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Language Gender-Marking and Borrower Discouragement

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Abstract

Research suggests that sex-based grammatical systems in languages are associated with gender differences in economic behavior. Using cross-country data on firms, we find that gendered languages lead women entrepreneurs to be more discouraged from applying for credit than male entrepreneurs.

JEL Codes: G21, J16, Z13.

Keywords: language, gender, access to credit, borrower discouragement.

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Research suggests that sex-based grammatical systems in languages are associated with gender differences in economic behavior. Using cross-country data on firms, we find that gendered languages lead women entrepreneurs to be more discouraged from applying for credit than male entrepreneurs.

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1. Introduction

There is wide evidence that women entrepreneurs suffer from lower access to credit than male entrepreneurs (Asiedu, Freeman and Nti-Addae, 2012; Chaudhuri, Sasidharan and Raj, 2020). This lower access to credit is a major concern for gender equality since it inhibits the possibilities of women entrepreneurs to develop their businesses. Studies on the drivers of the gender gap have traditionally focused on the supply-side discrimination against women (e.g., Beck, Behr and Madestam, 2018). However, it can also come from the demand-side whereby women entrepreneurs with good projects can be more discouraged to ask for a loan because they have higher expectations of loan rejection than male entrepreneurs (Ongena and Popov, 2016; Moro, Wisniewski and Mantovani, 2017; Naegels, Mori and D’Espallier, 2021). So why would women entrepreneurs have such expectations?

A natural way to start thinking about this question is to look at the role of cultural institutions in influencing social attitudes and beliefs (Alesina, Giuliano and Nunn, 2013). In this paper, we examine one such vehicle for cultural transmission, language gender-marking. Languages differ in the degree to which they require speakers to grammatically attend to and mark gender. For example, some languages such as Arabic have sex-based distinctions in almost every phrase, whereas grammatical gender is absent in other languages such as Swedish. In gendered languages, speakers are constantly required to consider and explicitly distinguish between females and males, making gender a more salient category for the speakers. This aspect of language has been shown to hamper female participation in economic activity (Santacreu-Vasut, Shenkar, Shoham, 2014, on participation to boards of large global firms; Davis and Reynolds, 2018, on education; Osei-Tutu and Weill, 2021 on financial inclusion of individuals).

If language influences how people think (Boroditsky, 2009), then differences in language gender-marking may contribute to explain the gender gap in borrower discouragement. Evolutionary linguists argue that the presence of sex distinctions in language may act as cultural marker for ancestral gender roles, echoing the cultural emphasis on gender stereotypes in societies (Johansson, 2005), which may reflect barriers and discrimination women face to access credit markets. Additionally, the direct cognitive impact of linguistic gender (Vitevitch et al., 2013) may further reinforce the salience of traditional views of gender roles in the minds of speakers and influence related female participation in credit markets. We therefore hypothesize that in countries with gender-intensive languages, women entrepreneurs may be more discouraged to apply for credit than male entrepreneurs.

To test this hypothesis, we exploit a cross-country dataset of 32,955 firms from 56 countries. Our results reveal that gendered languages lead women entrepreneurs to be more discouraged from applying for loans than male entrepreneurs. This is consistent with the view that gendered languages affect gender inequality in the economy. The paper proceeds as follows. Section 2 describes data and methodology. Section 3 presents the results. Finally, Section 4 provides concluding remarks.

2. Data and methodology

We use firm-level data from the World Bank Enterprise Survey. This dataset includes different waves of single-country surveys covering a broad range of business environment topics including access to credit. The survey targets registered firms with at least five employees. The final sample consists of 32,955 firms from 56 countries. It includes 89 country-year surveys from 2009 to 2019.

Based on credit experience in the past year, we categorize firms into one of the three groups: (1) firms without a need for credit; (2) firms that needed credit and applied for loans; and (3) firms that needed credit but refused to apply because of reasons including unfavorable interest rates, complex application procedures, insufficient loan amount and maturity, did not think the application will be approved, excessive collateral requirements, or other reasons. Following Chakravarty and Xiang (2013) and Statnik and Vu (2020), we measure *Discouraged* as a dummy equal to one if a firm needed a loan but refused to apply due to credit market imperfections (category 3), and zero if a firm belongs to the second category. We exclude firms without need for credit.

