

Supplementary Materials for

The Global Decline in Sexism: A Multilevel Meta-Analytic Review of Trends in Countries'

Hostile Sexism, Benevolent Sexism, and Gender Inequality Over Time

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Table S1*The Number of Samples (n) from Each Country in the Dataframe*

Country	Country ISO	n	%
United States	USA	425	39.17
Spain	ESP	125	11.52
Turkey	TUR	73	6.73
United Kingdom	GBR	54	4.98
New Zealand	NZL	32	2.95
Canada	CAN	29	2.67
Germany	DEU	27	2.49
Italy	ITA	22	2.03
Portugal	PRT	19	1.75
Poland	POL	16	1.47
Switzerland	CHE	15	1.38
Australia	AUS	14	1.29
China	CHN	11	1.01
Belgium	BEL	10	0.92
South Korea	KOR	10	0.92
Mexico	MEX	9	0.83
Romania	ROU	9	0.83
Russia	RUS	9	0.83
Sweden	SWE	9	0.83
Argentina	ARG	8	0.74
Brazil	BRA	8	0.74
Israel	ISR	8	0.74
Netherlands	NLD	8	0.74
India	IND	7	0.65
South Africa	ZAF	7	0.65
Chile	CHL	6	0.55
Costa Rica	CRI	6	0.55
Nigeria	NGA	6	0.55
Norway	NOR	6	0.55
Colombia	COL	5	0.46
France	FRA	5	0.46
Greece	GRC	5	0.46
Pakistan	PAK	5	0.46
Peru	PER	5	0.46
Hungary	HUN	4	0.37
Lebanon	LBN	4	0.37
Iran	IRN	3	0.28
Japan	JPN	3	0.28
Taiwan	TWN	3	0.28

Croatia	HRV	2	0.18
Cuba	CUB	2	0.18
El Salvador	SLV	2	0.18
Indonesia	IDN	2	0.18
Ireland	IRL	2	0.18
Lithuania	LTU	2	0.18
Philippines	PHL	2	0.18
Serbia	SRB	2	0.18
Singapore	SGP	2	0.18
Slovakia	SVK	2	0.18
UAE	ARE	2	0.18
Ukraine	UKR	2	0.18
Vietnam	VNM	2	0.18
Zimbabwe	ZWE	2	0.18
Albania	ALB	1	0.09
Armenia	ARM	1	0.09
Austria	AUT	1	0.09
Bosnia and Herzegovina	BIH	1	0.09
Burkina Faso	BFA	1	0.09
Czech Republic	CZE	1	0.09
Denmark	DNK	1	0.09
Ecuador	ECU	1	0.09
Finland	FIN	1	0.09
Georgia	GEO	1	0.09
Ghana	GHA	1	0.09
Hong Kong	HKG	1	0.09
Iceland	ISL	1	0.09
Kazakhstan	KAZ	1	0.09
Kenya	KEN	1	0.09
Luxembourg	LUX	1	0.09
Malaysia	MYS	1	0.09
Malta	MLT	1	0.09
Morocco	MAR	1	0.09
Namibia	NAM	1	0.09
Nepal	NPL	1	0.09
Nicaragua	NIC	1	0.09
Saudi Arabia	SAU	1	0.09
Sri Lanka	LKA	1	0.09
Suriname	SUR	1	0.09
Syria	SYR	1	0.09
Uruguay	URY	1	0.09

Note. ISO = the International Organization for Standardization code.

Tests of Model Robustness—Covarying for Sample and Scale Characteristics

We considered characteristics of the sample and scale in our meta-analytic models by re-conducting models including (1) additional dummy-coded covariates for the type of sample (i.e., university, online, or community sample; excluding other samples) and (2) an additional dummy-coded covariate for the measurement scale (i.e., short-form versions of the ASI versus the full ASI). The models were multilevel meta-analytic models identical to those described in the manuscript. We summarize the results from these additional models in turn.

Sexism Differences in University Samples Relative to Online and Community Samples

Considering *Primary Analysis #1*, no evidence emerged to indicate that sexist ideologies were any higher or lower in university samples. Specifically, no differences in women's or men's average endorsement of hostile sexism emerged between university samples and online samples ($B_{\text{Women}} = .02, p = .91$; $B_{\text{Men}} = .01, p = .93$) or between university samples and community samples ($B_{\text{Women}} = .15, p = .15$; $B_{\text{Men}} = .04, p = .70$). Similarly, no differences in women's or men's average endorsement of benevolent sexism emerged between university samples and online samples ($B_{\text{Women}} = -.21, p = .23$; $B_{\text{Men}} = -.10, p = .54$) or between university samples and community samples ($B_{\text{Women}} = .04, p = .67$; $B_{\text{Men}} = .10, p = .33$). For *Primary Analysis #2*, the association between women's hostile sexism and benevolent sexism was significantly smaller in university samples relative to both online ($B_{\text{Women}} = .09, p < .01$) and community ($B_{\text{Women}} = .08, p < .01$) samples. By contrast, the association between men's hostile sexism and benevolent sexism was significantly stronger in university samples relative to online samples ($B_{\text{Men}} = -.05, p = .04$) and was not significantly different to community samples ($B_{\text{Men}} = .00, p = .97$). In sum, there was no evidence to suggest that university samples were robustly higher or lower in their endorsement of sexist ideologies than samples from online sources (e.g., online participant pools) or samples from local communities.

