Language and Gender Roles among Immigrants to the US: A Historical Perspective[*]

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1. Introduction

The 20th century has witnessed a major increase in female labor force participation among developed countries. In spite of this progress, it is widely recognized that convergence to male labor force participation rates has not been fully achieved. Furthermore, this process has exhibited a large amount of heterogeneity over time and across countries. This is particularly true for immigrant populations. Recent work by Olivetti and Petrongolo (2016) seeks to parcel out the underlying factors that can explain these variations and the overall general narrowing of the gender gap in industrialized nations. While structural change in favor of services has been shown to explain nearly half of the convergence, a persistent gender gap remains, and has been attributed in large part to culture.

Isolating the causal effect of individual cultural factors on gender norms and gender identity is challenging because many of these forces are correlat-

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ed. One cultural institution that is increasingly under scrutiny is linguistic structure. In particular, recent research on language and economics has shown that the presence of female/male distinctions in a language's grammatical structure systematically correlates with gender inequality in access to markets and in institutional representation (Santacreu-Vasut et al. 2013).

Unfortunately, cross-national comparisons cannot separate the role of language from a myriad of potential institutional confounders at the country level. This challenge is generally common to the economic analysis of most cultural forces, from language to religion. A potential solution to these concerns is to employ the epidemiological approach (Fernández 2011, Gay et al. 2016). This methodology involves the analysis of immigrant behavior within a shared institutional environment — thus allowing researchers to isolate the influence of specific country of origin characteristics as proxies for culture. In this way, immigrant populations provide a natural experiment through which researchers can study cultural forces and gender roles.

Using the epidemiological approach, Hicks et al. (2015) show that sex-based distinctions in language are closely related to gender roles within the household. In immigrant households that speak a language with sex-based distinctions, women commonly do a larger share of household labor. Furthermore, the type of activities that women and men do in those households are more stereotypically gendered than in the general immigrant population, e.g. men do more maintenance work while women do more cooking and cleaning activities. Nevertheless, they study the impact of gender in language in a sample which covers only modern day immigrant populations (2007-2011). During this short period, the underlying labor market has remained stable in terms of the overall female labor force participation, both for immigrants and for native born individuals. Furthermore, the composition of the immigrant population to the U.S. has also remained relatively stable during this period.

In this paper, we take a broad-based historical approach to further advance our understanding of the relationship between gender in language and gender roles in the workplace. We are able to do so in part because of two main historical evolutions. First, during the 20th century the U.S. has undergone a number of internal changes both in overall female labor force participation rates and in the general advance of gender equality across many important dimensions of society. These market and institutional changes have

been particularly pronounced after World War II (Goldin and Olivetti 2013). Second, from an external point of view, the U.S. has experienced two major and distinct waves of immigration. These waves have been characterized by changes in the primary set of origin countries from which the bulk of the immigrant population has arrived. Such compositional changes reflect both international social and economic machinations, the influence of U.S. immigration policies and country of origin quotas, and external pressures. Generally, the first wave of migration was comprised primarily of migrants of European descent, while the second wave has been comprised more heavily of migrants from Asian and Latin American origins.

Figure 1 presents the evolution of labor force participation for female and male first-generation immigrants from 1910 up until today. As is evident in the figure, there has been a remarkable convergence between female and male labor force participation rates. Furthermore, the convergence for immigrants has mirrored the evolution of labor force participation for native born women (Olivetti and Petrongolo 2016). At the same time, this progress appears to have stalled. From the 1980s to the present, we observe a persistent gender gap in labor force participation rates[1].

The backdrop of the evolving 20th century U.S. labor and immigration histories therefore allows us to address as series of questions in this analysis. Does the impact of language on female labor force participation among immigrants depend on the underlying labor market structure or on the underlying evolution of gender roles in the U.S.? To what extent is the impact of language an artifact of history or an immutable fact? That is, do we observe the same associations between sex-based grammar and female labor engagement one hundred years ago as today or are observed associations the result of sample selection? Persistence in the relationship between language and behavior over time would provide suggestive evidence that the structure

[1] The sharp decline in immigrants labor participation in the mid-1980s, and the recovery in the mid-1990s can be explained by two policy changes: the Immigration Reform and Control Act (IRCA) of 1986, which significantly increased the cost to employers to employ immigrant workers, and the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996, which limited the eligibility of immigrants for public assistance. As a result, they increased their labor supply to be covered by employer-sponsored insurance (Borjas 2003).

of language may contain or reflect important cultural determinants of gender roles.

Figure 1: Labor force participation rates among immigrants to the U.S.



