCHI	19.240	(13.600)	10.708	(10.757)				
MSOS	24.047	(15.675)	49.335	(57.037)				
AS								
FCHI5	16.524	(12.406)	13.071	(11.303)	10.947	(7.068)	*	(*)
MHCHI	7.793	(12.619)	5.806	(7.213)	2.563	(3.649)	2.155	(2.697)
MHODDS	1.037	(.260)	1.065	(.334)	1.048	(.304)	1.218	(.811)
LCHI	**	(**)	10.205	(12.385)				
MSOS	**	(**)	65.187	(75.734)				
MK								
FCHI5	25.299	(26.279)	14.206	(10.815)	9.466	(5.506)	6.662	(3.693)
MHCHI	19.602	(24.136)	8.092	(8.840)	3.542	(4.463)	.500	(.567)
MHODDS	1.076	(.401)	1.058	(.360)	1.043	(.322)	1.043	(.339)
LCHI	25.428	(29.233)	13.606	(9.648)				
MSOS	54.878	(58.744)	57.310	(50.411)				
MC								
FCHI5	14.705	(13.773)	8.832	(7.305)	8.281	(6.100)	6.503	(2.944)
MHCHI	6.213	(11.921)	3.080	(5.079)	2.321	(4.100)	.962	(1.387)
MHODDS	1.020	(.215)	1.023	(.230)	1.031	(.253)	1.074	(.443)
LCHI	15.141	(16.730)	5.692	(5.891)				
MSOS	26.562	(31.103)	25.214	(28.039)				
EI								
FCHI5	21.928	(25.840)	10.414	(10.261)	7.741	(4.828)	*	(*)
MHCHI	14.399	(21.242)	4.371	(5.767)	2.403	(3.389)	.939	(1.191)
MHODDS	1.079	(.368)	1.058	(.286)	1.060	(.291)	1.131	(.601)
LCHI	19.021	(26.251)	7.711	(8.299)				
MSOS	41.933	(60.175)	31.034	(33.523)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

** Values were not computed since parameter estimates from LOGIST5 did not converge.

Table C-11. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 16A, Subgroup White vs Hispanic

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	19.403	(25.778)	11.073	(14.039)	7.889	(6.169)	*	(*)
MHCHI	12.133	(21.685)	6.537	(11.064)	2.966	(3.825)	.924	(1.386)
MHODDS	1.100	(.551)	1.100	(.553)	1.105	(.503)	1.181	(.836)
LCHI	15.507	(23.385)	9.270	(10.976)				
MSOS	40.409	(47.583)	55.141	(61.861)				
AR								
FCHI5	8.115	(6.071)	6.719	(6.554)	6.256	(4.545)	*	(*)
MHCHI	3.375	(4.763)	2.378	(4.077)	1.650	(1.875)	1.232	(2.176)
MHODDS	1.012	(.184)	1.014	(.230)	1.035	(.281)	1.184	(.788)
LCHI	9.540	(9.174)	5.562	(4.458)				
MSOS	24.043	(21.954)	29.611	(36.159)				
WK								
FCHI5	26.789	(23.802)	16.910	(11.223)	12.540	(8.343)	*	(*)
MHCHI	17.750	(23.033)	8.125	(9.810)	3.921	(5.246)	1.400	(2.549)
MHODDS	1.191	(.654)	1.156	(.628)	1.279	(.829)	1.662	(2.674)
LCHI	28.232	(28.132)	13.435	(13.634)				
MSOS	55.288	(61.574)	58.467	(49.650)				
PC								
FCHI5	9.748	(9.872)	9.860	(7.174)	6.025	(2.827)	*	(*)
MHCHI	5.165	(5.613)	2.450	(2.734)	1.441	(1.665)	1.015	(1.446)
MHODDS	1.034	(.303)	1.020	(.283)	1.034	(.303)	1.134	(.808)
LCHI	16.270	(11.125)	10.605	(10.433)				
MSOS	29.037	(29.548)	62.350	(83.677)				
AS								
FCHI5	17.425	(12.651)	11.920	(9.641)	8.956	(6.770)	*	(*)
MHCHI	8.621	(12.896)	5.141	(8.557)	3.251	(4.516)	.830	(1.258)
MHODDS	1.042	(.289)	1.061	(.332)	1.088	(.402)	1.124	(.605)
LCHI	29.721	(35.796)	9.609	(10.097)				
MSOS	56.872	(60.492)	65.786	(79.593)				
MK								
FCHI5	10.194	(7.293)	7.477	(6.468)	7.036	(5.446)	3.960	(.000)
MHCHI	4.889	(6.460)	2.211	(4.942)	1.793	(2.419)	.914	(1.268)
MHODDS	1.026	(.224)	1.026	(.235)	1.032	(.298)	1.111	(.553)
LCHI	8.646	(7.020)	4.192	(4.945)				
MSOS	22.589	(29.610)	22.885	(36.091)				
MC								
FCHI5	8.383	(5.809)	6.880	(3.871)	5.528	(2.953)	5.747	(1.260)
MHCHI	2.793	(3.098)	1.910	(1.804)	1.214	(1.437)	.597	(1.274)
MHODDS	1.013	(.165)	1.019	(.198)	1.018	(.215)	1.077	(.559)
LCHI	6.277	(5.432)	3.781	(4.284)				
MSOS	14.294	(12.609)	21.199	(18.166)				
EI								
FCHI5	13.844	(15.925)	8.946	(6.279)	6.740	(4.058)	*	(*)
MHCHI	7.559	(12.219)	3.248	(3.551)	2.022	(3.199)	1.314	(1.703)
MHODDS	1.069	(.337)	1.056	(.281)	1.068	(.341)	1.189	(.738)
LCHI	10.972	(9.045)	5.758	(4.084)				
MSOS	29.658	(23.840)	32.701	(32.215)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-12. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 16A, Subgroup Male vs Female

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	27.512	(53.475)	16.839	(24.853)	10.403	(14.094)	7.491	(6.242)
MHCHI	55.417	(81.335)	11.132	(22.184)	6.698	(13.943)	.816	(1.369)
MHOODS	1.257	(.837)	1.072	(.484)	1.097	(.624)	1.114	(.483)
LCHI	28.647	(42.622)	15.118	(24.275)				
MSOS	64.215	(136.586)	66.888	(135.082)				
AR								
FCHI5	13.030	(9.563)	9.257	(5.485)	7.851	(4.914)	5.709	(2.904)
MHCHI	8.350	(9.995)	4.964	(5.000)	2.196	(3.027)	1.209	(1.781)
MHOODS	1.047	(.253)	1.046	(.262)	1.045	(.247)	1.157	(.670)
LCHI	13.235	(14.665)	8.715	(8.137)				
MSOS	25.787	(27.874)	33.736	(31.470)				
WK								
FCHI5	26.580	(31.161)	16.851	(17.764)	11.153	(7.950)	6.465	(5.185)
MHCHI	22.914	(33.477)	11.755	(17.548)	6.044	(7.850)	1.360	(2.659)
MHOODS	1.075	(.571)	1.109	(.571)	1.104	(.635)	1.178	(.735)
LCHI	35.756	(55.598)	15.036	(15.985)				
MSOS	60.605	(68.010)	65.407	(75.692)				
PC								
FCHI5	12.775	(14.556)	8.118	(5.811)	5.178	(2.407)	*	(*)
MHCHI	7.529	(11.777)	3.536	(6.072)	1.149	(1.443)	.883	(1.369)
MHOODS	1.003	(.308)	.989	(.298)	.999	(.232)	1.352	(1.018)
LCHI	13.164	(12.048)	5.673	(6.387)				
MSOS	29.170	(40.470)	29.539	(35.110)				
AS								
FCHI5	26.192	(29.216)	16.390	(15.611)	9.043	(6.321)	*	(*)
MHCHI	13.019	(17.203)	7.468	(9.926)	2.972	(4.438)	.822	(.969)
MHOODS	1.062	(.354)	1.077	(.399)	1.055	(.343)	1.105	(.496)
LCHI	23.625	(26.389)	13.635	(15.260)				
MSOS	76.275	(85.328)	82.803	(83.372)				
MK								
FCHI5	23.656	(19.627)	14.836	(11.308)	9.318	(7.678)	4.650	(2.671)
MHCHI	17.391	(20.521)	9.965	(10.729)	4.652	(6.861)	1.436	(2.572)
MHOODS	1.064	(.381)	1.057	(.386)	1.079	(.430)	1.143	(.663)
LCHI	23.615	(19.393)	11.843	(10.755)				
MSOS	43.726	(37.901)	44.619	(39.258)				
MC								
FCHI5	18.588	(23.445)	10.756	(11.400)	7.074	(5.702)	5.463	(3.121)
MHCHI	9.546	(16.267)	5.320	(7.497)	2.150	(3.301)	1.025	(1.873)
MHOODS	1.030	(.271)	1.038	(.291)	1.032	(.264)	1.096	(.557)
LCHI	15.709	(21.524)	8.971	(10.416)				
MSOS	33.576	(41.748)	41.866	(59.844)				
EI								
FCHI5	20.967	(25.095)	15.217	(12.076)	11.377	(8.025)	9.653	(5.368)
MHCHI	11.455	(12.508)	8.331	(8.230)	4.459	(4.483)	1.177	(2.356)
MHOODS	1.027	(.291)	1.047	(.344)	1.048	(.376)	1.084	(.468)
LCHI	25.910	(23.360)	15.470	(16.810)				
MSOS	68.902	(71.231)	91.358	(87.998)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-13. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 16B, Subgroup White vs White

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	3.846	(2.161)	3.966	(2.383)	4.812	(3.538)	5.385	(2.020)
MHCHI	.678	(1.028)	.779	(.788)	.658	(.931)	.453	(.586)
MHODDS	1.008	(.081)	.999	(.124)	1.028	(.192)	1.018	(.359)
LCHI	15.987	(17.551)	8.907	(8.690)				
MSOS	10.160	(17.823)	15.672	(17.364)				
AR								
FCHI5	3.698	(2.520)	3.467	(2.456)	4.934	(3.381)	4.205	(2.680)
MHCHI	.854	(1.122)	.634	(.957)	.621	(1.053)	.820	(1.431)
MHODDS	1.002	(.078)	1.015	(.107)	1.061	(.272)	1.215	(1.028)
LCHI	21.278	(26.514)	12.598	(12.675)				
MSOS	28.246	(32.053)	32.322	(35.153)				
WK								
FCHI5	3.950	(2.202)	5.279	(3.823)	3.950	(2.181)	3.784	(2.823)
MHCHI	.500	(.612)	1.638	(3.001)	.746	(1.105)	.674	(.928)
MHODDS	1.015	(.118)	.987	(.264)	1.038	(.355)	1.247	(.958)
LCHI	10.390	(9.900)	7.593	(7.845)				
MSOS	16.301	(21.334)	17.071	(19.228)				
PC								
FCHI5	4.055	(2.072)	4.332	(3.273)	4.491	(2.883)	*	(*)
MHCHI	.641	(.913)	1.006	(1.420)	.978	(1.042)	.878	(1.092)
MHODDS	1.011	(.080)	1.005	(.167)	1.090	(.302)	1.295	(.859)
LCHI	26.261	(23.319)	16.694	(13.792)				
MSOS	29.697	(32.023)	44.192	(34.399)				
AS								
FCHI5	5.252	(3.124)	4.441	(1.951)	4.403	(2.600)	5.449	(2.726)
MHCHI	.714	(1.172)	.831	(1.143)	.878	(.908)	.771	(.965)
MHODDS	.997	(.073)	1.003	(.109)	1.009	(.169)	1.097	(.450)
LCHI	19.783	(28.446)	12.623	(15.217)				
MSOS	16.144	(21.260)	21.262	(20.137)				
MK								
FCHI5	3.511	(2.139)	3.928	(2.054)	5.201	(3.767)	4.279	(2.610)
MHCHI	.585	(.643)	.463	(1.102)	1.147	(1.836)	.577	(.713)
MHODDS	1.002	(.065)	1.003	(.079)	1.010	(.192)	1.091	(.411)
LCHI	22.533	(23.744)	11.268	(11.440)				
MSOS	43.376	(79.362)	46.429	(78.336)				
MC								
FCHI5	4.789	(3.331)	4.756	(2.980)	5.967	(3.255)	4.593	(2.726)
MHCHI	1.111	(1.472)	.841	(1.575)	.669	(.653)	.888	(1.125)
MHODDS	.991	(.086)	1.002	(.111)	1.005	(.144)	1.087	(.507)
LCHI	34.121	(30.255)	20.848	(18.012)				
MSOS	32.280	(18.087)	28.053	(23.242)				
EI								
FCHI5	3.252	(1.398)	4.087	(1.949)	4.536	(3.787)	5.372	(3.669)
MHCHI	.329	(.602)	.815	(1.119)	.352	(.425)	.928	(1.390)
MHODDS	.997	(.052)	.994	(.113)	1.009	(.119)	1.407	(1.703)
LCHI	21.027	(27.768)	13.844	(16.122)				
MSOS	15.830	(18.457)	20.698	(17.857)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-14. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 16B, Subgroup White vs Black

