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Research Article

For the times they are a changin' – The respect for religious precepts through the analysis of the seasonality of marriages. Italy, 1862–2012

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Table of Contents

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Abstract

BACKGROUND
It is well known that the Catholic Church's prohibition of celebrating weddings during Lent operated as a significant deterrent in this period. We analysed the effect of the Lent restriction on marriage seasonality in the period from the unification of the Italian Kingdom to the present. This period is characterized by a deep modernization of the Italian economy, which has upset marriage seasonality.

OBJECTIVE
This paper aims to answer the following question: has the process of 'modernization' led to the disappearance of the inhibitory effect of Lent on the celebration of weddings?

METHODS
We disentangled the effect of economic transformation on marriage seasonality from that attributable to Lent prescriptions by de-trending the time series of seasonal indicators. Subsequently, we analyse the respect for Lent by exploiting the year-to-year variability in the Lenten days of April. In particular, we analyse the strength of the relation between the latter and fluctuations in the de-trended indicator of seasonality in various sub-periods.

RESULTS
In all Italian regions, religious prescriptions were strongly respected in the aftermath of unification. Southern regions were less compliant than northern ones. We show that even if the effect of Lent on marriage seasonality is less strong than 100 years ago, it is still able to produce discouraging effects on marriage.

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CONCLUSIONS
In economic literature religious beliefs are increasingly accepted as determinants of economic development. We propose a simple methodology for constructing an indicator of religiosity that may be a useful tool for this emerging line of research in economic development. We also furnish an implementation of our methodology using Italian data.

1. Introduction

It is well known that the Catholic Church's prohibition of celebrating weddings during Lent and Advent operated as a significant deterrent in the respective months of occurrence (see among others Bourgeois-Pichat 1946; Lesthaeghe and Lopez-Gay 2013; van Poppel 1995).

In this paper we analyse the effect of the Lent religious restriction on marriage seasonality in the period from the unification of the Italian Kingdom (1861) to the present, which is a temporal interval characterized by a deep change in marriage seasonality (Ruiu and Gonano 2015; Breschi and Ruiu 2013).

The process of industrialization (which occurred in the Italian regions at different times and with different speeds) leading to the gradual abandonment of the primary sector has indeed resulted in gradual but deep changes in the seasonality of marriages.

The channels through which this influence has been exerted are mainly two: opportunity cost and resource availability. Regarding the opportunity cost, it seems obvious that for a farmhand the harvest months (generally the summer months) were those in which the likelihood of being employed was higher than during other periods, and therefore were those characterized by the highest opportunity cost of marriage in terms of lost wages.[3] The situation was no different for small landowners, for whom these months were crucial for the survival of their families. In fact, as in Aesop's fable The Ant and the Grasshopper, farmers worked during the summer months in order to ensure the necessary resources to face the winter, when small-scale exchange of handicraft products was the only source of income.

[3] See Kussmaul (1985), Van Poppel (1995), and Dribe and van De Putte (2012) for a more detailed discussion of the economic reasons for avoiding the celebration of marriage in the period of high workload. For instance, Dribe and van De Putte (2012) reported that after the advent of the so-called 'industrious' revolution in southern Sweden, which intensified agricultural work in all months of the year, the seasonality of marriage dramatically changed over time, going from a classic grain-production pattern, with a marriage peak in late spring and a marriage trough at harvest time, to a huge concentration in December, thanks to the low work intensity in the weeks around Christmas.

In addition, in regions where sharecropping was widespread the autumn months were the period when sharecropping agreements were renewed, and therefore it is reasonable to assume that the dates for weddings were decided after families knew the outcome of the renewal.[4]

Furthermore, resource availability in rural communities was very unevenly distributed during the year. In particular, the main source of income derived from the sale of crops during the autumn months, and these were therefore also the months when farmers could afford the expense of marriage.

Therefore the transition from a rural society to an industrial society, implying a more equal distribution of workload (with the important exception of periods of paid leave) and income throughout the year, has produced an inversion of marriage seasonality, with a progressive abandonment of the winter and late autumn months counterbalanced by an increase in the attractiveness of the summer months.[5]

The question that this paper aims to answer is the following: has the 'modernization' process led to the disappearance of the inhibitory effect of Lent on the celebration of weddings?

The main approach used in literature to analyse the Lent effect is to interpret the low concentration of marriage in March as evidence of respect for the religious restriction. However, this simple approach is inadequate for studying the temporal evolution of the Lent effect if we are considering a historical period characterized by economic transformation. In particular, the 'March approach' completely neglects the fact that the winter and early spring months have lost the attractiveness of being a slack work season in a rural society, and therefore we are not able to establish whether the low concentration of marriage in March is due to the fact that this month is almost always completely included in the Lent period or simply to the fact that it is no longer a month with low workload intensity. To dig deeper, consider, for instance, that the Henry index of seasonality for March (see Henry 1976) in Italy was equal to 78 in 1900 and 42 in 2000: hence we might conclude that Lent is more respected in modern times than 100 years ago. However, this conclusion does not take into account the fact that the winter/early spring peak in marriage seasonality typical of an agriculture/breeding-based economy has become a trough in industrial and post-industrial societies.

In our analysis of the temporal evolution of marriage seasonality we will try to distinguish these two factors of change in order to separate the Lent effects from the effects due to economic transformation.

[4] The 11 November (St. Martin's Day) and the 29 September (St. Michael's Day) were often used as expiration dates for rural agreements in the Po Valley and Central Italy. In fact "fare San Martino" is often understood as synonymous with "relocate" because on this date the sharecropper learnt if he had to move to a new house and job.

[5] For the process of economic development in Italian regions the reader is referred to Daniele and Malanima (2011).

The paper is organized as follows: the second section gives a brief review of the literature on marriage seasonality. The third part describes the methodology used to carry out our analysis, while the fourth presents our results for each Italian region. The last section is devoted to final remarks.

2. A brief review of previous findings

In general, the main limitation of the literature on marriage seasonality is that, with rare but important exceptions (e.g., Kussmaul 1985), it mainly focuses on geographical differences, neglecting the temporal evolution of the phenomenon and its connections with economic transformation.[6]

In their analysis of the registers of 404 English parishes from 1541 to 1871, Wrigley and Schofield (1981) observed that two main seasonal patterns of marriage deriving from local production activities could be distinguished, the 'agricultural' and the 'pastoral' models.

The first model was typical of those areas in which a high workload concentration in the summer months (tied to cereal farming) discouraged the celebration of marriage in that period. The maximum concentration of marriages in these communities was in October or November, months in which the workload was less intense and families could finally benefit from the earnings from crops. The pastoral model, typical of areas where sheep-farming was the principal economic activity (mainly in the north and west of England), was characterized by a high concentration of marriages in spring and early summer (April to June). The authors note that these models were recognizable in other countries of Northern Europe (Sweden and Denmark) and in Southern Europe.[7] According to Wrigley and Schofield (1981), the biggest difference between the Protestant countries of Northern Europe and the Catholic countries of Southern Europe was respect for the Advent and Lent religious bans imposed by the Catholic Church.

In particular, until the Second Vatican Council, the Catholic Church forbade the solemnization of weddings (i.e., without a nuptial mass and a priest's blessing of the

[6] Referring to the analysis of marriage seasonality, Dribe and van De Putte (2012) note that: 'Previous research in this field has mostly focused on inter-regional differences while little has been said about temporal changes in the magnitude of seasonality and its relationship with a more even working year and higher degree of work intensity in rural areas. In societies with pronounced seasonality in work – for example, areas dominated by grain production – we would expect marriage to take place in the slack season when people were not overly burdened with work, giving time to have a party and for friends and relatives to gather. When work intensified, as agriculture was transformed, we would expect the seasonality pattern to change reflecting the gradual decline of slack seasons' (p.1124).

