Supplementary Materials

Cohen's *q* -estimates

Equation (S1)

$$q = 0.5 \ln\left(\frac{1 + r_{X,Y1}}{1 - r_{X,Y1}}\right) - 0.5 \ln\left(\frac{1 + r_{X,Y2}}{1 - r_{X,Y2}}\right)$$

where $r_{X,Y1}$ = correlation between gender-equality and mean scores of men, and $r_{X,Y2}$ = correlation between gender-equality and mean scores of women (Cohen, 1988).

Equation (S2)

$$q_b = 0.5 \ln\left(\frac{1 + b_{11}}{1 - b_{11}}\right) - 0.5 \ln\left(\frac{1 + b_{21}}{1 - b_{21}}\right)$$

where b_{11} = covariation (simple slope) between gender-equality and mean scores of men, and b_{21} = covariation (simple slope) between gender-equality and mean scores of women. b_{11} and b_{21} are scaled by using the pooled standard deviation of mean scores of men and women across countries. The estimates for q and q_b are equal when the variabilities in mean scores of men and women are the same.

Test of Variance Homogeneity with Multi-level Model

To examine the variances in the mean levels of men and women across countries and assess their homogeneity we employed a reduced random slope model, in which the variation in the random intercept and slope estimates had not yet been accounted for by the country-level predictor. The model is represented by ***Equation (S3)***:

$$Y_{ij} = \gamma_{00} + u_{0j} + \gamma_{10} x_{ij} + u_{1j} x_{ij} + \varepsilon_{ij.}$$

where γ_{00} is the fixed intercept, u_{0j} is the random intercept, γ_{10} is the fixed main effect for the binary moderator (i.e., difference between men and women), and u_{1j} is the random main effect for the binary moderator (i.e., variation of differences between men and women across countries). Estimates for the variance of the random intercept, $var(u_{0j}) = \sigma^2_{u0}$, variance of the random slope, $var(u_{1j}) = \sigma^2_{u1}$, and for the covariance between intercept and slopes, $cov(u_{0j}, u_{1j}) = \sigma_{u01}$ were computed by the equations provided by Goldstein and colleagues (2002). The equation for between-country variance (variance partition coefficient, VPC), provided by Goldstein and colleagues (2002), at certain specific numerical values of individual-level variables (x_1, x_2, x_3, and so forth) is:

Equation (S4)

$$\sigma^2_{u0x} = \sigma^2_{u0} + 2\sigma_{u01} x + \sigma^2_{u1} x^2$$

In the case of a difference score, there are two specific values for the individual-level variable x. In the present case these are x = 0.5 for men and x = -0.5 for women. By comparing the estimates of VPC between these two values, we were able to test the homogeneity of between-country variances for men and women. For this purpose, an equation (S5) was derived based on equation (S4): When the two x-values are effect coded and centered around

zero (e.g., 0.5 for men and -0.5 for women), the difference between the two specific values can be expressed as ***Equation (S5)*:**

$$\sigma^2_{u0(-0.5)} - \sigma^2_{u0(0.5)} = \sigma^2_{u0} + 2\sigma_{u01}(-0.5) + \sigma^2_{u1}(-0.5)^2 - (\sigma^2_{u0} + 2\sigma_{u01}(0.5) + \sigma^2_{u1}(0.5)^2)$$

Which reduces to just:

Equation (S6)

$$\sigma^2_{u0(-0.5)} - \sigma^2_{u0(0.5)} = -2\sigma_{u01}$$

On the right side of equation (S6), there is only one parameter, which is the correlation between the random intercept and random slope of the binary moderator, multiplied by -2. Therefore, to examine whether the variances differ between men and women, this random effect correlation was assessed by conducting a likelihood ratio test to determine if its inclusion improved the model.

Difference score reliability

To ensure that the reported difference score correlations in the original studies were not affected by low reliability, we calculated the reliabilities for the difference score Y_1-Y_2, where Y_1 represents the mean levels of men and Y_2 represents the mean levels of women. To do this, we extended the equation originally presented by Johns (1981) to a multi-level framework:

Equation (S7)

$$r_{Y1-Y2,Y1-Y2} = \frac{\sigma_{Y1}^2 r_{Y1,Y1} + \sigma_{Y2}^2 r_{Y2,Y2} - 2r_{Y1,Y2}\sigma_{Y1}\sigma_{Y2}}{\sigma_{Y1}^2 + \sigma_{Y2}^2 - 2r_{Y1,Y2}\sigma_{Y1}\sigma_{Y2}}$$

Where $r_{Y1,Y1}$ and $r_{Y2,Y2}$ represent reliabilities for mean levels of men and women, respectively. These were estimated as $ICC_{(2)}$ based on the variance partition coefficient calculated with equation S4 following procedures presented by Bliese (2000).

DADAS-test for equal but opposite slope patterns

DADAS-test considers a Difference between Absolute Difference and the Absolute Sum of the simple slope coefficients, as presented in ***Equation (S8)***:

$$DADAS: |b_{11} - b_{21}| - |b_{11} + b_{21}| > 0.$$

A similar test has previously been used in testing hypotheses about self-enhancement (Humberg et al., 2018), but it can be applied for all types of difference score predictions. The DADAS estimate is maximized when the simple slopes have opposite directional signs but are equal in absolute magnitude. Note that DADAS is a one-sided test: if the absolute sum of the coefficients is larger than their absolute difference, then the pattern indicates that the slopes do not have opposite signs.

Table S1

Deconstructed associations between gender-equality (GGGI) and boys' and girls' science attitudes from country-level path models

	Science self-efficacy		Interest in Science		Enjoyment of science	
Parameter	Est.	*p*	Est.	*p*	Est.	*p*
Gender equality	-0.09	.444	-0.01	.935	-0.28	.016
Gender	0.65	<.001	0.91	<.001	0.20	.003
Gender equality × Gender	0.45	<.001	0.15	<.001	0.25	<.001
SD_{Y1}	0.19		0.22		0.24	
SD_{Y2}	0.23		0.24		0.31	
Variance homogeneity		.058		.096		.001
Variance ratio	0.72		0.84		0.59	
$r_{X,Y1}$	0.14	.257	0.07	.632	-0.18	.144
$r_{X,Y2}$	-0.29	.017	-0.08	.552	-0.36	.002
b_{11}	0.13	.257	0.06	.632	-0.16	.144
b_{21}	-0.32	.017	-0.09	.552	-0.41	.002
Cohen's *q*	0.45	<.001	0.15	<.001	0.19	.005
q_b	0.46	<.001	0.15	<.001	0.27	.001
$r_{Y1,Y2}$	0.78	<.001	0.94	<.001	0.86	<.001
Cross over point	-1.45	<.001	-5.96	.001	-0.80	.020
|Interaction| – |main effect|	0.36	.004	0.14	.296	-0.03	.753
DADAS	0.26	.128	0.13	.316	-0.32	.928

Note. All estimates derived with country-level path models. See Table 2 for corresponding results from multi-level models. X = Global Gender Gap Index. Y_1 = Boys' mean-level. Y_2 = Girls' mean-level. $r_{X,Y1-Y2}$ = Difference score correlation. *q* = Cohen's *q* calculated from transformed $r_{X,Y1}$ and $r_{X,Y2}$. q_b = Cohen's *q* calculated from transformed b_{11} and b_{21}. VR = Variance ratio. $r_{Y1,Y2}$ = correlation between boys' and girls' mean-levels across countries.

