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Gendered Language and Gendered Violence

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ABSTRACT. This study establishes the influence of sex-based grammatical gender on gendered violence. We demonstrate a statistically significant relationship between gendered language and the incidence of intimate partner violence in a cross-section of countries. Motivated by this evidence, we conduct an individual-level analysis exploiting the differences in the language structures spoken by individuals with a shared religious and ethnic background residing in the same country. We show that speaking a gendered language is associated with the belief that intimate partner violence is justifiable. Our results are consistent with the theoretical possibility that gendered language activates gender schemata in the minds of speakers, increasing the salience of gender distinctions and existing gender norms which legitimize gendered violence.

JEL classification: J12, Z13, D83.

Keywords: gender, language, cultural norms, intimate partner violence.

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1. Introduction

Intimate Partner Violence (IPV) is pervasive. According to estimates by the World Health Organization (2018), 26% of women globally have been subjected to physical and/or sexual violence by their husband or male partner at least once in their lifetime. IPV has immense negative consequences for the health and well-being of survivors (Campbell, 2002; Devries et al., 2013; Beleche, 2019) and their children (Aizer, 2011; Currie et al., 2018; Anderberg and Moroni, 2020). Moreover, IPV imposes significant social and economic costs on societies due to the lost income and decreased productivity of survivors and their families, expenditures for the provision of services, and negative impacts on future human capital formation (Duvvury et al., 2013; Borker, 2017). For example, the annual costs of IPV are estimated to be $5.8 billion in the United States of America and $1.16 billion in Canada (UN Women, 2016). Yet, our understanding of the factors which contribute to the prevalence of IPV remains insufficient. This paper aims to partially fill the gap by offering a novel explanation to the literature: sex-based gender marking in language.

Different languages vary strongly with regards to grammatical gender. In some languages gender marking is ubiquitous, in others it is entirely absent (Corbett, 2013a). In many languages biological sex forms the semantic core of the gender system. Sex-based linguistic gender can be related to attitudes and behaviours concerning gendered violence through two different mechanisms, a cognitive and a cultural one, or through a combination of the two.

First, according to the cognitive mechanism, linguistic features may have direct causal effect on our cognition and behavior, an idea that is commonly referred to as the *Linguistic Relativity Hypothesis*.[1] In the case of linguistic gender the cognitive mechanism can be manifested in the following form. We structure reality and the social world using mental *schemata* (Rumelhart, 1980; Tajfel, 1981; Turner et al., 1987; Fiske and Taylor, 1991). Gendered language leads to an increased activation of gender schemata in the minds of speakers, and thereby raises the salience of gender distinctions and increases the importance of

[1] For overviews of the Linguistic Relativity Hypothesis see e.g. Gumperz and Levinson, 1996; Lucy, 1997; Boroditsky, 2003; Casasanto, 2015. There are numerous studies that testify to the influence that language can have on cognition and behavior. See e.g. Lucy (1996); Slobin (2003); Boroditsky et al. (2003); Oh (2003); Levinson and Wilkins (2006); Kay and Regier (2006); Winawer et al. (2007)

gender norms. As a consequence, existing gender norms, which often legitimise IPV, are being reinforced, and may acquire a greater influence on the behaviour of speakers of a gendered language. The cognitive channel suggests that sex-based linguistic gender has a direct causal effect on an individual's beliefs and behavior.

Alternatively, according to the cultural channel, gendered language may be associated with IPV because it serves as a marker for gender-biased social norms. As argued by Galor et al. (2018), language structures may evolve in a manner that complements existing cultural values and, indeed, they find evidence that sex-based gender systems are more common in languages that developed in regions conducive to a gender gap in agricultural productivity. Such languages force speakers to pay close attention to gender distinctions and hierarchies. In the case of linguistic gender, the cultural mechanism suggests that in places that assign a high significance to gender related social norms, there is a higher probability that gender distinctions are reflected in language. In the current context, this means that gendered language may not have a causal relationship to IPV. It is of course also possible that both channels are operative and that there is a complex causal interaction between linguistic and cultural features.

We empirically examine the relationship between gendered language and IPV in two ways. First, using cross-country data, we consider the relationship between gendered language and the reported incidence of IPV. Controlling for a key set of economic, religious and institutional variables, we find that the share of women having experienced IPV is 8 percentage points larger in countries where the language spoken by the majority of population is gendered. While we make no claim to having identified a causal relationship, the strong association between gendered language and IPV in the international data serves to motivate our primary empirical investigation, which uses individual level data to consider an important mechanism that may underly this relationship, the link between speaking a gendered language and expressing a belief in the justifiability of IPV.

Based on a global data collection of nationally representative individual-level surveys, we show that speaking a gendered language is statistically significantly positively associated with the probability of considering wife beating justifiable. Relative to individuals whose

language does not have a sex-based gender system, speaking a gendered language is associated with 7.5 percentage point increase in the probability of justifying wife beating. To mitigate the confounding effects of geographic, cultural, historical, institutional and socio-economic conditions, we control for country, wave, language family, religion and ethnicity fixed effects in our primary specification thereby effectively drawing comparisons amongst observationally identical individuals sharing the same ethnic and religious background, residing in the same country and reporting their views at the same point in time.

Our key finding is robust to excluding high-IPV regions of the world and speakers of global languages from our sample. In addition, we conduct a number of placebo tests, finding that speaking a gendered language is not empirically associated with beliefs in the justifiability of non-gendered forms of violence, including political violence and violence against children and others. The results of these tests support the theoretical mechanism we propose, which is specific to gender.

In spite of the extensive set of controls we employ, it is still possible that our result is spurious. In particular, it may be that the empirical association between gendered language and beliefs about the justifiability of wife beating reflects the influence of unobserved dimensions of culture rather than the causal influence of language itself. To address this concern, we employ a quasi-experimental design, whereby we explore whether for speakers of gendered languages, using a non-gendered interview language de-activates attitudes justifying gendered violence; and conversely, whether for speakers of non-gendered languages, using a gendered interview language activates these attitudes. We find that for individuals who speak a gendered language at home, using a genderless language to elicit views on gendered violence is associated with a reduced probability of tolerating such violence—additional evidence that suggests that the absence of a sex-based linguistic gender system might, through the reduced activation of gender schemata, also reduce the influence of social norms which support gendered violence.

