Driven by Institutions, Shaped by Culture: Human Capital and the Secularization of Marriage in Italy*

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Abstract

We show that in Italy the legalization of divorce in 1971 unleashed the forces of secularization, making educated persons more likely to contract a civil, rather than a religious marriage. This process, ignited by institutional change, is also shaped by cultural factors: the choice of civil marriage is more responsive to education in the presence of high levels of social capital and/or weak family ties. These results emerge from both a four-decade panel of Italian municipalities and a large sample of individuals married between 1926 and 1998. To rationalize our empirical findings, we develop a theory of religiosity, education, and marriage choices. In our model, the option to divorce increases the relative return to human *vs* religious capital, thereby increasing the prevalence of civil marriage – even in the absence of a direct causal link between education and religiosity.

JEL Classification Codes: Z12; J12; I25; N34; O4.
Keywords: Secularization; Human capital; Marriage; Divorce.

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1 Introduction

In this paper, we study how institutional change and cultural factors shape the role of human capital accumulation in the process of secularization. We look at a specific dimension of secularization, the prevalence of civil marriage (as opposed to religious marriage), and focus on a particular country, Italy. In this context, we provide evidence that the secularization of marriage that took place in the second half of the 20th century can be linked to institutional change, namely the legalization of divorce. The latter is responsible for the emergence of a positive correlation between human capital and civil marriage, and this correlation is further enhanced if family ties are weak. We rationalize these empirical findings within a novel theoretical framework in which both marriage and education choices are endogenous. In this setting, the option to divorce – which individuals can choose endogenously – makes civil marriage relatively more attractive for educated people.

According to Anderson (1975), the rise of civil marriage is a dimension of major importance for the secularization process, as "throughout nineteenth-century Europe and America the law of marriage was one of the touchstones of the decline of the confessional state, second only to the issue of religious instruction in schools in the extent of its reverberations". Italy was no exception to these developments in marriage law, as it introduced civil marriage in 1865, as a secular "contract" alternative to the Catholic sacrament. In practice, however, civil marriage remained a rarity for more than one century – stagnating at less than five percent of all marriages (despite already growing human capital), until divorce became legal in the 1970s. From then on, the prevalence of civil marriage progressed rapidly. As we will show, this was particularly the case among more educated persons, and in contexts where family ties were weaker.

Unlike most developed countries, Italy records the type of marriage (religious or civil) in official data, which allows us to study the process of secularization in marriage. In particular, the information on the type of marriage, as well as the date of marriages, is available at both the municipal and individual level, and can be ideally combined with the available measures of human capital. Our empirical analysis thus relies on two highly informative data sets that – to the best of our knowledge – have never been used to investigate the economic determinants of marriage behavior.

At the municipality level, we take advantage of a panel of census data and emphasize a robust, positive within-municipality link between education and the share of civil marriages over the 1971–2011 period. We show that this correlation between human capital and secularization in marriage emerges after the legalization of divorce. In addition, we exploit survey data covering couples married between 1926 and 1998 to compare unions celebrated before and after the divorce law, while controlling for individual-level determinants of marriage behavior. We find that civil marriage is positively correlated with education, the relationship being driven by marriages contracted after the legalization of divorce. Finally, both the aggregate and the micro data suggest that the link between human capital and civil marriage depends on the importance of the family. In particular, civil marriage is found to be more responsive to education in municipalities where social interactions are dominated by the civil society as opposed to the extended family, and for individuals with weaker family ties. These results emphasize the role of culture and institutions in shaping the education–secularization nexus.

Unlike most of the economic literature on religion, we regard human capital and religiosity as individual choices that are both endogenous and affected by external institutional and cultural forces. We thus abstain from a causal interpretation of the correlation between education and secularization, but are inclined to see the relative strength of family ties and the legalization of divorce as impacting upon the changing relationship between human capital and civil marriage.

We provide a theoretical rationale for our main empirical results. To this end, we build a model in which agents can choose between civil and religious marriage. In this setting, which is novel in the literature, religiosity, education, and marriage choices emerge endogenously as equilibrium outcomes, while divorce may occur when the quality of the partnership is hit by a non-economic negative shock. A key feature of our theory is that individuals take into account that, if they divorce, they can remarry only in the civil form. In such a case, they give up the return from the investment in religion that they may have made earlier in their lives: if divorce and remarriage are possible, investing in human capital has thus a higher expected return than investing in religious capital.

The option to divorce thus increases the return to human capital as compared to religious capital, and makes human capital more complementary to civil marriage. This mechanism explains how the legalization of divorce unleashed the forces of secularization in marriage, and lies at the basis of the positive link between education and secularization, which is thus shaped by the various costs of marriage and divorce. For instance, if economic transactions rely more on social capital than on family networks, divorce is relatively less expensive, and human capital ends up being more strongly associated with secular marriage.

Note that our theory is agnostic regarding the psychological or cognitive explanations of religiosity, and focuses on economic incentives. In other words, we do not need to assume that education directly influences religious beliefs through increased critical thinking, scientific knowledge and the like, in order to establish a positive correlation between human capital and secularization.

Our research is related to three different strands of the literature. First, we contribute to the vast empirical literature studying the interplay between development and secularization surveyed by Iyer (2016). The relationship between economic development and secularization, commonly defined as a historical process through which religion loses social and cultural significance, is widely debated. The proponents of the so-called "secularization thesis" regard secularization as a corollary of modernisation (Bruce 2011) and of the rise of human capital (Becker, Nagler, and Woessmann 2017), especially in Western countries. Other scholars have argued, since Tocqueville (1835), that empirical evidence is at odds with such a thesis (Stark 1999; Franck and Iannaccone 2014) and that other mechanisms drive the persistence of religious behaviours (e.g., Bentzen 2019). Moreover, the process of secularization has followed different trajectories across the World (Iyigun 2015, Rubin 2017) – with Europe being a frontrunner – and can be seen not only as a consequence, but also as a determinant of development and growth (McCleary and Barro 2006; Strulik 2016b).

A number of papers emphasize a negative relationship between economic development (as proxied by income or education) and religiosity (see, for instance, Paldam and Gundlach 2013; Hungerman 2014; Arias-Vazquez 2012). In a consistent but more complex fashion, others find evidence of a negative, two-way relationship between income and religious participation (Herzer and Strulik 2017; Lipford and Tollison 2003).[1] Finally, a set of papers call the secularization thesis into question by observing a positive association between education and religiosity (Brown and Taylor 2007), between income and religiosity (Buser 2015), or by arguing that neither income nor education attainment matter for church attendance (Franck and Iannaccone 2014). In this literature, the paper the most closely related to ours is the one by Becker, Nagler, and Woessmann (2017) who take advantage of historical data on German cities (1890–1930) to find that education is negatively correlated with church attendance, while income is not. In another paper that also tries to disentangle the roles of income and education, Chang, Lee, and Weng (2011) exploit subnational variations to show that literacy has a negative impact on religiosity in Taiwan, while unemployment has a positive effect.

By uncovering a positive correlation between human capital and secularization while controlling for income, we corroborate the results of Becker, Nagler, and Woessmann (2017) and Chang, Lee, and Weng (2011). We also find evidence of a positive link between income and religious marriage, which is in line with Buser (2015), in particular. However, in contrast with these studies, our empirical analysis pushes the investigation further by looking into the fundamental determinants shaping the relationship between human capital and (one dimension of) secularization.

Second, by providing a model that links civil marriage to human capital, our paper complements the recent theoretical literature exploring the interdependence between secularization and economic growth. Among others, Strulik (2016b) builds a unified growth model to explain how secularization is both a cause and a consequence of economic development. Strulik (2016a) also studies an alternative mechanism of secularization: as income grows, individuals "optimally" give up their faith by choosing a reflective-analytical cognitive style (and secular leisure over religious activities). As mentioned above, the novelty of our approach lies in gen-

[1] Some papers are also exclusively concerned with the relationship running from religiosity to economic performance. For instance, Bettendorf and Dijkgraaf (2010) find that the effect of church membership on income is positive in high-income countries, but negative in low-income countries. Other consequences of religiosity are highlighted in the literature: see notably Berman, Iannaccone, and Ragusa (2018) on the role of decreasing religiosity in the fertility decline observed over the second half of the 20^{th} century in Southern Europe.

erating an equilibrium correlation between human capital and secular (*vs* religious) marriage behavior which does not depend directly on preferences and cognitive attitudes.

Third, we contribute to the empirical research on the effect of divorce legislation on labor supply and on saving and investment behaviors. Chiappori, Iyigun, and Weiss (2009), Chiappori, Iyigun, and Weiss (2015), Chiappori et al. (2017), and Voena (2015) show that agents' incentives to invest in human or physical capital are significantly affected by changes in divorce laws, in particular concerning the division of property after divorce. Along with education, our paper considers a different type of investment decision intended to build up "religious capital," and links it to the choice between religious and secular marriage. Similar to the existing literature, institutional reform turns out to be crucial for inducing changes in individual behavior, thus shaping the interplay between human capital and secularization. Our research also highlights that the option to divorce may favor human capital accumulation through its effect on premarital investment.

Finally, somewhat in analogy with the comparative development literature, we find that deep-rooted cultural factors are key in explaining why socio-economic processes (such as secularization, in our example) may follow diverging patterns across different regions.

The remainder of the paper is organized as follows. Section 2 provides background information about the institutional framework, the differences between civil and religious marriages, and the evolution of divorce laws in Italy. Section 3 reports the results of our econometric analysis of the relationship between human capital and civil marriages, both at the municipal and individual levels. The model is set up and solved in Section 4, which presents and discusses our theoretical results. Section 5 concludes.

2 Marriage and Divorce in Italy

The legal framework regulating marriage and divorce in Italy has undergone some key changes in the 20^{th} century. Civil marriage was introduced in 1865, as a deliberately secular institution that, however, maintained the same legal structure of catholic marriage. In 1929, the Kingdom of Italy and the Holy See signed the Lateran Treaty, which included a *concordat* regulating the relations between the Catholic Church and the Italian state. The *concordat* granted civil effects to church marriage, so that any Catholic marriage was automatically recognized by the state, and the principle of indissolubility of marriage was extended to civil marriages. In 1947, in the aftermath of World War II, the Lateran Treaty was fully integrated into the new republican Constitution. Italy thus entered the 1950s with a legal framework that gave civil effect to marriages celebrated by the Catholic Church, and forbade divorce.[2]

[2] As far as civil marriages are concerned, they are not recognized by the Roman Catholic Church. As stated by the Code of Canon Law (1108 §1), "[o]nly those marriages are valid which are contracted before the local ordinary, pastor, or a priest or deacon delegated by either of them, who assist, and before two witnesses."

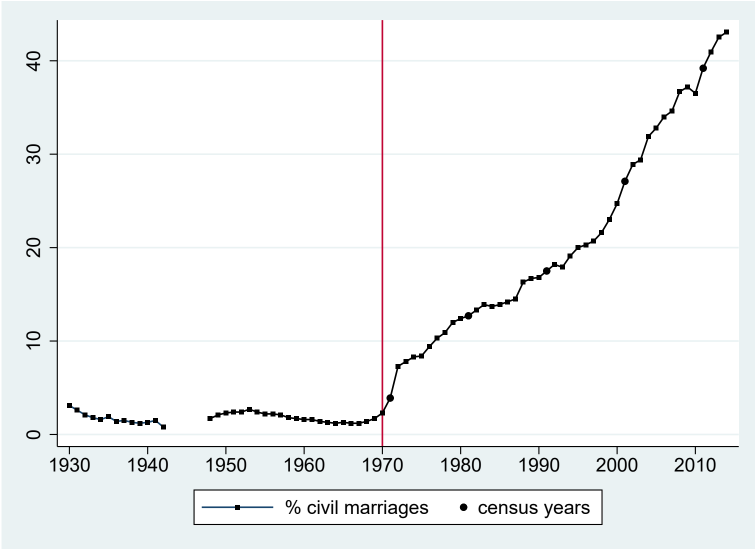

Figure 1: Percentage of civil marriages over time

In December 1970, after a few failed attempts to introduce a divorce law, the Italian Parliament passed the Fortuna–Baslini law 898, which legalized divorce. A referendum was then held in 1974, asking voters whether they wanted to repeal the Fortuna–Baslini law, but was defeated, by a margin of 59.26 % to 40.74%. In 1984, the revision of the Lateran Treaty confirmed the main staples of the concordatarian marriage, restricting the principle of indissolubility to religious marriages. In practice, this simply meant that Italian citizens who divorced after a religious marriage with civil effects could remarry, but only through a civil contract.

The evolution of the aggregate proportion of civil marriages in Italy over time is displayed in Figure 1. Few civil marriages (less than 5% of total marriages) were celebrated before the 1970s. An upward trend emerged from 1971 onward, with civil marriages accounting for about 43% of the total number of marriages in 2014. As discussed in Appendix A.1, a similar pattern can be found in Spain, a country whose institutional framework is close to that of Italy, as religious marriages can also have immediate civil effects.

One may question whether the observed increase in the share of civil marriages is driven by an overall drop in marriage rates, if the number of religious unions decreased disproportionately compared to the number of civil marriages. In Appendix B, we show that this issue is of limited importance – as we find that at least 82% of the increase in the percentage of civil marriages from 1971 to 2011 cannot be accounted for by the decrease in marriage rates.[3] This allows us to focus our analysis, both empirical and theoretical, on the choice of the type of marriage

[3]This is the result of a back-of-the-envelope calculation performed under the conservative assumption that the decrease in the rate of marriage between 1971 and 2011 is fully explained by people who – had they married – would have chosen a religious union.

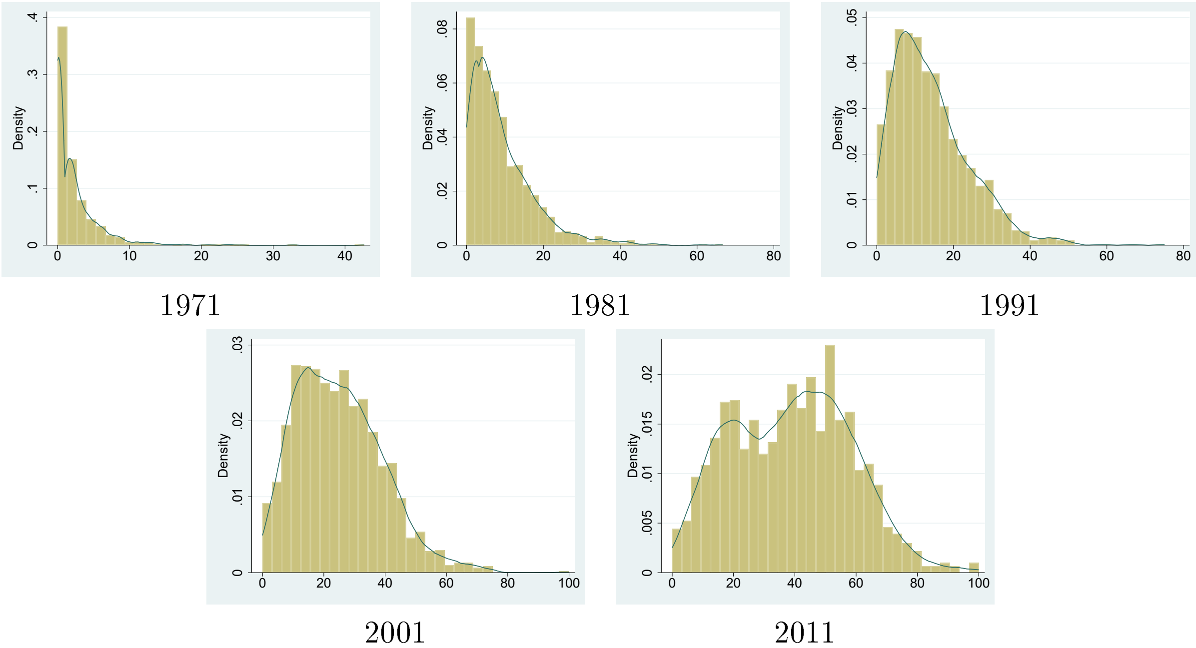

Figure 2: Distribution of the percentage of civil marriages across municipalities (N=1,965) at different dates

(conditional on marrying).[4]

In Figure 2 we report the distribution of civil marriage rates in 1971, 1981, 1991, 2001, and 2011 across municipalities with a population larger than 5,000 in 1971 (the cutoff size is chosen to be consistent with the regression analysis presented in Section 3). From 1971 to 2001, the share of municipalities with high prevalence of civil marriages increased, reflecting the national trend observed in Figure 1. Moreover, the last panel of Figure 2 suggests the emergence of a bimodal distribution with, roughly speaking, a group of municipalities concentrated around a 20% share of civil marriages in 2011 and a group of municipalities reaching a 50% share.[5] This is consistent with the patterns observed in Figure 3, which presents the share of civil marriages provided by the censuses of 1971, 1981, 1991, 2001, and 2011 by provinces. In 1971, the share of civil marriages was very low everywhere, with only a few provinces above the rate of 5%. An increasing trend appeared from 1981, reflecting the national trend observed in Figure 1, but more markedly in the Northern provinces. Eventually, most of the Northern provinces exhibited rates of civil marriages higher than 45% in 2011, when the share of civil marriages in the majority of Southern provinces remained below 35%.

[4] Cohabitation is also of little concern for us, as it is very uncommon in the Italian context under study. In the 1998 data that will be exploited for the individual-level analysis, only 1.6% of all couples are in an informal union, and less than 5% of married couples declare having cohabited before marriage. Such low prevalence is consistent with other evidence from the literature. For instance, based on Eurostat data, Schröder (2008) finds that in 2001 only 3.6% of all Italian couples lived in cohabitation.