Table S2

Deconstructed associations between gender-equality and men's and women's economic preferences from country-level path models

	Altruism		Trust		Positive reciprocity	
Parameter	Est.	*p*	Est.	*p*	Est.	*p*
Gender equality	-0.22	.052	0.02	.848	-0.07	.561
Gender	-0.21	<.001	-0.12	.004	-0.09	.008
Gender equality × Gender	-0.18	<.001	-0.15	<.001	-0.03	.346
SD_{Y1}	0.36		0.28		0.34	
SD_{Y2}	0.34		0.31		0.33	
Variance homogeneity		.102		.028		.395
Variance ratio	1.14		0.81		1.06	
$r_{X,Y1}$	-0.30	.008	-0.06	.637	-0.08	.484
$r_{X,Y2}$	-0.14	.248	0.09	.432	-0.05	.654
b_{11}	-0.31	.008	-0.05	.637	-0.08	.484
b_{21}	-0.13	.248	0.10	.432	-0.05	.654
Cohen's *q*	-0.18	<.001	-0.15	<.001	-0.03	.375
q_b	-0.19	<.001	-0.15	<.001	-0.03	.347
$r_{Y1,Y2}$	0.94	<.001	0.93	<.001	0.96	<.001
Cross over point	-1.15	<.001	-0.81	.026	-2.80	.375
|Interaction| – |main effect|	-0.04	.726	0.13	.253	-0.04	.758
DADAS	-0.26	.876	0.11	.319	-0.10	.673

Note. All estimates derived with country-level path models. See Table 3 for corresponding results from multi-level models. X = Gender Equality Index. Y_1 = Men's mean-level. Y_2 = Women's mean-level. $r_{X,Y1-Y2}$ = Difference score correlation. *q* = Cohen's *q* calculated from transformed $r_{X,Y1}$ and $r_{X,Y2}$. q_b = Cohen's *q* calculated from transformed b_{11} and b_{21}. VR = Variance ratio. $r_{Y1,Y2}$ = correlation between mean-levels across countries.

Table S3

Deconstructed associations between gender-equality and men's and women's economic preferences from country-level path models

	Negative reciprocity		Risk taking		Patience	
Parameter	Est.	*p*	Est.	*p*	Est.	*p*
Gender equality	0.02	.893	-0.10	.399	0.55	<.001
Gender	0.56	<.001	0.64	<.001	0.20	<.001
Gender equality × Gender	0.10	.014	0.09	.045	0.14	<.001
SD_{Y1}	0.28		0.31		0.43	
SD_{Y2}	0.29		0.34		0.37	
Variance homogeneity		.600		.054		<.001
Variance ratio	0.96		0.84		1.36	
$r_{X,Y1}$	0.07	.582	-0.06	.628	0.58	<.001
$r_{X,Y2}$	-0.03	.782	-0.14	.251	0.53	<.001
b_{11}	0.06	.582	-0.05	.628	0.62	<.001
b_{21}	-0.03	.782	-0.14	.251	0.48	<.001
Cohen's *q*	0.10	.013	0.08	.064	0.08	.044
q_b	0.10	.014	0.09	.047	0.20	.001
$r_{Y1,Y2}$	0.94	<.001	0.93	<.001	0.97	<.001
Cross over point	-5.70	.015	-7.51	.046	-1.43	<.001
|Interaction| – |main effect|	0.08	.515	-0.01	.917	-0.41	<.001
DADAS	0.07	.391	-0.11	.686	-0.97	>.999

Note. All estimates derived with country-level path models. See Table 4 for corresponding results from multi-level models. X = Gender Equality Index. Y_1 = Men's mean-level. Y_2 = Women's mean-level. $r_{X,Y1-Y2}$ = Difference score correlation. *q* = Cohen's *q* calculated from transformed $r_{X,Y1}$ and $r_{X,Y2}$. q_b = Cohen's *q* calculated from transformed b_{11} and b_{21}. VR = Variance ratio. $r_{Y1,Y2}$ = correlation between mean-levels across countries.

Table S4

Deconstructed associations between gender-equality and men's and women's personality traits from country-level path models

	Masculinity-Femininity		Neuroticism		Extraversion	
Parameter	Est.	*p*	Est.	*p*	Est.	*p*
Gender equality	0.33	.002	-0.28	.027	-0.23	.054
Gender	5.49	<.001	-2.02	<.001	-0.97	<.001
Gender equality × Gender	0.37	.013	-0.07	.437	-0.39	.001
SD_{Y1}	0.18		0.16		0.15	
SD_{Y2}	0.17		0.16		0.11	
Variance homogeneity		.772		.952		.041
Variance ratio	1.08		1.01		1.68	
$r_{X,Y1}$	0.51	<.001	-0.32	.018	-0.38	.003
$r_{X,Y2}$	0.15	.287	-0.25	.069	-0.04	.775
b_{11}	0.52	<.001	-0.32	.018	-0.43	.003
b_{21}	0.15	.287	-0.25	.069	-0.03	.775
Cohen's *q*	0.41	.020	-0.07	.447	-0.36	.007
q_b	0.43	.017	-0.08	.438	-0.42	.004
$r_{Y1,Y2}$	0.36	.003	0.79	<.001	0.56	<.001
Cross over point	-14.66	.013	-28.64	.437	-2.47	.003
|Interaction| – |main effect|	0.04	.832	-0.21	.179	0.16	.287
DADAS	-0.29	.857	-0.50	.965	-0.07	.612

Note. All estimates derived with country-level path models. See Table 5 for corresponding results from multi-level models. X = Global Gender Gap Index. Y_1 = Men's mean-level. Y_2 = Women's mean-level. $r_{X,Y1-Y2}$ = Difference score correlation. *q* = Cohen's *q* calculated from transformed $r_{X,Y1}$ and $r_{X,Y2}$. q_b = Cohen's *q* calculated from transformed b_{11} and b_{21}. VR = Variance ratio. $r_{Y1,Y2}$ = correlation between mean-levels across countries.

Table S5

Deconstructed associations between gender-equality and men's and women's personality traits from country-level path models

	Masculinity-Femininity		Neuroticism		Extraversion	
Parameter	Est.	*p*	Est.	*p*	Est.	*p*
Gender equality	0.39	.002	0.22	.090	-0.28	.026
Gender	-0.70	<.001	-2.34	<.001	-0.19	.062
Gender equality × Gender	-0.02	.671	-0.13	.217	-0.30	.003
SD_{Y1}	0.23		0.17		0.15	
SD_{Y2}	0.29		0.20		0.15	
Variance homogeneity		<.001		.170		.698
Variance ratio	0.63		0.76		1.08	
$r_{X,Y1}$	0.43	<.001	0.17	.234	-0.42	.001
$r_{X,Y2}$	0.36	.006	0.26	.054	-0.13	.360
b_{11}	0.38	<.001	0.15	.234	-0.43	.001
b_{21}	0.40	.006	0.28	.054	-0.13	.360
Cohen's *q*	0.08	.121	-0.10	.338	-0.32	.006
q_b	-0.03	.681	-0.13	.225	-0.33	.005
$r_{Y1,Y2}$	0.95	<.001	0.74	<.001	0.69	<.001
Cross over point	-30.42	.671	-18.64	.217	-0.63	.116
|Interaction| – |main effect|	-0.37	<.001	-0.09	.542	0.03	.880
DADAS	-0.76	>.999	-0.31	.883	-0.25	.820

Note. All estimates derived with country-level path models. See Table 46for corresponding results from multi-level models. X = Global Gender Gap Index. Y_1 = Men's mean-level. Y_2 = Women's mean-level. $r_{X,Y1-Y2}$ = Difference score correlation. *q* = Cohen's *q* calculated from transformed $r_{X,Y1}$ and $r_{X,Y2}$. q_b = Cohen's *q* calculated from transformed b_{11} and b_{21}. VR = Variance ratio. $r_{Y1,Y2}$ = correlation between mean-levels across countries.