Data on the measures of gender intensity in a country's dominant language come from World Atlas of Language Structures (Dryer and Haspelmath, 2013).¹ Following Santacreu-Vasut, Shenkar and Shoham (2014) and Osei-Tutu and Weill (2021), we employ the four dummy variables in this dataset reflecting different features of grammatical gender as follows: (1) *Sex based* is equal to one if a language has sex-based gender system, and zero otherwise; (2) *Number of genders* takes value of one if a language has exactly two genders, and zero otherwise; (3) *Gender Pronoun* is equal one if a language distinguishes gender in the third, first and/or second person pronouns, and zero otherwise; and (4) *Gender*

¹ A dominant language is defined as the most widely spoken language in a country, following Encyclopedia Britannica (2010).

Assignment is equal to one if a language assigns gender on both semantic and formal grounds, and zero otherwise.²

To capture variations in the intensity of gender-marking in a language, we create the variable *Gender Intensity* as the sum of the four grammatical structure variables. It captures the pervasiveness of gender distinctions in a language with a value of 4 representing highly gendered languages like Arabic and 0 for gender neutral languages like Mandarin.

To test the hypothesis that women-led firms are more discouraged to apply for credit in countries with gender-intensive languages, we perform regressions of the *Discouraged* variable on a set of variables including *Female* (a dummy variable equal to one if the firm's manager is a woman and zero otherwise), *Gender Intensity*, the interaction term between *Female* and *Gender Intensity*, and a set of firm- and country-level control variables. All control variables are listed and defined in Table 1 with descriptive statistics. We perform regressions with OLS and probit models. We include year and country fixed effects in the estimations and cluster standard errors by country.

The key explaining variable of interest is the interaction between *Female* and *Gender Intensity*. A positive coefficient would mean that higher gender intensity increases more credit constraints for women than for men. It would support the hypothesis that a more gendered language is associated to greater borrower discouragement of women relative to men.

3. Results

Table 2 presents regressions where the dependent variable indicates whether the enterprise is discouraged to apply for a bank loan. We test four specifications which differ in the inclusion of control variables to test the sensitivity of our results.

Our main finding is the positive and significant coefficient for the interaction term between *Female* and *Gender Intensity* in all estimations. The overarching message from the regressions is that a more gendered language increases the gender gap in borrower discouragement between female entrepreneurs and male entrepreneurs. Thus our findings support our hypothesis that female entrepreneurs have a higher discouragement to apply for credit relative to men in countries with gendered languages. They are consistent with the claim that grammatical gender affects the way people think along gender lines and more generally with the view that language operates below the surface of conscious interactions.

² Detailed description about the construction of the variables can be found in Osei-Tutu and Weill (2021).

Table 3 reports several robustness tests. First, we include additional measures for culture in the estimations. If language affects economic outcomes, other cultural dimensions can exert a similar impact. The gender gap in access to credit may then be driven by the estimated effect of language gender systems capturing other cultural aspects. We aim at ruling out this possibility by performing two estimations in which we control for alternative culture measures. In column 1, we control for religion by including country-level control variables taking into account the majority religion of the country. In column 2, we include the plough measure constructed by Alesina, Giuliano and Nunn (2013), which measures the proportion of citizens with ancestors who traditionally used the plough in pre-industrial agriculture. These authors have shown that the evolution and persistence of gender norms have been influenced by traditional agricultural practices, particularly plough cultivation. It is therefore of interest to check whether our conclusion for language gender-marking is driven by economic specialization in the distant past.

Second, we take into account the potential selection bias in our sample. To this end, we apply a probit model with sample selection (Van de Ven and Van Praag, 1981). Following León (2015), we employ two selection variables: *Working capital* which captures the share of goods and services paid for after delivery, and *Competition* captures a firm's perception of competition from the informal sector. Results are reported in column 3.

Third, we check whether our results stand when we exclude some languages and countries from the sample. We want to rule out the possibility that our results would be driven by some languages or countries overrepresented in the sample. In column 4, we exclude three global and widely spoken languages: Arabic, English, and Spanish. In column 5, we exclude the two countries with the largest number of observations: India, and Russia. Both countries represent about 25% of all firms from the sample.

In all robustness checks, we find that the coefficient of *Female*×*Gender Intensity* remains significantly positive. We thus always observe that a more gendered language strengthens the gender gap in borrower discouragement between female entrepreneurs and male entrepreneurs. Therefore, these tests provide additional support for the robustness of our finding.

