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Empowerment across Italian Provinces:  
Religion or Family Culture?**

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# On the Historical Roots of Women's Empowerment across Italian Provinces: Religion or Family Culture?#

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## Abstract

In most developed countries the gender gap is nearly closing in the health and educational spheres while there is still sizeable gender inequality in the economic and political dimensions. Why do women's economic decision-making and political empowerment vary so widely? What are the main potential determinants of such variations? In this paper we explore the association between two specific facets of women's empowerment, the percentage of women holding office in local political bodies and the percentage of women in high-ranking jobs, with the cultural environment in which women make their career decisions. Our hypothesis is that culture, in particular those values embodied by religious culture, plays a central role in shaping norms and beliefs about the role and involvement of women in society. Moreover we suggest that these cultural norms are inherited from the past and therefore have a high degree of inertia. Over a cross section of Italian provincial data, both OLS and IV results indicate that our measures of women's empowerment are strongly associated with religious culture, as proxied by religious marriages. These results are robust and consistent across specifications.

JEL CODES: J16, J7, N30, R1, Z10, Z12

KEYWORDS: women's empowerment, politics, glass ceiling, religion, family culture, historical determinants.

*Women should remain silent in the churches.  
They are not allowed to speak,  
but must be in submission, as the law says.  
(Corinthians 14:34)*

*Older women likewise are to be reverent in their behavior,[...] they may encourage the young women to love their husbands, to love their children, to be sensible, pure, workers at home, kind, being subject to their own husbands, that the word of God may not be dishonored.  
(Titus 2:3-5)*

*To the woman he said,  
“I will surely multiply your pain in childbearing;  
in pain you shall bring forth children.  
Your desire shall be for your husband,  
and he shall rule over you.”  
(Genesis 3:16)*

## **1. Introduction**

The recently issued Gender Gap Report 2014 by the World Economic Forum (WEF) has once again focused our attention on the hot issue of the magnitude of gender disparities around the world, across and within regions. According to the WEF's Gender Gap index<sup>1</sup>, the gender gap is slowly closing but still no country in the world has fully closed it, but all five of the Nordic countries which have closed more than 80% of it (WEF, 2014). Indeed wide gender gaps still persist in many countries, even in the most advanced ones, particularly in the economic participation and political empowerment dimensions. Italy for example is ranked 69<sup>th</sup> according to the overall score, well behind almost all developed countries and even many developing ones, i.e. Madagascar (41<sup>st</sup>), Colombia (53<sup>rd</sup>), or Burundi (17<sup>th</sup>).

Why do women's economic decision-making and political empowerment vary so widely? What are the main potential determinants of such a variation? In this paper, over a cross section of Italian provincial data, we explore the association between two specific facets of women's empowerment, the percentage of women holding office in local political bodies and the percentage of women in high-ranking jobs, with the cultural environment in which women make decisions.

Indeed, as highlighted by Bozzano (2014), the degree of gender equality is highly heterogeneous within the Italian boundaries and varies widely across regions. As a matter of fact, making use of a newly constructed index Bozzano points out that in Italy at the regional level the gender gap is nearly closing in the health and educational spheres while there is still sizeable gender inequality in the economic and political dimensions.

Our conjecture is that culture, in particular those values embodied by religious culture, plays a central role in shaping norms and beliefs about the role of women in the society. Moreover we

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<sup>1</sup> The Gender Gap index ranks countries according to fourteen indicators in four main areas giving a score between 0 (perfect inequality) and 1 (perfect equality). The index considers four key dimensions: health and survival, educational attainment, economic participation and opportunity, and political empowerment.

suggest that these cultural norms are inherited from the past and therefore have a high degree of inertia.

Our work is related to two main lines of research which have tried to uncover the relevance of history and culture in shaping current economic outcomes. A first line of research analyses the long-run effects of history in general focusing on the impact of different institutions on economic outcomes. Acemoglu et al. (2001) show that the types of rules established by European colonizers are still persistent in shaping current income per capita through current institutions. Putnam (1993) puts forth that the legacy of the experience as a free city-state in medieval times affects the current level of social capital and thus economic development. Guiso et al. (2008) depart from Putnam's conjecture and give evidence that the current marked differences in social capital across Italy are actually influenced by the past culture of independence in the Middle Ages making use of a difference-in-difference strategy. Tabellini (2010) tests empirically the hypothesis that past measures of political institutions in the seventeenth and eighteenth centuries have an impact on current values and beliefs, i.e. the level of trust and respect for others, and hence on output per capita. Finally, and more relevant for our purposes, Alesina et al. (2013) study the lasting effect of distant history on female outcomes suggesting that inequitable gender roles have their origins in different forms of agriculture practiced traditionally, more specifically plough use.

A second strand of the literature has tried to unfold the role of informal institutions, namely culture, on economic activity as well as on gender outcomes. Cultural norms can be defined as those values, beliefs, and social norms that ethnic, religious, and social groups transmit fairly unchanged from generation to generation (Guiso et al., 2006). From the theoretical standpoint, Bisin and Verdier (2000) explain the transmission of cultural values within the family. Empirically, close to our focus, the relevance of cultural factors in explaining female outcomes, with particular attention to female labour force participation, has been investigated by Antecol (2000), Guiso et al. (2006), and Fernandez and Fogli (2009). Farré and Vella (2013) investigate the intergenerational correlation in gender role attitudes and find that cultural beliefs regarding the role of women in the family and the workplace are transmitted across generations and have an important impact on subsequent generations' female labour supply. Similarly, Alesina and Giuliano (2010) stress the role of a specific trait of family culture, the strength of family ties, in shaping women's outcomes. Finally, Campa et al. (2011) recently analyse the impact of gender culture on gender equality in employment in Italy constructing an index of gender culture at firm and individual levels.

Within this second line of research on the economic impact of culture on gender outcomes a particular role is played by religion, since religion is a particular combination of specific beliefs and ethical principles which embodies a definite perception of the role of women within the family and in society at large. Within the sociological literature, Esping-Andersen (1990) puts forth the idea that labour market institutions are strongly affected by religion and associates a conservative view on gender roles with Catholic countries. Guiso et al. (2003) highlight the relationship between the intensity of religious values and gender inequitable gender norms: the more a person participates in religious services, the more conservative his attitude towards women is. The same conclusion is reached by Seguino (2011). Algan and Cahuc (2003) argue that "macho" values are highly

positively correlated with being Catholic or Muslim. Likewise, Pastore and Tenaglia (2013) identify a clear negative association between the share of individuals belonging to the Catholic (and Orthodox) religion and the share of active women in the labor market. Bertocchi (2011) associates the presence of Catholicism in a country with a lower probability that a woman was allowed a political voice and therefore women's enfranchisement in the period 1870-1930.

This essay intends to contribute to the above mentioned literature in three ways. First, while there is a vast literature on the determinants of female education, women's labor force participation, motherhood, and fertility,<sup>2</sup> few papers have so far investigated women's achievements in politics and in high-ranking jobs.<sup>3</sup> Second, although we are aware that to disentangle different cultural elements is an arduous task, we explicitly propose to distinguish between two alternative channels, religious culture and family structure, by including them simultaneously into the analysis. We acknowledge in fact that these two dimensions are not mutually exclusive: however we argue that religion is the primary explanation of the differences in gender attitudes whereas family culture as defined as a traditional family structure plays a secondary role being itself influenced by religious norms but also by mere demographic and economic forces and our regression analysis confirms it. Finally, we suggest that gender norms are highly persistent through time and religious culture is the channel through which past gender culture still plays a role in shaping current female political and economic decision-making empowerment in Italy.

In what follows we therefore focus on the specific cultural and social norms attached to religion and, in our specific case, to Catholicism. We employ a measure of society's religious culture, where the intensity of Catholicism is given by the share of religious marriages over the total number of marriages: in our argument a higher degree of religiosity captured by the share of religious marriages is associated with a more conservative perception of women's position within the family and in society at large and thus with lower degrees of feminization in politics and high-ranking jobs.

We adopt the following strategy to substantiate our results. First, we explore the role of religious culture on women's empowerment distinguishing it from the effect of family structure and controlling for current female education and wealth. Then we run a set of alternative specifications in order to assess the robustness of our findings. Third we focus on the religious channel and we use an instrumental variable estimation by instrumenting current religious culture with its historical gender-related component. In the end we provide some sensitivity analysis and discuss the validity of our instruments to detect whether the past has a direct effect on current outcomes other than the one passing through current religious culture.