[7] Marriage seasonality in pastoral and agricultural communities has been recently investigated for Sardinia and Abruzzo, by Sanna and Danubio (2008), and Danubio and Amicone (2001), respectively.

newlyweds, ceremonies were not performed with *pompa* in respect for the liturgical season) during the spiritual preparation for the two main Christian feasts: Advent (the period enclosing the four Sundays before Christmas) and Lent (the 44 days from Ash Wednesday to Maundy Thursday)[8]. Furthermore, some authors report that the solemnization of marriages was also prohibited from Rogation Sunday (the Sunday before Ascension Day) to Trinity Sunday (the Sunday following Pentecost).[9] However, this last ban was eliminated after the Council of Trent (1545–1563), while Lent and Advent were confirmed as periods when marriages could be celebrated, but only without solemnization.[10]

The observance of these religious constraints caused a marked concentration of celebrations in January and February because marriages were brought forward in order to avoid the prohibited periods. As evidenced by Wrigley and Schofield (1981), even though after the Reformation there was no religious ban in Anglican Church law, March remained one of the least preferred months for weddings, the number of marriages only slowly increasing over time. They observed a slow but continuous growth of marriages in Advent, so that by the early 1800s December was one of the most popular months for getting married. In the same period they found a reduction of weddings in January, thus suggesting that the Advent ban was no longer respected and the necessity of marriage postponement was no longer influencing the choice of marriage month.

However, Lesthaeghe and Lopez-Gay (2013) noted that the Advent prohibition was not respected in Catholic countries such as Spain. Ruiu and Gonano (2015) show that in 8 out of 16 Italian regions the Advent ban was not particularly observed in the second half of the 19th century. This suggests that the clergy probably enforced the Lent ban more than the Advent ban and respect for the former was therefore more deeply rooted in popular culture (see also Coppa et al. (2001) on this point).[11] In Lutheran countries, neither Lent nor Advent marriage bans were respected (Dribe and van de Putte 2012). Van Poppel (1995) reports that Advent was less respected than Lent in the Catholic enclaves of the Netherlands in the 19th century.

[8] The prohibition also involved the days following Christmas and Easter: it extended through the Octave of Easter (i.e., the eight-day period after Easter Sunday) and through the Octave of Epiphany.

[9] The dates of these religious solemnities are linked to that of Easter. Ascension Day and Pentecost are celebrated 40 days and 50 days after Easter respectively, while Trinity Sunday is celebrated on the first Sunday after Pentecost. The date of Easter depends on the lunar cycle. The first council of Nicaea (325 CE) established the date of Easter as the first Sunday after the full moon following the March equinox (21 March). Therefore the date of Easter varies between 22 March and 25 April.

[10] In the current formulation of the precepts of Catholicism, the prohibition of marriage in solemn form has been eliminated and substituted with a recommendation to ensure the sobriety of the celebration for respect of the period of penance. On Good Friday and Holy Saturday, celebrations are still prohibited in any form.

[11] To emphasize the extent of respect for Lent in England in popular culture, Cressy (1985) reports the English dictum: 'If you marry in Lent, you'll live to repent'.

In their interesting analysis of marriage seasonality in southern Sweden in 1685–1894, Dribe and van de Putte (2012) observe the transformation of marriage seasonality from a model characterized by a marriage peak in late spring and a trough at harvest time to a much more equal distribution of marriages across the year, with the exception of the appearance of strong peak in December. They argue that the more logical and consistent explanation for this change is the intensification of agricultural workload across all months of the year (the so-called 'industrious revolution') due to the introduction of new crop types, crop rotation, and land reclamation. In fact, with the industrious revolution, December, and in particular Christmas time, became the only slack season for workers and therefore increasingly became the preferred time for marriage. They also consider the "privatization" of marriage as a complementary explanation for the concentration of marriages in December.[12]

Dûpaquier (1977) analyses the evolution of the seasonality of marriages in the French regions in the period 1856–1968. He finds that in the mid-19th century it was possible to distinguish two main models of seasonality: some regions have most marriages in autumn (November in particular) and others in late winter (especially in February). He demonstrates a progressive increase in the frequency of marriage in summer months coupled with a specular decrease in the attractiveness of the autumn and winter months. He concludes that this change was caused by the abandonment of the agricultural model. He finds that in the 1960s the Lent restriction was still strongly respected in Brittany, Savoy, and Alsace. Bourgeois-Pichat (1946) also found these regions to be the most observant of the Lent restriction in his analysis of marriage seasonality in French regions in the years 1927–1938.

Finally, despite numerous empirical works in the literature regarding Italy, the vast majority are limited to specific communities or geographical areas under the ancien régime.

The analysis most related to our research was carried out by Federici (1964), who, using daily data for the year 1958, analysed the effects on marriage seasonality of the respect for religious prohibitions and other bans deriving from superstition in Italian regions.[13] Contrary to the common belief that southern regions are more traditional than northern regions, she found that the latter, and in particular the north-eastern regions, were more observant of religious bans than the southern regions.

Chiassino and Di Comite (1972) analyse marriage seasonality in Italian regions for the period from 1880 to 1969. They find a model of seasonality in the late 19th century very similar to that described by Dûpaquier for France; i.e., some regions were

[12] Marriage privatization is the process of cultural transformation that leads people to conceive of marriage as a private event of particular emotional value to themselves, their family, and their close friends, instead of as a community event.

[13] The analysis was carried out thanks to an ad hoc exposure of the 1958 data on marriages.

characterized by an autumn maximum and others had a maximum in late winter, while there was a low frequency of spring and summer marriages. They find that at the end of the 1960s in many regions the seasonality reversed: summer months (and in particular September) become the preferred months for weddings and winter months were increasingly avoided. Interestingly, they note that the degree of seasonality increased during this time, with the later decades of the period under analysis characterized by a greater inequality in the monthly distribution of marriages than the early decades.[14]

They also argue that the fact that marriages in March were still very uncommon across all the regions can be interpreted as evidence that religious precepts were still able to influence marriage behaviour. However, their analysis does not attempt to disentangle the effects of economic and cultural changes, so it is not clear how much the low frequency of Lent marriages in the 1960s can be attributed to the general decreasing trend of spring and late winter marriages and now much is still due to religious compliance.

Finally, Luchetti et al. (1996) compare marriage seasonality in nine communities in Italy, Spain, and France (three communities per country) between 1800 and 1960, and find that only in one French community was the Lent prohibition not respected, probably because in this community the summer migration of farmhands for working purposes forced them to get married in a preceding period.

To recap, the evidence produced by previous literature on marriage seasonality highlights the fact that that due to first industrialization and then tertiarization, both workload intensity and resource availability have become more equal distributed throughout the year (with the important exception of the introduction of paid holidays in the first case), and this in turn has caused deep changes in the seasonality of marriages but not its disappearance (as shown by Chiassino and Di Comite, seasonality has, conversely, increased). The speed of this process of transformation depends on both the timing of economic change and the level of cultural resistance to innovation (Lesthaeghe and Surkyn 1998; Surkyn and Lesthaeghe 2004; Lesthaeghe and Lopez-Gay 2013). In the following section we propose a methodology to separate the two effects and hence to analyse the Lent effect more precisely.

[14] Ruiu and Gonano (2015) extend the analysis of marriage seasonality to the present, confirming the increase in marriage seasonality in Italy.

3. Measuring the Lent effect: data and methodology

Our data source for the monthly numbers of marriages is the official statistics produced first by the Italian Ministry of Agriculture, Industry, and Commerce and later by the Italian Central Office of Statistics (ISTAT).[15]

The first step of the analysis is to obtain some indicators of seasonality that are able both to account for the different number of marriages celebrated each year and to allow regional comparisons. In order to do this we first took into account the different lengths of the months and equalized all months to 30 days, and then calculated the Henry index of seasonality in the following way:

$$S_j = \frac{N_j}{\sum_{j=1}^{j=12} N_j} * 12$$

where N_j indicates the number of marriages occurring in month j. Note that the mean of the monthly indicators for each year is equal to one, and hence an indicator S_j that assumes a value above 1 indicates a concentration of marriages in month j above the annual mean.

We use the total number of marriages without distinguishing between civil and religious marriages. Lent restrictions obviously target religious ceremonies; however, focusing on total marriages will allow us to establish whether the increasing tendency to get married with civil rites (see Figure 7 in Appendix II) is leading to the disappearance of the Lent effect. If we do not see the expected decline in respect for Lent, it is possible to argue that the religious beliefs embedded in a culture are able to influence peoples' choices even if they do not get married in church, or, as asserted by the philosopher Croce (1942), even if they declare themselves atheists. Furthermore, since the beginning of 1980s, 90% of marriages have been religious.

