Do Female/Male Distinctions in Language Matter? Evidence from Gender Political Quotas

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Do female/male distinctions in language matter? The case of gender quotas and development

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This article studies the determinants of gender political quota and enforcement sanctions, two key policy instruments for increasing female participation in politics. We discovered a novel empirical finding: while economic development, political system and religion are closely related to quota policies, language (the pervasiveness of gender distinctions in grammar) is the most strongly related variable. We discuss research on cognitive science and linguistics that may indeed explain this finding.

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I.   Background

Since the UN adopted the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) in 1979, international organizations and domestic demand have increased the pressure to expand women's political participation. Further, the World Bank (2001) recommended the adoption of quotas. As Duflo (2011, p. 15) argues, '...in the absence of affirmative action of some sort, it would be very difficult for women to break into politics.'

This article finds that, while traditional explanations such as economic development, religion and political system do matter, grammar is the most strongly related variable to the adoption of quotas. In particular, the intensity of female/male distinctions in the most spoken language of a country is positively and very significantly correlated to the adoption of both quotas and enforcement sanctions, and their impact on women's presence in parliament.

We measure the intensity of female/male distinctions in languages grammar by building an index, the 'Gender Intensity Index' (*GII*) based all four grammatical variables that relate to gender included in the *World Atlas of Language Structures* (WALS; Dryer and Haspelmath, 2011), the most comprehensive source of data on linguistic structures.

Research in cognitive science and linguistics suggest two possible channels that might explain the findings reported in this article. First, language shapes thought (Borodistky, 2001); second, language is the result of cultural evolution (Smith and Kirby, 2008). Women's absence from politics and, therefore, the need to formally

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regulate their presence, may be the outcome of a deliberate choice influenced by

cognition and/or cultural barriers.

    We use WALS to create a measure of the pervasiveness of female/male distinctions

in language. This measure is based on the concept of grammatical gender system, which

is a set of rules of agreements that depend on nouns of different types. These types can

be based on biological sex (female and male, or gender as understood in common

parlance), or on other social constructs (like age, social status, etc.).

Gender linguistic variables. As noted above, WALS includes four different linguistic

variables related to grammatical gender, as follows:

- 'Number of Genders' captures how many genders are present in the language. We
  build a dummy variable, *NG2*, which equals one for languages having two genders
  and equals zero otherwise (no gender or three or more genders). A language with
  two genders, like French, typically implies 'feminine' versus 'masculine', while a
  language with three or more genders may include neuter as the third gender, like
  German, or non sex-related distinctions.

- 'Sex-Based' captures whether the gender system is linked to biological sex. The *SBY*
  ('sex-based yes') dummy variable equals one for languages having a sex-based
  gender system and zero otherwise. For example, in Algonquian languages,
  distributed widely across North America, the gender system is based on the
  distinction between humans and non-humans.

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- 'Gender-Assignment' captures the rules a speaker uses to assign nouns to the genders defined by the gender system of the language. Assignment can depend on the meaning of the noun (semantic) or its form. We built a dummy variable, *GAH*, ('gender assignment high') equal to one for languages having both semantic and formal gender assignment system and zero otherwise. For example, English assigns gender based on semantic grounds only while Spanish uses both on semantic and formal grounds.

- 'Gender-Pronouns' captures the gender distinctions in independent personal pronouns. This dummy variable, *GPH*, ('gender pronoun high'), equals one for languages with gender distinction in third-person pronouns and in the first and/or the second person, and equals zero otherwise. For example, English distinguishes gender in third-person pronouns only.

Our index is the sum of our four dummy variables for the most commonly spoken language in a country (Britannica, 2010):

$GII=NG2+SBY+GAH+GPH$ where $GII \in \{0,1,2,3,4\}$

A value of one for each of these dummies denotes a more pervasive use of the feminine/male distinction when speaking a language. As Borodistsky et al. (2003, p. 65) argue, 'Needing to refer to an object as masculine or feminine may lead people to selectively attend to that object's masculine or feminine qualities, thus making them more salient in the representation.' This salience in the grammar of languages may influence the salience of gender in speakers' mind (cognition) or may reflect the salience of gender distinctions in the culture.

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For example, the *GII* for German is equal to 2. It has a sex-based gender system, *SBY=1*, and assigns gender on the basis of both semantic and formal criteria, *GAH=1*. However, *GPH=0* since German assigns gender to third person pronoun only and *NG2=0* since German does have a neuter gender.

Our sample includes the 84 countries for which information on the four linguistic variables is available.

Dependent and control variables. Our dependent variable, *De_Jure_Quota*, is a dummy variable equal to one if the country has legislated quotas for women's presence in the lower house of parliament. To check that quota adoption was not merely 'window dressing', we also use *De_Facto_Quota*, which equals one if the country has legislated quotas with sanctions and zero otherwise.[1]

We control for the Human Development Index 2010 (HDI) (UN, 2012), as suggested by Duflo (2011); whether the electoral system (*Electoral_S*) is proportional or majoritarian (ACE, 2012); the number of years since women were first allowed to run for election at the national level (*Years_Run*; IPU, 2012); and whether the country has a communism past (Communism; Barro, 2008) as suggested by Paxton et al. (2010).