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	23.008	(33.339)	15.870	(17.614)	10.156	(8.007)	*	(*)
MHCHI	14.256	(24.759)	9.465	(14.373)	4.160	(5.871)	1.237	(2.145)
MHODDS	1.079	(.482)	1.083	(.502)	1.090	(.457)	1.223	(.865)
LCHI	22.310	(25.662)	13.757	(14.752)				
MSOS	43.151	(58.726)	63.578	(71.315)				
AR								
FCHI5	16.020	(15.069)	11.003	(9.367)	9.045	(5.492)	7.563	(3.714)
MHCHI	8.567	(10.794)	4.595	(6.722)	2.503	(3.431)	.387	(.805)
MHODDS	1.016	(.273)	1.027	(.297)	1.068	(.365)	1.221	(1.094)
LCHI	19.545	(15.906)	12.470	(10.271)				
MSOS	34.117	(35.901)	48.187	(61.037)				
WK								
FCHI5	26.432	(54.691)	15.113	(25.473)	11.705	(16.076)	*	(*)
MHCHI	15.718	(41.640)	8.307	(20.582)	5.019	(12.123)	.910	(1.316)
MHODDS	1.042	(.461)	1.032	(.482)	1.041	(.608)	1.034	(.667)
LCHI	48.683	(47.137)	21.166	(20.707)				
MSOS	49.106	(117.819)	51.833	(116.884)				
PC								
FCHI5	15.073	(12.978)	8.350	(4.818)	6.301	(3.644)	*	(*)
MHCHI	8.264	(16.181)	3.003	(5.893)	2.946	(3.836)	.744	(.982)
MHODDS	1.051	(.285)	1.037	(.248)	1.125	(.418)	1.228	(.721)
LCHI	18.079	(18.162)	7.795	(8.101)				
MSOS	31.721	(40.922)	28.840	(28.483)				
AS								
FCHI5	21.856	(17.872)	11.308	(8.677)	9.525	(7.079)	*	(*)
MHCHI	11.489	(13.554)	4.982	(6.804)	3.245	(5.292)	1.131	(1.973)
MHODDS	1.051	(.350)	1.043	(.312)	1.056	(.350)	1.175	(.752)
LCHI	21.169	(25.361)	11.858	(14.631)				
MSOS	69.431	(67.690)	72.711	(91.519)				
MK								
FCHI5	23.156	(30.260)	15.670	(15.828)	10.702	(10.588)	8.630	(2.990)
MHCHI	16.120	(25.564)	8.467	(12.333)	5.242	(8.457)	1.191	(1.818)
MHODDS	1.052	(.380)	1.058	(.396)	1.081	(.491)	1.134	(.616)
LCHI	26.340	(26.621)	14.277	(13.936)				
MSOS	53.854	(74.018)	61.373	(83.711)				
MC								
FCHI5	12.762	(13.123)	9.329	(6.943)	7.706	(4.770)	*	(*)
MHCHI	4.908	(5.308)	2.586	(3.751)	2.279	(2.720)	.895	(2.713)
MHODDS	1.016	(.189)	1.021	(.197)	1.039	(.277)	1.151	(.845)
LCHI	9.683	(8.007)	6.283	(5.010)				
MSOS	24.566	(24.615)	30.073	(29.995)				
EI								
FCHI5	20.420	(28.454)	13.596	(10.468)	9.096	(8.090)	*	(*)
MHCHI	12.542	(20.262)	6.992	(7.479)	3.140	(4.051)	1.553	(2.907)
MHODDS	1.069	(.341)	1.082	(.371)	1.097	(.418)	1.702	(3.003)
LCHI	14.447	(19.117)	12.889	(13.898)				
MSOS	34.222	(49.053)	42.726	(45.928)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-15. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 16B, Subgroup White vs Hispanic

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	18.991	(23.114)	13.260	(12.133)	9.701	(7.605)	*	(*)
MHCHI	13.601	(19.676)	7.727	(9.760)	3.796	(4.991)	.964	(1.297)
MHODDS	1.109	(.530)	1.103	(.494)	1.125	(.541)	1.278	(.956)
LCHI	16.336	(16.098)	11.648	(11.717)				
MSOS	53.096	(58.832)	72.670	(78.231)				
AR								
FCHI5	8.677	(5.128)	6.357	(4.079)	6.487	(4.060)	4.663	(.000)
MHCHI	2.951	(3.661)	2.071	(2.198)	.630	(1.075)	1.145	(1.672)
MHODDS	1.004	(.178)	1.023	(.216)	1.024	(.168)	1.185	(.836)
LCHI	10.743	(7.898)	4.614	(3.943)				
MSOS	17.650	(16.546)	26.189	(21.610)				
WK								
FCHI5	25.839	(32.732)	17.165	(19.244)	11.016	(10.599)	*	(*)
MHCHI	15.261	(25.827)	9.568	(15.239)	4.714	(7.236)	1.008	(1.315)
MHODDS	1.317	(1.017)	1.309	(1.005)	1.271	(.743)	1.466	(1.733)
LCHI	44.126	(36.945)	19.134	(17.632)				
MSOS	57.039	(88.624)	81.444	(111.287)				
PC								
FCHI5	11.925	(8.862)	7.966	(6.757)	7.055	(5.582)	*	(*)
MHCHI	5.124	(6.590)	1.662	(2.253)	3.752	(5.709)	.589	(1.312)
MHODDS	1.072	(.304)	1.049	(.256)	1.268	(.757)	1.218	(.939)
LCHI	16.740	(19.510)	7.250	(6.922)				
MSOS	22.067	(21.667)	28.579	(36.441)				
AS								
FCHI5	16.221	(11.237)	10.339	(6.594)	7.469	(5.025)	*	(*)
MHCHI	6.970	(10.228)	3.618	(5.805)	2.293	(4.716)	1.220	(1.823)
MHODDS	1.034	(.250)	1.032	(.255)	1.039	(.288)	1.220	(.926)
LCHI	19.905	(31.619)	13.739	(24.335)				
MSOS	54.237	(57.434)	70.602	(79.474)				
MK								
FCHI5	9.356	(7.906)	6.442	(6.322)	5.733	(2.909)	*	(*)
MHCHI	3.570	(4.783)	2.030	(3.046)	1.676	(2.436)	.494	(.585)
MHODDS	1.011	(.193)	1.014	(.207)	1.027	(.283)	1.112	(.446)
LCHI	9.926	(8.276)	5.900	(5.633)				
MSOS	21.478	(26.984)	29.630	(37.617)				
MC								
FCHI5	9.488	(6.576)	7.798	(5.419)	6.051	(3.563)	6.508	(3.725)
MHCHI	2.882	(3.642)	1.844	(3.003)	1.153	(2.091)	.912	(1.687)
MHODDS	1.005	(.165)	1.015	(.188)	1.022	(.206)	1.124	(.635)
LCHI	9.290	(7.474)	11.512	(8.248)				
MSOS	24.787	(21.620)	371.480	(174.063)				
EI								
FCHI5	12.225	(14.234)	10.890	(6.833)	6.976	(5.742)	*	(*)
MHCHI	8.358	(10.945)	4.755	(5.609)	1.492	(2.721)	.389	(.507)
MHODDS	1.067	(.335)	1.072	(.357)	1.062	(.311)	1.250	(.935)
LCHI	9.007	(11.247)	8.796	(8.772)				
MSOS	23.357	(22.928)	44.104	(43.816)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-16. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 16B, Subgroup Male vs Female

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	28.997	(57.660)	19.228	(29.203)	10.947	(15.229)	6.808	(5.374)
MHCHI	24.094	(52.249)	13.191	(25.136)	7.025	(12.537)	2.053	(3.393)
MHODDS	1.071	(.557)	1.083	(.572)	1.072	(.561)	1.200	(.876)
LCHI	40.055	(42.129)	17.027	(23.004)				
MSOS	59.468	(121.080)	66.712	(111.479)				
AR								
FCHI5	16.368	(16.176)	10.480	(9.118)	6.938	(4.976)	6.801	(3.309)
MHCHI	11.872	(14.548)	5.464	(6.938)	2.753	(3.437)	1.035	(1.362)
MHODDS	1.032	(.318)	1.030	(.314)	1.041	(.307)	1.128	(.539)
LCHI	15.566	(17.858)	8.439	(8.885)				
MSOS	31.283	(35.590)	34.594	(40.870)				
WK								
FCHI5	23.419	(31.669)	15.789	(17.689)	10.211	(7.804)	9.082	(4.453)
MHCHI	18.996	(31.858)	9.714	(16.367)	4.260	(6.026)	1.410	(2.441)
MHODDS	1.058	(.426)	1.041	(.441)	1.076	(.485)	1.182	(.960)
LCHI	45.519	(61.726)	23.873	(28.418)				
MSOS	52.225	(83.760)	53.423	(88.059)				
PC								
FCHI5	11.470	(7.123)	9.516	(5.596)	7.386	(4.788)	7.229	(8.330)
MHCHI	6.396	(8.408)	4.386	(5.362)	2.379	(2.724)	1.020	(1.910)
MHODDS	1.019	(.248)	1.010	(.322)	1.077	(.350)	1.125	(.615)
LCHI	10.630	(9.908)	9.807	(9.584)				
MSOS	19.035	(19.717)	33.459	(34.175)				
AS								
FCHI5	23.547	(24.743)	14.315	(12.130)	11.297	(9.498)	*	(*)
MHCHI	12.329	(14.719)	5.337	(6.443)	3.290	(4.087)	1.217	(1.566)
MHODDS	1.053	(.334)	1.049	(.290)	1.064	(.368)	1.164	(.716)
LCHI	24.372	(22.850)	12.569	(11.467)				
MSOS	69.935	(76.517)	85.998	(86.064)				
MK								
FCHI5	20.832	(17.738)	14.510	(15.019)	9.446	(6.968)	5.148	(2.411)
MHCHI	16.196	(17.517)	9.005	(13.074)	4.732	(4.863)	.798	(1.348)
MHODDS	1.050	(.359)	1.058	(.420)	1.047	(.368)	1.082	(.482)
LCHI	20.501	(15.734)	11.795	(9.599)				
MSOS	41.039	(41.683)	45.183	(49.403)				
MC								
FCHI5	16.683	(18.888)	9.278	(11.080)	8.273	(6.672)	6.203	(4.363)
MHCHI	9.645	(15.137)	4.285	(8.388)	3.177	(4.852)	1.286	(2.287)
MHODDS	1.036	(.266)	1.026	(.254)	1.045	(.304)	1.100	(.485)
LCHI	16.529	(23.261)	8.299	(9.655)				
MSOS	33.596	(43.048)	31.392	(40.592)				
EI								
FCHI5	18.000	(18.328)	12.914	(8.836)	10.238	(6.811)	*	(*)
MHCHI	9.793	(9.631)	5.920	(4.946)	4.643	(4.546)	.986	(2.144)
MHODDS	1.020	(.276)	1.032	(.294)	1.055	(.385)	1.066	(.414)
LCHI	17.558	(16.450)	13.401	(13.005)				
MSOS	49.395	(53.559)	68.274	(82.359)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-17. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 17A, Subgroup White vs White