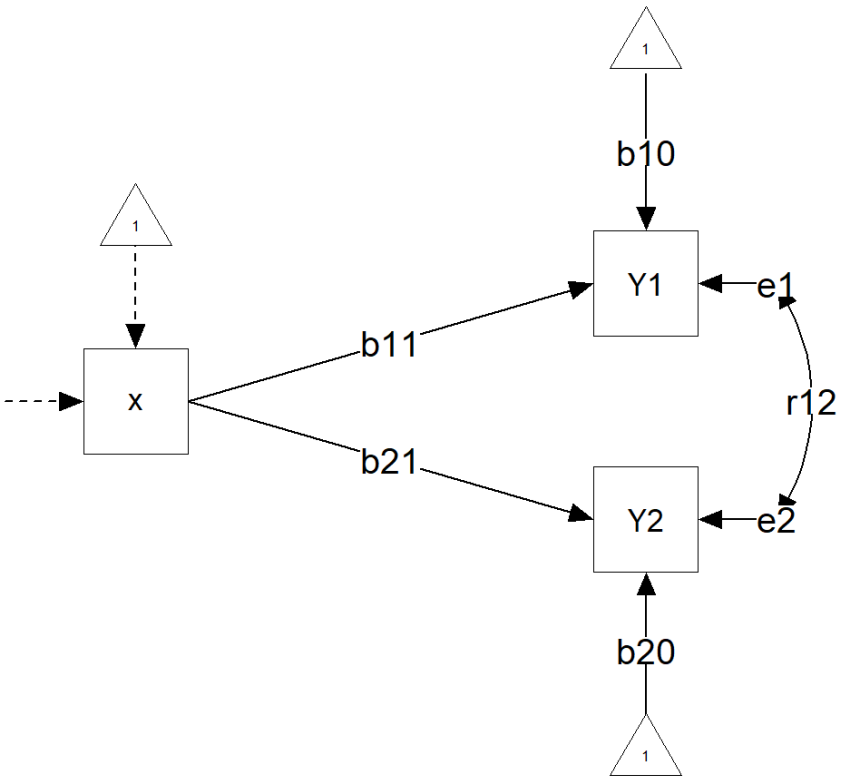

Figure S1

A country-level path model approach for deconstructing a gender-equality paradox where gender-equality in a country (x) separately predicts mean levels of men (Y1) and women (Y2). X was standardized. Y1 and Y2 were scaled with their pooled standard deviation. Estimates that correspond to those obtained from the multi-level model presented in the text are as follows: Main effect of gender equality, $\gamma_{01} \approx (b_{11}+b_{21})/2$; Interaction between gender equality and gender (slope non-parallelism), $\gamma_{11} \approx b_{11}–b_{21}$; Slope for men, w_{11} (when scaled with pooled SD to b_{11}) $\approx b_{11;}$ Slope for women, w_{21} (when scaled with pooled SD to b_{21}) $\approx b_{21}$. Variance homogeneity and correlations between Y1 and Y2 were tested from a model without predictor X.

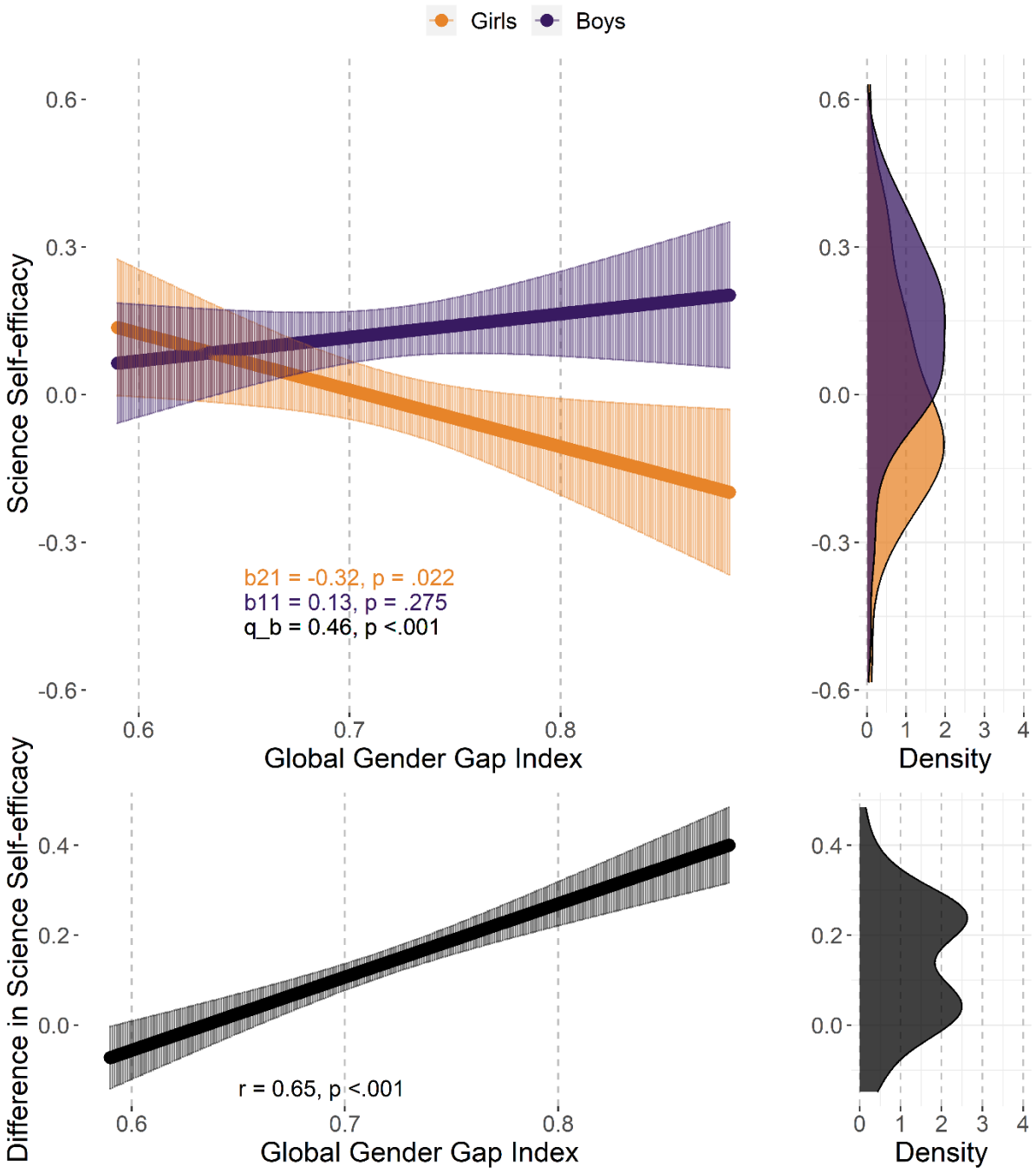

Figure S2

The associations between Global Gender Gap Index and Science self-efficacy of boys and girls (top) and the difference between boys and girls (bottom).

