# Divorce Rates and Marital Contracts

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This version : Septembre 2018 ‡
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Extended abstract prepared for PAA 2019

## 1 Research question

Recent papers have found that the share of married couples opting for a separation of assets regime have increased in France (Frémeaux and Leturcq, 2013) and in Italy (Bayot and Voena, 2014) over the last decades. Several reasons have been proposed to explain this phenomenon, one of which hypothesizes that the increasing risk of divorce have made couples more reluctant to pool their assets. Separating assets is seen as a protection against divorce, especially among couples more at-risk of divorce. However, there is no evidence that couples who opted for the matrimonial regime of separation of assets are more at-risk of divorce. No study has measured divorce rates across couples with different marital contracts. The goal of this paper is to fill this gap.

## 2 Context

In France, a couple getting married can decide to sign a prenuptial agreement. If it does, the spouses can choose to opt for a different matrimonial regime. Matrimonial regimes define the ownership status of assets, already acquired or not. With the regime of community of acquisitions (the regime assigned to couples if they don't sign a prenuptial agreement), spouses pool all assets to be acquired after marriage, excepting bequests. Pooled assets are split equally between spouses in case of divorce. Separation of assets is the main alternative to the default contract. With this regime, spouses do not pool any assets. It is often seen as an alternative to protect one spouse's own assets against the

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other spouse in case of divorce. Whereas the default matrimonial regime and the main alternative are country-specific, all countries propose some sort of matrimonial regimes to married couples, including matrimonial regime to avoid pooling of assets. In particular, the French context also apply to Italy: Italian couples can choose to separate their assets but the default contract implies that couples share assets acquired after marriage. Although opting for a different marital contract in France is quite costly, changing contract in Italy can be done at very low-cost. We present in this abstract the results on French data.

## 3 Data and Methodology

We use the French surveys *Enquêtes Patrimoine*, which are repeated cross-sectional data, covering 10,000 to 15,000 households. Up to now, 5 waves are available: 1992, 1998, 2004, 2010 and 2014. In each wave, we observe couples, their legal marital status and their matrimonial regime, as well as the year the couple was formed.

The methodology to construct differential divorce rates across couples from cross-sectional data can be simplified as follows. At wave $T$, we know the share of couples with a matrimonial regime $S$, for each cohort of marriage (i.e. couples married between year $Y$ and $Y+k$) observed in wave $T$. By comparing the same share for the same cohort at wave $T+1$, we are able to identify whether couples with a matrimonial regime $S$ divorce more (which would result in a decrease in the share) or divorce less (increase in the share) than couples married with a different matrimonial regime. This general idea can be extended to account for individual characteristics, as long as these characteristics are constant over time (education, wealth at marriage, etc.).

We present now more precisely the method described in Guell and Hu (2006), applied to our specific question. Assume two samples, observed at time $T$ and $T+1$. We denote $y$, a dummy variable indicating if the couple stays married at time $T+1$. $P(y=1)$ gives the survival rate of a couple, conditional of having survived until $T$. Let $X$ be couple's characteristics, such as year of birth, educational attainment, and marital contract. We observe the conditional distribution $X|y=1$ in our data. If we pool the two samples, we can write down the probability, conditional on $X$, that an observation belongs to the second sample. Let $m_1$ and $m_2$ be the number of observations in sample 1 and 2 respectively (potentially weighted by their sample weights). Let $\tilde{y}$ be an indicator that takes the value 1 if the observation is observed in the second sample and 0 if it belongs to sample 1. Then we can derive $P(y=1|X=x)$ from $P(\tilde{y}=1|X=x)$. Indeed, the joint distribution of $(X,\tilde{y})$ in the

combined sample is:

$$\begin{aligned} P(X=x,\tilde{y}=1) &= \frac{m_2}{m_1+m_2}P(X=x|y=1) \\ &= \frac{m_2}{m_1+m_2}\frac{P(y=1|X=x)P(X=x)}{P(y=1)} \\ P(X=x,\tilde{y}=0) &= \frac{m_2}{m_1+m_2}P(X=x) \end{aligned}$$

