

Missing Marriages: Changes in Marriage Formation Trends in Europe after 2020

Abstract

Marriage rates have shown a long-term decline across most European countries, though in many cases they stabilised during the past two decades. The outbreak of the COVID-19 pandemic in 2020 disrupted this relative stability, leading to an abrupt fall in marriages. While some of these marriages were likely postponed and later realised, the pandemic's impact might have extended beyond temporary disruptions, reshaping the trajectory of marriage formation across Europe.

This study examines the pandemic as a disruptive event interrupting marriage formation patterns. Using annual data on crude marriage rates from 1990–2023 (Eurostat), autoregressive integrated moving average (ARIMA) models were estimated to forecast counterfactual marriage rates in the absence of the pandemic. The observed rates were then compared to the predicted values for 2020–2023 to quantify the extent of missing marriages.

Preliminary results from Germany, Belgium, Denmark, and Italy indicate declines in marriage rates in 2020, with notable cross-country variation in both the extent of the decline and the subsequent recovery. Despite partial rebounds, no country fully offset the initial deficit relative to expected levels. These results suggest that the pandemic functioned as a relationship stressor, delaying or deterring marriage formation. Future work will extend this analysis to more European countries and investigate how marriage shortfalls relate to restrictions, mortality, and macroeconomic conditions.

Extended abstract

Introduction

Marriage rates have declined across most European countries for several decades, although in many places they have remained relatively stable over the past 20 years (Eurostat, 2025). The COVID-19 pandemic caused a sharp drop in marriages, and while some of these may have been postponed and later realised, the pandemic likely had a more profound impact on marriage formation patterns and their medium- and long-term trends.

Weddings, which typically involve larger social gatherings, were significantly impacted by the restrictions imposed in many countries between 2020 and 2022 (Hale et al., 2021). As a consequence, there has been a drop in the number of marriages at the beginning of the pandemic. Such observations have been made in the USA (Manning & Payne, 2021; Wagner et al., 2020; Westrick-Payne et al., 2022), Japan (Komura & Ogawa, 2022), South Korea (Kim & Kim, 2021), Mexico (Hoehn-Velasco et al., 2023) and Ecuador (Pérez & Acosta-González, 2025).

In Europe, the downward trends at the onset of the pandemic were followed by an uptick in the number of marriages towards the end of the COVID-19 pandemic and in the immediate following year (2022–2023) (Eurostat, 2025). It is yet to be assessed whether the uptick compensated for the marriages which were “missed”. The pandemic is likely to have affected union formation through several pathways beyond the initial shock. First, relationship strain during lockdowns and periods of uncertainty may have led some couples to postpone or forego marriage, or even to dissolve their partnerships before progressing to marriage. Second, limited opportunities for social interaction, combined with economic and social disruptions, may have hindered the formation of new partnerships or delayed their transition into marriage. Third, the experience of the pandemic may have prompted a broader reevaluation of marriage itself, leading some individuals to abandon the idea of formalising their relationships, perceiving marriage as no longer necessary.

This paper examines a pandemic as a disruptive event that interrupts the typical pattern of marriage formation. It asks three central research questions with a focus on European countries: How seriously was the marriage rate affected at the start of the pandemic (2020–2021)? Were these missing marriages compensated for in the subsequent years (2022–2023)? What was the relationship between the decline in marriages and the severity of the COVID-19 pandemic, public gathering restrictions, and economic sentiment?

Background

The COVID-19 pandemic constituted a global-scale crisis, disrupting daily routines and requiring coordinated responses to limit widespread harm. Comparable large-scale shocks—such as natural disasters or economic downturns—also generate uncertainty and social strain. The research on the marriage behaviour during and after such shocks can guide our expectations on trends in the marriage rates from the onset of the pandemic.

Disaster research presents two theories that link the disaster to changes in marriage rates. On the one hand, the attachment theory suggests that as a response to stress, individuals will seek to secure their connections to others (Cohan & Cole, 2002). On the other hand, stress related to the event might put strain on the relationships and consequently fewer will transition to marriage (Cohan & Cole, 2002).

Interestingly, both responses to disasters have been documented. In line with attachment theory, researchers documented an increase in marriage rates as a response to natural disasters such as hurricanes or earthquakes (Cicatiello et al., 2019; Cohan & Cole, 2002; Xu & Feng, 2016). Several other studies, however, reported decreases in marriage rates following earthquakes or floods (Ahmed, 2017; Hamamatsu et al., 2014; Prati & Pietrantonio, 2014). The response, therefore, does not seem to be uniform and depends on the character and severity of the disaster, society and likely other circumstances.

Economic strain and uncertainty were also linked to individual life decisions. A study by Guetto et al. (2021) documents a direct link between expectations of a delayed recovery to pre-pandemic conditions and intentions to marry. At both, individual and macro level, economic instability has been linked to the postponement of first unions and marriages (de Lange et al., 2014; Vergauwen et al., 2016). Previous research further suggests that cohabitation, rather than marriage, serves as a more flexible response to uncertainty about the future both at the individual and societal level (Guetto et al., 2021; Kalmijn, 2011; Vignoli et al., 2016).