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	3.639	(1.954)	4.586	(2.707)	5.056	(2.882)	6.099	(3.972)
MHCHI	.479	(.774)	.884	(1.283)	.755	(1.181)	.502	(.820)
MHODDS	1.008	(.064)	1.013	(.121)	.999	(.165)	1.075	(.381)
LCHI	34.767	(32.291)	9.817	(10.755)				
MSOS	12.789	(20.164)	18.634	(23.496)				
AR								
FCHI5	3.671	(1.878)	4.870	(3.049)	4.130	(2.096)	5.247	(2.377)
MHCHI	.473	(.723)	.743	(1.025)	.551	(.680)	.408	(.599)
MHODDS	1.010	(.079)	1.007	(.120)	.979	(.193)	.979	(.352)
LCHI	26.179	(24.944)	11.264	(12.564)				
MSOS	23.305	(22.868)	30.748	(26.486)				
WK								
FCHI5	3.895	(2.493)	4.278	(3.098)	4.826	(2.492)	4.170	(2.506)
MHCHI	.571	(.872)	.635	(1.333)	.540	(.773)	.899	(1.447)
MHODDS	1.004	(.116)	.996	(.135)	1.029	(.242)	1.008	(.735)
LCHI	11.586	(13.741)	7.108	(7.100)				
MSOS	14.747	(25.425)	17.743	(23.856)				
PC								
FCHI5	3.278	(2.079)	3.488	(2.407)	4.920	(2.697)	*	(*)
MHCHI	.463	(.734)	.634	(.936)	.532	(.768)	1.291	(1.684)
MHODDS	1.004	(.087)	1.019	(.131)	1.011	(.166)	1.212	(.857)
LCHI	37.553	(43.592)	17.363	(13.099)				
MSOS	36.524	(35.791)	38.781	(48.044)				
AS								
FCHI5	4.278	(3.157)	3.554	(2.460)	3.098	(1.983)	4.968	(2.177)
MHCHI	.699	(.842)	.560	(.639)	.519	(.780)	.404	(.727)
MHODDS	1.000	(.075)	1.002	(.091)	1.049	(.294)	1.036	(.354)
LCHI	24.549	(25.406)	12.763	(12.600)				
MSOS	16.230	(17.080)	29.016	(20.653)				
MK								
FCHI5	2.907	(1.666)	4.692	(2.602)	4.780	(2.764)	5.148	(3.186)
MHCHI	.441	(.692)	1.072	(1.317)	.674	(.966)	.794	(1.379)
MHODDS	1.001	(.057)	1.019	(.145)	1.016	(.155)	1.078	(.505)
LCHI	21.750	(32.201)	16.981	(21.260)				
MSOS	39.205	(52.058)	42.781	(52.435)				
MC								
FCHI5	4.181	(2.530)	3.505	(2.310)	4.011	(2.456)	5.635	(3.533)
MHCHI	1.153	(1.436)	.692	(1.126)	.625	(.820)	.352	(.545)
MHODDS	1.003	(.094)	1.003	(.103)	1.005	(.136)	1.045	(.303)
LCHI	18.860	(26.025)	10.290	(12.135)				
MSOS	13.935	(14.382)	19.129	(16.676)				
EI								
FCHI5	3.766	(2.496)	5.795	(3.500)	4.118	(2.018)	5.731	(4.014)
MHCHI	.706	(1.520)	.779	(1.332)	.768	(.822)	1.010	(1.237)
MHODDS	1.000	(.071)	.999	(.103)	1.023	(.168)	1.179	(.608)
LCHI	22.761	(23.115)	15.423	(16.667)				
MSOS	14.835	(14.314)	20.431	(16.172)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-18. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 17A, Subgroup White vs Black

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	18.363	(20.178)	14.576	(13.545)	7.830	(6.467)	5.018	(3.184)
MHCHI	9.257	(15.156)	7.509	(10.604)	3.375	(4.921)	1.006	(1.258)
MHODDS	1.051	(.306)	1.083	(.403)	1.058	(.402)	1.106	(.476)
LCHI	24.411	(21.833)	8.203	(6.962)				
MSOS	93.704	(126.239)	121.157	(151.427)				
AR								
FCHI5	14.853	(13.035)	9.017	(8.248)	8.748	(5.378)	6.660	(5.013)
MHCHI	6.006	(9.075)	3.442	(6.324)	1.799	(2.036)	1.005	(1.297)
MHODDS	1.023	(.216)	1.008	(.277)	1.008	(.276)	1.048	(.546)
LCHI	14.161	(12.117)	5.674	(5.607)				
MSOS	20.066	(19.967)	24.653	(37.380)				
WK								
FCHI5	21.782	(24.150)	15.425	(14.239)	9.575	(6.297)	5.616	(.000)
MHCHI	13.146	(18.208)	8.638	(11.264)	3.764	(5.444)	1.078	(1.294)
MHODDS	1.075	(.422)	1.073	(.495)	1.054	(.503)	1.098	(.770)
LCHI	20.801	(29.193)	13.260	(16.268)				
MSOS	38.346	(45.618)	46.529	(58.616)				
PC								
FCHI5	14.030	(8.616)	11.281	(8.642)	6.229	(3.548)	*	(*)
MHCHI	7.126	(7.310)	5.009	(6.977)	2.197	(3.043)	1.736	(2.721)
MHODDS	1.002	(.260)	1.019	(.315)	1.053	(.371)	1.202	(.904)
LCHI	12.528	(15.157)	13.043	(12.496)				
MSOS	37.984	(64.857)	42.709	(37.744)				
AS								
FCHI5	22.016	(28.300)	11.322	(11.973)	9.116	(8.060)	*	(*)
MHCHI	11.617	(22.354)	4.902	(9.001)	2.297	(3.725)	1.869	(3.469)
MHODDS	1.050	(.387)	1.040	(.341)	1.072	(.331)	1.299	(1.357)
LCHI	24.698	(25.232)	14.826	(10.791)				
MSOS	65.776	(93.365)	57.224	(68.289)				
MK								
FCHI5	18.589	(17.681)	9.042	(6.559)	9.723	(5.339)	7.717	(3.671)
MHCHI	11.393	(15.601)	4.507	(5.917)	4.314	(4.834)	2.089	(2.603)
MHODDS	1.022	(.274)	1.022	(.256)	1.054	(.361)	1.139	(.660)
LCHI	20.153	(22.982)	7.473	(7.415)				
MSOS	36.979	(38.641)	30.767	(32.777)				
MC								
FCHI5	13.150	(11.163)	10.420	(5.819)	6.903	(4.857)	5.230	(.979)
MHCHI	5.050	(7.310)	5.153	(5.098)	2.291	(3.166)	1.309	(1.696)
MHODDS	1.031	(.201)	1.061	(.300)	1.048	(.313)	1.152	(.663)
LCHI	9.787	(7.270)	6.640	(5.290)				
MSOS	28.040	(35.969)	41.028	(42.938)				
EI								
FCHI5	15.819	(9.904)	10.009	(6.672)	9.331	(5.505)	*	(*)
MHCHI	8.116	(7.946)	4.328	(4.765)	3.526	(3.173)	.721	(.920)
MHODDS	1.058	(.268)	1.055	(.259)	1.086	(.374)	1.198	(.662)
LCHI	19.461	(14.102)	11.342	(7.701)				
MSOS	32.367	(30.149)	33.331	(39.931)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-19. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 17A, Subgroup White vs Hispanic

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	17.796	(33.875)	11.653	(17.994)	7.383	(9.979)	*	(*)
MHCHI	11.051	(29.566)	6.081	(15.392)	2.564	(6.637)	1.097	(1.435)
MHODDS	1.061	(.465)	1.078	(.478)	1.063	(.458)	1.179	(.709)
LCHI	13.503	(18.763)	7.178	(7.826)				
MSOS	43.813	(110.719)	44.420	(105.462)				
AR								
FCHI5	8.847	(6.541)	5.953	(2.953)	6.094	(3.263)	*	(*)
MHCHI	3.901	(5.621)	1.618	(1.883)	1.155	(1.460)	.537	(.831)
MHODDS	1.012	(.171)	1.018	(.179)	1.010	(.235)	1.041	(.485)
LCHI	7.969	(7.102)	3.955	(3.937)				
MSOS	14.707	(12.905)	21.155	(19.111)				
WK								
FCHI5	21.014	(27.525)	12.632	(14.255)	8.730	(6.764)	*	(*)
MHCHI	12.730	(21.629)	6.272	(10.356)	2.871	(4.672)	1.044	(1.149)
MHODDS	1.234	(.804)	1.197	(.701)	1.278	(.816)	1.469	(1.559)
LCHI	16.451	(23.523)	10.255	(12.775)				
MSOS	41.057	(48.490)	48.974	(48.977)				
PC								
FCHI5	8.427	(4.215)	7.935	(4.296)	5.176	(2.957)	*	(*)
MHCHI	2.033	(2.590)	2.526	(2.730)	.843	(.836)	1.386	(1.477)
MHODDS	1.009	(.202)	1.034	(.280)	1.015	(.264)	1.248	(1.056)
LCHI	19.931	(14.905)	6.757	(6.069)				
MSOS	23.921	(31.553)	42.502	(55.236)				
AS								
FCHI5	26.820	(32.825)	14.037	(15.758)	10.367	(12.030)	*	(*)
MHCHI	20.231	(30.773)	8.535	(14.215)	5.819	(9.038)	.951	(1.187)
MHODDS	1.116	(.511)	1.105	(.463)	1.209	(.779)	1.173	(.600)
LCHI	22.792	(30.088)	11.331	(15.867)				
MSOS	84.342	(111.564)	72.685	(106.325)				
MK								
FCHI5	8.021	(5.639)	7.953	(6.876)	6.930	(4.529)	4.705	(.000)
MHCHI	2.787	(3.814)	2.474	(3.859)	2.121	(2.352)	1.104	(1.715)
MHODDS	1.010	(.153)	1.028	(.239)	1.050	(.318)	1.140	(.678)
LCHI	5.574	(5.173)	5.299	(6.286)				
MSOS	14.761	(13.523)	27.150	(36.025)				
MC								
FCHI5	8.761	(7.262)	7.012	(5.164)	5.441	(2.957)	*	(*)
MHCHI	4.055	(5.806)	2.125	(2.487)	1.202	(1.657)	.946	(1.297)
MHODDS	1.030	(.208)	1.031	(.198)	1.025	(.227)	1.133	(.582)
LCHI	5.624	(4.389)	4.411	(4.669)				
MSOS	17.914	(24.077)	26.770	(31.824)				
EI								
FCHI5	12.552	(10.335)	10.967	(7.777)	7.234	(5.088)	*	(*)
MHCHI	5.248	(6.316)	3.956	(5.907)	2.008	(2.665)	1.148	(1.044)
MHODDS	1.056	(.265)	1.065	(.308)	1.057	(.282)	1.183	(.635)
LCHI	18.421	(17.631)	10.642	(11.317)				
MSOS	33.703	(36.826)	44.669	(51.750)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-20. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 17A, Subgroup Male vs Female

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	31.396	(34.022)	18.682	(18.735)	12.437	(9.389)	5.133	(4.235)
MHCHI	24.513	(31.273)	13.873	(18.695)	6.992	(8.220)	1.661	(2.621)
MHODDS	1.112	(.485)	1.125	(.525)	1.116	(.483)	1.164	(.614)
LCHI	33.767	(35.669)	16.501	(19.476)				
MSOS	259.265	(173.301)	120.862	(168.252)				
AR								
FCHI5	11.819	(9.994)	8.916	(6.926)	6.657	(5.284)	4.495	(2.276)
MHCHI	7.123	(9.496)	4.522	(6.568)	1.748	(3.537)	.831	(1.041)
MHODDS	1.013	(.228)	1.020	(.280)	1.024	(.206)	1.055	(.472)
LCHI	10.447	(11.077)	6.555	(6.992)				
MSOS	18.837	(23.852)	25.352	(33.488)				
WK								
FCHI5	26.202	(48.980)	15.502	(26.110)	12.474	(21.805)	6.470	(5.400)
MHCHI	20.383	(46.292)	9.846	(23.291)	6.228	(14.277)	1.237	(2.178)
MHODDS	1.050	(.539)	1.052	(.537)	1.058	(.643)	1.005	(.726)
LCHI	27.081	(48.089)	14.799	(22.694)				
MSOS	55.178	(132.530)	58.896	(141.581)				
PC								
FCHI5	7.789	(3.910)	6.726	(3.788)	6.711	(3.735)	*	(*)
MHCHI	2.320	(2.636)	1.699	(2.108)	1.315	(1.853)	.278	(.433)
MHODDS	.980	(.156)	.990	(.201)	1.033	(.281)	1.102	(.531)
LCHI	27.567	(17.879)	31.367	(22.454)				
MSOS	14.459	(13.654)	27.429	(37.165)				
AS								
FCHI5	22.281	(15.400)	11.408	(8.355)	9.054	(6.265)	*	(*)
MHCHI	8.683	(8.174)	3.262	(3.833)	2.299	(2.789)	.838	(1.126)
MHODDS	1.048	(.301)	1.055	(.321)	1.043	(.307)	1.127	(.515)
LCHI	33.096	(35.175)	17.411	(17.346)				
MSOS	76.006	(72.018)	437.474	(262.111)				
MK								
FCHI5	13.009	(13.001)	10.896	(9.976)	6.773	(4.163)	4.497	(2.494)
MHCHI	7.482	(9.569)	5.979	(8.292)	2.448	(3.530)	1.061	(1.747)
MHODDS	1.018	(.224)	1.032	(.283)	1.036	(.265)	1.056	(.503)
LCHI	10.216	(11.657)	7.420	(6.916)				
MSOS	18.543	(20.186)	30.426	(34.031)				
MC								
FCHI5	13.694	(10.804)	7.036	(5.212)	6.703	(5.670)	8.608	(4.305)
MHCHI	5.082	(6.860)	2.499	(3.443)	2.974	(4.907)	1.269	(1.293)
MHODDS	1.015	(.181)	1.017	(.198)	1.023	(.281)	1.214	(.719)
LCHI	11.165	(8.993)	6.596	(5.484)				
MSOS	29.162	(30.833)	27.444	(22.094)				
EI								
FCHI5	18.500	(16.227)	11.944	(8.399)	8.250	(6.406)	7.432	(.000)
MHCHI	11.460	(13.851)	4.483	(5.826)	3.023	(3.726)	1.226	(1.171)
MHODDS	1.050	(.291)	1.048	(.283)	1.055	(.339)	1.218	(.714)
LCHI	28.356	(25.140)	9.891	(8.815)				
MSOS	47.348	(43.875)	39.248	(37.860)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