Our finding that the cognitive channel may play a significant role in determining beliefs about the justifiability of wife beating has important implications for the efficacy of language-based policy interventions. There has been a significant push across a variety of countries to adopt less gendered language structures in an attempt to address sexism and

gender inequality. This includes the increasing use of "they" as a non-gendered form of the third person singular in English (Baranowski, 2002), replacement of the pronouns "him" and "her" with an artificial genderless pronoun "hen" in schools in Sweden (Tagliabue, 2012), a move to revise the treatment of collective nouns as masculine in French (McCoubrey, 2017), and the use of "-e" as a gender-neutral noun ending in Spanish (Politi, 2020). These and other language-based interventions are likely to have a greater influence on attitudes concerning IPV if the link between gendered language and beliefs is primarily cognitive in nature. Alternatively, if the empirical relationship between gendered language and beliefs about IPV arises because gendered language is correlated with unobserved dimensions of gender-biased culture, then the impact of language-based interventions may be limited.

This study contributes to the emerging body of work that seeks to identify the drivers of violence against women. Existing studies highlight the significance of historical circumstances that have shaped social norms that legitimize such violence, including the legacies of conflict (La Mattina, 2017; Mavisakalyan and Minasyan, 2021), historical family structures (Tur-Prats, 2019; Beltrán Tapia and Gallego-Martínez, 2020), and socio-economic hierarchies (Leyaro et al., 2017; Alesina et al., 2021). Contemporary informal norms around marriage and post-marital residence continue to influence violence experienced by women (Jacoby and Mansuri, 2010; Jayachandran, 2015; Khalil and Mookerjee, 2019). Formal institutions, like the features of inheritance and divorce laws and law-and-order institutions also affect such violence (Amaral, 2017; Amaral et al., 2021; García-Ramos, 2021). There is evidence to suggest that in some settings IPV declines in response to women's economic empowerment (Aizer, 2010; Hidrobo et al., 2016; Mavisakalyan and Minasyan, 2021). However, in other contexts, especially those characterised by conservative and rigid gender role norms, backlash against women's economic empowerment may increase aggression against women (Hidrobo and Fernald, 2013; Heath, 2014; Zhang and Breunig, 2021). Violence against women is also affected by systemic shocks like political unrest (Bargain et al., 2019), structural changes in the economy (Kotsadam et al., 2017), and during periods of

decreased mobility as in the current COVID-19 pandemic (United Nations, 2020; Arenas-Arroyo et al., 2021; Berniell and Facchini, 2021). We aim to contribute to a better understanding of the causes of IPV norms and the prevalence of IPV by studying gender in language as a possible source.

That gendered language might promote gender inequalities has been a subject of feminist scholarship for several decades (see Saul (2010) for an overview). Only recently has empirical evidence on the connection between gender inequalities and gendered language started to emerge. Existing studies show that gendered language is associated with more unequal outcomes in education (Davis and Reynolds, 2018; Galor et al., 2020), employment (Mavisakalyan, 2015; van der Velde et al., 2015) and corporate and political leadership (Santacreu-Vasut et al., 2013, 2014).[2] Of particular relevance to the current study are the papers that link gendered language with gender inequalities in the household, reflected in the allocation of household production tasks on the basis of sex (Hicks et al., 2015) and labor market engagement of women within the context of household decision-making (Gay et al., 2018). We extend this literature by focusing on IPV norms and the prevalence of IPV as outcomes of speaking a gendered language.

The next section presents a conceptual framework underlying the proposed link between gendered language and IPV. Section 3 takes a first look at the link through a descriptive analysis of cross-country data. Section 4 presents the empirical approach and data underlying the main part of our analysis. The results of this analysis appear in Section 5. Finally, Section 6 concludes the paper and discusses its implications.

2. Background

Grammatical Gender. Different languages vary strongly with regards to grammatical gender. Some languages have near-ubiquitous gender marking, other languages completely lack grammatical gender (Corbett, 2013a). Among the languages that do have gender, the number of grammatical genders can vary from 5 or more genders to only two. Another important dimension of variation concerns the semantic basis for gender distinctions, i.e. which real world feature gender is tracking. In most cases, the semantic core of gender is

[2] For reviews of this literature see Mavisakalyan and Weber (2017); Ginsburgh and Weber (2020).

biological sex, but grammatical gender can also track non-sex based characteristics, such as the human/non-human distinction or the contrast between animate and inanimate objects (Corbett, 2013b). Structurally, grammatical gender is based on a system of *agreement* between groups of nouns and other expressions in a sentence (Corbett, 1991). Consider e.g. the following Russian sentences (Corbett, 2013a):

(1) Žurnal ležal na stole.
magazine lay-M on table.
The magazine lay on the table.

(2) Kniga ležal-a na stole.
book lay-F on table.
The book lay on the table.

(3) Pis´ mo ležal-o na stole.
letter lay-N on table.
The letter lay on the table.

Here, we find different verbs forms in 1), 2), and 3), depending on the different nouns in subject position, Žurnal, Kniga, Pis´ mo. For instance, since Pis´ mo has neutral gender, the verb needs to end in -o, indicating neutral gender. Other forms of gender agreement may demand that e.g. adjectives or articles agree with the relevant noun.

As just mentioned, biological sex is the semantic core of the gender system in many languages. In French the noun for 'woman' has female grammatical gender ('*la* femme') and the noun for 'man' has male grammatical gender ('*le* homme'). But these sex based distinction are often projected far beyond the biological realm onto non-biological objects as well, e.g. 'la lune' (the moon) has female grammatical gender and 'le soleil' (the sun) has male grammatical gender. Following an established linguistic source (Dryer and Haspelmath, 2013), we distinguish between languages with a sex-based gender system (e.g. Spanish, Russian) on the one hand, and languages that do not have a sex-based gender system (e.g. Zulu, Swahili) or that lack gender altogether (e.g. Finnish, Persian) on the other. For simplicity, we refer to languages with a sex-based gender as 'gendered' languages and languages that lack a gender system or whose gender system is not sex-based both as 'genderless'. Our analysis

explores whether speaking a gendered language is associated with higher acceptance of IPV legitimizing norms and a higher prevalence of IPV.