4. Conclusion

This paper examines whether language gender-marking increases discouragement of female entrepreneurs relative to male entrepreneurs to apply for credit. We test this

hypothesis with estimations at the firm level on a large cross-country dataset of firms. We find evidence that language gender-marking exerts an impact on the gap in access to credit between female and male entrepreneurs. A gendered language enhances the difference in borrower discouragement between female entrepreneurs and male entrepreneurs at the expense of women. By showing the influence of language on gender differences in access to credit, our findings support the view that gendered languages affect gender equality in the economy. They accord with the view that language affects speakers' representations of reality and can consequently influence economic behavior of individuals. It has positive implications of prime importance since language inhibits the growth potential of women-led businesses.

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Table 1
Definition and descriptive statistics of variables

This table presents the definition and the descriptive statistics of all variables used in the regressions. All variables come from World Bank Enterprise Survey except other indicated. N=32,955 observations.

Variable		Mean	Std. Dev.
Discouraged	=1 if the firm needed credit and refused to apply for a bank credit, 0 if the firm needed credit and apply.	0.512	0.500
Gender Intensity Index	Sum of four grammatical gender variables (Sex-based, Number of genders, Gender pronoun, Gender assignment). Index ranges from 0 (genderless language) to 4 (highly gendered language). Source: World Atlas of Language Structures.	2.489	1.554
<i>Control variables</i>			
Female	=1 if the firm's top manager is a woman, 0 otherwise.	0.149	0.356
Size	Number of permanent full-time employees.	118.675	506.72
Age	Age of the firm in years.	19.755	16.226
Sole prop.	=1 if the firm is a sole proprietorship, 0 otherwise.	0.289	0.454
Partnership	=1 if the firm is a partnership, 0 otherwise	0.087	0.281
Audited	=1 if a firm's financial statements were checked and certified by an external auditor, 0 otherwise.	0.581	0.493
Experience	Experience the top manager has in the sector in years	18.664	11.226
Foreign-owned	=1 if at least 50% of a firm's ownership is held by foreigners, 0 otherwise.	0.053	0.224
Exporter	=1 if at least 10% of a firm's annual sales is derived from direct exports, 0 otherwise.	0.143	0.350
Gov-owned	=1 if at least 50% of a firm's ownership is held by the government, 0 otherwise.	0.004	0.064
Corruption	Degree to which corruption is an obstacle to a firm's operations.	1.863	1.477
Log(GDPPC)	Logarithm of GDP per capita. Source: World Development Indicators (WDI).	8.155	0.921
GDP growth	Growth rate in GDP. Source: WDI.	4.048	3.873
Fin. Dev.	Domestic banking credit to the private sector as a share of GDP. Source: WDI.	48.249	28.623
Inflation	Rate of inflation. Source: WDI.	0.07	0.054
Rule of law	Index to measure perceptions of the extent to which people have confidence in and abide by the rules of society. Source: World Governance Indicators.	-0.44	0.561

Table 3
Robustness checks

This table presents results of the regressions. The dependent variable is *Discouraged*. We apply the probit with sample selection model in column (3) to control for the risk of sample selection. All controls represent the full set of firm and country-level control variables used in Table 2. Standard errors adjusted for clustering at the country-level are reported in parentheses. *, **, *** denote an estimate significantly different from 0 at the 10%, 5% or 1% level.

	Culture		PSS Model	Sample Construction	
	(1)	(2)	(3)	Excluding global languages	Excluding Influential outliers
Female	-0.011 (0.017)	-0.011 (0.017)	-0.014 (0.016)	-0.022 (0.018)	-0.023 (0.017)
Gender Intensity	0.078 (0.122)	0.017 (0.026)	0.099 (0.105)	0.212 (0.156)	0.141 (0.111)
Female × Gender Intensity	0.010* (0.006)	0.010* (0.006)	0.009* (0.005)	0.029*** (0.01)	0.009* (0.005)
Catholic	0.162 (0.549)				
Protestant	0.820*** (0.308)				
Muslim	-0.244 (0.394)				
Buddhist	0.688*** (0.129)				
Plough use		-0.062 (0.100)			
Observations	32,949	32,949	30,680	19,763	24,716
R ²	0.293	0.293	-	0.267	0.265
Wald Test	-	-	22.10***	-	-
All controls	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes