Marital shocks and mortality in France: recent evidence from panel tax data

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Introduction

The literature on differential mortality by marital status emphasized that married people live longer. We may explain this "marriage premium" by several mechanisms. Beyond the selection effects of being in a union, marriage can play a protective role on health by offering better living conditions, a healthy lifestyle, social support, a larger social network and leading to less risky behavior (Lee et al., 2005). On the contrary, divorce and widowhood can deteriorate health, through the loss of these couple's advantages (worse living conditions, loss of social support) or through the shock itself (economic or emotional). In addition, a huge socio-economic gradient in mortality risks is still observed with possible moderating effects for wealthier individuals. First, this paper contributes to the mortality literature by analyzing the association between marital status and mortality risk for seniors over 50 in France. The objective is to go beyond the legal status, by focusing on both current marital status, including unmarried partnerships, and recent events (divorce, widowhood, eventually marriage). We analyze mortality risks by marital status, at all ages, for both sexes, and the changes with duration since last event. Second, this paper looks at income as a possible moderator of the effect of marital status. Using census over the four last decades and two recent huge sample-size databases (Fidéli, an exhaustive administrative fiscal data, and the French Demographic Sample, a subsample of the census linked to other sources), our first results show that being married (or in a civil partnership) is still protective, and even more than it used to be. One exception however is for recent marriages occurring at old ages. Widowhood seems detrimental, particularly at younger ages, and especially in the first two years of widowhood, for both sexes, following the predictions of stress model theory. Divorce has a more limited effect on mortality risk. As regards income, we do find that income is clearly a moderator of marital shocks, especially for men, and at younger ages (50-65).

Background

There is a long series of studies focusing on mortality differentials by marital status. If they agree to emphasize the consistent lower mortality of married people when compared to non-married (Manzoli et al. 2007, Hank & Steinbach 2018), the literature is less conclusive when highlighting possible differences among the group of non-married. For a long time, until unmarried cohabitation became so widespread, the distinction between married and unmarried was equivalent with being in a relationship or not. The legal status of non-married (divorced, widowed, or single) was an additional information on being always single or on the origin of marriage break (by death or divorce). It is not the case anymore as the baby-boomers, the first generations to massively adopt unmarried cohabitation, are entering old ages. Their marital histories are much more diverse than they used to be for previous cohorts: more divorce and separation - even at older ages ("grey divorces", Brown *et al*. 2012- more cohabiting partnerships and remarriage. This high diversification of marital trajectories raises questions on the role of marital history on mortality for the future elderly. Higher mortality has been found among divorced and separated with respect to never married and widowed (Manzoli et al. 2007, Schor et al. 2012, Rendall et al. 2011). Further, these associations may also differ according to: 1) age, as the mortality gap between married and non-married lowers with age; 2) gender, with an excess mortality risk for never married men compared to never married women; 3) time, as differences by marital status have increased over time. At the same time, there might be important factors that act in moderating this relationship, such as the time elapsed since the onset of the event. Schor et al. (2012) found that the mortality risk is particularly high for people in their first two years after widowhood, while no diminishing effect was found for divorcees. On the contrary, Bernsten and Kravdal (2012) found an increase of excess mortality with time elapsed since divorce – but only for men – and since widowhood – but only for long durations. Previous results vary in whether or not they consider remarriage among the possible

alternative statuses to marriage. Another potential moderating factor which has been rarely used in the literature is income (beyond the literature on mortality by socioeconomic gradient). Using education as its proxy, Kravdal (2017) showed that its role is not that important in widening the gap between married and non-married people.

Data, sample and methods

We used three different and complementary data sources. First, census data coupled with civil registration on deaths for the period 1975-2015. This provides a long-term perspective of the evolution over time of mortality differentials by marital status, sex and age. Second, an exhaustive fiscal database on income and housing tax returns (Fidéli) for the period 2015-2016 and on the whole French population. The sample size of interest (i.e. people aged 50 and over) accounts for about 25 million records, with about 560,000 observed deaths each year. Such a large sample size allows analysing rare events and provides current marital status and the date of the last conjugal event, as well as individual and household income. It identifies people in a registered partnership (Pacs) or in unmarried cohabitation. Third, to analyse the duration effect, we use the so called "French Permanent Demographic Sample" (EDP) panel: a recently released administrative database which, for about 4% of the French resident population, follows people over time and up to 6 consecutive years (i.e. from 2010 to 2015). This census-based panel is linked to fiscal data and vital events registrations. We build a cohort of about 272,000 married people aged 50 and over at time t=2010, to observe the potential death of the partner at t+1…t+5, and to record their mortality (i.e. recent widowers' mortality) over the same period.