Gendered language and gender-related social norms. Linguistic gender can be related to social norms concerning IPV through two broad mechanisms, a cultural and a cognitive one. Consider first the cultural mechanism. Some societies assign a higher importance to gender norms than others. In such societies, gender distinctions play a more significant socio-cultural role. As a result, these distinctions are more likely to find a linguistic manifestation. That is, language structures tend to evolve such that they complement cultural values. For instance, Galor et al. (2018) provide evidence that geographic features linked to cultural norms are also coded in language structures. There then is a greater likelihood to find a grammaticalised sex-based gender system in the language spoken in societies that place a higher emphasis on gender distinctions. The cultural mechanism does not require that language structures play a causal role in determining individual behavior. Gendered language may simply be a marker of a gender-biased culture.

Second, sex-based linguistic gender may directly affect speakers' cognition and behaviour. We structure the natural and the social world using mental *schemata* (Rumelhart, 1980; Tajfel, 1981; Turner et al., 1987; Fiske and Taylor, 1991; Minsky, 1974). In the social domain, these schemata organise how we perceive others and ourselves. They also play an action-guiding role in the form of behavioral *scripts* (Schank and Abelson, 1977). A script is a general recipe for how to behave in a given situation; scripts prescribe or proscribe a certain course of action, and often encode social norms. A large amount of our behavior in social situations is based on such routines and social scripts.

Schemata and scripts incorporate *prototypes*, i.e. typical or ideal exemplars of the relevant category (Rosch, 1975, 1978). For instance, the schema for *wife* is connected to a prototypical wife which, depending on the context, may be viewed as someone who is obedient, does the cooking, cares for the children, is faithful, sexually available to the husband, etc. The wife-schema is related to a script that regulates how a husband should behave in relation to her, i.e. which behaviors are permissible or mandated. Consequently, schematas and scripts may encapsulate, through the associated norms and prototypes, damaging patriarchal social hierarchies and dominance structures.

The primary effect of speaking a language with a sex-based gender system is an increase in the activation of sex-based gender schemata and scripts. This increased activation of gender schemata leads to three further downstream effects on speakers' attitudes and behaviours. First, it reinforces existing traditional gender norms, which frequently legitimise or even mandate IPV. Gender norms presuppose the idea that there is a difference between men and women, and that this difference is normatively significant. Sex-based linguistic gender requires speakers to constantly draw a distinction between the sexes. Thereby, they not only raise the salience of the gender contrast in the minds of speakers, they may also create the perception that the linguistic distinction corresponds to an objective and natural distinction in the extra-linguistic reality. This perception can in turn be used to ground supposed normative differences between the sexes, i.e. to support the claim that men are naturally superior to women.

Second, gendered language may increase the influence of gender norms on speakers' behavior by facilitating categorization of social situations in gendered terms and by priming associated behavioral scripts. Schemata are *interrelated* and form semantic networks (Sowa, 1991). The activation of one schema primes related networks for activation. As gendered language infuses the whole of reality with gender distinctions, it may even link neutral schemata more closely to gender-involving schemata, or increase the number of connections to such schemata. The effect is that underlying gender norms may have a greater influence on the behaviour of speakers of gendered languages, as they perceive reality through a gendered lense.

Finally, sex-based linguistic gender can raise the prominence of gender proto- or ideal-types, such as the idea of the good wife. On the flipside, this may increase the likelihood that actually manifested behaviors are classified as potentially sanctionable deviations from the ideal-type. When a woman deviates from the wife ideal-type, the discrepancy between the ideal and her manifest behavior may often be seen as negative. Her partner may then judge that a sanction of the behavior is legitimate. As Bicchieri writes: "Punishment in this case is perceived as appropriate and possibly even as part of a husband's duties. If people collectively hold such a gender schema, its existence could serve to support and justify systematic domestic violence." (Bicchieri, 2017, p. 135). As a result, in contexts where speakers

use a gendered language, women are more often perceived as falling short of the ideal of a good woman/wife. These perceived deviations can then be interpreted as justifying violent punishment. Conclusively, we expect to see a higher prevalence of gendered violence in context where the dominant language contains a sex-based gender system.

To conclude, sex-based linguistic gender is potentially related to IPV related norms and behaviours in two ways: through a cultural and through a cognitive pathway. Along the cultural pathway, societies where gender norms play an important role are more likely to speak a gendered language. Along the cognitive pathway, gendered language may reinforce IPV legitimizing social norms, increase the influence of such norms on speakers' behaviors, and lead to heightened perceptions of punishable deviations of observed behaviour from an ideal-type related to gender schemata. Our general picture here is in line with *gendered resource theory* (Atkinson et al., 2005), according to which gender ideology and gender norms play an important role in understanding gendered domestic violence.

3. A first look: Gendered language and the incidence of IPV across countries

In this section, we provide evidence on the relationship between speaking a language with a sex-based gender systems and the occurrence of IPV in a cross-section of countries. Our dependent variable, sourced from Georgetown Institute for Women, Peace and Security and Peace Research Institute Oslo (2019), captures the percentage of women who experienced physical or sexual violence committed by their intimate partner in the previous 12 months—a measure that is drawn from prevalence surveys conducted over the period 2000-2017 (data reported in the series are the most recent available in the period specified). The presence of a sex-based gender system is defined with reference to the language spoken as a mother tongue by the majority population taken from Alesina et al. (2003). We treat a language as gendered if it employs a sex-based system as defined in Corbett (2013b).

We study whether cases of IPV are more prevalent in countries where the majority speaks a gendered language in a regression framework that includes the following sets of controls in a sequential fashion: (i) GDP per capita and its squared term (source: World Bank (2022)); (ii) lack of political rights and civil liberties (source: Freedom House (2022)); (iii) legal origins

Table 1: Gendered language and incidence of IPV across countries — OLS coefficients