Sexism Differences in Long-Form Versus Short-Form Versions of the ASI

Factor analyses have replicated the structure of the ASI in short-form versions (e.g., Bendixen & Kennair, 2017; Rollero et al., 2014) separately to long-form versions (e.g., Cross et al., 2021; Ibabe et al., 2016). The analyses here are the first to consider relative differences between these versions. We revisited *Primary Analysis #1* and *#2*, including terms that tested potential differences between short-form and long-form versions of the ASI. First, for women, no evidence emerged to indicate that women's average endorsement of sexist ideologies differed depending on scale. Specifically, no differences emerged between short-form and long-form scales for women's endorsement of hostile sexism ($B = .08, p = .38$) or benevolent sexism ($B = -.05, p = .57$). No differences emerged between the short-form and long-form scales for men's endorsement of benevolent sexism ($B = .15, p = .08$). However, men's endorsement of hostile sexism was significantly higher when measured by the long-form ASI scale relative to short-form scales ($B = .39, p < .001$). Revisiting *Primary Analysis #2*, the strength of the association between hostile sexism and benevolent sexism for women was stronger when measured by the long-form version of ASI ($B = .043, p < .001$). No differences emerged in the strength of the association between hostile sexism and benevolent sexism for men ($B = -.002, p = .90$). We invite future research into the extent to which the differences that emerged for long-form measures are more or less valid indicators of the levels of endorsement of sexist attitudes and the association between hostile sexism and benevolent sexism.

Exploratory Analyses of the Random Slopes of Endorsement of Ambivalent Sexism

In exploratory tests, we plotted the intercepts and slopes for each country over time, depicting variance in (1) the average endorsement of sexism across countries (i.e., random intercepts) and (2) the slope of endorsement of sexism over years (i.e., random effect of “year”). Specifically, we conducted multilevel models estimating men’s and women’s endorsement of hostile sexism or benevolent sexism. Estimation of trajectories required each country to have available data in at least three different years, limiting these models to 29 countries displayed in Table S2. Multilevel analyses were conducted in R (version 4.4.0) with the R package lme4 (Bates et al., 2015) with random intercepts (i.e., outcomes, such as the average level of sexism, were allowed to vary between different countries). Year was centered on the year 2010 and entered as a random effect. All other predictors were standardized.

The estimated slopes for each country are displayed in Table S2 and depicted in Figure S1 (hostile sexism) and Figure S2 (benevolent sexism). The pattern of slopes for women and for men indicated that sexist ideologies typically declined each year: 79 out of 81 possible trajectories were negative. However, countries exhibited variance in the levels and slopes of people’s endorsement of hostile sexism and benevolent sexism. The estimated negative trajectories in women’s and men’s endorsement of hostile sexism and benevolent sexism appeared relatively largest for Spain. The negative trajectories for men were relatively large in Spain, Sweden, and Chile, whereas the negative trajectories for women were relatively large in Spain, Portugal, and Chile. By contrast, some estimated trajectories indicated the least amount of difference over time (or very slight positive slopes). Countries with slightly positive or relatively flat slopes for women included South Korea, Australia, and the United States of America, whereas for men those flatter slopes included Nigeria, South Korea, and India.

In conclusion, the patterns of random slopes were highly consistent with the meta-analytic models we report in the manuscript. Consistent with our conclusions that the slope of people's endorsement of hostile sexism and benevolent sexism are generally decreasing over time (i.e., the fixed effect after adjusting for the random effect of year), almost all slopes were negative. Although there were degrees of variance in these slopes, the overarching pattern indicated that people's endorsement of hostile sexism and benevolent sexism decreased over time.