Table C-21. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 17B, Subgroup White vs White

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	3.735	(2.367)	4.471	(3.060)	4.923	(3.720)	9.085	(4.783)
MHCHI	.813	(.814)	.998	(1.352)	.813	(.904)	.680	(1.463)
MHODDS	.994	(.086)	1.012	(.126)	1.012	(.205)	1.108	(.633)
LCHI	26.977	(35.553)	17.748	(17.625)				
MSOS	14.437	(16.442)	21.040	(19.944)				
AR								
FCHI5	4.649	(2.879)	4.020	(2.471)	3.903	(2.598)	4.767	(3.783)
MHCHI	1.185	(1.431)	.565	(.807)	.574	(.659)	.576	(1.049)
MHODDS	1.015	(.114)	1.003	(.096)	1.012	(.148)	1.113	(.504)
LCHI	22.061	(31.020)	12.864	(11.430)				
MSOS	29.141	(28.128)	26.641	(28.220)				
WK								
FCHI5	4.077	(2.300)	4.353	(2.548)	4.858	(2.916)	3.375	(2.939)
MHCHI	1.038	(1.332)	.681	(.786)	.806	(.915)	.405	(.643)
MHODDS	1.003	(.137)	.990	(.159)	1.031	(.286)	1.131	(.768)
LCHI	12.045	(13.600)	6.640	(6.990)				
MSOS	14.381	(30.626)	15.740	(27.717)				
PC								
FCHI5	3.435	(2.619)	4.685	(3.508)	5.214	(2.850)	*	(*)
MHCHI	.608	(.888)	.734	(.950)	.573	(1.167)	.322	(.374)
MHODDS	.988	(.099)	1.001	(.140)	1.015	(.249)	1.101	(.507)
LCHI	**	(**)	16.929	(14.726)				
MSOS	**	(**)	389.115	(171.154)				
AS								
FCHI5	3.575	(1.773)	4.769	(3.124)	4.021	(2.519)	5.114	(2.513)
MHCHI	.549	(.668)	.891	(1.374)	.884	(1.134)	.957	(1.410)
MHODDS	.993	(.068)	1.015	(.118)	1.018	(.183)	1.071	(.457)
LCHI	16.426	(16.000)	8.071	(9.639)				
MSOS	9.713	(7.968)	14.265	(10.676)				
MK								
FCHI5	4.591	(3.031)	4.590	(2.872)	5.530	(3.086)	4.267	(1.675)
MHCHI	1.388	(1.971)	.928	(1.423)	1.223	(1.458)	.431	(.579)
MHODDS	1.002	(.096)	1.013	(.132)	1.019	(.203)	1.019	(.299)
LCHI	21.093	(29.625)	10.480	(12.591)				
MSOS	28.467	(48.562)	32.803	(50.999)				
MC								
FCHI5	3.201	(2.122)	4.564	(2.733)	4.642	(3.255)	5.167	(1.871)
MHCHI	.704	(1.170)	.591	(.752)	.896	(1.298)	.261	(.365)
MHODDS	1.002	(.069)	.998	(.092)	1.025	(.176)	1.022	(.275)
LCHI	23.190	(26.500)	14.661	(15.938)				
MSOS	24.239	(47.999)	26.820	(34.279)				
EI								
FCHI5	3.741	(1.604)	3.933	(2.450)	4.090	(2.882)	3.658	(2.048)
MHCHI	1.157	(1.232)	.979	(1.072)	.661	(.998)	.263	(.364)
MHODDS	.993	(.092)	1.005	(.132)	.991	(.167)	1.094	(.330)
LCHI	37.318	(32.158)	13.976	(19.875)				
MSOS	24.222	(28.169)	25.824	(23.868)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

** Values were not computed since parameter estimates from LOGIST5 did not converge.

Table C-22. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 17B, Subgroup White vs Black

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	24.139	(32.006)	11.969	(13.171)	10.121	(10.934)	*	(*)
MHCHI	15.656	(26.423)	5.886	(9.424)	5.417	(8.435)	1.058	(1.623)
MHODDS	1.066	(.422)	1.061	(.362)	1.100	(.551)	1.139	(.623)
LCHI	21.436	(25.247)	7.485	(9.405)				
MSOS	37.918	(51.701)	103.237	(128.450)				
AR								
FCHI5	12.592	(10.556)	8.467	(7.970)	8.948	(6.227)	7.038	(5.923)
MHCHI	5.127	(7.487)	3.124	(5.336)	2.863	(3.427)	1.288	(2.266)
MHODDS	1.027	(.209)	1.020	(.242)	1.043	(.338)	1.120	(.619)
LCHI	14.065	(12.071)	11.111	(11.248)				
MSOS	29.285	(28.923)	25.705	(31.468)				
WK								
FCHI5	24.518	(38.867)	14.423	(19.792)	9.173	(8.877)	*	(*)
MHCHI	17.316	(33.048)	9.156	(16.266)	3.589	(5.892)	1.590	(2.114)
MHODDS	1.108	(.553)	1.115	(.568)	1.105	(.586)	1.264	([illegible])
LCHI	22.626	(31.770)	14.135	(16.687)				
MSOS	54.471	(93.071)	64.603	(100.705)				
PC								
FCHI5	16.498	(14.523)	9.474	(7.215)	7.358	(4.041)	*	(*)
MHCHI	8.658	(8.623)	4.273	(2.951)	3.240	(3.522)	.135	(.169)
MHODDS	.975	(.290)	.956	(.290)	1.029	(.428)	1.050	(.253)
LCHI	**	(**)	9.715	(7.609)				
MSOS	**	(**)	430.509	(234.316)				
AS								
FCHI5	24.849	(33.462)	15.167	(19.685)	11.388	(7.636)	5.187	(.000)
MHCHI	13.371	(23.350)	7.135	(13.714)	4.842	(5.913)	1.158	(1.267)
MHODDS	1.058	(.396)	1.062	(.447)	1.081	(.450)	1.110	(.509)
LCHI	37.857	(27.139)	20.654	(16.736)				
MSOS	64.197	(92.863)	73.847	(99.188)				
MK								
FCHI5	15.986	(11.817)	11.181	(9.248)	8.573	(7.564)	5.519	(1.913)
MHCHI	9.952	(10.195)	5.323	(8.202)	3.825	(6.590)	.692	(.884)
MHODDS	1.031	(.259)	1.029	(.261)	1.042	(.357)	1.057	(.392)
LCHI	16.072	(14.714)	10.479	(13.595)				
MSOS	32.522	(31.599)	40.478	(47.909)				
MC								
FCHI5	11.890	(11.278)	8.167	(6.997)	7.689	(4.865)	4.681	(.000)
MHCHI	5.310	(7.057)	2.566	(3.930)	2.599	(3.338)	.623	(1.011)
MHODDS	1.033	(.207)	1.030	(.224)	1.056	(.299)	1.050	(.388)
LCHI	11.175	(12.320)	7.495	(5.753)				
MSOS	21.885	(35.806)	40.272	(50.632)				
EI								
FCHI5	16.713	(9.975)	11.789	(7.761)	9.198	(5.941)	5.156	(2.896)
MHCHI	8.348	(10.032)	5.533	(7.102)	3.850	(4.560)	1.530	(1.781)
MHODDS	1.051	(.234)	1.086	(.331)	1.069	(.327)	1.137	(.582)
LCHI	21.885	(15.592)	9.972	(7.998)				
MSOS	23.742	(21.432)	35.410	(36.111)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

** Values were not computed since parameter estimates from LOGIST5 did not converge.

Table C-23. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 17B, Subgroup White vs Hispanic

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	19.157	(33.327)	12.237	(21.760)	8.562	(10.823)	*	(*)
MHCHI	13.196	(29.789)	6.373	(19.294)	3.545	(8.796)	1.228	(2.760)
MHODDS	1.069	(.488)	1.076	(.572)	1.085	(.598)	1.201	(.930)
LCHI	15.819	(24.555)	8.023	(14.410)				
MSOS	54.598	(116.211)	61.174	(157.035)				
AR								
FCHI5	9.501	(8.161)	6.460	(4.298)	6.300	(3.943)	6.732	(.000)
MHCHI	5.752	(10.499)	1.954	(2.819)	1.520	(2.445)	.838	(1.917)
MHODDS	1.034	(.212)	1.027	(.218)	1.044	(.285)	1.151	(.786)
LCHI	9.999	(12.337)	5.547	(5.986)				
MSOS	27.243	(32.877)	29.795	(31.104)				
WK								
FCHI5	32.712	(39.924)	17.990	(20.343)	12.516	(11.052)	*	(*)
MHCHI	23.300	(34.152)	10.854	(15.537)	5.242	(7.411)	1.059	(1.987)
MHODDS	1.381	(1.146)	1.375	(1.262)	1.431	(1.268)	1.385	(1.435)
LCHI	29.694	(31.523)	16.018	(17.583)				
MSOS	71.087	(77.388)	74.527	(80.920)				
PC								
FCHI5	10.624	(9.096)	9.116	(9.817)	6.384	(4.976)	*	(*)
MHCHI	3.410	(5.017)	2.579	(2.541)	1.147	(1.845)	.513	(.963)
MHODDS	1.022	(.227)	1.025	(.310)	1.070	(.375)	1.236	(.828)
LCHI	**	(**)	9.159	(12.384)				
MSOS	**	(**)	595.263	(356.403)				
AS								
FCHI5	31.389	(37.683)	22.689	(26.430)	14.621	(13.905)	*	(*)
MHCHI	22.769	(32.215)	14.784	(23.581)	9.172	(10.951)	2.006	(2.587)
MHODDS	1.145	(.603)	1.193	(.765)	1.241	(.839)	1.275	(.941)
LCHI	33.368	(33.194)	21.183	(22.077)				
MSOS	105.698	(131.794)	141.535	(172.541)				
MK								
FCHI5	8.304	(7.134)	6.902	(3.206)	6.397	(3.473)	*	(*)
MHCHI	4.080	(5.953)	1.929	(2.368)	1.536	(1.810)	1.460	(1.681)
MHODDS	1.028	(.219)	1.025	(.209)	1.044	(.283)	1.170	(.769)
LCHI	6.748	(4.724)	4.602	(4.213)				
MSOS	19.079	(17.701)	24.291	(21.505)				
MC								
FCHI5	8.748	(6.409)	5.786	(3.778)	6.865	(3.748)	*	(*)
MHCHI	3.069	(5.033)	1.541	(2.131)	1.638	(2.360)	.288	(.564)
MHODDS	1.016	(.192)	1.015	(.192)	1.014	(.271)	1.043	(.357)
LCHI	8.208	(7.580)	4.194	(4.256)				
MSOS	23.296	(23.845)	29.192	(31.558)				
EI								
FCHI5	11.163	(10.181)	8.727	(6.802)	8.497	(6.497)	*	(*)
MHCHI	4.749	(7.009)	2.816	(3.347)	2.285	(3.567)	1.532	(2.170)
MHODDS	1.038	(.233)	1.051	(.245)	1.072	(.343)	1.707	(2.471)
LCHI	19.772	(21.905)	10.814	(10.496)				
MSOS	26.511	(25.564)	40.650	(44.791)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