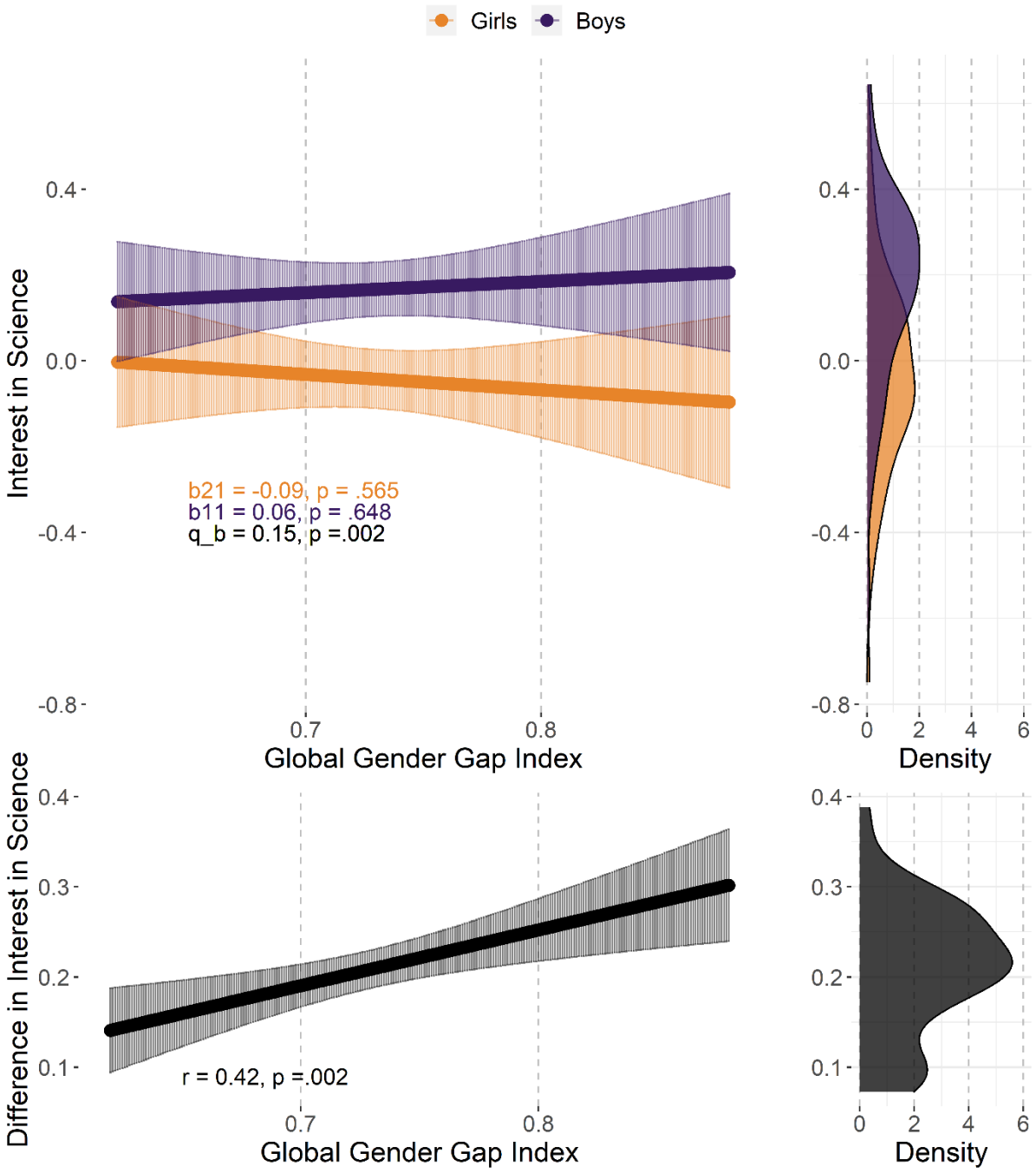

Figure S3

The associations between Global Gender Gap Index and Interest in science of boys and girls (top) and the difference between boys and girls (bottom).

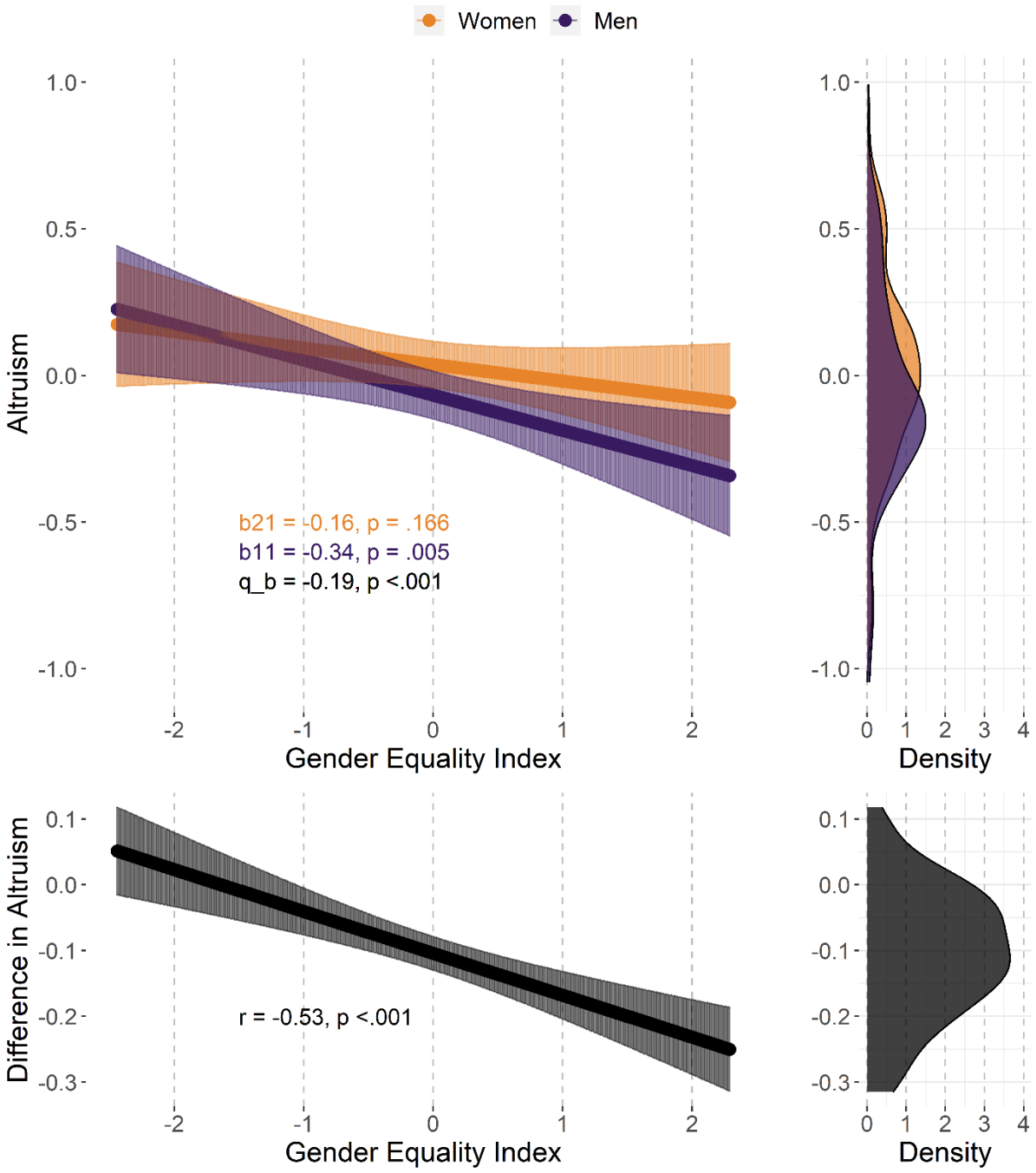

Figure S4

The associations between Gender Equality Index and economic preference for altruism of men and women (top) and the difference between men and women (bottom).

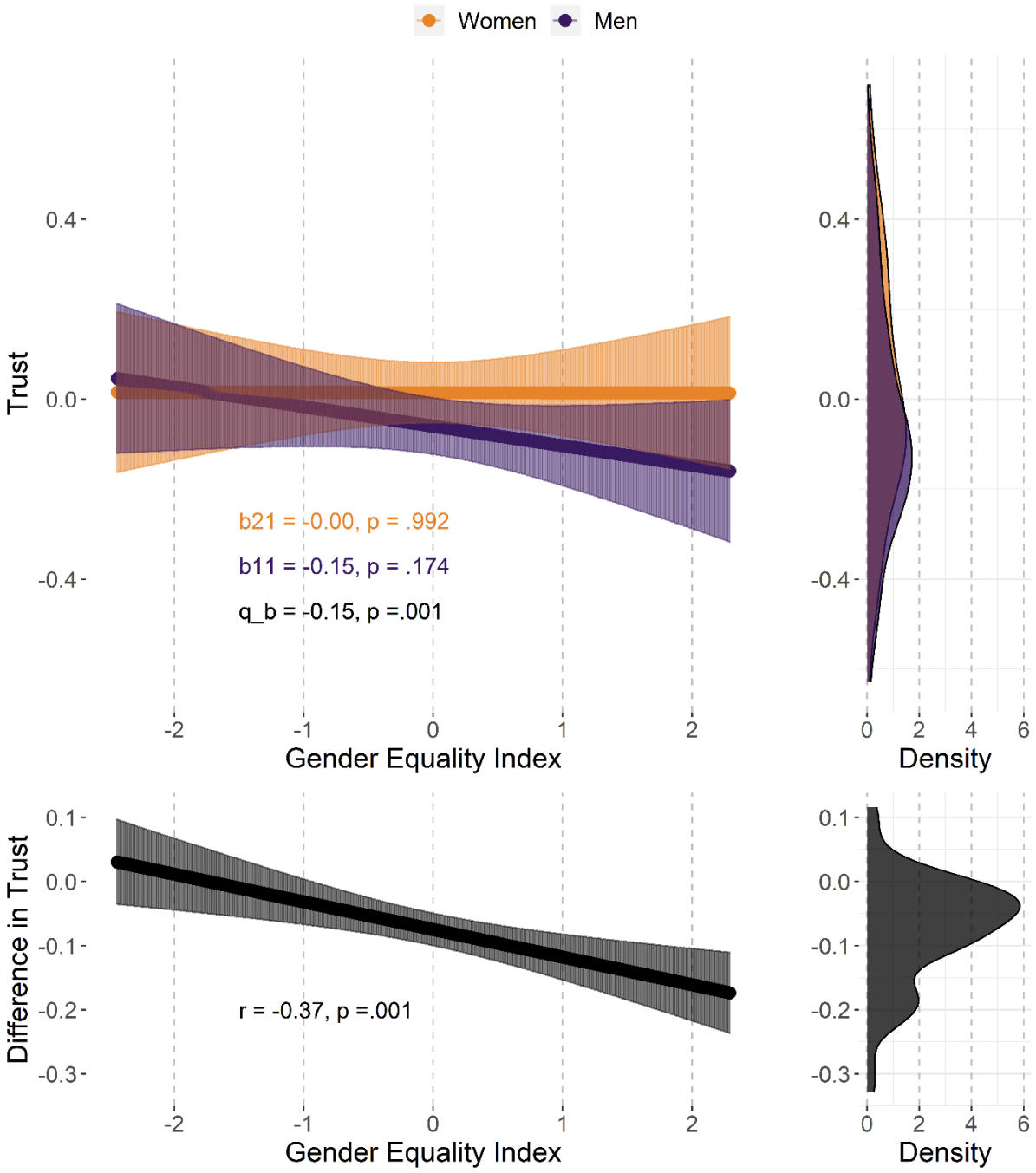

Figure S5

The associations between Gender Equality Index and economic preference for trust of men and women (top) and the difference between men and women (bottom).