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable: SHARE OF WOMEN EXPERIENCED IPV					
	All	All	All	All	All	All
SEX-BASED GENDER	9.292*	8.628**	9.515**	8.803**	7.388**	8.482**
	(4.726)	(3.573)	(3.635)	(3.819)	(3.670)	(4.087)
LN GDP PER CAPITA		-9.227	-8.273	-4.519	-9.384	-4.563
		(12.902)	(12.326)	(13.575)	(13.577)	(14.546)
LN GDP PER CAPITA SQUARED		0.271	0.295	0.016	0.287	0.092
		(0.667)	(0.624)	(0.686)	(0.704)	(0.741)
LACK OF POLITICAL RIGHTS			-2.038			-2.143
			(1.748)			(2.160)
LACK OF CIVIL LIBERTIES			3.904*			4.037
			(2.090)			(2.536)
COMMON LAW ORIGIN				0.616		-0.721
				(1.739)		(2.205)
CIVIL LAW ORIGIN				0.292		-1.421
				(1.517)		(2.328)
SOCIALIST ORIGIN				-3.250		-12.110
				(3.290)		(12.577)
CATHOLIC SHARE					0.088*	0.103**
					(0.046)	(0.043)
PROTESTANT SHARE					0.076	0.095*
					(0.050)	(0.056)
ORTHODOX SHARE					0.063	0.069
					(0.055)	(0.053)
MUSLIM SHARE					0.035	0.046
					(0.048)	(0.051)
HINDU SHARE					0.156**	0.127
					(0.077)	(0.084)
BUDDHIST SHARE					-0.009	0.131
					(0.063)	(0.198)
Constant	4.540*	77.892	67.360	39.775	85.742	39.916
	(2.428)	(59.926)	(62.946)	(67.968)	(70.202)	(78.604)
Language family dummies	Yes	Yes	Yes	Yes	Yes	Yes
Continent dummies	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.564	0.657	0.688	0.643	0.679	0.696
Mean of dependent variable	13.012	12.883	12.883	12.611	12.883	12.611
N	92	89	89	88	89	88

Note.— Standard errors in parentheses. *Denotes significance at 10 percent; **at 5 percent; ***at 1 percent levels.

(source: La Porta et al. (2008)); (5) religious make-up of the population (source: Barro (2003)). All models include language family and continent fixed effects. The results reported in Table 1 show that having a gendered majority language is associated with a higher share of women who have experienced IPV. Based on our most extensive specification, moving from a genderless to a gendered majority language is associated with an 8.5 percentage point increase in a country's share of women exposed to IPV.

We do not consider these findings evidence of a causal relationship between gendered language and IPV. The low frequency of cross-country data precludes investigating the full range of plausible confounding factor that may be at work here and as a result, we have concerns over the role of omitted variables and especially the complications posed by the correlation between gendered language and unobserved dimensions of patriarchal culture. Nonetheless, the fact that gendered language is correlated with the incidence of IPV in the cross-country data helps to motivate our search for a plausible causal mechanism linking the two, the effect of speaking a gendered language on beliefs about the justifiability of IPV.

4. Empirical approach and data

Empirical model. The main part of the analysis presented in the paper focuses on individuals, linking the grammatical structure of their language with their beliefs on the justifiability of IPV. To that end, we estimate an equation of the following general form:

$$IPVJustifiability^{*}_{ictl} = \beta GenderedLanguage_{ictl} + \delta \mathbf{X_{ictl}}' + \varepsilon_{ictl} \tag{1}$$

where $IPVJustifiability^{*}_{ictl}$ indicates whether the individual i in country c at time t who speaks a language l finds IPV justifiable or not. X_{ictl} is a set of characteristics that account for individual socio-economic and cultural background i, country c, survey wave t, and language family l, and ε_{ictl} is the error term.

We assume that the observed IPV justifiability belief $IPVJustifiability_{ictl}$ relates to latent propensity through the criterion $IPVJustifiability_{ictl} = 1(IPVJustifiability^{*}_{ictl} \geq 0)$, so that the probability of holding an IPV-justifying belief under an assumption of normality for ε_{ictl} becomes a standard probit model as follows:

$$\begin{aligned} Pr(IPVJustifiability_{ictl} = 1 | GenderLanguage_{ictl}, \mathbf{X_{ictl}}) = \\ = \Phi(\beta GenderedLanguage_{ictl} + \delta \mathbf{X_{ictl}}') \end{aligned} \tag{2}$$

The presence of X_{ictl} ensures that the comparisons are drawn amongst individuals who are similar in a number of significant ways, including the characteristics of their location and their own cultural origin, both plausibly linked to the nature of beliefs and languages

possessed by individuals. In our baseline regression, we control for country, wave and language family fixed effects, and we gradually expand our set of controls to include a range of individual level demographic and socio-economic characteristics, and religion and ethnicity fixed effects. We control for language families in all models, following Roberts et al. (2015), to account for geographical and historical relatedness of languages.

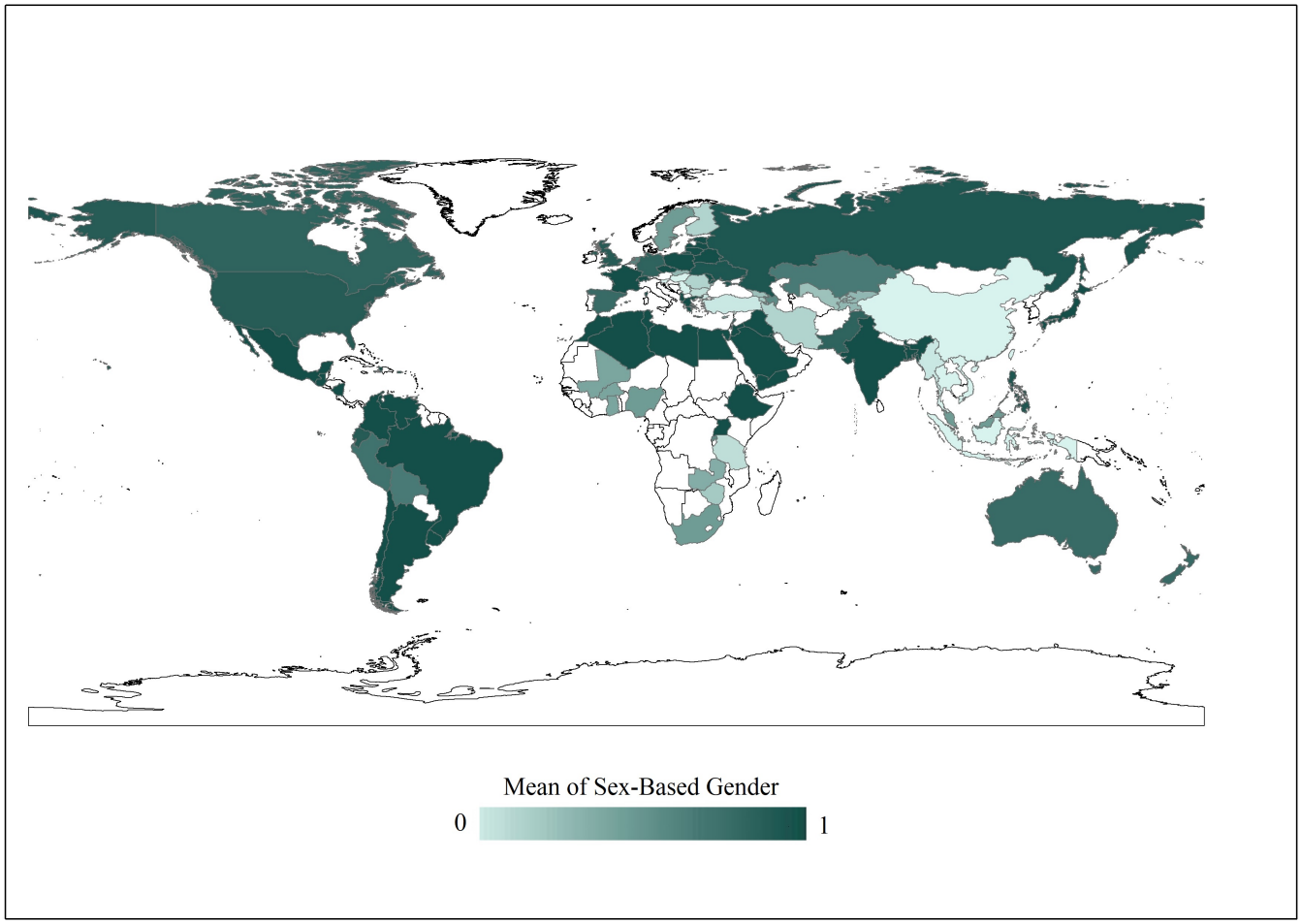
Data. To analyze the link between gendered language and beliefs on the justifiability of violence, we use the World Values Surveys, a collection of nationally representative surveys on social, political, economic, religious and cultural values of people. Conducted since 1981 every 5 years, the surveys are a rich source of information on values in over 120 societies around the world.