Applying Bayes' rule, we have:

$$\begin{aligned} P(\tilde{y}=1|X=x) &= \frac{P(X=x,\tilde{y}=1)}{P(X=x)} = \frac{P(X=x,\tilde{y}=1)}{P(X=x,\tilde{y}=0)+P(X=x,\tilde{y}=1)} \\ &= \frac{1}{1+\frac{m_1}{m_2}\frac{P(y=1)}{P(y=1|X=x)}} \\ &= \frac{1}{1+\alpha\frac{1}{P(y=1|X=x)}} \end{aligned}$$

where $\alpha = \frac{m_1}{m_2}P(y=1)$ is unknown because $P(y=1)$ is unknown. So it is treated as a parameter that has to be estimated. We assume a logit specification for $P(\tilde{y}=1|X=x)$, so we have:

$$P(\tilde{y}=1|X=x) = \frac{exp(x'\beta)}{\alpha+(1+\alpha)exp(x'\beta)} \quad (1)$$

$$P(\tilde{y}=0|X=x) = \frac{\alpha(1+exp(x'\beta))}{\alpha+(1+\alpha)exp(x'\beta)} \quad (2)$$

From (1) and (2), we can estimate $\alpha$ and $\beta$ by maximum likelihood. The log-likelihood is given by:

$$l(\{\tilde{y}_i,x_i\}_{i\in[1,N]};\alpha,\beta) = \sum_i ln(P(\tilde{y}_i=1|X=x_i))1(\tilde{y}_i=1) + ln(P(\tilde{y}_i=0|X=x_i))1(\tilde{y}_i=0) \quad (3)$$

# 4 Results

Table 1 indicates that the share of married couples separating their assets among all married couples has increased over time: they were 6.1% of married couples in 1992 and they are now 9.7%. Frémeaux and Leturcq (2013) indicates that the share of couples married with a prenuptial agreement of separation of assets increased among newly formed couples, which could partly explain this increase. An alternative explanation would be that the divorce rate among couples married with a contract of separation of assets is lower, which our research question in this paper.

Table 1 also indicates that couples married with a contract of separation of assets are different

from other married couples: they tend to be younger and the age difference between the husband and the wife is larger. Moreover, they tend to be in a shorter relationship.

The maximization of (3) gives the results presented in table 2. Although the estimation is not completed at that stage, it already gives interesting results. We control for basic characteristics of couples: the year of birth of the husband (10-year brackets) and the age difference between the spouses (we created binary variables indicating: wife older, husband 0-2 years older, husband 3-5 years older, husband 6 or more years older) and the year the couple met (6-years brackets). For all waves, we find that married couples with a contract of separation of assets have a **higher** probability of survival as compared to married couples without prenuptial agreements, as the coefficient is positive, although not significant for the probability of survival between 2010 and 2014.

## 5 Discussion

This positive impact of being married with a contract of separation of assets on survival into marriage could be interpreted in three ways:

- *The impact of omitted variable?* Couples married with a contract of separation of assets may be different from other couples on a bunch of different dimensions. Frémeaux and Leturcq (2013) show that they are more educated, they are wealthier and more likely to have been married before this union. Our estimation strategy allows us to control for more individual characteristics. Therefore, we will analyze if this correlation is due to omitted variables, to be integrated in the estimation.

- *Selection of couples into separation of assets?* The motives explaining why couples chose to marry with a contract of separation of assets are unknown. The choice may be related to bargaining between spouses before marriage but also between the couple and the family, especially if one spouse is likely to receive a bequest but not the other spouse. This pre-marital period of bargaining may be a stressful experience, which would induce a selection of more determined couples.

- *A causal impact?* Last but not least, couples married with a contract of separation of assets may have a different way to deal with financial topics, that could help them overcome arguments related to household finance.

This article is very much in progress. We are currently working in two main directions.

1. Adding more controls to the estimation (educational attainment, social background, wealth, 2nd union)

2. We have been granting access to administrative Italian data which will allow us to estimate accurate divorce rates across marital contracts.

## References

**Bayot, D. and A. Voena**, "Prenuptial Contracts, Labor Supply and Household Investments," Technical Report, Working Paper, University of Chicago 11 2014.

**Frémeaux, Nicolas and Marion Leturcq**, "Plus ou moins mariés : l'évolution du mariage et des régimes matrimoniaux en France," *Economie et Statistique*, 2013, *462* (1), 125–151.

**Guell, Maia and Luojia Hu**, "Estimating the probability of leaving unemployment using uncompleted spells from repeated cross-section data," *Journal of Econometrics*, 2006, *133* (1), 307 – 341.