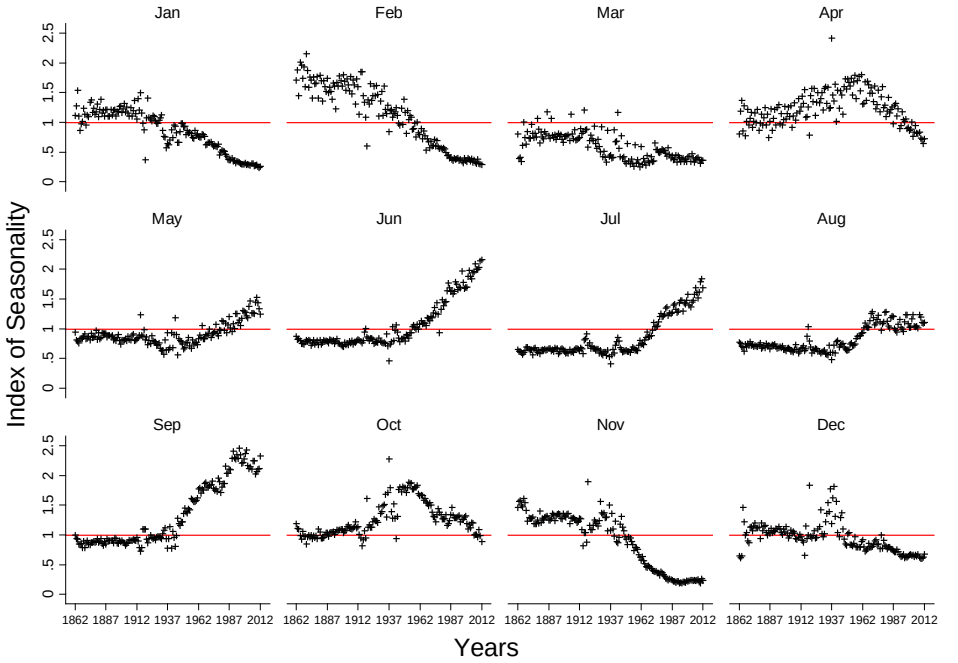
Figure 1 shows the temporal evolution of seasonality indicators for each month in Italy in the period 1862–2012.[16] In general and as expected, until after the Second World War the most work-intensive months in the agricultural sector (summer months)

[15] The statistics on the monthly numbers of marriages, births, and deaths were collected initially in the volumes 'Movimenti della popolazione secondo gli atti dello stato civile', supplied until 1926 by the office of statistics of the Italian Ministry of the Agriculture, Industry, and Commerce. After 1926 they were supplied by the new Italian central office of statistics (ISTAT). From 1953 to 1988 the name of the volumes changed to 'Annuari di statistiche demografiche', while from 1989 the information about marriages was collected in ad hoc volumes called 'Matrimoni, separazioni e divorzi'. See Appendix I for more information on this data source.

[16] We alternatively calculate the seasonality index by dividing each N_j for a centred 12-term moving average, obtaining a very similar picture of the seasonality evolution.

were the least preferred for weddings, whilst the less work-intensive months (late autumn or winter months) were the most preferred.[17]

Figure 1: Temporal evolution of the seasonal pattern in Italy, 1862–2012



Focusing on the three months covering the Lent period, February and March are characterized by a decreasing trend, while the temporal evolution of April has a reversed U-shape. Therefore it is not possible to use this indicator to establish if the shrinkage of marriage concentration in March is due to a more rigid respect for Lent or to the transforming economy revolutionizing marriage seasonality and reducing the attractiveness of this month.

Therefore we need to eliminate the disturbing effect of the trend. However, instead of focusing on March, as is usual in the literature, we decided to concentrate on April. The number of Lent days in this month vary a lot from year to year, and this will allow us to establish, once the April indicator of seasonality has been de-trended, if its

[17] The pattern of the seasonality evolution is very similar across regions; however, for a clearer picture of both the timing of marriage seasonality changes in each region and the associated seasonal models, the reader is referred to the following paragraph and to Ruiu and Gonano (2015).

fluctuations correlate with the fluctuations in the number of days of the religious ban. We chose April instead of February because, especially in the second half of the 19th century, the seasonal indicator for February varied a lot across regions, with some regions in the Po Valley (Lombardy, Piedmont, and Veneto) characterized by an indicator well above the annual mean and others where February was slightly above the annual average (see Table 1). Ruiu and Gonano (2015) attribute this cross-regional difference in the attractiveness of February to the cultivation of rice and maize in the above-mentioned regions. In fact, in these areas the autumn months were work-intensive because of the rice harvest, which lead to a high concentration of marriages in the first months of the year. Therefore we expect that the correlation between the number of 'Lent-free' days in February and the fluctuations of marriages in Piedmont will be higher than the same correlation calculated for Sardinia, where February was not a particularly attractive month. However, this higher correlation is not because the inhabitants of Piedmont are more religious than Sardinians, but simply because Piedmontese were more willing to obey the Lent ban in the days of February because this was one of the few months of slack work, while for Sardinians the autumn months were also available.[18]

Table 1: Indicators of seasonality for February and April in 1862–1911

	Feb	Apr
Lombardy	2.04	0.98
Piedmont	2.24	1.42
Veneto	2.25	1.15
Liguria	1.57	1.32
Emilia Romagna	1.26	1.16
Tuscany	1.57	1.18
Umbria	1.57	1.34
Marches	1.31	1.20
Latium	1.58	1.15
Abruzzi	1.43	0.85
Campania	1.33	0.85
Apulia	1.44	0.98
Basilicata	1.53	1.07
Calabria	1.31	0.87
Sicily	1.40	1.20
Sardinia	1.11	0.86
Σ	0.32	0.18

[18] Furthermore, Van Poppel (1995) noted that April would be more affected than February because the Lenten days fall in the holy weeks before Easter in the first month, a period in which religious compliance is likely to be strongest. It should also be noted that, to date, marriages are strictly forbidden from Good Friday to Easter.

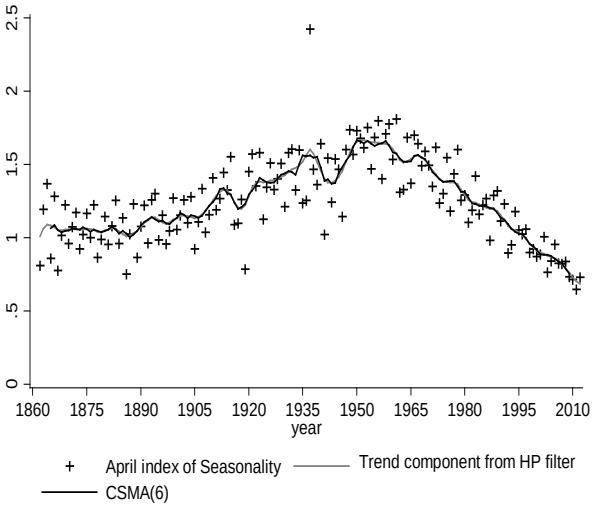
Despite the existence of various techniques for estimating the trend of a time series, we chose to use the simple moving average (SMA) filter, which is able to capture in a more direct and transparent way the evolution of a time series than parametric models or most sophisticated non-parametric techniques. Focusing on April in Italy, Figure 2 shows the estimated trend of the seasonal indicator obtained by using a centred SMA with six terms (CSMA (6)).

We de-trend the time series of April indicators by dividing the original series by the CSMA (6) estimate of its trend:

$$S^*_{april,t} = \frac{S_{april,t}}{CSMA(6)} = \frac{S_{april,t}}{\frac{1}{2}\sum_{t-3}^{t+2} S_{april,t} + \frac{1}{2}\sum_{t-2}^{t+3} S_{april,t}}$$

To enable a comparison, we also report an estimation of the trend carried out with the Hodrick-Prescott filter with smoothing parameters equal to 8.25, as suggested by Ravn and Uhlig (2002).