Table S2

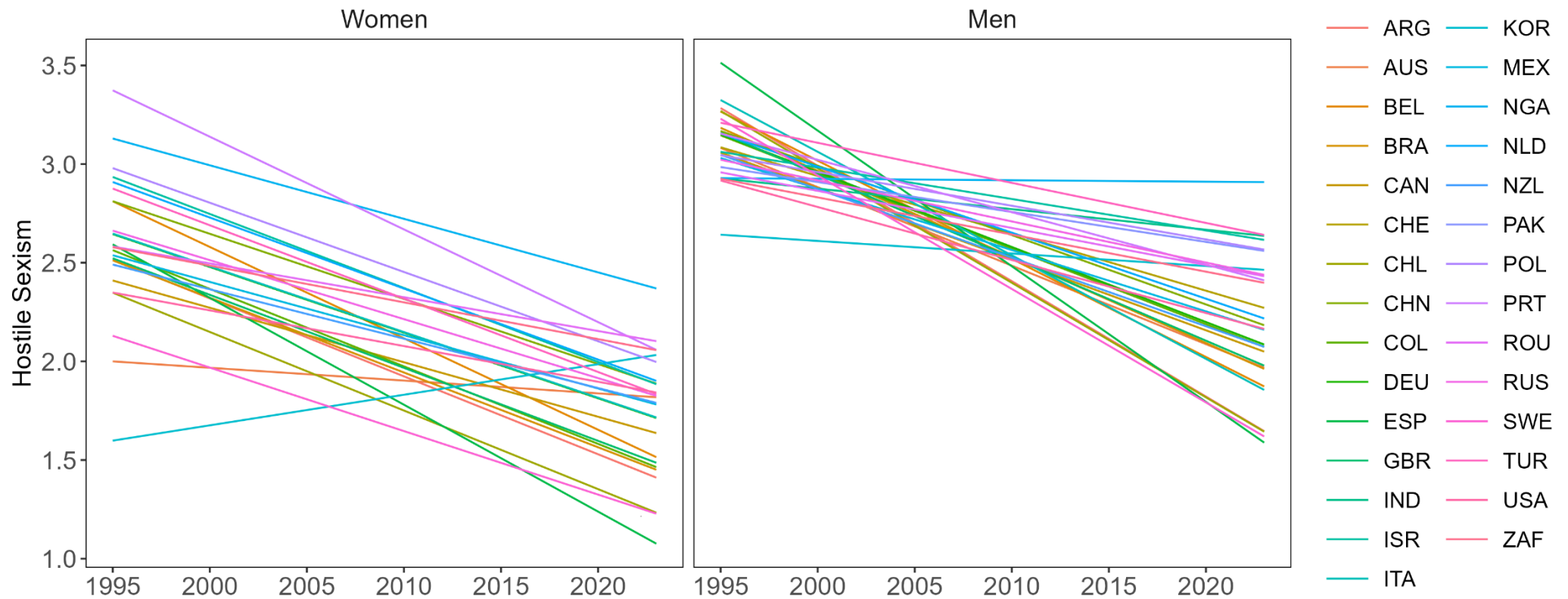
Estimated Slopes for Countries' Year-to-Year Difference in Endorsement of Hostile Sexism and Benevolent Sexism from Random-Effects Multilevel Models

Country	Country ISO	Women's Hostile Sexism	Women's Benevolent Sexism	Men's Hostile Sexism
Argentina	ARG	-.039	-.038	-.058
Australia	AUS	-.006	.010	-.040
Belgium	BEL	-.046	-.036	-.050
Brazil	BRA	-.038	-.047	-.044
Canada	CAN	-.028	-.026	-.036
Chile	CHL	-.040	-.039	-.058
China	CHN	-.033	-.041	-.035
Colombia	COL	-.039	-.042	-.038
Germany	DEU	-.033	-.044	-.038
India	IND	–	–	-.010
Israel	ISR	-.038	-.047	-.016
Italy	ITA	-.033	-.039	-.052
Mexico	MEX	-.027	-.024	-.031
Netherlands	NLD	-.036	-.037	-.033
New Zealand	NZL	-.025	-.031	-.035
Nigeria	NGA	-.027	-.032	-.001
Pakistan	PAK	–	–	-.015
Poland	POL	-.035	-.035	-.017
Portugal	PRT	-.047	-.055	-.027
Romania	ROU	-.017	-.023	-.019
Russia	RUS	-.030	-.031	-.021
South Africa	ZAF	-.019	-.021	-.019
South Korea	KOR	.016	-.029	-.006
Spain	ESP	-.054	-.066	-.069
Sweden	SWE	-.032	-.019	-.058
Switzerland	CHE	–	–	-.029
Turkey	TUR	-.037	-.039	-.020
United Kingdom	GBR	-.037	-.034	-.042
United States	USA	-.018	-.011	-.027

Note. ISO = International Organization for Standardization code. The model estimating random slopes of year for men's benevolent sexism did not converge. These analyses were a subset of the data included in our meta-analytic models because random slope estimation required a particular country to have at least three points of data from different years for women or for men.