** Values were not computed since parameter estimates from LOGIST5 did not converge.

Table C-24. Means and Standard Deviations (in Parentheses) of DIF Indices for Form 17B, Subgroup Male vs Female

Subtest/ Index	Random Sample Size N=2000		N=1000		N=500		N=100	
GS								
FCHI5	32.947	(26.011)	20.501	(15.621)	10.718	(6.690)	5.951	(3.968)
MHCHI	25.691	(27.007)	14.913	(16.087)	5.875	(6.374)	2.087	(2.530)
MHODDS	1.116	(.478)	1.140	(.551)	1.102	(.447)	1.243	(.820)
LCHI	32.896	(32.072)	21.210	(18.116)				
MSOS	71.706	(77.369)	76.174	(77.114)				
AR								
FCHI5	17.755	(31.081)	11.461	(20.255)	8.316	(8.838)	5.706	(3.740)
MHCHI	10.638	(28.648)	6.414	(18.620)	3.669	(7.043)	.804	(1.213)
MHODDS	1.029	(.371)	1.044	(.453)	1.051	(.410)	1.083	(.434)
LCHI	19.968	(23.480)	8.182	(19.201)				
MSOS	29.647	(54.112)	35.345	(87.837)				
WK								
FCHI5	22.725	(22.246)	13.184	(12.025)	11.874	(10.085)	4.307	(2.655)
MHCHI	17.105	(22.383)	7.867	(10.249)	5.365	(7.433)	1.354	(1.619)
MHODDS	1.120	(.472)	1.097	(.441)	1.179	(.568)	1.359	(1.063)
LCHI	25.794	(28.343)	12.146	(12.114)				
MSOS	43.471	(64.988)	41.475	(50.257)				
PC								
FCHI5	19.750	(27.836)	11.632	(18.208)	8.233	(6.800)	*	(*)
MHCHI	14.561	(28.091)	7.333	(16.951)	3.625	(6.126)	.760	(.606)
MHODDS	.959	(.452)	.969	(.487)	.979	(.436)	1.125	(.634)
LCHI	23.649	(35.836)	32.362	(22.987)				
MSOS	56.515	(83.334)	142.641	(240.608)				
AS								
FCHI5	20.695	(17.585)	12.980	(9.539)	10.435	(8.711)	4.991	(4.359)
MHCHI	9.022	(11.989)	4.604	(4.791)	2.631	(3.620)	1.140	(1.612)
MHODDS	1.070	(.384)	1.052	(.324)	1.085	(.441)	1.127	(.588)
LCHI	34.152	(28.937)	17.884	(14.450)				
MSOS	64.085	(53.266)	77.451	(68.154)				
MK								
FCHI5	14.587	(14.429)	9.797	(7.181)	7.298	(5.534)	5.416	(2.828)
MHCHI	9.759	(14.647)	4.958	(6.739)	2.141	(3.758)	1.032	(1.263)
MHODDS	1.024	(.255)	1.022	(.264)	1.009	(.235)	1.104	(.549)
LCHI	12.319	(14.097)	5.946	(5.274)				
MSOS	22.867	(26.899)	23.478	(21.802)				
MC								
FCHI5	14.236	(11.209)	10.229	(6.078)	7.996	(7.732)	6.636	(4.757)
MHCHI	5.960	(8.113)	2.532	(3.769)	2.439	(3.405)	1.434	(2.204)
MHODDS	1.012	(.207)	1.013	(.195)	1.039	(.275)	1.126	(.633)
LCHI	14.186	(11.937)	11.385	(9.550)				
MSOS	36.050	(37.384)	55.986	(51.195)				
EI								
FCHI5	17.813	(14.089)	12.996	(8.674)	10.819	(5.653)	*	(*)
MHCHI	10.794	(14.555)	5.615	(8.665)	4.015	(4.985)	.955	(1.136)
MHODDS	1.053	(.274)	1.069	(.314)	1.077	(.348)	1.161	(.600)
LCHI	13.962	(10.270)	8.084	(6.274)				
MSOS	34.377	(24.823)	40.515	(34.808)				

Note. LOGIST5 parameter estimates were not computed for samples 100 and 500; therefore, Lord's Chi-Square and Modified Sum of Squares are not available. Modified Sum of Squares values were multiplied by 10,000 before the calculation of the mean and standard deviation.

* Values were not computed since Full Chi-Square was not able to establish five score intervals.

APPENDIX D: CORRELATIONS BETWEEN DIF INDICES BY ASVAB FORM, COMPARISON GROUP AND SAMPLE SIZE

Table D-1. Correlations between DIF Indices on ASVAB Form [illegible] by Comparison Group and Two Sample Sizes

	White vs White					Black vs White				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.19	.46	.21	-.02		.97*	.85*	.95*	.91*
MHCHI	.04		.39	-.18	-.09	.96*		.80*	.93*	.94*
MHODDS	.12	-.12		-.15	-.27	.89*	.77*		.94*	.71*
LCHI	-.03	.15	.04		.57	.98*	.93*	.92*		.84*
MSOS	.17	-.01	-.13	.50		.90*	.96*	.66*	.83*	
AR										
FCHI5		.41	.43	.02	-.28		.87*	.47	.72*	.96*
MHCHI	.54		.68*	.22	-.02	.91*		.13	.92*	.95*
MHODDS	-.12	.09		.17	.06	.78*	.52		-.03	.33
LCHI	-.05	-.18	-.14		.59*	.85*	.97*	.44		.85*
MSOS	.07	-.01	-.22	.65*		.95*	.95*	.59*	.93*	
WK										
FCHI5		.73*	.21	.21	.01		.71*	.38	.50	.65*
MHCHI	.38		.46	.26	.09	.71*		-.01	.19	.86*
MHODDS	.17	.51*		.29	.18	.35	-.09		.61*	.15
LCHI	.46	-.02	.11		.38	.61*	.24	.60*		.19
MSOS	.35	.01	.11	.43		.70*	.88*	.06	.20	
PC										
FCHI5		.46	-.38	.11	.04		.64	.39	.67	.74*
MHCHI	.35		-.09	.67	.29	.81*		.21	.10	.41
MHODDS	.17	.20		-.04	-.23	.44	-.07		.09	.17
LCHI	xx	xx	xx		.75*	xx	xx	xx		.84*
MSOS	.00	.00	.00	.00		.00	.00	.00	.00	
AS										
FCHI5		.49	-.02	.36	.45		.67*	.62*	.13	.67*
MHCHI	.61*		-.34	.75*	.73*	.74*		.37	.46	.37
MHODDS	-.15	-.29		-.50	-.19	.79*	.56		-.35	.24
LCHI	.20	.08	-.04		.79*	.47	.42	.28		.19
MSOS	.26	.41	-.07	.40		.78*	.37	.41	.38	
MK										
FCHI5		.39	-.38	.41	.16		.93*	.59*	.93*	.97*
MHCHI	.35		-.49	.09	.29	.94*		.33	.95*	.96*
MHODDS	.05	-.39		-.17	-.34	.39	.15		.44	.51
LCHI	-.07	.16	.12		.42	.90*	.97*	.08		.96*
MSOS	-.16	.12	-.17	.60*		.96*	.94*	.36	.91*	
MC										
FCHI5		.33	.19	.18	.22		.76*	.78*	.82*	.62*
MHCHI	.55		.46	-.10	.02	.89*		.29	.65*	.72*
MHODDS	-.22	-.28		-.08	.02	.88*	.68*		.65*	.19
LCHI	.34	.19	-.23		.82*	.87*	.84*	.65*		.54
MSOS	-.04	-.00	-.03	.60*		.87*	.90*	.65*	.90*	
EI										
FCHI5		.21	.10	.11	.25		.60	.32	.31	.74*
MHCHI	.20		.31	-.00	-.07	.67*		-.11	.59	.66*
MHODDS	.38	.51		-.29	-.35	.48	-.23		-.44	-.11
LCHI	.16	-.14	-.16		.54	.42	.25	.31		.69*
MSOS	.43	-.03	-.00	.58		.44	.67*	-.35	.49	

Table D-1. (Concluded)

	Hispanic vs White					Female vs Male				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.97*	.72*	.85*	.87*		.97*	.77*	.95*	.90*
MHCHI	.97*		.64*	.78*	.89*	.98*		.71*	.93*	.93*
MHODDS	.80*	.71*		.72*	.40	.77*	.69*		.82*	.58
LCHI	.98*	.93*	.82*		.70*	.90*	.92*	.82*		.81*
MSOS	.83*	.86*	.39	.79*		.93*	.95*	.54	.80*	
AR										
FCHI5		.91*	.64*	.82*	.87*		.91*	.52	.42	.65*
MHCHI	.94*		.61*	.94*	.92*	.92*		.33	.58*	.81*
MHODDS	.89*	.78*		.61*	.68*	.55*	.36		-.45	-.17
LCHI	.92*	.97*	.74*		.96*	.54	.66*	-.32		.89*
MSOS	.96*	.97*	.78*	.98*		.79*	.92*	.10	.79*	
WK										
FCHI5		.97*	.36	.31	.19		.97*	.27	.46	.91*
MHCHI	.98*		.27	.25	.17	.99*		.29	.41	.88*
MHODDS	.57*	.50		.53*	.80*	.19	.20		-.50	.09
LCHI	.55*	.41	.38		.36	.85*	.85*	-.22		.62*
MSOS	.85*	.86*	.16	.39		.86*	.89*	.12	.83*	
PC										
FCHI5		.87*	.55	.69	.89*		.97*	.34	.51	.07
MHCHI	.91*		.32	.55	.83*	.99*		.41	.39	-.01
MHODDS	.16	-.15		-.11	.08	.62	.73		-.27	.24
LCHI	xx	xx	xx		.91*	.77*	.85*	.92*		.42
MSOS	.00	.00	.00	.00		.92*	.86*	.33	.57	
AS										
FCHI5		.94*	.56	.76*	.90*		.88*	.59*	.91*	.82*
MHCHI	.92*		.27	.88*	.84*	.77*		.32	.82*	.70*
MHODDS	.62*	.29		-.02	.60*	.54	-.05		.51	.55
LCHI	.39	.64*	-.34		.70*	.89*	.56	.64*		.93*
MSOS	.90*	.80*	.60*	.38		.73*	.76*	.20	.75*	
MK										
FCHI5		.88*	.36	.85*	.87*		.92*	.38	.74*	.77*
MHCHI	.95*		.43	.90*	.92*	.91*		.39	.70*	.75*
MHODDS	.56	.59*		.26	.51	.31	.31		.49	.40
LCHI	.93*	.92*	.39		.94*	.55	.61*	-.10		.96*
MSOS	.93*	.94*	.74*	.90*		.68*	.75*	.24	.88*	
MC										
FCHI5		.68*	.52	.53	.40		.92*	.65*	.64*	-.08
MHCHI	.72*		.01	.68*	.66*	.88*		.51	.73*	-.12
MHODDS	.72*	.17		-.02	-.31	.67*	.33		.02	.29
LCHI	-.11	.45	-.66*		.87*	.88*	.70*	.54		-.18
MSOS	.31	.50	-.02	.50		.55	.82*	-.15	.48	
EI										
FCHI5		.25	.12	.24	.38		.95*	.71*	.69*	.95*
MHCHI	.71*		-.09	.27	.42	.94*		.55	.80*	.89*
MHODDS	.48	.08		-.48	-.48	.77*	.57		.12	.62
LCHI	.63	.24	.23		.87*	.75*	.77*	.37		.74*
MSOS	.50	.60	-.32	.64		.78*	.77*	.37	.91*	

Note. N = 1,000 for values above the diagonal and N = 2,000 for values below the diagonal; * p < .001. 'xx' for correlation entries indicates missing values for Lord's Chi-Square and Modified Sum of Squares. These values were not computed since parameter estimates from LOGIST5 did not converge.