Figure 2: Trend estimation for the April indicator, Italy

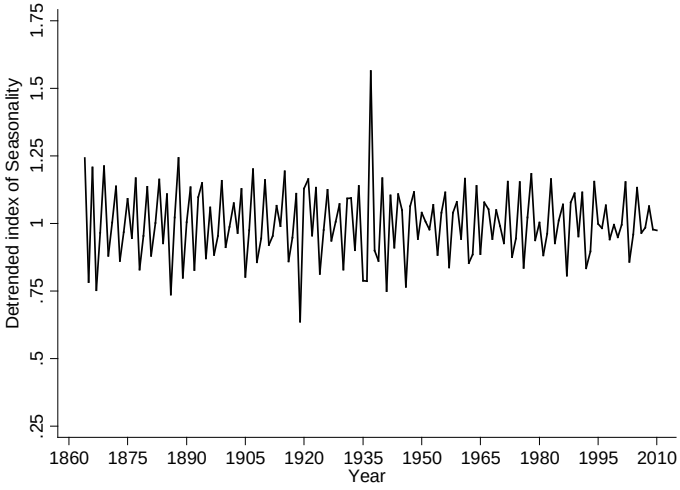


The First and Second World War periods are clearly outliers, so we decided to exclude the years 1915–1920 and 1937–1949 from subsequent analysis. Other clear outliers are the first years after the marriage law reform of 1866, which revoked the

legal validity of religious marriages.[19] However, the Catholic population did not accept this change in the marriage law immediately and continued to get married in church rather than formalizing unions in front of civil officials (see Livi-Bacci 1977). This reaction to the legislative reform is evidenced by the large increase in out-of-marriage births (De Vergottini 1965). It is possible that in many cases the religious union was only formalized at the time of the first birth to avoid the child being illegitimate, thus altering the genuine monthly distribution of marriages.

Finally, the de-trended series of S^* (see Figure 3) is regressed for different time intervals on a variable called *lent*, which for a generic year t reports the percentage of days of April outside the Lent period in that year. From Figure 3 it is immediately evident that the oscillations of the de-trended April indicators lessen as time passes.

Figure 3: De-trended April indicator, Italy



We believe that using the total number of marriages to construct our dependent variable will not bias the estimation of the Lent effect. Civil marriages might fall into one of two cases: case 1) Lent restrictions do not influence civil marriages; case 2) Lent can affect the date of a civil marriage (e.g., divorced persons cannot marry in church,

[19] The early years of the new Italian Kingdom were characterized by significant differences between the Italian and Vatican States. The Italian state reformed the Italian civil code (1866), taking marriage out of the control of of the Church, and passed a series of laws (the so-called 'leggi eversive') which allowed the expropriation of clerical estates if not considered essential to religious functions, while the Vatican produced the so-called 'non expedit', by which Pope Leo XIII prohibited the participation of Catholics in Italian political life.

but they might want to respect the sobriety of the Lent period). In the first case we have a measurement error in the dependent variable (caused by the inclusion of civil marriages) that does not correlate with our independent variable. Therefore, following Wooldridge (2002), we have that the OLS estimator of β_{lent} is still unbiased.[20] In the second case we can expect both an attenuation in the *lent* coefficient leading to a Beta coefficient that is smaller than the true Beta, and a downward bias in the t statistics that may lead us to not refuse the null, even if the Lent effect is significant.

Assuming for the moment that the first case (the most plausible) is true, the regression described above can give us an insight into the differing impact of Lent in the various time periods. Therefore we expect a positive correlation between the variable *lent* and our dependent variable, with a coefficient increasing or decreasing as time passes, depending on the strength of the religious influence on the choice of getting married in April or not.

The result for Italy is reported in Table 2, while the regional analysis is commented upon in the next section.[21] The columns from 1 to 4 report the regression results for the model, estimated in four time intervals of about the same length: 1868–1899, 1900–1936, 1950–1979, and 1980–2009. The Lent effect is significant in explaining April fluctuations in all of the considered periods and the sign of the relation goes in the expected direction; however, the magnitude of the coefficient is reduced by about 0.17 points in the last period. This means, for instance, that before 1900, in a year characterized by an April completely free of Lent, we will observe a de-trended indicator of April equal to 0.684+0.453=1.137 against an indicator of 0.684+ 0.453*(5/30)=0.795 when there are only five non-Lenten days (the minimum number of non-Lent days), while after 1979 in a year with a Lent-free April we will see an indicator of 1.09 against an indicator of 0.85 when there are only five free days. To put it another way, an increase of one percentage point in the Lent-free days implied an increase of 0.0045 of a unit in the April indicator before 1900, while the same increase in Lent in the last period implies an increase of 0.0028 in the April indicator. Considering that the standard deviation of our dependent variable is about 0.10, the magnitude of these effects is not small, even in the last period.

[20] In more detail: the old estimates of the Beta parameter are still unbiased and the inference is correct, but the presence of a measurement error in the dependent variable inhibits our ability to estimate the relationship very precisely, i.e., the estimated variances are larger.

[21] Table 5 in Appendix II replicates the regression reported in the column but with S.E. robust to heteroskedasticity and autocorrelation. The results are very similar to those reported above.

Table 2: Estimating the Lent effect for Italy

	(1) 1868–1899	(2) 1900–1936+	(3) 1950–1979	(4) 1980–2009	(5) 1868–2009	(6) Religious++	(7) Civil
lent	0.453***	0.387***	0.325***	0.286***	0.390***	0.376***	0.054
	(15.60)	(10.67)	(9.12)	(7.10)	(18.93)	(8.73)	(1.36)
d1979					0.0725*		
					(2.37)		
lent_79					-0.103*		
					(-2.48)		
_cons	0.684***	0.728***	0.779***	0.802***	0.730***	0.742***	0.961***
	(31.44)	(27.49)	(29.73)	(27.19)	(47.99)	(23.55)	(33.24)
N	32	31	30	30	123	30	30
adj. *R*2	0.887	0.790	0.739	0.630	0.774	0.722	0.029
Chow test of structural stability model 5							
Ho: d1979 = lent_79 = 0; F (2, 119)=3.08; pvalue: 0.0498							

Note: +Excluding the period 1915–1920, ++the period is 1980–2009; *t* statistics in parentheses; * p < 0.05, ** p < 0.01, *** p < 0.001.

Therefore, even if there is a non-negligible reduction in the Lent effect, Lent inhibitions can still significantly affect the seasonality of marriages in Italy.

In the model reported in column 5 we use all the available years (with the exception of the years of the two World Wars) and two further regressors are introduced: a dummy equal to one if the year is greater than 1979 (d1979) plus an interaction between the regressor *lent* and the dummy d1979 (lent_79). The introduction of these two regressors allows us to test for model structural stability (the so-called Chow test); that is, it allows us to test if the coefficients of the model before and after 1979 are the same or if they change significantly (from a statistical point of view).

From the result of the Chow test we can conclude that there is a statistically significant structural break. The methodology described above is applied to each of the 16 regions under analysis.[22] The results are summarized in the following section.

Note also that the Lent effect is strong and statistically significant despite the possible presence of the attenuation bias as depicted above (case 2). To get a more precise estimation of the Lent effect and to test if Lent is able to produce an effect on civil unions, we replicated our regressions for religious (column 6) and civil (column 7) marriages using the last period (1980–2009). Unfortunately, we are only able to separate civil and religious marriages for the last time interval under analysis due to a

[22] In fact it is 20 Italian regions. However, the Aosta Valley has been part of Piedmont since 1945. Abruzzo and Molise have been one region since 1963. The western part of Friuli Venezia Giulia was part of Veneto, while the eastern part became part of the Italian kingdom (together with the territory of Trentino Alto Adige) only after the First World War. We decided to focus only on the 16 original regions and to use their historical boundaries.

lack of data.[23] Column 7 shows that Lenten days are not a significant determinant of civil marriages in April. Therefore it is possible to conclude that not being able to distinguish between civil and religious marriages before the 1970s does not affect the bias of our estimator. See Figure 7 (Appendix II) for an idea of the temporal evolution of religious marriages.

Finally, another factor that may explain the oscillations in April marriages from one year to another is the number of weekends that fall outside the Lenten days each year. Marriages – especially in more recent times – are likely to be concentrated in the weekends to allow for the widest participation of friends and relatives (Dribe and van de Putte 2012).

