Bias Detection Report

Bias Detection and Analysis Report: Distribution of Household Roles

1. Bias Type: Distribution

2. Relevant Feature: 'relationship'

3. Analysis Methods and Results:

- Shannon Entropy and Balance Metric: Shannon entropy = 2.154, Balance = 0.833 (Level 3: Moderate Bias)

- Max/Min Ratio: Ratio = 13.448 (Level 4: Significant Bias)

- Gini Index: Adjusted Gini Index = 0.879 (Level 2: Minimal Bias)

- Relative Risk: Normalized Bias Score = 13.449 (Level 4: Significant Bias)

- Kolmogorov-Smirnov (K-S) Test: K-S Statistic = 0.333, P-value = 0.931 (No significant difference from uniform distribution)

4. Visualization:

5. Additional Explanation: The analysis shows that roles such as 'Husband' and 'Not-in-family' are significantly more common, suggesting a skewed distribution that could affect interpretations relying on household role balance.