

DISSOLUTION OF SECOND AND HIGHER ORDER UNIONS IN FRANCE

A comparison with first unions

Eva Beaujouan

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1. Introduction

Research on comparison of first and second union dissolution has developed in Europe over the last quarter of a century. Different results have been obtained, and I would like to contribute to this exploration by presenting some results and explanations based on French data.

How can we compare dissolution risks in France? Looking at crude results, second unions are significantly more unstable than first unions. Does a selection effect dominate, i.e. are second unions less stable because they mainly concern especially unstable individuals? Or does a structure effect dominate, which could be due to the very different characteristics of the individuals in first and in second unions? In that case, controlling for some special covariates could suffice to change the connection between the risks.

In order to test these hypotheses, I will compare dissolution risks among first and subsequent relationships in France, including married and unmarried unions, within one single model for repeated events. I firstly propose to focus on the main determinants of union stability, such as children or marriage, and to see the changes induced on the relationship between first and second unions' risks. To complete these results, and verify for the selectivity hypothesis, I will introduce unobserved heterogeneity and analyse the subsequent changes.

Introducing covariates step by step in the model, I will describe more precisely the process underlying these large changes in relative dissolution risks. In that aim, I will detail dissolution risks separately in first and second unions. More specifically, I will propose some interpretations and also give some clues to choose which covariates are the most important in the model, and if they can all be introduced in this biographical study together with unobserved heterogeneity. Which conclusion can we finally give concerning the comparison between first and second union dissolution risk, and how reliable are these results?

2. Dissolution of second unions, a recent research topic in Europe

France has seen an upsurge in divorces in the last decades, and the total divorce rate reached 42.5% in 2003. The increasing instability of first partnerships raises the question of stability in second unions. Consequently, a significant number of studies, comparing dissolution levels according to union order, have been published recently in Europe.

Before the major changes in family behaviours four decades ago in Europe, cohabitation and second union dissolution were marginal. For instance, marriage was the main behaviour and for this reason, production of data for quantitative analysis of unmarried cohabitation would have been incongruous. Indeed, until now we did not need data on a marginal phenomenon. However, with the development of complex conjugal trajectories in European countries, data on cohabitation and second unions are now becoming available, and have given rise to a growing number of studies on the topic.

In the late 70s, researchers showed that redivorce rates were higher than first divorce rates. Among them, James McCarthy (1978) also showed that race, age at first marriage, presence of children and education had significantly different impacts when comparing first and second divorce in the United States. Tools became more statistical, and the findings of Castro-Martin and Bumpass (1989), showing that second marriages were less stable than first ones, were based on life-table analysis. They controlled for many different covariates. However, by comparing marriage at modal ages, S.C. Clarke and B.F. Wilson (1994) found that even if second marriages were less stable than first ones in the first years of the union, after a while divorce rates converged. In their literature review of studies on the topic, and in the different texts I read, it seems clear that the outputs depend strongly on two factors: firstly the tools used, from simple demographic tools to advanced survival analysis; and secondly the controls performed.

In the United States, Furstenberg and Spanier (1984) gave some theoretical explanations for higher second divorce risks. They pointed out that some more dissolution-prone individuals were selected in the second marriages, and raised the divorce propensity of this group. A major step forward was made with the introduction of unobserved heterogeneity in hazard models for family behaviours to control for this “population with high divorce propensity”. Lillard showed the way in 1995 by jointly modelling premarital cohabitation and divorce risk. The method was extended to comparison of first and second divorce risks. By isolating the dissolution-prone population in the model, results were found in which second unions were significantly

more stable than first ones. Recent studies have been conducted in England (Steele et al., 2006) and in Norway (Poortman, Lyngstad, 2007). The first concluded that the experience of first union dissolution among English women did not generate a higher second union dissolution risk. The second distinguished marriage and cohabitation, and established that second relationships were globally more stable than first ones; but detailing relationship status, it concluded that people whose first union was a marriage were more likely to dissolve their second union than former cohabitants. To come to these conclusions, they both introduced an unobserved heterogeneity term in their models, to control for a selection of more dissolution-prone persons in second relationships.

Certain factors are advanced recurrently in studies of separation risks. Among the demographic factors, the most commonly cited are age at union formation, children and marital status: people who are younger at union formation, with previous children or without shared children and who remain in cohabitation have a higher dissolution risk (Toulemon, 1996; Erlangsen, Andersson, 2001). Concerning the familial and social background, parents's divorce and socio-economic status are strongly associated with separation risk (de Graaf, Kalmijn, 2006). Moreover, religion and nationality are also shown to have a link with dissolution behaviour (Kalmijn et al, 2005).