Our paper is organized as follows. Section 2 presents our provincial data and some stylized facts. Section 3 presents our empirical strategy and puts forth some relevant correlations. Section 4

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<sup>2</sup> See Goldin (1990, 2006) for a treatment of the issue of empowerment of U.S. women from an economic history perspective. For the role of technology on gender empowerment see Goldin and Katz (2002) and Greenwood et al. (2005).

<sup>3</sup> Alesina et al. (2013) are an exception because in their analysis on the role of the plough in determining gender attitudes today they employ as dependent variables the female labour force participation as well as the share of women in national politics and the share of firms with female owners or managers.

proposes a channel through which past culture may affect current gender outcomes by employing an IV strategy and discusses the results. Section 5 concludes.

## 2. Cross-provincial Evidence

### 2.1. Data Description

In order to test our hypotheses about the determinants of women's empowerment in Italy, we compile a province-level database on female achievements and contextual variables for 103 Italian provinces.<sup>4</sup> The main source is represented by census data in 2001 and specific surveys conducted by the Italian National Institute of Statistics (Istituto nazionale di statistica - ISTAT) in various years (see Table A.1 in the Appendix for more details).

#### *Dependent Variables*

For our dependent variables we construct two indicators of women's empowerment: in politics and in top managerial positions. We measure women's political empowerment as the share of elected women in local (provincial) committees<sup>5</sup> over the total number of elected members. This variable captures the degree of feminization in the political sphere and is constructed for the year 2008 from a database of the Italian Internal Affairs Ministry (Ministero dell'Interno) gathering information of all past members of provincial bodies. In the economic sphere we turn to a measure of female decision-making empowerment, i.e. the share of women who are in charge of senior managerial positions over the total number of individuals in the same position calculated from Census data for the year 2001.<sup>6</sup> This allows us to assess the phenomenon of "glass ceiling"<sup>7</sup> and indeed to capture values and beliefs about the position of women in society.<sup>8</sup>

#### *Explanatory variables*

As mentioned above, in this study we refer to religious culture as the informal rules and conduct transmitted by religion, more specifically Catholicism, that determine the cultural environment within which men and women accumulate skills and make their career decisions. In the literature several measures of religious intensity have been employed (see Barro and McCleary, 2003) but for our purposes we measure religious culture as the share of religious marriages over the total number

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<sup>4</sup> The number of the observations decreases to 99 when historical variables are introduced. This is due to the fact that our historical variables refer to a period in which the provinces that today refer to Bolzano, Trento, Gorizia, and Trieste were not part of the Kingdom of Italy and therefore no data are available. In our sample we attribute the value of the same observation to those provinces which were together in the past and separated today.

<sup>5</sup> In Italy for each province there are two political entities, the Consiglio provinciale and the Giunta provinciale.

<sup>6</sup> This variable is obtained from Census 2001 from people of both sexes who have declared to be in charge of a senior managerial position according to the following answer: "Do you run a business or head up the work of complex organizational structures (entrepreneur, public or private manager, head physician, dean, business owner).

<sup>7</sup> The phenomenon of "glass ceiling" is the concentration of higher responsibility positions in the hands of men and the underrepresentation of women at the top level of both public administrations and private firms.

<sup>8</sup> The dependent variables are constructed in such a way to represent a measure of feminization in politics and high-ranking jobs. In order to interpret it as a measure of gender equality, we simply need to read it against the gender equality benchmark which is 50 percent: in fact this would represent the situation in which the positions both in politics and in top levels are equally distributed among women and men. The sex composition of the adult population is neglected because not relevant (in 2001 the masculinity index for population between 15 and 64 years of age is 99.98).

of marriages for each province in year 2004.<sup>9</sup> This measure is particularly informative because it also embeds a gender-related feature of religion since religious (Catholic) marriages are believed to be characterized by higher gender segregation and lower equality between partners. We also provide an alternative variable measuring the intensity of religiousness as the frequency of church attendance<sup>10</sup> although the latter variable is only available at the regional level.<sup>11</sup>

Family culture and the structure of family relationships have been recently studied by a broad literature because of its impact on economic behaviours and attitudes with particular focus on women's decisions. As highlighted by Alesina and Giuliano (2010) households characterized by strong family ties are larger, namely associated with higher fertility rates and higher family size. In line with this argument, we include two measures of family culture for each province, i.e. the current fertility rate<sup>12</sup> in 2000 and the share of families with five or more components in each province in 2001. In addition, given the explanatory power of divorce for women's outcomes as already highlighted for example by Bertocchi et al. (2014) and Fernandez and Wong (2011), we include the divorce rate in 2008 at the regional level as a further indicator of family structure.

We complete our dataset with a number of socio-economic variables. We include correlates of economic development, income, and labour market structure, i.e. female labour force participation and female unemployment rate, all referring to 2001. To understand the role played by human capital we include female education as the share of women aged 19 or more with at least a high-school diploma over the total number of women. We also take account of a measure of equality in the labor market as a whole, labour force participation (LFP) equality, measured as the female to male ratio of labor force participation rates in 2001 and therefore increasing with gender equality.<sup>13</sup> This variable is included because gender roles are directly influenced by the prevailing environment in the labour market given that women update their behaviour looking at other women's involvement in the labour market (see Fernandez, 2013, for a theoretical underpinning of culture as intergenerational learning process).

To capture the effect of distant history on current levels of gender equality, we include a further set of historical variables. On the one hand we include two measures of past gender culture: the gender gap in literacy in 1861<sup>14</sup> and the total fertility rate in 1930.<sup>15</sup> These two variables are considered to proxy for the preferences and beliefs commonly held about women's role in society from the human capital perspective: indeed they reflect the decisions of parents on human capital investment of

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<sup>9</sup> Checchi and Braga (2009) use the share of non religious marriages over the total number of marriages as an indicator for women sexual emancipation.

<sup>10</sup> This variable is obtained as the share of interviewed people over 6 years of age who have declared to go to church at least once a week.

<sup>11</sup> The correlation between the two measures of religious culture is 0.70.

<sup>12</sup> Fernandez and Fogli (2009) use past values of female labor force participation (LFP) and total fertility rates (TFR) in the country of ancestry as cultural proxies in order to determine current women's working and fertility decisions.

<sup>13</sup> LFP equality takes values between 0 (perfect inequality) to 1 (perfect equality) among women and men.

<sup>14</sup> We employ the gender gap in literacy in 1861, which is at time of Italy's unification, to capture the bias against women inherited from pre-unitary states. Data are from Bertocchi and Bozzano (2013, 2015).

<sup>15</sup> We consider the total fertility rate in 1930 because by this date the process of demographic transition can be considered as concluded for all territories of Italy and therefore total fertility rates were stable. Data are from Ge and Gerzeli (2008).



daughters and those of women and hence depend on women's characteristics and on the economic and institutional environment. Moreover, granted that culture is moving slowly (Tabellini, 2010), gender norms and beliefs about the role of women in society are transmitted through generations and therefore shaped by distant history. Summing up, our working hypotheses are the following. On the one hand, provinces with a wider gender gap in human capital accumulation in the nineteenth century should still show lower degrees of feminization in the political sphere and wider gender gaps in the economic sphere with respect to men. On the other hand, provinces with higher rates of fertility in the past, meaning a more subordinated and caring role of women, should be characterized by lower degrees of equality between sexes in the political and economic sphere.

On the other hand, following the analysis of the determinants of social capital across Italian provinces in De Blasio and Nuzzo (2010), we include a variable capturing the level of democracy, as a dummy taking value 1 if the province was a Communal Republic during the fourteenth century (and 0 otherwise). This indicator is used to capture the long-run effect of a previous experience of democracy: more egalitarian communities in the past are more likely to have shaped a more open-minded beliefs on the role of women and so far a less discriminatory population system. Finally we also introduce a measure of past economic development, an index of relative industrialization in 1871 calculated by Ciccarelli and Fenoaltea (2013) in order to control for the potential role of the structure of the economy in shaping past gender culture.

## 2.2. Stylized Facts

The descriptive statistics reported in Table 1 reveal that on average only 21 percent of provincial political bodies are composed of women while 26 percent of top managers are women. Moreover, there exists significant provincial variation in both outcomes<sup>16</sup>: in the southern province of Agrigento only 6.9 percent of the elected components of the provincial bodies are women against the 43 percent of Bologna (in center Italy) where women are close to reach equality<sup>17</sup>. In the economic decision-making sphere, Napoli (in the South) performs poorly with only 19 percent of women in top managerial positions whereas La Spezia (in the North) presents the highest score with 31 percent. High heterogeneity is also present according to other socio-economic dimensions. Along the education one, we observe that only 30 percent of women possess a high school diploma in 2001 and there is high variability across provinces going from 23 percent in Biella (in the North) to 43.6 percent in Rome. In terms of current fertility rate, Italy as a whole shows an average of 1.2 children per woman: Ferrara (in the center) has the lowest fertility rate while the highest is in Napoli. Finally, we report our measure of religious culture, the share of religious marriages. On average 67 percent of total marriages in 2004 is religious suggesting a high degree of religiosity throughout the country. However we point out again that there is wide heterogeneity: in terms of the share of religious marriages, the degree of religiosity is highest in the province of Trapani, in Sicily

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<sup>16</sup> Figure A.1 in the Appendix provides a map of Italy in order to understand the location of provinces described in this section.