As robustness checks, we control for religion (Barro, 2008) and colonial past (La Porta et al., 1999).[2] Table 1 presents the descriptive statistics of our variables.

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[1] Data for *De_Jure_Quota* and *De_Facto_Quota* are taken from quotaproject.org.

[2] 'Engcol', 'Frencol' and 'Spacol' stand for British, French and Spanish colonization, respectively.

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Table 1. Descriptive Statistics

	De_Jure_Quota	De_Facto_Quota	HDI (2010)	Years_Run	Electoral_S	Communism	GII
Mean	0.32	0.15	0.69	62.81	0.38	0.19	2.45
SD	0.47	0.36	0.15	29.24	0.49	0.40	1.67
Min	0	0	0.29	0	0	0	0
Max	1	1	0.93	222	1	1	4

II.   Results and Discussion

Table 2, columns (1)-(5), shows marginal coefficients of logit regressions of *De_Jure_Quota*, and columns (6)-(7) show the same for *De_Facto_Quota*. Regarding economic development, HDI has a negative significant impact on the adoption of quotas, suggesting that economic forces may increase political access, decreasing the need for quotas (Fernandez, 2010). Consistent with the literature we find that a majoritarian electoral system decreases quota adoption. Having a communist past is not significant while *Years_Run* is positive and marginally significant, consistent with the existence of path dependence in women's political rights.

Throughout the specifications, *GII* scores are very significantly positively correlated to quota adoption. The pseudo R-square more than doubles when we include *GII* as explanatory variable relative to the baseline regression. An increase in *GII* of one unit increases the likelihood of quota adoption by an average of 13 percentage points. Results using *De_Facto_Quota* provide evidence that quota adoption was not 'window dressing'. Countries with a higher emphasis of female/male distinctions in their dominant language (higher *GII*) are therefore more likely to regulate women's political participation.

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Our findings are robust when controlling for colonial history, religion and geography (columns (3)-(5)). They are also robust using legislated quotas for upper house instead of lower house (available upon request).

Table 2. Determinants of quotas

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			De_Jure_Quota			*De_Facto_Quota*	
HDI	-0.676*	-0.788**	-1.177**	-0.610*	-0.957**	0.110	0.126
	(0.390)	(0.342)	(0.497)	(0.365)	(0.382)	(0.207)	(0.164)
Years_Run	0.000530	0.00345**	0.00326**	0.00451***	0.00325**	0.000588	0.00149*
	(0.00150)	(0.00145)	(0.00154)	(0.00140)	(0.00148)	(0.000714)	(0.000818)
Electoral_S	-0.309***	-0.274***	-0.225**	-0.251**	-0.278***	-0.139**	-0.0705
	(0.100)	(0.0969)	(0.107)	(0.101)	(0.0950)	(0.0691)	(0.0669)
Communism	-0.119	0.0436	-0.0475	0.167	0.0172	-0.106	-0.0195
	(0.120)	(0.183)	(0.154)	(0.219)	(0.181)	(0.0666)	(0.0538)
GII		0.135***	0.111***	0.0907**	0.141***		0.0658***
		(0.0372)	(0.0416)	(0.0353)	(0.0381)		(0.0235)
Eng_col			-0.217**				
			(0.110)				
Fren_col			-0.165				
			(0.117)				
Spa_col			0.0565				
			(0.137)				
Catholicism				0.423**			
				(0.172)			
Islam				0.507**			
				(0.198)			
Dist_equ					0.289		
					(0.367)		
Constant							
Observations	84	84	84	84	84	84	84
Pseudi R-square	0.103	0.223	0.252	0.289	0.227	0.0823	0.217

Notes: Robust SE in parentheses. ***p-value<0.01, **p-value<0.05,*p-value<0.10.

Two reasons may explain the relation between grammar and quota policy choices. The first stems from cutting-edge research in cognitive science. In particular, the pervasiveness of female/male grammatical distinctions in language may influence the salience of gender roles in individuals' minds. Therefore, from a cognitive perspective

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women may be less driven to participate in male traditional occupations, such as politics, increasing the need to encourage their presence through regulation. The second stems from linguistic research on the origin and evolution of language and its relationship to socio-cultural forces (Christiansen and Kirby, 2003). In particular, female/male distinctions in language may reflect society's cultural emphasis on gender stereotypes, reflecting barriers women actually face to access politics.

In Table 3 we study the percentage increase in women presence in the lower house in a five-year window prior to and following quota adoption.[3] We find that countries with very high *GII* show a sharper average increase in women's political participation. Indeed, these countries are more likely to use enforcement sanctions, which make quotas more binding.

Table 3. Pre-post quota increase of women share lower house

		Mean increase (%)	Mean difference p-value
GII	4	287	0.005
	0	35	
NG2	1	273	0.022
	0	111	
SBY	1	247	0.016
	0	93	
GAH	1	301	0.002
	0	35	
GPH	1	287	0.1
	0	160	

Source: PARLINE (IPU, 2012)

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[3] Robust to varying window length.

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