[5] The emergence of a bimodal distribution comes out even more clearly when considering only municipalities whose population exceeded 10,000 in 1971.

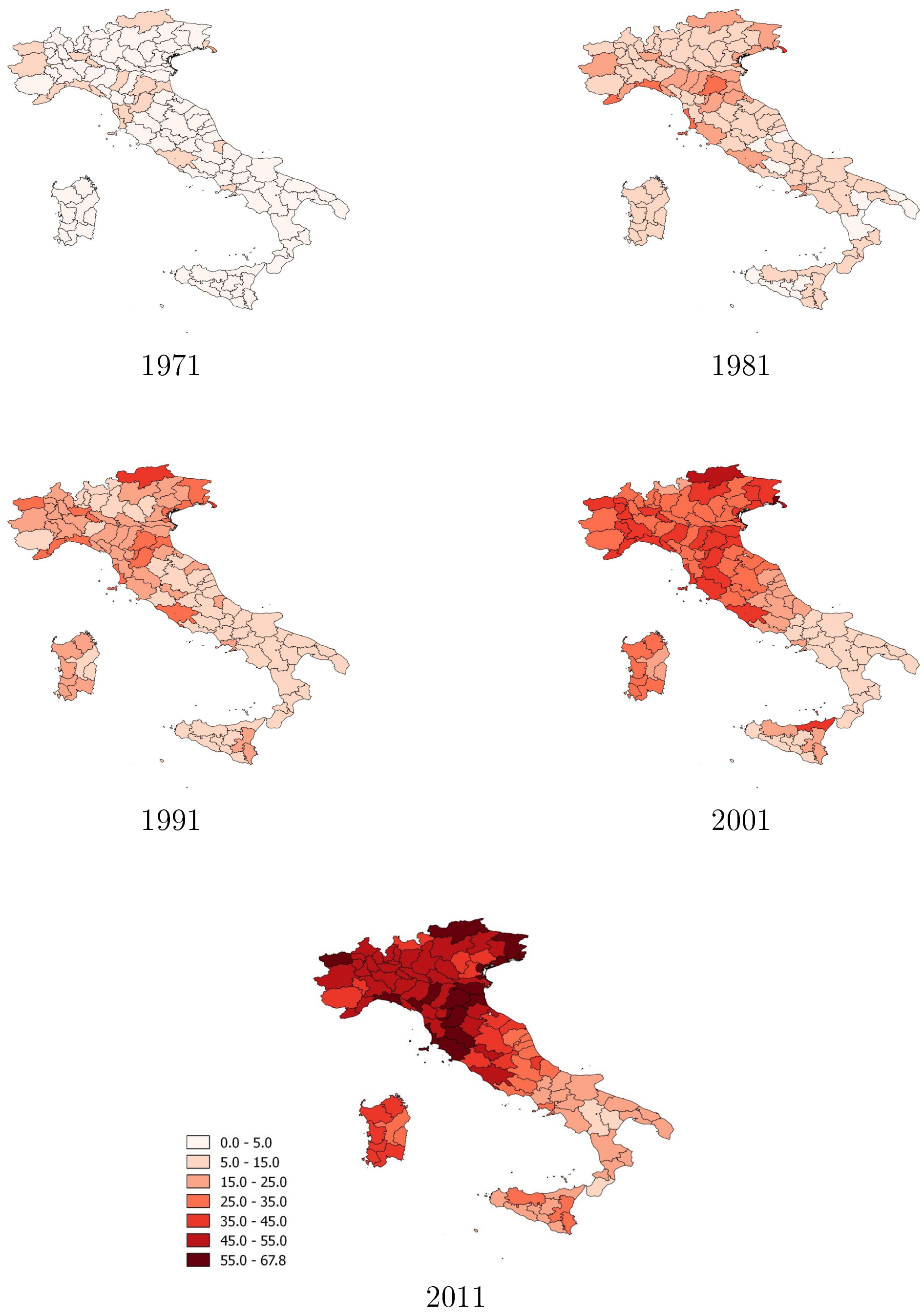

Figure 3: Share of civil marriages by province over time

3 Empirical Analysis

Our empirical analysis proceeds in three steps. In Section 3.1 we explore the relationship between education and civil marriage and its evolution over time, at the municipal and individual level. In particular, we emphasize the role played by the legalization of divorce. In Section 3.2 we provide evidence that the importance of the extended family matters for the education–civil marriage nexus. We discuss the interplay between institutional change and culture in Section 3.3.

3.1 Civil Marriage, Education, and Institutional Change

3.1.1 Municipal-level Analysis

We start by exploring the link between education and secularization in marriage at the level of Italian municipalities, relying on the censuses of 1971, 1981, 1991, and 2001, which cover about 8,000 municipalities (*comuni*).[6] Summary statistics for these data are displayed in Appendix C, Panel A of Table 7.

Our regression analysis focuses on the sub-sample of nearly 2,000 municipalities with at least 5,000 inhabitants in 1971. We restrict our analysis to reasonably large municipalities for two reasons. First, we do not want our results to be driven by villages for which the shares of civil marriages and educated individuals are likely to be highly volatile (due to a small denominator). Second, Italian administrative divisions evolved significantly over the period covered by our panel, with most mergers concerning small municipalities. Focusing on larger municipalities allows us to avoid potential inconsistencies. In Appendix D, we show that our results are robust to considering the full sample of Italian municipalities – thus dissipating the concern related to the possible selection bias implied by the exclusion of smaller municipalities (which can be specific in terms of education and marriage trends).

The dependent variable used as a measure of secularization is the share of civil marriages among the total number of marriages celebrated in municipality i and year t. Our main explanatory variable is the share of the population with secondary education or more.[7] After documenting the relationship between human capital and civil marriage, we investigate whether it changed over time, in particular after divorce became legal.

In Column (1) of Table 1, we report the estimation results for the following equation:

$$\%Civil_{i,t} = \beta_0 + \beta_1 HigherEducation_{i,t} + \nu_t + \mu_i + \epsilon_{i,t}, \tag{1}$$

where ν_t is a linear time trend and μ_i denotes municipality fixed effects. The results point to a positive *within-municipality* association between education and the share of civil marriages.

Time-invariant municipality-level potential confounders are accounted for by the municipality fixed effects in this specification, and the general trend in secularization in Italy is taken into account by the time trend. However, omitted time-varying municipality characteristics may bias the coefficients. In particular, the age structure of the population and income are expected to affect both the share of educated people in the municipality and the share of civil marriages. Column (2) includes additional controls for demography and income. The size of the population and the average age in the municipality are introduced to account for demography.[8] In the absence of a direct measure of income, we use as proxy a poverty-related

[6] Data on education are not available at the *comuni* level for 2011.

[7] Our results are robust to alternative measures of education, such as the share of the population with tertiary education, and to considering the number of civil marriages per capita as alternative dependent variable.

[8] *Age* is computed using the population shares of each age cohort, as available in the censuses.

Table 1: Civil marriage, education and the role of divorce: municipal-level results

Dependent: % civil	(1)	(2)	(3)
Higher education	0.693***	0.397***	0.266***
	(0.0343)	(0.0427)	(0.0864)
Accommodation overcrowding		0.660***	0.599***
		(0.0362)	(0.0389)
Pop		-0.0854	-0.0349
		(0.0781)	(0.0727)
Age		-0.522***	-0.395***
		(0.119)	(0.125)
Higher education × After			0.195***
			(0.0602)
North × After			2.554***
			(0.368)
Time trend	✓	✓	✓
Munic. FE	✓	✓	✓
After (d)			✓
R^2	0.6488	0.6720	0.6777
Observations	7,856	7,856	7,856
Nb of Munic.s	1,965	1,965	1,965

OLS estimations at the municipality level.
The dependent variable is the share of civil marriages among the total number of marriages celebrated in the municipality. *Higher education* is the share of the population with secondary education or more, *Accommodation overcrowding* is the share of residents in overcrowded living arrangements, *Pop* is the population size, *Age* is the estimate of the average age in the municipality. *After* is the dummy variable equal to one in 1981, 1991 and 2001, and to zero in 1971. *North* is the dummy variable equal to one for the eight Northern regions of the country.
Robust standard errors clustered at the municipality level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

variable available in the census data, namely the index of accommodation overcrowding.[9] We still observe a positive and significant association between the within-municipality changes in education and in the share of civil marriages. The point estimate suggests that a one

[9] This variable is equal to the share of residents of a given municipality living in less than 40 square meters (for households with more than four people), in 40 to 59 square meters (for more than five people), or in 60 to 79 square meters (for more than six people). We obtain very similar results when using the average accommodation surface as a proxy for income (so that a larger average accommodation surface identifies a more affluent municipality), or the share of the population living in improper accommodation as an inverse proxy for income, or the unemployment rate. In the latter case, however, the estimation sample shrinks because data on unemployment is not available for 1971.

percentage-point increase in the share of secondary-educated people is associated with a 0.4 percentage-point increase in the share of civil marriages on average. This positive link between education and the prevalence of civil marriage is the first feature that the theoretical model that we will develop in Section 4 shall reproduce.

These results highlight the importance of human capital in the process of secularization and lend support to the findings of Becker, Nagler, and Woessmann (2017). We reach a very similar conclusion by relying on a similar panel structure, but considering a different measure of secularization (civil marriage *vs* church attendance), a different context (Italy 1971–2001 *vs* Prussia 1890–1930), and a larger dataset. We also observe a negative relationship between income and civil marriages, which is consistent with Buser (2015), but stands in contrast with Becker, Nagler, and Woessmann (2017) and Chang, Lee, and Weng (2011) who find, respectively, a null and a negative association between income and religiosity. A possible explanation for this discrepancy could be related to the fact that religious marriages are more costly than civil ones in Italy.[10]

As discussed in Section 2, important changes in the marriage and divorce legislation occurred over the course of the period covered by our data. In particular, divorce was not possible before December 1970, and the public debate which followed the legalization of divorce led to the 1974 referendum, which eventually confirmed the Fortuna-Baslini law and brought about a major change in Italy. Our panel thus starts exactly when divorce became legal, and before the 1974 referendum that confirmed it. To explore whether the correlation between education and secularization in marriage evolved with the introduction of divorce, in Column (3) of Table 1 we report the estimation results for the following equation:

$$\begin{aligned}\%Civil_{i,t} &= \beta_0 + \beta_1 HigherEducation_{i,t} + \beta_2 Pop_{i,t} + \beta_3 Age_{i,t} + \beta_4 Income_{i,t} \\ &+ \beta_5 After_t + \beta_6 HigherEducation_{i,t} \times After_t + \beta_7 North_i \times After_t + \nu_t + \mu_i + \epsilon_{i,t}, \quad (2)\end{aligned}$$

where we set the dummy $After_t$ to zero in 1971 and one afterwards. This specification allows us to investigate a possible change in the relationship between education and the share of civil marriages after the introduction of divorce, while simultaneously controlling for the interaction between $North_i$ and $After_t$, which aims at absorbing the variation caused by the North-South divergence.[11]

The coefficient of the term interacting education and the $After_t$ dummy appears to be positive and strongly significant. This results suggests that the positive *within-municipality* education–secularization nexus was significantly enhanced after 1971, *i.e.* after the legalization

[10] For instance, they typically gather more attendees, as reported in Footnote 18.

[11] We follow the standard definition of the macro-regions as adopted by the Italian National Institute of Statistics (ISTAT), according to which the North is made up of the following eight regions: Emilia-Romagna, Friuli-Venezia Giulia, Liguria, Lombardia, Piemonte, Trentino-Alto Adige, Valle d'Aosta, Veneto. Grouping the four regions of the Center (Toscana, Umbria, Marche, Lazio) with the North, rather than with the eight regions of the South (Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria, Sicily, Sardinia), yields similar results.

of divorce. This heterogeneity over time is the second feature that the theoretical model that we develop in Section 4 shall reproduce. In the next subsection, we will use individual data to further investigate whether this break in the relationship between human capital and secularization in marriage can be plausibly traced back to the legalization of divorce, and is not simply the consequence of aggregate changes affecting the generation entering the marriage market in the 1970s.

Table 8 in Appendix D displays further tests of the municipality-level results presented in Column (3) of Table 1. We first check the robustness of the results to the introduction of year dummies instead of the linear time trend. Second, we show that the benchmark findings are preserved if we consider the complete sample of Italian municipalities. Third, we investigate whether our coefficient of interest reflects a possible size effect, and show that $HigherEducation_{i,t} \times After_t$ remains significantly associated with the share of civil marriages when we control for possible specific trends in secularization in the most urbanized areas after the legalization of divorce. Fourth, we exploit voting data to verify that the break in the relationship between education and secularization after 1971 is not driven by changes in political preferences.

Moreover, to explore whether marriage-type choices are reflected in political attitudes towards divorce, we digitized the archival data about the votes at the 1974 referendum provided by Ministero dell'Interno (1977). Across the Italian municipalities of our sample, we find that municipalities characterized by a higher prevalence of civil marriage voted significantly more in favor of maintaining the divorce law. The coefficient of correlation between the share of civil marriages in 1971 and the share of votes in favor of repealing the divorce law at the 1974 referendum reaches -34%, with a p-value smaller than 1%.

Finally, in Appendix A.2 we present regressions similar to those of Tables 1, using data for Spanish provinces. We obtain results that are very much in line with those for Italy – thus supporting the external validity of our municipality-level findings.

3.1.2 Individual-level Analysis

To better assess the role of the 1971 divorce law in shaping the link between education and marriage choices, we complement our municipality-level results with an analysis of survey data carried out at the individual level. In 1998, ISTAT started to systematize the collection of information concerning the family and its transformations through the "Family, social subjects and conditions of childhood" survey (*Famiglia, soggetti sociali e condizioni dell'infanzia*, henceforth FSS). The 1998 FSS survey was carried out on a random, representative sample of 24,000 families, with more than 50,000 individuals. Further iterations of the FSS followed. For our purposes, however, we focus on the earliest round of 1998, which allows us to observe more members of the generations directly affected by the legalization of divorce. We provide summary statistics for the data used below in Appendix C, Panel B of Table 7.

Exploiting individual data is useful for three main reasons. First, the choice of a marriage type is arguably an individual or family-level decision, so that studying its determinants at the micro level increases the accuracy of our analysis. It notably allows us to more precisely take into account unobservable factors linked to the age at marriage, gender and birth cohort of the newlyweds, by including a comprehensive set of controls. Second, the FSS data provides information on the type of the first (or only) marriage. This makes sure that remarriages, which by definition cannot be religious, are not taken into account – different from municipal data, which do not allow us to distinguish between remarriages and civil first marriages.[12] Third, the FSS sample contains information on marriages celebrated between 1926 and 1998. The time depth in the marriage data is thus more adapted to the study of marriages before the introduction of divorce, as compared to the census data which provides only one wave that is anterior – or rather, contemporaneous – to the legalization of divorce. The analysis of the FSS data is thus key to understanding whether the legalization of divorce in the 1970s affected the link between education and secularization in marriage, by exploiting the heterogeneity in the dates of marriage across individuals of the same cohort who married at the same age.

In Column (1) of Table 2, we report the estimation results of the following equation over the sample of ever-married individuals:

$$Civil_{i,s,a,m,r} = \beta_0 + \beta_1 HigherEducation_{i,s,a,m,r} + \xi_{a,s} + \chi_{m,s} + \zeta_r + \epsilon_{i,s,a,m,r}, \tag{3}$$

where $Civil_{i,s,a,m,r}$ is a dummy variable equal to one if individual i of sex s, aged a, who married (for the first or unique time) aged m, and who lives in residential area r, chose a civil ceremony for her first (or unique) marriage, and zero if she married in a church. $HigherEducation_{i,s,a,m,r}$ indicates whether the individual completed at least secondary education. We control for a number of fixed effects that aim at capturing as many potential confounding factors as possible. First, cultural and social changes brought about by successive generations may be related to both their level of education and their propensity to pick a civil marriage. We control for such generational effects through age dummies, that we allow to vary by gender ($\xi_{a,s}$), as it is reasonable to expect these unobservable generational trends to differ between men and women. We also account for the role of age at (first or unique) marriage, which is likely to be simultaneously correlated with the choice of a marriage type and with the level of education, in a possibly gender-specific fashion, by introducing *Age at marriage* $\times$ *Sex* dummies ($\chi_{m,s}$).

Last, in the absence of information on respondents' municipality of residence, we take into account possible spatial differences through dummies for residential areas (ζ_r). The FSS data provide information on respondents' region of residence, and the so-called type of municipality

[12]Dealing away with remarriages allows us to exclude that the increase in civil marriages is mechanically driven by remarriages.