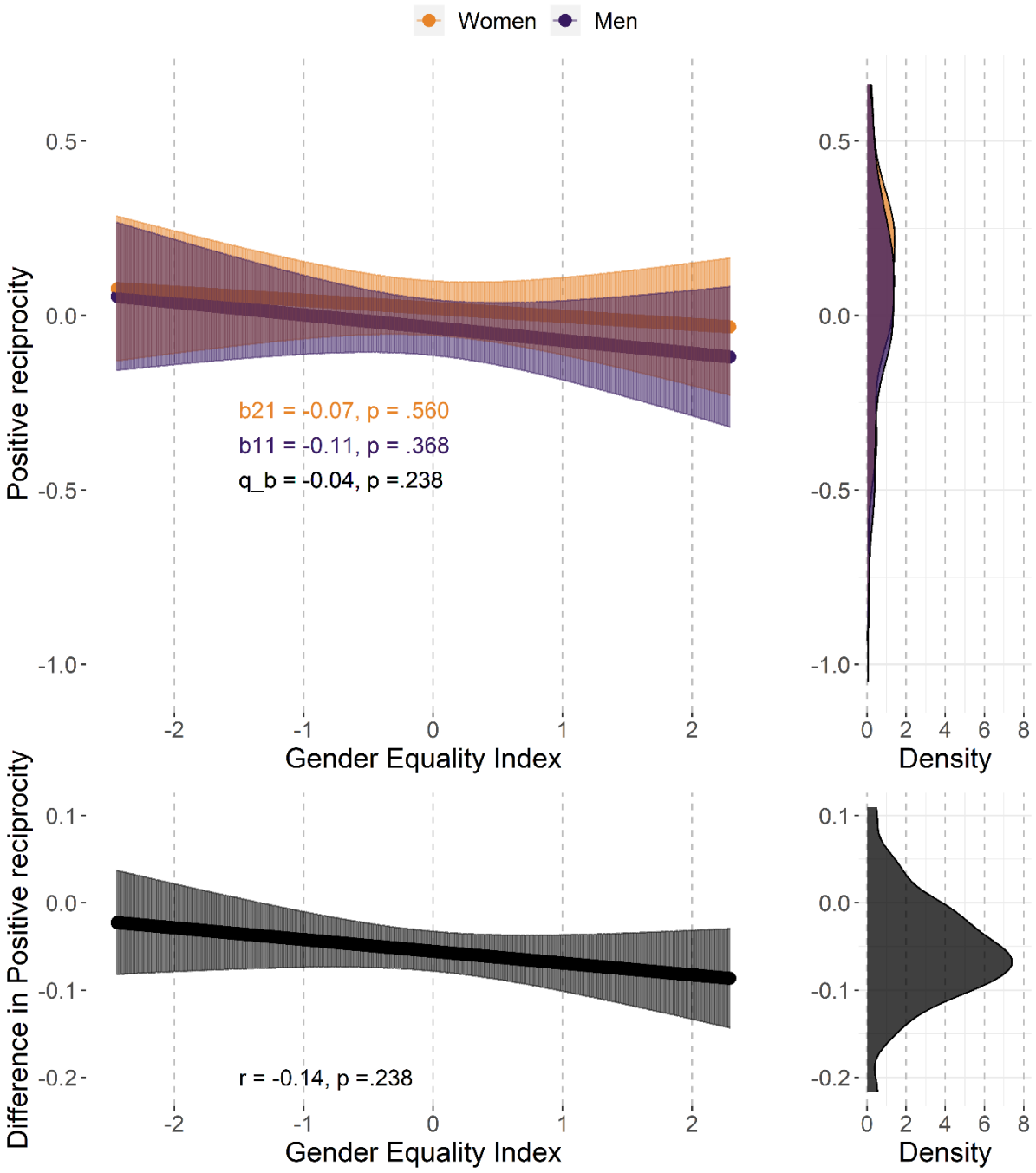

Figure S6

The associations between Gender Equality Index and economic preference for positive reciprocity of men and women (top) and the difference between men and women (bottom).

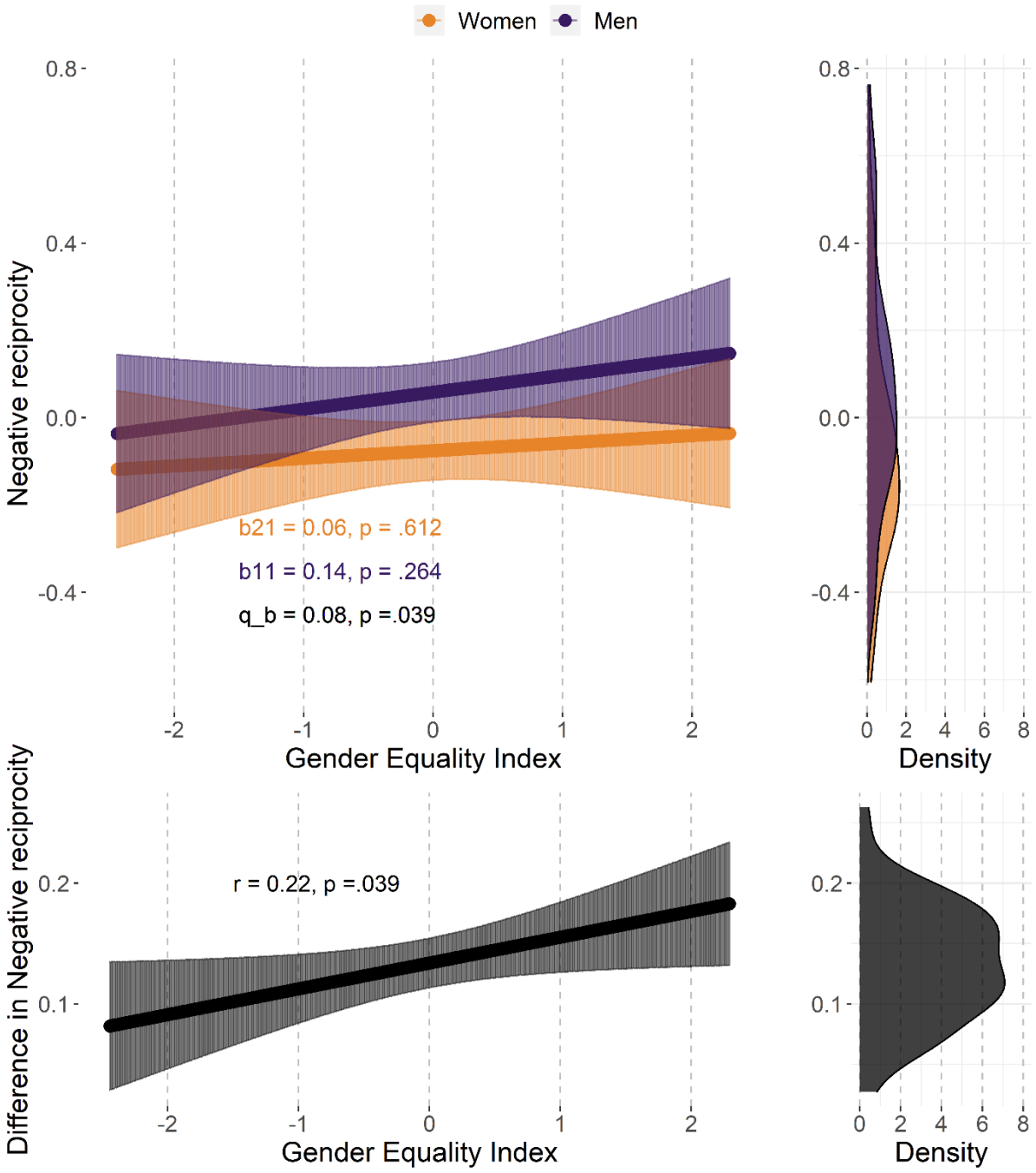

Figure S7

The associations between Gender Equality Index and economic preference for negative reciprocity of men and women (top) and the difference between men and women (bottom).