Figure S1

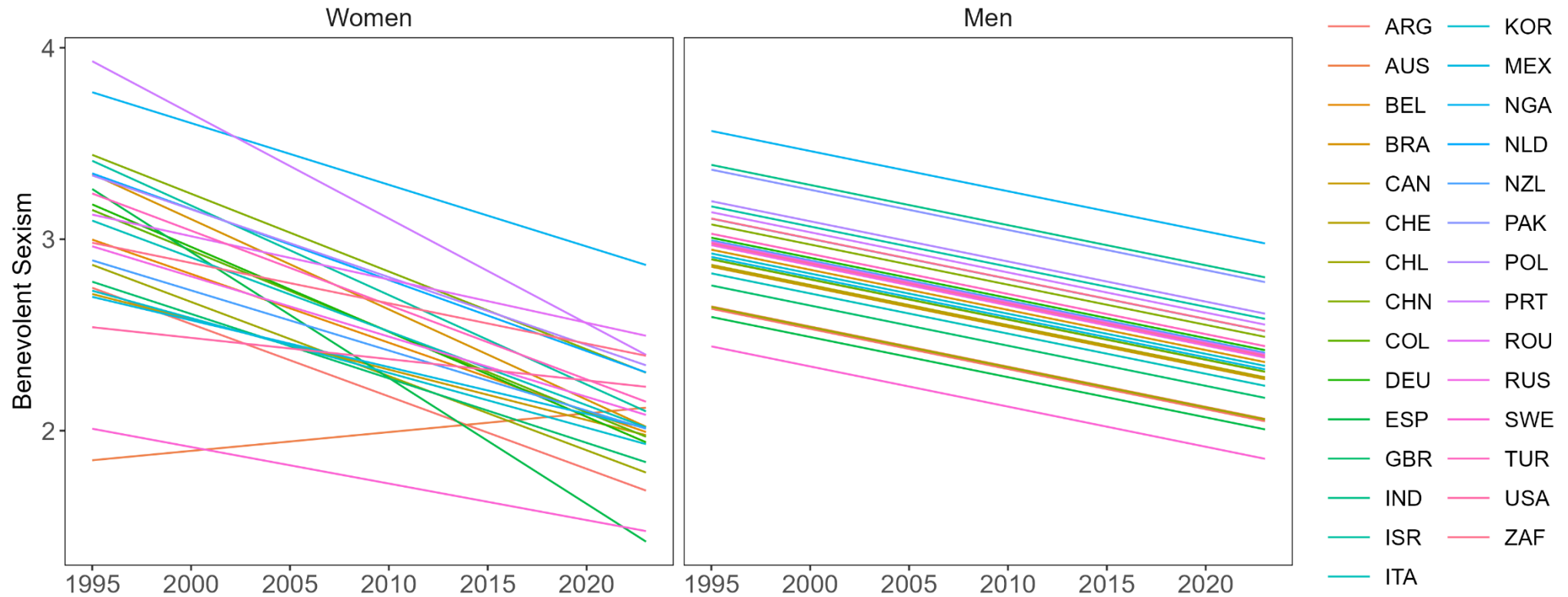
Estimated Random Slopes of Women's (Left Panel) and Men's (Right Panel) Endorsement of Hostile Sexism for the Subset of Countries with Sufficient Longitudinal Data (n = 29)



Note. Hostile sexism was scaled from 0 (*Strongly Disagree*) to 5 (*Strongly Agree*). Countries are labelled according to their three-letter ISO code (see Table S2). A negative slope for 'year' indicates that sexism scores decreased over time.

Figure S2

Estimated Random Slopes of Women's (Left Panel) and Men's (Right Panel) Endorsement of Benevolent Sexism for the Subset of Countries with Sufficient Longitudinal Data (n = 29)



Note. Benevolent sexism was scaled from 0 (*Strongly Disagree*) to 5 (*Strongly Agree*). Countries are labelled according to their three-letter ISO code (see Table S2). Estimation of random slopes in the model for men did not converge so the figure displays the model with fixed slopes and random intercepts. A negative slope for 'year' indicates that sexism scores decreased over time.

Tests of Model Robustness—Excluding Data from Spain

We conducted a post-hoc test of model robustness that excluded data from Spain. Samples from Spain were the second-most represented country in our meta-analysis (Table S1), and Spain exhibited particularly negative trajectories in the endorsement of both hostile sexism and benevolent sexism for women and for men (see Table S2, Figure S2, Figure S3). Our multilevel meta-analytic models allowed random effects for each country, so we were not concerned that this effect had undue influence on the final estimates. In addition, we were confident that the data from Spain were valid. In the Discussion of manuscript, we discuss the independent (and representative) research on gender attitudes in Spain that offers convergent validity consistent with our finding that the levels of hostile sexism and benevolent sexism exhibit particularly large differences over the last two decades. Nonetheless, despite the above, we conducted post-hoc tests excluding data from Spain (i.e., excluding the relatively large negative slopes) to examine for potential differences in the final model estimates.