Table 2: Civil marriage, education and the role of divorce: individual-level results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Benchmark results				*Placebo tests*	
Higher education	0.00959**	0.0114***	0.00338				
	(0.00382)	(0.00385)	(0.00641)				
Number of TVs		-0.0107***	-0.0102***	-0.0103***	-0.00488	-0.0120***	-0.00532*
		(0.00198)	(0.00199)	(0.00199)	(0.00317)	(0.00293)	(0.00290)
Higher education × After			0.0119†	0.0301*	-0.0182	-0.0216	0.0255*
			(0.00770)	(0.0156)	(0.0231)	(0.0152)	(0.0154)
North × After			0.0385***	0.0390***	0.00286	0.0187*	0.0178**
			(0.00590)	(0.00591)	(0.00863)	(0.00965)	(0.00857)
Age at marriage dummies, by gender	✓	✓	✓	✓	✓	✓	✓
Age dummies, by gender	✓	✓	✓	✓	✓	✓	✓
Age dummies, by education				✓	✓	✓	✓
Residential area	✓	✓	✓	✓	✓	✓	✓
After (d)			✓	✓	✓	✓	✓
Sample (marriage years)	1919 – 1998	1919 – 1998	1919 – 1998	1919 – 1998	1952 – 1971	1972 – 1991	1962 – 1981
Cutoff year			1971	1971	1961	1981	1971
R^2	0.0534	0.0543	0.0556	0.0580	0.0472	0.0783	0.0600
Observations	34,185	34,185	34,185	34,185	11,376	15,403	14,548

Linear probability model estimations at the individual level among the sample of ever-married people.
The dependent variable is a dummy variable equal to one for people who married civilly and to zero for people who married religiously. *Higher education* is a dummy equal to one for people who completed secondary education or more, *Number of TVs* is the number of televisions held by the household, *North* is the dummy variable equal to one for the eight Northern regions of the country.
After is a dummy variable equal to zero for people who got married until the cutoff year and to one for people who got married after the cutoff year. The cutoff year is 1971 (*i.e.*, the legalization of divorce) in Columns (3)-(4) and (7). Columns (5) and (6) run placebo tests with the cutoff year set to 1961 (resp., 1981) and the sample of analysis focusing on marriages celebrated between 1952 and 1971 (resp., 1972 and 1991).
Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1, † p=0.122

– with the survey distinguishing 6 different categories based on municipality size.[13] To control as precisely as possible for the location of respondents, we then interact the dummies for the 19 possible regions of residence with the dummies for the 6 possible types of municipality.[14] We refer to the 114 resulting dummies as "residential area" dummies. Controlling for them allows us to capture time-invariant unobservable characteristics of each type of municipality in each Italian region.

The results in Column (1) establish a positive association between human capital and the likelihood of choosing a civil marriage. In Column (2), we additionally introduce the number of TVs at home as a proxy for income, which appears to be negatively related to civil marriage.[15] The coefficient associated with human capital remains stable, the point estimate suggesting that, among ever-married people, individuals with secondary education or more are on average around 1 percentage point more likely to have chosen a civil (first or unique) marriage than individuals who did not complete secondary education.

Column (3) of Table 2 investigates whether the education–civil marriage link is different for people who married before and after the legalization of divorce, by estimating

$$\begin{aligned} Civil_{i,s,a,m,r} = {} & \beta_0 + \beta_1 HigherEducation_{i,s,a,m,r} + \beta_2 Income_{i,s,a,m,r} + \beta_3 After_{i,s,a,m,r} \\ & + \beta_4 HigherEducation_{i,s,a,m,r} \times After_{i,s,a,m,r} + \beta_5 North_r \times After_{i,s,a,m,r} + \xi_{a,s} \\ & + \chi_{m,s} + \zeta_r + \epsilon_{i,s,a,m,r}, \end{aligned} \quad (4)$$

where $After_{i,s,a,m,r}$ takes the value one for all individuals who celebrated their (first or unique) marriage after 1971 and zero otherwise, while $North_r$ identifies Northern regions. This estimation controls for the same set of fixed effects as those in Columns (1) and (2), namely the $Age \times Sex$ and $Age\ at\ marriage \times Sex$ dummies, which absorb (possibly gender-specific) generational characteristics that might both affect education and marriage choices. This is all the more important here, as one may think that our post-1971 dummy captures general post-1968 changes, rather than the effect of the legalization of divorce. The results suggest that the relationship between education and civil marriage is driven by respondents who married after 1971.

Although the fixed effects introduced in Equation 4 allow to control for generational effects,

[13] Namely: (i) metropolitan centers, (ii) peripheries of a metropolitan center, (iii) municipalities over 50,000 inhabitants, (iv) municipalities with 10,001 to 50,000 inhabitants, (v) municipalities with 2,001 to 10,000 inhabitants, and (vi) municipalities with less than 2,000 inhabitants.

[14] There are 19, rather than 20 region dummies because Piemonte and Valle d'Aosta are considered as a single region in the FSS data.

[15] Using alternative proxies for income yields very similar results. In particular, the results are robust to replacing the number of TVs by (i) a dummy variable indicating whether at least one member of the household declared facing regular or occasional economic difficulties, or (ii) a dummy indicating whether the house is equipped with a phone and heating, or (iii) a dummy for home ownership, or (iv) the first component from a principal component analysis accounting for the ownership of 12 assets (namely, dishwasher(s), washing machine(s), video recorder(s), video camera(s), stereo(s), fridge(s), boat(s), cell phone(s), bike(s), scooter(s), motorbike(s) and car(s)).

one can still be concerned that such generational effects vary across levels of education, which would bias the estimated coefficient for $HigherEducation_{i,s,a,m,r} \times After_{i,s,a,m,r}$. In particular, it is plausible that post-1968 changes in social and cultural norms affected differentially low-educated and high-educated young Italians. To address this concern, Column (4) re-estimates Equation 4, additionally controlling for *Age* $\times$ *Higher education* dummies. This specification allows us to account for the possibly diverging trends in secularization between low- and high-educated persons across cohorts, so as to isolate the effect of the divorce law on newlyweds from the cultural changes that they might have experienced in the same years. The results in Column (4) confirm the existence of a positive correlation between education and civil marriage for persons married after 1971. We interpret this as evidence that the relationship between human capital and secularization in marriage underwent a break in the 1970s, which can be plausibly traced back to the legalization of divorce.

In the last three columns of Table 2, we exploit the time depth of the marriage data to run a placebo test, whose results provide additional support to this interpretation. We select three windows of equal size – 20 years – in our sample. The first two windows, "immune" from divorce reform (1952–71 and 1972–91), are compared to the third one that encompasses the reform (1962–81). In the first two cases, we create a placebo $After_{i,s,a,m,r}$ dummy that flags marriages celebrated during the second half of the period. We run the same specification as in Column (4) on these sub-samples in Columns (5) and (6). In both cases, the correlation between education and civil marriage does not significantly change after the placebo cutoff year. If instead, as shown in Column (7), we run the specification of Column (4) on the sub-sample of individuals who married between 1962 and 1981, we still find that the education–secularization nexus is significantly larger after 1971.

Figure 4 further zooms into the sub-period surrounding the divorce law and displays the coefficients associated with the interaction $HigherEducation_{i,s,a,m,r} \times After_{i,s,a,m,r}$ when we estimate Column (4) of Table 2 and successively consider the years 1966 to 1976 as cutoff.[16] The figure confirms a break in the education–civil marriage nexus that is statistically significant when years 1971 to 1974 are taken as cutoff. Although not significantly different from zero in the statistical sense, a relatively large difference already appears when we use 1970 as cutoff, thus comparing marriages celebrated until 1970 to marriages celebrated starting from 1971 – the very first year when divorce was legal. On the contrary, no difference is detected when we use cutoff years before 1970, a result that seems to exclude the existence of anticipation effects before the divorce law was passed, and provides further evidence that the post-1971 correlation

[16] Panel A of Table 9 in Appendix D displays the corresponding estimation results. In this Panel, all the estimations are run on the benchmark sample, so that the periods before and after the cutoff are of different length in each column. We also show the results of a related robustness test in Panel B of that table. Instead of running the estimations that successively consider the years 1966 to 1976 as cutoff on the benchmark sample, we use sub-samples that cover 20-year time windows and are centered around the considered cutoff year – in the same fashion as Columns (5)-(7) of Table 2.

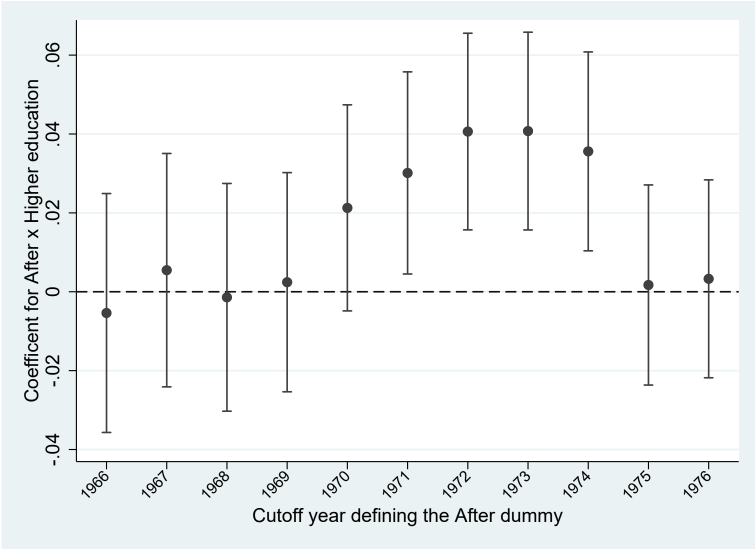

Figure 4: Estimated coefficient for $HigherEducation_{i,s,a,m,r} \times After_{i,s,a,m,r}$, year-by-year

Note: The $After$ dummy is equal to zero for all individuals who married in the cutoff year or before, and equal to one for all individuals who married afterwards.

detected in the data is not mistakenly picking up a post-1968 effect.[17] Finally, Figure 4 shows that the interaction $HigherEducation_{i,s,a,m,r} \times After_{i,s,a,m,r}$ is not significantly different from zero in explaining civil marriage when years 1975 or 1976 are considered as cutoffs. This supports the idea that the structural break in the data is related to the divorce law, rather than to the ongoing process of modernization of the Italian society, which certainly extended beyond the first half of the 1970s.

Overall, the individual-level results are very much in line with those obtained at the municipality level. By relying on more detailed data and a longer time span, they provide evidence pointing to a decisive role of the legalization of divorce in shaping the education–civil marriage nexus in Italy. The theoretical model discussed in Section 4 will rationalize this stylized fact.

3.2 Civil Marriage, Education, and Cultural Factors

As mentioned in Section 2, the share of civil marriages increased earlier, and in a larger proportion, in Northern Italy. Relying on the two databases presented in Section 3.1, Table 3 aims at investigating whether this difference across space reflects some underlying heterogeneity in the relationship between education and secularization.

[17] In Italy, divorce and family matters were not salient themes of the 1968 Student Movement's agenda in the years leading to the divorce law. The Movement was initially concerned with the reform of higher education (1967-68) and animated by a strong anti-capitalist ideology. In a second phase (1969-70: *Autunno Caldo*), it embraced class struggle and progressively joined forces with workers. Women (who could have had important stakes in the divorce debate) were relegated to a somewhat subaltern role – to the point that they complained that *Sessantotto* had merely elevated their status from "angel of the house" to "angel of the mimeograph". Before the divorce referendum (1974), the feminist movement played a marginal role in the Italian public sphere, and gained momentum only in the second half of the 1970s, with its expansion culminating in the success of the abortion referendum in 1981 (Bracke 2014, Ergas 1982).

Based on the municipal-level data described in Section 3.1.1, in Columns (1)-(3) we successively introduce in Equation 2 the interaction between $HigherEducation_{i,t}$ and three different time-invariant characteristics of the municipalities. First, we include $HigherEducation_{i,t} \times North_i$. The results, displayed in Column (1), show that the positive correlation between the spread of civil marriages and the increase of education is essentially driven by the North.

The distinction between the North and the rest of Italy is likely to capture fundamental differences across municipalities that induce heterogeneity in the education–secularization nexus. In particular, we expect the importance of family ties, as opposed to social capital and formal institutions, to shape the relationship between education and secularization in marriage. Indeed, education is likely to be all the more correlated with decreasing religious marriages where social capital is stronger relative to family ties, thus lowering the benefits from belonging to a religious community. In the same context, not marrying in the church could be particularly stigmatized and harm economic opportunities, thus mitigating the secularization-enhancing effect of education in places where family ties and informal links are more important for economic transactions than the market and/or formal institutions.[18] We explore this possibility in Columns (2) and (3) of Table 3. As discussed by Nannicini et al. (2013), social capital refers to civic attitudes that denote people's interest for collective welfare. In the specific case of Italy, the literature often uses the importance of the NGO sector and blood donations as proxies for social capital, as they reflect altruistic choices driven by preferences, norms or social pressure rather than economic or legal incentives or constraints (see for instance Putnam, Leonardi, and Nanetti 1993, Nannicini et al. 2013 and Guiso, Sapienza, and Zingales 2016). Following this literature, we use as proxy for social capital the number of NGO employees per capita, measured in 1981 (the earliest year at which this information is made available by ISTAT).[19] More precisely, to pinpoint municipalities where we expect a relatively high level of social capital, in Column (2) we introduce a dummy variable equal to one for municipalities with more NGO employees per capita in 1981 than the sample's median. Consistent with our hypothesis, the correlation between human capital and civil marriages is larger in municipalities where social capital is relatively strong. As a proxy for the importance of family ties, we use the province-level consanguinity rate provided by the Institute of Molecular Genetics of the CNR. In particular, in Column (3) we introduce a dummy variable equal to one for municipalities in provinces with a lower-than-median consanguinity rate between 1930 and 1934.[20] In line with our intuition, the positive correlation between education and civil marriages is larger in

[18] In Italy, a religious marriage is often a way to reinforce kinship ties and social alliances (see for instance Vignoli and Salvini 2014). Religious weddings usually have more attendees than civil weddings. For instance, in the FSS data presented in Section 3.1.2, religious ceremonies are characterized by a significantly larger average number of guests than civil ones (namely, 110 *vs* 79).

[19] This measure excludes church-based organizations.

[20] The original data set is available at
http://web.archive.org/web/20060510163108/http://www.igm.cnr.it/Zei/Consangpnew.htm.
It documents the prevalence of different types of consanguineous marriages at the province level, by 5-year sub-periods from 1910 to 1964. For our analysis, we focus on first-cousin marriages, which account for the majority of consanguineous unions. We use the 1930–1934 interval because it is the earliest period for which

Table 3: Civil marriages, education and cultural factors

	(1)	(2)	(3)	(4)	(5)	(6)
	Municipal-level data			Individual-level data		
	Dependent: % civil			*Dependent: civil marriage*		
Higher education	0.000759 (0.0891)	0.266*** (0.0904)	0.0593 (0.0919)			
Higher education × North	0.335*** (0.0265)			-0.0118 (0.00777)		
Higher education × High NGO empl. pc (1981)		0.0646*** (0.0222)				
Higher education × Low Cons. (1930–34, prov. level)			0.175*** (0.0238)			
Sunday without extended family					0.0152*** (0.00382)	
Higher education × Sunday without extended family					0.0197*** (0.00763)	
Not reaching out to family						0.0151*** (0.00363)
Higher education × Not reaching out to family						0.0175** (0.00736)
Controls	✓	✓	✓	✓	✓	✓
Time trend	✓	✓	✓			
Munic. FE	✓	✓	✓			
Age at marriage dummies, by gender				✓	✓	✓
Age dummies, by gender				✓	✓	✓
Age dummies, by education				✓	✓	✓
Residential area				✓	✓	✓
R^2	0.6899	0.6887	0.6823	0.0581	0.0592	0.0606
Observations	7,856	7,332	6,828	34,185	34,185	29,697
Nb of Munic.s	1,965	1,834	1,708			

Columns (1)-(3): OLS estimations at the municipality level. The dependent variable is the share of civil marriages among the total number of marriages celebrated in the municipality. *Higher education* is the share of the population with secondary education or more, *North* is a dummy variable equal to one for the eight Northern regions of the country, *High NGO empl. pc (1981)* is a dummy variable equal to one for municipalities with a higher-than-median number of NGO employees per capita in 1981, and *Low Cons. (1930–34, prov. level)* is a dummy variable equal to one for municipalities in provinces with a lower-than-median consanguinity rate between 1930 and 1934. The controls are as in Column (4) of Table 1 (*Accommodation overcrowding*, *Pop*, *Age*, *After*, *Higher education* × *After* and *After* × *North*). Robust standard errors clustered at the municipality level in parentheses. Columns (4)-(6): linear probability model estimations at the individual level among the sample of ever-married people. The dependent variable is a dummy variable equal to one for people who married civilly and to zero for people who married religiously. *Higher education* is the dummy variable equal to one for people who completed secondary education or more, *North* is a dummy variable equal to one for the eight Northern regions of the country, *Sunday without extended family* is a dummy variable equal to one for individuals who usually do not spend Sunday with their relatives (beyond the nuclear family), *Not reaching out to family* is a dummy equal to one for individuals who do not discuss their marital issues with family members. The controls are as in Column 4 of Table 2 (*Number of TVs*, *After*, *Higher education* × *After* and *After* × *North*). Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

municipalities with a less consanguineous past, where we expect family ties to be weaker and

only a few provinces are missing. The results are robust to considering other types of consanguinity, and alternative periods of reference.

less relevant in eliciting economic interactions.[21]

In Columns (4)-(6) of Table 3 we rely on the individual data presented in Section 3.1.2, and successively introduce in the specification of Column (4) of Table 2 the interaction between $HigherEducation_{i,s,a,m,r}$ and three different variables. While in Column (4) the North/South divide does not appear to be significant, the results of Columns (5) and (6) suggest that weaker family ties reinforce the responsiveness of secular behavior to human capital. To proxy for relatively weak family ties, we successively use two dummy variables which take the value one if the respondent does not spend Sundays with her extended family, or does not reach out to family members in case of marital issues.

The municipal- and individual-level results of Table 3 thus suggest that the nexus between education and secularization depends on cultural factors, namely the differential importance of social *vs* family ties. This is the third feature that the theoretical model developed in Section 4 shall reproduce.

3.3 The Legalization of Divorce and Cultural Factors

In this Section, we look into the possible complementarity between institutions (namely the legalization of divorce) and cultural factors in shaping the link between education and secularization in marriage. To do so, we augment the specifications of Table 3 with a triple interaction between *Higher education*, *After*, and each of our proxies for social or family capital – along with the set of three bivariate interactions between *High. ed.*, *After*, and the proxies for social or family capital.