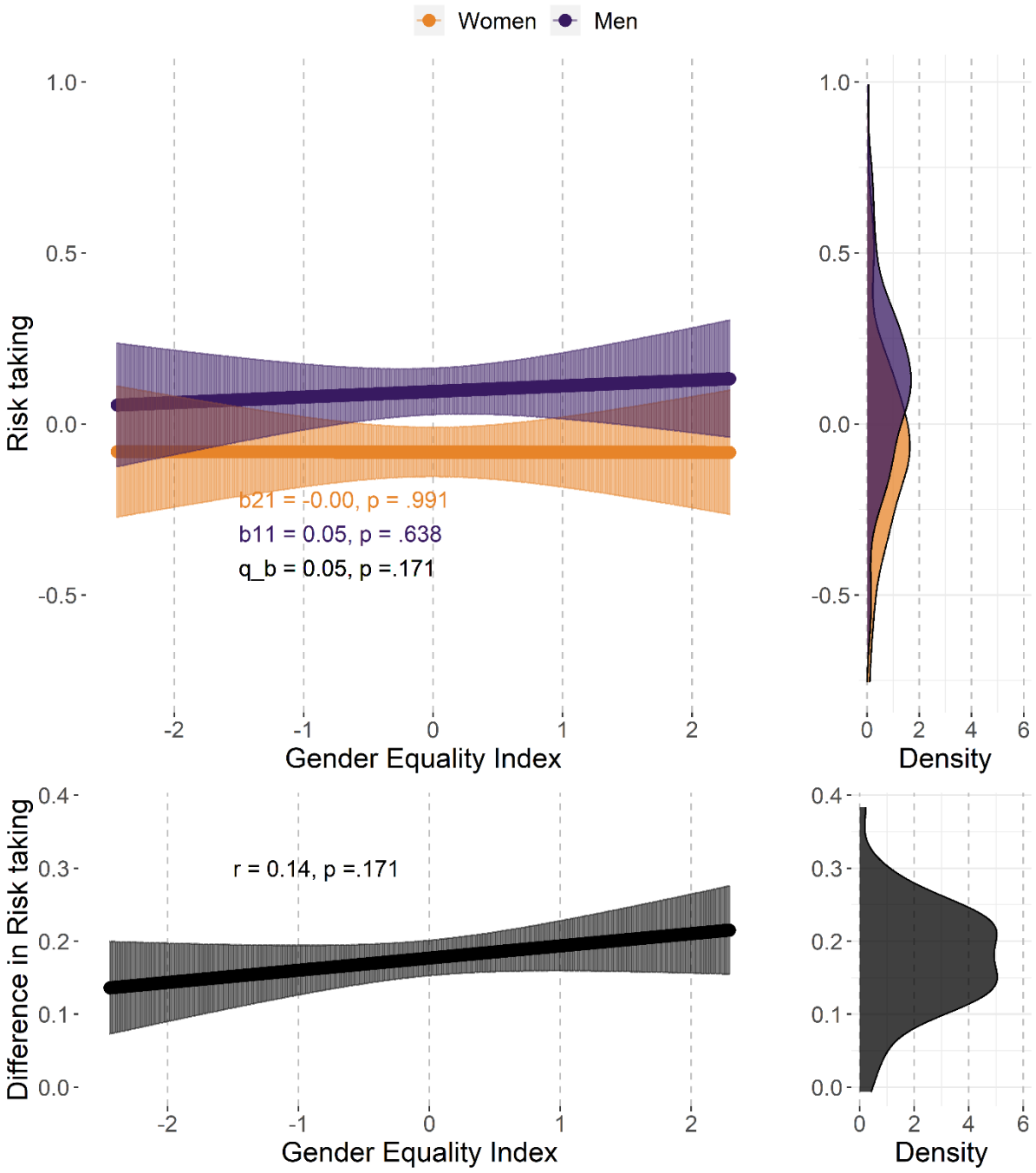

Figure S8

The associations between Gender Equality Index and economic preference for risk taking of men and women (top) and the difference between men and women (bottom).

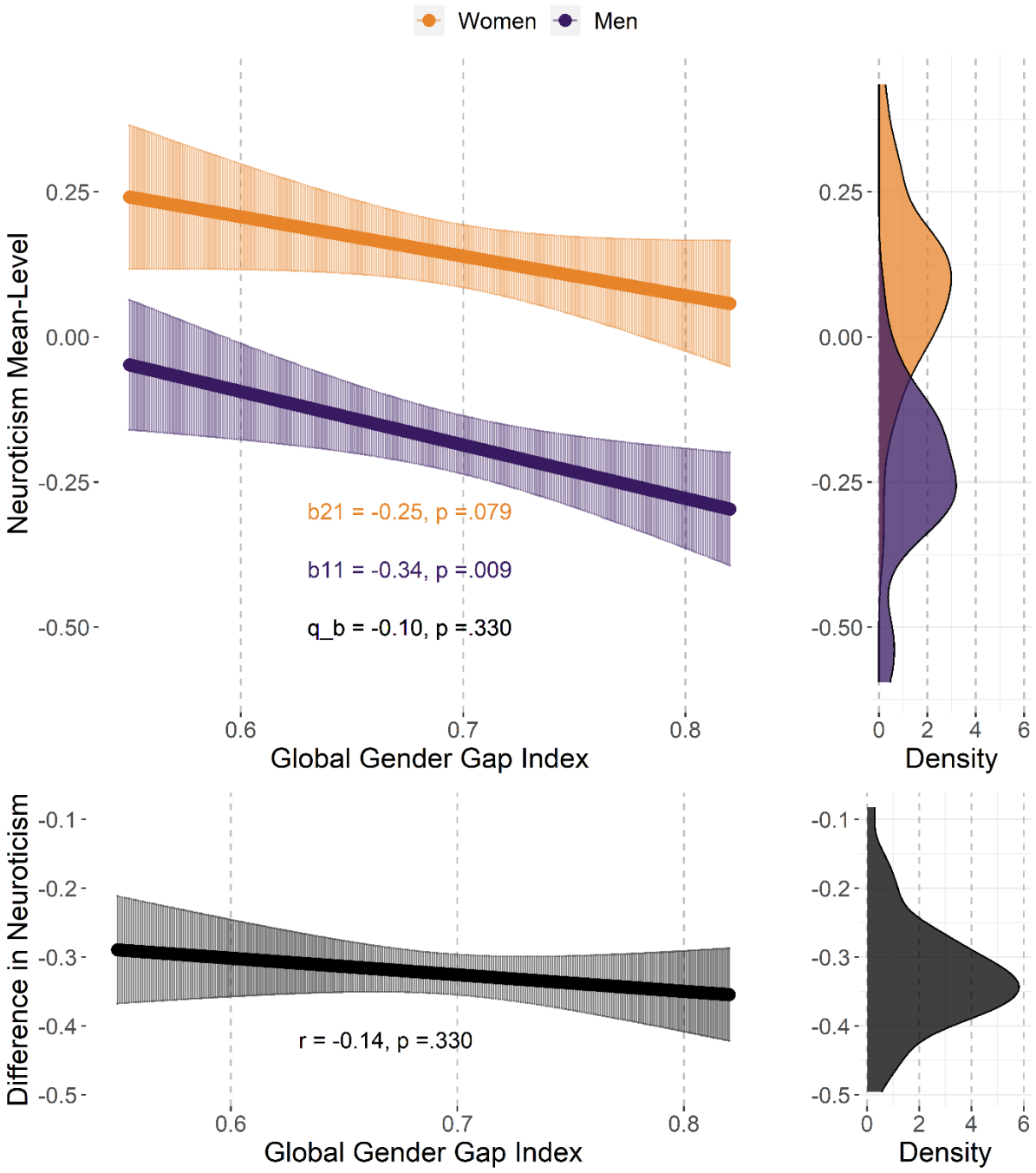

Figure S9

The associations between Global Gender Gap Index and neuroticism of men and women (top) and the difference between men and women (bottom).

