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Supplementary Materials for

Gender composition predicts gender bias: A meta-reanalysis of hiring discrimination audit experiments

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This PDF file includes:

Sections S1 to S6
Figs. S1.1 to S6.63
Table S2.1
References

S1 Standard meta-analysis

Figure S1.1 shows a standard forest plot of the 57 studies in our database. On average, the effect of being a woman (versus a man) is a 1.2 percentage point increase in callback (SE: 0.4).

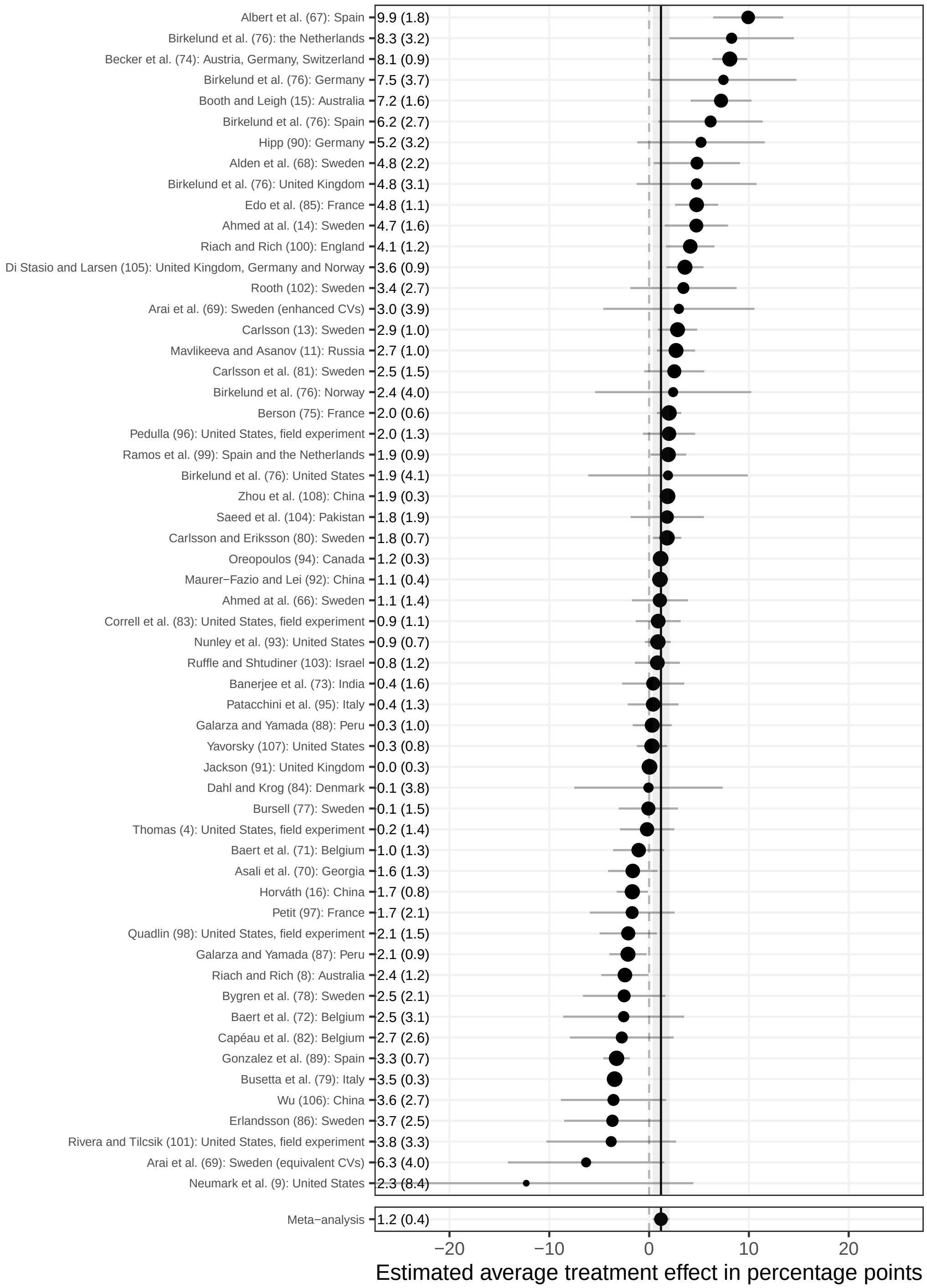


Figure S1.1: Standard meta-analysis. Points are sized proportionally to the weight received by the study in the random effects meta-analysis estimation.

S2 Study manifest

Table S2.1 lists the field experiments included in our meta-analysis, along with the total sample size, the number of occupations, and whether the study's design allowed us to include it in our analyses by majority versus minority status.

Table S2.1: Gender discrimination audit field experiment study manifest

Study	N subjects	N occupations	Included in majority/minority
Neumark et al. (9): United States	130	1	No
Rivera and Tilcsik (101): United States, field experiment	316	1	No
Birkelund et al. (76): United States	502	6	No
Birkelund et al. (76): Norway	547	6	No
Birkelund et al. (76): Germany	717	6	No
Birkelund et al. (76): United Kingdom	786	6	No
Hipp (90): Germany	820	1	No
Baert et al. (72): Belgium	864	1	No
Petit (97): France	942	1	No
Birkelund et al. (76): Spain	959	6	No
Birkelund et al. (76): the Netherlands	982	6	No
Baert et al. (71): Belgium	1152	1	No
Saeed et al. (104): Pakistan	1216	1	No
Correll et al. (83): United States, field experiment	1276	1	No
Wu (106): China	1344	1	No
Capéau et al. (82): Belgium	1607	1	No
Erlandsson (86): Sweden	1643	3	No
Riach and Rich (100): England	1746	4	No
Rooth (102): Sweden	1970	7	No
Riach and Rich (8): Australia	1982	7	No
Thomas (4): United States, field experiment	2096	4	No
Quadlin (98): United States, field experiment	2106	1	No
Bygren et al. (78): Sweden	2144	13	No
Patacchini et al. (95): Italy	2320	7	No
Pedulla (96): United States, field experiment	2420	4	No
Albert et al. (67): Spain	2760	3	No
Ahmed at al. (14): Sweden	3254	15	No
Booth and Leigh (15): Australia	3365	4	No
Bursell (77): Sweden	3636	1	No
Ahmed at al. (66): Sweden	3990	10	No
Berson (75): France	5000	1	No
Jackson (91): United Kingdom	5120	1	No
Ruffle and Shtudiner (103): Israel	5312	10	No
Gonzalez et al. (89): Spain	5620	18	No
Carlsson et al. (81): Sweden	5662	3	No
Carlsson and Eriksson (80): Sweden	6066	7	No
Yavorsky (107): United States	6302	1	No
Horváth (16): China	6404	2	No
Carlsson (13): Sweden	6456	13	No
Becker et al. (74): Austria, Germany, Switzerland	6690	2	No
Mavlikeeva and Asanov (11): Russia	8328	6	No
Zhou et al. (108): China	19130	4	No
Maurer-Fazio and Lei (92): China	24192	4	No
Arai et al. (69): Sweden (equivalent CVs)	566	5	Yes
Arai et al. (69): Sweden (enhanced CVs)	584	5	Yes
Dahl and Krog (84): Denmark	800	24	Yes
Banerjee et al. (73): India	1324	2	Yes
Alden et al. (68): Sweden	1350	2	Yes
Asali et al. (70): Georgia	2200	9	Yes
Galarza and Yamada (88): Peru	3828	3	Yes
Galarza and Yamada (87): Peru	4820	3	Yes
Ramos et al. (99): Spain and the Netherlands	9231	7	Yes
Nunley et al. (93): United States	9396	6	Yes
Di Stasio and Larsen (105): United Kingdom, Germany and Norway	9425	10	Yes
Oreopoulos (94): Canada	12910	21	Yes
Edo et al. (85): France	18144	3	Yes
Busetta et al. (79): Italy	21998	1	Yes

Figure S2.2 presents an evidence map of audit experiments that measure gender-based hiring discrimination by country and time, organized by continent. We see one early study in Australia in the 1980s, followed by one study in the United States in the 1990s. We see a boom in audit experiments beginning around 2005 in Europe, North America, and Oceania. We have some evidence from Asian countries, but relatively little from African or South American countries.

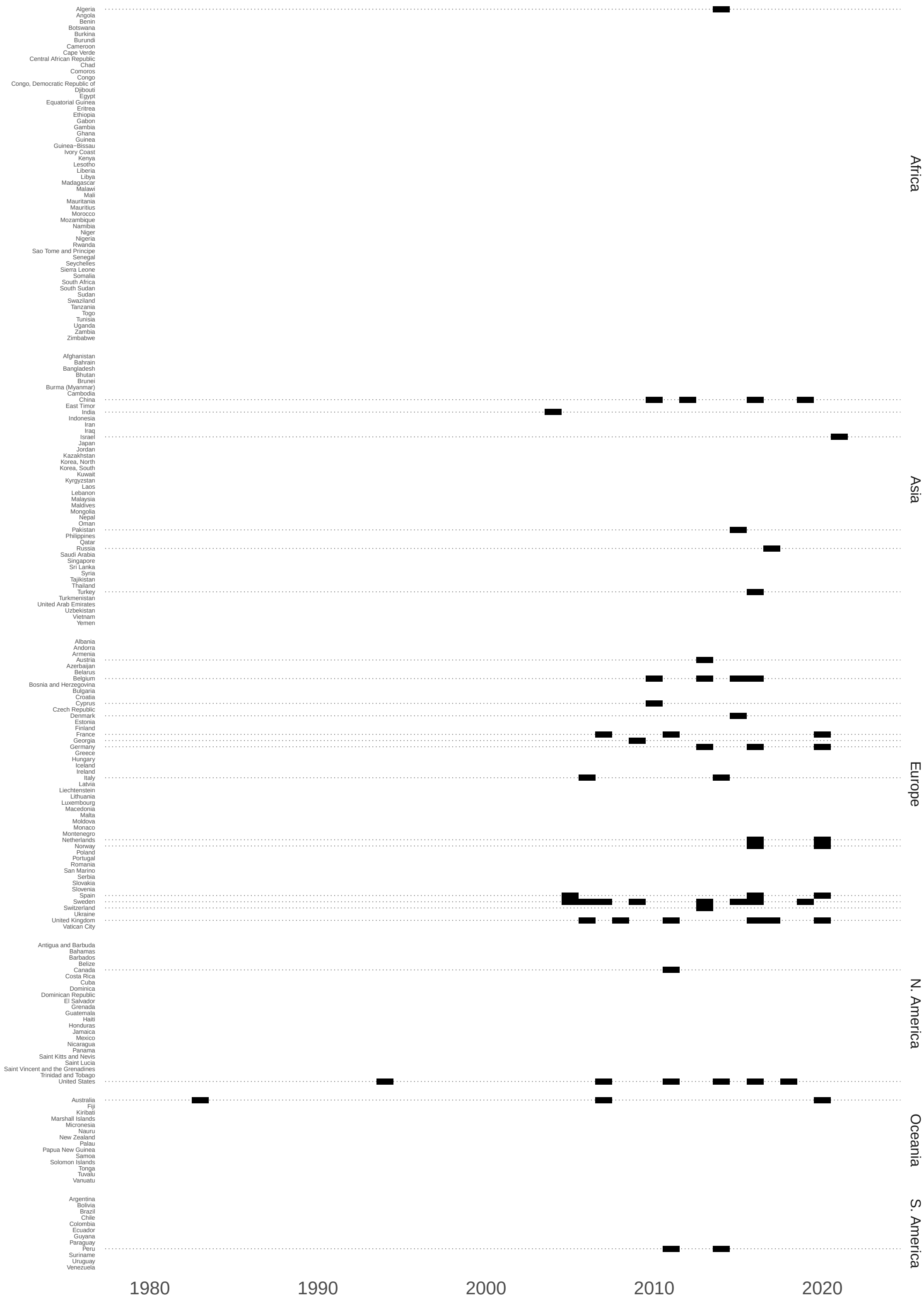


Figure S2.2: Evidence map of audit studies of gender-based hiring discrimination

S3 Survey experimental estimates

In addition to the audit field experiments discussed in the main text, we also collected 12 vignette survey experiments that simulated hiring settings and asked survey respondents how they would evaluate hypothetical job applicants. In these experiments, the “hiring decision” outcome is usually a rating of how likely the respondent would be to hire the applicant in hypothetical hiring scenario, e.g., “How likely is it that you would consider a person with the resume displayed above for the advertised job? (0-10).” To maintain comparability with the field experimental estimates, we dichotomize this variable into a binary “hiring decision.”

We followed the same reanalysis procedure for the survey experiments as we did for the field experiments. We estimated CATEs separately at the occupation level and merged in gender composition data from the International Labor Organization.

Figure S3.3 compares CATE estimates derived from vignette survey experiments to CATEs derived from audit field experiments. Despite the obvious differences across experimental mode and context, we find that the gender gradient (the slope with respect to gender composition) is very similar across the two experimental settings. That said, the relatively small number of survey experiments renders the comparison somewhat imprecise.

In Figure S3.4 we also provide a standard meta-analytic summary of the average effects in each survey experiment. The results are in line with the field experimental summary shown in Figure S1.1.

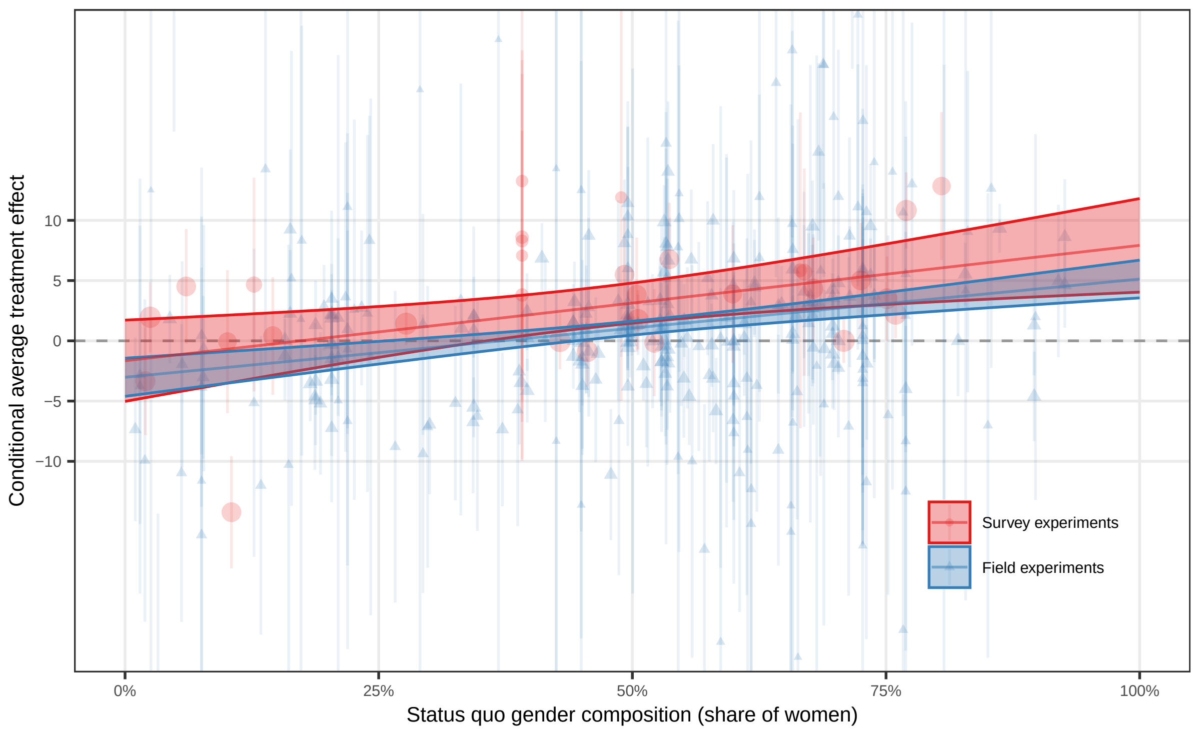


Figure S3.3: Comparison of the gender gradient across survey and field experimental meta-reanalyses. Survey experimental estimates are plotted with red circles and field experimental estimates with blue triangles. All points are sized proportionally to the meta-analytic weights.

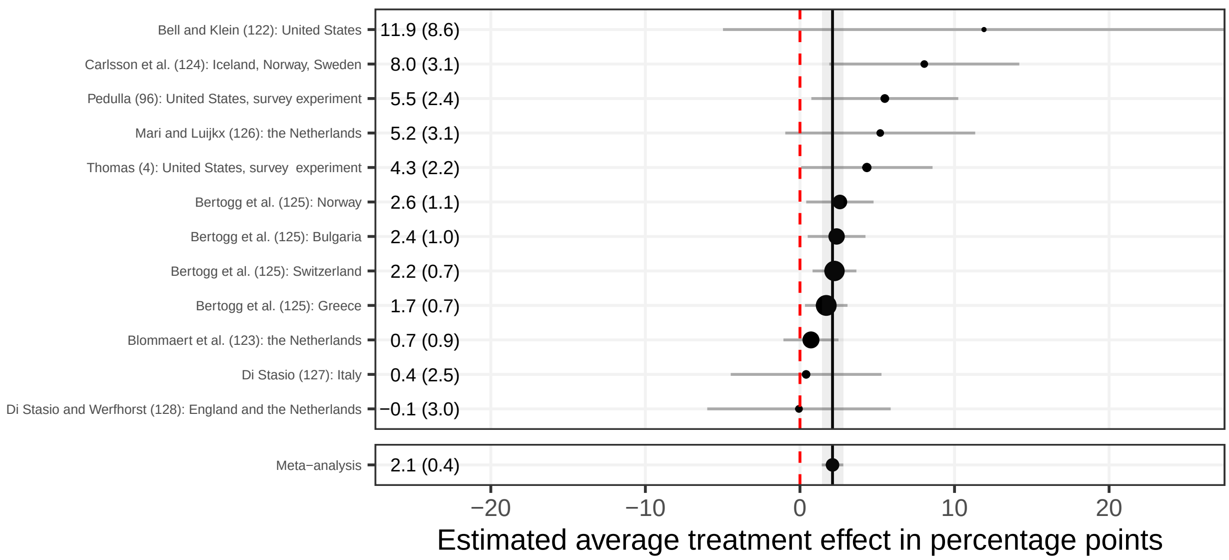


Figure S3.4: Standard meta-analysis of hypothetical hiring survey experiments. Points are sized proportionally to the weight received by the study in the random effects meta-analysis estimation.