Waves 5-7 of WVS conducted over the period between 2005-2020 asked individuals to make a judgement on the extent of justifiability of physical IPV on a scale from 1 (never justifiable) to 10 (always justifiable). Specifically, the question asked whether it was justifiable for a man to beat his wife. Our analysis distinguishes between individuals who believe such violence is never justifiable (0) from those who allow for some degree of justifiability of violence.

To analyze how individuals' attitudes on the justifiability of IPV is related to the structure of their language, we utilize information on the language spoken at home. This variable itself has been included in the surveys since Wave 3 and is available for the period 2005-2020 studied.

The information on grammatical gender systems is from the World Atlas of Language Structures (WALS) online (Dryer and Haspelmath, 2013), an authoritative and widely used source of the comparative linguistic information. This data is matched with information on the language an individual speaks at home, which is available for WVS Waves 3-9, to construct an individual-level variable SEX-BASED GENDER, an indicator that takes the value of one if the language an individual speaks at home has sex-based gender system. We construct a second sex-based language variable based on the language in which the survey is administered.

Figure 1: Global distribution of speakers of languages that have sex-based gender



Note.— SEX-BASED GENDER is a binary variable for the presence of sex-based gender in an individual's language. It is averaged over all individuals surveyed in the World Values Survey in a country. Darker shades indicate higher shares of SEX-BASED GENDER language speakers in a country. Countries not in the sample are in white.

In various specifications, our analysis controls for a range of demographic and socio-economic characteristics of individuals, including their gender, age, family status, education, employment and income. Additionally, to capture the cultural background of individuals, we include dummies for their religion, ethnicity and the language family associated with the language they speak at home. We also include controls for country of residence and WVS wave. These variables are described in Table A1 in the Appendix.

The resulting sample consist of 109,116 individuals in 73 countries, speaking 50 languages, as reported in our baseline regression. 26% of individuals in the sample believe that wife beating can be justifiable. 70% of individuals speak a language with a sex-based gender

system. The global distribution of speakers of languages with a sex-based gender systems is presented in Figure 1.

5. Results

Baseline results. Our analysis commences with the estimation of equation 2. The marginal effects derived from the model are reported in Table 2. We estimate a parsimonious specification first, limiting the controls to country, wave and language family dummies. The use of country fixed effects controls for a variety of country level factors that might influence an individual's beliefs about IPV, including a country's economic and educational systems, legal and political institutions, as well as national social norms around gender and violence. As argued by Roberts et al. (2015), the inclusion of language family fixed effects helps to control for omitted variables related to the geographical and historical relatedness of languages. The results presented in column (1) point to a positive and significant association between speaking a language with a sex-based gender system and believing that IPV can be justifiable.

In columns (2) and (3) we augment the specification with additional controls, including individuals' gender, age cohort, marital and parental status, educational attainment, income, and a set of dummy variables that reflect adherence to major world religions. Controlling for religious adherence is particularly important given the strong association between particular religions and languages, such as Catholicism and Spanish and Islam and Arabic, as well as evidence that religion plays an important role in determining attitudes and beliefs related to gender (Davis, 2021). As seen in column 3, the relationship between gendered language and the justifiability of IPV is robust to the inclusion of these variables.

Column (4) presents the most extensive specification where ethnicity dummies are additionally included. Like the inclusion of religious affiliation, the inclusion of ethnic fixed effects is intended to control for ethnicity-level cultural norms that may influence beliefs about IPV. Across all these specifications, we estimate a positive statistically significant marginal effect on Sex-based gender.

Estimation results from the most extensive model suggest that speaking a gendered language increases the likelihood that an individual believes that IPV is justifiable by 7.5 percentage points. By comparison, the estimated effect of speaking a gendered language on the belief that IPV is justifiable is 27% larger than the difference in beliefs associated with having a college vs. primary education. Alternately, the effect is nearly as large as the impact of gender itself: male respondents are 8.1 percentage points more likely to report that IPV is justifiable.

In the final two columns of Table 2, we present marginal effect estimates of the specification used in column 4 for subsamples of women and men. In both sets of results, we confirm a positive significant relationship between SEX-BASED GENDER and WIFE BEATING JUSTIFIABLE. Estimation results suggest marginal effects of 8.9 percentage points for women and 5.6 percentage points for men, so that the effect is both larger and more precisely estimated for women. This result is particularly noteworthy given the disproportionate role women play in childrearing and in the transmission of intergenerational values, including those related to gender roles.