3. Data and method

3.1. Data

3.1.1. GGS

The "Étude des Relations Familiales et Intergénérationnelles" (ERFI, 2005, Insee-Ined) is the French version of the European "Generation and Gender Survey" (GGS). Covering 10,000 individuals aged between 18 and 79 representative of the French population, the survey contains descriptive data about respondents and details the characteristics of couples. I use the respondents' complete union history, tied in with the birth of their children. It includes a retrospective section on the partnership history which describes the sequence of unions.

3.1.2. Some preliminary remarks on the sample

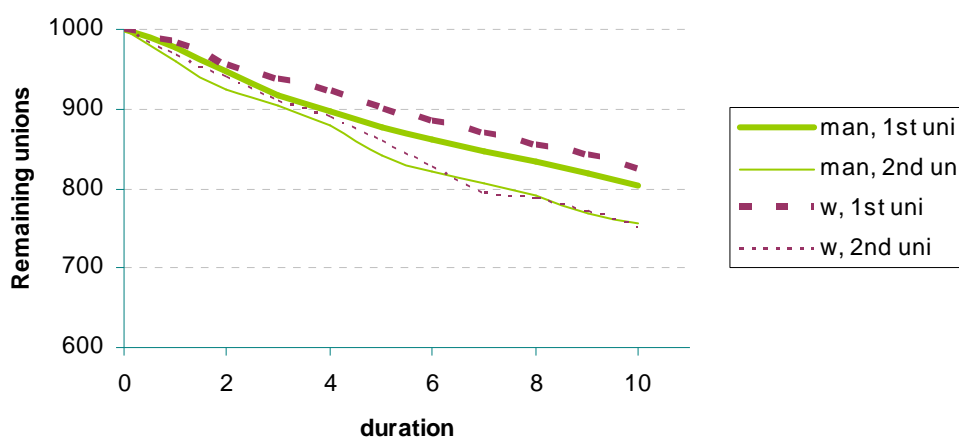
During the survey, people were asked for the history of their relationships. In this specific context, a union is defined by the fact of having lived together with a partner for

at least three months. Thus, it begins at cohabitation date, and finishes at separation, death of the partner or interview date.

The sample included some memory errors, which underestimate the number of unions of the oldest cohorts, and some large differences between the declarations of men and women in the youngest cohorts. I therefore decided to keep only women's unions, and to be very careful about analysing the oldest cohorts' behaviours. Moreover, there was also a declaration gap between young and old cohorts: exploration of the data shows that young people declare a large number of unions that are not declared by slightly older people. To avoid these boundary effects, I also chose to keep only persons aged between 25 and 79 in the survey. This eliminates certain biases in the model without really affecting the results.

In this sample, 4482 women aged 25 and more entered a first union, among which 1429 were disrupted. 859 entered a second, and 135 three or more unions. The size is large enough to permit a event history analysis of first and second unions dissolution.

Remaining unions after separation
excluding death of partner
By sex and union order



Ined-Insee, Erfi-GGS1, 2005

Basically, ten years after union formation, 80% of couples in first unions are still together, while only 75% of second unions continue. Without any control variables, second unions dissolve more rapidly than first unions.

The comparison of first and second relationships stability is not further possible here. Indeed, the small number of individuals and their truncated trajectories doesn't make it possible to go into further detailed comparison, even during ten years.

Moreover, a direct comparison of the durations of first and second unions could have given an idea of any "improvement" in second union. However, most of the second unions are truncated by survey or death, and the fact that the trajectories are not finished for all people makes any comparison of this kind impossible. Even if we want to compare the unions once they are both dissolved, there will be great biases because among potentially disrupted unions, we only have the shortest one (which are the one that had time to dissolve).

Additional tools have to be introduced to refine these crude results.

3.2. Method

3.2.1. Event history analysis

Events history analysis is one efficient tool to solve the problems exposed before. Based on separation quickness and intensity, it also takes into account trajectories of all individuals as long as they are not censored (Courgeau and Lelièvre, 2001). Putting all unions of every individual in a single model, a repeated risk model allows the comparison of the risks of dissolutions of first unions and second unions taken globally. However, we already see that by putting everybody together, the model can be biased. Indeed, the estimations are influenced by all the exposures and events, even the one of other orders unions. Individuals in second unions are a subgroup of the one in first. Thus first we have to control for union order, but also maybe for the repeated presence of some specific individuals which could bias the estimated risk.