S4 Study by study estimates

In this section, we provide study-by-study occupation-level CATEs. In the top panel of each figure, we provide occupation-level CATEs. When we have a sufficient number of CATEs (3), we can estimate a study-level gender gradient, which we report in the bottom panels of these figures. The 37 gender gradients we are able to estimate are meta-analyzed in Figure S5.62.

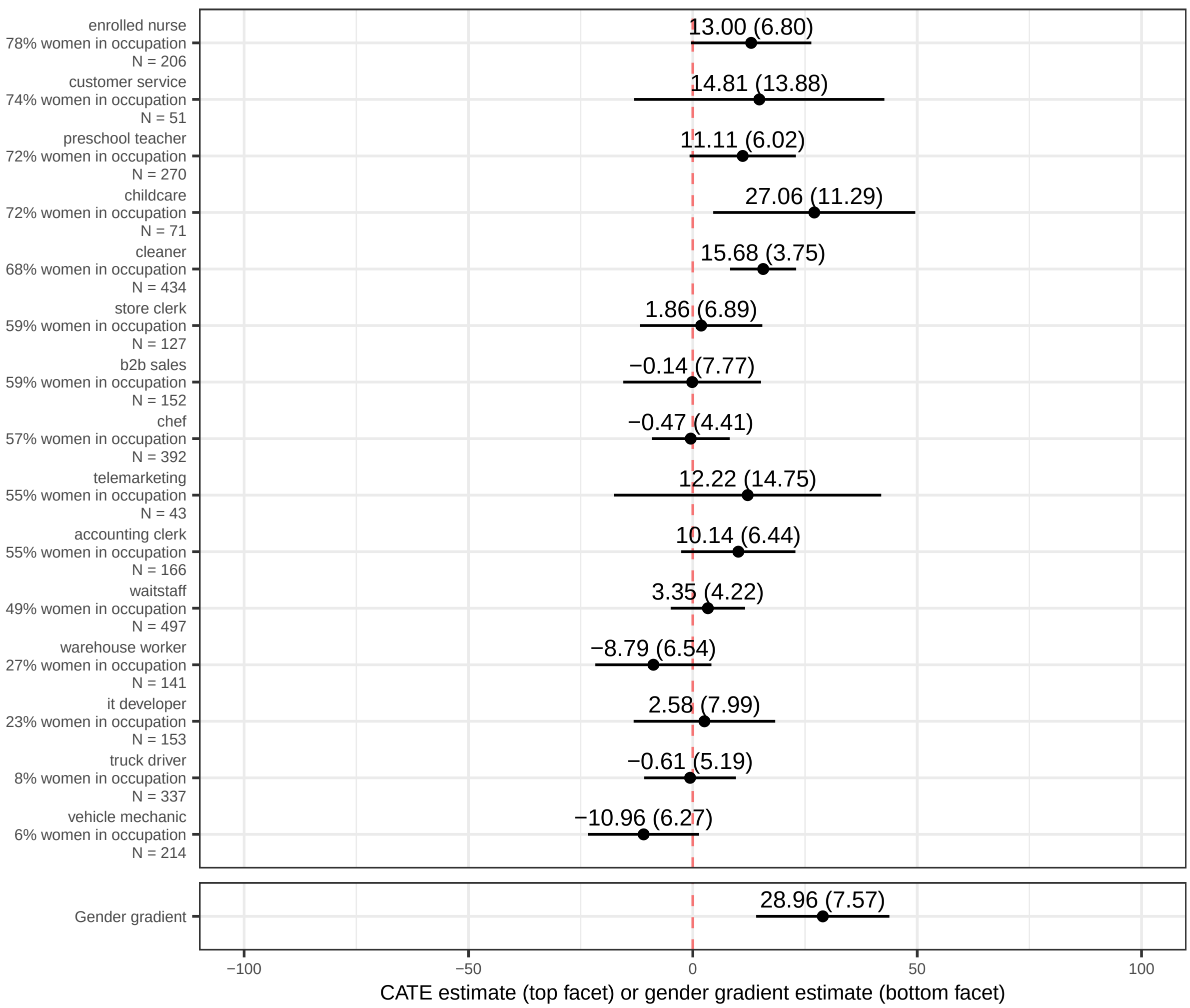


Figure S4.5: Ahmed at al. (14): Sweden

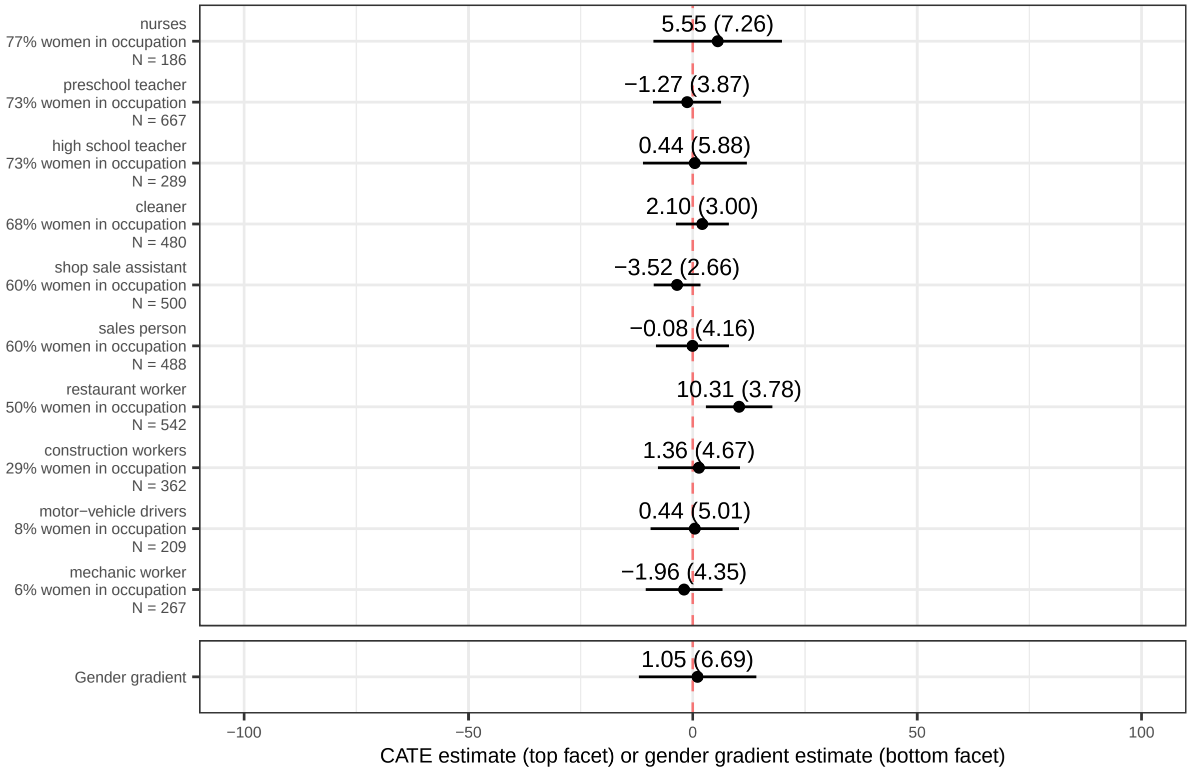


Figure S4.6: Ahmed at al. (66): Sweden

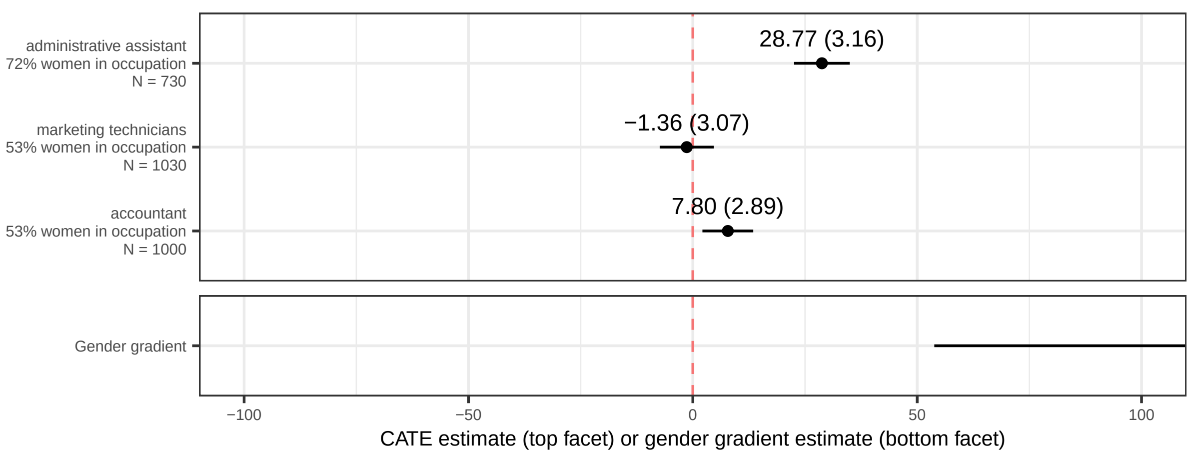


Figure S4.7: Albert et al. (67): Spain

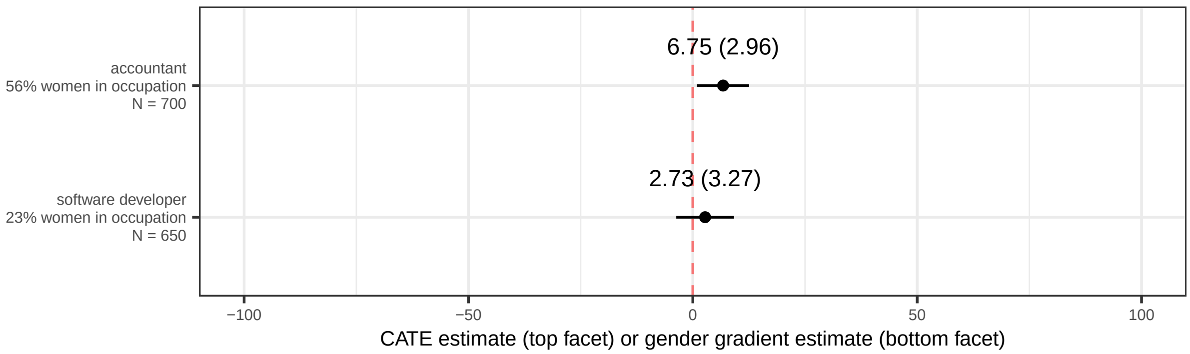


Figure S4.8: Alden et al. (68): Sweden

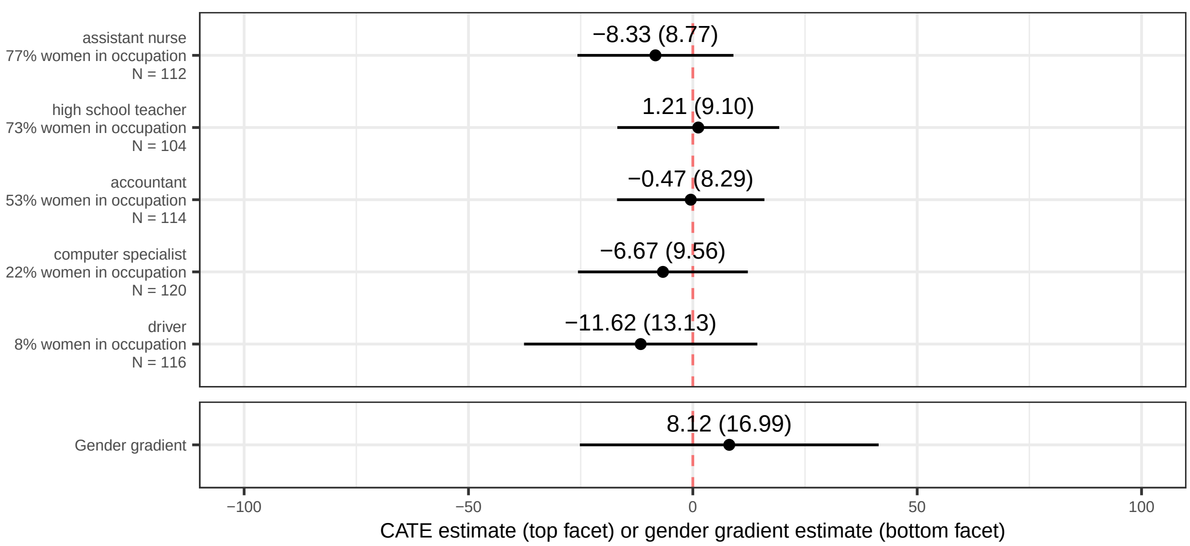


Figure S4.9: Arai et al. (69): Sweden (equivalent CVs)

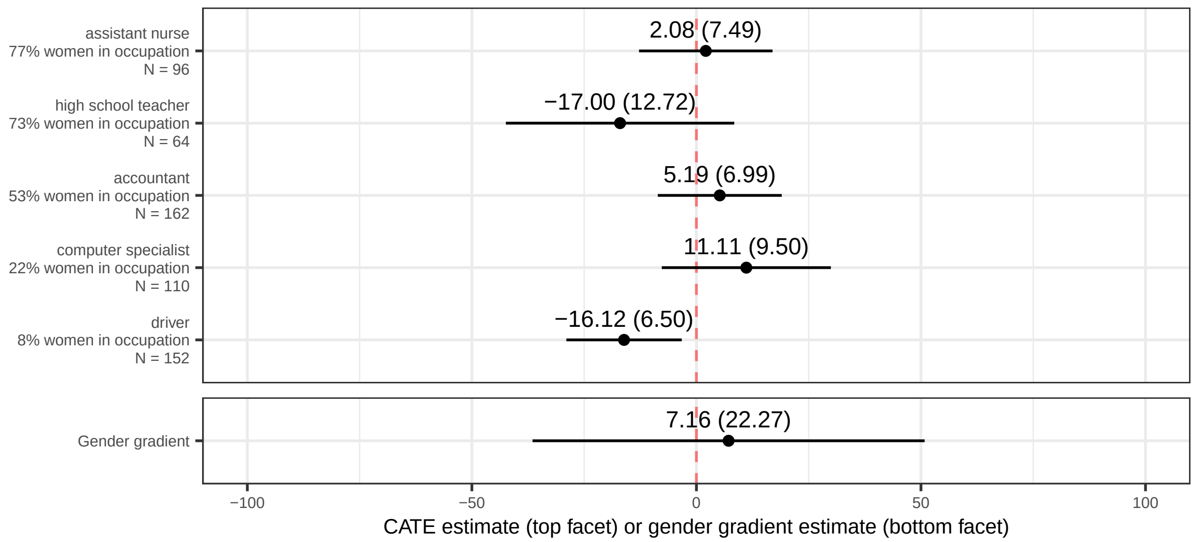


Figure S4.10: Arai et al. (69): Sweden (enhanced CVs)