Table 1: Descriptive statistics

| | 1992 | | 1998 | | 2004 | | 2010— | | 2014— | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No marital contract | Separation of assets | No marital contract | Separation of assets | No marital contract | Separation of assets | No marital contract | Separation of assets | No marital contract | Separation of assets |
| % among married | 93.9 | 6.1 | 92.7 | 7.3 | 91.2 | 8.8 | 90.0 | 10.0 | 90.3 | 9.7 |
| Husband's age | 50.2 | 47.7 | 51.9 | 48.5 | 53.3 | 50.2 | 54.0 | 51.3 | 55.9 | 52.7 |
| Wife's age | 47.6 | 44.4 | 49.2 | 45.2 | 50.9 | 47.2 | 51.9 | 48.9 | 54.1 | 50.3 |
| Age difference | 2.5 | 3.3 | 2.6 | 3.3 | 2.5 | 3.0 | 2.1 | 2.4 | 1.8 | 2.4 |
| Nb of years living together | 25.2 | 18.1 | 27.2 | 19.4 | 28.7 | 21.7 | 29.1 | 21.9 | 30.6 | 22.9 |

Table 2: Estimation of the coefficients by maximum likelihood

| | (1) | | (2) | | (3) | | (4) | |
|---|---|---|---|---|---|---|---|---|
| | Survival between 1992 and 1998 | | Survival between 1998 and 2004 | | Survival between 2004 and 2010 | | Survival between 2010 and 2014 | |
| eq1 | | | | | | | | |
| Separation of assets | 0.107*** | (0.002) | 0.313*** | (0.010) | 0.085*** | (0.002) | 0.008 | (0.006) |
| Husband 0-2 years older than wife | ref. | | ref. | | ref. | | ref. | |
| Husband 3-5 years older than wife | 0.003** | (0.001) | -0.183*** | (0.005) | 0.028*** | (0.001) | -0.285*** | (0.007) |
| Husband 6+ years older than wife | 0.520*** | (0.001) | -1.590*** | (0.006) | 0.067*** | (0.002) | -0.381*** | (0.009) |
| Wife older than husband | 0.012*** | (0.001) | -0.236*** | (0.005) | 0.318*** | (0.001) | -0.241*** | (0.007) |
| Couple met in 1950-55 | 0.180*** | (0.002) | -3.082*** | (0.015) | -0.053*** | (0.004) | 0.000 | (.) |
| Couple met in 1956-61 | 0.045*** | (0.002) | -1.234*** | (0.010) | 0.046*** | (0.002) | -0.317*** | (0.009) |
| Couple met in 1962-67 | ref. | | ref. | | ref. | | ref. | |
| Couple met in 1968-73 | -0.208*** | (0.002) | 1.637*** | (0.010) | 0.119*** | (0.002) | -0.283*** | (0.007) |
| Couple met in 1974-79 | -0.555*** | (0.002) | 3.011*** | (0.013) | -0.052*** | (0.002) | -0.207*** | (0.010) |
| Couple met in 1980-85 | -0.803*** | (0.002) | 4.339*** | (0.017) | -0.214*** | (0.002) | -0.871*** | (0.010) |
| Couple met in 1986-91 | -0.809*** | (0.003) | 5.159*** | (0.020) | -0.054*** | (0.003) | -0.930*** | (0.010) |
| Couple met in 1992-97 | 0.000 | (.) | 0.000 | (.) | 0.028*** | (0.003) | -1.002*** | (0.011) |
| Couple met in 1998-03 | 0.000 | (.) | 0.000 | (.) | 0.000 | (.) | -1.722*** | (0.016) |
| Couple met in 2004-09 | 0.000 | (.) | 0.000 | (.) | 0.000 | (.) | -0.043* | (0.017) |
| Husband born in 1920-29 | -1.099*** | (0.003) | 6.224*** | (0.025) | 0.000 | (.) | 0.000 | (.) |
| Husband born in 1930-39 | -0.753*** | (0.002) | 4.897*** | (0.021) | -0.262*** | (0.003) | -1.304*** | (0.016) |
| Husband born in 1940-49 | -0.475*** | (0.002) | 2.266*** | (0.011) | -0.007*** | (0.002) | -1.179*** | (0.016) |
| Husband born in 1950-59 | ref. | | ref. | | ref. | | ref. | |
| Husband born in 1960-69 | 0.573*** | (0.002) | -1.740*** | (0.010) | 0.014*** | (0.002) | -0.038*** | (0.008) |
| Husband born in 1970-79 | 0.000 | (.) | 0.000 | (.) | 0.180*** | (0.003) | 0.384*** | (0.007) |
| Constant | -9.073*** | (1.563) | -1.700*** | (0.010) | -8.723*** | (1.548) | 2.291*** | (0.034) |
| eq2 | | | | | | | | |
| Constant | 0.000 | (0.000) | 0.805*** | (0.001) | 0.000 | (0.000) | 0.789*** | (0.004) |
| Observations | 10365 | | 8788 | | 9822 | | 11509 | |

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$