The results are displayed in Table 4. For ease of presentation, we only report the coefficient of the triple interaction, which reflects how the education–civil marriage nexus is affected by cultural factors after divorce became legal. In five out of six specifications, the sign of this coefficient is consistent with the idea that the relationship between education and secularization in marriage may be strengthened by the combination of a favorable institutional framework and loose family ties. Its p-value is smaller than 10% in three cases.

In particular, Column (1) shows that the link between education and civil marriage after the divorce law is significantly stronger in Northern municipalities, although this is not the case in the individual data (Column (4)). Columns (2) and (3) suggest that civil marriage is more responsive to education after the divorce law in municipalities with a higher-than-median number of NGO employees per capita in 1981, and with a lower-than-median past consanguinity rate. Based on the individual data, Column (5) emphasizes a significantly positive relationship between education and civil marriage after the legalization of divorce for individuals with less tight family ties, who do not spend Sundays with their extended family.

[21] The results are robust to interacting *High. ed.* with the continuous measures of NGOs employees per capita and province-level consanguinity rate, instead of the dichotomized variables used in Columns (2) and (3) of Table 3.

Table 4: The joint role of divorce and cultural factors

	(1)	(2)	(3)	(4)	(5)	(6)
	Municipal-level data *Dependent: % civil*			Individual-level data *Dependent: civil marriage*		
High. ed. × After × North	0.543*** (0.117)			-0.00324 (0.0155)		
High. ed. × After × High NGO empl. pc (1981)		0.240* (0.143)				
High. ed. × After × Low Cons. (1930–34, prov. level)			0.166† (0.123)			
High. ed. × After × Sunday without extended family					0.0329* (0.0195)	
High. ed. × After × Not reaching out to family						0.000700 (0.0166)
Controls	✓	✓	✓	✓	✓	✓
Time trend	✓	✓	✓			
Munic. FE	✓	✓	✓			
Age at marriage dummies, by gender				✓	✓	✓
Age dummies, by gender				✓	✓	✓
Age dummies, by education				✓	✓	✓
Residential area				✓	✓	✓
R^2	0.6987	0.6908	0.6862	0.0902	0.0938	0.0966
Observations	7,856	7,332	6,828	34,185	34,185	29,697
Nb of Munic.s	1,965	1,834	1,708			

See Table notes of Table 3.
*** p<0.01, ** p<0.05, * p<0.1, †p=0.177

Although not compelling, the evidence presented in Table 4 seems compatible with the idea that the option to divorce and loose family ties may indeed complement each other in strengthening the link between human capital and secularization in marriage.

4 Theory

Our econometric analysis highlights three main empirical regularities, namely that (i) there exists a positive correlation between human capital and the prevalence of civil marriage, and that such a correlation is larger (ii) after the legalization of divorce, and (iii) if social capital is relatively strong and/or family ties are relatively weak.

To uncover the economic mechanisms behind these empirical results, we develop a model of marriage choice (civil *vs* religious), in which forward-looking agents also decide how much to invest in religion and education, by taking into account their future marriage outcomes. The degree of religiosity and the level of human capital are thus seen as equilibrium outcomes, affected by exogenous forces representing technology, culture, and institutions.

Given the arguably small role played by selection into marriage for the evolution of civil marriages (see Section 2 and Appendix B), our theory abstracts from the choice of getting married *vs* staying single. It also abstracts from spousal matching and intra-household allocations to focus exclusively on the choice of the type of marriage.

4.1 Timing and Marriage Strategies

We set up a 3-period model. Individuals – indexed by i – are rational, forward-looking and heterogeneous with respect to their preference for spirituality, or inclination to religion. They are endowed with one unit of time in each period. In the first period (youth), they cannot be married. In the following two periods, they are adult and can marry – or remarry, if divorce is allowed. The second and third periods are thus sub-periods of adulthood.

When making their time-allocation choice in the first period, agents form expectations about their future marriage(s). Uncertainty is exclusively related to the quality of marriage, which can deteriorate at the end of the second period – with probability p. If their marriage goes bad, agents may want to end it and remarry in the following period.

If divorce is legal, we consider that individuals in the first period can envision three alternative marriage strategies, indexed by j and defined by the key actions they are going to take. In particular, our notation is based on the type of marriage chosen in the second period, which can be either religious (**R**) or civil (**C**), and the choice to leave their marriage open to divorce (**D**) or not (**N**). First, individuals can commit to be in the same religious marriage for both future periods: this strategy is denoted by $j = \mathbf{RN}$, as divorce is not an option. Alternatively, agents can contract a civil marriage and choose to leave it open to the option of divorce. This strategy is denoted by $j = \mathbf{CD}$ and implies that a marriage gone bad always ends up in divorce. Those who choose **CD** will be in a civil marriage for both future periods, and their spouse in the third period can be either the same as in the second period, or a new one in case of divorce and remarriage. Individuals can also choose a third strategy ($j = \mathbf{RD}$), according to which they marry in the church in the second period, but remain open to the possibility of divorce followed by a civil remarriage, in case their initial match turns bad.[22] Contrary to **RN**, both strategies **RD** and **CD** are thus contingency plans conditional on the state of marriage quality (at the beginning of period 3). We assume that it is not possible to switch from a civil to a religious marriage between the second and third periods.

We require agents' actions to be such that – in case their marriage turns bad – agents who choose **RN** do not want to divorce, while agents who choose **RD** or **CD** decide to take advantage of the option to divorce and remarry. The specific conditions ensuring that the strategies are thus time consistent are detailed in Appendix E.

[22]For the sake of realism, remarriages can only be in civil form, as the Catholic Church does not allow religiously married people to divorce and remarry in the church. A religious remarriage can only happen following a decree of nullity of marriage by the Roman Rota, which is issued under very special circumstances.

A fourth strategy, **CN**, is *a priori* possible. It would be chosen by agents who decide to marry in civil form and commit not to divorce. For ease of presentation, we abstract from this strategy – which is dominated by **CD** for reasonable parameter values, as shown in Appendix F.

We also consider that all divorced individuals are able to find a new partner and remarry. In Appendix G, we show that if we depart from this hypothesis (thereby introducing the possibility that some divorced persons do not remarry) the main implications of our analysis hold qualitatively unchanged.

Finally, note that in our model all religious marriages also have civil effects, while two people can contract a civil marriage without being married religiously: this is an appropriate description of the Italian case, as defined by the institution of Concordatarian marriage (see Section 2).

If instead divorce is not allowed (not even for civil marriages), only two strategies are possible, *i.e.* **RN** and **CN**. Remarriage is not an option, and agents will remain in their first marriage regardless of its type and quality. The model without divorce will be described in Section 4.6.

In our benchmark scenario with divorce, the timing of events – as they unfold under the three alternative marriage strategies available to our agents – is illustrated in Figure 5.

4.2 Preferences and Constraints

In the first period, agents decide how to allocate their time between leisure l_i^j, education e_i^j, and religious practice r_i^j:

$$1 = l_i^j + r_i^j + e_i^j. \tag{5}$$

We thus highlight the opportunity cost of religious practice, in the fashion of Gruber and Hungerman (2008) and Strulik (2016a), among others.

The education acquired during the first period allows agents to build up human capital $h_i^j = h(e_i^j)$, which becomes available at the beginning of the second period and is used to work and generate income that will ultimately finance consumption. We do not consider other, non-labor sources of income, which were however controlled for in our empirical analysis.

In the second period, individuals get married and work. For the sake of tractability, singleness is ruled out by assumption.[23] Getting married involves the key choice of our model, between a religious and a civil wedding. A religious ceremony costs time, namely a fraction $z \in (0, 1)$ of period 2's endowment. This is reasonable in our context, as a religious marriage implies some form of religious participation, and the future spouses are almost always required to attend some time-consuming "preparation activities" before the wedding.[24] We further

[23]We can introduce singleness in the set-up assuming some type of friction. This additional margin would however not introduce any interesting new mechanism as we do not model the equilibrium on the marriage market.

[24]Adequate preparation for marriage is explicitly prescribed by the Code of Canon Law (1063, 1064).

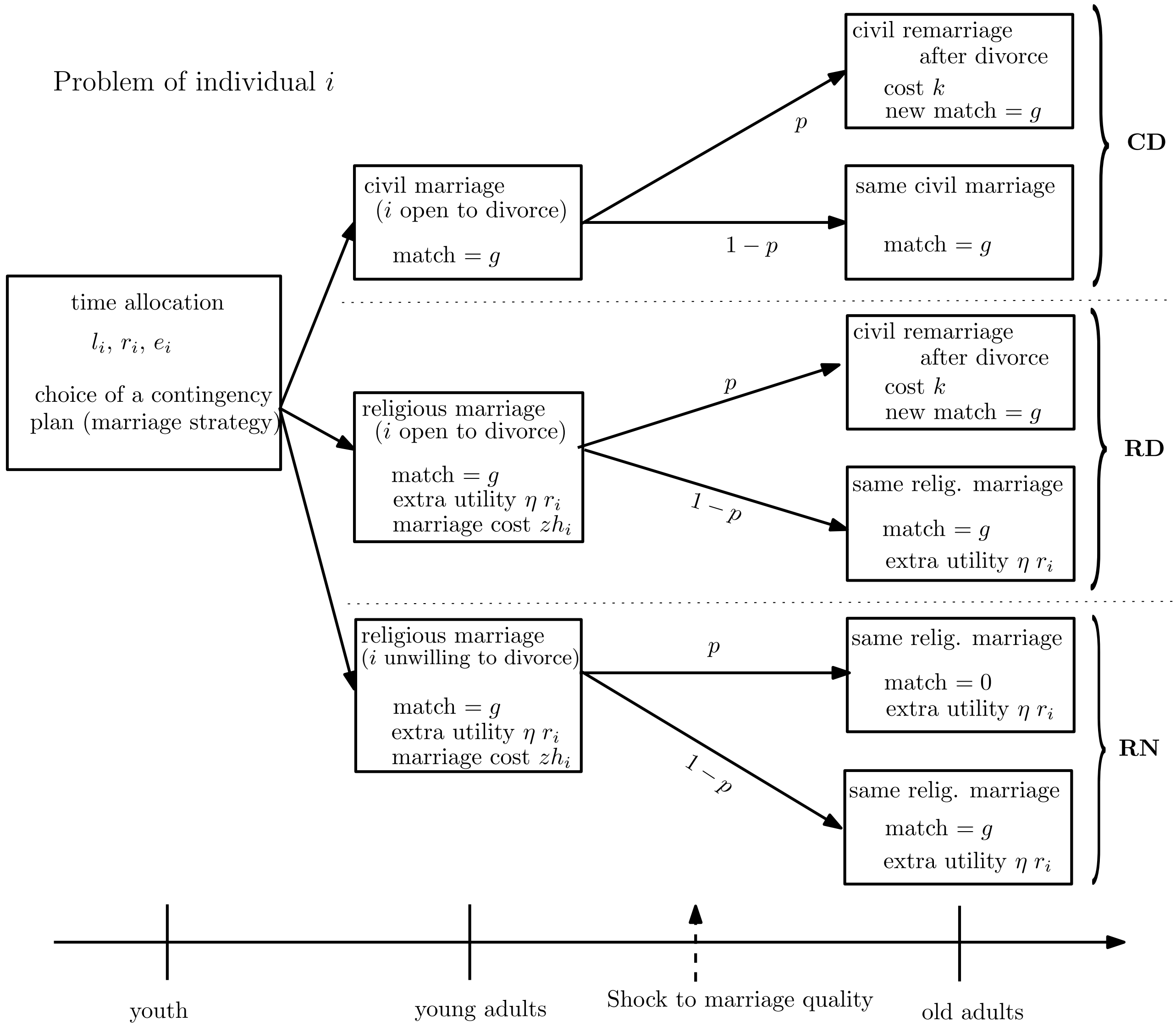

Figure 5: Timing of Events

impose that income is entirely consumed, so that

$$c^j_{2,i} = \begin{cases} h^j_i & \text{if } j = \mathbf{CD}, \\ (1-z)h^j_i & \text{if } j = \mathbf{RN}, \mathbf{RD}. \end{cases}$$

A religious marriage is also assumed to bring additional utility to more religious people. Civil marriages do not cost time (agents who choose a civil celebration can spend the whole second period working), but do not provide spiritual utility to the spouses. Throughout the second period and regardless of the type of celebration, marriage quality, denoted by m_2, is always good ($m^j_2 = g > 0$, $\forall j$).

At the beginning of the third period, agents observe the quality of their marriage that, different from the previous period, can be either bad ($m^j_{(3)} = 0$, with probability p) or good ($m^j_{(3)} = g$, with probability $1-p$ regardless of j). The time index is in parentheses to suggest that, by remarrying, agents can improve the quality of their marriage. In fact, if it is initially bad, agents can decide to divorce at a cost k, and remarry.[25] As mentioned above, remarriages can only be of the civil form and all divorced individuals manage to remarry. We lift this assumption in Appendix G to reflect that a substantial share of divorcees remains single after divorce.[26]If $j = \mathbf{CD}, \mathbf{RD}$, the new marriage after divorce is assumed to bring utility $m_3^j = g$, just like a first-time marriage. For persons who do not divorce, we have $m_3^j = m_{(3)}^j$.

Consumption in the third period is thus given by

$$c_{3,i}^j = \begin{cases} h_i^j - k & \text{if } m_{(3)}^j = 0 \text{ and } j = \mathbf{CD}, \mathbf{RD}, \\ h_i^j & \text{if } m_{(3)}^j = g, \text{ or if } m_{(3)}^j = 0 \text{ and } j = \mathbf{RN}. \end{cases}$$

The cost of divorce $k \in (0, \infty)$ can be interpreted as an indirect measure of socio-cultural factors. In particular, we expect k to be high in societies characterized by strong family ties, as the economic penalty or social stigma for breaking a marriage is heavier when a greater weight is attached to family values and when family connections, rather than market interactions, are the basis of economic transactions.[27] Similarly, since civic capital may provide an alternative to institutions such as the church or the family, the cost of divorce is lower in societies with stronger social capital. In the specific historical context of our study, we expect communities that were more receptive to the socio-cultural changes brought about by the 1968 Movement or by the "second wave" of feminism to be characterized by lower values of the parameter k, as a consequence of the erosion of the importance of family values and parental authority.

Unlike marriage quality, which can deteriorate, individuals' human capital remains the same throughout the second and third periods, and – net of the possible divorce cost – is used to finance consumption. We also assume for the sake of analytical parsimony that it depends linearly on first-period education according to

$$h_i^j = h(e_i^j) \equiv e_i^j. \tag{6}$$

The preferences of individual i, for marriage strategy j (with $j = \mathbf{RN}, \mathbf{RD}, \mathbf{CD}$), are represented by the following inter-temporal utility function:

$$U_i^j = \sum_{t=1}^{3} \beta^{t-1} u_{i,t}^j, \tag{7}$$

[25] The probabilistic description of marriage quality, as well as other features of the model – such as the divorce cost – are reminiscent of De la Croix and Mariani (2015).

[26] More precisely, in the individual dataset used in the previous section, only 39.77% of the 684 divorcees did remarry after their divorce. Compared to those who did not divorce (and excluding singles), divorcees are more educated on average, more likely to have married civilly for their first union, and slightly more likely to be females.

[27] Family networks (as opposed to formal market institutions) may be more or less important for finding a job, carrying out production, or having access to credit: see for instance Kumar and Matsusaka (2009).

where the instantaneous utilities are defined over leisure l_i^j, religious practice r_i^j, match quality m_t^j and consumption $c_{i,t}^j$, while the parameter $\beta \in (0,1]$ is a psychological discount factor. Their functional forms are chosen to be simple enough to guarantee closed-form solutions later on in the analysis, *i.e.*

$$\begin{aligned} u_{i,1}^j &= l_i^j + \varphi_i \ln r_i^j, \\ u_{i,t}^j &= m_t^j + \eta_t^j r_i^j + \ln c_{i,t}^j, \qquad t = 2,3. \end{aligned}$$

In the above expression, $\varphi_i > 0$ is the individual-specific taste for religious practice, which is distributed according to a density function $f(\varphi_i)$ with support $[0, \varphi^S]$, so that $f(\varphi_i) = 0$ for $\varphi > \varphi^S$. Hence, φ^S is the strongest possible taste for religion.

The vector η_t^j accounts for the impact of being religious on subsequent utility. It allows us to capture the additional utility that religious people can draw from a religious marriage. For $t = 2, 3$, we thus assume that $\eta_t^j = \eta > 0$ when one is involved in a religious marriage, and $\eta_t^j = 0$ otherwise. In the spirit of Cavalcanti, Parente, and Zhao (2007), the parameter η may also be related to the expected utility of the afterlife reward to a "good" earthly life, which is higher the longer the duration of one's religious marriage (*e.g.* $\beta(1+\beta)\eta r_i^j$ instead of $\beta\eta r_i^j$ if a religious marriage lasts two periods, instead of one).[28] In other words, using the heaven/hell dichotomy of Cavalcanti, Parente, and Zhao (2007), hell would be the certain outcome for those who have chosen a civil marriage. Instead, heaven would be the certain outcome for those having a long lasting religious marriage, while it remains attainable with some positive probability for those who have divorced while being married religiously.

As stated above, marriage quality in the second period is given by

$$m_2^j = g, \forall j.$$

As far as the third period is concerned, marriage quality crucially depends on the possibility to divorce. We then have that

$$m_3^{\text{CD}} = m_3^{\text{RD}} = g,$$

while

$$m_3^{\text{RN}} = \begin{cases} g & \text{with probability} = 1 - p, \\ 0 & \text{with probability} = p, \end{cases}$$

where $p \in (0,1)$ is the probability that the quality of marriage deteriorates after one period.