Preliminary results

We first describe the evolution of mortality rates over the last 40 years, by sex, age and marital status, comparing mortality risk of non-married to married. Findings confirm the advantage of married people in terms of mortality: married have a lower risk than non-married. This marriage premium is especially high at younger ages, and then it decreases and stabilizes around age 70 for men and 80 for women. Over the last 40 years, non-married have a higher relative risk (RR) of dying than married, but the penalty evolves over time depending on their marital status and sex (Figure 1). There has been a relative stability of RR among widowed men, while it has increased among never-married and divorced. For women, we observe a quite different pattern: there has been a sharp increase over time in the RR of mortality among widowed, especially before age 70, while we observe an increase at all ages (especially between 60 and 75) among never married. Among divorced women, the increase was more moderate and quite uniform along the age distribution.

Figure 1 Mortality risks relative to married people (reference) by sex, age and marital status, 1975-1995-2015
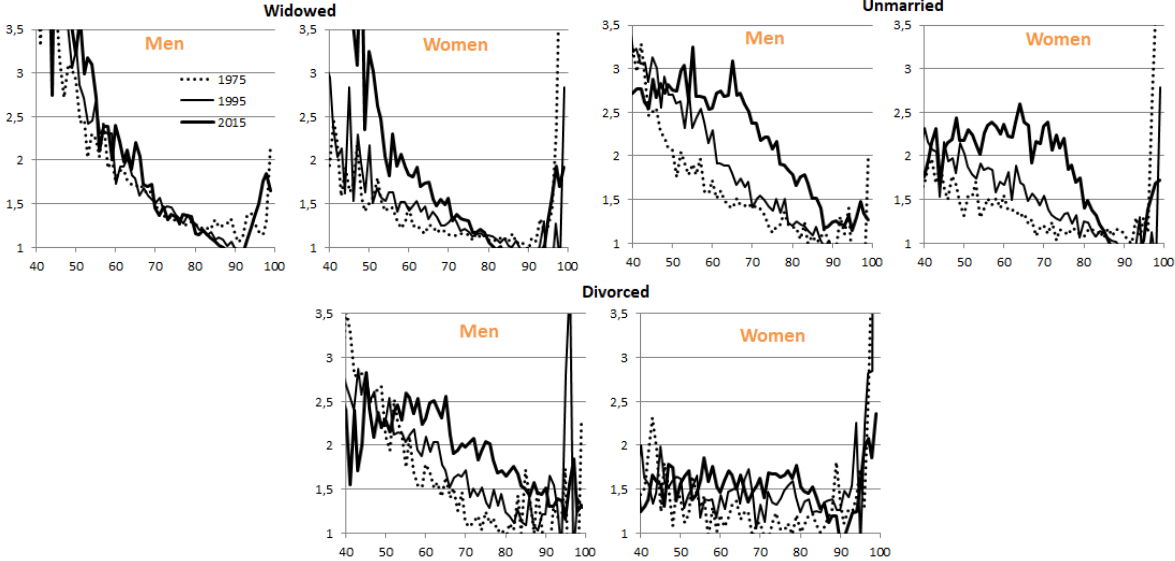
Source: Census and civil registration data, 1975-1995-2015

The multivariate analyses (Figure 2) - using a logistic regression - confirms that never married are more likely to die than married (the reference category), especially never married and widowed at younger ages or never married and divorced at older ages. Marital status plays a bigger role at younger ages than at older ages for both men and women and has a larger effect for men than for women. People in a civil partnership are positively selected, even relatively to married. Including the individual income as reported on the income tax file in the regression moderates the excess mortality among non-married compared to married, mostly for men and especially at younger ages (Figure 2, on the right). The strong correlation between marital status and income among men aged 50-64 may explain this result, low-income men being more often never-married or divorced. We find no such effect among women or people aged 65 and over.

