


# IMPACT RATIO ANALYSIS

**Company:** Assessments 24x7  
**Product:** DISC Assessment



**Certified:** January 2, 2024  
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**EVALUATION CENTER**  
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**RENDERED TO**

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

**PRODUCT EVALUATED: DISC Assessment**  
**EVALUATION PROPERTY: BIAS AUDIT**

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## 2. Introduction

The City of New York, Department of Consumer and Worker Protection (“DCWP” or “Department”) has implemented rules regarding automated employment decision tools (“AEDT”). Local Law 144 prohibits employers and employment agencies from using an automated employment decision tool unless the tool has been subject to a bias audit within one year of the use of the tool, information about the bias audit is publicly available, and certain notices have been provided to employees or job candidates.

These rules establish that a bias audit of an AEDT must calculate the selection rate or scoring rate for each race/ethnicity and sex category that is required to be reported to the U.S. Equal Employment Opportunity Commission (“EEOC”) pursuant to the EEO Component 1 report and compare the selection rates or scoring rates to the most selected category or to the highest score in order to determine an impact ratio. These calculations are consistent with Section 1607.4 of the EEOC Uniform Guidelines on Employee Selection Procedures. See 29 C.F.R. § 1607.4.

**This analysis conducted by ASI examines the “Impact Ratio” of the Assessments 24x7 DISC assessment as it relates to guidelines provided by the City of New York DCWP and Local Law 144.**

**What is the Impact Ratio?** Employers often use tests, questionnaires, assessments, and other procedures to evaluate applicants for hire and employees for promotion. These methods often employ Machine learning, statistical modeling, data analytics, or artificial intelligence to produce an evaluation score, metric, recommendation or ranking.

**“Machine learning, statistical modeling, data analytics, or artificial intelligence”** means a group of mathematical, computer-based techniques that generate a prediction, indicating an expected outcome for an observation, such as an assessment of a candidate’s fit or likelihood of success, or that create a classification, meaning an assignment of an observation to a group, such as categorizations based on skill sets or aptitude; and ii. for which a computer at least in part identifies the inputs, the relative importance placed on those inputs, and, if applicable, other parameters for the models to improve the accuracy of the prediction or classification.

The use of these instruments and associated analysis 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 does allow 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, therefore, be associated with the skills needed to perform the job successfully.

**ASI has obtained data from the assessment provider and subjected it to analysis to determine the Impact Ratio for the demographic type of each respondent as per the local law requirements.**

**Impact Ratio** - “Impact ratio” means either (1) the selection rate for a category divided by the selection rate of the most selected category or (2) the scoring rate for a category divided by the scoring rate for the highest scoring category.

In this analysis, the computation used to determine the Impact Ratio is as follows:

$$\text{Impact Ratio} = \frac{\text{Scoring Rate for a Demographic Category}}{\text{Scoring Rate for the Highest Scoring (Same) Category}}$$

### **Evaluation Dates**

- Data evaluation began on December 18, 2023.
- Data evaluation was completed on December 22, 2023.

## 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 December 18, 2023.

- **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** – Rows with completely missing attributes were removed.
2. **Partial Values** – Partial responses were used where data was provided.
3. **Duplicates** – Duplicate entries were removed if present.
4. **Categorization** – Data was labeled by attribute and demographic type.

## 4. Testing and Evaluation Methods

### TEST STANDARDS

Analysis of the data was conducted using mean value ratios for the determination of the Impact Ratio.

## Mean Ratio Comparison

In this analysis, a mean ratio is a comparison of two or more mean values that indicate their average values in relation to each other. The ratio referred to as the Impact Ratio compares the two averages by division, with the numerator being the smaller term and the denominator as the larger term.

As part of the evaluation, the following calculations were used.

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  $a$ s divided by  $n$  or

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

## Excluded Data

Demographic groups that represent less than 2% of the population were not used in the Impact 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. Respondent counts, and means scores are still provided in the tabulated data. The exclusion of the Impact Ratio calculation in the data tables is denoted by the identifier **EX**.

Finally, all EEO categories are represented in the tables provided. Not Applicable is denoted by the identifier **NA** and means that there were no respondents that fit the demographic category.