The dissolution risk was represented in a hazard model, with a piecewise linear specification of the log-hazard. With this choice of model, the baseline spline is the representation of the risk of relationship dissolution by union duration. The hazard of union dissolution is given at the reference level, i.e. it depends on the reference categories chosen for the covariates introduced. Introducing other different covariates causes the shape and level of the duration spline to change, thus indirectly standardizing the risk.

The "event" is the separation, at the time of decohabitation or divorce. Otherwise, if the union ends with the death of the partner or was ongoing at the time of the survey, it is considered as censored.

After several tests that showed almost no difference with and without weights, it appeared preferable to keep the unweighted model. Indeed, weights based on today's situation may not represent people at the moment of their relationships, which obviously comprise the past. Consequently, the unweighted model was considered to be adequate for the purposes of this study.

Two models were built, one for first union dissolution (1), and one for second union dissolution (2)

$$\ln h_{i1}(t) = \ln y_1(t) + \sum_k \beta_{ik} X_{ik} + \sum_m \rho_{i1m} C_{i1m} + \sum_n \gamma_{i1n} C_{i1n}(t) \quad (1)$$

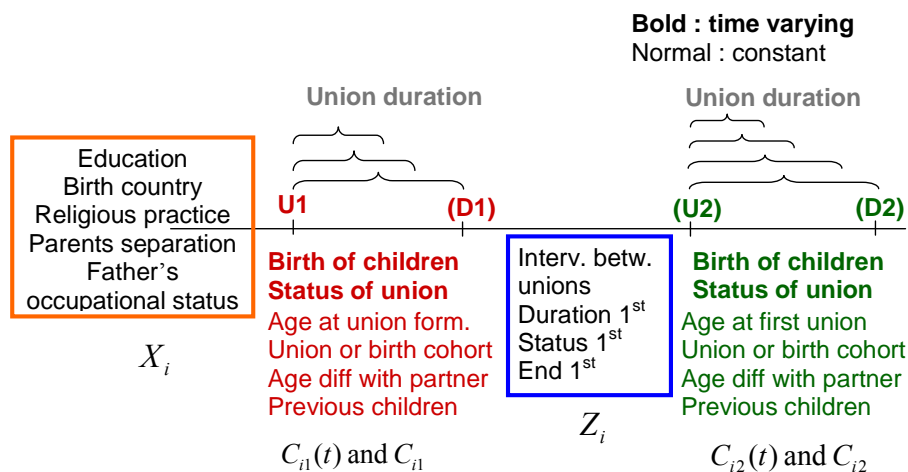
$$\ln h_{i2}(t) = \ln y_2(t) + \sum_k \beta_{ik} X_{ik} + \sum_l \alpha_{i1l} Z_{i1l} + \sum_m \rho_{i2m} C_{i2m} + \sum_n \gamma_{i2n} C_{i2n}(t) \quad (2)$$

In the second model, one more group of covariates was introduced, describing first union specificities. It will be detailed thereafter.

However, it was not possible to compare the dissolution levels in first and second unions in separate models, because the average individual is not the same in these two relationships. Thus a model for repeated events was also constructed, that contained all the partnerships experienced by respondents (3).

$$\ln h_{ij}(t) = \ln y_j(t) + \sum_k \beta_{ik} X_{ik} + \sum_r \rho_{ijr} C_{ijr} + \sum_s \gamma_{ijs} C_{ijs}(t) + \varepsilon_i \quad (3)$$

The diagram below details the different groups of available covariates:



To take into account the diversity of the population exposed to the risk, a large number of uncorrelated social, demographic and economic components, and specificities of each union, was available. The results of previous studies, partly presented above, also

guided the choice. For the needs of the demonstration, different sets of covariates and interactions were introduced into the model, according to the point of view proposed.

Duration variables should be considered attentively in order to fix precisely the comparison exposed in the joint model. The possible covariates are: age at current union formation, age at first union formation, current age, birth date (generation), current union cohort, first union cohort, current year. As much as possible, covariates are chosen in order to control for period, generation and age effect. Age at first union formation, current age and union cohort are retained. This avoids a problematic comparison that would occur controlling for age at current union. In this case, the model would compare very different populations, like those aged 25 at first union and the one of the same age at second union, for instance. Current age controls for age effect, and union cohort a bit of period and generation effects.