Therefore, without taking into account other factors that affect marriage seasonality, two years characterized by the same number of 'Lent-free' days in April might be characterized by a different amount of marriages in that month if the number of weekends is different. To account for this possible weekend effect, in Table 3 we run the same regressions depicted from column (1) to column (4) of Table 2 but include a further regressor (named inc_{satsun}) given by:

$$inc_{satsun} = \begin{cases} 1 \; if \; \left(N_{satsun,t}/N_{lentfree,t}\right) > \left(N_{satsun,t-1}/N_{lentfree,t-1}\right) \\ 0 \; if \left(N_{satsun,t}/N_{lentfree,t}\right) \leq \left(N_{satsun,t-1}/N_{lentfree,t-1}\right) \end{cases}$$

where $N_{satsun,t}$ and $N_{satsun,t-1}$ are the numbers of Saturdays and Sundays not falling in the Lenten days of April in the year t and the year t-1, respectively, while $N_{lentfree,t}$ and $N_{lentfree,t-1}$ are the total number of 'Lent-free' days in April in year t and in year t-1, respectively. By having inc_{satsun} equal to one, we also determine that the year must be affected by Lent for at least one day. This last condition is imposed because otherwise we will compare the incidence of weekends in years that are totally exempt from the Lent effect with years that are affected.

[23] To be more precise, it is possible to run the regression reported in columns 6 and 7 for the period 1973-2012. However, we decided to focus on the period 1980–2009 to allow better comparability with other analyses and to avoid the fact that in the early 70s the number of civil marriages was very low. Furthermore, when the analysis is repeated over the whole period the results do not change.

Table 3: Testing the weekend effect for Italy

	(1) 1868–1899+	(2) 1900–1936	(3) 1950–1979	(4) 1980–2009
Lent	0.450***	0.387***	0.298***	0.286***
	(15.18)	(10.53)	(9.18)	(7.07)
inc_{satsun}	0.011	0.012	0.055**	0.020
	(0.72)	(0.54)	(3.11)	(0.96)
_cons	0.682***	0.726***	0.782***	0.796***
	(30.89)	(26.60)	(34.10)	(26.28)
N	32	31	30	30
adj. *R*2	0.885	0.785	0.80	0.629

Note: +Excluding the period 1915–1920, *t* statistics in parentheses; * p < 0.05, ** p < 0.01, *** p < 0.001.

We find a positive and statistically significant effect of weekends only in the third sub-period of our analysis. Federici (1964) argued that the choice to get married on religious feast days, and in particular on Sunday (the day dedicated to God), heavily depended on local dispositions of the curia. In some communities the choice of Sunday as a wedding day was discouraged while others were characterized by a marked concentration of ceremonies on that day (especially where it was difficult to gather the faithful on the weekdays). Therefore it is possible that when using country-level data the positive effects for some communities are offsetting the negative effects for others. The regional analysis reported in the next section could partially cope with this problem.[24] However, it is also possible that because April is at the end of a long period of restriction, the weekdays in this month are used to compensate for the Lent postponement.

4. Results at the regional level

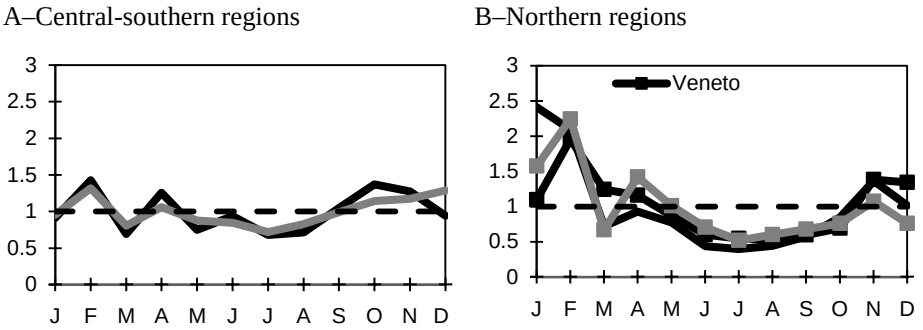
Focusing on the temporal evolution of marriage seasonality at the regional level, Ruiu and Gonano (2015) find that from the first years of the 20th century all the Italian regions were characterized by a rural model of marriage seasonality (low concentration of marriages in summer and relative maxima in late autumn or winter months), with some territorial differentiation due to the prevalent type of crop. In particular, in northern regions (see Figure 4, panel b) where, in addition to grain, maize and rice were also widespread, the winter maximum of February was particularly accentuated because

[24] Even if the regional detail is insufficient to highlight practices that might differ from one bishopric (or even parish) to another.

the autumn months were work-intensive, whereas regions where grain production was largely dominant were characterized by two maxima, one in autumn and the other in February. Central and southern regions (plus Liguria and Emilia Romagna) clustered into two groups, mainly distinguished by the level of respect for the Advent prescription. In particular, group 2 (composed of Campania, Calabria, Apulia, Abruzzi, and Emilia Romagna) was characterized by a steady increase in the number of marriages from October to December, while the regions belonging to group 1 (Sardinia, Sicily, Basilicata, Tuscany, Liguria, Marches, Latium, and Umbria), were characterized by a slowdown of marriages in December (see Figure 4, panel a).

They also show that although almost all of the Italian regions have converged towards a common model of seasonality, they have different starting times for the seasonality transformation, reflecting the different paths of development that have characterized the different areas of the country (with more industrialized northern regions, in particular Piedmont and Lombardy, which started the transition toward the current model of marriage seasonality before than other regions).

Figure 4: Seasonality in regional clusters during the rural phase, 1862–1913



Cluster 1: Sardinia, Sicily, Basilicata, Tuscany, Liguria, Marche, Latium, and Umbria
Cluster 2: Campania, Calabria, Apulia, Abruzzi, and Emilia Romagna.
Note: After having individuated the rural phase for each Italian region, Ruiu and Gonano (2015) implemented a cluster analysis to get a picture of the similarities/dissimilarities between regional seasonal models.

Figure 5 plots the temporal evolution of the April seasonality index. The figure clearly shows that at the regional level the temporal evolution of the indicator is a concave function of time.

Finally, in terms of the Lent effect, Table 4 reports the coefficients of the regressions (and their standard errors) for each region, dividing the time interval in the same way as in Table 2. To test if the change in the coefficient of regression is at least statistically different in the last period, in this case we also run a Chow test.

First of all, it can be noted that, as observed by Federici (1964), religious restrictions regarding Lent were strongly respected in all regions of the country. In general, the coefficient of the last period tends to be smaller than that of the first period, evidencing an attenuation of the effect of Lent on April fluctuations. However, there is some heterogeneity in the temporal evolution of the Lent effect across regions.

For Abruzzo, Emilia Romagna, Sardinia, and Umbria, we are unable to reject the null hypothesis of structural stability. Not surprisingly, Emilia Romagna is the region where the initial Lent effect is smallest.[25] In the case of Sardinia and Campania, the low coefficient estimated for the first time-interval may be due to a long-lasting effect of the marriage law reform. It can be presumed that many marriages in these regions continued to be celebrated in church and regularized in front of the civil officials only after the birth of the first child. In such a way the firstborn avoided the legal status of being illegitimate.

The low value assumed by the R^2 seems to suggest that a process of adjustment to the institutional reform was still ongoing in these regions, and this is probably causing a non-linearity in the relationship between Lent and April marriages.

We find that in some northern regions (Liguria, Lombardy, and Piedmont), and in two central regions (Marches and Tuscany) the test detects a statistically significant difference starting from 1900 (in the two latter regions the structural stability is rejected only at the 10% level).

For these regions we decided to test if the break began in 1900, because the most significant change in terms of the magnitude of the *lent* coefficient is observed between the first and second time intervals. Veneto seems to be the only case in which the *lent* coefficient increases instead of decreasing. A structural break is detected in this region starting from 1900. The small magnitude of the Lent effect in Veneto in the first period is quite puzzling. However, from Figure 4 (panel B) we can note that in this region March was also well above the annual average.

A possible explanation could be seasonal migration. Since 1900 this region (which included Friuli) has been characterized by a high level of seasonal migration in the direction of neighbouring Italian regions and extra-Italian regions, therefore leaving only religious feast periods available for the celebration of weddings. Furthermore, this is the region that has seen the greatest boundary changes in the period under analysis.

[25] This region was where Marxist thought was most widespread.