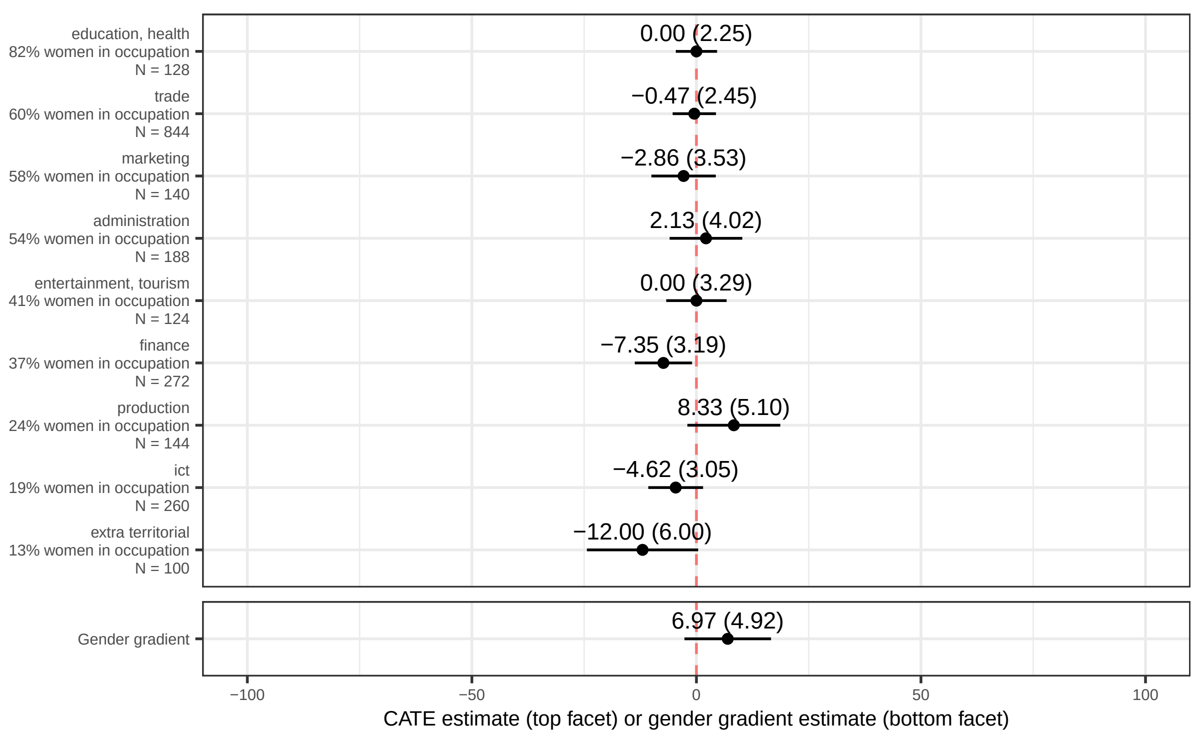


Figure S4.11: Asali et al. (70): Georgia

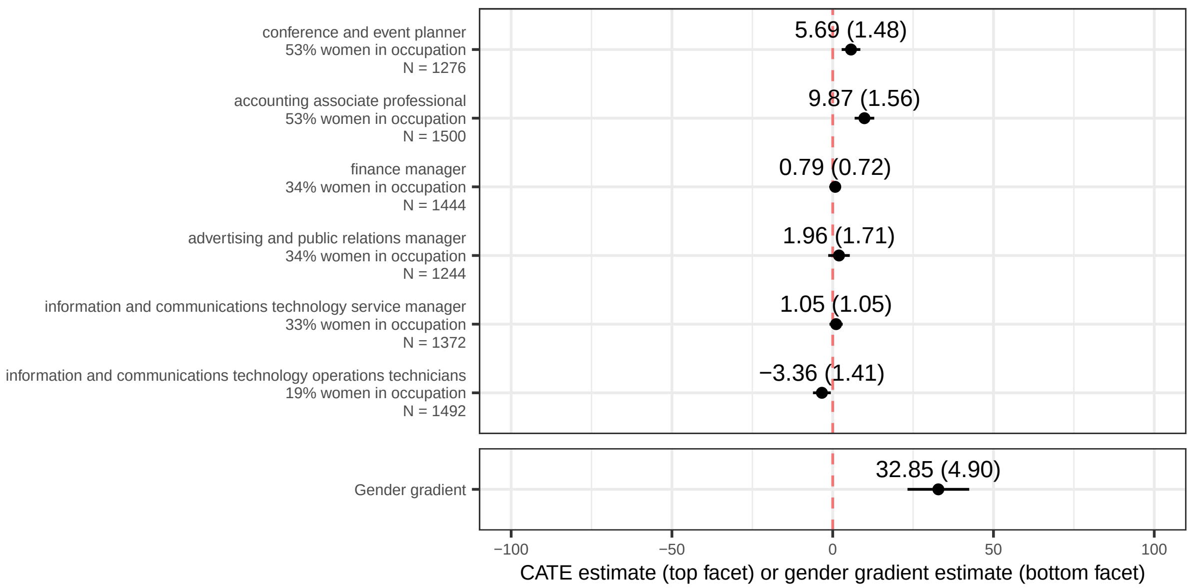


Figure S4.12: Mavlikeeva and Asanov (11): Russia

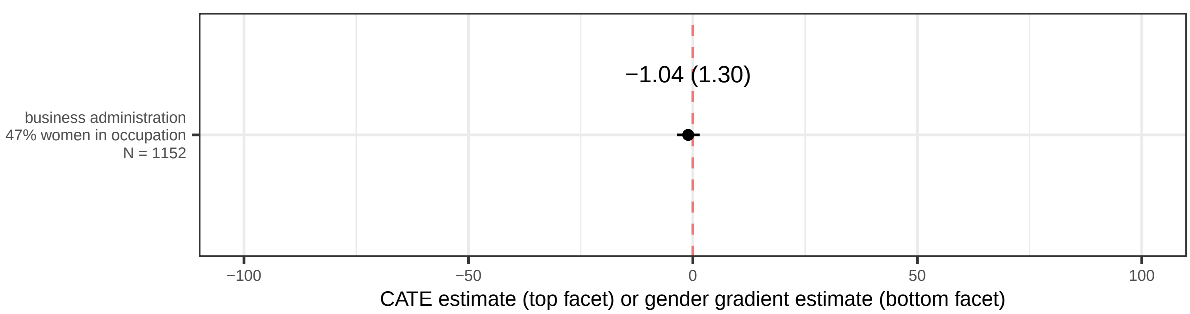


Figure S4.13: Baert et al. (71): Belgium

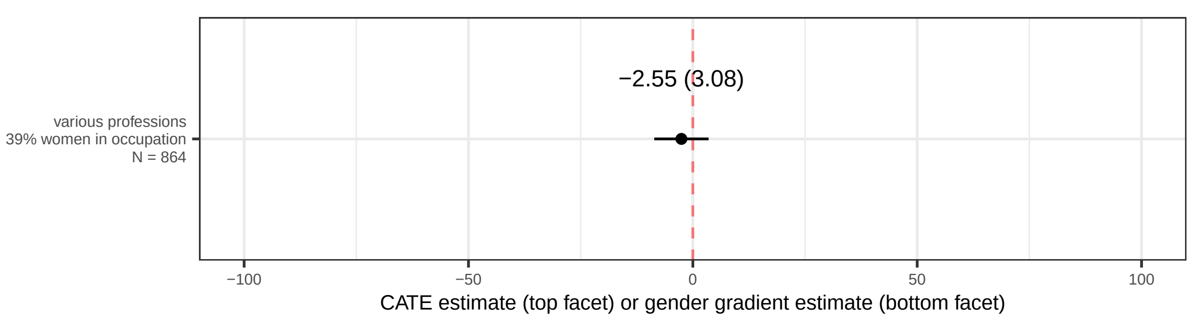


Figure S4.14: Baert et al. (72): Belgium

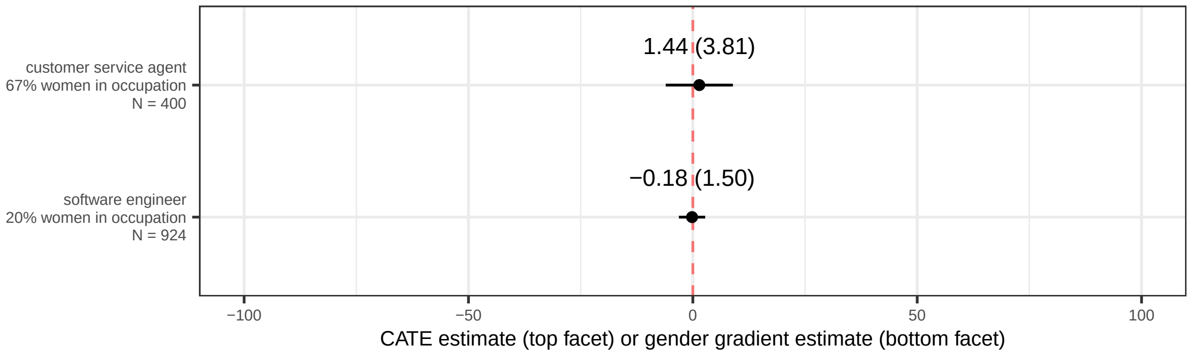


Figure S4.15: Banerjee et al. (73): India

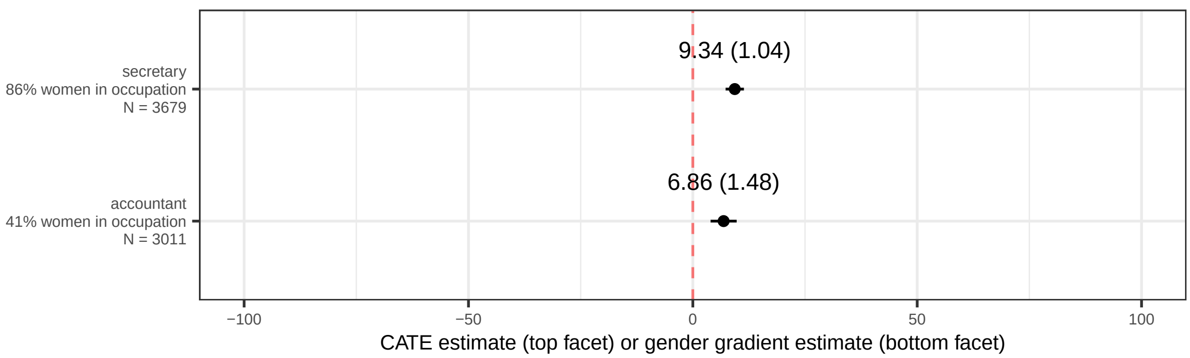


Figure S4.16: Becker et al. (74): Austria, Germany, Switzerland

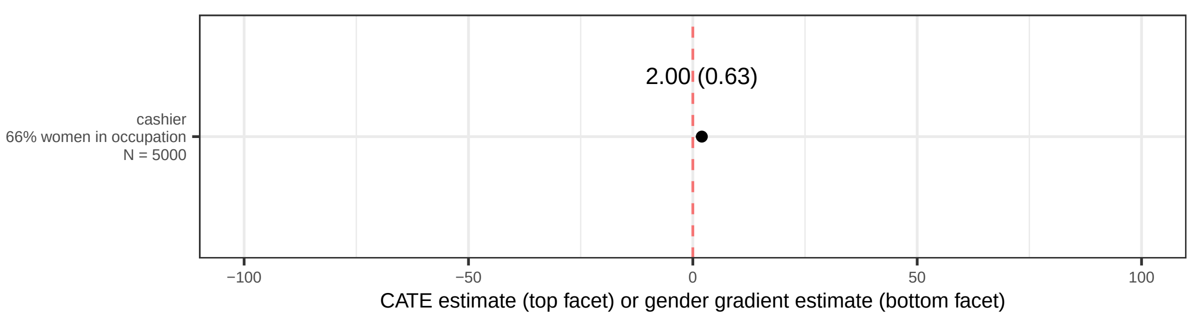


Figure S4.17: Berson (75): France

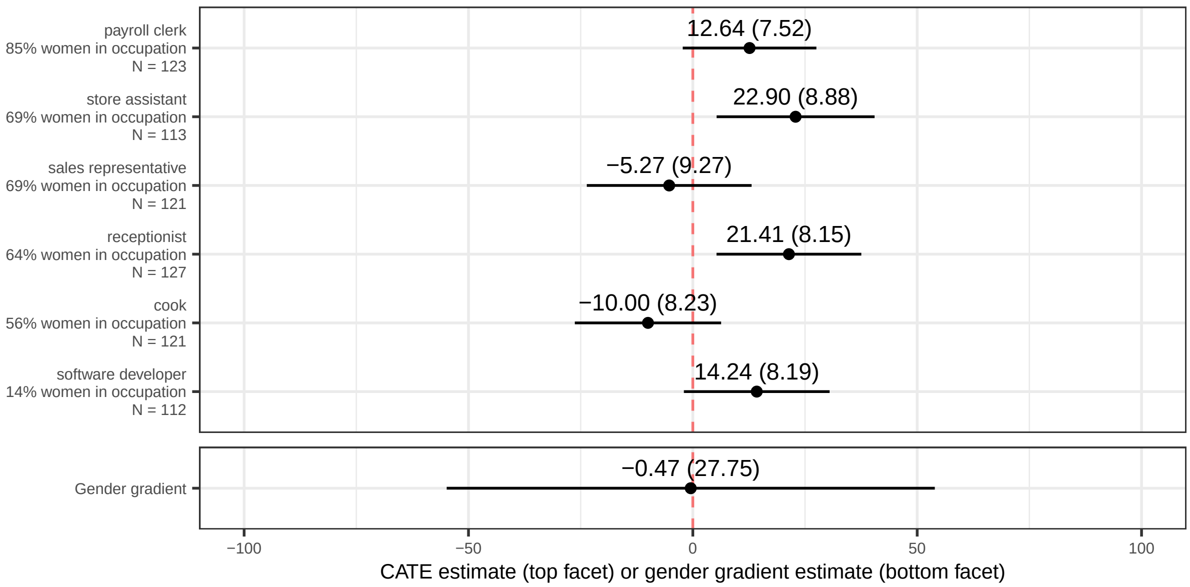


Figure S4.18: Birkelund et al. (76): Germany

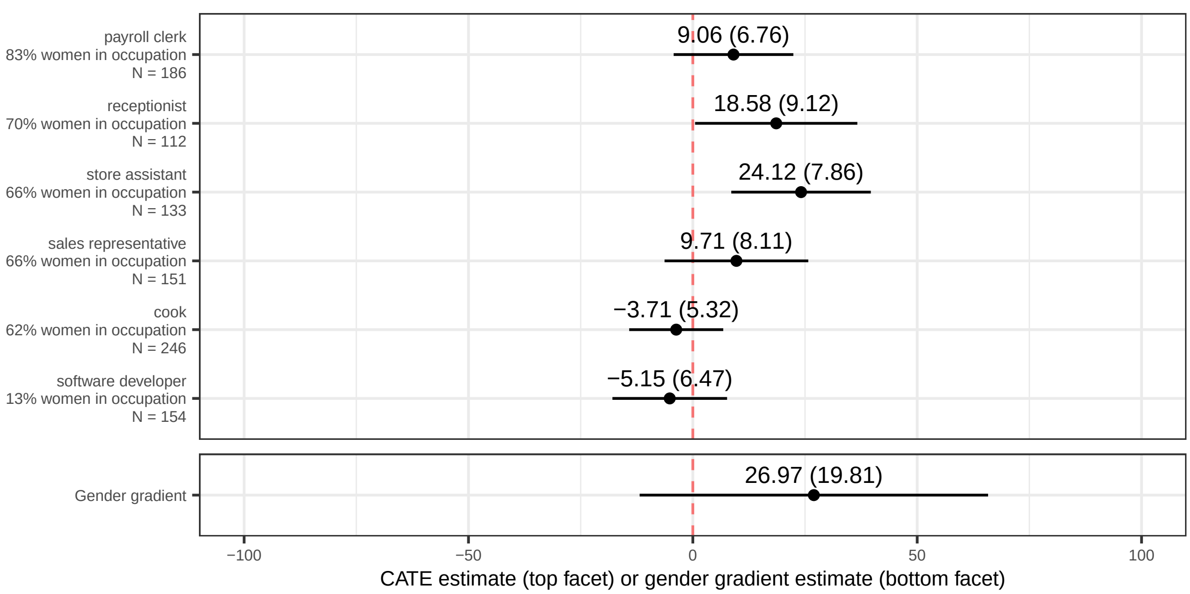


Figure S4.19: Birkelund et al. (76): the Netherlands

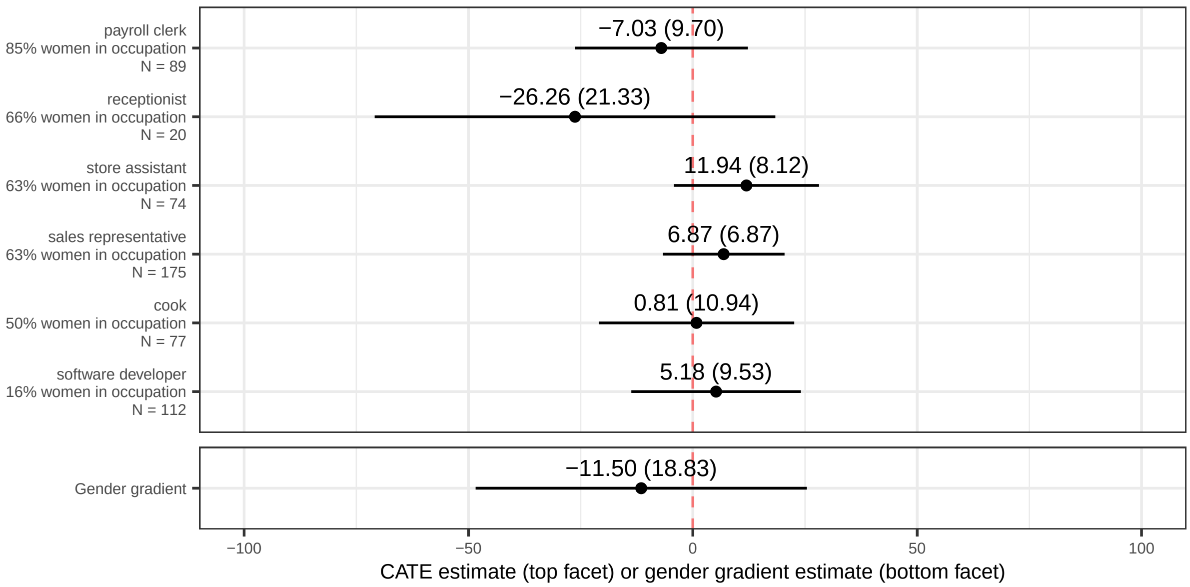


Figure S4.20: Birkelund et al. (76): Norway

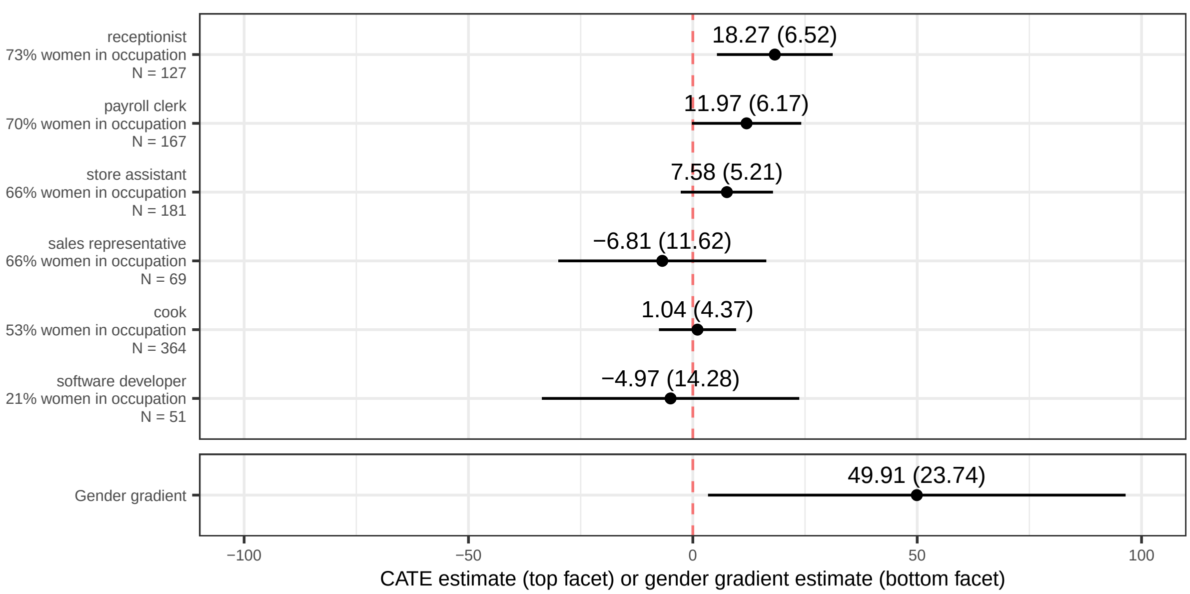


Figure S4.21: Birkelund et al. (76): Spain

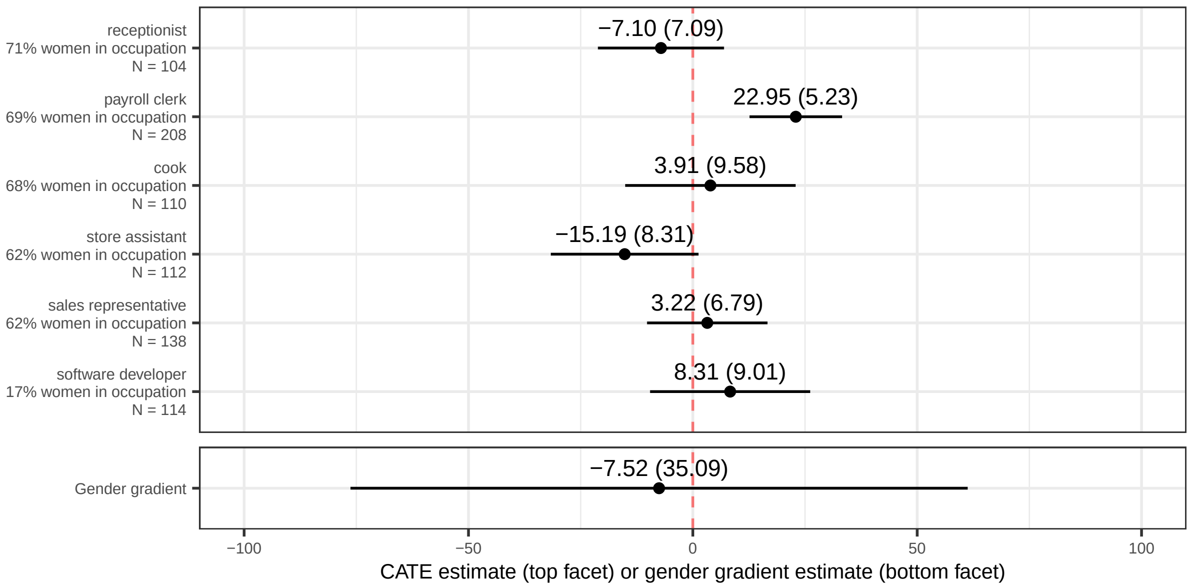


