Fairness Query Q for Statistical Parity Difference

SELECT

ABS(male.avg_pred - female.avg_pred) AS statistical_parity_difference

FROM

Subquery Q1

(SELECT AVG(prediction) AS avg_pred FROM adult WHERE gender = 'Male') AS male,

(SELECT AVG(prediction) AS avg_pred FROM adult WHERE gender = 'Female') AS female;

Subquery Q2

Ignore ABS for simplicity

$Q = Q1 - Q2$

$CUB(Q) = CUB(Q1) - CLB(Q2)$

$CLB(Q) = CLB(Q1) - CUB(Q2)$

Estimates and Bounds for Subqueries