For each individual i , the variables introduced are of three different types.

Some contextual covariates, X_i , describe the specificities of the individual. An other group of covariates represents the characteristics of the first (C_{i1}) or second (C_{i2}) union. Children within the union, cohabitation or marriage status are treated as time-varying covariates. The use of education level and religious practice was considered. However, educational level will not be taken into account in this first study for different reasons. Firstly, it varies over the individual's life, and some people can be exposed to a dissolution risk before they complete their studies. In this survey, 20% began their first union before the end of their studies. Thus a time-varying covariate could be adequate, but the data structure makes it difficult. Secondly, the observation field is very large, and the denotation of education is highly different across the cohorts. The use of a relative level of education would thus be essential, to blend the significance of the variable. So instead, a variable of "father's occupational status" was constructed (if it was not indicated, it was replaced by mother's status). It controls partly for the social background.

Religious practice can also change with time, and a divorce could be an additional reason for loss of interest. However, we assume that this variation is negligible, in order to have at least an indication of the religious implication. The importance of the change can not be estimated here, and there is not any alternative variable to replace this one. Furthermore, the introduction does not seem to bias the other estimates, but is highly significant.

A last group, specific to second partnerships, takes into account the characteristics of the first union Z_i . It is only used in the model (2). For a question of specification, it was not possible to introduce factor describing “the previous union” in the joint model.

For each covariate retained in the model, the t-test before and after introduction is very significant, which means that its consideration is important for the accuracy of the models. Moreover, it means that there is a significant relation between this variable and the dissolution risk.

The comparison of dissolution risks is directly generated by the model 3: union order is introduced as a covariate, and the exponential of the estimate concerning the second relationship dissolution risks in reference to the first, is displayed as the “relative risk of separation of the second union compared to the first one”.

Finally, ε_i is an individual specific unobserved heterogeneity term that can be introduced in the repeated-events model. It is described thereafter.

3.2.2. Unobserved heterogeneity: why and how?

Let us introduce the hypothesis that second unions are less stable than first unions, at least partly because of the selection of a very specific group in the second union: people who, compared to the average individual, are more dissolution-prone. This has a number of impacts. Estimates can be biased, because of an over-representation of these people in some covariates sub-categories, and the risk of second dissolution for the average person can be over-estimated. Thus it could be important to control for this group of people. This can be done by using an unobserved heterogeneity term.

The introduction of this element, if significant, shows if the sub-population is large and specific enough to bias the estimates of different covariates and to change the relationship between first and second relationship dissolution risk.

For this model, the element we introduce is specific to each individual and considered as normally distributed. Its calculation is based on the expected probability of the event happening in each time-interval (Aalen, 1988). Hence the main hypothesis is that the individual incidence rate is constant over a given time period. This means that our term must be independent of the set of variables introduced in the model. So we must assume that individual behaviour is constant over time, and also that the unobserved heterogeneity term has no relation with any covariate.

Table 1 : Union dissolution: second union risk compared to first union risk, with and without unobserved heterogeneity, Control for union cohort

Control for union cohort	without unobserved heterogeneity				with unobserved heterogeneity			
Which controls?	Relative risk U2/U1	standard error	n	log-likelihood	Relative risk U2/U1	standard error	sigma	log-likelihood
No controls	1,65***	0,065	9	-13069	1,22*	0,106	0,79	-13061
basic controls including union cohort	1,02	0,069	29	-12715	0,76**	0,121	0,71	-12710
+ marriage only	0,87**	0,068	31	-12508	0,68***	0,112	0,64	-12502
+ shared children only	0,91	0,070	34	-12628	0,66***	0,120	0,73	-12621
+ shared children and marriage	0,82***	0,069	36	-12458	0,65***	0,114	0,61	-12453
+ previous children (all covariates)	0,62***	0,086	39	-12438	0,48***	0,131	0,61	-12433

Table 2 : Union dissolution: second union risk compared to first union risk, with and without unobserved heterogeneity, Control for birth cohort