<sup>17</sup> As already mentioned, the variables women in politics and women in top managerial positions are defined as degrees of feminization in the respective dimensions and therefore the equality benchmark is 50 percent.

(89.5 percent), and lowest in the province of Gorizia, in Friuli Venezia Giulia (41 percent), in the North East.

Table 1: Descriptive Statistics: Selected Variables<sup>18</sup>

Variable	Obs.	Mean	Std. Dev.	Min	Max
Women in Politics	103	20.801	8.641	Agrigento 6.869	Bologna 43.207
Women in Top Manager Positions	103	26.046	2.941	Napoli 19.753	La Spezia 31.547
Female Education	103	30.122	3.1559	Biella 23.59	Roma 43.61
Religious Marriages	103	67.09	12.543	Gorizia 41.176	Trapani 89.469
Current Fertility Rate	103	1.2074	0.136	Ferrara 0.879	Napoli 1.561

Figures 1 and 2 show the geographical distribution, aggregated by region, of our two outcomes of interest. It emerges that territorial divergences in Italy are pronounced and some provinces show very low degrees of feminization, in particular in the political domain. We find a striking divide between a group of regions such as Liguria, Emilia Romagna, Friuli Venezia Giulia, Tuscany, and Piedmont, with a degree of feminization around 30 percent, and a group of poorly performing regions formed by Valle D'Aosta, Sardinia, and Calabria with on average 12 percent of women in provincial politics.

When looking at the second measure of women's empowerment in the economic sphere we notice a similar pattern: the same regions as before lead the group while the worst performers are now most of the Southern regions, i.e. Sicily, Basilicata, Campania, Calabria, and Apulia.

Next we examine the bivariate relationships between the two measures of gender empowerment we have discussed thus far. In Figure 3 we plot the share of women in top managerial position on the horizontal axis, and the share of women in politics on the vertical axis. A clear positive association between these two measures of women's emancipation emerges. The correlation between the two variables is 0.62.<sup>19</sup>

<sup>18</sup> See Table A.1 descriptive statistics for all variables.

<sup>19</sup> Table A.3 in the Appendix reports pair-wise correlations.

Figure 1: Geographical Distribution of Political Empowerment, by Region

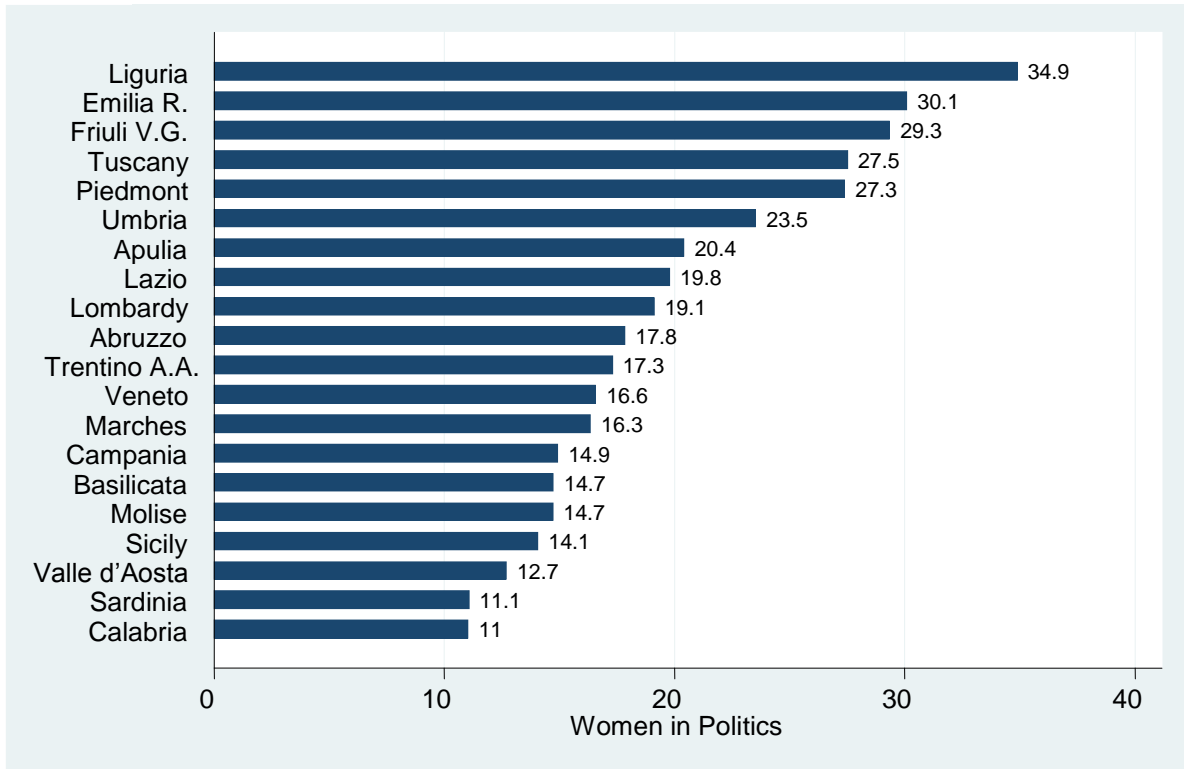


Figure 2: Geographical Distribution of Female Decision-making Empowerment, by Region

