

## **SEASONALITY OF MARRIAGES IN ITALIAN REGIONS: AN ANALYSIS FROM THE FORMATION OF THE ITALIAN KINGDOM TO THE PRESENT**

Gabriele Ruii, Giovanna Gonano

### **1. Introduction**

Marriages are the demographic events more subject to the influence of socio-economic factors. Several empirical studies show that, especially in pre-industrial societies, the seasonality of marriages is deeply influenced by the alternation of periods characterized by very different degrees of workload intensity, deriving from the seasonal production activities practiced locally (Kussmaul, 1985; Dribe and van De Putte, 2012).

For a farmhand, the months of harvest (generally, the summer months) were those in which the likelihood of becoming engaged was higher than during other periods and, therefore, those for when the opportunity cost of marriage - in terms of lost wages - was highest. The situation was no different for small landowners and sharecroppers, for whom these months were crucial for the survival of their families.

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 autumn months and, therefore, these were also the months where farmers could afford the expense of marriage.

With the advent of industrialization first and tertiarization later, both the intensity of the workload and resource availability have tended towards a more equal distribution during 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 marriage (but not its disappearance). As we will show below, the seasonality of marriages has changed over time because its determinants have changed; however, this does not mean that the phenomenon has vanished – rather, it is in fact more accentuated.

In addition to economic determinants, cultural factors (e.g., religious beliefs, superstitions, etc.) can also influence the intra-annual distribution of marriages. For example, in Catholic countries, the ban imposed by the Church on celebrating

weddings during Lent and Advent has produced a strong inhibitory effect on marriages during the months affected by these periods for the preparation of the main Christian festivals (Lesthaeghe and Lopez-Gay, 2013).

This possibility of inferring valuable information about both economic organization and the strength of the socio-cultural norms in conditioning individual behaviour has made the seasonality of marriages a research topic for several disciplines (e.g., economic history, demography, anthropology, biology and sociology). However, the limit of the literature produced is that it is mainly focused on the differences between areas with different production systems, while there is a lack of works that try to shed light on the temporal evolution of the seasonality of marriages.

The present work aims to analyse the seasonal pattern of marriages and its temporal evolution over the last 150 years in the Italian regions (i.e., from the unification of Italy to the present day).

The results of this analysis are presented in the next section. In the last section, we make some final considerations and outline the possible future development of the work.

## 2. Seasonality in the Italian regions

Table 1 shows the series of Henry's index of seasonality from 1862 to 2012 for Italy, calculated by aggregating data for 10 year periods. It also reports an indicator of the intensity of seasonal movement, the so-called 'U<sub>h</sub> index'.<sup>1,2</sup> This last index is equal to 0 in the absence of seasonality, while it increases as seasonality becomes more pronounced. We can see that the U<sub>h</sub> increases as time passes, suggesting that the intensity of seasonal movement is increasing. We also use the goodness of fit tests to determine if the marriages were randomly distributed in the various months

<sup>1</sup> All the data used in this paper come from the volumes "Movimenti della popolazione secondo gli atti dello stato civile," produced by the Italian Ministry of Agriculture, Commerce and Industry since 1923, and by the Italian National Institute of Statistics (ISTAT) since 1950. From 1950, these information were contained in the "Annuario di Statistiche demografiche" produced by ISTAT. From 1988, a specific volume "Matrimoni, Separazioni e Divorzi" have been produced by ISTAT, while from 2004 the data have been published online on ISTAT's website.

<sup>2</sup> The Henry index of seasonality  $I_{i,1862-72}$  for a generic month  $i$  in the decade 1862-1872 is given by:

$$I_{i,1861-71} = \left( \frac{\sum_{t=1862}^{1871} N_{i,t}}{\sum_{t=1862}^{1871} \sum_{i=1}^{12} N_{i,t}} \right) \cdot 1200.$$

Where  $N_{i,t}$  is the number of day events in the month  $i$  of the year  $t$ . The index is normalized in such a way that it assumes that the mean of the month index is always equal to 100. Therefore,  $I_{i,t} > 100$  (or  $< 100$ ) indicates a concentration of marriages in that month superior (or inferior) to the average.