Figure 2 - Mortality risks relative to married people by sex, age and marital status. Odds Ratio
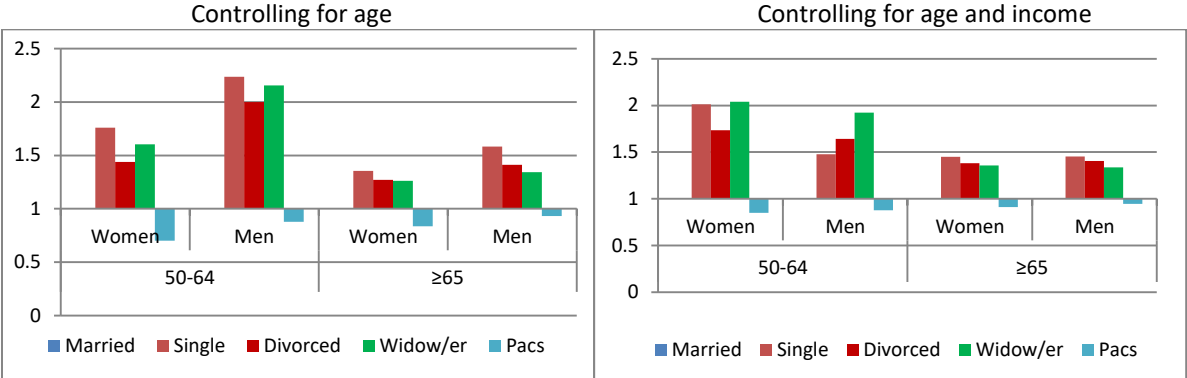
Source: Fideli, 2015-2016

Figure 3 Mortality risks by sex, age and marital status interacted with income quintiles
**Predicted probabilities to die, adjusted for age**
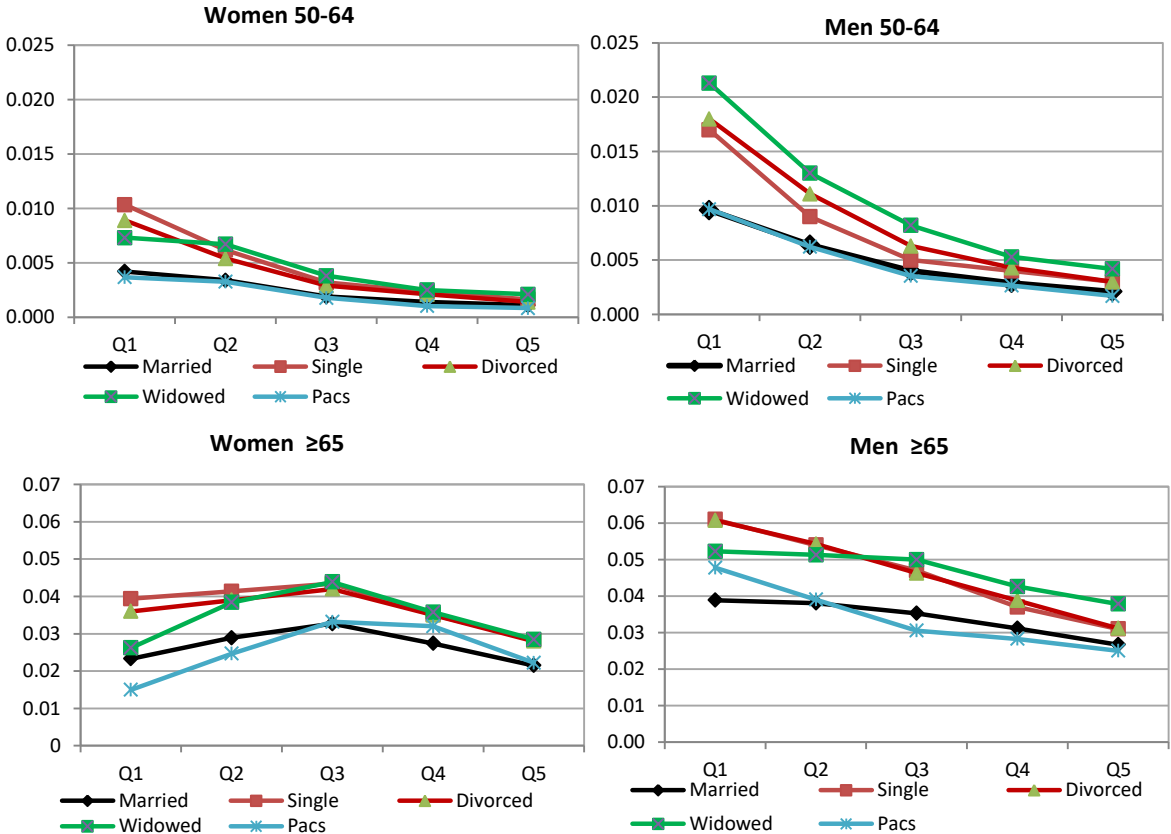
Source: Fideli, 2015-2016