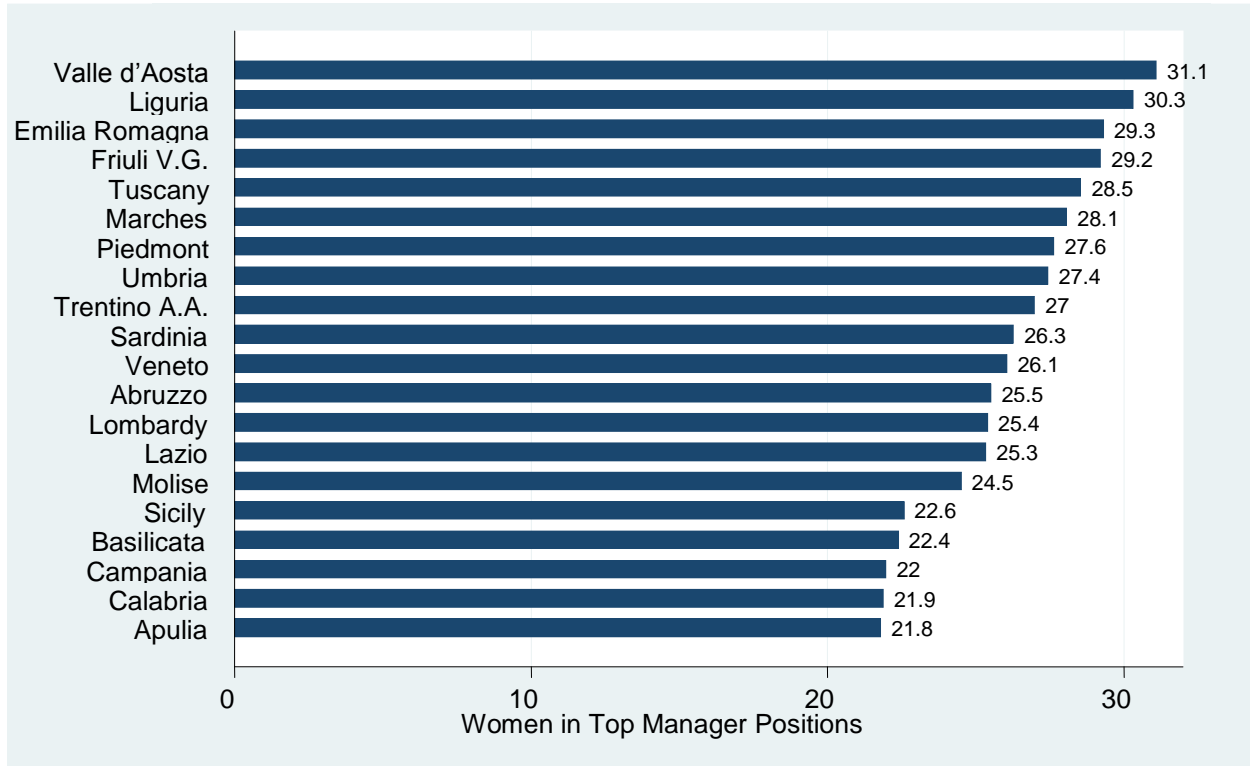
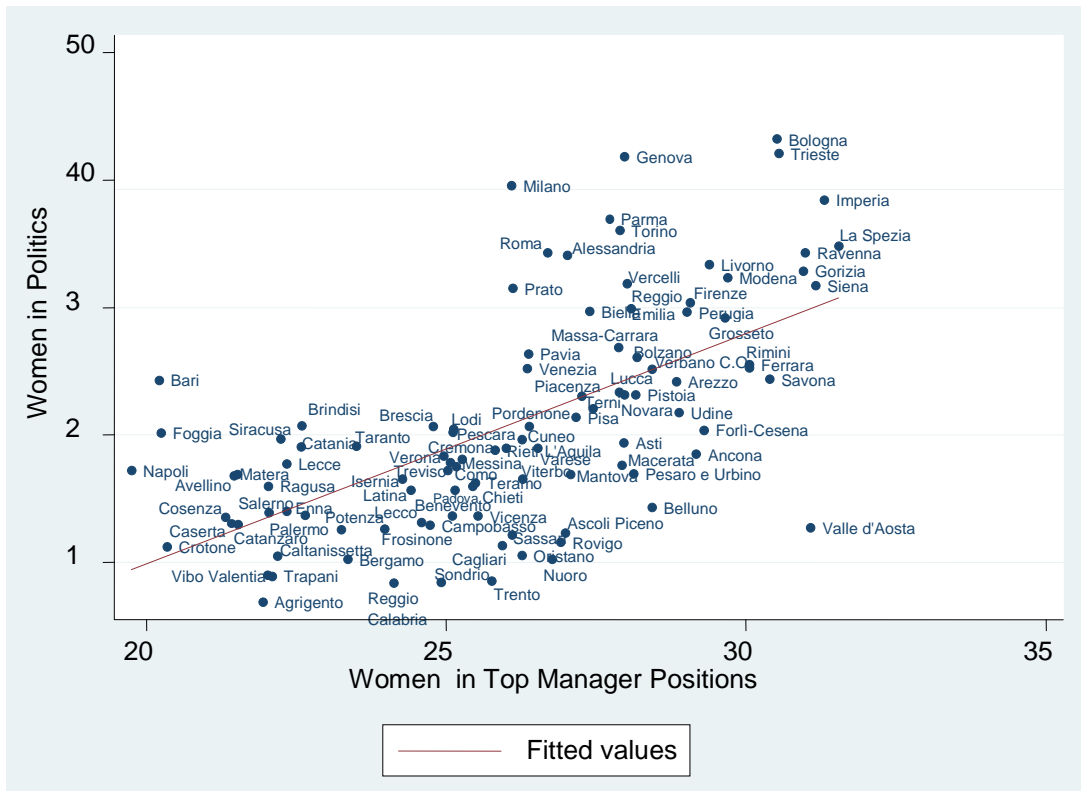


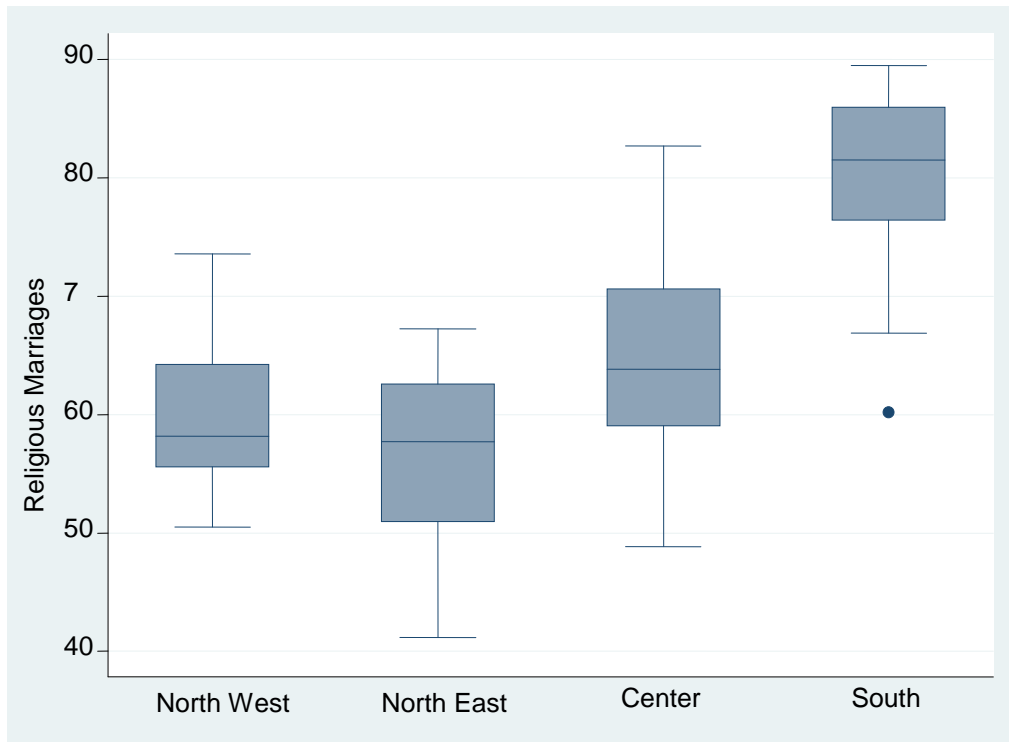
Figure 3: Political vs. Female Decision-making Empowerment, by Province



As far as the distribution of our main variable of interest, religious culture, is concerned, we look now in Figure 4 at a box plot of the share of religious marriages across Italy in order to spot the territorial differences in the degree of religiosity in four macro-regions. This is a convenient way of describing the data because it provides a clear idea of the variation within each group and shows the median observation, which is the “typical” observation within each macro-region. We easily notice that Southern regions display a larger share of religious marriages over the total number of marriages, suggesting a more pervasive religiosity, followed by the Center, while in the North West and the North East of the country we observe much lower degrees of religiosity.<sup>20</sup>

<sup>20</sup> Notice that the median share of religious marriages in the South is 81.5 while those of the Center, North West, and North East are 63.8, 58.2, and 57.6 respectively.

Figure 4: Share of Religious Marriages, by Macro-region



### 3. Empirical Analysis: Contemporary Determinants of Women’s Empowerment

Having set the scene, we proceed in this section by exploring the contemporary determinants of gender equality in politics and in top managerial positions, as a function of two main covariates: religious culture and family culture.<sup>21</sup> The idea is to compare the explanatory power of these two dimensions of culture and therefore we try to run a “horse race” exercise.

In formal terms, we estimate by OLS the following model:

$$WE_i = \alpha + \beta X_i + \gamma Religious\ Culture_i + \delta Family\ Culture_i + \varepsilon_i$$

where  $WE_i$  is a measure of women’s empowerment in province  $i$ ,  $Religious\ Culture_i$  is the variable of main interest and is proxied by the share of religious marriages over total number of marriages and therefore is increasing in the strength of religious beliefs in the province,  $Family\ Culture_i$  is a proxy for family structure, i.e. current fertility rate in each province. We explicitly distinguish religious culture and family culture which are included simultaneously in the regression analysis in order to try to separate the effects of these two channels and in particular to distinguish mere demographic aspects. Among the controls in  $X_i$  we consider female education as the percentage of women aged 19 or more who have completed at least secondary school, and per capita GDP.

<sup>21</sup> Bertocchi (2011) investigates the determinants of women’s enfranchisement using an empirical specification which treats women’s suffrage as a function of three main covariates: per capita income, the presence of divorce legislation, and the presence of Catholicism as the dominant religion.

Besides, we include a set of geographical controls as macro-region specific fixed effects; standard errors are clustered by region in order to correct for the potential clustering of the residuals at the regional level.

From these regressions we obtain some preliminary evidence on the possible determinants of current gender empowerment in politics and in top managerial positions. Results are discussed in the following section.

### **3.1. OLS Estimation: Results and Robustness Exercises**

Table 2 presents our regression results. In even-numbered columns, the dependent variable is a province's share of seats in local political bodies held by women; in the odd-numbered ones, we examine the share of women in top managerial positions in each province.

In columns 1 and 2 we run a parsimonious specification as explained in the previous section. In columns 3 and 4 we introduce macro-region fixed effects to account for common factors. Finally in columns 5 and 6, to control for omitted variables bias we also include a further geographical variable, latitude.