Agents perfectly anticipate whether they would divorce, should the quality of their match decrease from g to 0, and select accordingly their preferred type of marriage. This amounts to selecting a strategy $j = \mathbf{RN}, \mathbf{RD}, \mathbf{CD}$, knowing that in the cases **RD** and **CD** divorce will occur with probability p. The preferred marriage strategy is obtained by comparing the expected

[28] Azzi and Ehrenberg (1975) also have an afterlife period in their time-allocation model of religiosity.

indirect utilities associated with each strategy. To solve our model, we thus need to first establish agents' optimal choices of education and religious practice (that is, their premarital investment in human or religious capital) under each possible alternative.[29]

4.3 Optimal Choices of Education and Religious Practice

We assume that decisions are taken at the couple level, with couples resulting from perfectly assortative mating with respect to φ_i. We can now examine the utility associated with each of the three alternative marriage strategies. Let us start with the **RN** case. The relevant utility function writes as

$$U_i^{\text{RN}} = l_i^{\text{RN}} + \varphi_i \ln r_i^{\text{RN}} + \beta \left(g + \eta\, r_i^{\text{RN}} + \ln((1-z)e_i^{\text{RN}}) \right) + \beta^2 \left((1-p)g + \eta\, r_i^{\text{RN}} + \ln e_i^{\text{RN}} \right). \quad (8)$$

In the case of a lasting religious marriage, agents derive utility from their religiousness r_i^{RN} in both periods 2 and 3. In the second period, they face an opportunity cost related to preparing for a religious ceremony (time cost z). In the third period, they do not pay for divorce, but with probability p they incur the utility loss implied by an unhappy marriage.

The utility drawn from a **CD** marriage strategy is

$$U_i^{\text{CD}} = l_i^{\text{CD}} + \varphi_i \ln r_i^{\text{CD}} + \beta \left(g + \ln(e_i^{\text{CD}}) \right) + \beta^2 \left(g + p \ln(e_i^{\text{CD}} - k) + (1-p) \ln e_i^{\text{CD}} \right), \quad (9)$$

which takes into account that agents do not obtain utility from religiosity beyond the first period, do not pay any cost for marrying in the second period, but will never face a bad marriage in the third period thanks to the option of divorcing (which implies the good cost k) and remarrying.

Last, in case they leave their religious marriage open to divorce (strategy **RD**), agents' utility is given by

$$\begin{aligned} U_i^{\text{RD}} = l_i^{\text{RD}} + \varphi_i \ln r_i^{\text{RD}} + \beta \left(g + \eta\, r_i^{\text{RD}} + \ln((1-z)e_i^{\text{RD}}) \right) \\ + \beta^2 \left(g + p \ln(e_i^{\text{RD}} - k) + (1-p)(\eta r_i^{\text{RD}} + \ln e_i^{\text{RD}}) \right), \quad (10) \end{aligned}$$

where the time cost z of a religious marriage is paid in the second period, and the cost of divorce k is paid in the third period if the first marriage turns bad. Remarrying ensures that the quality of marriage is good in the third period. However, since remarrying is always in the civil form, in the third period individuals incur the loss of the utility accruing from a religious marriage with probability p.

[29]Religiosity may be related to other types of premarital investment that we do not consider here, but may be relevant for the marriage market. For instance, see Mariani (2012) on the role of premarital chastity.

Conditional on the marriage strategy, the first-period choice of education, leisure, and religious investment is given by

$$\{r_i^j, e_i^j, l_i^j\} = \arg\max U_i^j,$$

subject to the constraint specified in Equation (5).

Solving the necessary first-order conditions for this maximization program leads to the following optimal choices:

$$\begin{cases} r_i^{\text{RN}} = \dfrac{\varphi_i}{1-\beta(1+\beta)\eta} \\ e_i^{\text{RN}} = \beta(1+\beta) \end{cases}, \tag{11}$$

$$\begin{cases} r_i^{\text{CD}} = \varphi_i \\ e_i^{\text{CD}} = \dfrac{\omega}{2} \end{cases}, \tag{12}$$

and

$$\begin{cases} r_i^{\text{RD}} = \dfrac{\varphi_i}{1-\beta(1+(1-p)\beta)\eta} \\ e_i^{\text{RD}} = \dfrac{\omega}{2} \end{cases}, \tag{13}$$

where

$$\omega \equiv k + \beta(1+\beta) + \sqrt{k^2 + \beta^2(1+\beta)^2 + 2k\beta(1-\beta-2\beta(1+(1-p)))} \tag{14}$$

is a combination of parameters that does not involve φ_i and which is increasing in k. Optimal leisure, l_i^j, is then defined residually thanks to Equation (5).

The following assumption ensures that we have interior solutions for the religiosity choice. It amounts to imposing a lower bound on η, the additional utility provided by religious marriage to religious people.

Assumption 1 *The parameters of the model are such that* $1-\beta(1+\beta)\eta > 0$.

We can now establish some key results regarding the actions associated with alternative marriage strategies, showing that education and secularization correlate exclusively through the choice of marriage type.

Proposition 1 (Optimal choices)

1. *Across individuals choosing the same strategy j, education e_i^j and religiosity r_i^j are uncorrelated.*
2. *Education e_i^j is lower for those who choose **RN** (i.e. for those who will refuse to divorce).*
3. *Religiosity r_i^j is higher for those who choose **RN**.*

Proof. Result 1 follows from the fact that educational investment e_i^j does not depend on spirituality φ_i, while religious investment r_i^j is increasing in φ_i. Results 2 and 3 can be obtained by comparing optimal choices e_i^j and r_i^j across marriage strategies, so that $e_i^{\text{RD}} = e_i^{\text{CD}} > e_i^{\text{RN}}$ and $r_i^{\text{CD}} < r_i^{\text{RD}} < r_i^{\text{RN}}$. ∎

4.4 Choosing a Marriage Strategy

After solving for education and religiosity choices, we can compare the indirect utility functions $V^{\text{RN}}(\varphi_i)$, $V^{\text{CD}}(\varphi_i)$ and $V^{\text{RD}}(\varphi_i)$ to determine which strategy is chosen by individual i. Indirect utilities are obtained by replacing optimal choices (11), (12) and (13) in the utility functions (8), (9), and (10).

We can then prove the following.

Lemma 1 *For any $z > 0$, there exist unique thresholds $\bar{\varphi}$, $\hat{\varphi}$ and $\tilde{\varphi}$, solutions to*

$$V^{\text{CD}}(\bar{\varphi}) = V^{\text{RD}}(\bar{\varphi}),\ V^{\text{RD}}(\hat{\varphi}) = V^{\text{RN}}(\hat{\varphi}) \ \text{ and } V^{\text{CD}}(\tilde{\varphi}) = V^{\text{RN}}(\tilde{\varphi}).$$

There also exists a threshold cost of religious marriage $\check{z} \in (0,1)$ such that:

*(a) $\forall z < \check{z}$, we have $\bar{\varphi} < \tilde{\varphi} < \hat{\varphi}$, so that individuals characterized by $\varphi_i \leq \bar{\varphi}$ choose the **CD** strategy, those with $\bar{\varphi} < \varphi_i \leq \hat{\varphi}$ choose **RD**, while those with $\varphi_i > \hat{\varphi}$ select **RN**;*

*(b) $\forall z \geq \check{z}$, we have $\hat{\varphi} \leq \tilde{\varphi} \leq \bar{\varphi}$, so that agents choose the **CD** strategy if $\varphi_i \leq \tilde{\varphi}$, and **RN** otherwise.*

Proof. See Appendix H. ∎

The explicit values of the thresholds reported in Appendix H highlight the importance of the cost of a religious marriage, z. In particular, if $z = 0$, it follows that $\tilde{\varphi} = \hat{\varphi}$ and $\bar{\varphi} = 0$, so that nobody chooses a civil marriage in the first place.

Recall that we assume time-consistent behavior: the condition detailed in Appendix E warrants that agents selecting **RN** do not divorce even if their marriage turns bad, while those who choose the **CD** or the **RD** strategy divorce if the quality of their marriage deteriorates.

Figure 6 provides an illustration of the two cases of Lemma 1. In case (a), represented in the left panel, individuals with low spirituality φ_i choose **CD**, those with intermediary spirituality prefer **RD**, and those with high spirituality select **RN**. In case (b), as illustrated in the right panel, nobody chooses **RD**, while individuals with relatively low (high) spirituality prefer **CD** (**RN**).

The following Proposition summarizes how the choice of the marriage strategy depends on the two key parameters of our model, k and z.

Proposition 2 *The threshold $\bar{\varphi}$ is increasing in z, but is independent of k. The thresholds $\hat{\varphi}$ and $\tilde{\varphi}$ are both decreasing in k. Moreover, $\tilde{\varphi}$ increases with z, while $\hat{\varphi}$ does not depend on z.*

Proof. The claim of the Proposition follows from the inspections of partial derivatives, as reported in Appendix H. Note that there may exist parameter values such that nobody in our

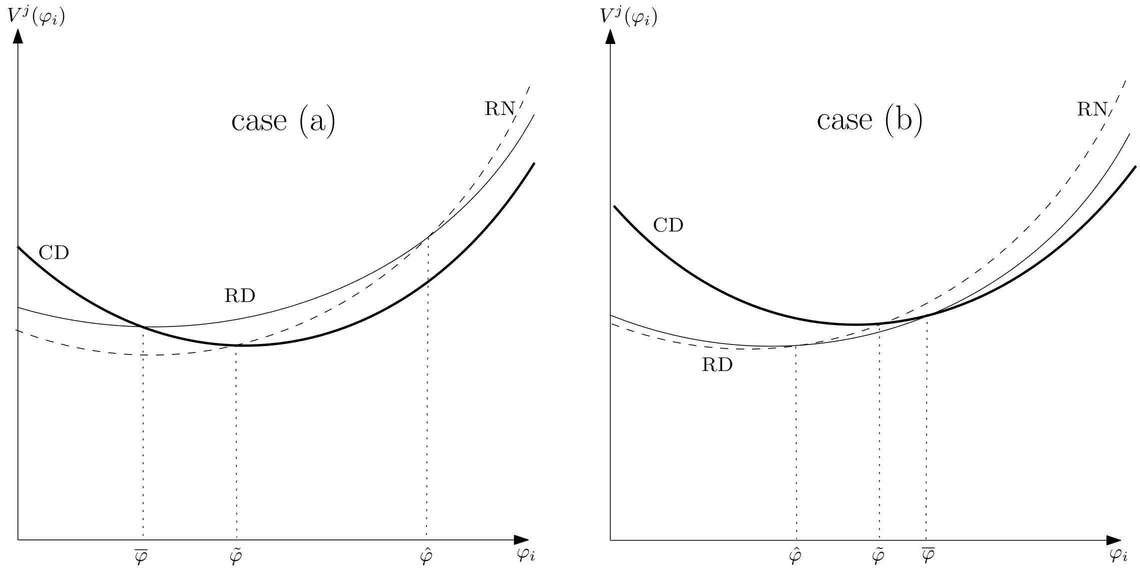

Figure 6: Indirect utility functions in the two cases of Lemma 1

economy chooses **CD**, *i.e.* a civil first marriage. To rule out this possibility, we need people with low levels of religiosity to prefer **CD** to **RN**. In particular, we have to make sure that $\tilde{\varphi}$ is not negative. For this to be the case, we can check that $\lim_{g \to \underline{g}} \tilde{\varphi} > 0$, which is always true as long as $1 > \beta(1-\beta)\eta$ – as stated by Assumption 1. ■

In our model, the parameter k is the same across individuals and marriages. Although it is possible that the socio-cultural costs of breaking a religious marriage are higher than those of breaking a civil marriage, we do not allow for such a heterogeneity. As will become apparent later, such an assumption would only reinforce our results, as it would provide a supplementary motive to shift towards civil marriage after the legalization of divorce. Another further refinement would be to assume that the penalty k of breaking a religious marriage is higher when local religiosity is stronger. This would introduce externalities between individuals, and possibly also strategic complementarities in their choice of marriage type. Such an extension would also strengthen our results, as the shift of certain individuals towards civil marriages would induce a lower cost of divorce for everyone, making civil marriage even more attractive and speeding up the secularization process.

The choice of a marriage strategy, **CD**, **RD**, or **RN**, amounts to deciding about divorce. Among all religious first marriages which turn bad, only some end up in a divorce: namely, those involving people who choose the **RD** strategy. On the contrary, those having chosen **CD** will always divorce when the quality of their first marriage deteriorates. This is fully consistent with the findings of Impicciatore and Billari (2012), based on a sample of about 9,000 Italian marriages: civil marriages are more frequently followed by separation and divorce than religious ones. They further claim – and this would also be consistent with our theory – that such an effect is driven by the selection into civil marriages of individuals who are more likely to divorce.

4.5 Aggregate Outcomes

After having analyzed the mechanisms governing individual actions, we can turn to aggregate outcomes. In particular, depending on the distribution of φ_i we can compute the number of civil and religious marriages, divorces, and remarriages.

To this end, we consider identical overlapping generations of agents, and rule out the possibility of inter-generational marriage without much loss of generality.

If $F(\varphi_i)$ is the cumulative distribution function of φ_i, the number of religious (first) marriages can be computed as

$$R \equiv \int_{\min(\tilde{\varphi},\bar{\varphi})}^{\infty} f(\varphi_i)\mathrm{d}\varphi_i = \min(1-F(\tilde{\varphi}), 1-F(\bar{\varphi})) \tag{15}$$

while the number of divorces and remarriages is

$$D \equiv (1-p)\int_{0}^{\max(\tilde{\varphi},\hat{\varphi})} f(\varphi_i)\mathrm{d}\varphi_i = (1-p)\max(F(\tilde{\varphi}), F(\hat{\varphi})). \tag{16}$$

The share of civil marriages can then be obtained as

$$C \equiv \frac{1-R+D}{1+D}. \tag{17}$$

Moreover, given that $e_i^{\text{RD}} = e_i^{\text{CD}}$, average human capital is given by

$$\begin{aligned} \bar{h} \;&\equiv\; \int_{0}^{\max(\tilde{\varphi},\hat{\varphi})} e^{\text{CD}} f(\varphi_i)\mathrm{d}\varphi_i + \int_{\max(\tilde{\varphi},\hat{\varphi})}^{\infty} e^{\text{RN}} f(\varphi_i)\mathrm{d}\varphi_i, \\ &=\; e^{\text{CD}}\max(F(\tilde{\varphi}), F(\hat{\varphi})) + e^{\text{RN}}(1-\max(F(\tilde{\varphi}), F(\hat{\varphi}))). \end{aligned} \tag{18}$$

The following Proposition establishes the effect of the main parameters of interest on marriages and average human capital.

Proposition 3 *The proportion of civil marriages and average human capital are increasing in z and decreasing in k.*

Proof. Follows from Proposition 2 and Equations (15), (16), (17), and (18). ■

Proposition 3 stipulates that human capital and the prevalence of civil marriage are positively correlated when k or z vary, even in the absence of a direct causal mechanism linking the choice of marriage type to education. In particular, two different economies (e.g. municipalities), characterized by different values of k or z are expected to exhibit different levels of average education and civil marriage prevalence. Specifically, because of the effects of k and z on C and $\bar{h}$, we expect a higher proportion of civil marriages and a higher average level of human capital in the economy where z is larger, or k is smaller. Assuming that each municipality has a different z, depending on various traditions and culture, our model can reproduce in equilibrium the positive correlation between human capital and the prevalence of civil marriages, which we established empirically in Section 3.

Along the same lines, we can compute average religiosity as

$$\bar{r} \equiv \int_0^{\min(\tilde{\varphi},\bar{\varphi})} r^{\text{CD}} f(\varphi_i)\mathrm{d}\varphi_i + \int_{\min(\tilde{\varphi},\bar{\varphi})}^{\max(\tilde{\varphi},\hat{\varphi})} r^{\text{RD}} f(\varphi_i)\mathrm{d}\varphi_i + \int_{\max(\tilde{\varphi},\hat{\varphi})}^{\infty} r^{\text{RN}} f(\varphi_i)\mathrm{d}\varphi_i, \tag{19}$$

which is also negatively correlated with civil marriages.

4.6 Institutional Change: The Role of Divorce Laws

We can now move on to the analysis of the consequences of institutional change, and analyze whether our model can reproduce the empirical evidence reported in Section 3.1. In particular, we would like to understand what happens following the legalization of divorce.

To do so, we first characterize an alternative version of the model, with no divorce and only two available strategies, **RN** and **CN**, and then compare it to the benchmark model. Strategy **CN** is analogous to **CD** of the previous sections, but without the option to divorce and remarry.

If divorce is not allowed ($j = \mathbf{RN}, \mathbf{CN}$), the relevant utility functions become

$$U_i^{\text{RN}} = l_i^{\text{RN}} + \varphi_i \ln r_i^{\text{RN}} + \beta \left(g + \eta\, r_i^{\text{RN}} + \ln((1-z)e_i^{\text{RN}})\right) + \beta^2 \left((1-p)g + \eta\, r_i^{\text{RN}} + \ln e_i^{\text{RN}}\right), \tag{20}$$

and

$$U_i^{\text{CN}} = l_i^{\text{CN}} + \varphi_i \ln r_i^{\text{CN}} + \beta \left(g + \ln e_i^{\text{CN}}\right) + \beta^2 \left((1-p)g + \ln e_i^{\text{CN}}\right). \tag{21}$$

The comparison of Equations (21) and (9) highlights that, in the absence of divorce, agents cannot insure themselves against the possibility of a marriage turning bad in the third period, even in the case of a civil marriage.

Optimal choices are given by

$$\begin{cases} r_i^{\text{RN}} = \dfrac{\varphi_i}{1-\beta(1+\beta)\eta} \\ e_i^{\text{RN}} = \beta(1+\beta) \end{cases}, \tag{22}$$

and

$$\begin{cases} r_i^{\text{CN}} = \varphi_i \quad (= r_i^{\text{CD}}) \\ e_i^{\text{CN}} = \beta(1+\beta) \end{cases}. \tag{23}$$

We can then claim what follows.