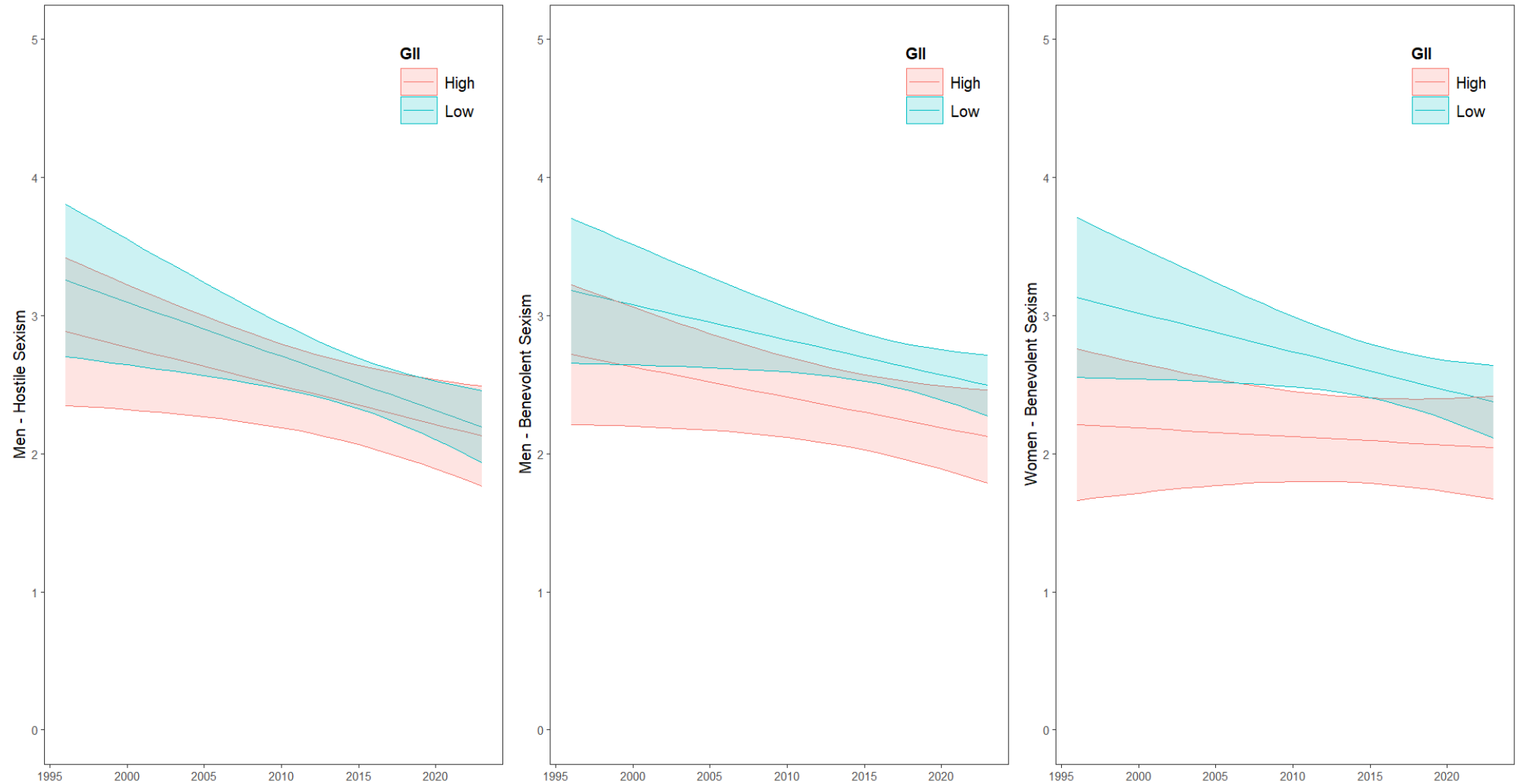
The patterns of results from these models remained the same as those reported in the manuscript and are summarized here. Considering *Primary Analysis #1*, evidence indicated the same trajectories of decline in women's endorsement of hostile sexism ($B = -.01, p = .014$), men's endorsement of hostile sexism ($B = -.03, p = .001$), and men's endorsement of benevolent sexism ($B = -.02, p = .001$). A minor difference emerged in that women's endorsement of benevolent sexism no longer significantly differed across years ($B = -.01, p = .055$). Considering *Primary Analysis #2*, hostile sexism remained robustly and very strongly associated with benevolent sexism for women ($B = .55, p < .001$) and strongly associated for men ($B = .40, p < .001$).

Finally, we examined the links between sexist attitudes and indicators of societal gender (inequality). In *Primary Analysis #3a*, the patterns of effects remained the same as interpreted in the manuscript: There was no evidence to support the theoretical principle that

indicators of gender inequality predict greater endorsement of benevolent sexism and hostile sexism. Considering *Primary Analysis #3b*, men's endorsement of hostile sexism continued to predict relatively higher scores on the Gender Inequality Index (GII; $B = .67, p < .001$), but a significant moderation again indicated that the association was attenuated in more recent years ($B = -.07, p < .001$). Similarly, men's benevolent sexism predicted relatively lower gender inequality scores on the GII ($B = -.52, p < .001$) and this negative association was attenuated in more recent years ($B = .05, p = .002$). One minor difference emerged: Men's endorsement of hostile sexism was no longer significantly negatively associated with the gender development index at an average level ($B = -.14, p = .22$), but this association was qualified by the same interaction effect with year that we report in the manuscript ($B = .07, p < .001$). In sum, the patterns of results were comparable to those reported in the manuscript when excluding all data from Spain and thus, in addition to our confidence in the validity of these findings, we had no statistical concerns about the large difference exhibited in Spain over the timeframe of our meta-analysis.