We find that religious culture, as captured by the share of religious marriages, is strongly significant at 1 percent in all specifications and negatively associated with both dependent variables. This means that a higher degree of religiousness is associated with lower degrees of women's empowerment. Family culture as proxied by the current fertility rate is significant in explaining the share of women in managerial positions, showing a negative relationship, while it is not relevant for political empowerment. Female education is significant at 5 percent only for political empowerment while it displays no relevance in explaining female economic decision-making power. Finally, income as well as geographical controls, i.e. macro-region dummies and latitude, display no significant influence in explaining women's empowerment.

To sum up, focusing on the effect of religious culture, our estimates in Table 2 imply that moving from the most religious to the least religious province would have large effects on women outcomes: it would increase political empowerment by 24 percentage points and female decision-making empowerment by 7.5 percentage points.<sup>22</sup>

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<sup>22</sup> We obtain the maximum effect of religious culture as follows: [max of religious marriages – min of religious marriages] \* coefficient of religious marriages.

Table 2: The Determinants of Women's Empowerment: OLS

Estimation technique: OLS	(1) Women in Politics	(2) Women in Top Manager Positions	(3) Women in Politics	(4) Women in Top Manager Positions	(5) Women in Politics	(6) Women in Top Manager Positions
Female Education	0.841** (0.301)	0.0472 (0.05)	0.852** (0.318)	0.0643 (0.054)	0.818** (0.289)	0.0711 (0.049)
Income	0.345 (4.359)	0.306 (1.045)	2.324 (3.637)	-1.202 (1.151)	3.550 (3.615)	-1.452 (0.969)
Current Fertility Rate	1.727 (6.658)	-6.190*** (1.328)	2.493 (6.593)	-5.324*** (1.389)	1.352 (7.369)	-5.091*** (1.348)
Religious Marriages	-0.502*** (0.101)	-0.156*** (0.0252)	-0.532*** (0.113)	-0.142*** (0.0222)	-0.527*** (0.113)	-0.143*** (0.022)
North East			-3.265 (3.057)	0.484 (0.792)	-3.292 (2.983)	0.490 (0.810)
Center			-1.288 (2.580)	0.686 (0.647)	-1.998 (3.127)	0.831 (0.742)
South			0.194 (4.050)	-1.193 (0.845)	-1.232 (5.263)	-0.903 (1.176)
Latitude					-0.402 (0.726)	0.082 (0.129)
Observations	103	103	103	103	103	103
R-squared	0.59	0.77	0.61	0.80	0.61	0.80
Adj. R-squared	0.58	0.76	0.58	0.78	0.58	0.78

Robust standard errors in parentheses clustered at the regional level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . A constant is always included. The reference omitted dummy for macro-region is North West.

To check the robustness of our preliminary results we perform a sensitivity analysis to reduce the typical concern for the role of unobserved characteristics.<sup>23</sup> We conduct this exercise by substituting some key regressors with alternative measures and then by including further controls. Macro-region dummies and a constant are always included though not reported.

The results of our sensitivity exercises are reported in Table 3 for political empowerment and in Table 4 for female decision-making power. As we will see, all alternative specifications explain nearly 60 percent of the variability in political empowerment and 80 percent of that in female decision-making empowerment.

In model 1 we substitute the variable for family culture with an alternative measure, i.e. the share of families with five or more components of the total number of families in each province. This is done to test the impact of preferences for family size. As in Table 2, the new proxy for family culture is not significant for political empowerment while negatively correlated with the share of female managers at 1 percent of significance. In model 2 we test the impact of overall equality in

<sup>23</sup> We also perform a seemingly unrelated regression to check for the simultaneity at stake between the determination of women in politics and in top manager positions. Results are not reported but are unchanged with respect to single equation OLS estimation.

labour force participation between women and men. Again this regressor is not relevant in explaining political empowerment but relevant for female managers.

In model 3 we enter the level of female labour force participation whose coefficient is now significant at 10 percent and negative in the first case and slightly less significant and positive in the second.

Overall we can conclude that economic factors embodied by per capita income, LFP equality, and FLFP do not help explaining political empowerment while they play a crucial role in explaining female decision-making empowerment.

In model 4 we substitute the proxy for our focal variable, religious culture, with an alternative measure, i.e. the intensity of religiousness defined as church attendance. Results remain unchanged with respect to our baseline regression even though the significance of the coefficient for women in top managerial positions slightly decreases to 5 percent.

Table 3: The Determinants of Political Empowerment: Sensitivity Analysis I

Estimation technique: OLS	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent Variable: Women in Politics					
Female Education	0.763** (0.296)	0.862** (0.310)	0.831** (0.311)	0.757** (0.340)	0.836** (0.314)	0.834** (0.308)
Income	2.966 (3.978)	2.646 (3.716)	6.559 (3.882)	7.594* (4.327)	2.381 (3.768)	2.455 (3.444)
Current Fertility Rate		2.221 (6.658)	2.807 (6.049)	-3.233 (5.757)	2.612 (6.629)	3.395 (6.848)
Religious Marriages	-0.471*** (0.123)	-0.536*** (0.108)	-0.550*** (0.104)		-0.504*** (0.115)	-0.448** (0.162)
Large Families	-0.429 (0.288)					
LFP Equality		-4.558 (18.07)				
FLFP			-0.443* (0.237)			
Religious Attendance				-0.489*** (0.156)		
Divorce rate					0.107 (0.211)	
First Marriages						-0.222 (0.421)
Observations	103	103	103	103	103	103
R-squared	0.61	0.61	0.63	0.52	0.61	0.61
Adj. R-squared	0.58	0.58	0.59	0.48	0.58	0.58

Robust standard errors in parentheses are clustered at the regional level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Macro-region dummies and a constant are always included.

Finally, one would doubt of the robustness of the measurement of our focus variable, religious marriages. In fact according to the Catholic religion, marriage is allowed only among unmarried people. Therefore religious culture might be measured with error because the percentage of religious marriages is calculated over the total number of marriages in the province, included



second marriages.<sup>24</sup> To solve this issue and therefore to control for potential measurement error, we introduce in column 5 the divorce rate<sup>25</sup> and in column 6 the share of first marriages over the total number of marriages in the province. These two controls do not capture anything more than the baseline specification and the explanatory power of religious marriages is maintained. Only the divorce rate exhibits a positive association with the share of female managers at 5 percent of significance, suggesting that it might capture the effect of a different facet of family culture on female decision-making empowerment.

Overall, the role of previously examined regressors, female education and per capita income, is essentially confirmed. Income turns significant for political empowerment in column 4 and for female decision-making in specifications 2 and 3 and with a negative sign. This latter fact would suggest that richer provinces do not show higher gender equality in top managerial positions as one would expect. However this result seems not to be robust across specifications.

Table 4: The Determinants of Female Decision-making Empowerment: Sensitivity Analysis II

	(1)	(2)	(3)	(4)	(5)	(6)
Estimation technique: OLS	Dependent variable: Women in Top Manager Positions					
Female Education	0.0786 (0.0513)	0.0157 (0.05)	0.0733 (0.063)	0.0276 (0.0468)	0.0468 (0.051)	0.0614 (0.0535)
Income	-1.941 (1.216)	-2.741** (1.028)	-3.091*** (1.070)	0.247 (1.161)	-1.139 (0.888)	-1.181 (1.146)
Current Fertility Rate		-4.023*** (1.151)	-5.464*** (1.269)	-6.391*** (1.417)	-5.193*** (1.182)	-5.182*** (1.436)
Religious Marriages	-0.143*** (0.024)	-0.122*** (0.016)	-0.134*** (0.021)		-0.111*** (0.030)	-0.129*** (0.021)
Large Families	-0.304*** (0.095)					
LFP Equality		21.80*** (4.006)				
FLFP			0.197** (0.07)			
Religious Attendance				-0.162** (0.062)		
Divorce rate					0.118* (0.067)	
First Marriages						-0.0349 0.0669
Observations	103	103	103	103	103	103
R-squared	0.79	0.87	0.83	0.76	0.82	0.80
Adj. R-squared	0.77	0.86	0.81	0.75	0.80	0.78

Robust standard errors in parentheses are clustered at the regional level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Macro-region dummies and a constant are always included.

<sup>24</sup> In Italy the divorce rate is higher in northern regions and therefore the number of religious marriages could appear lower because of the incidence of second (or more) marriages which cannot be celebrated through the Catholic ceremony.

<sup>25</sup> In a set of unreported specification we enter these regressors in different combinations and simultaneously in order to assess their differential impact but results are unchanged.