Proposition 4 *In the absence of divorce, investment in human capital is (i) independent of the marriage choice, and (ii) lower than in the benchmark model with divorce for agents choosing the **CD** strategy.*

Proof. Follows directly from the inspection of Equations (22) and (23) and the comparison of Equations (23) and (12). ■

Claim (ii) of Proposition 4 can be understood as follows: if divorce is legal, agents are willing to invest more in education in order to have access to the (costly) option of divorce – unless they choose **RN**. This result echoes the literature stressing that the option of divorce provides an incentive to accumulate human capital (Guvenen and Rendall 2015).[30]

We can now examine agents' choices of strategies. This requires comparing the indirect utilities associated with **CN** and **RN**, which we denote by $V^{\text{CN}}(\varphi_i)$ and $V^{\text{RN}}(\varphi_i)$. The latter is the same as in the benchmark model with divorce.

We can then claim the following.

Lemma 2 *There exists a threshold*

$$\tilde{\tilde{\varphi}} = \beta \frac{\ln(1-z)}{\ln\left(1-\beta(1+\beta)\eta\right)}, \tag{24}$$

*such that individuals characterized by $\varphi_i \leq \tilde{\tilde{\varphi}}$ choose the **CN** marriage strategy, while those with $\varphi_i > \tilde{\tilde{\varphi}}$ prefer **RN**.*

Proof. The threshold value $\tilde{\tilde{\varphi}}$ can be found as the solution of $V^{\text{CN}}(\tilde{\tilde{\varphi}}) = V^{\text{RN}}(\tilde{\tilde{\varphi}})$, where indirect utilities are obtained by replacing optimal choices (22) and (23) in the utility functions (20) and (21). ■

Looking back at Section 4.4, it becomes apparent that the introduction of divorce generates an increase in human capital and civil marriages. As far as civil marriages are concerned, we can claim what follows.

Proposition 5 *The legalization of divorce brings about an increase in the proportion of civil marriages.*

Proof. When divorce is legal, the total number of civil marriages is given by the sum of civil first marriages and remarriages. As remarriages are ruled out when divorce is not possible, we just need to prove that civil first marriages do not decrease after divorce becomes legal. To see why this is indeed the case, consider the two configurations depicted in Figure 6. Under case (a), the number of civil first marriages necessarily increases because $\tilde{\tilde{\varphi}} < \bar{\varphi}$, as can be seen from the inspection of Equations (24) and (42). In fact, the inequality $\tilde{\tilde{\varphi}} < \bar{\varphi}$ ensures that the strategy **CD** (when divorce is possible) is chosen by more people than **CN** (without divorce). This translates into a larger proportion of civil first marriages. In case (b), the indirect utility associated to **CD** is higher than that associated to **CN**, for any value of φ_i. In fact, **CD** improves over **CN** by giving agents the option to divorce (which they will take up if their marriage goes bad – Appendix E). It follows that, after the legalization of divorce, less

[30] In a richer quantitative model, the size of this incentive would depend on marital sorting, gender differences in education, human capital and incomes, along with the extent to which divorce laws are redistributive.

people choose **RN** (which is the only strategy leading to a religious first marriage, given that **RD** is irrelevant) and more people have their first marriage in civil form. ■

Proposition 5 is consistent with empirical evidence, as suggested for instance by Figure 1. For what concerns human capital, when divorce is legal, those who choose **CD** or **RD** (instead of **RN**, which they would have preferred in the absence of divorce) invest more in education to compensate for the divorce cost. Even if no one picks **RD** (case (b) of Figure 6), the legalization of divorce causes more agents to choose a civil first marriage, each of them investing more in human capital (Proposition 4).

In addition, the legalization of divorce affects the dynamics of the distribution of education and secularization across regions: in a multi-region environment, the legalization of divorce would cause a divergence between economies characterized by different parameters.[31] Indeed, while the marriage strategy is obviously not affected by parameter k in the no-divorce case (as can be seen from the expression for $\tilde{\tilde{\varphi}}$ in Equation (24)), k becomes crucial for the choice between alternative strategies when divorce is legal (as implied by Equations (40), (41), and (42) and Proposition 2). Similarly, parameter z plays a more important role when divorce is allowed, as it has a positive effect on the share of people choosing to divorce and remarry, and investing more in education. Proposition 4 states that, without divorce, education choices do not vary across marriage strategies, while agents adjust their investment in education to their marriage choices when divorce is legal. We can thus expect the prevalence of civil marriages to be correlated with human capital only if divorce is possible, which is consistent with our empirical results.

This suggests that, when evaluating the consequences of divorce for growth, the analysis should not be restricted to the possible effects of marital disruption on children's outcomes, but should also consider the positive incentive on individual education choices, especially for women.

4.7 The Role of Social Capital

We now investigate under which conditions our model can reproduce the empirical result that social capital strengthens the link between human capital and civil marriage (see Section 3.2). As discussed above, the cost of divorce k can be regarded as an inverse measure of the importance of civic and social capital.

Building on the literature on the difference between loose and tight kinship societies (Enke 2019) and on their respective advantages (De la Croix, Doepke, and Mokyr 2018), let us consider two regions, one with well-developed civic institutions independent of kinship groups (k^L low) and another one where family networks are prevalent (k^H high). In each region, there is a large number of municipalities which are heterogeneous with respect to parameter z, which

[31] The divergent patterns of secularization in marriage across Italian regions has been extensively documented in Section 2. Census data allows us to detect a similar trend in human capital accumulation, with a widening gap between Northern and Southern regions (evidence available upon request).

is assumed to follow the same distribution in both regions. Recall that the thresholds on φ_i depend on z, implying that the proportion of civil marriages varies across municipalities. On the other hand, while investments in education e^{RN}, e^{CD}, and e^{RD} are not affected by z, average human capital depends on z through the prevalence of each marriage type.

To interpret the result from Section 3.2 that the correlation between education and civil marriage is larger if social capital is higher and/or family ties are weaker, let us first consider the simplest case (b) of Figure 6, corresponding to $z \geq \check{z}$. The proportion of civil first marriages is given by $F(\tilde{\varphi})$, and from Equations (16), (15), and (17), we can also retrieve the total prevalence of civil marriages (*i.e.* first marriages and remarriages) as

$$Y = \frac{(2-p)F(\tilde{\varphi})}{1+(1-p)F(\tilde{\varphi})}. \tag{25}$$

When $p = 1$, the proportion of civil marriages Y is linear in the proportion of civil first marriages $F(\tilde{\varphi})$. For lower values of p, it is a concave function, but we can consider the first order approximation of (25) around $F(\breve{\varphi})$, where $\breve{\varphi}$ is the average individual-specific taste for religious practice. We can thus obtain

$$Y \approx \frac{(2-p)(1-p)(F(\breve{\varphi}))^2}{(1+(1-p)F(\breve{\varphi}))^2} + \frac{2-p}{(1+(1-p)F(\breve{\varphi}))^2}F(\tilde{\varphi}). \tag{26}$$

In each municipality, the average level of education, as given by Equation (18), can be expressed as

$$X = e^{\text{CD}}F(\tilde{\varphi}) + e^{\text{RN}}(1-F(\tilde{\varphi})) = e^{\text{RN}} + (e^{\text{CD}} - e^{\text{RN}})F(\tilde{\varphi}).$$

Hence, across municipalities of the same region, we have:

$$\text{cov}(Y, X) = (e^{\text{CD}} - e^{\text{RN}})\frac{2-p}{(1+(1-p)F(\breve{\varphi}))^2}\text{var}(F(\tilde{\varphi})).$$

In a simple linear regression $Y = bX + \varepsilon$, the estimated coefficient would be

$$\hat{b} = \frac{\text{cov}(Y, X)}{\text{var}(X)}.$$

As

$$\text{var}(X) = (e^{\text{CD}} - e^{\text{RN}})^2\text{var}(F(\tilde{\varphi}))$$

we find that

$$\hat{b} = \frac{2-p}{(1+(1-p)F(\breve{\varphi}))^2(e^{\text{CD}} - e^{\text{RN}})}.$$

We now compare $\hat{b}$ across regions. e^{CD} is the only element of $\hat{b}$ that depends – positively – on k. Hence, the gap $(e^{\text{CD}} - e^{\text{RN}})$ is an increasing function of k, and the coefficient $\hat{b}$ is thus decreasing in k. This implies that the regression coefficient $\hat{b}$ is higher for municipalities characterized by

k^L than for municipalities with k^H. In general, the coefficient $\hat{b}$ is expected to be an increasing function of civic capital.

If instead we focus on case (a) of Figure 6, which arises if $z < \check{z}$, the share of first marriages that are not celebrated in the church is $F(\bar{\varphi})$. Accordingly, the total prevalence of civil marriages is given by

$$Y = \frac{(1-p)F(\hat{\varphi}) + F(\bar{\varphi})}{1 + (1-p)F(\hat{\varphi})},$$

while the average level of education, recalling that $e_i^{\text{RD}} = e_i^{\text{CD}}$, can be written as

$$X = e^{\text{RN}} + (e^{\text{CD}} - e^{\text{RN}})F(\hat{\varphi}).$$

As $\hat{\varphi}$ does not depend on z (Proposition 2), the correlation between Y and X is zero, as well as the coefficient of a regression of X on Y.

If we assume that z is distributed over the interval $(0, 1)$, which includes values that can be lower or higher than $\check{z}$, the correlation across all municipalities between X and Y is positive as long as some municipalities are in case (b). It remains true that the regression coefficient $\hat{b}$ is larger for municipalities with k^L than for municipalities with k^H, as is the case in Table 3.

Hence, the loose-kinship region displays a stronger link between human capital and civil marriage. Because the cost of divorce is lower in this region, civil marriage is more attractive, divorce is more likely, and the returns to human capital are higher. Echoing the literature on the economic benefits of loose kinship ties, our theory of endogenous marriage-type choice thus highlights a novel channel through which loose kinship may enhance growth.

5 Conclusion

In this paper, we use the example of civil marriages in Italy to study the relationship between education and secularization, and its determinants.

Taking advantage of a panel of thousands of Italian municipalities over four decades on the one hand, and of a large sample of individuals married between 1926 and 1998 on the other hand, we establish a robust positive correlation between human capital and civil marriage. We also show that the positive link between education and secularization in marriage is shaped by a favorable institutional framework (*i.e.* the legalization of divorce) and loose family ties.

To make sense of our empirical findings, we set up a theoretical model in which agents decide how much to invest in religion and education, by taking into account how such choices affect their future marriage outcomes. A specificity of our approach is that we regard secularization – *i.e.* the choice of civil rather than religious marriage – and human capital as equilibrium variables, both affected by exogenous forces such as culture and institutional change. Thus, we do not need the existence of a direct effect of education on beliefs to explain the positive correlation between human capital and secularization. Instead, our theory puts the spotlight on a trade-off between two alternative types of investment: religious and human capital. By affecting the relative returns to these investments, culture and institutions determine the equilibrium patterns of education and secularization in marriage. In particular, we show that the legalization of divorce has been crucial to unleashing the forces of secularization, thus generating the positive association between human capital and secularization. Such a correlation also depends critically on socio-cultural factors which affect the costs of marriage and divorce: wherever the cost of divorce is high, because of the relative importance of the family as a social institution, civil marriage is less attractive and the relative returns to education are lower.

Our analysis has several implications that can be relevant outside the specific context under study. First, we show that the forces of secularization may need institutional reform in order to be fully unleashed. More generally, major changes in individual behaviors may well be driven by economic incentives, but often need a significant liberalization of the legal framework to become salient. Second, in analogy with the comparative development literature, we find that deep-rooted cultural factors are key in explaining why socio-economic processes follow diverging patterns across different regions. Third, we highlight that divorce may have a positive influence on human capital accumulation through its effect on premarital investment. This deserves to be taken into proper account when evaluating the social consequences of divorce, along with the much debated and possibly negative consequences of divorce on children's education and welfare.

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A Civil *vs* Religious Marriages in Spain

A.1 Trends in Civil Marriages

Like Italy, Spain confers an official status on religious marriages, which have civil effects as soon as that they are declared to the civil register, and without the need for a civil ceremony. The Spanish National Institute of Statistics (INE) provides yearly data on the universe of marriages registered in Spain, with information on their (civil or religious) type. We use them to draw the counterpart of Figure 1 in the case of Spain: the share of civil marriages over the 1976–2011 period is reported in Figure 7, with the vertical bar marking the legalization of divorce in 1981.

Very few civil marriages were celebrated before the 1980s. An upward trend then emerged, with the share of civil marriages accounting for more than 60% of the total number of marriages in 2011. Although shifted by about one decade, the Spanish pattern is quite comparable to the Italian one, with the take-off in the prevalence of civil marriages occurring at the same period as the legalization of divorce. Note that the acceleration of the trend in the 2000s can plausibly be related to the civil reform of 2000 that affected, among others, divorce procedures.[32]

[32] In Spain, the other main reform of divorce procedures took place in 2005.

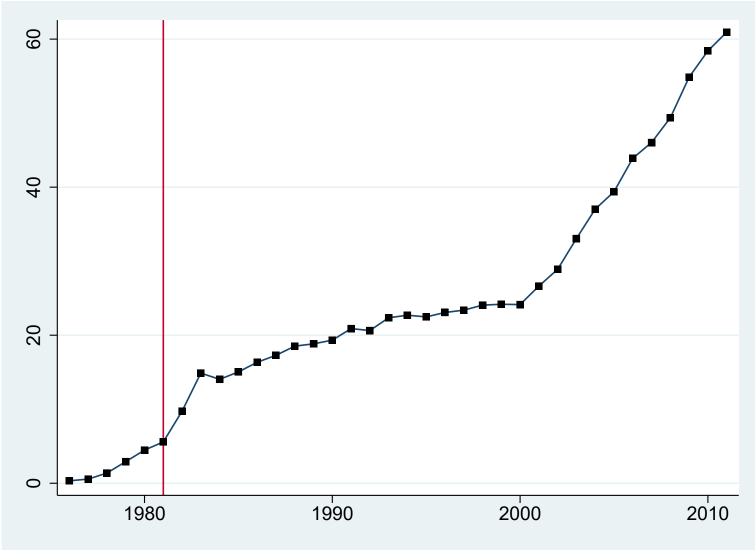

Figure 7: Percentage of civil marriages in Spain over time

A.2 Education and Secularization

Beyond the rising share of civil marriages, one may question whether the results on the education–secularization link emphasized in Section 3 in the case of Italy can also be observed in Spain. To address this issue, we associate the aforementioned data on Spanish marriages with the four waves of Spanish censuses available on IPUMS – International database, and covering 1981, 1991, 2001, 2011.[33] The main variable of interest, *Higher education*, is taken from the census and defined in the same way, *i.e.* as the share of the population with, at least, secondary education. Population size and average age are also provided by the census data. Unfortunately, we do not have a good proxy for income in the Spanish data, as questions on amenities and dwelling characteristics were only introduced in 1991. As an alternative, we consider the share of the population that is not working (gathering inactive and unemployed people, as opposed to those currently working). Note also that the data are available at the level of the 52 Spanish provinces, which yields a relatively small sample compared to the Italian one.

Consistent with the benchmark results on Italy, Column (1) of Table 5 yields a positive, significant correlation between the share of the population with at least secondary education and the share of civil marriages, while controlling for province fixed effects and population size, average age, and share of workers in the province.

Column (2) then introduces the interaction between *Higher education* and a dummy becoming equal to one after the legalization of divorce in 1981. The results suggest that the education–civil marriage nexus evolved over time, with a positive significant coefficient associated with the interaction of interest.

[33] Minnesota Population Center. Integrated Public Use Microdata Series, International: Version 7.2 [dataset]. Minneapolis, MN: IPUMS, 2019. https://doi.org/10.18128/D020.V7.2

Table 5: Civil marriages and education in Spain

Dependent: % civil	(1)	(2)	(3)	(4)
Higher education	0.501*	-1.848***	0.591**	0.833***
	(0.252)	(0.518)	(0.238)	(0.183)
Not working	1.622***	1.700***	1.532***	0.262
	(0.237)	(0.182)	(0.222)	(0.219)
Pop	1.0345***	0.989***	0.886***	0.298
	(2.73e-05)	(2.47e-05)	(3.14e-05)	(2.16e-05)
Age	0.265	-0.711	0.00317	-0.605
	(0.512)	(0.530)	(0.486)	(0.418)
Higher education × After		2.126***		
		(0.413)		
Higher education × High NGOs pc (1994)			0.107	0.183**
			(0.120)	(0.0831)
Time trend	✓	✓	✓	
Year dummies				✓
Prov. FE	✓	✓	✓	✓
After (d)		✓	✓	✓
Observations	208	208	208	208
R-squared	0.913	0.928	0.919	0.962
Number of Prov.s	52	52	52	52

Robust standard errors clustered at the province level in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Columns (3)-(4) finally introduce the interaction between *Higher education* and a proxy for social capital. We rely on the number of NGOs, available at the province level in the statistics yearbook of the Spanish Ministry of Interior.[34] The earliest year for which this information exists is 1994, and we divide it by population in 1991 as given by the census. We finally create a dummy equal to one for provinces counting more NGOs per capita than the sample's median. The coefficient for *Higher education* × *High NGOs pc (1994)* is positive, but with a p-value higher than 10%, in Column (3). It becomes significant in Column (4), when we replace the linear time trend by year dummies, suggesting that the correlation between human capital and civil marriages is larger in the Spanish provinces where social capital is stronger.

