

# DISPARATE IMPACT ANALYSIS

**Company:** Assessments 24x7

**Product:** DISC Assessment



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**EVALUATION CENTER**  
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**RENDERED TO**

**Assessments 24x7**  
**San Diego, CA**

**PRODUCT EVALUATED: DISC Assessment**  
**EVALUATION PROPERTY: DISPARATE IMPACT**

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## 2. Introduction

This document is provided as a tool for end-users of DISC Assessments to allow comparisons between the DISC Assessment and other four-dimensional models in the marketplace. This analysis examines the assessment's numerical properties as they relate to EEO guidelines and the potential for Disparate Impact.

**What is Disparate Impact?** Employers often use tests and other selection procedures to screen applicants for hire and employees for promotion. Using tests and other selection procedures can be a very effective means of determining which applicants or employees are most qualified for a job. However, the use of these tools can also violate the federal anti-discrimination laws if they disproportionately exclude people in a protected group by race, sex, or another covered basis. Notably, the law allows for selection procedures to select the best candidates based on job-related requirements. If the selection procedure has a disparate impact based on race, color, religion, sex, or national origin, the employer is required to show that the selection procedure is job-related and consistent with business necessity. If discrimination exists, the challenged policy or practice should be associated with the skills needed to perform the job successfully. Many methods are available to determine potential discrimination of a protected class. The most common of these methods is the “Four Fifths” rule.

**The Four-Fifths rule** is a rule of thumb used as a general evaluation guideline. The EEOC has determined that a selection rate for any race, sex, or ethnic group that is less than four-fifths ( $4/5$ ) (or eighty percent) of the rate for the group with the highest score or response rate will generally be regarded by the Federal enforcement agencies as evidence of disparate impact. While a greater than four-fifths ratio will generally not be regarded by Federal enforcement agencies as evidence of disparate impact, it should be noted, however, that smaller differences in selection rate may nevertheless constitute disparate or adverse impact, where they are significant in both statistical and practical terms.

This study aims to apply the four-fifths rule to the DISC assessment data. Mean score comparison ratios by protected class will be made to determine whether mean ratio values are greater than or less than the 80% guideline. In the analysis, the protected class group is compared against the predominant count group of respondents (the Control Group).

**APA Guidelines**—This Evaluation was conducted in accordance with the Standards for Educational and Psychological Testing, which were developed jointly by the American Educational Research Assn. (AERA), the American Psychological Association (APA), and the National Council on Measurement in Education (NCME).

### 3. Test Data Preparation

#### 3.1 SAMPLE SELECTION

Sample data was submitted to ASI directly from the client and were not independently selected for testing. Samples are requested to:

- Be a sufficient number to represent the general population.
- Be randomly selected.

The sample panels were received at the ASI Evaluation Center by email on August 28, 2024.

**SAMPLE SIZE: N = 10,000**

#### 3.2 DATA CLEANING

Upon receipt of the samples at ASI, the data was downloaded and cleaned as follows:

1. **Missing Values** – There were no missing values.
2. **Duplicates** – Duplicate entries were removed.
3. **Categorization** – Data was categorized and labeled by attribute type for the appropriate comparison.

## 4. Testing and Evaluation Methods

### 4.1 TEST STANDARDS

Analysis of the data was conducted using standard statistical methods. The statistical method employed was:

- **Mean Ratio Comparison**

**Mean Ratio Comparison:** In this analysis, a mean ratio compares two or more mean values that indicate their average values about each other. The ratio compares the two averages by division, with the dividend or number being divided as the smaller term and the divisor or number being divided as the larger term. The following calculations were used as part of the methodology.

**1. Arithmetic Mean (AM)** - If  $n$  numbers are given, each number denoted by  $a_i$  (where  $i = 1, 2, \dots, n$ ), the arithmetic mean is the sum of the  $a_i$  as divided by  $n$ .

$$AM = \frac{1}{n} \sum_{i=1}^n a_i = \frac{a_1 + a_2 + \dots + a_n}{n}$$

**2. Standard Deviation** - measures the amount of variation or dispersion in the data set. A high standard deviation relative to the mean indicates that the values are spread out over a wide range. The formula used is below.

$$s = \sqrt{\frac{1}{N-1} \sum_{i=1}^N (x_i - \bar{x})^2},$$

**‘3. Mean Ratio** - The Mean Ratio was determined by comparing the protected class mean to the comparison group mean, where the smallest number is the numerator, and the largest mean is the denominator.

**‘4. Excluded Data** - Demographic groups representing less than 2% of the population were not used in the Ratio calculations based on statistical grounds. Smaller sample sizes can produce volatile results due to increased variability. When a group's representation is very small, any minor change in the outcomes (scores) can lead to disproportionately large shifts in the calculated ratios, making them potentially unreliable or misleading. By excluding such minor representation groups, the analysis can maintain a more consistent and robust statistical footing, ensuring that conclusions drawn from the data are based on more stable and generalizable patterns rather than potential statistical anomalies associated with small sample sizes. The exclusion of the Impact Ratio calculation in the data tables is denoted by an asterisk (\*).

Finally, the tables provided do not represent all EEO categories. Not Applicable, denoted by the identifier **NA**, means no respondents fit the demographic category.

## 5. Testing and Evaluation Results

Below are the analysis table summaries using the four-fifths rule. The analysis compares the selection rates of various demographic groups to determine if any group's rate is less than 80% of the rate of the most selected (highest count) group. A significant disparity would suggest the need for further investigation to assess the validity and fairness of the assessment tool. The following tables present the results of this analysis, providing a detailed breakdown of selection rates across different groups and highlighting any areas of concern.