The U<sub>h</sub> index is based on the index of seasonality reported above, and it is given by:

$$U_h = \sqrt{\sum_{i=1}^{12} [\ln(I_{i,1861-71}/100)]^2} / 12.$$

of the year for each decade. The null hypothesis of uniform distribution among months of the year, is always rejected at a 1% significance level.

**Table 1** – *Seasonality of marriages in Italy, 1862-2012.*

*Note: Bold characters indicate the maximum of the distribution, while the minimum is underlined.*

Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	U <sub>h</sub>
1862-71	114.0	<b>183.5</b>	64.3	105.6	84.4	80.1	<u>63.6</u>	72.6	87.8	101.6	147.0	95.5	0.31
1872-81	121.1	<b>165.9</b>	83.1	104.7	88.0	77.9	<u>63.3</u>	71.7	88.3	99.5	125.0	111.5	0.26
1882-91	120.0	<b>156.7</b>	84.7	106.0	89.2	79.2	<u>65.1</u>	71.8	89.4	100.8	129.7	107.3	0.24
1892-01	120.2	<b>164.3</b>	76.2	111.6	82.8	76.3	<u>64.2</u>	67.7	89.8	106.8	131.8	108.3	0.28
1902-11	121.1	<b>161.3</b>	80.1	118.0	84.2	76.8	<u>63.7</u>	64.7	89.7	113.4	127.2	99.7	0.28
1912-21	111.3	<b>134.0</b>	78.5	132.4	86.9	83.3	71.0	<u>70.4</u>	92.3	113.0	121.8	105.2	0.22
1922-31	105.4	<b>146.9</b>	68.2	139.3	77.4	80.5	64.1	<u>63.6</u>	96.2	126.6	125.5	106.3	0.29
1932-41	76.3	118.4	<u>53.5</u>	152.0	72.5	76.8	58.4	61.9	97.4	<b>162.0</b>	122.7	148.1	0.39
1942-51	87.5	110.7	<u>55.0</u>	153.3	79.1	86.8	67.5	69.8	118.8	<b>164.8</b>	103.5	103.1	0.32
1952-61	81.4	98.0	<u>35.0</u>	165.6	76.1	98.1	67.2	81.3	152.1	<b>181.2</b>	79.8	84.2	0.44
1962-71	72.7	72.9	<u>38.2</u>	149.4	90.2	112.6	84.3	110.0	<b>180.0</b>	158.7	50.3	80.7	0.45
1972-81	59.4	61.5	52.6	136.3	95.9	128.8	114.1	113.9	<b>182.0</b>	132.7	36.5	86.3	0.47
1982-91	42.3	43.2	43.7	122.0	104.7	163.1	131.9	107.9	<b>212.0</b>	129.6	24.3	75.5	0.66
1992-01	32.1	37.7	39.3	97.5	121.1	175.1	143.1	108.5	<b>232.7</b>	126.2	21.4	65.2	0.76
2002-12	28.7	34.9	38.1	81.5	134.7	200.0	159.5	112.0	<b>215.4</b>	106.6	23.9	64.7	0.78

We can distinguish three phases: the rural phase; the transition phase; and the modern phase. The rural phase (from approximately 1862 through 1931) coincides with the agricultural model of marriage seasonality described by Kussmaul (1985). The maximum is stable in February, while the least preferred are the summer months (those of the wheat harvest). The strong concentration of marriage in February is also the result of the joint effect of religious prescription. In fact, Lent often runs fully throughout March, and therefore people are married in February in anticipating the period of ban.