Figure notes: sample consists of migrants aged 16 to 65 who report speaking a language other than English at home (or as a mother tongue before 1980). Female labor force participation rates exclude women working in farming occupations. Calculated using the variable `LABFORCE` from the U.S. censuses 1910-1990 and the ACS 2000-2014 (Ruggles et al. 2015).

This paper seeks to answer these questions by studying the labor market behavior of immigrants to the U.S. from 1910 until today. Using historical census data, we trace the relationship between gender in language and female labor force participation across the arc of an entire century. That is, over decades that witnessed significant changes to gender inequality in the U.S. labor market, large policy changes, evolving origins of migrant populations, and broader developments in gender roles among U.S. natives.

Combining information on the language spoken by immigrants with linguistic measures, we investigate whether the presence or absence of grammatical gender marking influences gender roles in the workplace. We un-

cover a significant negative effect of gender in language on female labor force participation which persists throughout the 20th century. The strength and consistency of this pattern suggests that linguistic structure may represent an important underlying factor behind the persistence of the gender gap.

These findings help provide a clearer understanding of the role of cultural forces for individual behavior and of the interaction between language and gender roles specifically. Such an understanding provides practical policy value as well. Programs designed to promote female labor force participation would be more appropriately designed and targeted by recognizing the existence of stronger gender norms among subsets of speakers.

The rest of the paper is organized as follows. Section 2 presents the literature review. Section 3 presents the methodology and results. Section 4 concludes.

2. Literature

Our literature review is organized as follows. First, we present a short overview of the evolution of immigration to the U.S. throughout the 20th century, paying special attention to female migration in particular (section 2.1). Second, we examine broader literature on the gender gap throughout the 20th century (section 2.2). Finally, we discuss the nascent literature on language and economics, with a particular focus on language and gender in economics (section 2.3).

2.1. Historical Evidence Concerning Migration to the U.S.

An important issue in migration research and one which often enters the public discourse is the speed and extent to which immigrants assimilate culturally and economically to their new environment. Broadly, historical patterns of immigration to the U.S. have been characterized by two main periods — each of which presents potential factors capable of helping or hampering cultural assimilation. The first epoch of migration spans the period ranging from the second half of the 19th century to the beginning of the 20th century, and is commonly known as the “Age of Mass Migration from Eu-

rope." The second wave extends from the end of this age to the present and is characterized by migration from Asia and Latin America.

As Abramitzky and Boustan (2016) describe, during the 20th century, the origin of immigrants evolved together with changes in immigration policy and changes in the cost of migration, some of which were associated with technological innovation. In terms of policy, entry quotas were put in place in 1921 and persisted until the 1960s. These quotas were country-specific immigration quotas. Indeed, the changes in migration policies are described as provoking a shift in migrant's origin (Boyd and Pikkov 2008).

Studies of migrant women in North America such as Boyd and Pikkov (2008) document a growing number of immigrant women to the U.S. They argue that modes of entry are themselves gendered and that the lack of labor market assimilation of female immigrant is due, on the one hand, to culture, and on the other hand, to the selection of being a migrant itself. They also discuss language related policies, in particular those involving host country language acquisition, pointing out that lack of proficiency in English among women immigrant reduces their labor market assimilation[2].

To circumvent these concerns, we compare immigrant women to each other, allowing us to concentrate on their heterogeneous cultural origins, as captured by language, rather than their immigrant status. We do not compare immigrant women with native women, although this may be an interesting topic for future research.

Assimilation to the labor market is shaped by both economic and non-economic factors, including cultural ones. This is due partly to the fact that migrants' motivations include economic but also political, religious, social and/or identity reasons. More generally, comparing the two periods of immigration to the U.S. can provide new insights on the debates surrounding the factors, economic and cultural, surrounding assimilation or its lack. In this

[2] While language has been studied as a factor impacting rates of assimilation, research focus has predominantly centered on the role of English fluency. In particular, English proficiency has been studied in the terms of labor market outcomes as well as in the context of gender related outcomes such as fertility and marriage outcomes (Chiswick and Miller 2007, Bleakley and Chin 2010). For instance, Abramitzky and Boustan (2016) point out that attachment to native tongues is usually perceived as a barrier to cultural assimilation.

paper, we follow this approach by focusing on particular characteristics of the languages spoken by immigrants throughout these two periods. Gender in language is shown to explain a significant portion of the immigrant gender gap in the U.S. in terms of female labor force participation.

2.2. The Gender Gap throughout the 20th century

The gender gap has narrowed throughout the 20th century across most industrialized countries. Current research emphasizes both the factors leading to this convergence, as well as the factors explaining the persistence of gender differences (Olivetti and Petrongolo 2016). During the 20th century, a number of important and disruptive events have shocked these patterns in the U.S. For instance, World War II has been shown to have had a long lasting effect on female labor participation by drawing a generation of women in the labor force (Goldin 1991, Acemoglu et al. 2004, Goldin and Olivetti 2013). Although this increase in female labor participation prevented younger women to enter the labor force at first (Doepke et al. 2015), it created a generation of men who grew up with a working mother, thereby changing durably their beliefs about gender roles (Fernández et al. 2004), which eventually led to an increase in female labor participation in the US (Fernández 2013). Similarly, the 1980s and 1990s have witnessed a growth in research and activism surrounding gender issues, which is particularly true within the context of a growing immigration research agenda. As Hondagneu-Sotelo (2003) describes, this research has evolved over time. While during the 1970s research focused on comparing women outcomes to those of men, during the late 1980s and early 1990s gender has been recognized as both influencing and being influenced by immigration.

Menjívar (2006) acknowledges that cultural norms related to gender and family shape gender outcomes of immigrant women. Yet, while previous studies treat gender relations in the home country as homogeneous, she acknowledges that cultural distinctions exist within sub-national cultures. By focusing on the language spoken by immigrants we can also take into account heterogeneity in gender norms in the country of origin. Indeed, as we describe in section 3, we can compare immigrant women from the same

country of origin but speaking different languages. Conceptually this means that we can account for the average impact of country of origin on behavior and focus on variations attributable to the structure of language.

Following this approach, our paper asks whether through migration, women of different origins and backgrounds, carry their gender identities, as captured in their languages, or whether these are shaped by immigration itself, and by host country labor market conditions. Furthermore, labor market conditions and the presence of women in the labor in the U.S. have been evolving greatly trough out the 20th century, allowing to contrast some of the findings that have been obtained in recent years, with those we estimate for earlier labor market conditions in the US, at times where women, even native born, were far less common in the non-agricultural workforce (see Figure 1).

2.3. Language and Gender Economics

Conceptually, gender in language could impact gender roles in two ways. The first is historical in nature[3]. For instance, sex-based distinctions may have evolved into languages during their development, and thus may act as cultural markers for ancestral gender roles (Johansson 2005). Persistence in language and persistence in gender roles may thus generate a correlation between the two. Second, sex-based distinctions could theoretically influence cognition and thus drive individuals to behave in different manners (Boroditsky et al. 2003). Furthermore, as Butler (2002) discusses, gender roles may be legitimized through language: "If gender itself is naturalized through grammatical norms, as Monique Wittig has argued, then the alteration of gender at the most fundamental epistemic level will be conducted, in part, through contesting the grammar in which gender is given."

Large differences in female labor force participation still exist between countries. These may be due to cultural factors related to gender norms, as well as to differences in institutional characteristics and policies. Isolating

[3] Historical studies like Alesina et al. (2013) investigate the roots of gender roles in pre-industrial agricultural societies and show that many deep rooted societal choices still matter today.

the causal impact of culture on behavior is thus challenging. To uncover these cultural factors, the study of immigrants has provided a rich setting to researchers (Fernández and Fogli 2009, Fernández 2011). Indeed, understanding whether differences in behavior between women and men are acquired or innate is of significant importance for policy making. In this paper, we see language as part of the nurture side, as it may directly influence preferences formation and as it may reflect cultural forces from the past. Indeed, Hicks et al. (2015) show that the use of sex-based distinctions in language grammar is a significant predictor of the distribution of time allocated to household labor and also to the type of activities that men and women engage in within the household.

3. Methodology and Results

3.1. Data

In this paper, we combine linguistic data with U.S. census data. We directly assign languages a value of one if they incorporate sex-based distinctions in the grammatical structure of their language. This could arise in the form of distinctions between male and female pronouns or grammatical genders for example (Corbett 2013). We assign this indicator variable to each language spoken among a sample of migrants to the U.S. We draw this sample from each decennial census from 1910 to the present, and augment this sample with the ACS for the period 2000-2014 (Ruggles et al. 2015). In order to focus solely on women who are most likely to engage with the labor market, we restrict the analysis to migrants aged 16 to 65. Moreover, we focus on individuals engaged in the formal labor market, so we exclude those working in farming occupations. We also exclude migrants who report speaking English in the home, since these individuals are likely to have a far different set of occupational choices, and we cannot precisely specify their mother tongue[4]. For the pooled sample, this yields roughly five million individuals

[4] See section 1 of the appendix for more details on the construction of the dataset.

speaking 93 distinct languages[5].