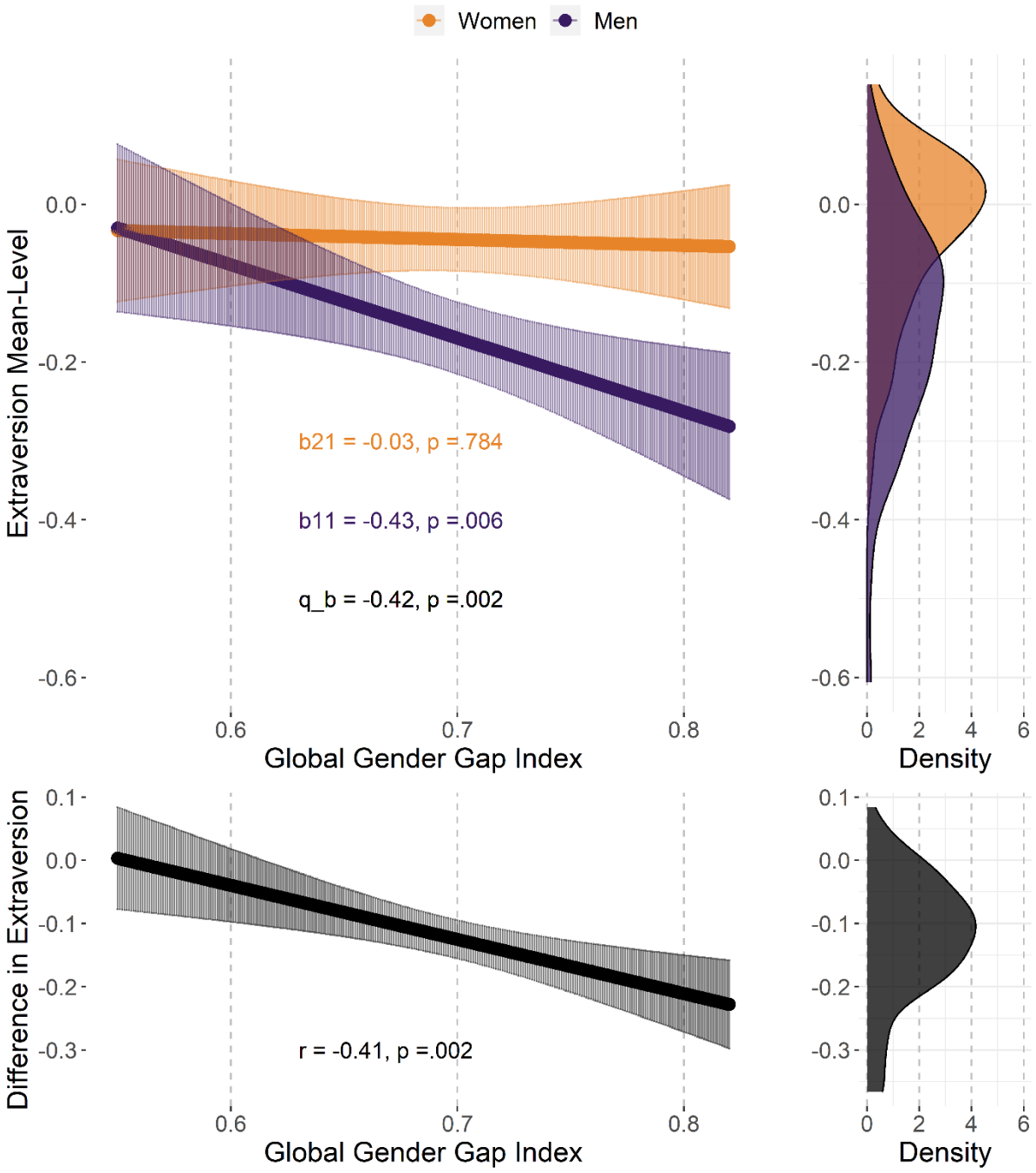

Figure S10

The associations between Global Gender Gap Index and extraversion of men and women (top) and the difference between men and women (bottom).

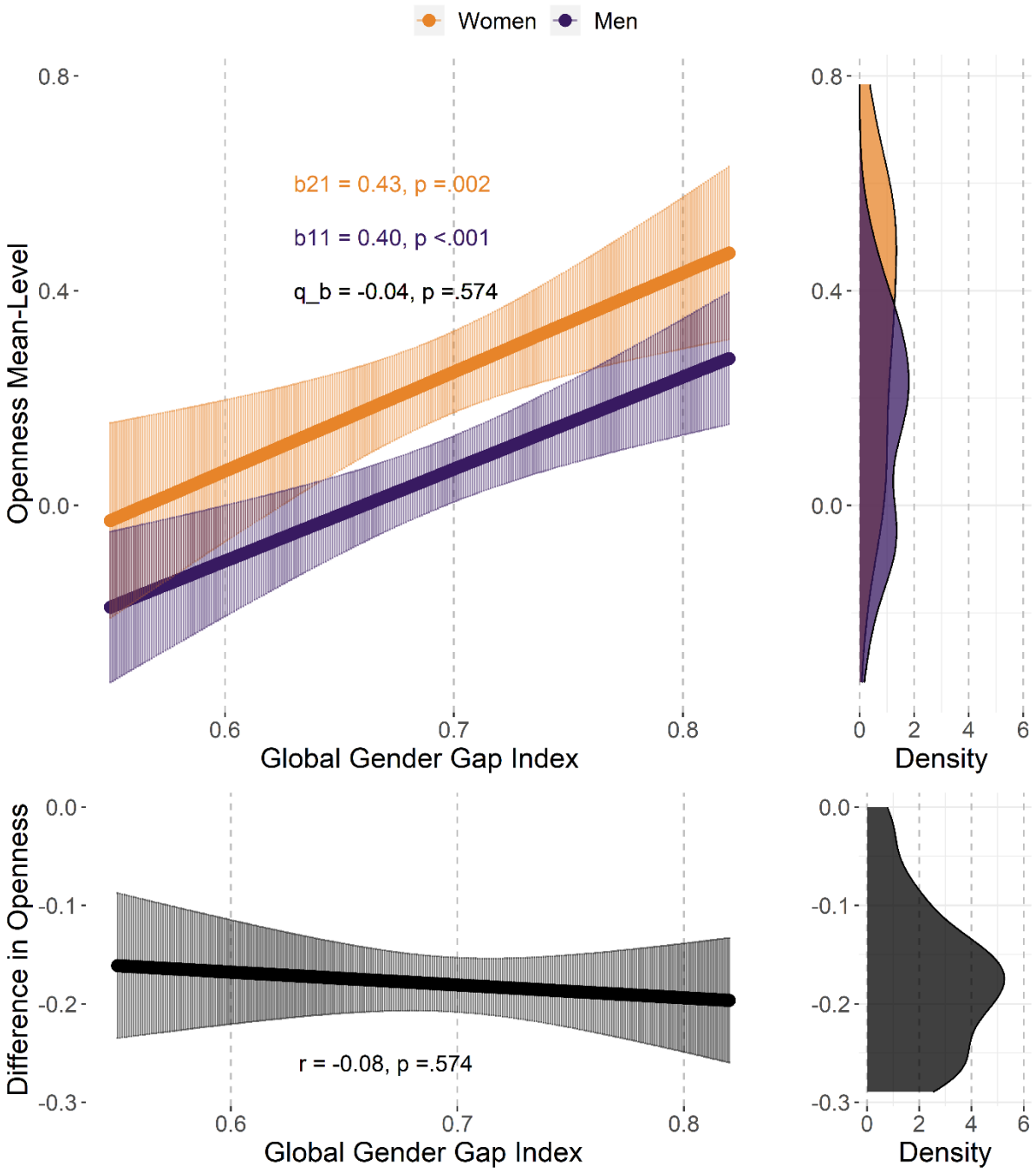

Figure S11

The associations between Global Gender Gap Index and openness of men and women (top) and the difference between men and women (bottom).