Thus we find evidence that female political empowerment is negatively associated with the intensity of religious culture, as captured by both religious marriage and religious participation, and positively with female education. The other covariates included in our specifications, such as income and family culture, as captured by large family size, current fertility rate, and divorce rate, do not appear to play a major role. The share of women in top managerial positions instead is equally strongly associated with religious culture but also influenced by more economic factors and by family structure.

To sum up, even though of course we should be cautious in interpreting our results as causal, we observe that our proxy for religious culture is consistently significant and robust and plays a central role in determining women's empowerment in both the political and decision-making spheres across Italian provinces, even when we control for a broad set of covariates or alternative measures of the proposed channels. Moreover family culture seems to be relevant only for the share of women in high-ranking jobs partly confirming our prior of the primary role of religious culture over other factors at least in the political dimension.

#### **4. IV Estimation: Results and Robustness Exercises**

In the previous section we have tried to introduce in our OLS estimation a series of observable controls in order to minimize the omitted variable problem. Nonetheless our strategy may still produce biased estimates of the coefficients of interest due to reverse causation and measurement error bias.<sup>26</sup>

In what follows, religious culture is treated as endogenous, since it is historically determined by a series of factors and embedded in a combination of past beliefs and preferences comprising hierarchical and gender inequitable norms. Our strategy seeks to analyse the effect of the degree of religious culture on women's empowerment today exploiting the variation in its instrumental variables. Accordingly we instrument religious culture by a couple of late nineteenth- and early twentieth-century variables: the past gender gap in literacy in 1861 and the fertility rate in 1930, which are interpreted as indicators of past gender role beliefs. Our identification strategy is not based on a causal link between past and present. On the contrary, the proposed instruments are considered as the gender-related component of past religious culture and therefore adopted as time lag instruments (Crescenzi et al., 2011; Tabellini, 2010).

The Spearman rank correlation test is used to test the degree of persistence of religious culture and its past correlates. The correlation between religious culture and the past fertility rate is 0.83, while that with the past gender gap in human capital is -0.71. In other words, early measures explain about 83 and 71 percent of the variability of current religious culture.<sup>27</sup> This evidence suggests that past gender culture is highly persistent and that it is closely related to current religious culture.<sup>28</sup>

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<sup>26</sup> As explained in Hall and Jones (1999) with an IV estimation strategy both measurement error and endogeneity concerns are addressed.

<sup>27</sup> The rank correlations between the two instruments and the current fertility rate are more modest, respectively 0.47 and -0.30. This is why we presume that our instruments are more likely to be considered as proxies of past gender culture.

<sup>28</sup> For a similar use of the Spearman rank test see Gallego (2010) and Acemoglu et al. (2001).

The reduced forms of current outcomes and our measures of past gender roles are shown in Figure 5 a-d.<sup>29</sup> Both the share of women in politics and that in top manager positions are negatively associated with the fertility rate in 1930 and positively associated with past gender equality in human capital accumulation as captured by the gender gap in literacy in 1861.<sup>30</sup>

Figure 5: Partial Correlation Plots for Past Gender Culture



(a) Political Empowerment and Fertility Rate 1930

(b) Political Empowerment and Gender Gap 1861

(c) Empowerment in Top Manager Positions and Fertility Rate 1930

(d) Empowerment in Top Manager Positions and Gender Gap 1861

<sup>29</sup> Table A.4 in the Appendix reports pair-wise correlations between the two dependent variables and the instruments.

<sup>30</sup> Past gender gap in literacy is a variable taking values between 0 (perfect inequality) and 1 (perfect equality). Therefore a value approaching 1 means higher equality among sexes.

To recap, our identification strategy implies that, conditional on the controls, past beliefs about women's role in society do not affect current female empowerment outcomes other than through religious culture, as proxied by the share of religious marriages, which again is likely to pick up the gender-related component of religious culture.

To examine the quantitative influence of differences in intensity of religious culture as key determinants of women's empowerment across provinces, we hypothesize the following model:

$$WE_i = \alpha + \beta X_i + \gamma \text{Religious Culture}_i + \delta \text{Family Culture}_i + \varepsilon_i$$

$$\text{Religious Culture}_i = a + b X_i + c \text{Past Gender Culture}_i + \xi_i$$

*Past Gender Culture<sub>i</sub>* refers to our two instruments that may plausibly be assumed to be a time lagged instrument of current religious culture, i.e. the fertility rate in 1930 and the gender gap in literacy in 1861.

Again, our specification in Table 5 is parsimonious, reflecting our hypothesis that religious culture and family culture do play a fundamental role in determining women's empowerment. As in OLS regressions, contemporaneous female education is always included in order to avoid the risk of picking up the mere effect of human capital in the province<sup>31</sup> (Tabellini, 2010) as well as income.

In Table 5, for both variables of interest, we find a strong first-stage relationship between past gender culture and religious culture: the two instruments are highly jointly significant (the p-value of the joint significance test of the instruments is zero). In addition, the first-stage R-squared tells us that we are explaining 85 percent of the variability of the share of religious marriages. The signs of the coefficient of the instrument are as expected: the fertility rate in 1930 is positively associated with religious marriages today while past gender equality is negatively related. This suggests that provinces with a wider gender gap in human capital accumulation in the second half of the nineteenth century might have transmitted more conservative gender beliefs and show lower degrees of feminization in the political sphere and wider gender gaps in the economic sphere with respect to men. By the same token, provinces with higher fertility rates in the past, meaning a more subordinated and caring role of women, still exhibit more conservative gender norms and show lower degrees of feminization and more inequality between genders in the economic sphere.

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<sup>31</sup> To be noticed that past gender gap in literacy is not significantly correlated (see Appendix A.3) with current female education providing us with a further proof that the effect of our instrument does not pass through the human capital channel.

Table 5: The Determinants of Women's Empowerment: 2SLS

	(1)	(2)	(3)
	Religious marriages	Women in Politics	Women in Top Manager Positions
Estimation Technique: 2SLS			
Female Education	0.005 (0.167)	0.804*** (0.297)	0.062 (0.053)
Income	-5.405* (2.775)	0.906 (3.303)	-1.591 (1.065)
Current Fertility Rate	25.44*** (4.486)	12.48* (6.950)	-4.111** (1.982)
Religious Marriages		-0.729*** (0.170)	-0.184*** (0.0354)
Fertility Rate 1930	7.607*** (1.211)		
Gender Gap 1861	-15.95*** (4.739)		
Observations	99	99	99
R-squared	0.86	0.59	0.78
Adj. R-squared	0.85	0.56	0.76
P-value of joint significance of the instruments (first stage F statistic)	0.000		
Weak identification test	27.12		
P-value Hansen test		0.83	0.11
Robust standard errors in parentheses are clustered at the regional level. *** p<0.01, ** p<0.05, * p<0.1. Macro-region dummies and a constant are always included..			

The results confirm the OLS estimates discussed in the previous section except for a gain in significance of the current fertility rate for political empowerment. The IV coefficients are larger than their OLS counterparts and this suggests that measurement error in religious culture may create an attenuation bias.

In an alternative specification we also assess the role played by a past experience of democracy on religious culture by running a first stage regression of the following form:

$$Religious\ Culture_i = a + b X_i + c Past\ Gender\ Culture_i + d Democracy_i + \xi_i$$

*Democracy<sub>i</sub>* is a dummy variable that equals 1 if the province was a Communal Republic in the fourteenth century as coded by De Blasio and Nuzzo (2010). As already mentioned above this would allow us to disentangle the long-term effect of the past on the shaping of gender role norms and more egalitarian beliefs in general.

Table 6 reports the results of our IV estimation making use of the alternative first-stage equation proposed above. In the first three columns the share of religious marriages is instrumented with the

two instruments as before but we add our third instrument, Democracy. In the remaining three columns we instrument conservative culture with the fertility rate in 1930 and the democracy dummy, omitting the past gender gap in literacy. Democracy is negatively associated with our proxy of religious culture as expected: a past of democracy is linked to more egalitarian norms and beliefs.

Table 6: The Determinants of Women's Empowerment: 2SLS, alternative instruments.