## Results for the Attribute of Dominance

**Table 1: Dominance: Race & Ethnicity**

<u>Race &amp; Ethnicity</u>	<u>Avg. Dominance</u>	<u>Count of Race</u>	<u>Impact Ratio</u>
Middle Eastern or Arab American	44	87	87.9%
Latino or Hispanic	44	579	88.1%
Hawaiian or Pacific Islander	44	39	*
Caucasian	42	1,327	92.5%
African-American	42	357	93.0%
Other	41	458	93.8%
Asian	39	5,198	100.0%
Native American or Alaskan Native	37	31	*

**Table 2: Dominance: Gender**

<u>Gender</u>	<u>Avg. Dominance</u>	<u>Count of Race</u>	<u>Impact Ratio</u>
Male	41	3,207	95%
Female	39	4,770	100%
Other	38	54	*
I choose not to answer	40	45	*

**Table 3: Dominance: Generation / Age**

<u>Generation</u>	<u>Avg. Dominance</u>	<u>Count of D Gen</u>	<u>Impact Ratio</u>
Gen Z, iGen, or Centennials - Born 1996 and later	38	3,957	100.0%
Generation X – Born between 1965 and the early 1980s	43	827	87.6%
Millennials or Gen Y – Born between 1977 and 1995	41	3,126	92.9%
The Baby Boomers - Born between 1946 and 1964	42	138	90.3%
The Traditionalists or Silent Generation: - Before 1945	41	28	*



## Results for the Attribute of Influencing

**Table 1: Influencing: Race & Ethnicity**

<u>Race &amp; Ethnicity</u>	<u>Avg. Influencing</u>	<u>Count of Influencing</u>	<u>Impact Ratio</u>
African-American	52	357	88%
Asian	46	5,198	100%
Caucasian	57	1,327	81%
Hawaiian or Pacific Islander	57	39	*
Latino or Hispanic	53	579	87%
Middle Eastern or Arab American	51	87	*
Native American or Alaskan Native	54	31	*
Other	51	458	90%

**Table 2: Influencing: Gender**

<u>D Gender</u>	<u>Avg. Influencing</u>	<u>Count of Influencing</u>	<u>Impact Ratio</u>
Female	50	4,770	100%
I choose not to answer	48	45	*
Male	48	3,207	97%
Other	55	54	*

**Table 3: Influencing: Generation / Age**

<u>Generation</u>	<u>Avg. Influencing</u>	<u>Count of Influencing</u>	<u>Impact Ratio</u>
Gen Z, iGen, or Centennials - Born 1996 and later	48	3,957	100%
Generation X – Born between 1965 and the early 1980s	54	827	90%
Millennials or Gen Y – Born between 1977 and 1995	48	3,126	99%
The Baby Boomers - Born between 1946 and 1964	54	138	*
The Traditionalists or Silent Generation: - Before 1945	51	28	*

## Results for the Attribute of Steadiness

**Table 1: Steadiness: Race & Ethnicity**

<u>Race &amp; Ethnicity</u>	<u>Avg. Steadiness</u>	<u>Count of Steadiness</u>	<u>Impact Ratio</u>
African-American	56	357	94%
Asian	59	5,198	100%
Caucasian	58	1,327	97%
Hawaiian or Pacific Islander	52	39	*
Latino or Hispanic	55	579	92%
Middle Eastern or Arab American	57	87	*
Native American or Alaskan Native	60	31	*
Other	58	458	97%

**Table 2: Steadiness: Gender**

<u>Gender</u>	<u>Avg. Steadiness</u>	<u>Count of Steadiness</u>	<u>Impact Ratio</u>
Female	60	4,770	100%
I choose not to answer	58	45	*
Male	57	3,207	95%
Other	56	54	*

**Table 3: Steadiness: Generation / Age**

<u>Generation</u>	<u>Avg. Steadiness</u>	<u>Count of Steadiness</u>	<u>Impact Ratio</u>
Gen Z, iGen, or Centennials - Born 1996 and later	60	3,957	100%
Generation X – Born between 1965 and the early 1980s	56	827	94%
Millennials or Gen Y – Born between 1977 and 1995	58	3,126	97%
The Baby Boomers - Born between 1946 and 1964	57	138	96%
The Traditionalists or Silent Generation: - Before 1945	55	28	*

## Results for the Attribute of Conscientious

**Table 1: Conscientious: Race & Ethnicity**

Race & Ethnicity	Avg. Concientous	Count of Concientous	Impact Ratio
African-American	59	357	92%
Asian	64	5,198	100%
Caucasian	55	1,327	85%
Hawaiian or Pacific Islander	56	39	88%
Latino or Hispanic	58	579	90%
Middle Eastern or Arab American	58	87	*
Native American or Alaskan Native	59	31	*
Other	60	458	93%

**Table 2: Conscientious: Gender**

Gender	Avg. Concientous	Count of Concientous	Impact Ratio
Female	61	4,770	100%
I choose not to answer	61	45	*
Male	63	3,207	97%
Other	60	54	*

**Table 3: Conscientious: Generation / Age**

Generation	Avg. Concientous	Count of Concientous	Impact Ratio
Gen Z, iGen, or Centennials - Born 1996 and later	63	3,957	100%
Generation X – Born between 1965 and the early 1980s	56	827	88%
Millennials or Gen Y – Born between 1977 and 1995	61	3,126	97%
The Baby Boomers - Born between 1946 and 1964	57	138	*
The Traditionalists or Silent Generation: - Before 1945	64	28	*

## 6. Conclusions

The data submitted for evaluation passed all acceptable standards and was therefore awarded ASI Certification.

**Certified**  
**September 9, 2024**



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## 7. Document Review

### ASI TESTING SERVICES

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