Table D-2. Correlations between DIF Indices on ASVAB Form 15C by Comparison Group and Two Sample Sizes

	White vs White					Black vs White				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.12	.12	.09	-.14		.84*	.78*	.81*	.87*
MHCHI	.64*		.60*	-.17	.13	.82*		.68*	.60*	.92*
MHODDS	-.52	-.19		.02	.25	.80*	.60*		.42	.77*
LCHI	-.20	-.03	.22		.27	.85*	.80*	.55		.64*
MSOS	-.30	-.07	.48	.67*		.65*	.64*	.28	.77*	
AR										
FCHI5		.30	.20	.28	.00		.67*	.81*	.28	.85*
MHCHI	.38		-.14	.41	.33	.66*		.58*	.58*	.77*
MHODDS	-.48	-.54*		.18	.13	.77*	.32		.07	.61*
LCHI	.16	-.15	.28		.40	.23	.24	-.15		.63*
MSOS	-.03	-.11	.13	.56*		.79*	.66*	.45	.66*	
WK										
FCHI5		.45	.11	.38	.33		.87*	.69*	.80*	.85*
MHCHI	.10		.58*	.12	.16	.90*		.43	.86*	.92*
MHODDS	.02	-.28		-.10	-.11	.77*	.54*		.33	.37
LCHI	-.16	-.03	-.04		.87*	.95*	.96*	.67*		.93*
MSOS	-.09	.27	-.14	.78*		.80*	.93*	.33	.87*	
PC										
FCHI5		.85*	.29	-.02	.12		.80*	.53	.87*	.34
MHCHI	.70		.52	-.07	.00	.92*		.22	.88*	.54
MHODDS	.26	.58		-.05	-.36	.52	.19		.36	.44
LCHI	.14	-.22	-.21		.57	.03	.24	-.46		.42
MSOS	.17	.16	.06	.35		.89*	.90*	.37	.34	
AS										
FCHI5		.46	-.13	.32	-.03		.77*	.63*	.33	.81*
MHCHI	.06		-.37	.67*	.11	.80*		.17	.65*	.72*
MHODDS	-.13	-.14		-.54	-.30	.79*	.31		-.25	.58
LCHI	.42	.02	-.28		.48	.70*	.77*	.31		.50
MSOS	.25	-.17	-.17	.24		.71*	.58	.53	.81*	
MK										
FCHI5		.69*	-.08	.41	.46		.83*	.74*	.75*	.92*
MHCHI	.45		.40	.69*	.71*	.85*		.57	.75*	.83*
MHODDS	-.04	.01		.68*	.53	.77*	.47		.62*	.79*
LCHI	.19	.39	.38		.85*	.90*	.82*	.75*		.87*
MSOS	-.11	.17	.36	.81*		.95*	.82*	.74*	.82*	
MC										
FCHI5		.35	-.33	.04	.20		.51	.64*	.09	.41
MHCHI	.20		-.27	-.18	.01	.86*		.44	.20	.32
MHODDS	-.09	-.04		.08	-.36	.69*	.40		.45	.41
LCHI	.17	.21	-.12		.50	.71*	.63*	.64*		.71*
MSOS	.07	-.03	-.26	.68*		.59*	.65*	.29	.77*	
EI										
FCHI5		.59	.33	-.52	.11		.88*	.79*	.82*	.79*
MHCHI	.55		.23	-.17	.22	.73*		.75*	.67*	.72*
MHODDS	-.17	.20		-.01	.47	.77*	.33		.78*	.64
LCHI	-.01	.14	.29		.51	.79*	.30*	.41		.83*
MSOS	-.13	.05	.03	.82*		.10	-.09	.08	-.10	

Table D-2. (Concluded)

	Hispanic vs White					Female vs Male				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.92*	.80*	.70*	.54		.96*	.23	.80*	.87*
MHCHI	.86*		.74*	.64*	.48	.95*		.08	.90*	.93*
MHODDS	.80*	.61*		.56	.57	.21	.01		-.11	-.16
LCHI	.94*	.82*	.80*		.76*	.85*	.96*	-.21		.89*
MSOS	.64*	.35	.49	.72*		.81*	.89*	-.31	.92*	
AR										
FCHI5		.70*	.57*	.44	.73*		.92*	-.02	.59*	.82*
MHCHI	.89*		.46	.60*	.75*	.96*		-.13	.72*	.87*
MHODDS	.72*	.53		.44	.56*	.12	-.06		-.61*	.03
LCHI	.80*	.92*	.47		.68*	.72*	.81*	-.39		.55*
MSOS	.84*	.88*	.50	.87*		.77*	.79*	-.00	.88*	
WK										
FCHI5		.96*	.89*	.87*	.74*		.99*	.83*	.97*	.98*
MHCHI	.96*		.79*	.94*	.86*	.99*		.84*	.96*	.98*
MHODDS	.86*	.78*		.61*	.42	.84*	.78*		.84*	.80*
LCHI	.97*	.96*	.81*		.95*	.71*	.79*	.30		.97*
MSOS	.80*	.90*	.47	.84*		.98*	.99*	.81*	.77*	
PC										
FCHI5		.33	.41	.64	.02		.77*	.33	.65	.45
MHCHI	.70		-.31	.09	.07	.94*		.50	.37	.32
MHODDS	.52	.01		.37	.12	.52	.58		.58	-.16
LCHI	.48	.88*	-.35		.07	.74*	.83*	.74*		-.05
MSOS	.62	.50	.12	.84*		.13	.14	-.09	.27	
AS										
FCHI5		.88*	.49	.76*	.92*		.94*	.88*	.77*	.55
MHCHI	.85*		.13	.93*	.86*	.96*		.81*	.79*	.52
MHODDS	.58	.14		-.06	.52	.88*	.80*		.55	.26
LCHI	.87*	.94*	.23		.79*	.78*	.83*	.50		.84*
MSOS	.97*	.84*	.57	.90*		.51	.56	.17	.86*	
MK										
FCHI5		.88*	.64*	.64*	.89*		.39	.09	.48	.77*
MHCHI	.86*		.49	.64*	.87*	.87*		.13	.40	.68*
MHODDS	.61*	.43		.46	.70*	.11	.25		-.45	.39
LCHI	.75*	.63*	.65*		.80*	.78*	.70*	-.31		.43
MSOS	.84*	.87*	.64*	.69*		.77*	.80*	.58	.40	
MC										
FCHI5		.90*	.71*	.58	.80*		.73*	.50	.86*	.73*
MHCHI	.93*		.72*	.68*	.83*	.59*		.06	.57	.55
MHODDS	.80*	.69*		.32	.68*	.61*	.11		.36	.29
LCHI	.89*	.89*	.64*		.83*	.36	.63*	.26		.72*
MSOS	.92*	.88*	.74*	.98*		.76*	.50	.28	.41	
EI										
FCHI5		.78*	.82*	.64	.84*		.94*	.58	.16	-.19
MHCHI	.75*		.61	.45	.56	.91*		.40	.23	-.19
MHODDS	.63	.08		.68*	.60	.78*	.49		.03	-.06
LCHI	.86*	.58	.73*		.49	.81*	.66*	.63		-.28
MSOS	.57	.44	.29	.26		.75*	.67*	.45	.95*	

Note. N = 1,000 for values above the diagonal and N = 2,000 for values below the diagonal; * $p < .001$. 'xx' for correlation entries indicates missing values for Lord's Chi-Square and Modified Sum of Squares. These values were not computed since parameter estimates from LOGIST5 did not converge.

Table D-3. Correlations between DIF Indices on ASVAB Form 16A by Comparison Group and Two Sample Sizes

	White vs White					Black vs White				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.62*	.21	.00	.12		.89*	.75*	.92*	.75*
MHCHI	.65*		.66*	-.13	.06	.92*		.47	.93*	.85*
MHODDS	.02	-.05		-.12	.03	.77*	.56		.65*	.26
LCHI	-.00	.15	.19		.62*	.96*	.90*	.74*		.76*
MSOS	-.00	.10	-.22	.47		.85*	.96*	.42	.89*	
AR										
FCHI5		.44	-.06	.11	.27		.74*	.28	.55*	-.16
MHCHI	.54		-.26	.36	.60*	.85*		-.10	.83*	-.13
MHODDS	.09	-.35		-.26	-.35	.54	.26		-.34	.34
LCHI	-.08	-.23	.08		.79*	.28	.59*	-.38		.05
MSOS	.02	-.18	.14	.51		.73*	.78*	-.11	.66*	
WK										
FCHI5		.39	-.18	.23	.37		.82*	.71*	.81*	.65*
MHCHI	.07		-.23	-.03	.23	.82*		.40	.57*	.83*
MHODDS	.21	-.07		.32	.15	.72*	.39		.85*	.14
LCHI	.34	-.07	-.01		.46	.95*	.69*	.79*		.31
MSOS	.31	.13	-.16	.70*		.81*	.94*	.30	.69*	
PC										
FCHI5		.27	.40	-.43	-.29		.95*	.91*	.22	.07
MHCHI	.40		.50	.02	.06	.86*		.86*	.28	.12
MHODDS	.21	.15		-.40	-.43	.79*	.47		.21	.09
LCHI	-.13	-.12	-.30		.60	-.16	-.09	-.11		.96*
MSOS	-.36	-.37	-.21	.62		.27	.37	-.05	.71	
AS										
FCHI5		.82*	.09	.62*	.47		.64*	.67*	.40	.78*
MHCHI	.21		-.11	.79*	.62*	.62*		-.01	.83*	.75*
MHODDS	-.18	.44		-.26	.04	.61*	-.12		-.21	.45
LCHI	.34	.39	-.21		.74*	xx	xx	xx		.63*
MSOS	.51	.06	-.42	.52		.00	.00	.00	.00	
MK										
FCHI5		.39	-.02	-.35	-.25		.75*	.68*	.61*	.92*
MHCHI	.36		.16	-.34	-.17	.92*		.36	.82*	.80*
MHODDS	.08	.23		.10	-.03	.57	.29		.46	.55
LCHI	-.15	.08	-.17		.30	.69*	.85*	-.15		.71*
MSOS	-.11	-.17	-.12	.32		.97*	.94*	.50	.77*	
MC										
FCHI5		.27	.02	.44	.77*		.84*	.41	.89*	.87*
MHCHI	.60*		-.45	-.14	.28	.81*		.24	.82*	.84*
MHODDS	.16	-.15		.25	-.19	.35	-.18		.50	.28
LCHI	.22	.07	-.15		.60*	.87*	.90*	.04		.92*
MSOS	.22	.22	-.42	.85*		.73*	.85*	-.14	.88*	
EI										
FCHI5		.15	-.30	.22	.25		.82*	.63	.73*	.72*
MHCHI	.27		.29	.43	.38	.92*		.31	.82*	.83*
MHODDS	-.28	-.31		.23	.29	.74*	.44		.21	.17
LCHI	.15	.01	.30		.83*	.75*	.92*	.18		.97*
MSOS	.17	.08	.24	.88*		.82*	.94*	.32	.98*	

Table D-3. (Concluded)