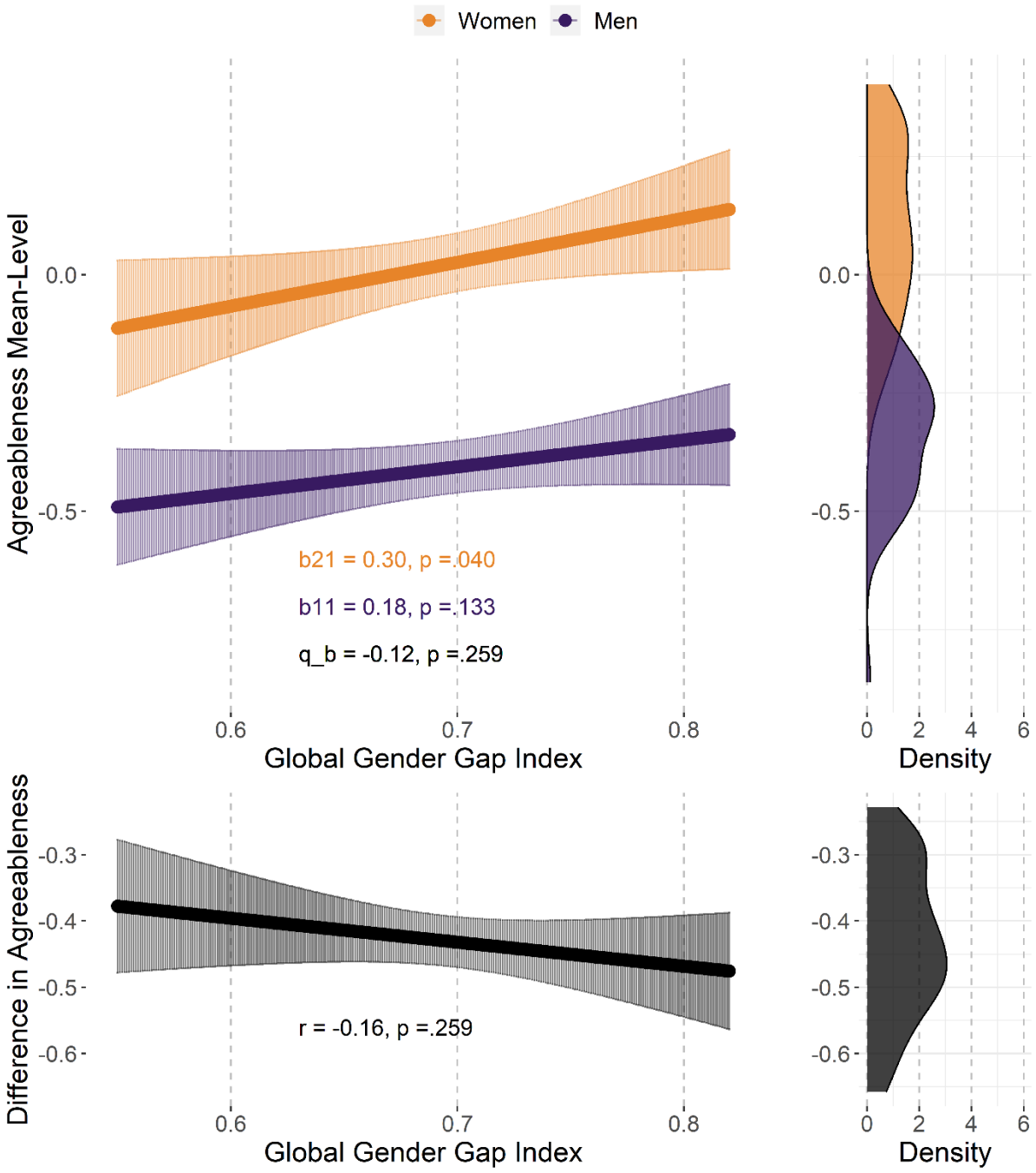

Figure S12

The associations between Global Gender Gap Index and agreeableness of men and women (top) and the difference between men and women (bottom).

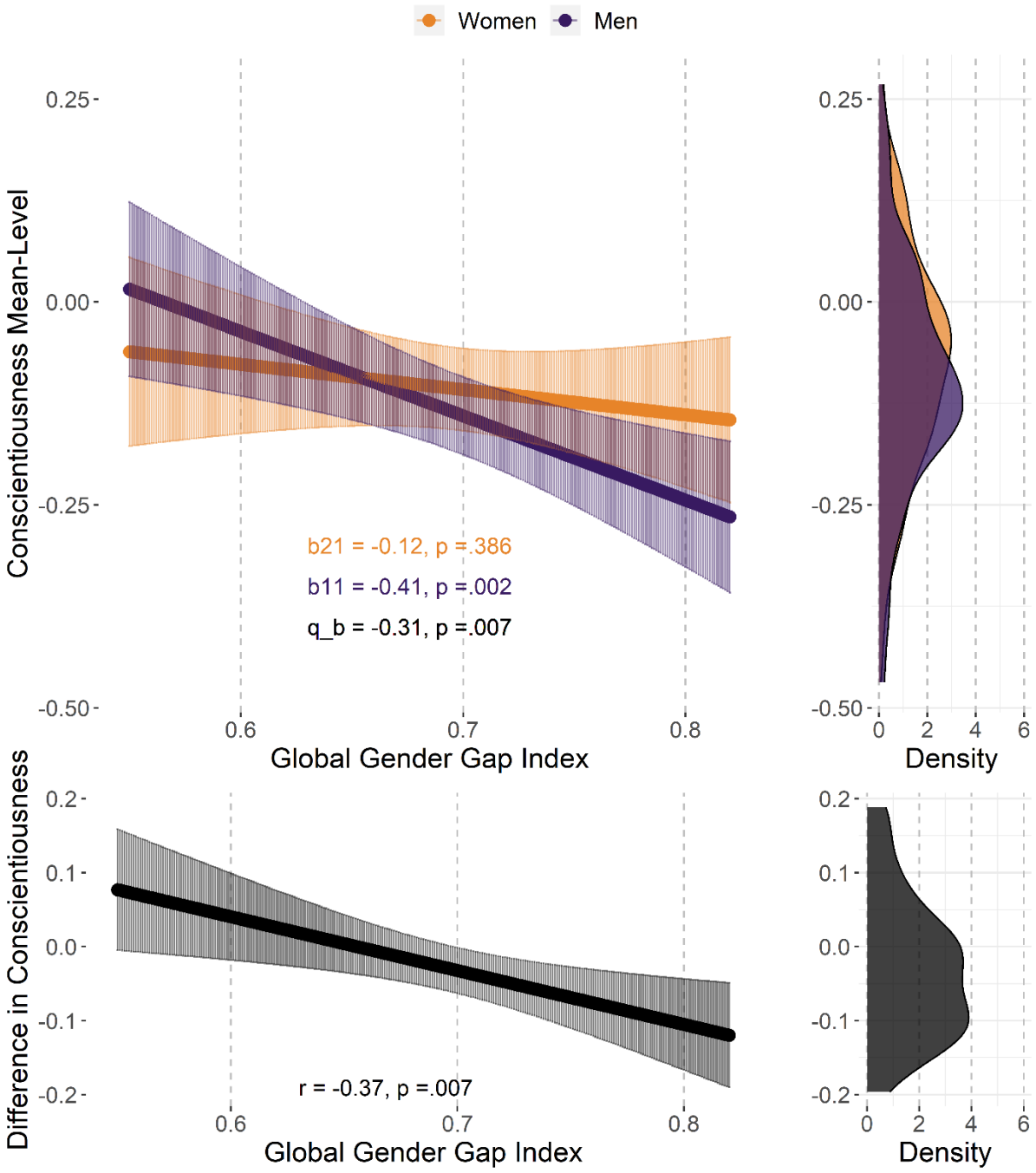

Figure S13

The associations between Global Gender Gap Index and conscientiousness of men and women (top) and the difference between men and women (bottom).