Figure S4.22: Birkelund et al. (76): United Kingdom

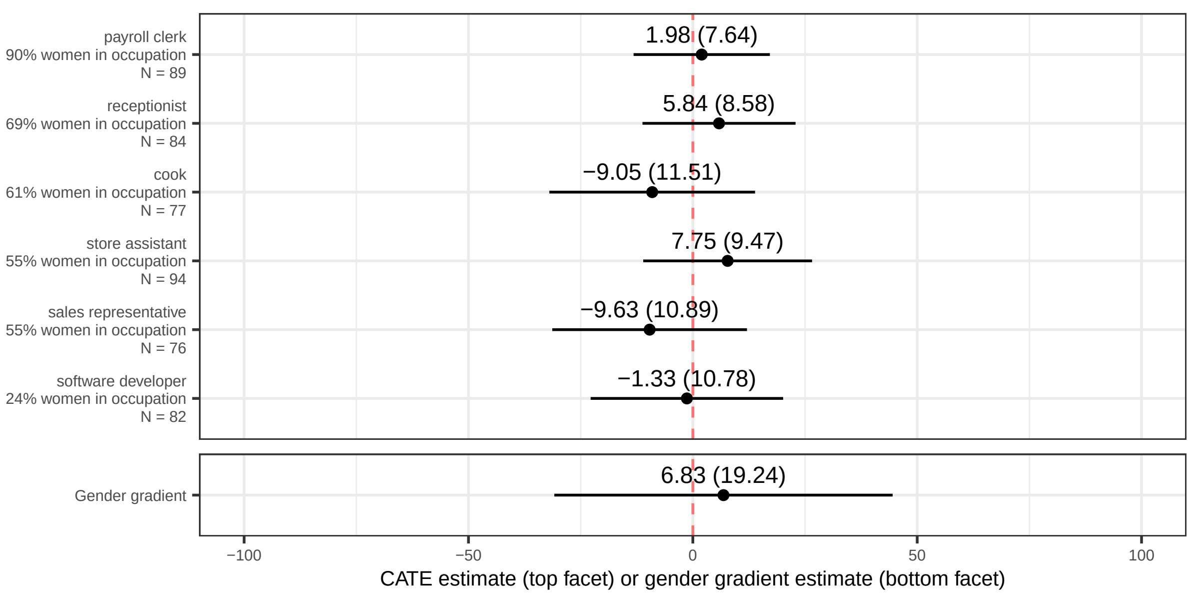


Figure S4.23: Birkelund et al. (76): United States

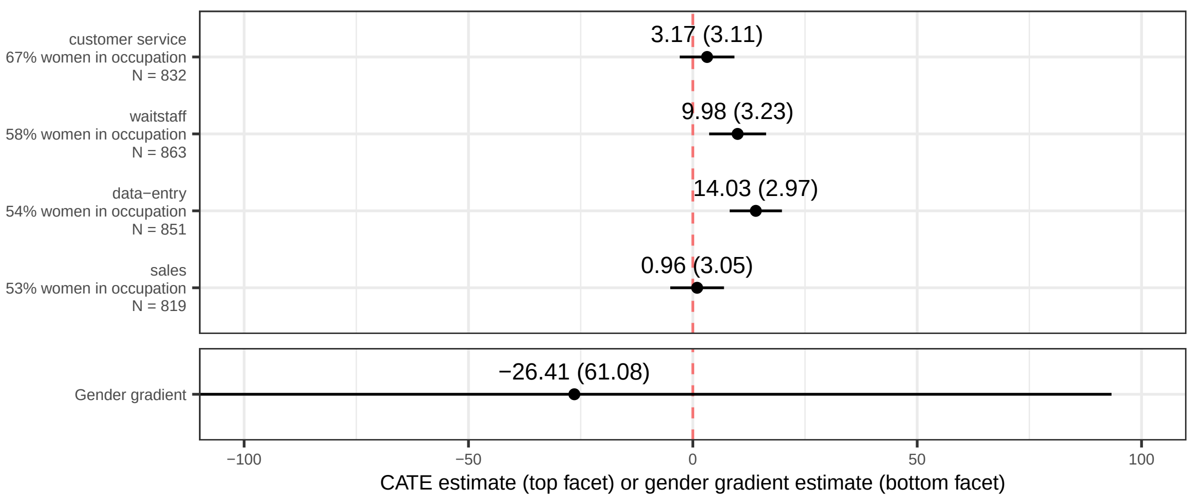


Figure S4.24: Booth and Leigh (15): Australia

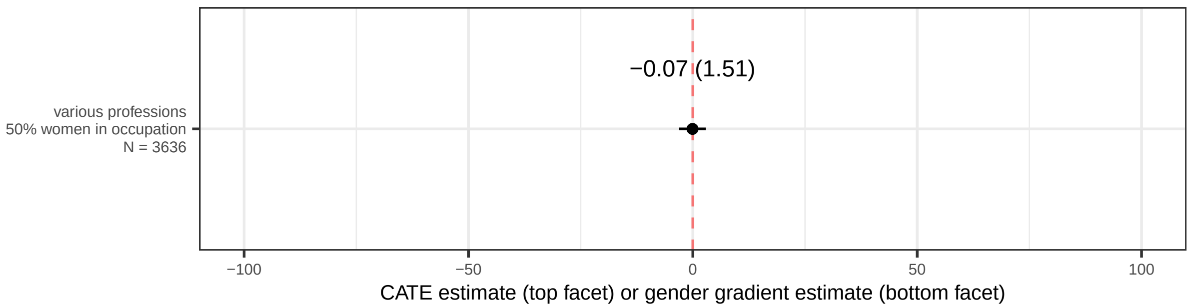


Figure S4.25: Bursell (77): Sweden

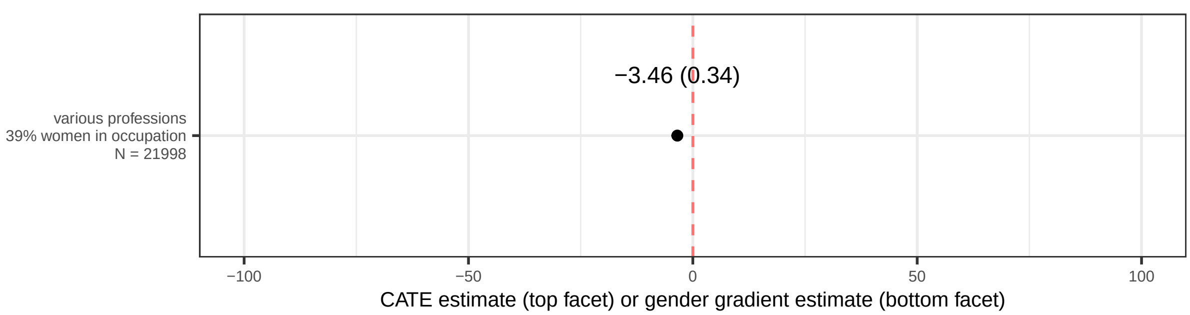


Figure S4.26: Busetta et al. (79): Italy

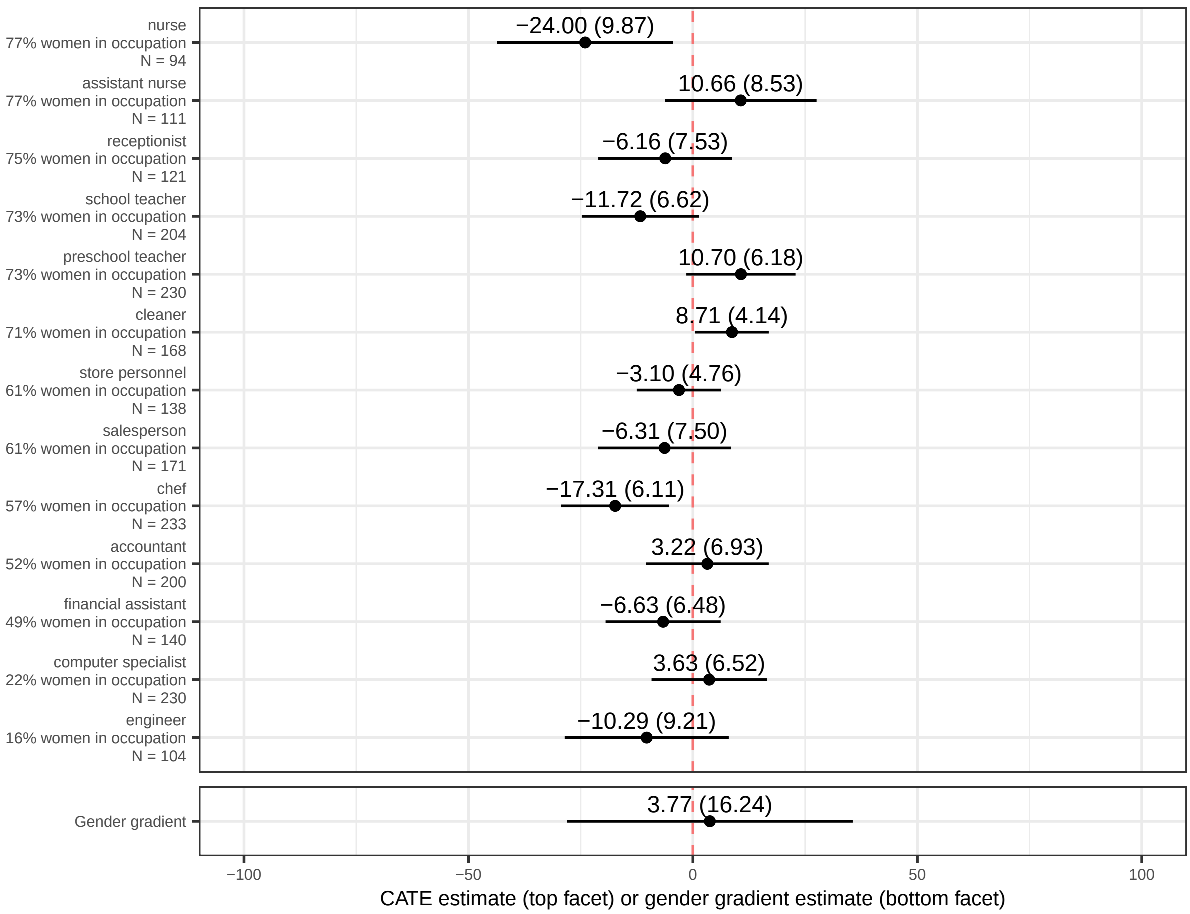


Figure S4.27: Bygren et al. (78): Sweden

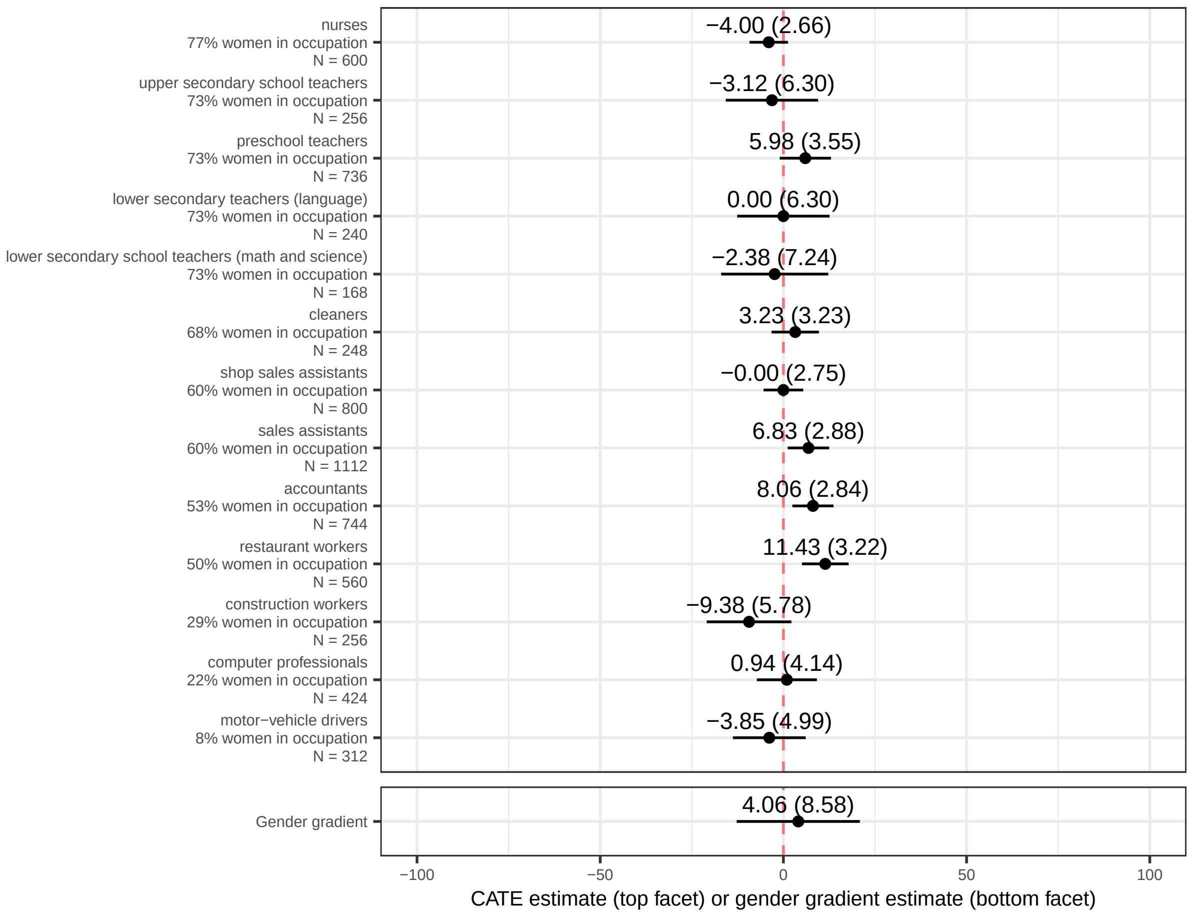


Figure S4.28: Carlsson (13): Sweden

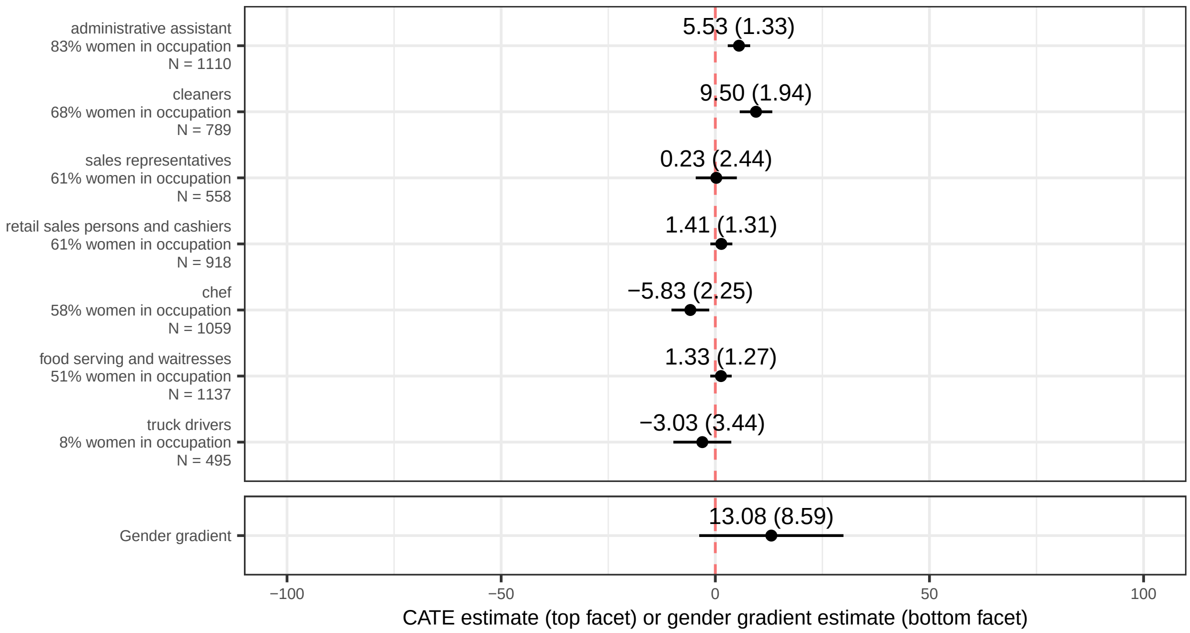


Figure S4.29: Carlsson and Eriksson (80): Sweden

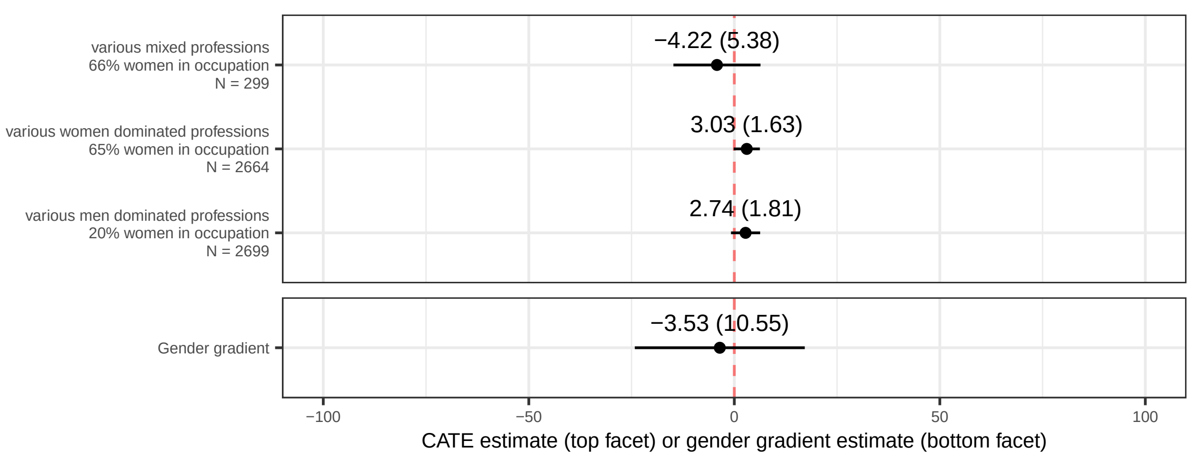


Figure S4.30: Carlsson et al. (81): Sweden

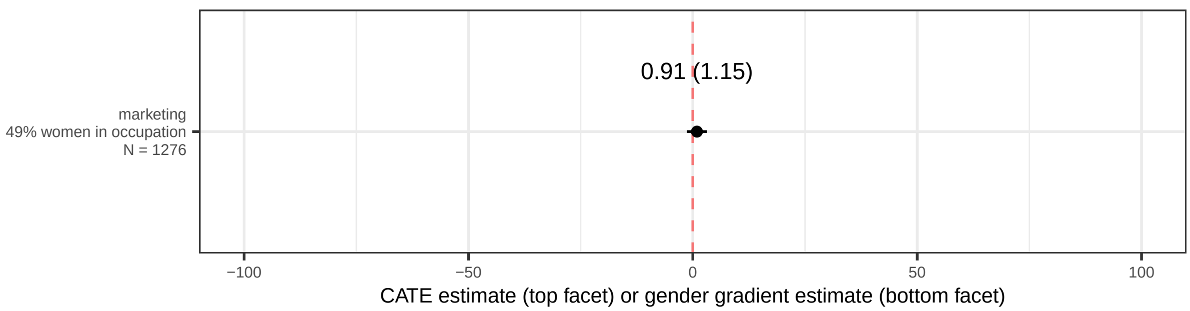


Figure S4.31: Correll et al. (83): United States, field experiment

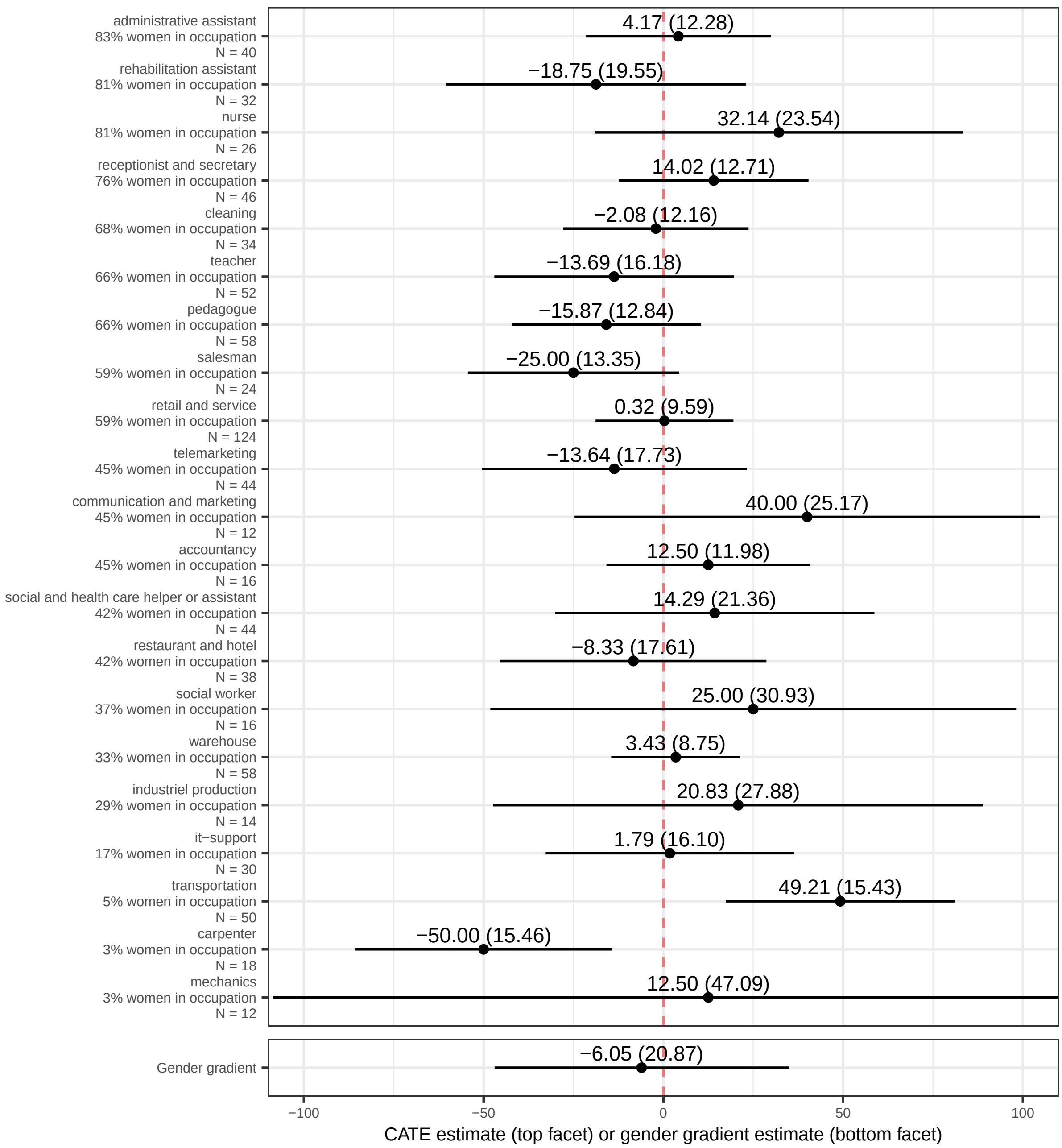


Figure S4.32: Dahl and Krog (84): Denmark

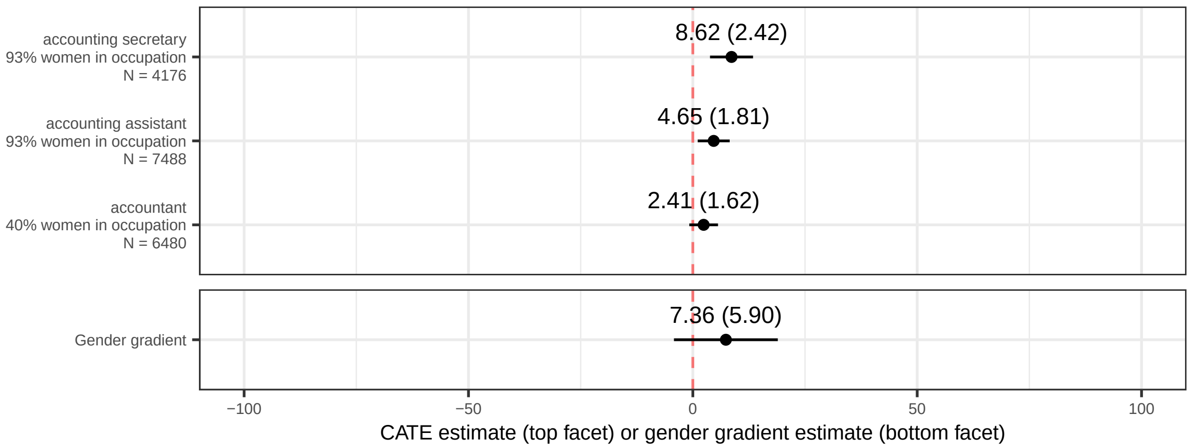


Figure S4.33: Edo et al. (85): France

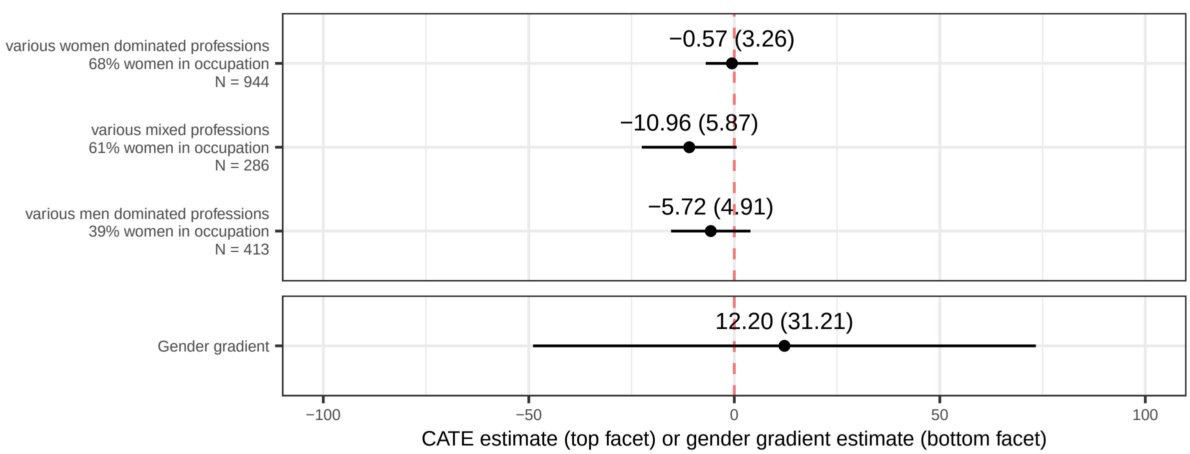