The transition phase starts from approximately the 30s and ends in the 60s of the 20<sup>th</sup> century. During this phase, we see the loss of importance of both February and November and, at the same time, the growth of importance of April and October. The reduction of the importance of February is matched with an increase in that of April, and suggests the development of a new pattern of behaviour with regards to the restrictions imposed by Lent. This change is probably due to the beginnings of the mass movement of the population from a rural context to an urban context to work in the industrial sector.<sup>3</sup> Even if not comparable with the summer months, April was also a month of high work intensity for farmers (with

<sup>3</sup> According to Daniele and Malanima (2011), the workforce in agriculture was 53.8 % of the total workforce in Italy at the beginning of the 1930s, falling to 30% in 1961.

the sowing of the corn, and the harvesting of broad beans and other vegetable, etc.). Therefore with the industrialization process, the opportunity cost of getting married in April has reduced, leading to the substitution of the “Lent avoiding strategy” of February with an April postponement.

The modern phase, which starts after the “Italian economic miracle” is characterized by a net inversion of the seasonal pattern with respect to the rural phase: the summer months become the preferred months for a wedding, while the winter and autumn months lose their attractiveness. The case of November is emblematic of this change. This last month passes, in fact, from being the month of the relative maximum in autumn, during the rural phase, to being the absolute minimum in the modern phase.

Obviously the seasonal model for Italy is the result of the composition of the different regional models.

To analyse the seasonality at regional level, we first of all build the decennial Henry’s index for each of them and, after a visual inspection of the series similar to that reported above for Italy, we propose a more formal mode for establishing the phases of the transformation of seasonality. In particular, for each region, we apply a hierarchical cluster analysis to see how these decades are grouped together in clusters (we used Ward’s method as an agglomerative algorithm and the Euclidean distance as a dissimilarity index). We decided the final number of clusters by truncating the dendrogram where the increase of the dissimilarity is strong, since this situation indicates that we are clustering groups that are already homogenous. We interpret these clusters as phases of the evolution of the seasonal pattern. The results obtained are presented in Figure 1.<sup>4,5</sup>

Not surprisingly, the most industrialized regions (Piedmont and Lombardy) are those in which the transition starts early. In three regions of middle-southern Italy (Abruzzo, Latium, Campania) and two northern regions (Liguria and Emilia Romagna), the transition could be divided into two sub-periods: in the first sub-period, there is the substitution of winter maxima with spring maxima, while in the second sub-period we see the rise of the summer months. The regions in which the transition phase starts later are - again not surprisingly - those characterized by the most backward economies (Sardinia, Calabria, Apulia). Surprisingly, Sicily starts

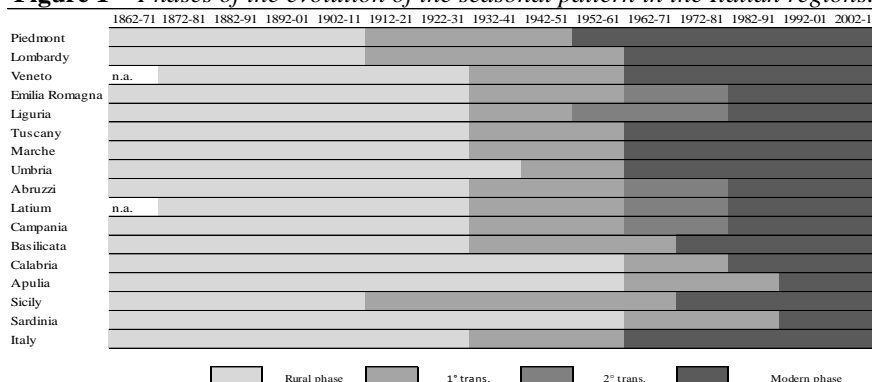
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<sup>4</sup> The Aosta Valley has been part of Piedmont since 1945. Abruzzo and Molise have been joined in a unique region “Abruzzi and Molise” since 1963. The western part of the territory of Friuli Venezia Giulia was part of Veneto, while the eastern part entered as 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.

<sup>5</sup> The dendrograms for each region are omitted for the purpose of brevity. However, the figures are available upon request from the authors. As an alternative to Ward’s method, we also used the average linkage method, obtaining similar clusters.

the transition, together with Piedmont and Lombardy; however, this phase lasts up to the 1970s, suggesting that the “great economic divide” between northern and southern regions started only after the beginnings of the industrialization process.