	(1)	(2)	(3)	(4)	(5)	(6)
Estimation technique:	Religious	Women in	Women	Religious	Women in	Women in
2SLS	Marriages	Politics	in Top	Marriages	Politics	Top
			Manager			Manager
			Positions			Positions
Female Education	0.0247 (0.169)	0.796*** (0.293)	0.0607 (0.0527)	0.0333 (0.185)	0.790*** (0.286)	0.0565 (0.0556)
Income	-5.401** (2.475)	0.328 (3.259)	-1.641 (1.118)	-7.043** (2.715)	-0.0172 (3.413)	-1.922* (1.106)
Current Fertility Rate	23.53*** (4.763)	14.32* (7.307)	-3.952** (2.007)	20.75*** (5.837)	15.41* (8.150)	-3.062 (1.902)
Religious Marriages		-0.794*** (0.145)	-0.189*** (0.0412)		-0.833*** (0.159)	-0.221*** (0.0466)
Fertility Rate 1930	6.748*** (1.270)			7.540*** (1.448)		
Gender Gap 1861	-14.41*** (4.841)					
Democracy	-3.600** (1.410)			-4.243*** (1.202)		
Observations	99	99	99	99	99	99
R-squared	0.87	0.58	0.78	0.86	0.57	0.76
Adj. R-squared	0.86	0.55	0.76	0.84	0.54	0.74
Weak identification test	43.09			61.02		
P-value of joint significance of the instruments (first stage F statistic)	0.000			0.000		
P-value Hansen test		0.40	0.25		0.25	0.94

Robust standard errors in parentheses are clustered at the regional level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Macro-region dummies and a constant are always included.

Overall, the role of previously examined regressors seems confirmed. Income acquires a slight significance in column 6 while the current fertility rate loses significance when we adopt the third instrumentation strategy. The coefficient of our measure of religious culture, the share of religious marriages, remains negative and strongly significant at 1 percent across the two specifications.

We discuss now the validity of our instruments in both Table 5 and 6 by looking at an overidentification test<sup>32</sup> (the Hansen J test) to detect whether past gender culture has a direct effect, or else an effect working through a variable other than religious culture, on our two measures of women's empowerment.

Being aware of the fact that the test results have to be interpreted with caution, we find high p-values, although the quality of the instruments in Table 5 seems lower when the dependent variable is the share of women in top managerial positions. However in the alternative specifications reported in Table 6 the problem appears to be reduced.

Likewise the tests for weak instruments<sup>33</sup> give us comfortably high values (in particular in the second and third versions in Table 6) and we can affirm that our instruments seem unaffected by potential weak instrument bias.<sup>34</sup>

Next, in Table 7, we also treat our proxy of family culture as endogenous. This exercise will also allow us to further test whether religious culture is the channel through which past gender roles have an impact on current women's empowerment in politics and high ranking positions as we have argued in the previous sections.

Results suggests as already argued that what matters for women's empowerment is religious culture, which has a negative and significant effect on both political and top managerial outcomes. At the same time, this confirms that our historical variables mainly pass through religion and not through family culture.

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<sup>32</sup>The use of this kind of test is common in the literature in order to assess the validity of historical variables to be used as instruments to explain current outcomes (e.g. Hall and Jones, 1999; Acemoglu et al., 2001; Gallego, 2010).

<sup>33</sup> In both Tables 5 and 6 we report results of the weak identification test which corresponds to the Kleibergen-Paap rk Wald F statistic which is an appropriate F statistic for weak instruments when data are clustered.

<sup>34</sup> The rule-of-thumb threshold above which we can affirm not to encounter the problem of weak instruments is 10 (Staiger and Stock, 1997). Moreover the results of our tests are also above the threshold values reported by Stock and Yogo (2005).

Table 7: The Determinants of Women's Empowerment: 2SLS, "horse race"

Estimation Technique: 2SLS	(1)	(2)	(3)	(4)
	Religious Marriages	Current Fertility Rate	Women in Politics	Women in Top Manager Positions
Female Education	-0.253 (0.217)	-0.010** (0.004)	0.739*** (0.245)	-0.074 (0.118)
Income	-3.172 (3.164)	0.088 (0.108)	1.629 (4.066)	-0.101 (1.387)
Religious Marriages			-0.716*** (0.170)	-0.157*** (0.043)
Current Fertility Rate			6.294 (27.65)	-16.87** (6.861)
Fertility Rate 1930	9.021*** (1.676)	0.056* (0.027)		
Gender Gap 1861	-11.75** (4.993)	0.165 (0.112)		
Observations	99	99	99	99
R-squared	0.81	0.35	0.59	0.58
Adj. R-squared	0.80	0.30	0.56	0.55
P-value of joint significance of the instruments (first stage F statistic)	0.00	0.07		
Weak identification test	31.35	3.52		

Robust standard errors in parentheses are clustered at the regional level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Macro-region dummies and a constant are always included.

As final robustness exercise, we now allow for some richer specifications by introducing a series of additional controls which are likely to be correlated with both gender empowerment and religious culture; however, we are aware that this may only result in a downward bias of the coefficient of interest (Acemoglu et al., 2002). In the following robustness checks we always refer as a benchmark to the extended specification in columns 1-3 in Table 6 which considers three instruments. Table 8 reports the results: in panel A we report second-stage regressions. Odd-numbered columns refer to the share of women in politics while even-numbered ones refer to the share of women in to manager positions. Panel B reports first-stage estimates.

In models 1 and 2 we introduce latitude which appears irrelevant. Results remain similar as before. Only income gains significance for the share of women in top manager positions.

In models 3 and 4 we insert equality in labour force participation. Political empowerment is not affected by the overall level of equality in the labour market. Contrastingly, the share of women in top manager positions is strongly positively affected as expected and income and current fertility rate gain strong significance. More children are associated with less gender equality while higher income is inversely correlated with gains in gender equality in top managerial positions.



Table 8: The Determinants of Women's Empowerment: 2SLS, sensitivity analysis.

A: Second Stage Estimates										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Women in Politics	Women in Top Manager Positions	Women in Politics	Women in Top Manager Positions	Women in Politics	Women in Top Manager Positions	Women in Politics	Women in Top Manager Positions	Women in Politics	Women in Top Manager Positions
Female Education	0.815*** (0.264)	0.0738 (0.0491)	0.819*** (0.286)	0.0113 (0.0543)	0.670** (0.285)	0.0760* (0.0456)	0.796*** (0.290)	0.109* (0.0559)	0.775*** (0.298)	0.0459 (0.0561)
Income	-0.281 (3.135)	-2.102** (0.964)	0.889 (3.277)	-2.819*** (1.009)	1.993 (3.622)	-2.165* (1.133)	0.335 (2.968)	-4.799*** (1.331)	0.405 (3.389)	-1.593* (0.931)
Current Fertility Rate	14.91* (7.899)	-3.427 (2.180)	14.03* (7.428)	-3.424** (1.648)			14.26* (7.621)	-1.083 (1.650)	17.80** (7.727)	-1.467 (1.742)
Religious Marriages	-0.791*** (0.148)	-0.191*** (0.0415)	-0.816*** (0.142)	-0.140*** (0.0338)	-0.800*** (0.146)	-0.179*** (0.0484)	-0.792*** (0.143)	-0.201*** (0.0374)	-0.868*** (0.152)	-0.242*** (0.0403)
Latitude	0.216 (0.614)	0.152 (0.121)								
LFP Equality			-10.09 (15.43)	21.61*** (4.005)						
Large Families					0.296 (0.224)	-0.244* (0.148)				
Female Unempl. Rate							-0.000759 (0.0940)	-0.155*** (0.0315)		
Past Industrialization									-3.302** (1.432)	-2.335*** (0.692)
Observations	99	99	99	99	99	99	99	99	99	99
R-squared	0.58	0.78	0.58	0.86	0.55	0.77	0.58	0.81	0.57	0.78
Adj. R-squared	0.54	0.76	0.54	0.85	0.51	0.76	0.54	0.80	0.53	0.76
P-value Hansen test	0.39	0.26	0.39	0.44	0.59	0.24	0.40	0.28	0.42	0.23

	(a)	(b)	(c)	(d)	(e)
B: First Stage Estimates for Religious Marriages					
Fertility Rate 1930	6.830*** (1.333)	6.994*** (1.421)	5.781*** (1.548)	6.814*** (1.343)	6.566*** (1.293)
Gender Gap 1861	-14.36*** (4.967)	-14.33*** (4.781)	-11.02** (4.862)	-13.97** (4.857)	-13.72*** (4.745)
Democracy	-3.225** (1.359)	-3.541** (1.429)	-4.544*** (1.260)	-3.388** (1.353)	-3.434** (1.512)
Female Education	0.108 (0.158)	0.00967 (0.163)	-0.0638 (0.205)	0.0816 (0.166)	0.0143 (0.168)
Income	-8.304** (3.268)	-5.907** (2.631)	-2.595 (2.442)	-9.009** (3.967)	-5.189** (2.309)
Current Fertility Rate	26.78*** (5.056)	24.04*** (4.872)		26.52*** (4.985)	24.33*** (4.808)
Latitude	0.976* (0.525)				
LFP Equality		7.142 (8.892)			
Large Families			1.306*** (0.316)		
Female Unempl. Rate				-0.180* (0.0998)	

Past Industrialization					-1.582 (2.003)
Observations	99	99	99	99	99
R-squared	0.88	0.87	0.86	0.88	0.87
Adj. R-squared	0.87	0.86	0.85	0.86	0.86
F-stat	94.07	103.36	86.58	133.43	151.40
Weak Id. Test	27.11	44.90	21.43	34.05	27.49

Robust standard errors in parentheses are clustered at the regional level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Macro-region dummies and a constant are always included.