Figure S4.34: Erlandsson (86): Sweden

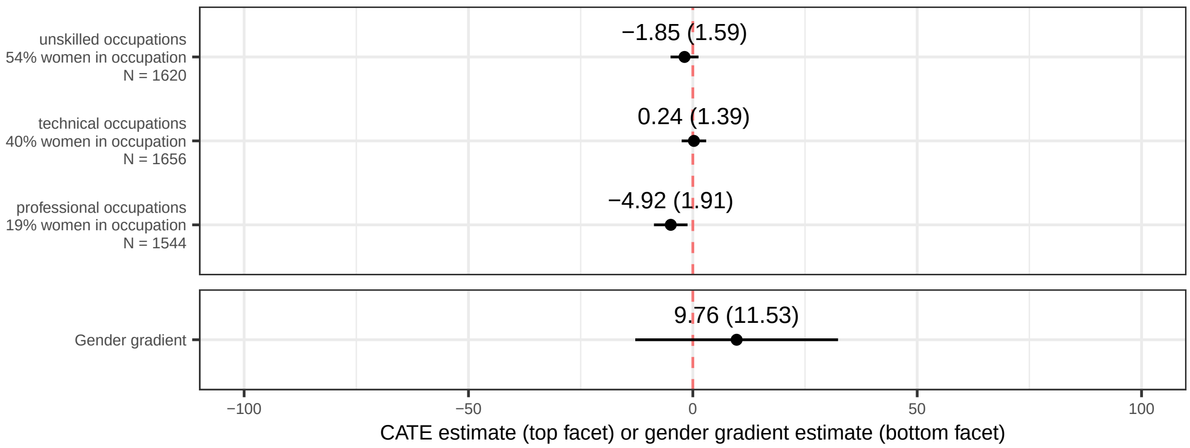


Figure S4.35: Galarza and Yamada (87): Peru

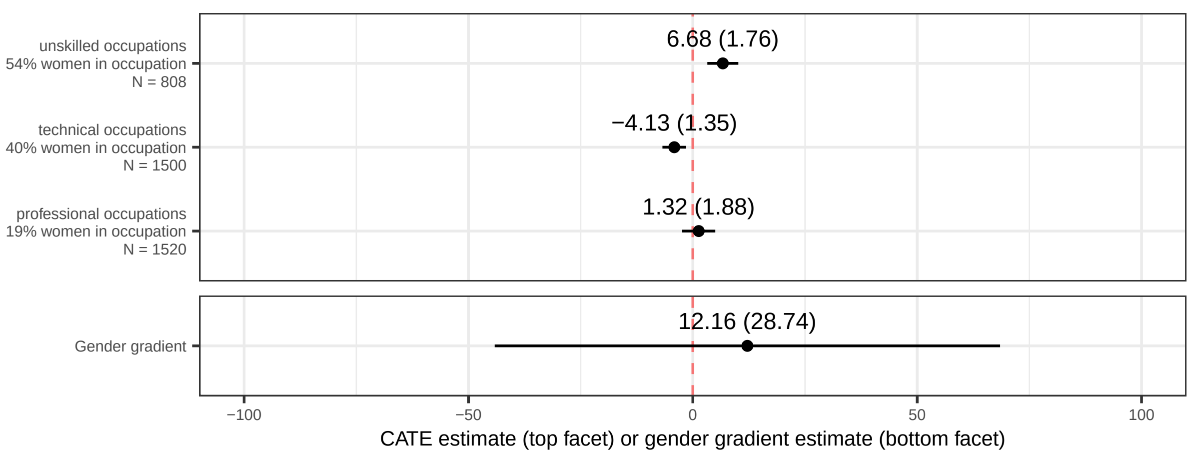


Figure S4.36: Galarza and Yamada (88): Peru

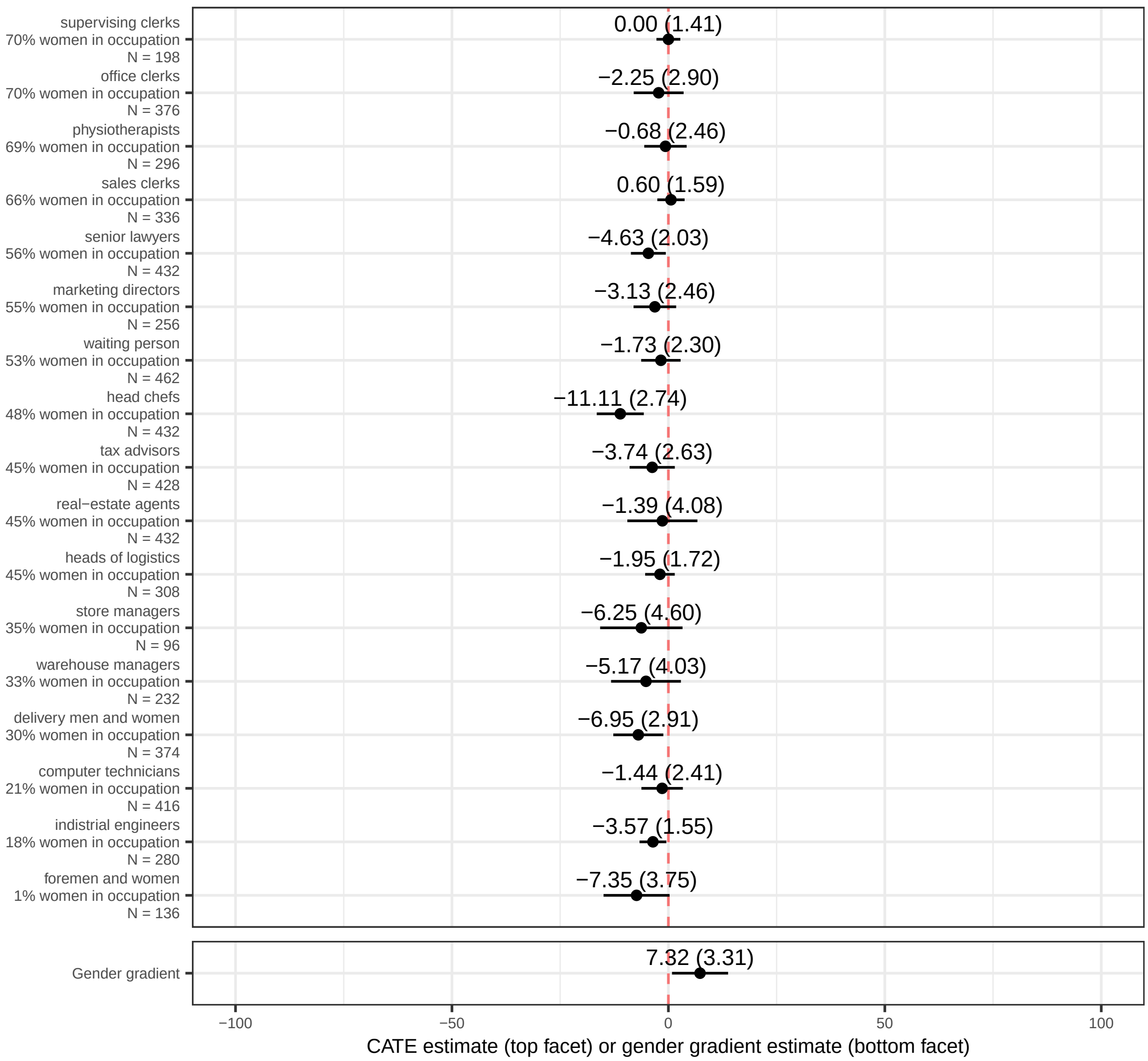


Figure S4.37: Gonzalez et al. (89): Spain

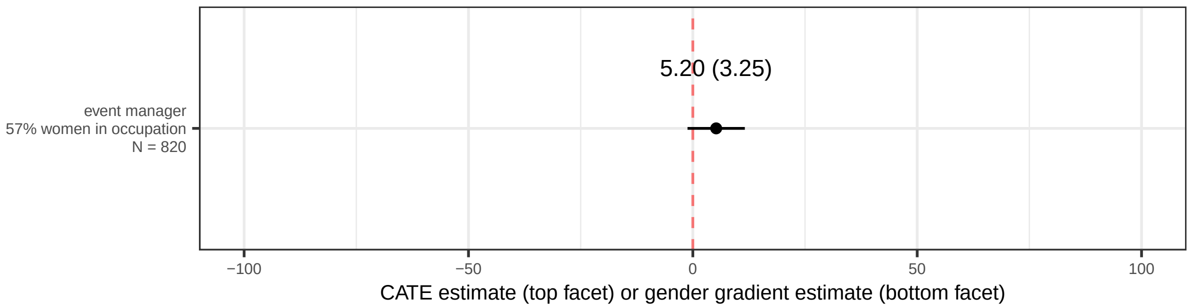


Figure S4.38: Hipp (90): Germany

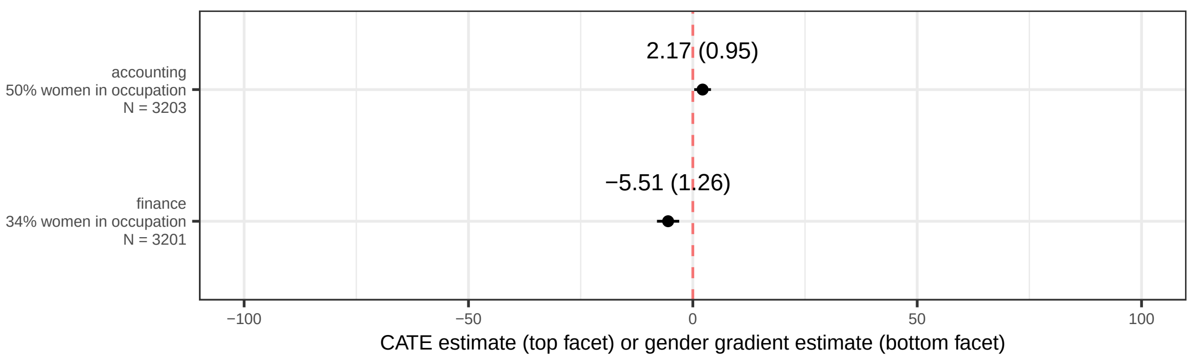


Figure S4.39: Horváth (16): China

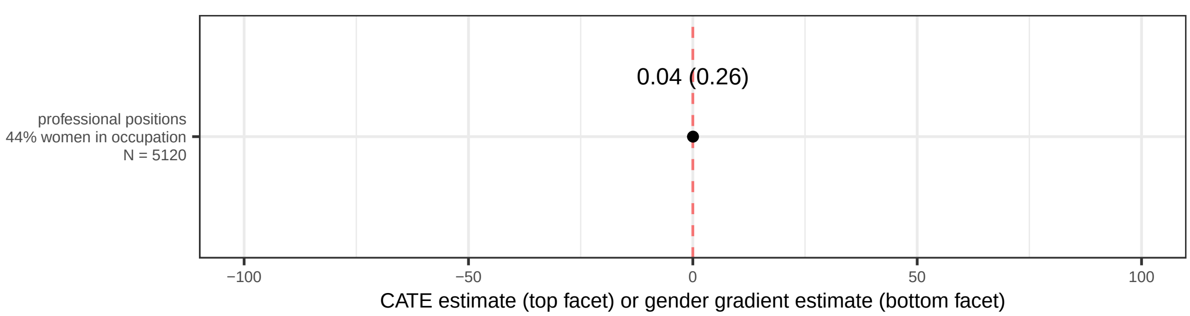


Figure S4.40: Jackson (91): United Kingdom

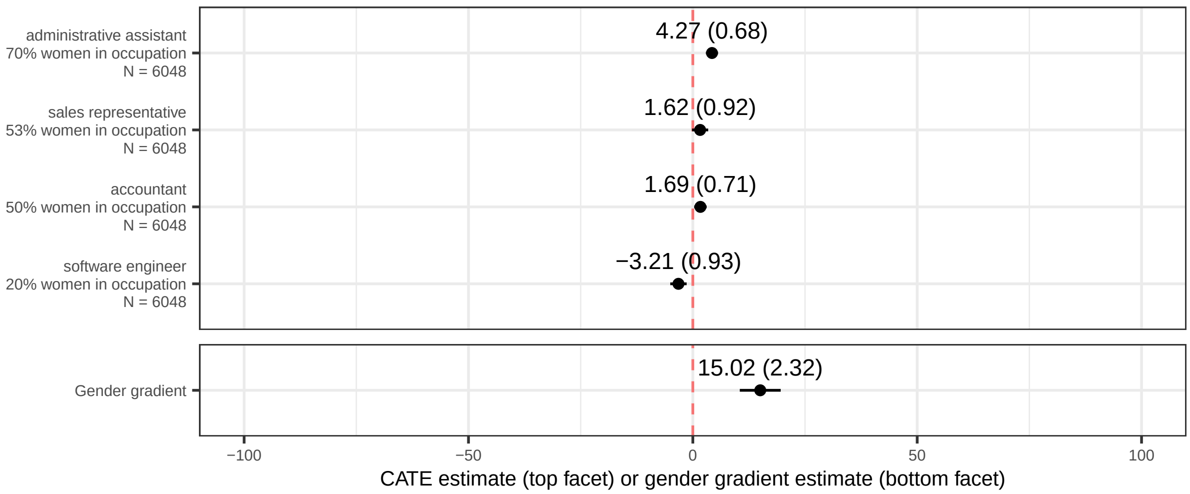


Figure S4.41: Maurer-Fazio and Lei (92): China

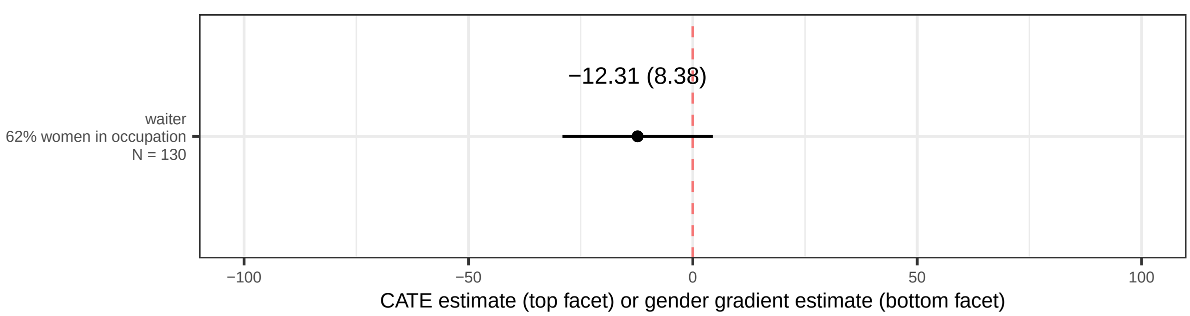


Figure S4.42: Neumark et al. (9): United States

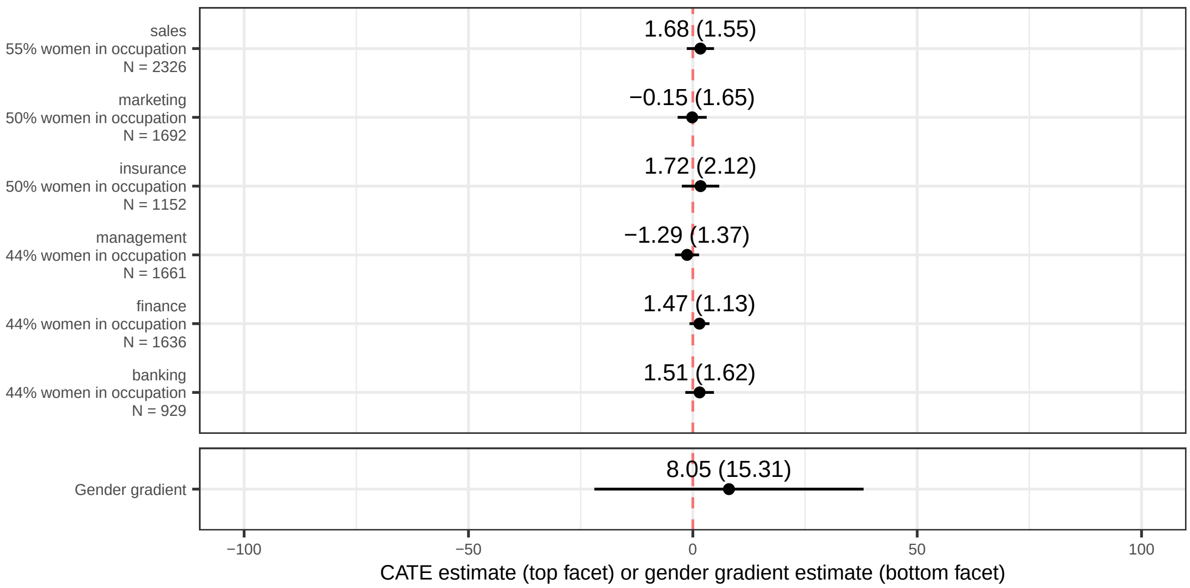


Figure S4.43: Nunley et al. (93): United States

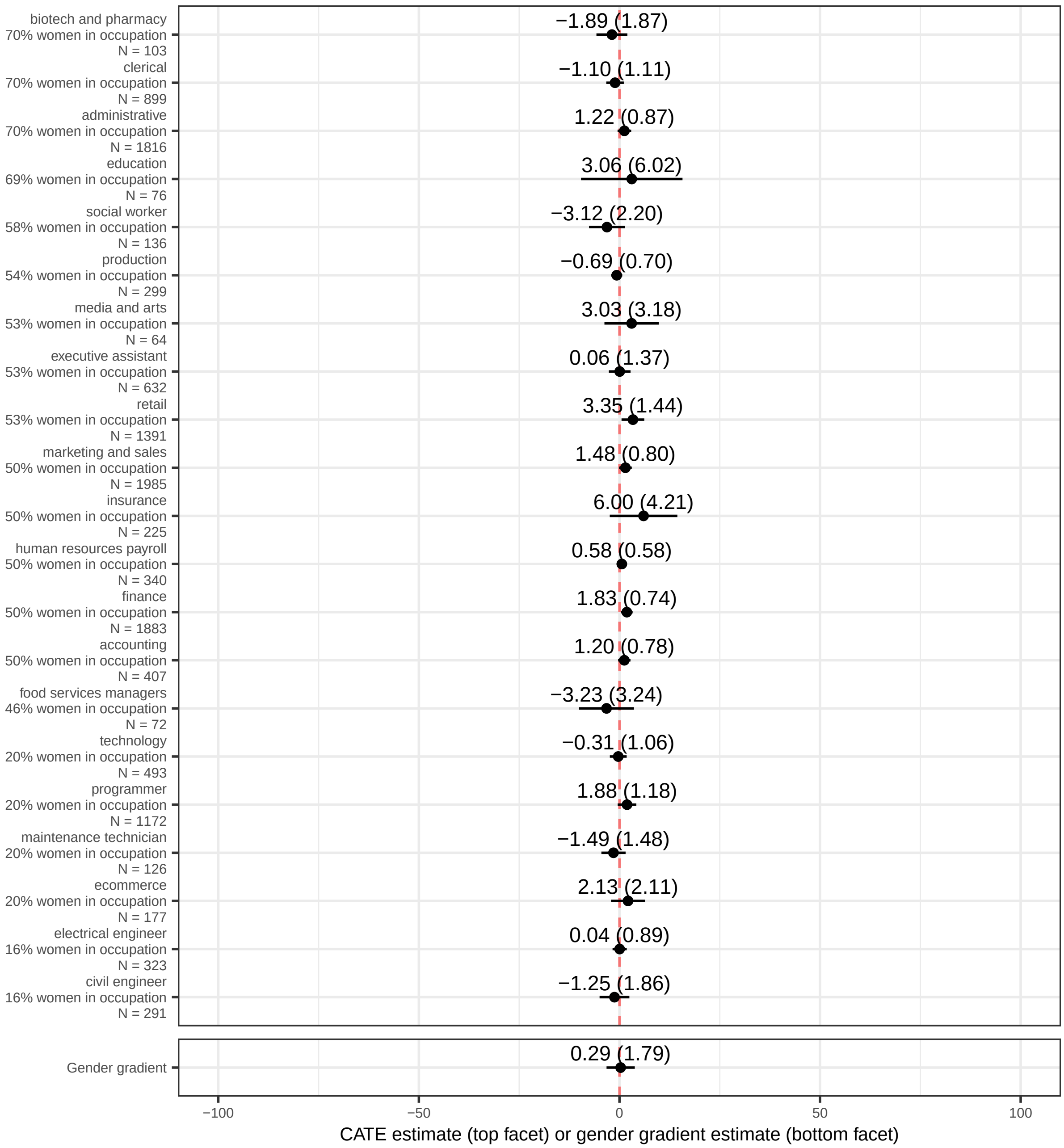


Figure S4.44: Oreopoulos (94): Canada

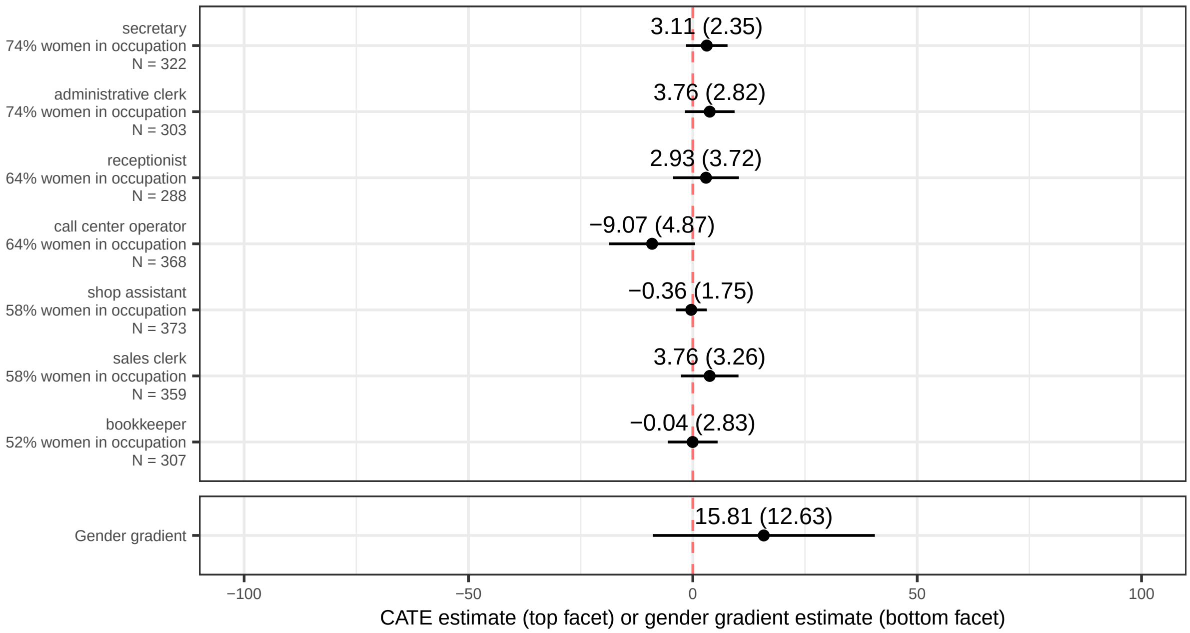


Figure S4.45: Patacchini et al. (95): Italy

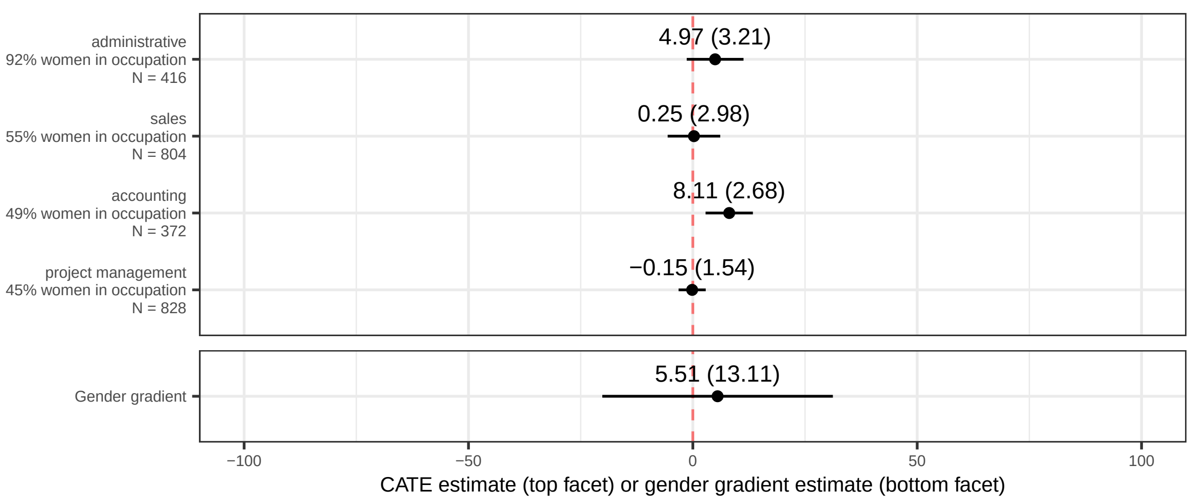