Figure 5: Temporal evolution of the April index in Italian regions, 1865–2012

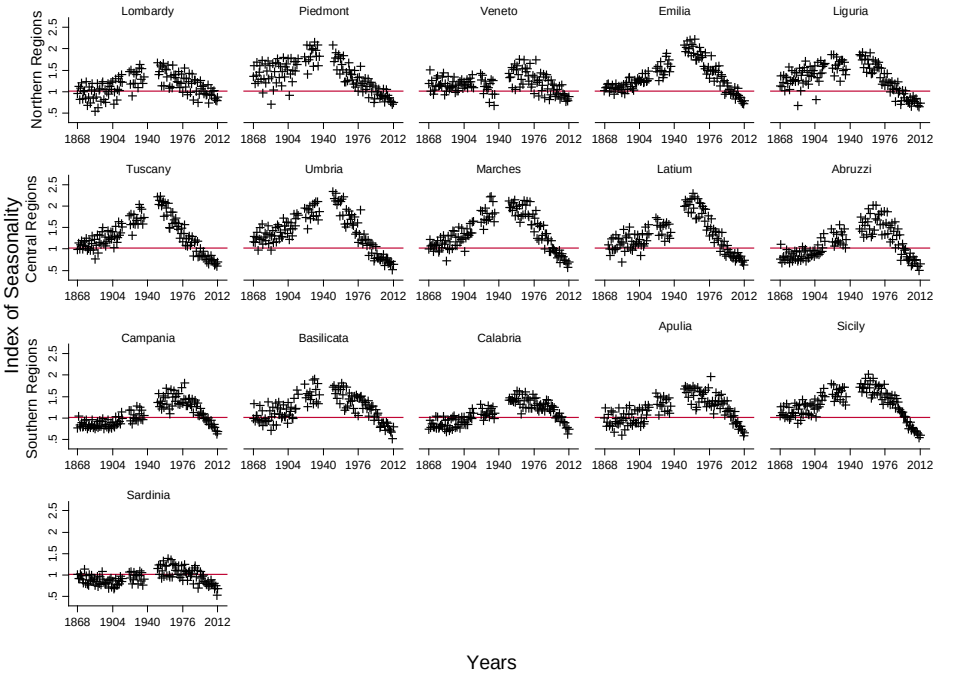


Table 4: Lent coefficients at the regional level

Region	Area	<1900	1900–49	1950–1979	≥1980	Chow test
Liguria**	North	0.53	0.43	0.28	0.35	Stability Rejected at 5%
S.E.		(0.05)	(0.05)	(0.04)	(0.06)	
Adj. R^2		0.80	0.70	0.69	0.5614	
Lombardy**	North	0.70	0.55	0.38	0.49	Stability Rejected at 5%
S.E.		0.05	0.04)	(0.07)	(0.06)	
Adj. R^2		0.87	0.85	0.52	0.72	
Veneto**	North	0.26	0.38	0.46	0.41	Stability Rejected at 5%
S.E.		(0.07)	(0.07)	(0.07)	(0.08)	
Adj. R^2		0.28	0.52	0.58	0.49	
Piedmont**	North	0.66	0.41	0.31	0.35	Stability Rejected at 5%
S.E.		(0.04)	(0.05)	(0.07)	(0.06)	
Adj. R^2		0.89	0.65	0.42	0.55	

Table 4: (Continued)

Region	Area	<1900	1900–49	1950–1979	≥1980	Chow test
Emilia	North	0.21	0.22	0.21	0.27	Stability Not Rejected
S.E.		(0.04)	(0.05)	(0.05)	(0.05)	
Adj. R^2		0.50	0.40	0.39	0.53	
Latium*	Centre	0.53	0.41	0.33	0.27	Stability Rejected at 5%
S.E.		(0.05)	(0.04)	(0.03)	(0.05)	
Adj. R^2		0.81	0.81	0.84	0.45	
Marches**	Centre	0.42	0.34	0.24	0.31	Stability Rejected at 10%
S.E.		(0.05)	(0.05)	(0.05)	(0.05)	
Adj. R^2		0.73	0.57	0.40	0.55	
Tuscany**	Centre	0.43	0.34	0.25	0.34	Stability Rejected at 10%
S.E.		(0.03)	(0.04)	(0.05)	(0.04)	
Adj. R^2		0.84	0.67	0.50	0.70	
Umbria	Centre	0.40	0.31	0.34	0.23	Stability Not Rejected
S.E.		(0.04)	(0.04)	(0.06)	(0.07)	
Adj. R^2		0.73	0.71	0.51	0.25	
Abruzzo	South	0.42	0.39	0.49	0.42	Stability Not Rejected
S.E.		(0.05)	(0 .04)	(0.03)	(0.06)	
Adj. R^2		0.74	0.71	0.89	0.59	
Basilicata	South	0.54	0.37	0.35	0.12	Stability Rejected at 5%
S.E.		(0.06)	(0.06)	(0.05)	(0.06)	
Adj. R^2		0.73	0.53	0.58	0.10	
Calabria	South	0.40	0.28	0.24	0.16	Stability Rejected at 5%
S.E.		(0.05)	(0.04)	(0.04)	(0.03)	
Adj. R^2		0.68	0.62	0.51	0.42	
Campania	South	0.27	0.34	0.39	0.19	Stability Rejected at 5%
S.E.		(.04)	(0.04)	(0.04)	(0.04)	
Adj. R^2		0.59	0.70	0.80	0.45	
Apulia	South	0.63	0.43	0.29	0.25	Stability Rejected at 5%
S.E.		(0.05)	(0.05)	(0.06)	(0.05)	
Adj. R^2		0.82	0.75	0.41	0.43	
Sardinia	South	0.26	0.34	0.41	0.32	Stability Not Rejected
S.E.		(0.06)	(0.04)	(0.05)	(0.05)	
Adj. R^2		0.38	0.67	0.73	0.57	
Sicily	South	0.38	0.32	0.28	0.18	Stability Rejected at 5%
S.E.		(0.04)	(0.03)	(0.03)	(0.02)	
Adj. R^2		0.73	0.84	0.72	0.66	

Note: * Data are available starting from 1872; ** The significant break is detected after 1900.

In Table 6 in Appendix II we report for each region the model estimated using all the years.

To get an immediate visual impression of the relative change of Lent influence on April fluctuations across regions, in Figure 6 we plot a normalized *lent* coefficient for each region for the two periods <1900 and >1980. The normalization was achieved by applying the following formula:

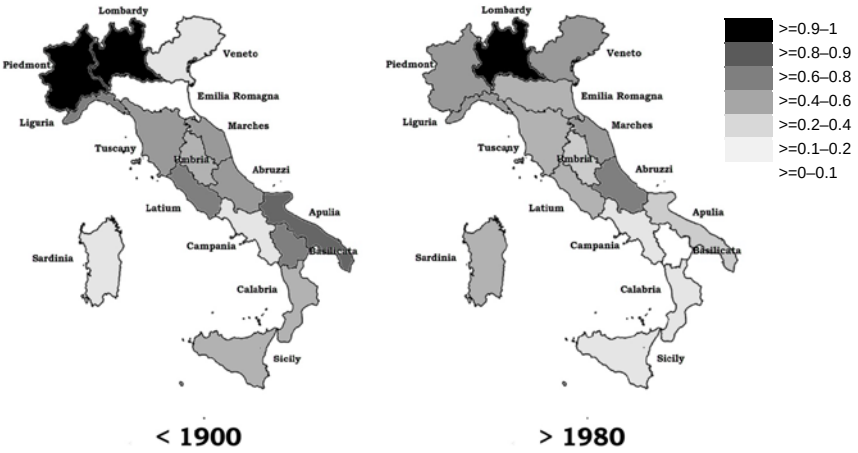
$$lent'_{j,t} = \frac{lent_{j,t} - \min_j\left(lent_{j,t}\right)}{\max_j\left(lent_{j,t}\right) - \min_j\left(lent_{j,t}\right)} \text{ for } t = 1, \dots, T \text{ and } j = \text{Abruzzi, Basilicata, ...}$$

It is surprising that the northern regions, where religious marriages are less widespread (Figure 7 Appendix II), are also those where Lent prescriptions are more respected. This result may indicate that even if the custom of getting married in church is more widespread in the southern regions, this choice is mainly aimed at preserving the honour of the family in front of the local community. By contrast, in the northern regions, when marriages are celebrated with religious rites all the related religious rules are taken into account. Therefore, if the percentage of religious marriages in the total number of celebrations is interpreted as a form of passive religious observance, our Lent effect coefficient may be interpreted as an indicator of a general tendency toward respect for religious norms.