Robustness checks. Next, we assess the robustness of our results to the estimation sample employed. The regions of Southern Asia (35%) and Sub-Saharan Africa (33%) have the highest prevalence rates of lifetime IPV after Melanesia, Micronesia and Polynesia that are not in our sample (World Health Organization, 2018). To check whether our results are sensitive to the inclusion of these regions in the sample, we exclude them sequentially from the analyses reported in columns (1) and (2) of Table 3. The positive relationship between SEX-BASED GENDER and WIFE BEATING JUSTIFIABLE persists in both sets of results. Thus, our results do not support the contention that the relationship between gendered language and beliefs about IPV are driven primarily by these regions.

A second concern is that our results may disproportionately reflect the relationship between IPV beliefs and gendered language for a handful of global languages that are overrepresented in our sample, Arabic, Spanish and English. To see if this is so, we sequentially drop these languages from our analysis. As the results reported in columns (3)-(5) show, this does not substantially alter the nature of our results either.

Table 2: Baseline regressions — probit marginal effects

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable: WIFE BEATING JUSTIFIABLE					
	All	All	All	All	Females	Males
SEX-BASED GENDER	0.045**	0.051**	0.066**	0.075***	0.089**	0.056*
	(0.022)	(0.022)	(0.031)	(0.024)	(0.037)	(0.029)
MALE		0.078***	0.078***	0.081***		
		(0.006)	(0.006)	(0.007)		
MARRIED		-0.015***	-0.018***	-0.016***	-0.014***	-0.023***
		(0.005)	(0.005)	(0.005)	(0.005)	(0.008)
NO CHILDREN		-0.010	-0.006	-0.004	0.012*	-0.019***
		(0.007)	(0.006)	(0.005)	(0.007)	(0.007)
PRIMARY			0.059***	0.057***	0.055***	0.057***
			(0.010)	(0.010)	(0.011)	(0.011)
SECONDARY			0.022***	0.023***	0.019**	0.028***
			(0.008)	(0.007)	(0.009)	(0.008)
EMPLOYED			-0.001	-0.002	-0.003	0.000
			(0.005)	(0.005)	(0.005)	(0.007)
Age cohort dummies	No	Yes	Yes	Yes	Yes	Yes
Income group dummies	No	No	Yes	Yes	Yes	Yes
Religious denomination dummies	No	No	Yes	Yes	Yes	Yes
Ethnicity dummies	No	No	No	Yes	Yes	Yes
Language family dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Wave dummies	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.091	0.098	0.096	0.110	0.114	0.103
Mean of dependent variable	0.259	0.259	0.257	0.262	0.227	0.302
N	138,932	138,517	124,312	109,116	57,245	51,663

Note.— Robust standard errors clustered by country are in parentheses. *Denotes significance at 10 percent; **at 5 percent; ***at 1 percent levels.

In some of the existing analyses concerned with the identification of causal effects of linguistic structures on social and economic outcomes, the focus is on the behaviour of immigrants (Gay et al., 2018; Galor et al., 2020). Inspired by the epidemiological approach that exploits the variation across immigrants for the identification of cultural traits on behaviour (Giuliano, 2007; Fernández and Fogli, 2009), these studies extend it further in an effort to disentangle the impact of linguistic traits from the effect of other ancestral characteristics.[3] To establish the alignment of our results with these studies, we restrict the sample to children of immigrants in the analysis reported in column (6) of Table 3. In spite of the significant drop in the sample size, we estimate a statistically significant positive marginal effect on SEX-BASED GENDER.

[3] However, as Beblo et al. (2020) note, individuals who select into migration are more likely to reject the norms of their country of origin and may transmit their traits to their children; thus, the existing estimates of gendered language on migrant behaviour may be biased.

Table 3: Robustness to sample — probit marginal effects

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable: WIFE BEATING JUSTIFIABLE					
	No Africa	No Asia	No Arabic	No Spanish	No English	Immigrants
SEX-BASED GENDER	0.077***	0.107***	0.075***	0.081***	0.088***	0.114***
	(0.026)	(0.040)	(0.024)	(0.025)	(0.029)	(0.027)
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes
Language family dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Wave dummies	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.105	0.110	0.110	0.117	0.093	0.120
Mean of dependent variable	0.250	0.239	0.262	0.284	0.281	0.245
N	99,355	82,157	109,116	85,475	93,004	7,384

Note.— Robust standard errors clustered by country are in parentheses. *Denotes significance at 10 percent; **at 5 percent; ***at 1 percent levels.

Does gendered language predict the gendered nature of violence, as our conceptual framework suggests? The focus of our analysis hitherto has been the beliefs legitimizing physical IPV: wife beating. Our baseline results, reiterated in column (1) of 4, confirm that gendered language is correlated with beliefs legitimising physical IPV. However, gendered language might have implications for beliefs on other forms of gendered violence too, e.g. emotional violence and coercive control. While our dataset does not contain precise measures of these forms of violence, it has information on individuals' views on whether a wife must obey her husband, a social norm that might serve to justify IPV if is it violated. We distinguish between individuals who strongly disagree/disagree with the statement vs. those who strongly agree/agree or are agnostic about it.[4] We use this measure as our dependent variable in the regressions reported in the second column of Table 4. The results suggest a positive significant relationship between SEX-BASED GENDER and the probability of agreeing with the statement that a wife must obey her husband.

Given our conceptual framework, which highlights the role of mental schemata related to gender, there is no reason to expect gendered language to be associated with the legitimization of other, non-gendered forms of violence. In the remainder of Table 4, we focus on the justifiability of a range of non-gendered violence forms as outcomes—violence against

[4] This information, however, is only available for the 1999-2004 wave of the survey and for a small group of countries with conservative norms (Algeria, Bangladesh, Indonesia, Iran, Iraq, Jordan, Nigeria, Pakistan, Saudi Arabia, Turkey and Egypt), which explains the high prevalence of views concurring with the statement - see the second last row of Table 4.