Control for birth cohort	without unobserved heterogeneity				with unobserved heterogeneity			
Which controls?	Relative risk U2/U1	standard error	n	log-likelihood	Relative risk U2/U1	standard error	sigma	log-likelihood
No controls	1,65***	0,065	9	-13069	1,22*	0,106	0,79	-13061
basic controls including birth cohort	1,53***	0,067	29	-12714	1,3**	0,111	0,55	-12712
+ marriage only	1,1	0,069	31	-12495	0,92	0,107	0,56	-12492
+ shared children only	1,36***	0,068	34	-12614	1,12	0,112	0,58	-12611
+ shared children and marriage	1,06	0,070	36	-12443	0,9	0,109	0,53	-12440
+ previous children (all covariates)	0,77***	0,085	39	-12413	0,63***	0,126	0,53	-12410

4. Second unions stability: comparison with the first unions and effect of their characteristics

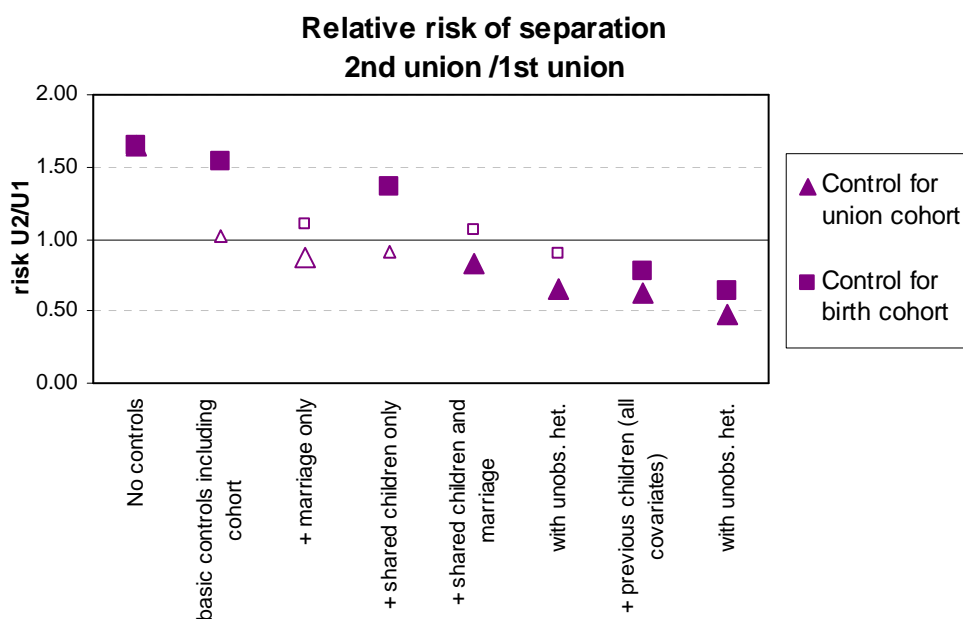
4.1. Results: the higher risk of dissolution in second unions vanishes when structural effects are controlled for

Second unions, taken globally, are less stable than first one. However, this very general comparison can be affected by various effects. For example, different ages at the beginning of the union, changes due to period or cohort belonging, or other structural changes in the shape of the unions could exaggerate the solidity differences as well as attenuate them. Age structure, as well as status choice or births of children varies with union order. We thus would like to test the hypothesis that there can be a structural effect acting on the relative risk of union dissolution level. Moreover, we would like to test if there is a “dissolution-prone” population selected in second unions. This would reflect on the significance of the unobserved heterogeneity estimate, sigma. As detailed before, if a dissolution-prone population exists, the estimate will be significant.

In a first step to compare dissolution risk by union order, I introduced different covariates in the joint model (3). I looked at the way their insertion changed the relative risk of union dissolution (Table 1). At each level I also estimated the model by adding unobserved heterogeneity.

The relative risks of the table 1 are summarized in the figure above:

Figure 1: Union dissolution: second union risk compared to first union risk, control for union or birth cohort



➤ *Biographical or period perspective?*

We detected two different perspectives to compare first and second union stability. By introducing union cohort in the model, we compare people in first and second unions who began these one during the same year. While distinction by birth cohort permits to say if, for people born during the same year, second unions are more or less stable than firsts. However, this last control do not take any age or period effect into account for the second union, since just age at first relationship and birth cohort are controlled for. Given the sample shape, in the last birth cohorts, only short first unions are listed, and so comparison inside this cohort between first and second relationship length is not meaningful. So even if this control is very interesting, we can use it only if we introduce previous union characteristic or length in the model.