Figure S3

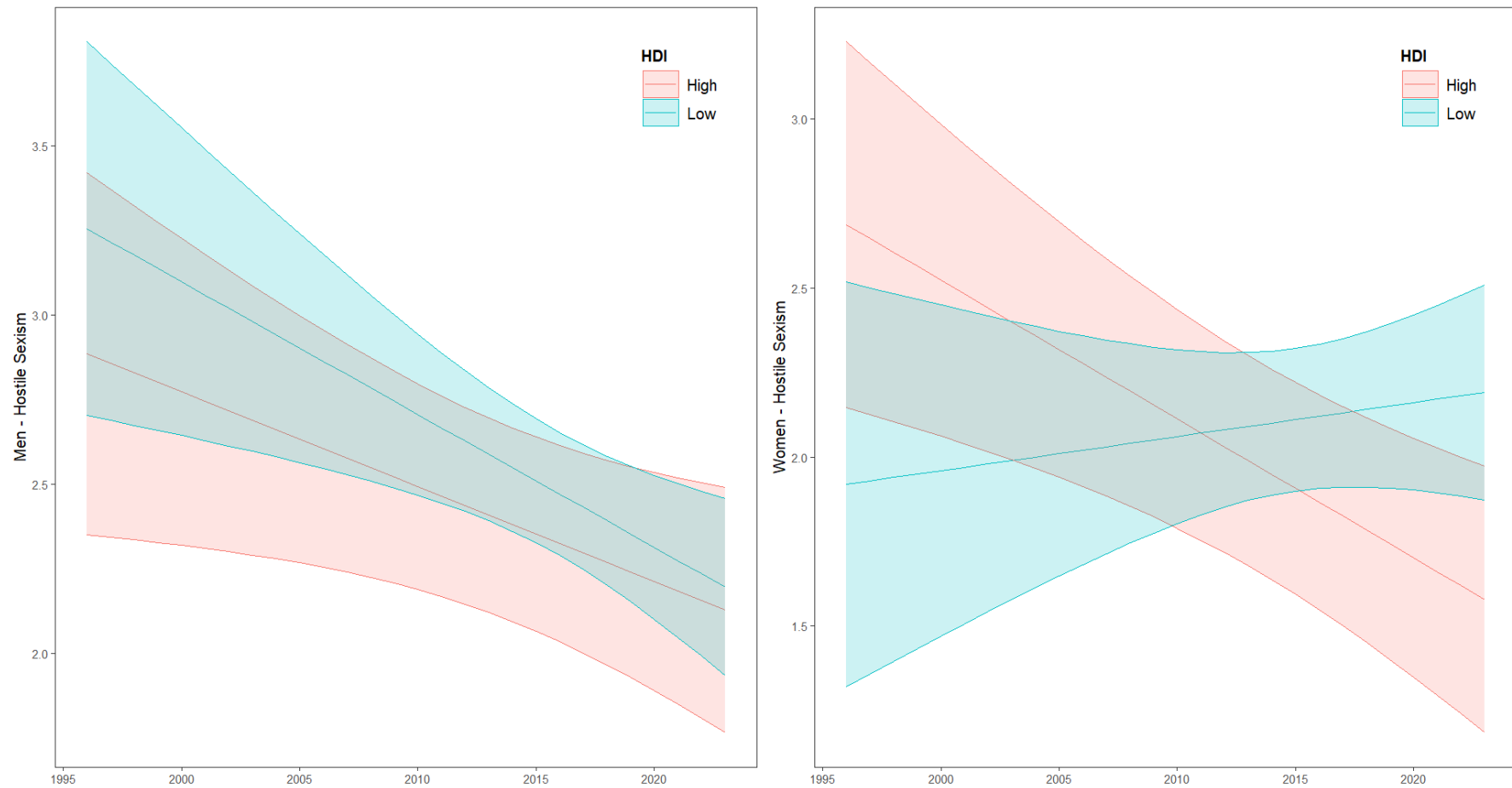
Multilevel Meta-Analytic Models Estimating Endorsement of Sexist Ideologies Differing by Countries' Gender Inequality Index (GII), 1996–2023.



Note. Sexism scores ranged from 0 to 5. Higher scores on the GII indicate relatively higher gender inequality, acknowledging the typical GII across the dataframe was relatively lower in indicators of inequality (i.e., $1\text{ SD above the mean} = 0.30$; $1\text{ SD below the mean} = 0.08$; the UN world average = 0.46).