	Hispanic vs White					Female vs Male				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.94*	.81*	.89*	.80*		.99*	.69*	.98*	.98*
MHCHI	.95*		.67*	.94*	.72*	-.26		.69*	.99*	.98*
MHODDS	.88*	.79*		.60*	.52	-.12	.32		.66*	.71*
LCHI	.99*	.95*	.89*		.75*	.96*	-.23	-.18		.99*
MSOS	.84*	.88*	.53	.84*		.99*	-.23	-.16	.97*	
AR										
FCHI5		.72*	.52	.17	.76*		.85*	-.13	.79*	.80*
MHCHI	.75*		.06	.53	.80*	.93*		-.28	.85*	.88*
MHODDS	.39	-.10		-.10	.40	.26	.12		-.23	-.26
LCHI	.25	.50	-.26		.70*	.58*	.72*	-.50		.95*
MSOS	.73*	.81*	.08	.64*		.72*	.83*	-.36	.97*	
WK										
FCHI5		.81*	.55*	.82*	.50		.98*	.61*	.78*	.91*
MHCHI	.92*		.23	.61*	.72*	.99*		.60*	.79*	.91*
MHODDS	.46	.25		.75*	-.02	.63*	.66*		.06	.36
LCHI	.88*	.69*	.67*		.31	.88*	.90*	.86*		.87*
MSOS	.54*	.72*	-.30	.24		.95*	.95*	.51*	.82*	
PC										
FCHI5		.50	.56	.64	.55		.89*	.60	.82*	.69
MHCHI	.94*		.38	.16	.13	.96*		.80*	.88*	.78*
MHODDS	.75*	.70		.19	.16	.68	.65		.69	.64
LCHI	-.24	-.29	-.49		.94*	.87*	.88*	.48		.95*
MSOS	.56	.34	.17	.38		.86*	.91*	.64	.94*	
AS										
FCHI5		.73*	.34	.90*	.85*		.78*	.77*	.42	.76*
MHCHI	.73*		-.11	.64*	.53	.75*		.42	.75*	.78*
MHODDS	.30	-.12		.35	.22	.76*	.39		.07	.47
LCHI	.51	.77*	-.46		.90*	.59	.84*	.20		.81*
MSOS	.88*	.53	.37	.43		.91*	.80*	.58	.79*	
MK										
FCHI5		.78*	.58	.77*	.85*		.87*	.08	.79*	.53
MHCHI	.82*		.70*	.82*	.91*	.97*		.09	.81*	.49
MHODDS	.55	.41		.40	.64*	.22	.26		-.19	.65*
LCHI	.76*	.75*	.03		.88*	.83*	.79*	-.04		.52
MSOS	.90*	.78*	.53	.79*		.64*	.65*	.50	.73*	
MC										
FCHI5		.49	.48	.11	.47		.91*	.78*	.90*	.87*
MHCHI	.68*		.06	.48	.65*	.92*		.56	.85*	.86*
MHODDS	.42	.01		-.22	-.00	.77*	.50		.75*	.71*
LCHI	.75*	.78*	.45		.81*	.96*	.90*	.74*		.88*
MSOS	.39	.84*	-.30	.62*		.86*	.89*	.52	.91*	
EI										
FCHI5		.76*	.26	.32	.26		.72*	.62	.58	.69*
MHCHI	.94*		.17	.61	.55	.83*		.15	.42	.72*
MHODDS	.76*	.68*		-.43	-.64	.76*	.36		.15	.22
LCHI	.86*	.85*	.44		.92*	.81*	.80*	.43		.61
MSOS	.64	.70*	.06	.87*		.61	.79*	.19	.78*	

Note. N = 1,000 for values above the diagonal and N = 2,000 for values below the diagonal; * $p < .001$. 'xx' for correlation entries indicates missing values for Lord's Chi-Square and Modified Sum of Squares. These values were not computed since parameter estimates from LOGIST5 did not converge.

Table D-4. Correlations between DIF Indices on ASVAB Form 16B by Comparison Group and Two Sample Sizes

	White vs White					Black vs White				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.54	-.01	-.14	.13		.92*	.67*	.91*	.86*
MHCHI	.35		-.17	-.05	.08	.93*		.44	.86*	.88*
MHODDS	-.10	.01		-.05	.29	.86*	.70*		.56	.56
LCHI	.15	-.03	.05		.39	.87*	.83*	.72*		.86*
MSOS	-.15	.10	.15	.37		.89*	.95*	.72*	.88*	
AR										
FCHI5		.49	-.02	.19	.19		.76*	.62*	.66*	.85*
MHCHI	.59*		-.03	.08	.02	.77*		.35	.82*	.75*
MHODDS	-.21	-.24		.10	-.28	.71*	.19		.42	.62*
LCHI	.04	-.14	.10		.69*	.74*	.70*	.51		.71*
MSOS	-.01	-.04	-.15	.64*		.91*	.81*	.54	.73*	
WK										
FCHI5		.84*	.21	-.01	.29		.96*	.67*	.64*	.97*
MHCHI	.15		.10	.09	.35	.95*		.54*	.55*	.94*
MHODDS	-.02	-.00		.03	.24	.79*	.61*		.74*	.74*
LCHI	.08	.12	-.03		.56*	.74*	.62*	.79*		.74*
MSOS	.22	.35	-.09	.74*		.98*	.94*	.76*	.78*	
PC										
FCHI5		.83*	.03	.41	.46		.85*	-.26	.59	.49
MHCHI	.44		.42	.42	.20	.93*		-.36	.79*	.67
MHODDS	.61	.41		.04	-.20	-.16	-.37		-.54	.03
LCHI	-.22	-.16	-.26		.11	.66	.64	.20		.76*
MSOS	.05	.34	-.40	.12		.81*	.78*	.04	.95*	
AS										
FCHI5		.18	.09	.10	.35		.66*	.75*	.04	.80*
MHCHI	.46		-.22	.24	.03	.72*		.22	.39	.73*
MHODDS	-.11	-.34		-.15	.06	.87*	.37		-.33	.60*
LCHI	-.01	-.12	.06		.39	.22	.67*	-.18		.38
MSOS	-.04	-.04	.08	.35		.79*	.75*	.58	.65*	
MK										
FCHI5		.41	-.39	-.10	-.20		.93*	.73*	.74*	.94*
MHCHI	.50		-.59*	.36	.08	.90*		.62*	.82*	.90*
MHODDS	.06	.06		.08	.27	.80*	.55		.25	.81*
LCHI	.32	-.07	-.09		.57	.64*	.81*	.12		.75*
MSOS	.41	.15	.06	.32		.97*	.91*	.78*	.68*	
MC										
FCHI5		.79*	.22	-.32	.35		.71*	.56	.51	.49
MHCHI	.35		.19	-.32	.32	.70*		.09	.27	.41
MHODDS	-.12	-.06		.05	-.25	.83*	.37		.20	.40
LCHI	-.37	-.23	.13		.35	.74*	.57	.57		.39
MSOS	-.14	-.28	-.01	.52		.69*	.50	.51	.88*	
EI										
FCHI5		.14	.05	.26	.34		.89*	.74*	.85*	.81*
MHCHI	.52		.14	.36	.15	.90*		.52	.70*	.76*
MHODDS	.02	.68*		.60	.39	.70*	.37		.84*	.79*
LCHI	-.04	-.10	-.09		.55	.93*	.85*	.55		.87*
MSOS	.09	.20	.14	.63		.79*	.69*	.42	.90*	

Table D-4. (Concluded)

	Hispanic vs White					Female vs Male				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.91*	.66*	.49	.90*		.99*	.79*	.90*	.96*
MHCHI	.94*		.47	.65*	.93*	.99*		.77*	.92*	.98*
MHODDS	.83*	.67*		-.15	.58	.87*	.83*		.56	.75*
LCHI	.90*	.94*	.60*		.65*	.76*	.79*	.43		.93*
MSOS	.92*	.89*	.67*	.93*		.99*	.99*	.85*	.78*	
AR										
FCHI5		.48	.26	.38	.57*		.94*	.38	.84*	.76*
MHCHI	.58*		-.20	.66*	.63*	.97*		.29	.90*	.83*
MHODDS	.35	-.25		-.44	-.07	.17	.13		.16	.40
LCHI	.50	.31	.52		.86*	.89*	.93*	-.01		.93*
MSOS	.81*	.67*	.16	.50		.73*	.80*	.33	.86*	
WK										
FCHI5		.95*	.66*	.69*	.90*		.97*	.50	.56*	.95*
MHCHI	.95*		.43	.61*	.92*	.99*		.45	.60*	.93*
MHODDS	.50	.39		.49	.55*	.34	.30		-.33	.63*
LCHI	.68*	.54*	.61*		.66*	.63*	.68*	-.39		.42
MSOS	.91*	.95*	.37	.56*		.95*	.92*	.51*	.44	
PC										
FCHI5		.88*	.74*	.29	.39		.87*	.19	.55	.81*
MHCHI	.79*		.69	.13	.32	.92*		.17	.47	.73*
MHODDS	.76*	.51		.12	.30	-.30	-.27		-.04	-.16
LCHI	.80*	.78*	.74*		.45	.87*	.86*	-.61		.75*
MSOS	.88*	.73	.59	.72		.89*	.87*	-.18	.78*	
AS										
FCHI5		.74*	-.04	.67*	.75*		.44	.55	.14	.89*
MHCHI	.57		-.40	.93*	.63*	.78*		-.19	.74*	.37
MHODDS	.38	-.31		-.53	.21	.72*	.28		-.41	.50
LCHI	.47	.91*	-.45		.65*	.45	.78*	-.03		.20
MSOS	.80*	.75*	.16	.73*		.91*	.83*	.49	.69*	
MK										
FCHI5		.81*	.42	.72*	.78*		.97*	.49	.80*	.63*
MHCHI	.85*		.42	.71*	.79*	.95*		.57	.74*	.65*
MHODDS	.57	.62*		.07	.66*	.36	.34		.08	.58
LCHI	.44	.49	-.12		.65*	.75*	.78*	-.04		.62*
MSOS	.84*	.85*	.81*	.32		.64*	.62*	.74*	.49	
MC										
FCHI5		.61*	.43	.36	.09		.84*	.69*	.90*	.81*
MHCHI	.54		-.00	.33	-.02	.87*		.35	.78*	.88*
MHODDS	.73*	.24		.58	-.06	.70*	.32		.61*	.40
LCHI	.68*	.52	.67*		-.38	.97*	.79*	.76*		.81*
MSOS	.42	.36	.23	.40		.86*	.91*	.43	.86*	
EI										
FCHI5		.77*	.52	.69*	.59		.70*	.55	.87*	.75*
MHCHI	.93*		.50	.71*	.74*	.78*		.24	.48	.69*
MHODDS	.81*	.56		.85*	.59	.92*	.60		.58	.32
LCHI	.93*	.89*	.70*		.70*	.55	.84*	.35		.54
MSOS	.73*	.75*	.44	.87*		.83*	.79*	.69*	.69*	

Note. N = 1,000 for values above the diagonal and N = 2,000 for values below the diagonal; * $p < .001$. 'xx' for correlation entries indicates missing values for Lord's Chi-Square and Modified Sum of Squares. These values were not computed since parameter estimates from LOGIST5 did not converge.

Table D-5. Correlations between DIF Indices on ASVAB Form 17A by Comparison Group and Two Sample Sizes

	White vs White					Black vs White				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.39	-.22	.34	.16		.94*	.61*	.63*	.71*
MHCHI	.29		-.25	.39	.26	.92*		.47	.72*	.59
MHODDS	-.04	.28		-.32	-.46	.64*	.36		.36	.22
LCHI	.17	.17	-.14		.58	.85*	.73*	.77*		.30
MSOS	.12	.37	-.24	.53		.65*	.72*	.02	.93*	
AR										
FCHI5		.28	.25	-.20	-.08		.83*	.81*	.54	.84*
MHCHI	.16		.24	-.18	-.19	.62*		.48	.80*	.81*
MHODDS	.40	.08		-.10	-.20	.70*	-.05		.08	.62*
LCHI	.10	-.15	.01		.58*	.55	.57*	.20		.73*
MSOS	.20	.36	-.29	.55*		.74*	.73*	.21	.67*	
WK										
FCHI5		.56*	.33	-.04	-.05		.93*	.60*	.87*	.88*
MHCHI	.33		.59*	.21	.18	.82*		.43	.92*	.93*
MHODDS	-.07	.28		-.12	-.10	.70*	.33		.41	.37
LCHI	.21	-.06	-.05		.66*	.76*	.92*	.33		.82*
MSOS	-.09	-.03	-.04	.66*		.63*	.85*	-.00	.75*	
PC										
FCHI5		.71	.38	.03	.26		.73*	.25	.34	.78*
MHCHI	.27		.38	.09	.15	.43		-.29	.64	.77*
MHODDS	.14	-.14		-.01	-.15	.42	-.49		-.30	.03
LCHI	-.19	-.34	.05		.58	.27	.97*	-.60		.64
MSOS	-.36	-.35	.11	.84*		.48	.59	.07	.95*	
AS										
FCHI5		.69*	-.06	-.15	.16		.90*	.75*	.62*	.93*
MHCHI	.37		.02	-.04	-.07	.93*		.58	.58	.79*
MHODDS	.08	.21		-.13	-.16	.86*	.65*		.52	.82*
LCHI	-.01	-.39	.04		.56	.53	.59	.28		.57
MSOS	.10	-.07	.24	.70*		.93*	.83*	.84*	.69*	
MK										
FCHI5		.53	.12	.20	.26		.77*	.57	.69*	.86*
MHCHI	.35		.58	.16	.38	.84*		.19	.88*	.83*
MHODDS	-.25	-.50		-.35	-.12	.40	.04		.08	.55
LCHI	-.15	.17	-.10		.37	.62*	.81*	-.34		.84*
MSOS	-.04	.62*	-.37	.32		.91*	.89*	.33	.73*	
MC										
FCHI5		.57	-.31	.21	.13		.73*	.56	.72*	.86*
MHCHI	.43		-.39	.33	.26	.58		.17	.62*	.57
MHODDS	-.14	.27		-.20	.11	.66*	-.00		.12	.48
LCHI	.09	.02	.12		.42	.28	.52	-.12		.84*
MSOS	.30	.18	.19	.69*		.79*	.60*	.44	.67*	
EI										
FCHI5		.10	.06	-.03	.18		.57	.38	.63	.56
MHCHI	.63		-.18	-.08	.10	.51		-.01	.36	.36
MHODDS	-.31	-.49		.31	.27	.61	-.06		.76*	.07
LCHI	-.14	-.32	-.04		.38	.77*	.58	.56		.45
MSOS	.11	-.13	.02	.51		.65*	.35	.14	.56	

