

**2023 BIAS AUDIT
PARKER ANALYTICS, LLC**

Performed by Scott McClintock
Full Professor of Statistics
West Chester University
700 High Street
West Chester, PA 19383

INTRODUCTION

Parker Analytics builds talent selection algorithms to predict how well job applicants will perform, should they be hired by a client. Parker Analytics claims to do this with a proprietary talent selection algorithm that assigns an equitable measurement to each applicant (“Parker Score”). This measurement is based upon a wide range of variables uniquely determined for each client. Parker claims these measurements and resulting predictions do not discriminate based upon gender or ethnicity. The goal of this audit is to test that claim.

AUDIT SUMMARY AND RESULTS

The goal of this audit is to generate a single statistic to test Parker Analytics’ claim of unbiasedness. To do so a set of impact ratios is created, comparing white men to everyone else. These impact ratios are then combined into a weighted mean. The resulting aggregate impact ratio is 0.95, well above the recommended threshold of 0.80, hence satisfying the four-fifths rule. Based on this, the statistical audit confirms that the provided data is unbiased. Consequently, it has been shown that the algorithms employed by Parker Analytics can be reliably used by their clients to direct equitable decision-making regarding hiring practices.

METHODOLOGY

To conduct the audit, training data (“Audit Data”) is analyzed for three of Parker Analytics’ most recent clients and includes gender, ethnicity, and Parker Score. Audit Data spans 2012 to 2020 and includes 1,269 unique candidates.

Many existing hires had multiple measurements in the firms’ performance data. To accommodate this in the Audit, the median was used to compute an average Parker Score. Next, a median rating was calculated for each demographic group. Finally, an impact ratio for each group was obtained by dividing its average score by the average score for whichever group had the largest median rating. The results are summarized below:

CASE STUDY 1 (n=420)

			Average Score	Impact Ratio
Hispanic or Latino		Male (n=17)	5.488	0.888
		Female (n=23)	5.331	0.862
Not Hispanic or Latino	Male	White (n=143)	6.181	1.000
		Black (n=19)	5.569	0.901
		Asian (n=17)	5.678	0.919
		Two or More Races (n=7)	5.797	0.938
	Female	White (n=117)	5.959	0.964
		Black (n=27)	5.986	0.968
		Asian (n=39)	5.694	0.921
		Two or More Races (n=10)	5.917	0.957

CASE STUDY 2 (n=569)

			Average Score	Impact Ratio
Hispanic or Latino		Male (n=12)	5.788	0.862
		Female (n=4)	6.444	0.959
Not Hispanic or Latino	Male	White (n=211)	6.526	0.972
		Black (n=20)	6.706	0.999
		Asian (n=35)	5.376	0.800
		Two or More Races (n=2)	4.470	0.666
	Female	White (n=183)	6.716	1.000
		Black (n=29)	6.628	0.987
		Asian (n=62)	6.062	0.903
		Two or More Races (n=11)	5.484	0.817

Case Study 3 (n=280)

			Average Score	Impact Ratio
Hispanic or Latino		Male (n=7)	5.800	0.929
		Female (n=10)	5.386	0.863
Not Hispanic or Latino	Male	White (n=123)	6.243	1.000
		Black (n=2)	5.141	0.823
		Asian (n=19)	5.018	0.804
		Two or More Races (n=3)	4.589	0.735
	Female	White (n=81)	5.860	0.939
		Black (n=9)	5.815	0.931
		Asian (n=20)	4.771	0.764
		Two or More Races (n=6)	5.379	0.862