## 5. Evaluation Results

### Results by Sex Category

Sex Categories _ Dominant Trait			
<u>Gender</u>	<u>Count</u>	<u>Score</u>	<u>Impact Ratio</u>
Male	3,048	39.4	0.94
Female	4,856	41.7	1.00

Sex Categories _ Influencing Trait			
<u>Gender</u>	<u>Count</u>	<u>Score</u>	<u>Impact Ratio</u>
Male	3,048	51.0	0.97
Female	4,856	52.4	1.00

Sex Categories _ Steadiness			
<u>Gender</u>	<u>Count</u>	<u>Score</u>	<u>Impact Ratio</u>
Male	3,048	55.8	0.94
Female	4,856	59.4	1.00

Sex Categories _ Conscientious			
<u>Gender</u>	<u>Count</u>	<u>Score</u>	<u>Impact Ratio</u>
Male	3,048	60.9	1.00
Female	4,856	58.8	0.97



## Results by Race or Ethnicity

Race/Ethnicity Categories _Dominance Trait			
Race/Ethnicity Categories	Count	Score	Impact Ratio
Hispanic or Latino	717	42.3	0.99
White (Not Hispanic or Latino)	2,020	<b>42.9</b>	1.00
Black or African American (Not Hispanic or Latino)	438	39.7	0.92
Native Hawaiian or Pacific Islander (Not Hispanic or Latino)	37	39.2	EX
Asian (Not Hispanic or Latino)	3,984	38.5	0.90
Native American or Alaska Native (Not Hispanic or Latino)	30	44.0	EX
Two or More Races (Not Hispanic or Latino)	NA	NA	NA
Middle Eastern or Arab American	127	41.2	EX
Other	636	41.1	0.96

Race/Ethnicity Categories _Influencing Trait			
Race/Ethnicity Categories	Count	Score	Impact Ratio
Hispanic or Latino	717	54.7	0.94
White (Not Hispanic or Latino)	2,020	<b>58.2</b>	1.00
Black or African American (Not Hispanic or Latino)	438	56.1	0.96
Native Hawaiian or Pacific Islander (Not Hispanic or Latino)	37	54.6	EX
Asian (Not Hispanic or Latino)	3,984	47.2	0.81
Native American or Alaska Native (Not Hispanic or Latino)	30	55.7	EX
Two or More Races (Not Hispanic or Latino)	NA	NA	NA
Middle Eastern or Arab American	127	54.1	EX
Other	636	54.0	0.93

Race/Ethnicity Categories _Steadiness Trait			
Race/Ethnicity Categories	Count	Score	Impact Ratio
Hispanic or Latino	717	55.7	0.94
White (Not Hispanic or Latino)	2,020	56.7	0.95
Black or African American (Not Hispanic or Latino)	438	57.0	0.96
Native Hawaiian or Pacific Islander (Not Hispanic or Latino)	37	55.5	EX
Asian (Not Hispanic or Latino)	3,984	<b>59.5</b>	1.00
Native American or Alaska Native (Not Hispanic or Latino)	30	53.3	EX
Two or More Races (Not Hispanic or Latino)	NA	NA	NA
Middle Eastern or Arab American	127	55.9	EX
Other	636	56.7	0.95

Race/Ethnicity Categories _ Conscientious Trait			
Race/Ethnicity Categories	Count	Score	Impact Ratio
Hispanic or Latino	717	58.1	0.91
White (Not Hispanic or Latino)	2,020	53.2	0.84
Black or African American (Not Hispanic or Latino)	438	58.4	0.92
Native Hawaiian or Pacific Islander (Not Hispanic or Latino)	37	59.4	EX
Asian (Not Hispanic or Latino)	3,984	63.5	1.00
Native American or Alaska Native (Not Hispanic or Latino)	30	50.9	EX
Two or More Races (Not Hispanic or Latino)	NA	NA	NA
Middle Eastern or Arab American	127	58.6	EX
Other	636	59.0	0.93