Table 4: Gendered vs. non-gendered violence — probit marginal effects

	(1)	(2)	(3)	(4)	(5)
	Dependent variable:				
	WIFE BEATING JUSTIFIABLE	WIFE MUST OBEY HUSBAND	VIOLENCE AGAINST PEOPLE JUSTIFIABLE	CHILD BEATING JUSTIFIABLE	POLITICAL VIOLENCE JUSTIFIABLE
SEX-BASED GENDER	0.075***	0.030*	0.093	-0.011	0.061
	(0.024)	(0.017)	(0.089)	(0.059)	(0.106)
Baseline controls	Yes	Yes	Yes	Yes	Yes
Language family dummies	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes
Wave dummies	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.110	0.188	0.082	0.138	0.138
Mean of dependent variable	0.262	0.905	0.309	0.484	0.313
N	109,116	11,002	83,736	83,806	37,632

Note.— Robust standard errors clustered by country are in parentheses. *Denotes significance at 10 percent; **at 5 percent; ***at 1 percent levels.

other people, against children, and for political motives. The results show that SEX-BASED GENDER is statistically unrelated to acceptance of violence against other people (column (3)), child beating (column (4)), and politically-motivated violence (column (5)). Thus gendered language is associated with gendered violence specifically, and not non-gendered form of violence.[5]

Why gendered language matters: culture vs. cognition. In this section, we provide insights on why gendered language matters for beliefs about the justifiability of wife beating. As noted in the introduction, speaking a gendered language may be correlated with the intensity of gender roles for two reasons. First, the grammatical structure of a language may directly affect a speaker's cognition and, thus, play a causal role in belief formation and retention. Second, if languages evolve to complement existing cultural values and norms, as argued by Galor et al. (2018), then speaking a gendered language may indicate that gender roles are more significant in an individual's inherited cultural values. In this case, language does not necessarily play a causal role in the formation of an individual's beliefs. Speaking

[5] In additional placebo tests, not reported here, we check if we are indeed tracking a relationship associated with the presence of sex-based gender systems as opposed to other correlated linguistic or cultural features, by re-running the baseline regression replacing SEX-BASED GENDER with another grammatical feature conceptually unrelated with our dependent variable: the presence of periphrastic future tense in a language (for engagements with this grammatical feature in other social contexts see Galor et al. (2020); Mavisakalyan et al. (2022)). The estimated marginal effect on this variable is statistical insignificant. We also include SEX-BASED GENDER and FUTURE TENSE jointly in a regression. The estimated marginal effect on SEX-BASED GENDER maintains its significance while that on FUTURE TENSE is insignificant.

a gendered language may instead indicate that an individual inherited a relatively gender-biased set of cultural values.

Through the introduction of an extensive list of controls capturing individuals' cultural background in the baseline model, we have made an attempt to isolate the influence of language from the influence of correlated cultural factors, and to throw light on the relative significance of cultural vs. cognitive channels of influence. However, comprehensively controlling for culture is a challenging task; at least some of the estimated effect of gendered language is likely to be attributable to culture.

To shed more light on the relative roles of culture and cognition in the relationship between sex-based language and beliefs about the justifiability of wife beating, we utilise an additional approach. We incorporate information on grammatical structure of second languages spoken by individuals into the analysis. In addition to the language used at home, the WVS records information on the language in which the interview is conducted. We exploit the presence of the two languages to provide insight into the relative contributions of the cultural and cognitive channels of influence. In this framework, we assume that the language spoken at home, which like cultural values, is passed down from an individual's parents, is potentially correlated with an individual's inherited cultural beliefs, and that the interview language, which the individual is actively speaking and thinking in at the time of the interview, is more closely associated with the cognitive channel of influence.

Earlier studies in social psychology have documented differences in attitudes expressed by subjects attributable to the languages used to elicit these attitudes (Danziger and Ward, 2010; Ogunnaike et al., 2010). Our approach imitates the recent experimental approach by Ayres et al. (2020) which lets bilingual people who are fluent in two languages that vary in their grammatical structure to make a decision in order to identify the causal effect of language on behavior.

We start by looking at whether and how the gender-intensity of the language repertoires possessed by individuals might shape their attitudes on the justifiability of wife beating. To that end, we exploit the information on languages spoken at home and those used to conduct the interviews in to distinguish between individuals who do not speak a gendered

language at all, those who speak only one gendered language, and those who speak exclusively gendered languages (omitted). The results reported in column (1) of Table 5 suggest that relative to individuals who only speak a gendered language, those who speak no or a single gendered language have a lower probability of holding an IPV-legitimising belief.

We expand on this estimation further, by introducing a distinction between four groups of individuals based on whether their home and interview languages are gendered. As we see in column (2) of Table 5, moving from a context where all the languages spoken by an individual are gendered to one where only the interview language is gendered is associated with 6.3 percentage points decrease in the probability of reporting an IPV-legitimising belief. However, the estimated marginal effect on ONLY HOME LANGUAGE GENDERED, while negative, is statistically insignificant in this estimation.

In the final two columns, we present results for regressions intended to mimic the experimental design commonly used in psychology. Given the dominant role of home language structure in belief formation, we check whether for individuals whose home language is gendered, using a non-gendered interview language de-activates the beliefs on the justifiability of wife beating. The results estimated in the sub-sample of individuals whose home language has sex-based gender system are presented in column (3) of Table 5. The estimated marginal effect on ONLY HOME LANGUAGE GENDERED is significant and negative, which suggests that eliciting the IPV justifiability beliefs in a non-gendered language among individuals speaking a gendered language at home might potentially de-activate these beliefs. Note that the p-value for the estimated marginal effect, $p = 0.053$, narrowly missed the conventional threshold for statistical significance.

In the final column of Table 5, we check whether for speakers of non-gendered home languages, using a gendered interview language increases acceptance of IPV. Thus, we restrict the estimation sample to speakers of non-gendered languages to obtain the results reported in column (4). We estimate a positive marginal effect on ONLY INTERVIEW LANGUAGE GENDERED, however it is statistically insignificant. Thus, we fail to find evidence of significant cognitive effects of using a gendered interview language on beliefs about wife beating for individuals who speak a non-gendered language at home.