There is robust evidence that the COVID-19 pandemic significantly strained individuals' and couples' well-being, leading to declines in life satisfaction (Hudde et al., 2023) and relationship satisfaction (Schmid et al., 2021). Research from the Czech Republic shows that overall relationship quality decreased during the pandemic, and couples were more often thinking about separation (Kreidl & Hubatková, 2023). A study including respondents from 57 countries documented a drop in relationship quality, especially among individuals who reported more COVID-related stressors (Balzarini et al., 2023).

Summarising findings of previous studies, marital behaviour responds to events disrupting daily lives. Early evidence shows a decline in marriages during the initial phases of the pandemic. The literature suggests that the disruption to marital trends may have been more substantial. Drawing from the literature on natural disasters and economic shocks, I propose two competing hypotheses:

Missing Marriages Hypothesis: The pandemic caused a drop in marriage rates that was not offset in subsequent years.

Compensation Hypothesis: The pandemic caused a temporary drop in marriage rates that was later compensated as postponed marriages took place.

Data and Methods

Annual information on crude marriage rates (i.e. number of marriages per 1,000 people per year) between 1990 and 2023 were extracted from Eurostat. Autoregressive integrated moving average (ARIMA) models (Cryer & Chan, 2008) were used to generate forecasts representing a counterfactual scenario, showing what marriage rates might have been if the COVID-19 pandemic had not occurred. To this end, data from 1990 to 2019 were used to estimate separate ARIMA models for each country and to generate forecasts for 2020 and 2023. Each country was modelled using the simplest ARIMA(p,d,q) structure that fit the data well—where p is the number of AR terms, d is the number of differences, and q is the number of MA terms. The selected models presented in this abstract were: Germany (ARIMA(0,1,0)), Denmark (ARIMA(2,1,0)), Belgium (ARIMA(0,1,0)), and Italy (ARIMA(0,1,0)).

To quantify the extent of “missing marriages,” I compared the observed crude marriage rate (CMR) with its predicted value (forecasted by ARIMA models) over the 2020–2023 period. The percent difference, calculated as

$$\text{Percent Difference} = \frac{\text{Observed CMR} - \text{Predicted CMR}}{\text{Predicted CMR}} \times 100\%$$

showed how much lower or higher the observed rate was compared to the predicted rate. This measure was used to identify and compare patterns of missing marriages across countries. The resulting values were plotted to visualise differences in both the magnitude and relative intensity of marriage shortfalls over the study period.

Preliminary results

Figure 1 shows the trajectories of observed and predicted crude marriage rates (CMR) between 2020 and 2023 in the context of longer-term trends from 1990 to 2019. During the pre-2020 period, all four countries exhibited declines in marriage rates, with short-term fluctuations. The sharp fall in 2020 represents a clear deviation from the established trends in all countries. Nevertheless, the magnitude and recovery paths show substantial differences across the countries.

Figure 1. Observed and predicted crude marriage rates (CMR) in Germany, Belgium, Denmark, and Italy, 2020–2023.