**Figure 1 – Phases of the evolution of the seasonal pattern in the Italian regions.**



Another peculiar case is represented by Basilicata - for this southern region, the seasonal fluctuations (even if statistically significant according to the goodness of fit test) were less pronounced in comparison to other regions; therefore, it is more difficult to distinguish the phase of seasonality evolution.<sup>6</sup>

The rest of the regions (Tuscany, Marche, Umbria and Veneto) have an evolution of the seasonal pattern that is very similar to that described for Italy.

Given this picture of the evolution of the seasonal pattern, we decided to repeat our cluster analysis in order to see how the regions cluster together in the rural phase. The analysis is carried out using the barycentre of the cluster, representing the rural phase for each of the 16 regions. We report the associated dendrogram in Figure 2, while Figure 3 reports the seasonal models characterizing the clusters. We obtain five clusters, of which three are composed by only one region:

1) *Rural regions with a strong respect for Lent and Advent*: relative maxima in late autumn and absolute maxima in winter, a decline of marriages both in the summer months and during Lent and Advent. The regions within the cluster are as follows: Sardinia, Sicily, Basilicata, Tuscany, Liguria, Marche, Latium and Umbria.

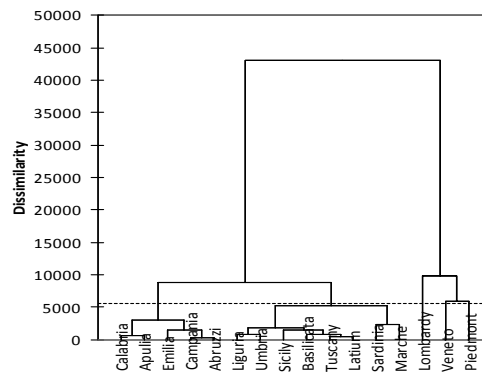
2) *Rural regions with weak respect for Advent*: pattern of seasonality similar to cluster 1 for what regards the first half of the year (from January to July) while in contrast to cluster 1, we see a stable increase in the number of marriages from

<sup>6</sup> It can be noted that, according to Daniele and Malanima (2011), in 1862 Sicily was the most urbanized region of Italy. However, as they note, this statistics may be misleading, since especially in southern Italy, most cities could be considered more as large rural centres than as cities in the modern sense of the term.

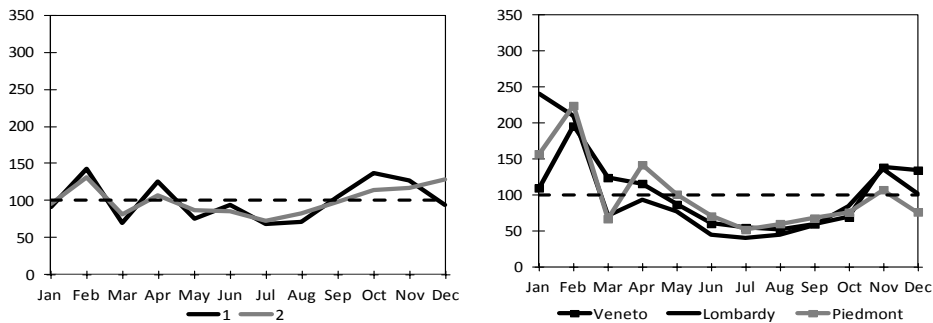
August to December. Regions included within the cluster are: Campania, Calabria, Apulia, Abruzzi and Emilia Romagna.

3-4-5) *Lombardy-Piedmont-Veneto*: maximum in January (for Lombardy) and in February (for Piedmont and Veneto). Veneto is the only region where the index of seasonality in both March and December are well above the annual average.