Finally, we also consider the possible weekend effect for each region. The results are summarized in Table 7 in Appendix II, where to save space we only reported the results for those regions where the weekend effect was found statistically significant in at least one sub-period.[26] In 8 out of the 16 regions under analysis, a positive significant relation is evident between the incidence of weekends on 'Lent-free' days and our de-trended indicator of marriage.

[26] The detailed regression results are, however, available upon request to the authors.

Figure 6: Normalized *lent* coefficients



5. Conclusions

Demographic and historical literature has shown that the Lent ban on marriage solemnization significantly reduced peoples' propensity to wed in this these days of the year.

This paper adds to the literature on the secularisation of religious belief by offering a new indicator for the effect of Lent prescriptions on marriage seasonality. The change in cultural values and the secularisation of religious beliefs are considered pre-requisites of the Second Demographic Transition (SDT), by making new types of behaviour acceptable in a society (Lesthaeghe and Surkyin 1998; Surkyin and Lesthaeghe 2004). Focusing on marriage seasonality, the proportion of marriages celebrated in March has been interpreted as an indicator of the strength of religious control over the faithful, and then as a possible predictor of the SDT (see, for instance, Lesthaeghe and Lopez-Gay 2013; Luchetti et al. 1996; etc.). We proposed, and implemented using Italian data, an alternative indicator for capturing respect for religious prescriptions.

In particular, in this paper we analysed the effect of religious prescriptions regarding the timing of marriage on seasonal marriage patterns in Italian regions from unification to the present, a period of great economic transformation when Italy changed from being an economy based on the primary sector to a modern economy. This process of development has led to the inversion of seasonal marriage patterns, from a model characterized by peaks in autumn or winter (depending on the region) and

through summer (throughout Italy, at least since the First World War) to the current model in which marriages are strongly concentrated from June to September. Studying such a period is challenging because the traditional methods of analysing seasonality are unable to offer a picture of the evolution of religious customs that is not distorted by the effect of economic development. A further complication for the analysis of Italian regions is that data are not available on a daily basis (see also Appendix I for other limitations due to the nature of our data).

We apply a simple methodology to overcome these shortcomings, consisting of de-trending the seasonal indicator to obtain the yearly fluctuation of marriage in April (the month that is most likely to be influenced by the variability of the date of Easter) with respect to a trend and then regressing this de-trended indicator with the number of days free of Lent in each year. The beta coefficients capturing the effect of Lent can thus be interpreted as an indicator of respect for religious prescriptions.

The idea behind this methodology is simple: if we observe a significant link between these two variables we can conclude that April fluctuations are not random but are affected by the different number of Lenten days that fall in April from one year to another. Furthermore, by dividing the period of observation into sub-periods we can also evaluate if the strength of this relationship increases or decreases as time passes, and evaluate whether these changes are statistically significant.

Our results show that, as expected, Lent exerted a deep influence on April oscillations in the aftermath of unification, and, more surprisingly, that in some regions this effect is still quite strong. Another surprising result is that 50 years after Federici's analysis of marriage seasonality we confirm her finding that, despite having the highest level of economic development, the northern regions seem to be most affected by religious influence with regards to marriage seasonality. Therefore, even if the times are changing, they are changing in an unexpected way.

Finally, cultural beliefs, and particularly religious beliefs, are increasingly accepted in economic literature as key determinants of economic development. For instance, building on the Weberian theory of the origin of capitalism, Guiso, Sapienza and Zingales (2003) find that, on average, religious beliefs are associated with 'good' economic attitudes, where by 'good' they mean those attitudes conducive to higher per capita income and growth (e.g., religious people trust more than others, have a higher level of confidence in institutions, are less willing to break the law, and are more likely to believe that market outcomes are fair).

Of course, we are not claiming that differences in the level of economic development in Italian regions should be attributed to inter-regional differences in respect for Lent. However, the proposed methodology of constructing an indicator of religiosity on the basis of Lent respect may be a useful tool for this emerging line of research in economic development.

6. Acknowledgements

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Appendix I

Some comments on the data source 'Movimento della popolazione secondo gli atti dello stato civile'.

In this appendix we report the main shortcomings of our data source.

The data are available on a monthly rather than daily basis. Daily data allows a precise evaluation for each year of the difference between the number of marriages occurring in Lenten days and those occurring in the same month but out of the prohibited period. These data are furnished at a regional rather than an individual level, so it is not possible to control for the types of occupation of the spouses.

After 1929, with the signing of the Lateran Pacts between the Italian Kingdom and the Vatican State, the civil validity of religious marriages was re-established. Our data source is based on civil registers. Therefore before 1929 we have only the monthly distribution of civil marriages, but after 1929 we can distinguish both religious and civil marriages. However, the data were not furnished at the regional level until the 1970s because of the small proportion of civil marriages (more than 90% of marriages at the national level were celebrated in church at the beginning of the 1970s).

For the years 1934, 1935, 1936, 1937, 1982, 1984, and 1986, information on the monthly number of marriages was not available on a regional basis (nor was the monthly distribution of religious and civil marriages for Italy). Therefore we estimated the monthly distribution for these missing years by running OLS on monthly data for the five years (60 observations) immediately preceding each missing value and then using the obtained coefficients to make a prediction:

$$S_{jt} = \beta_0 + \beta_{1t} lent_t + \sum_{i=1}^{i=11} \beta_i d_i + \varepsilon_{it}$$

where S is the seasonal indicator, *lent* is the percentage of days free from Lent, and d_i (for i= 1…,11) is a month dummy. In this case, the variable *lent* includes all three months (February, March, and April) in which the prohibited period may fall, to obtain a monthly indicator net of the Lent effect.

Since 2000 the data have only been published in paperback volumes; hence part of our work has been to computerize these data. We therefore assume responsibility for any errors in data input.

Appendix II

Figure 7: Percentage of marriages celebrated with religious rites

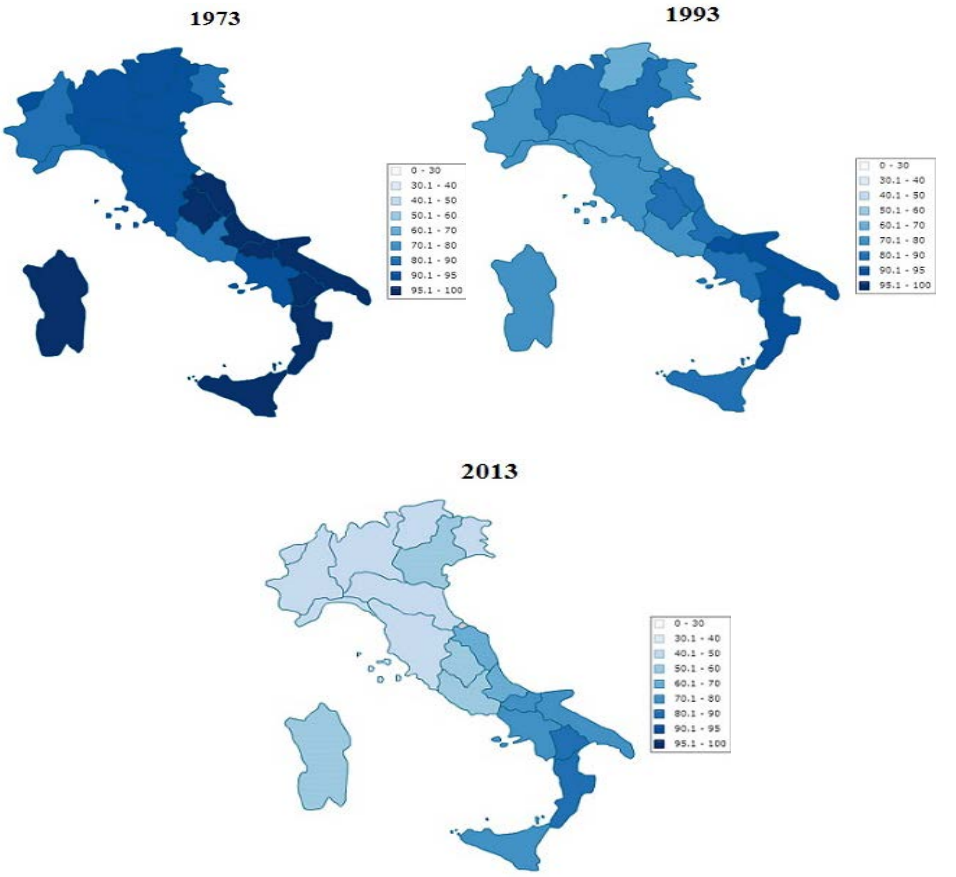

Table 5: Lent effect with S.E.correction for heteroskedasticity and autocorrelation, Italy.

```
OLS estimation
```

```
Estimates efficient for homoskedasticity only
Statistics robust to heteroskedasticity and autocorrelation
  kernel=Bartlett; bandwidth=     7
  Automatic bw selection according to Newey-West (1994)
  time variable (t):  t2

                                                Number of obs =      123
                                                F(  3,   119) =   154.32
                                                Prob > F      =   0.0000
Total (centered) SS     =  1.340009824          Centered R2   =   0.7795
Total (uncentered) SS   =  124.3077323          Uncentered R2 =   0.9976
Residual SS             =  .2955269855          Root MSE      =   .04902
```