In the end, the patterns emerging from the exploration of the Spanish case, although based on less informative data, are very consistent with those observed for Italy.

[34]The *Anuario Estadistico del Ministro del Interior* is available at http://www.interior.gob.es/web/archivos-y-documentacion/documentacion-y-publicaciones/anuarios-y-estadisticas.

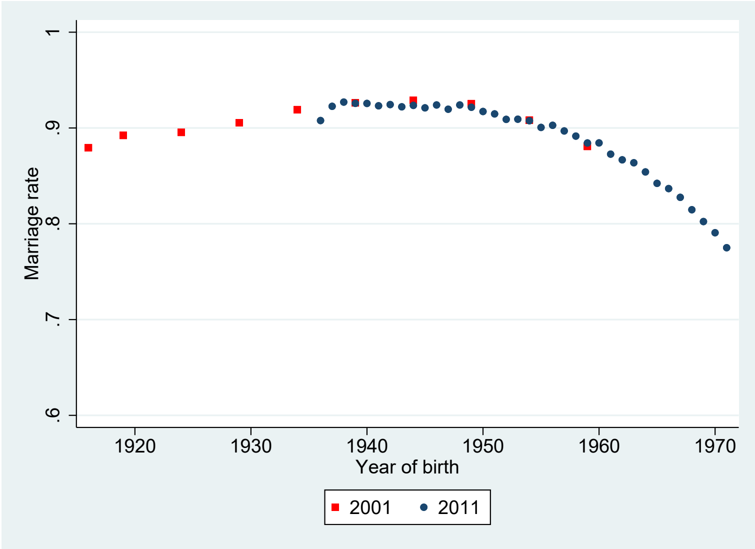

Figure 8: Marriage rates by birth year

B Selection into Marriage

Section 2 shows that the share of civil ceremonies over all marriages rose dramatically from the 1970s (see Figure 1). One may question whether and to what extent this trend is explained by selection into marriage, namely by a differential decline of marriage rates between more and less religious people.

We explore this issue by taking advantage of individual census data for 2001 and 2011, available from the the IPUMS – International database.[35] In Figure 8, we report women's marriage rates by birth year, computed from these data. Marriage rates are calculated as the proportion of ever-married women (*i.e.* currently married, divorced and widowed) in the female population. Information is available for women born as early as 1916, although the figures obtained for the earliest generations might suffer from a survivor bias. To limit the under-estimation of marriage rates due to late marriage, we restrict our attention to women aged at least 40 at the time of the census, thus focusing on those born before 1961 (1971) for the 2001 (2011) wave.

Marriage rates appear to be fairly stable, in the 88–93% range, for women born up to the late 1950s. This suggests that the evolution in overall marriage rates is not likely to play a major role in explaining the post-1970 sharp rise of civil marriages, at least for marriages celebrated up to the end of the 1980s. Marriage rates, however, do decrease substantially for women born after the end of the 1950s.

It is then useful to go beyond the simple pattern displayed in Figure 8, and run a simulation exercise to quantify the extent to which declining marriage rates may have driven the increase

[35] Minnesota Population Center. Integrated Public Use Microdata Series, International: Version 7.2 [dataset]. Minneapolis, MN: IPUMS, 2019. https://doi.org/10.18128/D020.V7.2

Table 6: Counter-factual exercise

		1971	2011	Counterfactual 2011
Share of civil marriages		3.9%	39.2%	33.1%
		$\Delta = +\ 35.3$ pp		
Generation aged ≈ 40		Born in 1934	Born in 1971	
Rate of marriage		91.9%	77.5%	
		$\Delta = -\ 14.4$ pp		
Population composition	Civil marriage	3.6%	30.4%	30.4%
	Religious marriage	88.3%	47.1%	47.1+14.4=61.5%
	Single	8.1%	22.5%	8.1%

in civil marriages depicted in Figure 1. To do so, we combine marriage rates per birth year with our previously computed share of civil marriages, to calculate a hypothetical share of civil marriages in 2011 in the "worst-case" scenario where the decrease in the rate of marriage between 1971 and 2011 is fully explained by religious people deciding not to marry.

We first associate the rate of marriage of women aged about 40 in 1971 and 2011 to the share of civil marriages in 1971 and 2011, respectively.[36] This allows us to derive the composition of the 1971 and 2011 cohorts (born in 1934 and 1971, respectively), between those who are single, those who married in the church and those who chose a civil marriage. The resulting figures are reported in the first two columns of Table 6.

Second, we build a counterfactual 2011 cohort, based on the assumption that the decrease in the marriage rate between 1971 and 2011 is completely driven by people who, if they married, would have chosen a religious marriage. The implied composition of the population, displayed in the bottom part of the third column of Table 6, allows us to calculate a counterfactual share of civil marriages. Had all those who did not marry chosen a religious ceremony instead, the share of civil marriages would have reached 33.1% in 2011.

To sum up, imputing the whole decrease in marriage rate between 1971 and 2011 to religious people can explain 6.1 of the 35.3 percentage points increase in the share of civil marriages over the period. That is, the declining marriage rate can account for at most 17.3% of the total rise in the share of civil marriages from 1971 to 2011.

This back-of-the-envelope calculation indicates that selection into marriage is likely to have played a minor role in explaining the rise of civil marriages. This justifies our decision to focus both our empirical and theoretical analyses on the choice of the type of marriage, conditional on marrying.

[36] Specifically, we match women born in 1971 with the rate of civil marriages observed in 2011, and women born in 1934 with the share of civil marriages observed in 1971. Ideally, we would rather associate women born in 1931 with civil marriages observed in 1971, but the 2001 census only provides 5-year cohorts. We use the marriage rate of women born in 1934 because, as can be seen in Figure 8, marriage rates among generations born before 1930 are slightly lower than among those born between 1935 and 1955 (which might be due to a survivor bias). Relying on the 1934 figure thus allows us to produce more conservative estimates.

Table 7: Average values of main variables (standard deviations in parentheses)

Panel A: Municipal data	1971	1981	1991	2001
% Civil marriage	2.205	8.916	14.117	24.748
	(3.274)	(8.343)	(9.873)	(14.161)
% Higher education	5.975	11.179	18.954	30.211
	(2.945)	(4.248)	(5.872)	(6.401)
Pop	21,646	22,688	22,620	22,478
	(90,966)	(90,256)	(84,312)	(77,836)
Average age	33.481	35.011	37.802	40.503
	(3.225)	(3.344)	(3.364)	(2.950)
% Accommodation overcrowding	9.030	3.905	1.146	0.631
	(6.595)	(3.636)	(1.414)	(0.774)
North	0.457	0.457	0.456	0.456
	(0.498)	(0.498)	(0.498)	(0.498)
Obs.	1,965	1,965	1,963†	1,963†
NGO employees pc (1981)	0.003 (0.004)			
Obs.	1,834			
Consanguinity (1930 - 1934, province level)	0.748 (1.346)			
Obs.	1,708			
Panel B: Individual data				
Civil marriage	0.080 (0.271)			
Higher education	0.275 (0.446)			
Number of TVs	1.623 (0.790)			
Woman	0.540 (0.498)			
Age	50.75 (15.40)			
Age at marriage	25.15 (5.05)			
North	0.427 (0.495)			
Sunday without extended family	0.774 (0.418)			
Obs.	34,185			
Not reaching out to family	0.626 (0.484)			
Obs.	29,709			

% Accommodation overcrowding is the share of residents of a given municipality living in less than 40 square meters (for households with more than four people), in 40 to 59 square meters (for more than five people), or in 60 to 79 square meters (for more than six people).
Sunday without extended family is a dummy variable equal to one for individuals who usually do not spend Sunday with their relatives (beyond the nuclear family), *Not reaching out to family* is a dummy equal to one for individuals who do not discuss their marital issues with family members.

†Contarina and Donada, in the province of Rovigo (Veneto) are officially merged to Porto Viro in 1995. Data are available for Contarina and Donada only in 1971 and 1981.

C Summary Statistics

Table 7 presents summary statistics for the variables used in the analysis of Section 3.

Table 8: Civil marriage, education and the role of divorce at the municipal level: robustness

Dependent: % civil	(1) Year dummies	(2) All munic.s	(3) Size effect	(4)	(5)	(6) Vote	(7)
Higher education	0.0971	0.0808	0.332***	0.219**	0.186**	0.178**	0.0941
	(0.0921)	(0.0888)	(0.0875)	(0.0862)	(0.0910)	(0.0908)	(0.0883)
Higher education × After	0.262***	0.189***	0.133**	0.226***	0.301***	0.310***	0.336***
	(0.0612)	(0.0674)	(0.0610)	(0.0601)	(0.0568)	(0.0568)	(0.0547)
After × >200,000			8.301***				
			(1.887)				
After × Province with city >200,000				1.638***			
				(0.365)			
Ratio PCI/DC						1.722**	
						(0.743)	
Ratio LW/DC							4.063***
							(0.518)
Controls	✓	✓	✓	✓	✓	✓	✓
Time trend		✓	✓	✓	✓	✓	✓
Year dummies	✓						
Munic. FE	✓	✓	✓	✓	✓	✓	✓
R^2	0.6805	0.3424	0.6785	0.6786	0.5783	0.5791	0.5887
Observations	7,856	30,838	7,856	7,856	5,886	5,886	5,886
Nb of Munic.s	1,965	8,093	1,965	1,965	1,962	1,962	1,962

OLS estimations at the municipality level.
The dependent variable is the share of civil marriages among the total number of marriages celebrated in the municipality. *Higher education* is the share of the population with secondary education or more. *Controls* include *Accommodation overcrowding*, *Pop*, *Age*, the *After* dummy and the interaction *After×North*. *>200,000* is the dummy variable equal to one for the 18 cities with a population larger than 200,000 in 1971. *Province with city >200,000* is the dummy variable equal to one for the 1,689 municipalities belonging to the 18 provinces with a city of more than 200,000 inhabitants in 1971.
In Columns (5)-(7), the census waves of 1971, 1981 and 1991 are matched with the closest past parliamentary election, respectively held in 1968, 1979 and 1987. *PCI/DC* is the ratio of votes for the PCI over votes for DC and *LW/DC* is the ratio of votes for left wing parties (PCI, PSI, PDUP, Democracia Proletaria and the Radical Party) over votes for DC.
Robust standard errors clustered at the municipality level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

D Additional Empirical Results

D.1 Municipal-level Analysis

Table 8 displays the results of a number of additional tests intended to complement Table 1 and check the robustness of the findings presented therein.

In Column (1), we replace the time trend by year dummies. While the direct coefficient for *Higher education*, which reflects the correlation between education and civil marriage in 1971, turns insignificant, the coefficient for the interaction between education and the *After* 1971 dummy remains positive and strongly significant. Consistent with our benchmark findings, the education–secularization nexus thus appears to become positive after divorce is legal.

In Column (2), we consider the full sample of Italian municipalities – including those with a population lower than 5,000 in 1971. The coefficient of interest remains stable and significant, thus suggesting that the possible selection bias introduced by excluding from the sample smaller municipalities has negligible consequences for our main findings.

In Columns (3)–(4), we investigate a possible size effect. Indeed, one may wonder whether our benchmark finding on higher education is driven by the fact that the main Italian cities, that are both more populated and more educated on average, may have undergone a specific trend in the 1970s. We introduce the interaction between *After* and, successively, a dummy variable for the 18 municipalities with more than 200,000 inhabitants in 1971 and a dummy variable for the 18 provinces of these municipalities – having in mind the idea that changes in big cities can spread toward less populated, but geographically close areas.[37] In both cases, while we do find evidence that more populated areas are characterized by relatively more civil marriages after 1971, our benchmark coefficient for *Higher education* × *After* remains significantly positive, thus limiting the concern that the observed break in the education–secularization nexus hides heterogenous trends undergone by large cities and their surroundings from the 1970s.

Finally, in Columns (5)–(7) we explore the possible role of changing political preferences in shaping the interaction between education and the secularization process. In fact, as political preferences might be related to both the level of education and the choice of a civil or religious marriage, one could suspect that the estimated break in the education–secularization nexus in 1971 is linked to the evolution of political preferences. To address this issue, we rely on the data describing the results of parliamentary elections – as provided by the Italian Ministry of Interior. We match the census waves of 1971, 1981 and 1991 with the electoral data for the closest parliamentary election, respectively held in 1968, 1979 and 1987.[38] We then compute, for each election, the share of votes obtained by each of the main parties, and build two variables to proxy for the relative importance of the left-wing vote. In particular, *PCI/DC* is the ratio of votes for the communist party (the *Partito Comunista Italiano*) over votes for the centrist Christian party (*Democrazia Cristiana*), which dominated the Italian political stage during the second half of the twentieth century. Instead, *LW/DC* is the ratio of votes for a broader set of left-wing parties (namely, the *Partito Comunista Italiano*, the *Partito Socialista Italiano*, the *Partito di Unità Proletaria*, *Democrazia Proletaria*) and the *Partito Radicale* over votes for *Democrazia Cristiana*. For the sake of comparison, Column (5) replicates our benchmark specification on the sub-sample of observations for which the electoral data are available (three municipalities are missing, and only the first three years of the panel are considered). Then, Column (6) and (7) successively introduce our two proxies for the relative importance of left-leaning votes. As expected, the electoral success of left-wing, secular parties is positively correlated with the share of civil marriages. The interaction *Higher education* × *After* remains, however, significantly positive and its size is very stable. This suggests that the break in the relationship between education and secularization after 1971 is

[37]In 1971, the cities with more than 200,000 inhabitants were Bari, Bologna, Brescia, Cagliari, Catania, Genova, Firenze, Messina, Milano, Napoli, Padova, Palermo, Roma, Taranto, Torino, Trieste, Venezia and Verona. Focusing on the twenty region capitals yields very similar results.

[38]We decided not to use the data for later ballots, as the reshuffling of the Italian political landscape makes it arduous to group parties by broad left/right affiliation in a consistent fashion.

not driven by changing political preferences, as reflected in voting patterns.

D.2 Individual-level Analysis

This Section complements the results displayed in Figure 4 in Section 3.1.2, which looks into the sub-period surrounding the divorce law to provide further suggestive evidence that the estimated post-1971 correlation specifically reflects the role of this institutional change.

In particular, the upper panel of Table 9 reports a sub-set of the coefficients plotted in Figure 4. Each column replicates Column (4) of Table 2, by considering each time a different cutoff year, from 1968 to 1975, and reports the estimated coefficient for *Higher education* $\times$ *After*. The results document a break in the education–civil marriage nexus happening in the aftermath of the divorce law, while no significant difference is detected before 1971. This pattern points to the absence of anticipation effect (agents did not change significantly their behavior because they expected the divorce law to pass in the near future), and suggests that our benchmark findings are not immediately driven by the cultural changes happening in 1968.

As a further robustness test, Panel B replicates Columns (5)-(7) of Table 2 by considering 20-year time windows, centered around the considered cutoff year. Different from those in Panel A, these "rolling" samples estimations are based on equal-length before/after periods. They produce, however, very similar results.

E Ruling Out Time-Inconsistent Behavior

Time consistency implies that, in case their marriage turns bad, (i) agents who chose the **RN** profile do not want to divorce, while (ii) agents who chose **RD** or **CD** decide to divorce and remarry.

We aim at deriving sufficient conditions on the parameters ensuring time-consistency. We consider the three cases in turn.