Figure S4.46: Pedulla (96): United States, field experiment

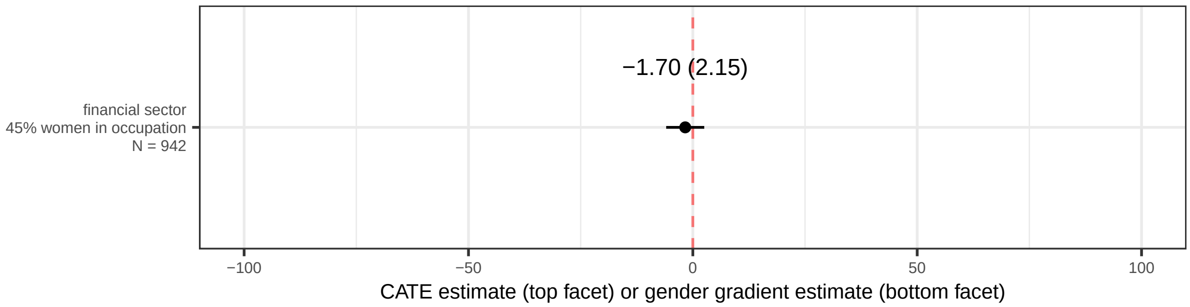


Figure S4.47: Petit (97): France

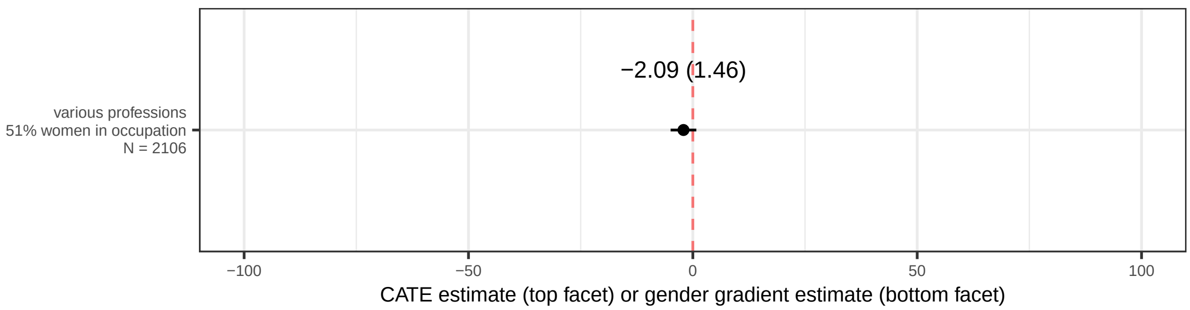


Figure S4.48: Quadlin (98): United States, field experiment

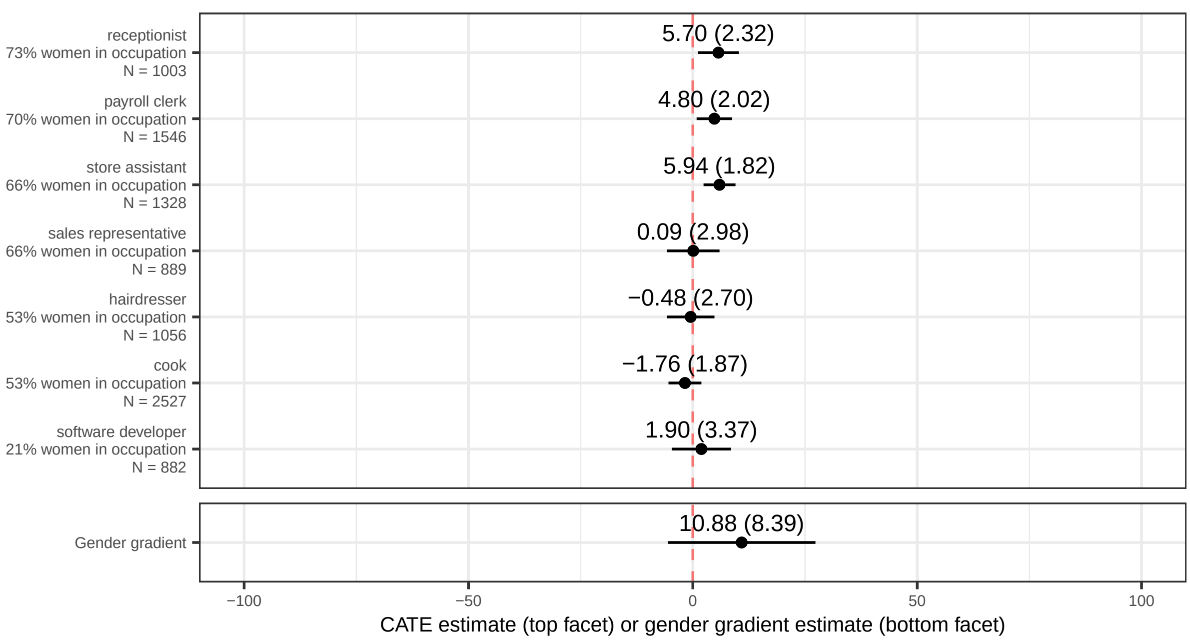


Figure S4.49: Ramos et al. (99): Spain and the Netherlands

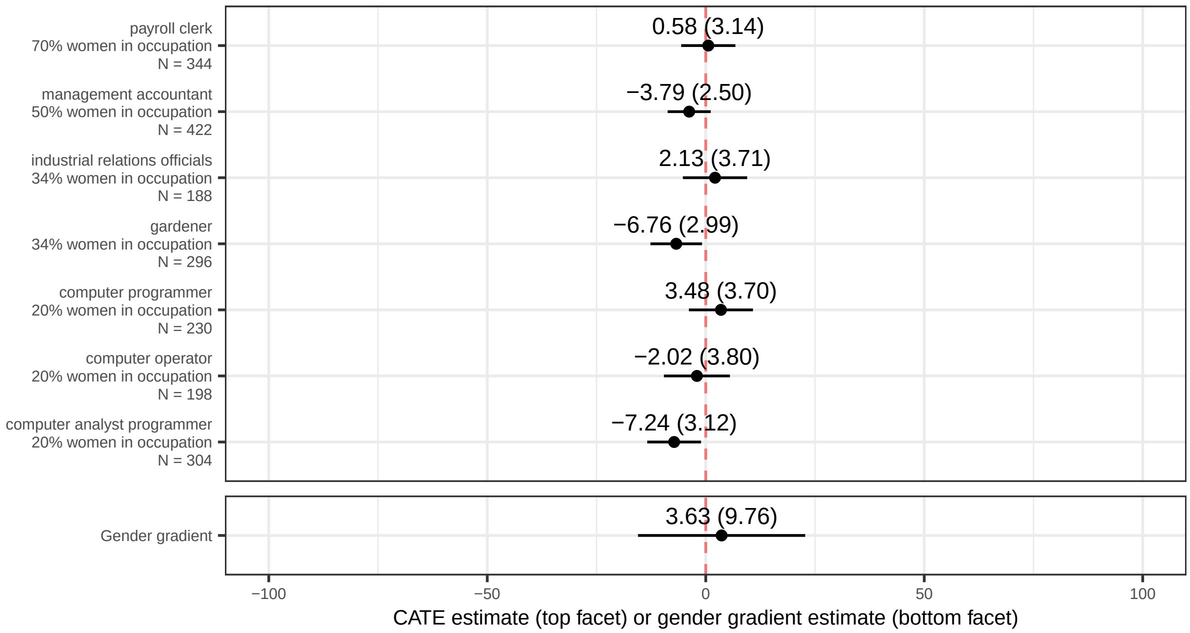


Figure S4.50: Riach and Rich (8): Australia

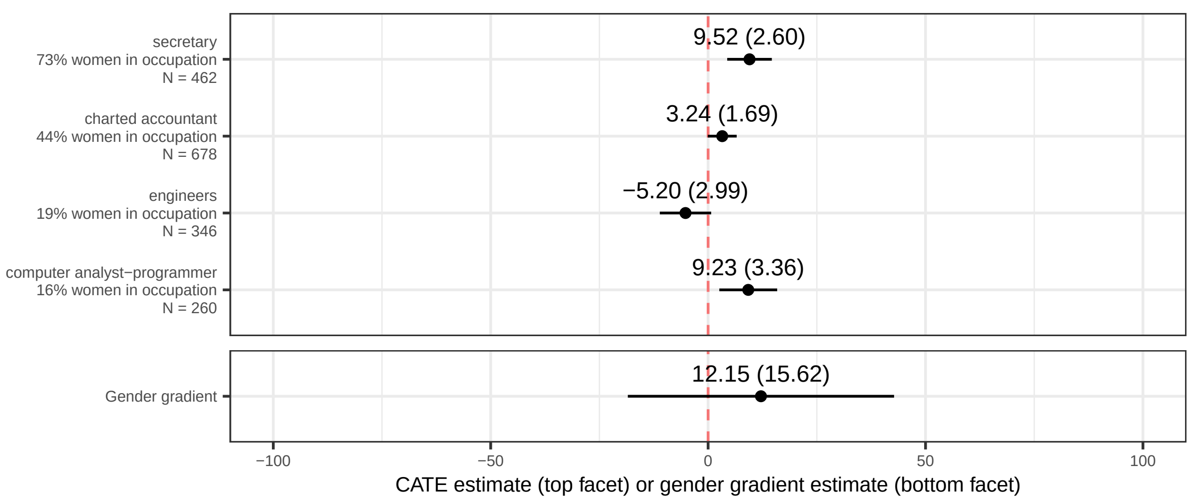


Figure S4.51: Riach and Rich (100): England

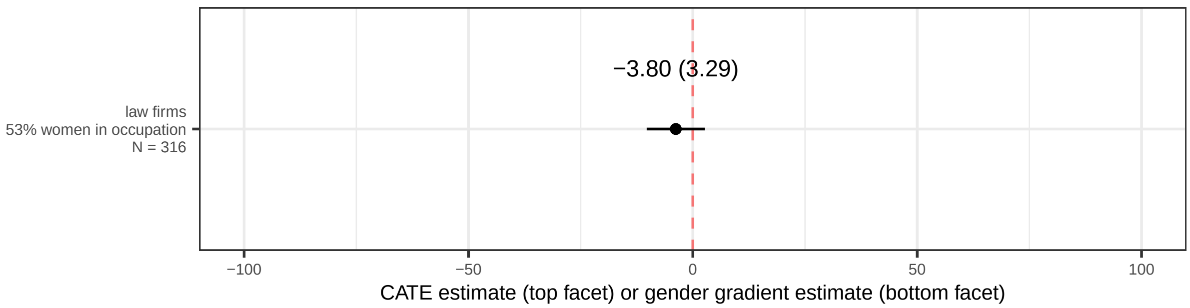


Figure S4.52: Rivera and Tilcsik (101): United States, field experiment

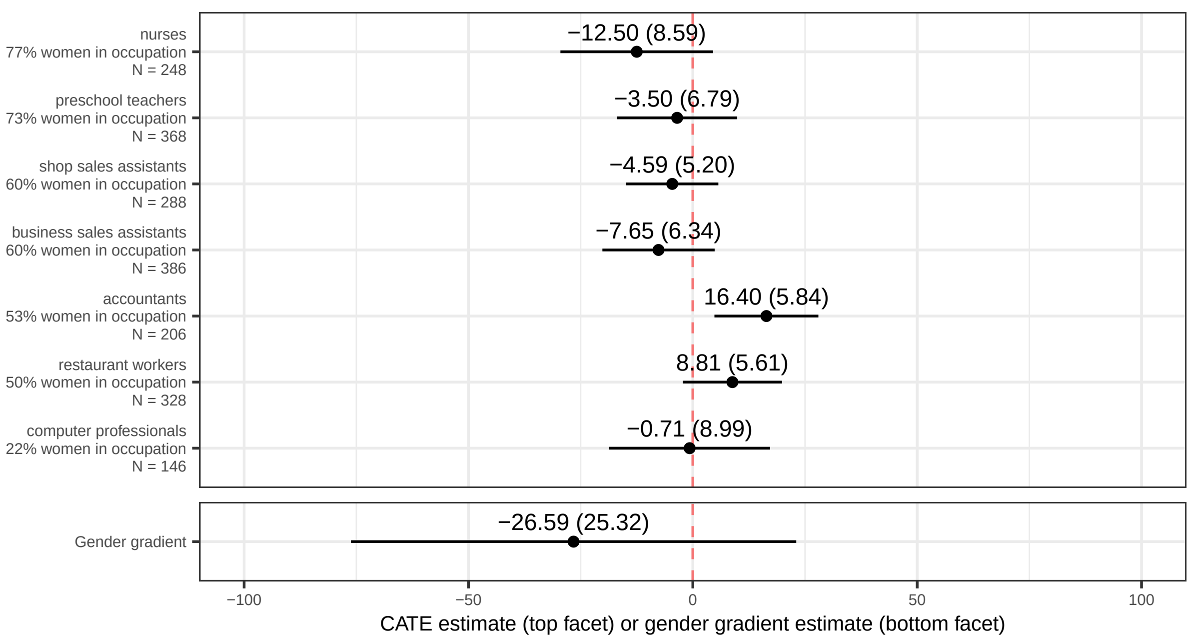


Figure S4.53: Rooth (102): Sweden

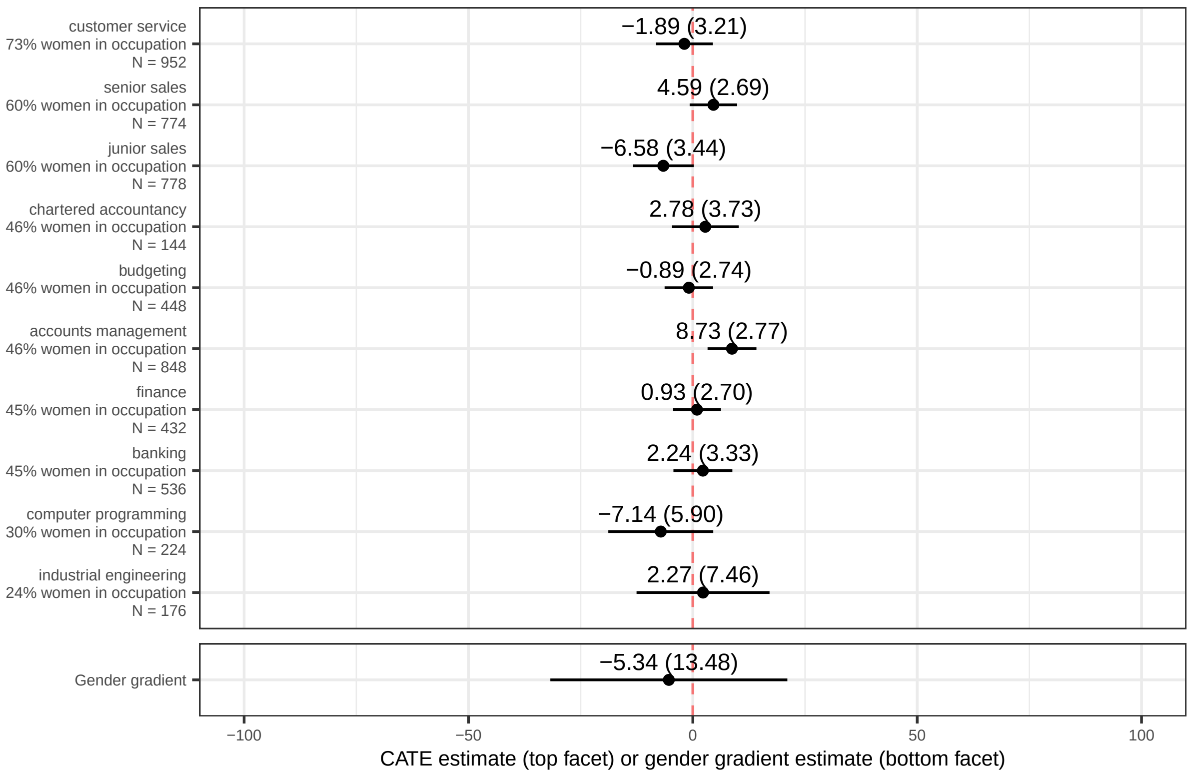


Figure S4.54: Ruffle and Shtudiner (103): Israel

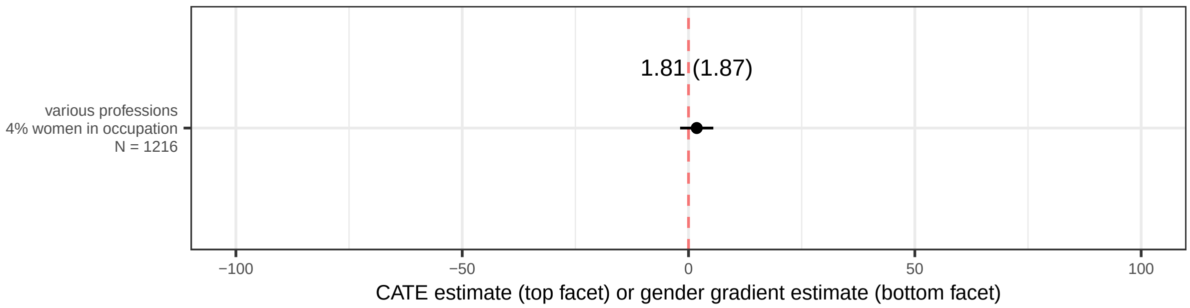


Figure S4.55: Saeed et al. (104): Pakistan

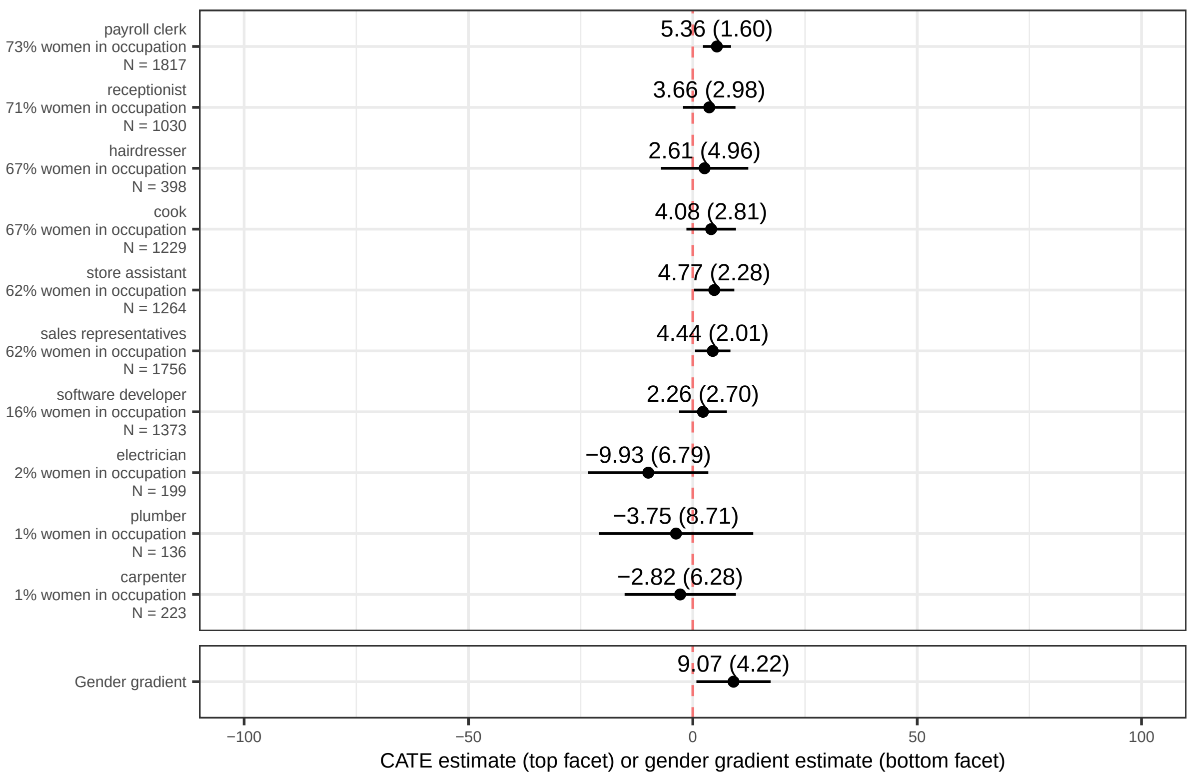


Figure S4.56: Di Stasio and Larsen (105): United Kingdom, Germany and Norway

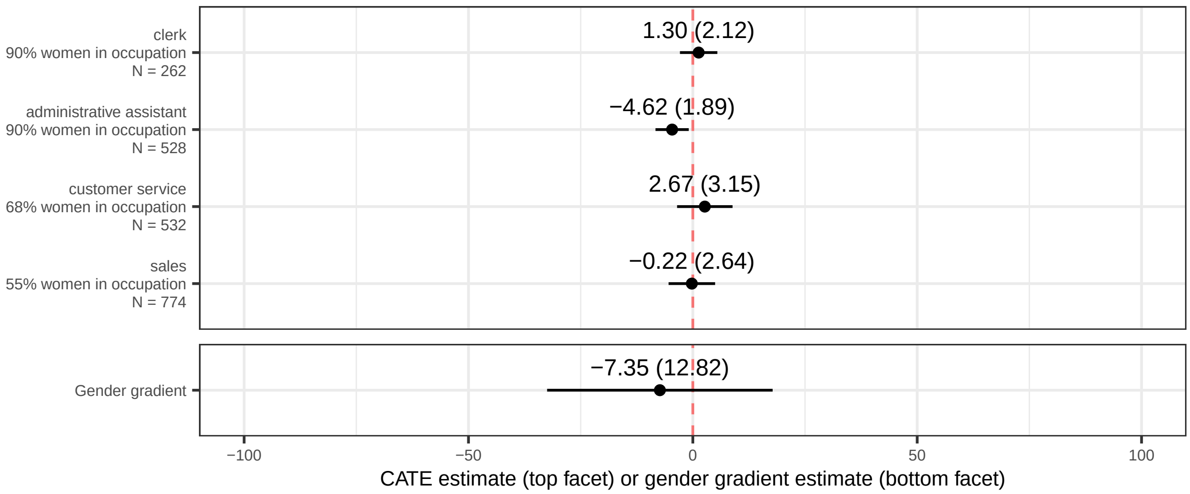