Table 1 presents the origin of female migrants by continent in 1910 and 2011-2014. A discussed in Section 2.1, there is a clear evolution in the composition of immigrants to the U.S. in our sample. The immigrant composition has shifted largely from Europe to South America and Asia. These patterns are consistent with the two main periods of U.S. immigration history discussed above[6]. Importantly, should we observe an impact of female/male distinctions in the grammar of the language spoken on the labor force participation of female migrants, this compositional change will ensure that this finding is not spuriously due to sample selection. Specifically, such an association should not be driven by one single migrant group that systematically behaves in a gendered manner, such as the recent large migration flows from Mexico. Indeed, these changes in the composition of migrants' origin implies that our empirical identification comes largely early on from Europeans, but also arises in large part after WWII from variation in languages across Asian households.

3.2. Empirical Strategy

Our empirical strategy takes the following form:

$$Y_{iljkt} = \alpha + \beta_1 F_i + \beta_2 GM_{il} + \beta_3 (F_i \times SB_{il}) + \delta' \boldsymbol{X}_{ij} + \gamma' \boldsymbol{Z}_{ik} + \varphi' \boldsymbol{W}_t + \varepsilon_{iljkt},$$

where Y_{iljkt} is a measure of labor force participation of migrant i in household j, from country k, speaking language l in the home in year t. F is an indicator variable equal one if the immigrant is a woman, while SB is an indicator variable equal one if the language of the immigrant has sex-based distinctions in its grammar. $\boldsymbol{X}$ is a vector of covariates at the individual and household level[7]. In particular, we control for self-reported levels of English proficiency, as it is known to be an important factor of labor market oppor-

[5] The list of languages spoken is available in appendix, section 1.1.

[6] See section 2 of the appendix for the composition of immigrants by origin continent for each census-year in our sample.

[7] These are fully detailed in the notes of Table 2.

tunities. Also, it is possible that speakers of some languages cluster geographically in the U.S. to take advantage of network effects in ethnic enclaves. To alleviate this concern, we include state of residence fixed effects throughout the analysis. Finally, we include survey year fixed effects $\boldsymbol{W}$[8].

Table 1: Origin of female migrants (% of total migrants)

	1910			2011-2014		
Continent	All	SBI=0	SBI=1	All	SBI=0	SBI=1
Africa	0.0	0.0	0.0	2.1	0.3	1.8
Asia	0.5	0.4	0.1	33.0	21.5	11.5
L. America	2.2	0.0	2.2	53.7	0.1	53.6
Europe	91.6	14.3	77.3	10.4	0.8	9.6
N. America	5.7	0.0	5.7	0.6	0.1	0.6
Oceania	0.0	0.0	0.0	0.2	0.0	0.1
Total	32,287	4,750	27,537	456,386	103,862	352,524

Table notes: contains only female immigrants. Calculated using the variables LANGUAGE, MTONGUE, and BPL from the U.S. censuses 1910-1990 and the ACS 2000-2013 (Ruggles et al. 2015).

Some of these controls, such as educational attainment, may be endogenous: if there is an underlying relationship between the structure of language and labor market behavior, then this relationship should also matter for educational choices, which should in turn impact labor market participation. For instance, a woman speaking a language with a sex-based grammatical system may anticipate not participating in the labor force later in life, and therefore choose not invest in education. Because we want to capture the global interaction of language structure and behavior — both direct and mediated — we prefer to leave these potentially endogenous variables out of the baseline analysis. Including them would allow us to capture only the direct relationship between language and labor market behavior once the relationship between language and, for instance, educational choices, has been accounted for.

[8] We group the ACS surveys as follows: 2001-2005, 2006-2010, and 2011-2014.

Importantly, we include country of birth fixed effects $\boldsymbol{Z}$ for all immigrants' 206 precise origin countries, as they are likely to capture a large part of the source country's cultural influences[9]. This allows our identification of the impact of language structure to come from variation in the labor market behavior of immigrants speaking a language with a different grammatical structure but coming from the same country. The coefficient of interest is β_3 as it represents the effect of being a woman speaking a language that has a sex-based grammar once the effect of being a woman (β_1), and the effect of speaking such a language (β_2), have been accounted for.