RN. For agents choosing the strategy **RN** to remain in an unhappy marriage throughout the third period, we must have that

$$\eta r_i^{\text{RN}} + \ln(e_i^{\text{RN}}) > g + \ln(e_i^{\text{RN}} - k).$$

After replacing optimal choices from Equation (11), we find that the above inequality is verified if

$$g < \ln\left(\frac{\beta(1+\beta)}{\beta(1+\beta)-k}\right) + \frac{\eta\varphi_i}{1-\beta(1+\beta)\eta}. \tag{27}$$

As far as condition (27) is concerned, the most threatening case for time consistency would correspond to $\varphi_i = 0$: agents with no inclination for religiosity would be the most likely to

Table 9: *After* × *Higher education*, year by year

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: complete sample								
After × Higher education	-0.00141	0.00242	0.0213	0.0301*	0.0406***	0.0407***	0.0356**	0.00171
	(0.0175)	(0.0169)	(0.0159)	(0.0156)	(0.0152)	(0.0152)	(0.0153)	(0.0154)
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Age at marriage dummies, by gender	✓	✓	✓	✓	✓	✓	✓	✓
Age dummies, by gender	✓	✓	✓	✓	✓	✓	✓	✓
Age dummies, by education	✓	✓	✓	✓	✓	✓	✓	✓
Residential area	✓	✓	✓	✓	✓	✓	✓	✓
Cutoff year	1968	1969	1970	1971	1972	1973	1974	1975
R^2	0.0579	0.0579	0.0580	0.0580	0.0581	0.0584	0.0582	0.0583
Observations	34,185	34,185	34,185	34,185	34,185	34,185	34,185	34,185
Panel B: "rolling" sample								
After × Higher education	-0.00766	-0.00226	0.0194	0.0255*	0.0299**	0.0347**	0.0269*	-0.0107
	(0.0170)	(0.0165)	(0.0155)	(0.0154)	(0.0149)	(0.0151)	(0.0154)	(0.0154)
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Age at marriage dummies, by gender	✓	✓	✓	✓	✓	✓	✓	✓
Age dummies, by gender	✓	✓	✓	✓	✓	✓	✓	✓
Age dummies, by education	✓	✓	✓	✓	✓	✓	✓	✓
Residential area	✓	✓	✓	✓	✓	✓	✓	✓
Sample (marriage years)	1959 – 1978	1960 – 1979	1961 – 1980	1962 – 1981	1963 – 1982	1964 – 1983	1965 – 1984	1966 – 1985
Cutoff year	1968	1969	1970	1971	1972	1973	1974	1975
R^2	0.0637	0.0580	0.0603	0.0600	0.0632	0.0649	0.0652	0.0674
Observations	13,819	14,081	14,301	14,548	14,766	14,903	14,949	15,068

Linear probability model estimations at the individual level among the sample of ever-married people.
The dependent variable is a dummy variable equal to one for people who married civilly and to zero for people who married religiously.
The specification in Panel A is as in Column (4) of Table 2. The specification in Panel B is as in Columns (5)-(7) of Table 2.
Controls include *Higher education*, *Number of TVs*, *After* and *After* × *North*. *After* is a dummy variable equal to zero for people who got married until the cutoff year and to one for people who got married after the cutoff year.
Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

divorce, if they choose **RN** and their marriage turns bad. Therefore, imposing $\varphi_i = 0$ we can retrieve the following sufficient condition for agents who choose the **RN** strategy:

$$g < \overline{g} \equiv \ln\left(\frac{\beta(1+\beta)}{\beta(1+\beta)-k}\right). \tag{28}$$

RD. We then consider the case of those who marry in the church, but leave their marriage open to divorce (strategy **RD**). For these agents to break up their marriage if its quality deteriorates, we need

$$g + \ln(e_i^{\text{RD}} - k) > \eta r_i^{\text{RD}} + \ln(e_i^{\text{RD}}).$$

Taking optimal choices from Equation (13), we can establish that time consistency is granted for

$$g > \ln\left(\frac{\omega}{\omega - 2k}\right) + \frac{\eta\varphi_i}{1-\beta(1+(1-p)\beta)\eta}. \tag{29}$$

The least favorable case to time consistency corresponds to $\varphi_i = \varphi^S$ (the upper bound on the support of $f(\varphi)$), so that a sufficient condition is

$$g > \underline{g} \equiv \ln\left(\frac{\omega}{\omega - 2k}\right) + \frac{\eta\varphi^S}{1-\beta(1+(1-p)\beta)\eta}. \tag{30}$$

CD. As far as agents with strategy **CD** are concerned, they pick up the option to divorce after their marriage turns bad if

$$g + \ln(e_i^{\text{CD}} - k) > \ln(e_i^{\text{CD}}).$$

Now, recall that $e_i^{\text{CD}} = e_i^{\text{RD}}$, and notice that the above inequality does not involve the religiosity term: different from those who choose **RD**, agents with strategy **CD** do not incur any religious-utility loss if they divorce. Therefore, if the former decide to divorce when the quality of their match deteriorates, this is *a fortiori* true for the latter, and we do not need to stipulate an additional condition.

Putting together Equations (28) and (30), we can conclude that there always exists a non-empty parameter space for which all agents behave in a time consistent fashion, provided that

$$\varphi^S < \frac{1-\beta(1+(1-p)\beta)\eta}{\eta}\ln\left(\frac{\beta(1+\beta)(\omega-2k)}{(\beta(1+\beta)-k)\omega}\right). \tag{31}$$

Note that the sufficient conditions in Equations (28) and (31) are exceedingly restrictive, in the sense that time consistency is imposed onto all strategies, including those that are not actually chosen by some of the agents (see Lemma 1).

F The CN Strategy

Here, we consider the strategy **CN**, chosen by agents who decide to marry in a civil form but commit not to divorce, even if the relationship goes bad.

The utility function is similar to that of the **RN** case, but without the cost z of a religious marriage and the benefit from religion η. In particular,

$$U_i^{\text{CN}} = l_i^{\text{CN}} + \varphi_i \ln r_i^{\text{CN}} + \beta \left(g + \ln(e_i^{\text{CN}})\right) + \beta^2 \left((1-p)g + \ln e_i^{\text{CN}}\right). \tag{32}$$

The optimal choices for people choosing **CN** are

$$\begin{cases} r_i^{\text{CN}} = \varphi_i \\ e_i^{\text{CN}} = \beta(1+\beta) \end{cases}. \tag{33}$$

We now derive the conditions under which **CN** is time consistent. For agents choosing **CN** to remain in an unhappy marriage throughout the third period, we must have that

$$\ln(e_i^{\text{CN}}) > g + \ln(e_i^{\text{CN}} - k).$$

After replacing optimal choices from Equation (33), we obtain that the above inequality is verified if and only if

$$g < \overline{g} \equiv \ln\left(\frac{\beta(1+\beta)}{\beta(1+\beta)-k}\right). \tag{34}$$

Hence the necessary and sufficient condition warranting that **CN** is time consistent is the same as the sufficient condition for strategy **RN**, as given by Equation (28) in Appendix E.

After replacing education and religiosity choices (33) into the utility function (32), we can retrieve the indirect utility $V^{\text{CN}}(\varphi_i)$.

To determine if **CN** prevails over **CD**, we look at the difference $V^{\text{CD}}(\varphi_i) - V^{\text{CN}}(\varphi_i)$. As the taste for religion φ_i enters both indirect utilities in the same fashion, it is irrelevant for the difference. Hence, individuals are all alike when facing the choice between **CN** and **CD**. The condition $V^{\text{CD}}(\varphi_i) > V^{\text{CN}}(\varphi_i)$ only depends on the discount factor β, the cost of divorce k, and the probability p that the relationship deteriorates. For example, if there is a reasonably high chance that a marriage goes bad, everybody prefers **CD** over **CN**.

As we observe divorce in our data, we can assume that the parameters satisfy the condition $V^{\text{CD}}(\varphi_i) > V^{\text{CN}}(\varphi_i)$, and we can safely leave the analysis of case **CN** out of our model.

G Allowing for Singleness after Divorce

In the benchmark model we have assumed that every divorced person remarries. This simplifying assumption is somewhat at odds with empirical observation, as around 40% of divorcees are remarried by the time of the FSS survey used in Section 3.

Therefore, for the sake of realism, in this Appendix we introduce an exogenous probability $q \in [0,1)$ of remaining single after a divorce. This reflects the idea that there are matching frictions on the remarriage market.

Allowing for frictions implies that, after a divorce, the marriage-related utility (in expected terms) is no longer g, but becomes $p(qs+(1-q)g)+(1-p)g = g - pq(g-s)$, where $s \in (0,g)$ is the utility of being single, and $pq(g-s)$ represents the loss of utility deriving from the risk of remaining single.

The utility drawn from a **CD** marriage profile is now

$$U_i^{\text{CD}} = l_i^{\text{CD}} + \varphi_i \ln r_i^{\text{CD}} + \beta\left(g + \ln(e_i^{\text{CD}})\right) + \beta^2\left(g - pq(g-s) + p\ln(e_i^{\text{CD}} - k) + (1-p)\ln e_i^{\text{CD}}\right), \tag{35}$$

while agents' utility under the marriage profile **RD** is given by

$$\begin{aligned} U_i^{\text{RD}} = l_i^{\text{RD}} + \varphi_i \ln r_i^{\text{RD}} + \beta\left(g + \eta\, r_i^{\text{RD}} + \ln((1-z)e_i^{\text{RD}})\right) \\ + \beta^2\left(g - pq(g-s) + p\ln(e_i^{\text{RD}} - k) + (1-p)(\eta r_i^{\text{RD}} + \ln e_i^{\text{RD}})\right). \end{aligned} \tag{36}$$

The new formulation boils down to adding constant terms to the utilities related to the different marriage profiles. Their derivatives with respect to the main choice variables, as well as the implied first order condition, thus remain the same as in Section 4.3. As a consequence, the time allocation choices are unchanged with respect to Equations (11), (12) and (13). This is not true, however, for the choice of marriage strategies (Section 4.4).

In particular, while the reasoning behind Lemma 1 (and its proof) is maintained, the expressions for $\tilde{\varphi}$, $\hat{\varphi}$ and $\check{z}$ must be rewritten as follows:

$$\tilde{\varphi} = \frac{\omega + 2\beta\left((1+\beta)\left(\ln\left(\frac{2\beta(1+\beta)}{\omega}\right) - 1\right) + \ln(1-z) - \beta p\left(\ln\left(1 - \frac{2k}{\omega}\right) + g(1-q) + qs\right)\right)}{2\ln\left(1 - \beta(1+\beta)\eta\right)}, \tag{37}$$

$$\hat{\varphi} = \frac{\omega + 2\beta\left((1+\beta)\left(\ln\left(\frac{2\beta(1+\beta)}{\omega}\right) - 1\right) - \beta p\left(\ln\left(1 - \frac{2k}{\omega}\right) + g(1-q) + qs\right)\right)}{2\ln\left(\frac{1-\beta(1+\beta)\eta}{1-\beta(1+(1-p)\beta)\eta}\right)}, \tag{38}$$

$$\check{z} = 1 - \left(\frac{1}{1 - \beta(1+(1-p)\beta)\eta}\right)^{\frac{\omega + 2\beta\left((1+\beta)\left(\ln\left(\frac{2\beta(1+\beta)}{\omega}\right) - 1\right) - \beta p\left(\ln\left(1 - \frac{2k}{\omega}\right) + g(1-q) + qs\right)\right)}{2\beta\ln\left(\frac{1-\beta(1+(1-p)\beta)\eta}{1-\beta(1+\beta)\eta}\right)}}. \tag{39}$$

The rest of the model remains unchanged. Hence, allowing for singleness after divorce does not alter our benchmark results, at least as long at the probability to stay single is exogenous.

H Proofs

H.1 Proof of Lemma 1

We start by computing the partial derivatives of the indirect utility functions with respect to φ_i. Since

$$\frac{\partial V^{\text{CD}}(\varphi_i)}{\partial \varphi_i} = \ln \varphi_i,$$

$$\frac{\partial V^{\text{RD}}(\varphi_i)}{\partial \varphi_i} = \ln \frac{\varphi_i}{1-\beta(1+(1-p)\beta)\eta}$$

and

$$\frac{\partial V^{\text{RN}}(\varphi_i)}{\partial \varphi_i} = \ln \frac{\varphi_i}{1-\beta(1+\beta)\eta},$$

we have that $\partial V^{\text{CD}}(\varphi_i)/\partial\varphi_i < \partial V^{\text{RD}}(\varphi_i)/\partial\varphi_i < \partial V^{\text{RN}}(\varphi_i)/\partial\varphi_i$. It follows that each pair of utility functions cannot cross more than once.

It can also be checked that $V^{\text{RN}}(\infty) > V^{\text{RD}}(\infty) > V^{\text{CD}}(\infty)$ and $V^{\text{CD}}(0) > V^{\text{RD}}(0)$. Moreover, $V^{\text{RD}}(0) > V^{\text{RN}}(0)$. This means that there exist three values $\bar{\varphi}$, $\hat{\varphi}$, and $\tilde{\varphi}$, such that $V^{\text{CD}}(\bar{\varphi}) = V^{\text{RD}}(\bar{\varphi})$, $V^{\text{RD}}(\hat{\varphi}) = V^{\text{RN}}(\hat{\varphi})$, and $V^{\text{CD}}(\tilde{\varphi}) = V^{\text{RN}}(\tilde{\varphi})$.

Let us now focus on $\tilde{\varphi}$, the value of φ_i for which V^{CD} crosses V^{RN} (from above, since $\partial V^{\text{CD}}(\varphi_i)/\partial\varphi_i < \partial V^{\text{RN}}(\varphi_i)/\partial\varphi_i$). Two cases are possible.

If $V^{\text{RD}}(\tilde{\varphi}) > V^{\text{RN}}(\tilde{\varphi}) = V^{\text{CD}}(\tilde{\varphi})$, we have that (i) $V^{\text{CD}}(\varphi_i) > V^{\text{RD}}(\varphi_i) > V^{\text{RN}}(\varphi_i)$ for $\varphi_i \in (0, \bar{\varphi})$, (ii) $V^{\text{RD}}(\varphi_i) > \max(V^{\text{CD}}(\varphi_i), V^{\text{RN}}(\varphi_i))$ for $\varphi_i \in (\bar{\varphi}, \hat{\varphi})$, and (iii) $V^{\text{RN}}(\varphi_i) > V^{\text{RD}}(\varphi_i) > V^{\text{CD}}(\varphi_i)$ for $\varphi_i \in (\hat{\varphi}, +\infty)$. This situation corresponds to case (a) of Lemma 1.

If instead $V^{\text{RD}}(\tilde{\varphi}) < V^{\text{RN}}(\tilde{\varphi}) = V^{\text{CD}}(\tilde{\varphi})$, we have that (i) $V^{\text{CD}}(\varphi_i) > \max(V^{\text{RD}}(\varphi_i), V^{\text{RN}}(\varphi_i))$ for $\varphi_i \in (0, \tilde{\varphi})$, and (ii) $V^{\text{RN}}(\varphi_i) > \max(V^{\text{RD}}(\varphi_i), V^{\text{CD}}(\varphi_i))$ for $\varphi_i \in (\tilde{\varphi}, +\infty)$. This is case (b) of Lemma 1.

Moreover, the analytical expressions for the threshold values of φ are given by

$$\tilde{\varphi} = \frac{\omega + 2\beta\left((1+\beta)\left(\ln\left(\frac{2\beta(1+\beta)}{\omega}\right) - 1\right) + \ln(1-z) - \beta p\left(\ln\left(1-\frac{2k}{\omega}\right) + g\right)\right)}{2\ln\left(1-\beta(1+\beta)\eta\right)}, \tag{40}$$

$$\hat{\varphi} = \frac{\omega + 2\beta\left((1+\beta)\left(\ln\left(\frac{2\beta(1+\beta)}{\omega}\right) - 1\right) - \beta p\left(\ln\left(1-\frac{2k}{\omega}\right) + g\right)\right)}{2\ln\left(\frac{1-\beta(1+\beta)\eta}{1-\beta(1+(1-p)\beta)\eta}\right)}, \tag{41}$$

and

$$\bar{\varphi} = \frac{\beta\ln(1-z)}{\ln\left(1-\beta(1+(1-p)\beta)\eta\right)}, \tag{42}$$

respectively. Finally, we obtain an explicit expression for $\check{z}$, namely

$$\check{z} = 1 - \left(\frac{1}{1-\beta(1+(1-p)\beta)\eta}\right)^{\frac{\omega+2\beta\left((1+\beta)\left(\ln\left(\frac{2\beta(1+\beta)}{\omega}\right)-1\right)-\beta p\left(\ln\left(1-\frac{2k}{\omega}\right)+g\right)\right)}{2\beta\ln\left(\frac{1-\beta(1+(1-p)\beta)\eta}{1-\beta(1+\beta)\eta}\right)}}. \tag{43}$$

H.2 Proof of Proposition 2

Consider the thresholds $\bar{\varphi}$, $\hat{\varphi}$, and $\tilde{\varphi}$, as given by Lemma 1.

We have that:

$$\frac{\partial\tilde{\varphi}}{\partial k} = -\frac{\omega - 2(1+\beta)\beta}{2k\ln\left(\frac{1}{1-\eta(1+\beta)\beta}\right)} < 0,$$

$$\frac{\partial\hat{\varphi}}{\partial k} = -\frac{\omega - 2(1+\beta)\beta}{2k\ln\left(\frac{1-\eta(1+(1-p)\beta)\beta}{1-\eta(1+\beta)\beta}\right)} < 0,$$

$$\frac{\partial\bar{\varphi}}{\partial k} = 0;$$

$$\frac{\partial\tilde{\varphi}}{\partial z} = \frac{\beta}{(1-z)\ln\left(\frac{1}{1-\eta(1+\beta)\beta}\right)} > 0,$$

$$\frac{\partial\hat{\varphi}}{\partial z} = 0,$$

$$\frac{\partial\bar{\varphi}}{\partial z} = \frac{\beta}{(1-z)\ln\left(\frac{1}{1-\eta(1+(1-p)\beta)\beta}\right)} > 0.$$

The signs of the partial derivatives of the thresholds with respect to k can be unambiguously established after checking that $\omega - 2(1+\beta)\beta > 0$.

H.3 Proof of Lemma 2

We start by following the same logic as the Proof of Lemma 1, and compute

$$\frac{\partial V^{\text{CD}}(\varphi_i)}{\partial\varphi_i} = \varphi_i,$$

and

$$\frac{\partial V^{\text{RN}}(\varphi_i)}{\partial\varphi_i} = \frac{\varphi_i}{1-\beta(1+\beta)\eta}.$$

Given that $\eta > 0$, we can establish that $\partial V^{\text{CD}}(\varphi_i)/\partial\varphi_i < \partial V^{\text{RN}}(\varphi_i)/\partial\varphi_i$, so that the two indirect utility functions cannot cross more than once.

Moreover, since $z \in (0,1)$, we know that $V^{\text{RN}}(\infty) > V^{\text{CD}}(\infty)$ and $V^{\text{RN}}(0) < V^{\text{CD}}(0)$. This means that there exists one strictly positive value of φ_i, *i.e.* $\tilde{\tilde{\varphi}}$, such that $V^{\text{CD}}(\tilde{\tilde{\varphi}}) = V^{\text{RN}}(\tilde{\tilde{\varphi}})$, and $V^{\text{RN}}(\varphi_i) < V^{\text{CD}}(\varphi_i)$ when $\varphi_i < \tilde{\tilde{\varphi}}$, while $V^{\text{RN}}(\varphi_i) > V^{\text{CD}}(\varphi_i)$ when $\varphi_i > \tilde{\tilde{\varphi}}$.

A further look at the expression for $\tilde{\tilde{\varphi}}$ in Lemma 2 reveals that if $z = 0$ (a religious marriage is not costly), $\tilde{\tilde{\varphi}} = 0$ and everybody prefers to marry at church. If instead $z > 0$, but $\eta = 0$ (no utility gain from a religious marriage), $\tilde{\tilde{\varphi}} = +\infty$ and all agents choose a civil marriage.