Bias Detection Report

Correlation Bias Analysis Report

Dataset Analyzed: Statlog.csv

Features Examined:

- Foreign Worker Status

- Credit Risk (Good/Bad)

Bias Type: Correlation

Tools Used:

- Chi-Square Test

- Cramér's V

- Elift

- Statistical Parity

- Lipschitz Function

- Total Variation Distance

Values Obtained:

- **Chi-Square Statistic:** 5.82

- **p-value:** 0.0158

- **Cramér's V:** 0.076

- **Elift:** 1.27

- **Statistical Parity (Max Z-value):** 0.419

- **Lipschitz (Max Delta):** 0.419

- **Total Variation Distance:** 0.192

Bias Severity:

- **Chi-Square Test:** Indicates a significant association

- **Cramér's V and Elift:** No significant bias

- **Statistical Parity and Lipschitz:** Moderate bias

- **Total Variation Distance:** Minimal bias

Natural Language Interpretation

The analysis indicates that while there is a statistically significant association between Foreign Worker status and Credit Risk, the strength of this association is weak, as indicated by Cramér's V and Elift values. However, moderate bias levels suggested by Statistical Parity and Lipschitz methods suggest potential disparities in distribution that should be considered in credit risk assessments.

Recommendations

Given the findings, particularly the moderate bias detected in Statistical Parity and Lipschitz results, caution should be exercised when using Foreign Worker status as a factor in credit risk evaluations. Consider further analysis or adjustments to mitigate identified biases.