3.3. Results

Since our analysis spans data from 1910 to today, we present the results as follows. First, we perform OLS regressions for the pooled sample, using four specifications. Column (1) of Table 2 presents the regression results with no control variables. It shows that immigrant women speaking a language that has a sex-based grammatical system are less likely to be in the labor force. For instance, these women are on average 6.8 percentage points (β_3) less likely to be in the labor force than women speaking a non-gender marked language. On the other hand, similar men are 4.8 percentage points (β_1) more likely to be in the labor force. This difference cumulates with the 20 percentage point gap (β_2) in average labor force participation between male and female immigrants. That is, the gender gap in formal employment among immigrants is even wider for those speaking a gender-marked language. These estimates are relatively large in terms of magnitude as women in our sample have an average labor participation rate of 58 percent, implying that immigrant woman who speak a gender-marked language are about 10 percent less likely to be in the labor force compared to the mean.

Column (2) of Table 2 includes race and age controls[10], and column (3) includes country of birth fixed effects $\boldsymbol{Z}$. The coefficients of interests are all

[9] The list of countries of birth is available in appendix, section 1.2.

[10] Race controls consist of indicators for Black, White, Hispanic, and Other race. Age controls consist of 154 year of birth indicators. See sections 1.5 and 1.6 of the appendix for more details.

precisely estimated and are virtually unchanged compared to those in column (1). This suggests that there is not much heterogeneity in the nature of the interaction between language and labor market behavior across countries. Column (4) introduces other potentially endogenous controls such as educational attainment, number of children and marital status. Interestingly, the coefficients barely change, suggesting that most of the impact of language on labor market behavior is direct rather than mediated by educational or marriage choices.

Table 2: Impact of gender in language (1910-2014)

	Dependent variable: Labor Participation			
	(1)	(2)	(3)	(4)
Sex-Based	0.048***	0.076***	0.050***	0.047***
	[0.001]	[0.001]	[0.003]	[0.003]
Female	-0.199***	-0.202***	-0.199***	-0.190***
	[0.001]	[0.001]	[0.001]	[0.001]
Female × Sex-Based	-0.067***	-0.066***	-0.073***	-0.073***
	[0.002]	[0.002]	[0.002]	[0.002]
Race and Age Controls	No	Yes	Yes	Yes
Country of Birth FE	No	No	Yes	Yes
Econ. and Demo. Controls	No	No	No	Yes
Observations	5,378,231	5,378,231	5,378,231	5,378,231
R^2	0.092	0.127	0.135	0.172

Table notes: estimates are survey weighted. Samples include all immigrants aged 16 to 65 who report speaking a language other than English at home (or as a mother tongue before 1980). Economic and demographic controls include: family size, number of children, marital status indicators, decade of migration indicators, educational attainment, student status, and home ownership status. See section 1.6 of the appendix for more details. All regressions include state of residence and survey year indicators (see footnote 5). Robust standard errors are in brackets. Source: results calculated using the U.S. censuses and the ACS 1910-2014 (Ruggles et al. 2015). *** Significant at the 1 percent level.

Figure 2: Regression results



Figure notes: the solid line reports the results from the specification in column (3) of Table 2. The vertical lines are 95 percent confidence intervals around the estimates.

We also examine each census wave individually to see whether the results presented in Table 2 are driven by the most recent years — this is a potential concern because our sample contains far more observations in the ACS years (2000-2014) than in earlier years. For ease of comparison, we plot the resulting year-specific coefficient estimates on the key interaction term (β_3) in Figure 2, which includes 95 percent confidence intervals[11]. T impact of sex-based gender system is relatively constant, and always negative, and significant. In particular, the relationship is similar in the 1910s to the 2010s, although the composition of the migrant population in terms of origin and language structure is very different — see Table 1. This finding suggests that the observed relationship between gender in language and gen-

[11] Regression tables for each census-year estimated analogously to those in Table 2 are available in section 3 of the appendix.

der roles in economic engagement is unlikely to be driven by time-varying developments in the United States, such as broader progress on gender equality.

4. Conclusion

The presence of grammatical sex-based distinctions in languages spoken by immigrant women to the U.S. is associated with lower female labor force participation. This paper documents a novel and surprising stylized fact: the connection between gender in language and workplace behavior is stable in sign and in magnitude throughout the 20th century. This is surprising insofar as the 20th century U.S. labor market has witnessed major changes including the massive incorporation of women to the formal labor market. Further, this is remarkable because the composition of immigrants' origin has vastly evolved as have political and social institutions. Also, this relationship is not heterogeneous across countries, as suggested by the fact that the coefficients barely change with the introduction of the country of origin fixed effects. This suggests that the association between language and gender outcomes is not an accident of history or driven by specific immigrants behavior at a particular point in time.

Future work may investigate intergenerational transmission of gender roles through language, as well as the occupational profile, as some literature suggest a particular profile among migrants, and particularly, among female migrants. Also interesting may be to study how immigrants labor market choices are shaped by the behavior of native women.

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