Table 5: Tests with multilinguals — probit marginal effects

	(1)	(2)	(3)	(4)
	Dependent variable: WIFE BEATING JUSTIFIABLE			
	ALL	All	SEX-BASED GENDER =1	SEX-BASED GENDER =0
ONE GENDERED LANGUAGE	-0.048*			
	(0.026)			
NO GENDERED LANGUAGE	-0.074*	-0.088***		
	(0.030)	(0.024)		
ONLY HOME LANGUAGE GENDERED		-0.038	-0.074*	
		(0.038)	(0.038)	
ONLY INTERVIEW LANGUAGE GENDERED		-0.063**		0.021
		(0.032)		(0.031)
Baseline controls	Yes	Yes	Yes	Yes
Language family dummies	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
Wave dummies	Yes	Yes	Yes	Yes
Pseudo R^2	0.108	0.108	0.109	0.092
Mean of dependent variable	0.258	0.258	0.231	0.324
N	102,587	102,587	73,281	29,231

Note.— Robust standard errors clustered by country are in parentheses. *Denotes significance at 10 percent; **at 5 percent; ***at 1 percent levels.

In summary, our investigation into the role of second languages finds some evidence that the gender structure of the interview language influences beliefs about gendered violence. In particular, for individuals who speak a gendered language at home, the use of genderless interview language may de-activate attitudes supporting such violence. This is consistent with a cognitive effect of language on attitude formation. However, our results also highlight the dominant role of home language gender in shaping the attitudes on gendered violence. For individuals whose home language lacks a sex-based gender system, being interviewed in a gendered language does not seem to be relevant. This result is consistent with complementarity between the cultural and cognitive effects of language.

6. Conclusion

This paper provides empirical evidence linking gendered language and gendered violence. We identify a language as gendered if it has a gender system whose semantic core is based on biological sex. Speaking a gendered language may activate gender schemata in the minds of speakers, increasing the significance of gender distinctions and existing gender norms, potentially leading to the legitimization of gender inequality, including gendered violence.

Using cross country data, we identify a large, statistically significant relationship between gendered language and the incidence of IPV. Controlling for a set of common economic, political, religious and institutional variables, we find that having a gendered dominant language is associated with an 8.5 percentage point increase in the share of women who experience IPV.

Motivated by this association, we use individual level data from the WVS to explore the link between speaking a gendered language and the belief in the justifiability of wife beating. In our preferred specification, we find that speaking a gendered language is associate with a 7.5 percentage point increase in the likelihood that an individual believes that wife beating is justifiable. This specification controls for a wide variety of individual level socioeconomic characteristics as well as country, religion, language family and ethnicity fixed effects. Our primary finding is also robust to the use of samples that exclude high-IPV regions and global languages. In keeping with the proposed cognitive mechanism, which highlights the role of gender schemata, we fail to find a significant relationship between gendered language and beliefs about other, non-gendered forms of violence.

Finally, we exploit evidence on the beliefs of multilingual individuals to further distinguish between the causal and the cognitive channel of influence and the role of unobserved cultural factors. In particular, we find that for respondents who speak a gendered language at home, being interviewed in a non-gendered language significantly reduces the acceptance of wife beating, which we interpret as evidence in favor of the cognitive channel of influence, and as supporting the potential efficacy of language-based policy interventions.

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APPENDIX

Table A1: Descriptive statistics

Variable	Definition of Variable	Mean	S.D.
WIFE BEATING JUSTIFIABLE	0-1 binary variable; equals 1 if respondent agrees that wife beating is justifiable	0.262	0.440
SEX-BASED GENDER	0-1 binary variable; equals 1 respondent's language has sex-based grammatical gender	0.701	0.458
BASELINE CONTROLS:			
MALE	0-1 binary variable; equals 1 if respondent is male	0.474	0.499
AGE UNDER 20	0–1 binary variable; equals 1 if respondent is aged under 20	0.050	0.218
AGE 20-29	0–1 binary variable; equals 1 if respondent is aged 20–29	0.239	0.426
AGE 30-39	0–1 binary variable; equals 1 if respondent is aged 30–39	0.211	0.408
AGE 40-49	0–1 binary variable; equals 1 if respondent is aged 40–49	0.182	0.386
AGE 50-59	0–1 binary variable; equals 1 if respondent is aged 50–59	0.150	0.357
AGE 60-69	0–1 binary variable; equals 1 if respondent is aged 60–69	0.104	0.305
AGE 70-79	0–1 binary variable; equals 1 if respondent is aged 70–79	0.050	0.218
AGE 80-89	0–1 binary variable; equals 1 if respondent is aged 80–89	0.013	0.113
AGE OVER 90	0–1 binary variable; equals 1 if respondent is aged over 90	0.001	0.029
MARRIED	0-1 binary variable; equals 1 if respondent is married or cohabiting	0.620	0.485
NO CHILDREN	0-1 binary variable; equals 1 if respondent has no children	0.284	0.451
PRIMARY	0-1 binary variable; equals 1 if respondent has primary-level education	0.245	0.430
SECONDARY	0-1 binary variable; equals 1 if respondent has secondary-level education	0.474	0.499
TERTIARY	0-1 binary variable; equals 1 if respondent has tertiary-level education	0.280	0.449
EMPLOYED	0-1 binary variable; equals 1 if respondent is employed	0.569	0.495
INCOME GROUP 1	0-1 binary variable denoting self-assessed income standing	0.143	0.351
INCOME GROUP 2	0-1 binary variable denoting self-assessed income standing	0.253	0.435
INCOME GROUP 3	0-1 binary variable denoting self-assessed income standing	0.381	0.486
INCOME GROUP 4	0-1 binary variable denoting self-assessed income standing	0.182	0.386
INCOME GROUP 5	0-1 binary variable denoting self-assessed income standing	0.040	0.195
CATHOLIC	0-1 binary variable; equals 1 if respondent has Catholic denomination	0.207	0.405
PROTESTANT	0-1 binary variable; equals 1 if respondent has Protestant denomination	0.081	0.272
ORTHODOX	0-1 binary variable; equals 1 if respondent has Orthodox denomination	0.108	0.311
OTHER CHRISTIAN	0-1 binary variable; equals 1 if respondent has other Christian denomination	0.047	0.211
JEWISH	0-1 binary variable; equals 1 if respondent has Jewish denomination	0.010	0.098
MUSLIM	0-1 binary variable; equals 1 if respondent has Muslim denomination	0.189	0.391
HUNDU	0-1 binary variable; equals 1 if respondent has Hindu denomination	0.020	0.139
BUDDHIST	0-1 binary variable; equals 1 if respondent has Buddhist denomination	0.047	0.211
NO DENOMINATION	0-1 binary variable; equals 1 if respondent has no denomination	0.211	0.408
OTHER	0-1 binary variable; equals 1 if respondent has other or no denomination	0.081	0.272

Note. — $N = 109,116$.