Income as a moderator factor - The inclusion of an interaction term between income and marital status (Figure 3) shows that the income gradient is more marked at younger ages than at older ones. Among people aged 50-64 the excess mortality of the non-married compared to married is higher for lower deciles than for higher ones; among non-married, interaction effects are less important for widowed, especially for women. Among the older age group the income gradient is less pronounced, and is even reversed for women. One explanation may be the use of the individual income that may not reflect the actual standard of living, especially for old women who may benefit from their partner's income. We will re-run the models using the adjusted household income (available in the EDP) as a covariate.

Time elapsed since the onset of the event - We observe a higher risk of mortality in the first two years after partner's death for widowed compared to continuously married, then the RR stabilizes among men and goes on decreasing among women. We do not take re-partnering so far, but we will investigate how it (more frequent for men) may influence these results.

Figure 4 - Predicted probability to die by years since widowhood
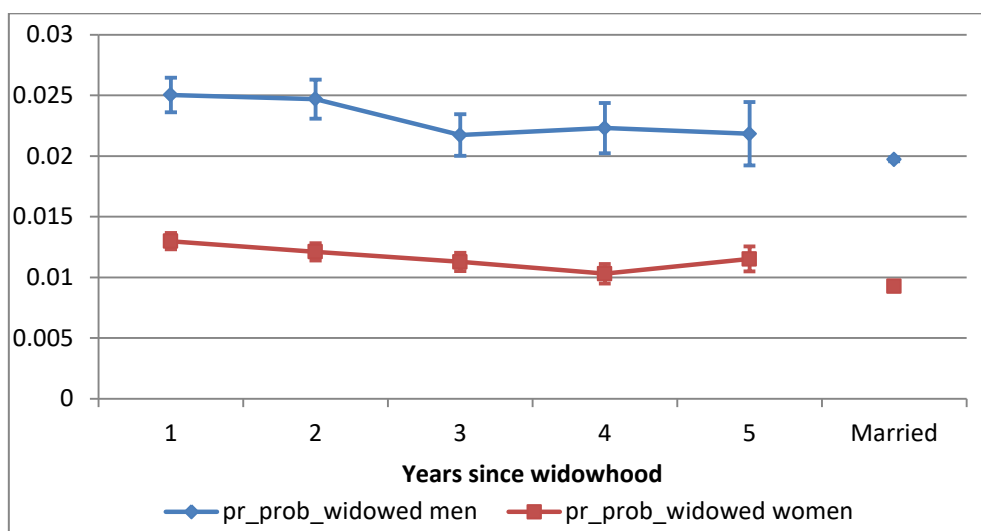
Source: EDP, married people in 2010 and possibly widowed the following years. Comparison of the death probability of widowed during the following years to the death probability of continuously married over the period

Next steps
Our database makes it possible to consider unmarried partnerships, thus enabling us to distinguish marriage survival premium from couple survival premium. We will also use adjusted household income to properly assess the economic impact of widowhood or divorce for men and women.

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