Figure S4.57: Thomas (4): United States, field experiment

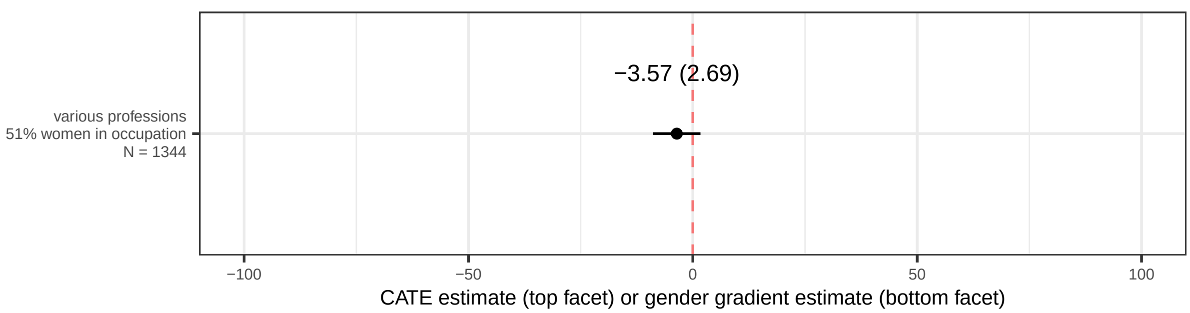


Figure S4.58: Wu (106): China

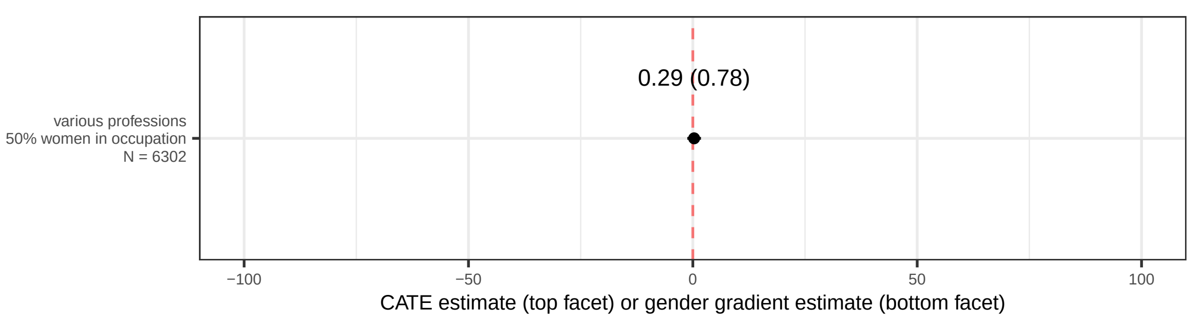


Figure S4.59: Yavorsky (107): United States

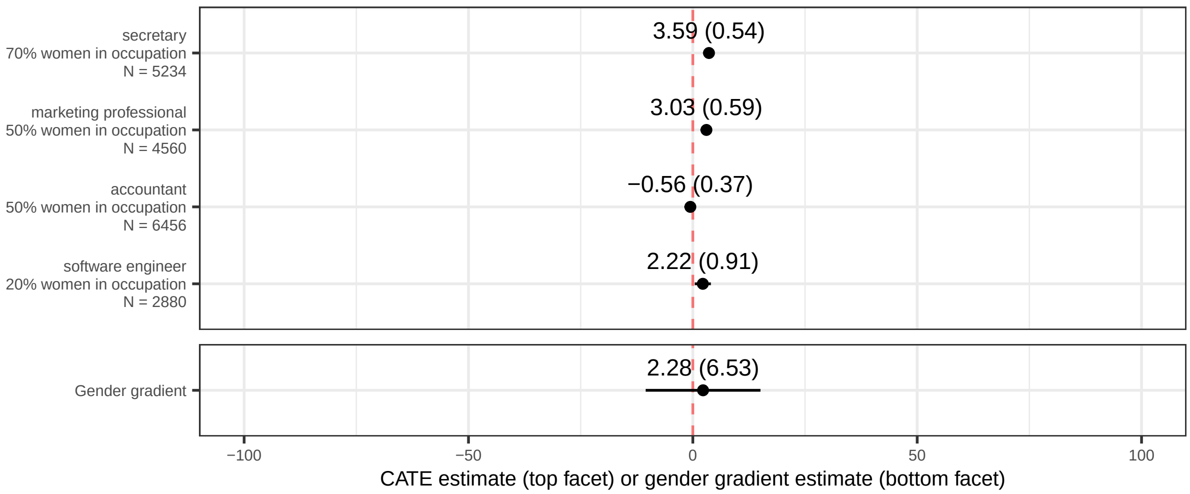


Figure S4.60: Zhou et al. (108): China

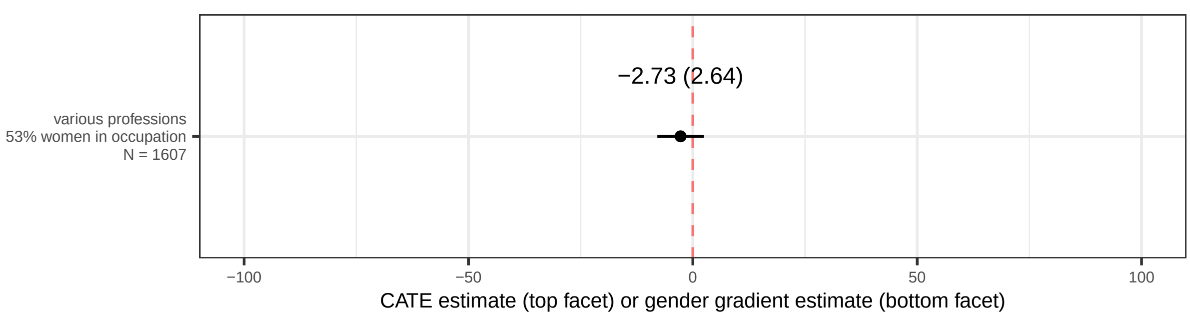


Figure S4.61: Capéau et al. (82): Belgium

S5 Gender gradient meta-analysis

We can meta-analyze the 37 study-by-study gender gradient estimates. This meta-analysis is conceptually similar to the study-fixed-effects specification in model 5 in Table 1 in that it averages the within-study variation. This meta-analysis operates directly on the gender gradient estimates presented in the foregoing section, so can only include studies with three or more occupations (37 studies). By contrast, the fixed effects estimation includes the study if it distinguishes among two or more occupations. The meta-analytic average gender gradient is 9.0 with a standard error of 2.1, which is quite similar to the gender gradient estimates presented in Table 1.