Table D-5. (Concluded)

	Hispanic vs White					Female vs Male				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.98*	.81*	.79*	.96*		.98*	.46	.95*	.56
MHCHI	.99*		.76*	.81*	.97*	.96*		.41	.96*	.47
MHODDS	.89*	.85*		.55	.81*	.58	.43		.52	.26
LCHI	.85*	.86*	.74*		.87*	.91*	.92*	.45		.72*
MSOS	.97*	.98*	.88*	.89*		.23	.27	.37	.39	
AR										
FCHI5		.38	.42	.02	.48		.91*	.53	.86*	.87*
MHCHI	.79*		-.18	.53	.56*	.89*		.43	.91*	.92*
MHODDS	.59*	.23		-.52	-.05	.47	.25		.27	.63*
LCHI	.33	.36	.37		.80*	.83*	.93*	.14		.88*
MSOS	.33	.35	.20	.44		.91*	.95*	.34	.95*	
WK										
FCHI5		.95*	.76*	.89*	.45		.99*	.77*	.89*	.98*
MHCHI	.92*		.63*	.86*	.58*	1.00*		.77*	.90*	.99*
MHODDS	.77*	.67*		.65*	.07	.77*	.76*		.47	.74*
LCHI	.95*	.94*	.69*		.46	.95*	.96*	.63*		.91*
MSOS	.73*	.86*	.40	.74*		.99*	.99*	.77*	.95*	
PC										
FCHI5		.85*	.16	.74	.40		.57	.55	.12	.76*
MHCHI	.72		.05	.77*	.41	.51		.51	-.20	.60
MHODDS	.06	-.14		.32	.32	-.06	.23		-.26	.57
LCHI	-.03	-.36	-.41		.72	-.16	-.10	-.37		-.08
MSOS	.28	-.19	-.00	.22		.48	.10	.10	-.15	
AS										
FCHI5		.94*	.36	.95*	.95*		.55	.77*	.47	.25
MHCHI	.94*		.10	.98*	.98*	.51		.40	.48	.44
MHODDS	.48	.22		.15	.13	.60*	.09		.37	.49
LCHI	.86*	.95*	.05		.99*	.22	.49	.04		.73*
MSOS	.97*	.92*	.50	.86*		.67*	.51	.11	.57	
MK										
FCHI5		.90*	.49	.89*	.81*		.95*	-.31	.75*	.88*
MHCHI	.69*		.50	.77*	.76*	.86*		-.29	.80*	.93*
MHODDS	.34	-.19		.24	.61*	-.18	.08		-.17	-.40
LCHI	.71*	.80*	-.14		.83*	.88*	.96*	-.15		.91*
MSOS	.77*	.76*	.28	.82*		.86*	.94*	.09	.93*	
MC										
FCHI5		.30	.18	.64*	.71*		.78*	.40	.46	.55
MHCHI	.70*		-.27	.47	.49	.30		.09	.51	.36
MHODDS	.70*	.35		.07	-.02	.48	-.13		-.17	.21
LCHI	.45	.76*	-.01		.95*	.45	.33	-.05		.70*
MSOS	.79*	.87*	.55	.73*		.74*	.15	.17	.68*	
EI										
FCHI5		.79*	.28	.81*	.73*		.70*	.70*	.41	.76*
MHCHI	.83*		.33	.83*	.60	.76*		.35	.32	.65*
MHODDS	.39	.46		.57	.10	.54	-.08		.64	.56
LCHI	.71*	.87*	.60		.71*	.67*	.21	.86*		.66*
MSOS	.74*	.52	-.06	.42		.90*	.65*	.59	.64	

Note. N = 1,000 for values above the diagonal and N = 2,000 for values below the diagonal; * $p < .001$. 'xx' for correlation entries indicates missing values for Lord's Chi-Square and Modified Sum of Squares. These values were not computed since parameter estimates from LOGIST5 did not converge.

Table D-6. Correlations between DIF Indices on ASVAB Form 17B by Comparison Group and Two Sample Sizes

	White vs White					Black vs White				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.30	.06	.02	.39		.95*	.52	.38	.76*
MHCHI	.48		-.16	-.04	.37	.95*		.51	.48	.73*
MHODDS	-.25	-.49		-.08	-.21	.75*	.56		.08	.17
LCHI	-.16	-.19	.09		.51	.95*	.88*	.75*		.37
MSOS	-.12	-.27	-.05	.62*		.93*	.91*	.67*	.93*	
AR										
FCHI5		.13	.03	.25	.14		.85*	.68*	.64*	.80*
MHCHI	.63*		.07	.01	.11	.71*		.48	.57*	.87*
MHODDS	.13	.17		-.16	-.34	.79*	.27		.59*	.49
LCHI	-.09	-.17	.10		.45	.64*	.64*	.47		.68*
MSOS	-.06	-.01	-.03	.76*		.60*	.76*	.36	.95*	
WK										
FCHI5		.29	.00	-.04	.15		.94*	.68*	.89*	.96*
MHCHI	.38		-.02	-.32	.09	.94*		.52*	.87*	.93*
MHODDS	.03	.28		.17	.03	.75*	.58*		.66*	.70*
LCHI	.37	.17	-.05		.55*	.94*	.93*	.67*		.90*
MSOS	.40	.26	-.19	.47		.98*	.96*	.75*	.95*	
PC										
FCHI5		.30	.12	.10	.35		.50	.76*	-.56	.08
MHCHI	.47		-.04	.76*	.13	.73*		.22	.13	.09
MHODDS	.28	.59		-.33	.12	.73	.16		-.74	.16
LCHI	xx	xx	xx		-.14	xx	xx	xx		-.41
MSOS	.00	.00	.00	.00		.00	.00	.00	.00	
AS										
FCHI5		.32	-.15	.07	.36		.89*	.91*	.67*	.95*
MHCHI	.38		-.12	.45	.81*	.89*		.75*	.77*	.83*
MHODDS	-.17	-.15		-.43	-.15	.81*	.59		.52	.88*
LCHI	.08	-.07	.10		.52	.75*	.75*	.56		.74*
MSOS	.07	-.08	.31	.68*		.97*	.87*	.80*	.79*	
MK										
FCHI5		.61*	.39	.10	-.12		.86*	.05	.81*	.90*
MHCHI	.74*		.51	-.17	-.12	.81*		-.20	.80*	.73*
MHODDS	-.25	-.18		.04	-.11	.35	-.02		-.43	-.08
LCHI	.06	-.02	-.10		.58	.64*	.84*	-.38		.90*
MSOS	.19	.01	-.03	.52		.89*	.65*	.35	.61*	
MC										
FCHI5		.37	-.08	-.10	.03		.82*	.67*	.58	.81*
MHCHI	.56		.06	-.09	-.05	.70*		.32	.36	.80*
MHODDS	.20	.37		.36	.16	.78*	.25		.45	.59
LCHI	-.18	-.03	-.21		.65*	.45	.53	.05		.65*
MSOS	.12	.25	-.33	.41		.65*	.90*	.27	.59*	
EI										
FCHI5		.55	-.04	-.08	.21		.66*	.36	.57	.56
MHCHI	.56		.39	-.23	-.01	.75*		-.21	.19	.26
MHODDS	-.22	-.16		-.06	-.12	.14	-.46		.52	.27
LCHI	-.06	.10	-.04		.89*	.45	-.16	.74*		.85*
MSOS	-.07	.29	-.09	.65		.28	.09	-.06	.30	

Table D-6. (Concluded)

	Hispanic vs White					Female vs Male				
	FCHI5	MHCHI	MHODDS	LCHI	MSOS	FCHI5	MHCHI	MHODDS	LCHI	MSOS
GS										
FCHI5		.98*	.90*	.87*	.97*		.93*	.38	.82*	.83*
MHCHI	.99*		.87*	.90*	.98*	.93*		.19	.65*	.82*
MHODDS	.80*	.72*		.69*	.87*	.42	.18		.54	-.05
LCHI	.91*	.90*	.59*		.94*	.89*	.94*	.10		.69*
MSOS	.98*	.96*	.76*	.96*		.77*	.86*	-.20	.93*	
AR										
FCHI5		.73*	.47	.43	.60*		.97*	.91*	.96*	.97*
MHCHI	.84*		.16	.43	.45	.97*		.88*	.98*	.99*
MHODDS	.22	-.19		.18	.26	.90*	.86*		.86*	.87*
LCHI	.77*	.67*	.18		.87*	.86*	.89*	.65*		1.00*
MSOS	.84*	.79*	.06	.96*		.97*	.98*	.84*	.91*	
WK										
FCHI5		.98*	.82*	.73*	.92*		.93*	-.21	.88*	.88*
MHCHI	.98*		.76*	.72*	.94*	.97*		-.04	.87*	.83*
MHODDS	.78*	.73*		.60*	.72*	-.14	-.08		-.02	-.19
LCHI	.84*	.77*	.67*		.63*	.93*	.92*	.08		.89*
MSOS	.80*	.85*	.40	.58*		.88*	.88*	-.30	.87*	
PC										
FCHI5		.82*	.53	.88*	.33		.99*	.87*	.06	.03
MHCHI	.65		.55	.71	.16	.99*		.86*	.08	-.11
MHODDS	.42	-.11		.62	.23	.83*	.87*		-.33	.05
LCHI	xx	xx	xx		.37	.93*	.93*	.91*		-.01
MSOS	.00	.00	.00	.00		.38	.36	.41	.48	
AS										
FCHI5		.94*	.65*	.85*	.94*		.59*	.66*	.39	.61*
MHCHI	.96*		.57	.88*	.96*	.73*		.37	.31	.30
MHODDS	.62*	.46		.43	.51	.67*	.40		.46	.25
LCHI	.86*	.91*	.33		.94*	.38	.32	.47		-.06
MSOS	.97*	.98*	.47	.92*		.59*	.32	.12	.34	
MK										
FCHI5		.42	.03	.59*	.56		.88*	.07	.73*	.72*
MHCHI	.85*		.12	.27	.46	.98*		.20	.73*	.80*
MHODDS	.59*	.37		-.22	.09	-.02	-.00		-.01	.26
LCHI	.55	.65*	-.17		.86*	.88*	.89*	-.10		.93*
MSOS	.84*	.75*	.29	.81*		.85*	.88*	.26	.90*	
MC										
FCHI5		.76*	.46	.41	.73*		.61*	.57	.24	.59*
MHCHI	.64*		.08	.33	.49	.77*		.34	.15	.45
MHODDS	.68*	.26		.19	.50	.52	-.01		-.11	.43
LCHI	.31	.50	-.25		.84*	.37	.55	-.22		.60*
MSOS	.68*	.60*	.36	.76*		.81*	.68*	.34	.47	
EI										
FCHI5		.67*	.40	.68*	.62		.80*	.05	.82*	.55
MHCHI	.91*		-.12	.30	.30	.81*		-.23	.72*	.72*
MHODDS	.50	.33		.60	.30	.28	-.26		-.20	-.41
LCHI	.67*	.62	.76*		.78*	.79*	.54	.29		.75*
MSOS	.74*	.77*	.22	.56		.75*	.61	.07	.85*	

Note. N = 1,000 for values above the diagonal and N = 2,000 for values below the diagonal; * $p < .001$. 'xx' for correlation entries indicates missing values for Lord's Chi-Square and Modified Sum of Squares. These values were not computed since parameter estimates from LOGIST5 did not converge.