**Figure 2 – Regional clusters during the rural phase.**



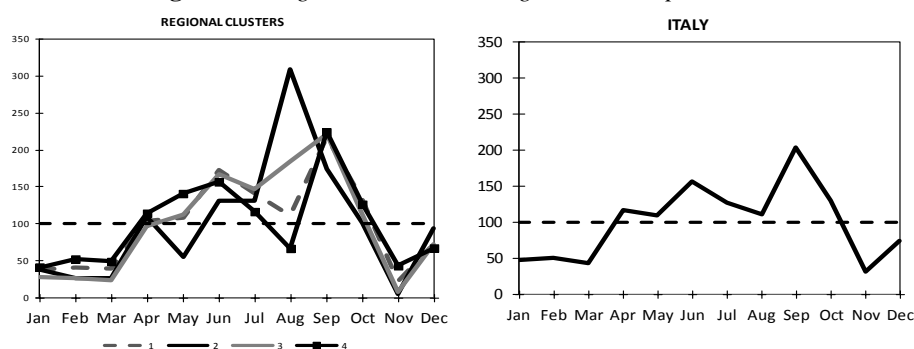
**Figure 3 – Seasonality in regional clusters.**



The more pronounced concentration of marriage during the first months of the year in Lombardy, Piedmont and Veneto is probably due to the cultivation of rice in these regions. In fact, the harvest of rice starts during the first months of autumn and this leads to the widespread postponement of marriages during the winter months. Veneto seems not to respect the religious ban; however, this result is probably driven by the fact that, since 1900, this region has been characterized by a high level of seasonal migration in the direction of neighbouring Italian regions and extra-Italian regions, therefore leaving available only the periods of religious feasts for the celebration of weddings.

Finally, a regional cluster analysis for the last phase has been carried out. We distinguish between four clusters. Their associated models of seasonality are reported in Figure 4. Cluster 1 is composed of: Sardinia, Sicily, Tuscany, Liguria, Latium, Umbria, Marche and Campania. Both Clusters 2 and 3 comprise two regions: Calabria and Basilicata, and Abruzzo and Apulia, respectively. Cluster 2 exhibits the largest differences in the seasonal model in comparison to the other clusters. Indeed, this is the only region showing a unimodal distribution with a high concentration of marriage in August.<sup>7</sup> Cluster 4 includes the northern regions: Piedmont, Lombardy, Veneto and Emilia Romagna. This cluster is characterized by a very low concentration of marriage in August, probably due to climatic factors (the continental climate makes August particularly hot). Clusters 1 and 3 are those exhibiting the largest similarity with respect to the model for Italy.

**Figure 4 – Regional clusters during the modern phase.**



### 3. Conclusions

This paper has highlighted that a gradual trend moving away from the agricultural seasonal model of marriages (characterized by winter maxima and summer minima) and of its regional varieties has taken place but with significantly different rhythms at the regional level, reflecting distinct paths of industrial development. However, the disappearance of the agricultural model does not mean that seasonality has also disappeared; rather the opposite, as we have shown that seasonal differences are magnified by economic development. The availability of paid holidays during summertime and, of course, the favourable climatic conditions make this period ideal for getting married. A possible future development of this work would be to develop an index of religious observance and secularization at

<sup>7</sup> Chiassino and Di Comite (1972) have argued that the peak in August observed in Calabria can be attributed to the emigrants returning for summer holidays.

the regional level by deepening the analysis regarding the respect shown for the Lent ban.

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### SUMMARY

#### **Seasonality of marriages in the Italian regions: an analysis from the formation of the Italian kingdom to the present.**

This paper provides a descriptive picture of the evolution of the seasonal patterns of marriages that has characterized Italy and its regions from the birth of the Italian kingdom to the present day. Although almost all of the Italian regions have converged towards a unique model of seasonality, we show evidence of heterogeneity in the temporal evolution of marriage seasonality across the regions, reflecting the different paths of development that have characterized the different areas of the country.

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Gabriele RUIU, Postdoctoral Research Fellow, Università degli studi di Sassari,  
Dipartimento di Scienze economiche e aziendali, gruiu@uniss.it  
Giovanna GONANO, Research Fellow, Università degli studi di Sassari,  
Dipartimento di Scienze economiche e aziendali, mggonano@uniss.it