Figure S4

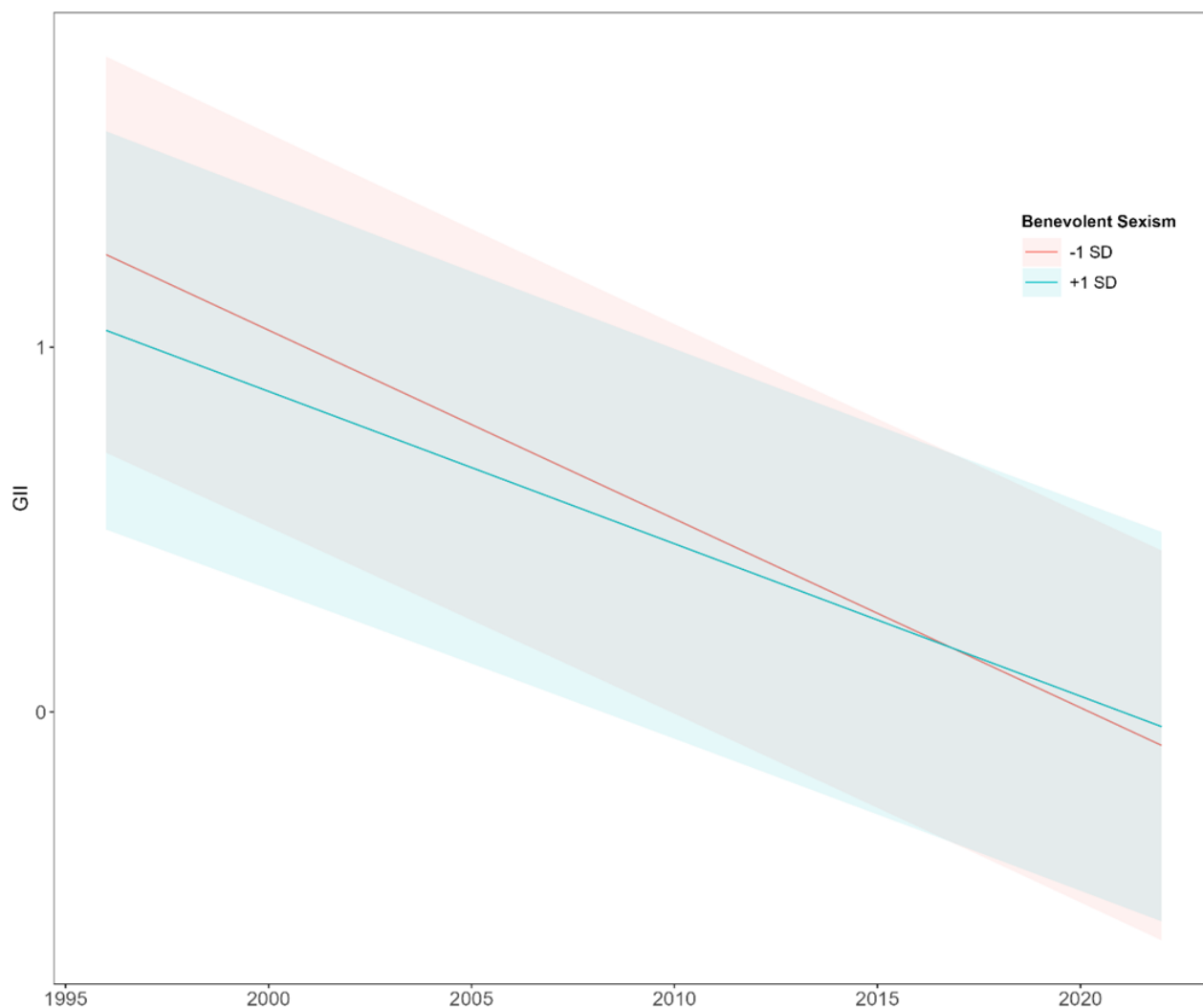
Multilevel Meta-Analytic Models Estimating Endorsement of Sexist Ideologies differing by Countries' Human Development Index (HDI), 1996–2023.



Note. Hostile sexism scores are on a scale from 0 to 5. The y-axes are condensed to show the patterns of overlap. Higher scores on the HDI indicate generally higher development scores for a country, including longevity, education years, and per capita economic output.

Figure S5

Multilevel Models Regressing Countries' Gender Inequality Index (GII) Scores on Men's Endorsement of Benevolent Sexism, 1996–2023