### Results by Intersectional Categories

Intersectional Categories - Dominant Trait				
Sex Categories	Race & Ethnicity	Count	Score	Impact Ratio
Female	African-American	270	38.8	0.85
	Asian	2465	38.4	0.84
	Caucasian	1200	41.0	0.90
	Hawaiian or Pacific Islander	18	38.5	EX
	Latino or Hispanic	421	40.9	0.90
	Middle Eastern or Arab American	56	42.6	EX
	Native American or Alaskan Native	19	40.9	EX
	Other	407	39.6	0.87
Male	African-American	167	41.2	0.90
	Asian	1472	38.9	0.85
	Caucasian	807	45.6	1.00
	Hawaiian or Pacific Islander	19	39.9	EX
	Latino or Hispanic	288	44.5	0.98
	Middle Eastern or Arab American	71	40.1	EX
	Native American or Alaskan Native	11	49.4	EX
	Other	213	43.7	0.96

Intersectional Categories - Influencing Trait				
Sex Categories	Race & Ethnicity	Count	Score	Impact Ratio
Female	African-American	270	57.1	0.96
	Asian	2465	47.2	0.79
	Caucasian	1200	59.8	1.00
	Hawaiian or Pacific Islander	18	60.7	EX
	Latino or Hispanic	421	55.7	0.93
	Middle Eastern or Arab American	56	58.6	EX
	Native American or Alaskan Native	19	59.1	EX
	Other	407	53.9	0.90
Male	African-American	167	54.6	0.91
	Asian	1472	47.2	0.79
	Caucasian	807	55.6	0.93
	Hawaiian or Pacific Islander	19	48.8	EX
	Latino or Hispanic	288	53.5	0.90
	Middle Eastern or Arab American	71	50.6	EX
	Native American or Alaskan Native	11	49.8	EX
	Other	213	53.5	0.90

Intersectional Categories - Steadiness Trait				
Sex Categories	Race & Ethnicity	Count	Score	Impact Ratio
Female	African-American	270	58.6	0.97
	Asian	2465	60.6	1.00
	Caucasian	1200	58.7	0.97
	Hawaiian or Pacific Islander	18	57.4	EX
	Latino or Hispanic	421	57.1	0.94
	Middle Eastern or Arab American	56	54.3	EX
	Native American or Alaskan Native	19	54.9	EX
	Other	407	58.0	0.96
Male	African-American	167	54.5	0.90
	Asian	1472	57.8	0.95
	Caucasian	807	53.8	0.89
	Hawaiian or Pacific Islander	19	53.8	EX
	Latino or Hispanic	288	53.5	0.88
	Middle Eastern or Arab American	71	57.1	EX
	Native American or Alaskan Native	11	50.6	EX
	Other	213	54.5	0.90

Intersectional Categories - Consientous Trait				
Sex Categories	Race & Ethnicity	Count	Score	Impact Ratio
<b>Female</b>	African-American	270	57.6	<b>0.88</b>
	Asian	2465	62.5	<b>0.96</b>
	Caucasian	1200	52.3	<b>0.80</b>
	Hawaiian or Pacific Islander	18	56.1	<b>EX</b>
	Latino or Hispanic	421	57.7	<b>0.88</b>
	Middle Eastern or Arab American	56	54.4	<b>EX</b>
	Native American or Alaskan Native	19	48.0	<b>EX</b>
Other	407	59.2	<b>0.91</b>	
<b>Male</b>	African-American	167	59.5	<b>0.91</b>
	Asian	1472	<b>65.3</b>	<b>1.00</b>
	Caucasian	807	54.4	<b>0.83</b>
	Hawaiian or Pacific Islander	19	62.5	<b>EX</b>
	Latino or Hispanic	288	58.5	<b>0.90</b>
	Middle Eastern or Arab American	71	61.9	<b>EX</b>
	Native American or Alaskan Native	11	56.0	<b>EX</b>
Other	213	59.0	<b>0.90</b>	

## 6. Conclusions

The Assessment Standards Institute (ASI) has conducted a thorough analysis of respondent data from Assessments 24x7. This analysis focused on determining the Impact Ratio of the scoring data for the DISC assessment, as stipulated by New York City Local Law 144. The purpose of this review is to ensure compliance with established standards and guidelines.

Data and Impact Ratios are provided as directed by the law.

## Document Review

### ASI TESTING SERVICES

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**Certified Issue Date – January 2, 2024**