This plot also shows that the statistical power for any particular study to detect a positive gender gradient is low. Only 7 of these 37 gender gradient estimates are statistically significant.

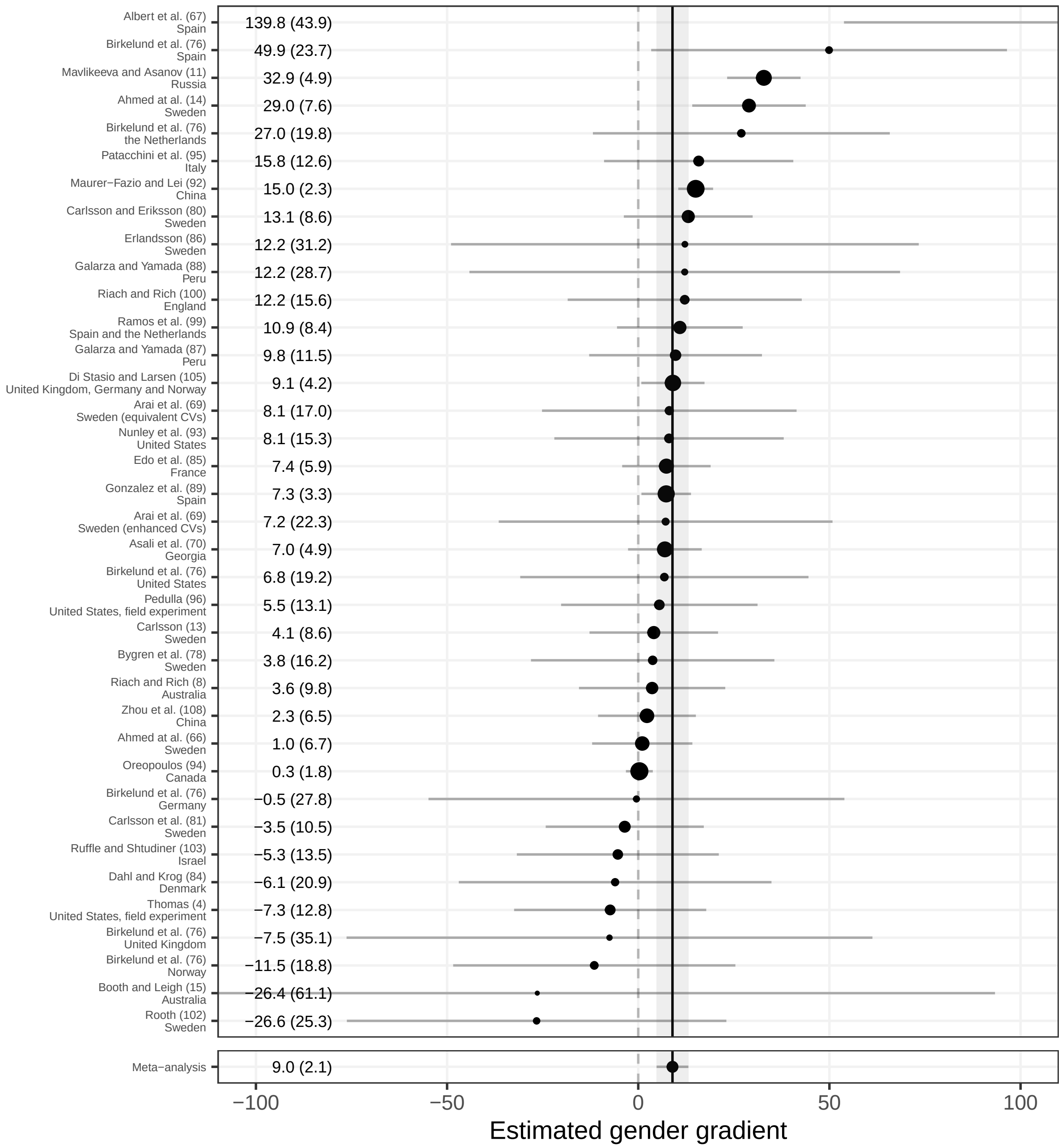
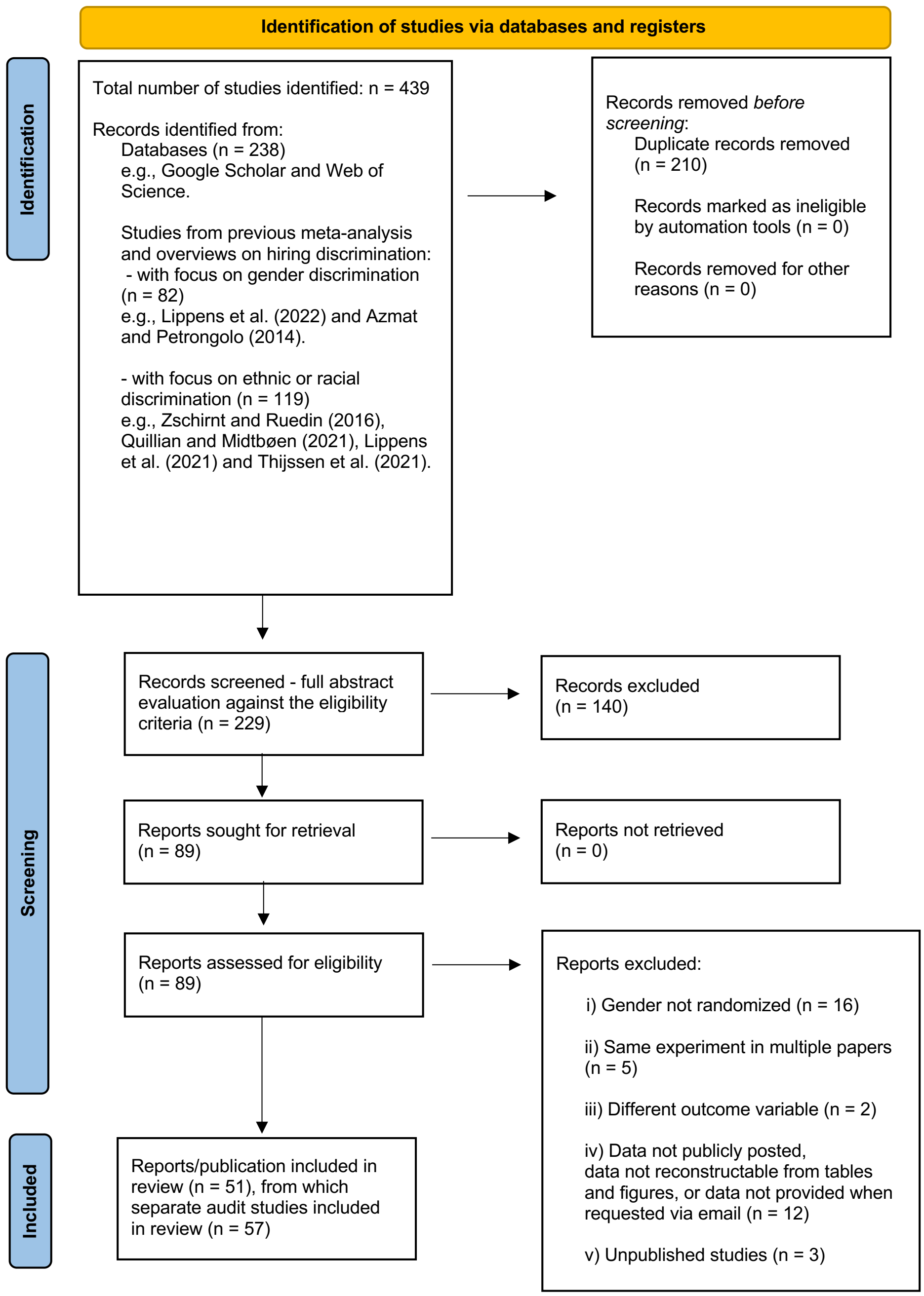


Figure S5.62: Meta-analysis of gender gradient estimates

S6 PRISMA flow diagram

In this section, we provide a PRISMA flow diagram that tracks the flow of information in the meta-analysis process. We used the template “PRISMA 2020” from the PRISMA website (http://www.prisma-statement.org/). The flow diagram is broken in four sections: identification, screening, eligibility and included. Our starting point in the search was both databases and previous meta-analyses on hiring discrimination. In Figure S6.63 we also provide the steps taken in each stage of the data collection process.



Template derived from (65).

Figure S6.63: PRISMA flow diagram

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