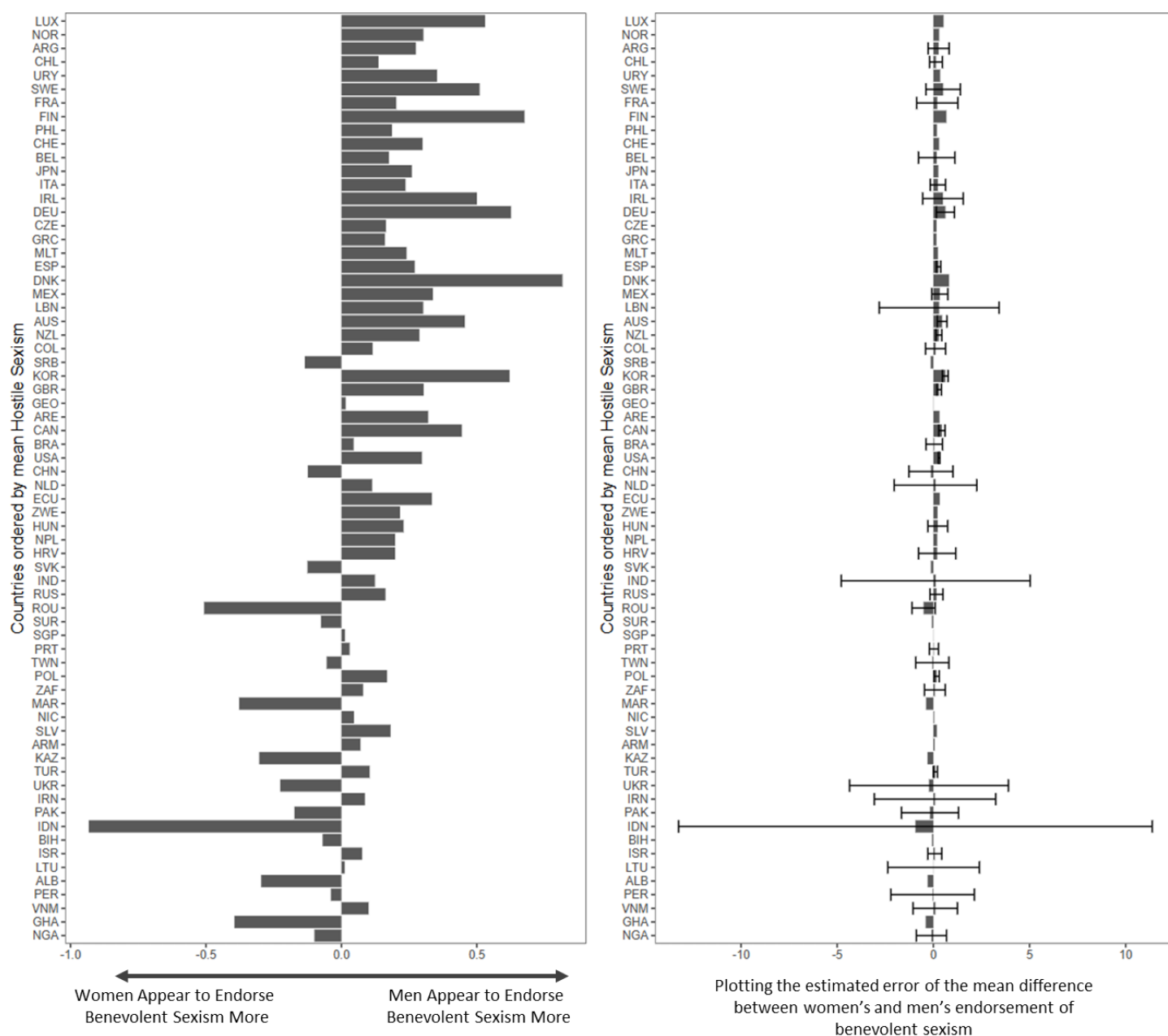


Note. GII = Gender Inequality Index, a score given to each country in each year by the United Nations Human Development data center, lower scores indicate lower gender inequality.

Although the slopes were significantly different, there was substantial overlap in the estimated points in both slopes in a given year.

Figure S6

Descriptive Pattern of the “Protection Racket Effect”: Gender Differences in Benevolent Sexism Appear Smaller (and Perhaps Reverse) in Countries with Greater Hostile Sexism



Note. The left panel follows the aim of Figure 2 in Glick et al. (2000) and Figure 4 in Zawisza et al. (2025), inspecting patterns of the “protection racket effect.” We plot the mean differences (Glasson’s g) between women and men in their endorsement of benevolent sexism, ordering countries by the lowest average levels of men’s endorsement of hostile sexism (top) to highest average levels of men’s endorsement of hostile sexism (bottom). The right panel provides corresponding errors for these sample-level differences, illustrating a large degree of uncertainty that prevents any conclusions at this stage. See Table S1 for *International Organization for Standardization* country codes.

Summary of the Descriptive Pattern of the “Protection Racket Effect” (Figure S6)

Figure S6 illustrates a descriptive pattern of the “Protection Racket Effect”: In countries where men more strongly endorse hostile sexism, the gender gap between women’s and men’s endorsement of benevolent is predicted to minimize (i.e., there is minimal difference between women’s and men’s endorsement of benevolent sexism) and is predicted to reverse in some cases where hostile sexism is particularly high (i.e., women endorse benevolent sexism more strongly than men). Specifically, Glick et al. (2000) reported that women endorse benevolent sexism more strongly than men in the top four countries with the highest endorsement of hostile sexism (of 19 countries total). Zawisza et al. (2025) reported that women endorse benevolent sexism more strongly than men in six out of the top ten countries with the highest endorsement of hostile sexism (with measures from 62 countries total). Rather than comparing women’s and men’s averages within the sample from each country, we estimated the average gender difference for each country from multiple samples (pooling data across years). We interpreted Figure S5 as showing a pattern that is consistent with the qualitative interpretations in both prior studies: Women appear to endorse benevolent sexism more strongly than men in seven out of the ten countries with the highest endorsement of hostile sexism, and conversely, men appear to endorse benevolent sexism more strongly than women in ten of ten countries with the *lowest* endorsement of hostile sexism.

The patterns in prior research (i.e., Glick et al., 2000; Zawisza et al., 2025) have involved testing for significant differences between women and men within each country but have relied on qualitative interpretation for the effects across countries because the studies involved a single cross-sectional sample from each country (i.e., there was no way to estimate variance in the country-level gender differences). In Figure S5, the right panel illustrates there is a very high degree of error in the estimates of the gender difference in benevolent sexism and so we cannot draw any conclusions at this stage.