Concerning partnering year, the sample structure for second relationships is very different from that of first unions: on average, first unions begin in 1978 while second ones begin in 1990. Without union cohort controls, we would compare recent second unions to globally older first unions, which creates a bias and overestimates the relative dissolution risk in second unions. Thus the change by introducing them is substantial.

➤ *Incidence of the covariates on the comparison*

Without any control variable, risks of dissolution are 65% higher for second unions than for first ones (Figure 1). In this simple model, second unions appear less stable than first relationships.

Union dissolution

Control for union cohort suffices to erase any significant difference between first and second union risk. By controlling for partnership cohort, the relative risk becomes insignificant and near to zero, which means that the contrast between first and second unions loses its emphasis. Age at first union also has a small impact, but other covariates for social and family background do not have any effect on the relative risk.

As long as marriage is not introduced in the model with birth cohort control, there is a large bias because not any period effect is controlled for. Indeed, statuses adopted in unions have known a large change in the last decades. So it is indispensable to control at least for union status if we do not control for union cohort. The most efficient could be to introduce interactions between first union length and union order, to avoid this bias.

With control for cohort, individual specificities and union events, second unions risk is lower than firsts. Introduction of current unions' statuses and births strengthens the decline of second union dissolution risks, and reverses the tendency. Second order relationships are then one third less likely to be dissolved than first ones. Taking previous children into account reinforces the higher stability of second unions. In the case of birth cohort control, it is only when previous children are introduced that second unions dissolution risk gets significantly lower than firsts.

To summarize, controlling for social background, union status and fertility, second unions are more stable than first unions. We found out an important structural effect. Once it is controlled for, the risk of dissolution of second unions becomes definitely lower than the risk for first unions. The next section will help us to detail this effect, and to decide with which covariates the model seems the more stable.

When introducing unobserved heterogeneity, relative risk is more favourable to second unions (table 1, right part). Indeed, the estimate of unobserved heterogeneity is always very significant. In other words, we have isolated a selectivity effect.

Union dissolution

Table 1 : Dissolution of first unions (splines and relative risks)

	Model 1-a	Model 1-b	Model 1-c	Model 1-d	Model 1-e	Model 1
intercept (baseline)	-7.2***	-7.14***	-6.73***	-6.92***	-6.99***	-6.92***
Duration (baseline log hazard)						
0 to 0.25 years (slope)	14.08**	14.17**	13.83**	14.42**	14.43**	13.9**
0.25 to 2 years (slope)	0.15	0.16	0.29***	0.31***	0.32***	0.32***
2 to 3.5 years (slope)	-0.19**	-0.17**	-0.03	0.01	0.01	0.01
3.5 to 9 years (slope)	-0.07***	-0.04*	0.04**	-0.01	-0.01	-0.01
9 to 20 years (slope)	-0.02**	0.01	0.02**	-0.01	-0.01	-0.01
20 and more years (slope)	-0.1***	-0.07***	-0.07***	-0.06***	-0.06***	-0.06***
Partnership cohort						
1960 and before		0.2***	0.36***	0.34***	0.35***	0.35***
1961-1970		0.39***	0.67***	0.63***	0.64***	0.64***
1971-1980		0.63***	0.88	0.84**	0.85**	0.84**
1981-1990		1	1	1	1	1
1991 and after		1.81***	1.47***	1.51***	1.46***	1.45***
Age at beginning of the union						
less than 21		1.58***	1.43***	1.48***	1.44***	1.43***
21 to 26		1	1	1	1	1
27 and more		1.17*	1.07	0.91	0.93	0.93
Age difference with the partner						
woman older		0.92	0.88*	0.88*	0.87*	0.87*
woman 0-1 years younger		1	1	1	1	1
woman 2-10 years younger		0.85**	0.85**	0.81***	0.81***	0.81***
woman 11 and more years younger		0.63***	0.45***	0.34***	0.34***	0.34***
Current marital status						
Cohabitant			1	1	1	1
Directly married			0.27***	0.29***	0.29***	0.32***
Married after cohabitation			0.31***	0.32***	0.32***	0.32***
Current number of shared children						
Childless			1	-	-	-
1 child			0.73***	1	1	1
2 or more children			0.61***	0.86*	0.87*	0.88*
Conditional spline for children						
intercept (ref = 1 child)				-0.79***	-0.79***	-0.78***
less than 1.5 year old (slope)				0.16	0.16	0.16
1.5 to 6 years old (slope)				0.19***	0.19***	0.19***
more than 6 years old (slope)				-0.02	-0.02	-0.02
Previous children						
No previous children				1	1	1
From the mother				1.77***	1.69***	1.74***
From the father				1.72***	1.76***	1.76***
From the two partners				2.51***	2.45***	2.5***
separation of parents by age of the interviewed						
No separation or from age 26					1	1
before age 6					1.68***	1.58***
between age 6 and 17					1.57***	1.47***
between age 18 and 26					1.29	1.24
Professional status of father						
executive						1.51***
middle						1.28***
employee						1.2**
blue collar						1
farmer, independant						0.99
not concerned						1.28**
Confession						
No religion						1
Christian						0.72***
Muslim						0.7
Other religion						0.82
Log-likelihood						
n	7	16	20	26	29	37
t-test statistic (comp with prev mod)			<0.0001	<0.0001	<0.0001	<0.0001

