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Do female/male distinctions in language matter? Evidence from gender political quotas

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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 find a novel empirical fact: language (the pervasiveness of gender distinctions in grammar) is the most significant related variable to quota adoption, more than traditional explanations such as economic development, political system and religion.

Keywords: culture; development; gender quotas, grammar; language

JEL Classification: K0; 017; Z1

I. Background

Since the UN adopted the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) in 1979, international and domestic organizations have increased the pressure to expand women's political participation. Further, the World Bank (2001) recommends 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.

Our contribution is to show that the structure of languages grammar has a strong link to socio-

economic structures. This research potential applications span a vast array of fields such as economics, sociology, political science and linguistics.

We measure the intensity of female/male distinctions in languages grammar by building an index, the 'Gender Intensity Index' (*GII*), based on 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.

Two channels may explain our finding. First, research in cognitive science suggests that language shapes thought (Boroditsky, 2001). Second, research in linguistics argues that language may be the result of cultural evolution (Smith and Kirby, 2008).

II. Methodology

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

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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 1 for languages having two genders, and equals 0 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 nonsex-related distinctions.
- ‘Sex-based’ captures whether the gender system is linked to biological sex. The *SBY* (‘sex-based yes’) dummy variable equals 1 for languages having a sex-based gender system, and equals 0 otherwise. For example, Zulu, Swedish and Danish are languages with a gender system that is not sex-based.
- ‘Gender-assignment’ captures the rules speakers use 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 1 for languages having both semantic and formal gender assignment system, and equals 0 otherwise. For example, English assigns gender based on semantic grounds only, while Spanish uses semantic and formal assignment rules.
- ‘Gender-pronouns’ captures the gender distinctions in independent personal pronouns. This dummy variable, *GPH* (‘gender pronoun high’), equals 1 for languages with gender distinction in third-person pronouns and in the first and/or the second person, and equals 0 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 (Encyclopedia Britannica, 2010):

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

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 rules, *GAH* = 1. However, *GPH* = 0 since German assigns gender to third-person pronoun only, and *NG2* = 0 since German does not have a neuter gender.

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

A value of 1 for each of these dummies denotes a more pervasive use of the female/male distinction when speaking a language. As Boroditsky *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.

Dependent and control variables

Our dependent variable, *De_Jure_Quota*, is a dummy variable equal to 1 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 1 if the country has legislated quotas with sanctions, and equals 0 otherwise.¹

We control for the Human Development Index (HDI) 2010 (UN, 2012), as suggested by Duflo (2011), whether the electoral system (*Electoral_S*) is proportional or majoritarian (IDEA, 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.

III. 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

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

² ‘Eng_col’, ‘Fren_col’ and ‘Spa_col’ stand for British, French and Spanish colonization, respectively.

Table 1. Descriptive statistics

	<i>De_Jure_Quota</i>	<i>De_Facto_Quota</i>	HDI (2010)	<i>Years_Run</i>	<i>Electoral_S</i>	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
Minimum	0	0	0.29	0	0	0	0
Maximum	1	1	0.93	222	1	1	4

Table 2. Determinants of quotas

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	<i>De_Jure_Quota</i>			<i>De_Facto_Quota</i>			
HDI	-0.676* (0.390)	-0.788** (0.342)	-1.177** (0.497)	-0.610* (0.365)	-0.957** (0.382)	0.110 (0.207)	0.126 (0.164)
<i>Years_Run</i>	0.000530 (0.00150)	0.00345** (0.00145)	0.00326** (0.00154)	0.00451*** (0.00140)	0.00325** (0.00148)	0.000588 (0.000714)	0.00149* (0.000818)
<i>Electoral_S</i>	-0.309*** (0.100)	-0.274*** (0.0969)	-0.225** (0.107)	-0.251** (0.101)	-0.278*** (0.0950)	-0.139** (0.0691)	-0.0705 (0.0669)
Communism	-0.119 (0.120)	0.0436 (0.183)	-0.0475 (0.154)	0.167 (0.219)	0.0172 (0.181)	-0.106 (0.0666)	-0.0195 (0.0538)
GII		0.135*** (0.0372)	0.111*** (0.0416)	0.0907** (0.0353)	0.141*** (0.0381)		0.0658*** (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 Constant					0.289 (0.367)		
Observations	84	84	84	84	84	84	84
Pseudo- R^2	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 and * p -value < 0.10.

impact on the adoption of quotas, suggesting that economic forces may increase political access, decreasing the need for quotas (Fernandez, 2009). 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^2 more than doubles when we include *GII* as an explanatory variable relative to the baseline regression. An increase in *GII* of 1 unit increases the likelihood of quota adoption by an average of 13 percentage points. Results using *De_Facto_Quota*, columns (6–7), 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.

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).

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 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,

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

	Mean increase (%)		Mean difference <i>p</i> -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).

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.

Proving additional support for our main finding, we study the percentage increase in women present in the lower house in a 5-year window prior to and following quota adoption.³

Table 3 results show that countries whose language marks female/male distinctions more intensively experiment a sharper average increase in women's political participation after adopting a quota.

The intensity of female/male distinctions in the language may be related not only to gender political quotas but to a vast array of female economic choices and constraints, such as labour force participation, labour market discrimination, quotas for female presence in company's boards and female access to credit, among others.

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³ Robust to varying window length.