index_detr~d	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
lent	.3897906	.0199047	19.58	0.000	.3507782	.4288031
d1979	.0724672	.031961	2.27	0.023	.0098247	.1351097
lent_79	-.1033372	.0425434	-2.43	0.015	-.1867207	-.0199537
_cons	.7296017	.01355	53.85	0.000	.7030441	.7561592

```
Included instruments: lent d1979 lent_79
```

Table 6: Testing structural stability, estimation by region.

	Apulia	Abruzzi	Basilicata	Calabria	Campania	Emilia	Latium	Sardinia	Sicily	Umbria
Lent	0.454***	0.430***	0.422***	0.306***	0.330***	0.212***	0.419***	0.334***	0.329***	0.350***
	(13.85)	(15.67)	(12.21)	(12.57)	(14.78)	(8.40)	(16.29)	(11.69)	(17.82)	(11.49)
d1979	0.141**	0.010	0.204***	0.101**	0.097**	-0.042	0.097*	0.007	0.102***	0.080
	(2.90)	(0.25)	(3.98)	(2.79)	(2.92)	(-1.13)	(2.59)	(0.18)	(3.71)	(1.77)
lent_79	-0.208**	-0.014	-0.299***	-0.147**	-0.142**	0.058	-0.145**	-0.014	-0.144***	-0.123*
	(-3.12)	(-0.25)	(-4.27)	(-2.98)	(-3.13)	(1.13)	(-2.84)	(-0.23)	(-3.86)	(-2.00)
_cons	0.688***	0.703***	0.711***	0.788***	0.773***	0.855***	0.715***	0.770***	0.776***	0.760***
	(28.41)	(34.69)	(27.87)	(43.79)	(46.81)	(45.84)	(37.78)	(36.53)	(56.68)	(33.79)
N	123	123	123	123	123	123	116	123	123	123
adj. *R*2	0.629	0.722	0.552	0.580	0.662	0.461	0.724	0.588	0.739	0.547

	Liguria	Lombardy	Marches	Tuscany	Piedmont	Veneto
Lent	0.522***	0.522***	0.423***	0.423***	0.657***	0.244***
	(11.06)	(11.06)	(8.65)	(10.49)	(12.38)	(3.59)
d1900	0.124**	0.124**	0.096*	0.081*	0.213***	-0.125*
	(3.05)	(3.05)	(2.27)	(2.34)	(4.65)	(-2.12)
lent_00	-0.168**	-0.168**	-0.130*	-0.110*	-0.300***	0.176*
	(-3.05)	(-3.05)	(-2.27)	(-2.34)	(-4.86)	(2.22)
_cons	0.635***	0.635***	0.705***	0.705***	0.542***	0.834***
	(18.10)	(18.10)	(19.40)	(23.58)	(13.75)	(16.52)
N	123	123	123	123	123	123
adj. *R*2	0.694	0.694	0.586	0.693	0.694	0.489

Note: *t* statistics in parentheses; * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 7: Testing weekend effect at the regional level

	Veneto				Emilia Romagna			
	1868–1899	**1900–1936**	**1950–1979**	**1980–2009**	**1868–1899**	**1900–1936**	**1950–1979**	**1980–2009**
Lent	0.255**	0.378***	0.410***	0.403***	0.209***	0.215***	0.179***	0.269***
	(3.60)	(5.75)	(6.13)	(5.47)	(5.80)	(4.48)	(4.00)	(5.84)
incsab_dom	0.024	0.034	0.107**	0.067	0.030	0.013	0.067*	0.030
	(0.65)	(0.86)	(2.94)	(1.71)	(1.62)	(0.46)	(2.75)	(1.23)
_cons	0.814***	0.733***	0.690***	0.696***	0.843***	0.853***	0.859***	0.804***
	(14.93)	(15.01)	(14.62)	(12.61)	(30.38)	(23.93)	(27.17)	(23.31)
N	32	31	30	30	32	31	30	30
adj. *R*2	0.271	0.515	0.670	0.518	0.528	0.378	0.509	0.539

	Liguria				Lombardy			
	1868–1899	**1900–1936**	**1950–1979**	**1980–2009**	**1868–1899**	**1900–1936**	**1950–1979**	**1980–2009**
Lent	0.526***	0.430***	0.251***	0.346***	0.420***	0.336***	0.202***	0.307***
	(11.01)	(8.23)	(8.14)	(6.11)	(9.02)	(6.22)	(4.06)	(6.00)
incsab_dom	0.005	-0.017	0.058**	0.023	0.017	-0.003	0.073*	0.023
	(0.19)	(-0.54)	(3.46)	(0.76)	(0.73)	(-0.09)	(2.69)	(0.83)
_cons	0.628***	0.713***	0.812***	0.755***	0.701***	0.775***	0.840***	0.783***
	(17.07)	(18.39)	(37.20)	(17.79)	(19.54)	(19.34)	(23.86)	(20.41)
N	32	31	30	30	32	31	30	30
adj. *R*2	0.794	0.687	0.774	0.555	0.721	0.551	0.510	0.546

	Piedmont				Tuscany			
	1868–1899	**1900–1936**	**1950–1979**	**1980–2009**	**1868–1899**	**1900–1936**	**1950–1979**	**1980–2009**
Lent	0.657***	0.409***	0.251***	0.349***	0.430***	0.336***	0.226***	0.340***
	(15.80)	(7.40)	(4.54)	(6.06)	(12.45)	(7.70)	(5.00)	(8.23)
incsab_dom	0.011	0.008	0.122***	0.033	0.009	-0.004	0.058*	0.023
	(0.50)	(0.23)	(4.06)	(1.09)	(0.49)	(-0.17)	(2.34)	(1.05)
_cons	0.538***	0.715***	0.794***	0.747***	0.695***	0.777***	0.829***	0.758***
	(16.81)	(17.43)	(20.28)	(17.32)	(26.13)	(23.96)	(25.96)	(24.47)
N	32	31	30	30	32	31	30	30
adj. *R*2	0.889	0.638	0.629	0.555	0.832	0.656	0.567	0.698

	Apulia				Sardinia			
	1868–1899	**1900–1936**	**1950–1979**	**1980–2009**	**1868–1899**	**1900–1936**	**1950–1979**	**1980–2009**
lent	0.631***	0.429***	0.251***	0.246***	0.258***	0.340***	0.378***	0.320***
	(12.47)	(9.30)	(4.17)	(4.71)	(4.42)	(7.81)	(8.71)	(6.33)
incsab_dom	-0.052	0.001	0.085*	0.014	0.003	0.001	0.060*	0.024
	(-2.00)	(0.05)	(2.60)	(0.51)	(0.10)	(0.03)	(2.52)	(0.91)
_cons	0.582***	0.704***	0.805***	0.825***	0.823***	0.761***	0.727***	0.770***
	(14.94)	(20.53)	(18.89)	(21.03)	(18.30)	(23.57)	(23.69)	(20.36)
N	32	31	30	30	32	31	30	30
adj. *R*2	0.835	0.738	0.513	0.414	0.362	0.663	0.776	0.574

Note: t statistics in parentheses; * p < 0.05, ** p < 0.01, *** p < 0.001.