Asymptotic standard errors in parentheses; Significance: **=10%; ***=5%; ****=1%.

Ined-Insee, Erfi-GGS1, 2005

Union dissolution

Table 2 : dissolution of second unions (splines and relative risks)

	Model 2-a	Model 2-b	Model 2-c	Model 2-d	Model 2-e	Model 2
intercept (baseline)	-4.05***	-3.94***	-3.91***	-4.26***	-4.46***	-5.08***
Duration (baseline log hazard)						
0 to 1 years (slopes)	1.73***	1.77***	1.84***	1.85***	1.85***	1.85***
1 to 1.25 years (slopes)	-3.24***	-3.294***	-3.174***	-3.114***	-3.08**	-3.03**
1.25 to 5 years (slopes)	0.02	0.031	0.111	0.118	0.12	0.13*
5 to 8 years (slopes)	-0.15**	-0.131*	-0.06	-0.135	-0.13	-0.13
8 and more years (slopes)	-0.08***	-0.057**	-0.043*	-0.032	-0.03	-0.03
Partnership cohort						
1970 and before		0.61*	0.64	0.6*	0.67	0.72
1971-1980		0.9	0.91	0.89	0.86	0.91
1981-1990		1	1	1	1	1
1991 and after		1.46***	1.42**	1.49***	1.48***	1.55***
Age at beginning of the union						
less than 28		0.86	1.01	1.18	1.24	1.21
29 to 38		1	1	1	1	1
39 and more		0.68**	0.63***	0.58***	0.61***	1.02
Age difference with the partner						
woman 1 or more years older		0.78	0.74*	0.75*	0.74*	0.76*
woman -1-2 years younger		1	1	1	1	1
woman 2-9 years younger		0.69**	0.67**	0.61***	0.59***	0.58***
woman 10 and more years younger		0.87	0.82	0.67*	0.64**	0.65**
Current marital status						
Cohabitant			1	1	1	1
Directly married			0.62*	0.67	0.63*	0.52**
Married after cohabitation			0.29***	0.3***	0.3***	0.28***
Current number of shared children						
Childless			1	-	-	-
1 child			0.95	1	1	1
2 or more children			0.49***	0.56**	0.56**	0.6*
Conditional spline for children						
intercept (ref = 1 child)				-0.27	-0.27	-0.3
less than 1.5 year old (slope)				0	0.01	-0.01
1.5 to 6 years old (slope)				0.17**	0.17**	0.17**
more than 6 years old (slope)				-0.09	-0.09	-0.09
Previous children						
No previous children				1	1	1
From the mother				1.38*	1.52**	1.67***
From the father				1.8***	2.08***	2.29***
From the two partners				1.71***	1.98***	2.27***
Professional status of father						
executive					1.13	1.14
middle					1.67***	1.7***
employee					1.18	1.19
blue collar					1	1
farmer, indep, not concerned					0.95	0.98
Birth country						
France					1	1
Other country in Europe					0.4*	0.38*
World not Europe					1.47	1.55
Previous union duration						
less than 3 year						2.36***
3 to 16 years						1.83**
more than 16 years						1
Inter-union duration						
Less than 1.4 years						0.69***
1.5 to 10 years						1
more than 10 years						0.3***
Log-likelihood						
n	-1959	-1946	-1911	-1902	-1894	-1880
t-test statistic (comp with prev mod)	6	14	18	24	30	34
			<0.0001	0.010	0.016	<0.0001

Asymptotic standard errors in parentheses; Significance: **=10%; ***=5%; ****=1%.