In models 5 and 6 we exclude the current fertility rate and include an alternative measure of family structure, the share of large families in the province. This variable is only relevant in explaining female managers. Political empowerment seems unaffected.

In columns 7 and 8 we assess the effect of female unemployment rate. Again it matters only for female decision-making empowerment at 1 percent of significance and with a negative sign as expected. In the last specification in column 9 and 10, we also introduce among the regressors an index of industrialization in 1871 in order to proxy for economic development in the end of the nineteenth century to minimize the risk of invalid instruments (Tabellini, 2010), or in other words, to avoid capturing the influence of economic development instead of past gender culture.

To conclude, as a whole, our instrumental variable estimates confirm that religious culture, specifically identified by religious marriages, and its intensity across provinces plays an important role in shaping women's achievements both in the political and the economic decision-making dimensions.

## 5. Conclusions

Women's empowerment is an elusive and multifaceted phenomenon, potentially influenced by a number of factors. This paper has attempted to perform an empirical exploration of the plausible determinants of current women's empowerment. We have explored the role of one particular cultural aspect of the Italian society: the intensity of religious beliefs, showing its strong association with two selected gender outcomes, i.e. women in politics and in top managerial positions.

Our findings confirm our prior that women brought up in more progressive societies where women's empowerment was historically higher should achieve higher level of equality in politics and economic decision-making than women living in more conservative religious areas. Indeed we find that the degree of religiosity is strongly linked to more unequal gender outcomes.

The present work represents an explorative attempt to bring religious culture to the scene and a natural extension is therefore to look for micro-data in order to go from aggregate level analysis toward an analysis of the individual decisions of women to enter politics and access high-ranking positions.

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## 7. Appendix

All data are available on the web for purposes of replication. Data are collected by the Italian National Institute of Statistics (ISTAT) and can be downloaded from the ISTAT web site at the address [www.istat.it](http://www.istat.it) and <http://sitis.istat.it/sitis/html/index.htm>.

Table A.1: Variable Description

Variable	Definition	Source
Women in Politics	Share of women elected in provincial political bodies over the total number of elected members (Consigli and Giunte Provinciali) – 2008.	Own calculation on data available by Ministero dell'Interno (2012)
Women in Top Manager Positions	Share of women who are in charge of enterprises or in top managerial positions over the total number of employed in the same position – 2001.	Own calculation on Census 2001
Female Education	Women aged 19 or more with at least some secondary school over the total number of women aged 19 or more – 2001.	Census 2001
Income	Log of per capita GDP – 2001.	ISTAT
Current Fertility Rate	Average number of children per women (Total Fertility Rate - TFR) – 2000.	ISTAT
Religious Marriages	Percentage of religious marriages over the total number of marriages in the province – 2008.	ISTAT
Large Families	Percentage of families with 5 or more members over the total number of families in the province – 2001.	Census 2001
LFP Equality	Female to male ratio labour force participation rates – 2001: (female labour force participation/ male labour force participation).	Own calculation on Census 2001
FLFP	Female labour force participation rate computed as the ratio of women occupied and those actively looking for an occupation over the total female working-age population in the province – 2001.	Census 2001
Female Unemployment Rate	Ratio of unemployed females over the total female working-age population in the province – 2001.	Census 2001
Religious Attendance	Share of people aged 6 or more that declared to go to the church at least once a week – 2008.	ISTAT
Divorce Rate	Share of divorces and legal separations as a percentage of total marriages (Total divorce rate) – regional variable – 2008.	ISTAT
First Marriages	Share of marriages betewwn previously unmarried people as a percentage of total marriages in the province – 2004	ISTAT
Fertility rate 1930	Average number of children per women – 1930.	Ge Rondi and Gerzeli (2008)
Gender Gap 1861	Female to male ratio literacy rate – 1861: (female population able to read and write in 1861/ female population aged 5 or more in 1861)/ (male population able to read and write in 1861/ male population aged	Bertocchi and Bozzano (2013)

	5 or more in 1861).	
Democracy	Dummy variable which takes value 1 if the province was a Communal Republic in the fourteenth century.	Di Blasio and Nuzzo (2010)
Past Industrialization	Index of industrialization – 1871: share of value added over male population over 15 years of age.	Ciccarelli and Fenoaltea (2013)

Table A.2: Descriptive Statistics: all variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
Women in Politics	103	20.8	8.64	Agrigento 6.87	Bologna 43.21
Women in Top Manager Positions	103	26.06	2.94	Napoli 19.75	La Spezia 31.55
Female Education	103	30.12	3.16	Biella 23.59	Roma 43.61
Income	103	9.77	0.29	Nuoro 9.04	Milano 10.35
Current Fertility Rate	103	1.21	0.14	Ferrara 0.88	Napoli 1.56
Religious Marriages	103	67.09	12.54	Gorizia 41.18	Trapani 89.47
Large Families	103	7.46	3.49	Trieste 2.12	Napoli 17.29
Labour Force Participation Gap	103	0.62	0.06	Foggia 0.47	Bologna 0.75
FLFP	103	37.19	5.12	Caltanissetta 26.77	Modena 47.63
Female Unemployment Rate	103	15.49	10.98	Bolzano 2.98	Agrigento 40.55
Religious Attendance	103	31.73	6.51	Tuscany 21.5	Apulia 42.4
Divorce Rate	103	29.83	8.42	Calabria 13.37	Valle D'Aosta 50.31
Fertility Rate 1930	99	2.64	0.75	Torino <sup>35</sup> 1.38	Siracusa 4.03
Gender Gap 1861	99	0.50	0.19	Potenza <sup>36</sup> 0.19	Milano 0.89
Democracy	103	0.23	0.43	0	1
Past Industrialization	103	0.96	0.32	Teramo 0.48	Milano 1.69

<sup>35</sup> In 1930 the province of Torino comprised the territories of today's provinces of Aosta and Biella.

<sup>36</sup> In 1861 the province of Potenza comprised the territories of today's province of Matera.

Table A.3: Correlation among Main Contemporary Variables

	Women in Politics	Women in Top Manager Positions	LFP Equality	FLFP	Income	Religious Marriages	Current Fertility Rate	Large Families	Religious Attendance	Divorce Rate
Women in Top Manager Positions	0.6152*									
LFP Equality	0.5300*	0.8160*								
FLFP	0.4239*	0.6870*	0.9226*							
Income	0.5511*	0.6236*	0.7554*	0.8435*						
Religious Marriages	-0.7082*	-0.8418*	-0.7272*	-0.7178*	-0.7474*					
Current Fertility Rate	-0.4263*	-0.6667*	-0.4765*	-0.3179*	-0.3318*	0.5447*				
Large Families	-0.6170*	-0.7780*	-0.6681*	-0.6412*	-0.7197*	0.8109*	0.6246*			
Religious Attendance	-0.5943*	-0.7493*	-0.5489*	-0.4554*	-0.4700*	0.7001*	0.5502*	0.6077*		
Divorce Rate	0.5938*	0.7836*	0.6535*	0.6655*	0.7173*	-0.8116*	-0.4928*	-0.8684*	-0.7185*	
Female Education	0.2687*	0.0687	0.0769	-0.0854	0.0125	0.0467	-0.1714	0.0675	-0.1766	-0.0979

\* indicates significance at 5%.

Table A.4: Correlation of Selected Current and Past Variables

	Women in Politics	Women in Top Manager Positions	Female Education	Religious Marriages	Fertility Rate 1930	Gender Gap 1861
Women in Top Manager Positions	0.6152*					
Female Education	0.2687*	0.0687				
Religious Marriages	-0.7082*	-0.8418*	0.0467			
Fertility Rate 1930	-0.6370*	-0.7420*	0.1068	0.8251*		
Gender Gap 1861	0.5382*	0.5511*	-0.1554	-0.7186*	-0.7362*	
Democracy	0.4917*	0.5234*	0.1246	-0.4829*	-0.4027*	0.3248*

\* indicates significance at 5%.



Figure A.1: Map of Italy – provincial territories



Source: ISTAT

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