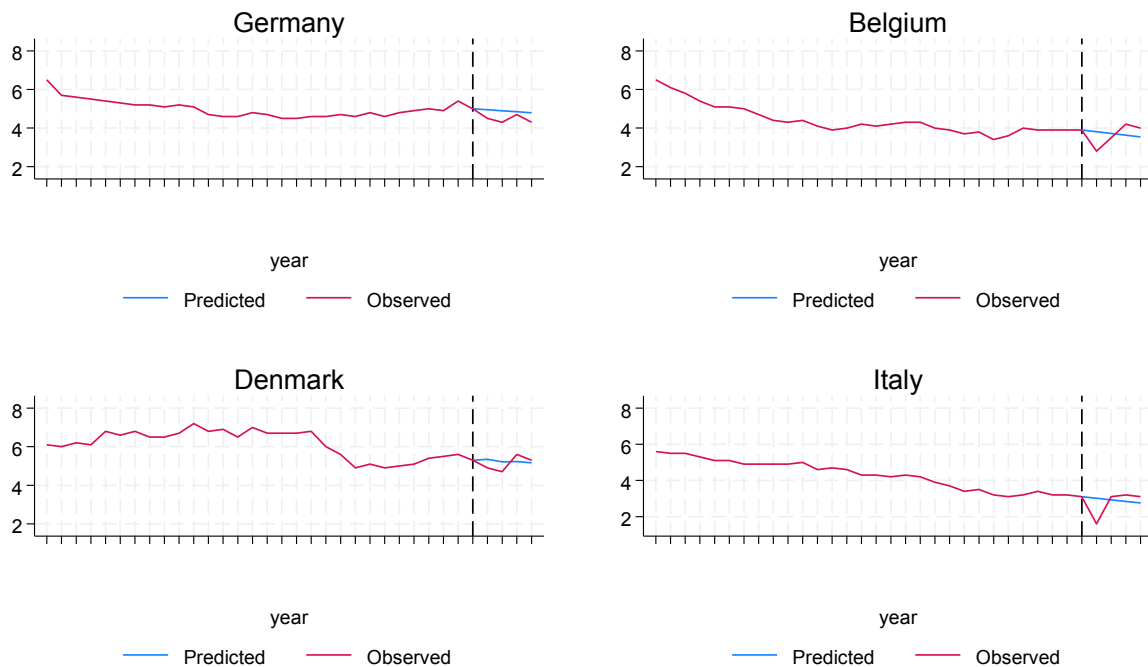
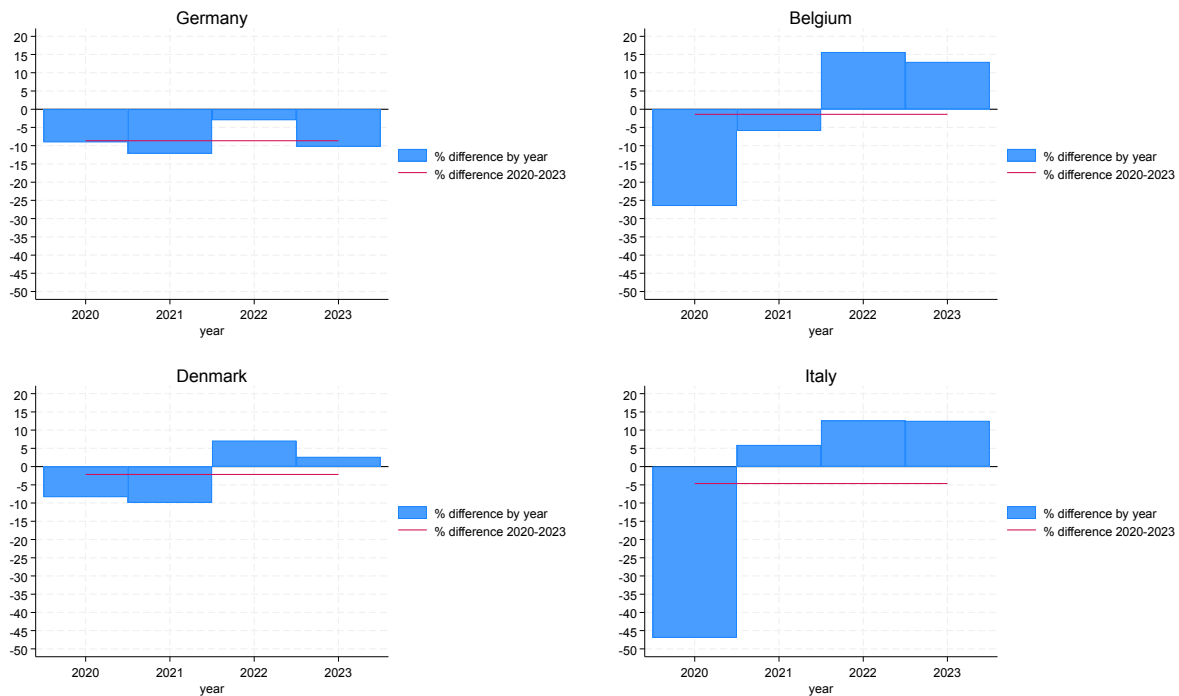


Figure 2 presents the percent difference between observed and expected crude marriage rates (CMR) from 2020 to 2023, revealing distinct cross-country patterns in the extent and persistence of “missing marriages.” In Belgium and Denmark, the sharp initial decline in 2020 was largely compensated over the following years, with observed rates across the entire period being close to predicted levels. In Italy, the

steep drop in 2020 was only partially offset, resulting in an overall shortfall of about 5% relative to expectations. In contrast, Germany experienced a smaller initial decline but a persistent gap throughout the period, leading to the most pronounced overall deviation between observed and expected rates of 10%, among the four countries.

Figure 2. Percent differences between observed and predicted crude marriage rates (CMR) in Germany, Belgium, Denmark, and Italy, 2020–2023.



Preliminary conclusions and next steps

The analysis confirms that the COVID-19 pandemic had a substantial impact on marriage rates across European countries. All countries included in this study experienced a marked initial drop in marriage rates, and in none of them were the predicted marriages fully compensated in 2022 or 2023. These findings support the view that the pandemic acted as a relationship stressor, leading some individuals to postpone or forgo marriage, while others dissolved their partnerships before turning them into marriage. The results also show that the response was heterogeneous across countries: in some, the initial sharp decline was partially compensated, while in others, a smaller initial shock was not compensated at all.

Within the scope of this paper, the next step is to extend the analysis to a broader set of European countries to capture more diverse patterns of “missing marriages” and recovery trajectories. In addition, incorporating multivariate modelling of determinants will enable a more formal examination of the relationship between marriage shortfalls and potential explanatory factors, such as days under gathering restrictions, COVID-19 excess mortality, and macroeconomic indicators.

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