Ined-Insee, Erfi-GGS1, 2005

4.2. Comparison of first and second unions: detail of the factors of instability

We notice an important difference in the structure of first and second unions. The most obvious is the presence of children of previous unions for a large share of women in second unions, and fewer births. Moreover, we remark a larger share of cohabitations in second unions. The previous analyses show important variations in the compared risk of dissolution when controlling for some covariates. I would like to detail now the importance of the structural effect on the relative risk of second union dissolution with regard to first unions.

This step allows me to describe the links between the individual characteristics and his dissolution risk, and also to explain the nature of the changes in relative risk with the introduction of a range of covariates.

Do they have the same impact in the two unions, and can their estimates, together with the weight of each variable, give some clues about the effects observed? How do the estimates of the covariates change when unobserved heterogeneity is controlled for?

The results of the models confirm the existing observation that the duration of first unions has been decreasing in the most recent partnership cohorts. Second unions seem to follow the lead of first ones.

➤ *Young age at first union, a decisive factor of instability in the two unions*

People who partnered early have a higher risk of first union dissolution than those who partnered later on. This effect does not appear in second unions (). However, effects of age at the beginning of the first relationship are very similar at each relationship order: the younger the age at first partnering, the more likely the second union will be dissolved. Thus, as proposed by Catherine Villeneuve-Gokalp (1991), people who are young at first union do have particularly “unstable nature”.

Table 3 : Estimates of dissolution hazard, control for age at first union (instead of current union)

Age at beginning of the first union		
	1st union	2nd union
less than 21	1.43***	1.29**
21 to 26	1	1
27 and more	0.93	0.94
Mean age	22.4	21

It is illogical, and difficult to interpret, to compare individuals in a first union that began at age 40 to individuals in a second or third union that began at the same age. Moreover, age at first union seems very coherent to introduce to control for the

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particularly unstable people described before. Thus, instead of age at the beginning of each union, I control for age at the beginning of the first union in the joint model.

People in second union are beginning their first union earlier on average. Thus there is an over representation of “young unstable” people in second unions. Controlling for age at the beginning of the union in the joint model thus makes second unions look more stable than before in regard with the first one.

- *A highly different structure for status in second union and very significant estimates produce a huge change in relative risk if we control for partnership status*

Implication in the relationships can be more globally described by the shape the successive partnership have. Notably, choice to marry or to have children could be considered as implication signals. We will verify this hypothesis now.

The proportion of unmarried people is 21% in the first union and 53% in the second one. Knowing that unmarried cohabitation dissolution risk is significantly higher in first as well as in second unions, controlling for it in a joint model lessens the relative risk of second compared to first unions: stability seems to improve.

If the marriage occurs after a phase of cohabitation, the gain compared to cohabitation is similar in the two unions. However, direct marriages in second unions are less stability offering than in first unions.

On the one side, married people seem more engaged in their relationship. On the other side, there can be a correlation with fertile relationships, in which people marry more.

Table 4 : Risk of union dissolution, depending on marital status and children in the union, calculated separately for first and second unions

children and marital status	first union	second union
<i>cohabitation, no shared children</i>	1	1
<i>cohabitation, shared children</i>	0.69***	0.84
<i>marriage, no shared children</i>	0.31***	0.36***
<i>marriage, shared children</i>	0.22***	0.24***

Marriage is linked with stronger unions, when there are children as well as when there are no children (Table 4). So the hypothesis of a correlation between marital status and children does not explain the higher stability of marriages. It may be explain by a greater commitment of married people.

- *Shared children: a smaller link to dissolutions in second unions*

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Shared children do not have the same impact on dissolution risk in first and second unions. For example, persons with one child are estimated to separate as frequently as childless persons in the second partnership, while in the first one they were estimated to separate one quarter less often. There are different explanations for this high difference. Firstly, a large share of women already had children during their first union (54%), and do not want to have more; thus there could be a larger share of stable people among childless second unions. Moreover, if people had no children from the previous union, maybe they really want to have some in the second one, whatever the sensed stability of this union.

56% of second unions are childless, compared to 19% of first unions. By controlling for shared children, we change the relationship by union order, also because the link between birth and separation is not the same in first and second partnership. After control, the relative risk of second unions' dissolution drops and they seem more stable than before compared to first unions (Figure 1).

➤ *The relative risk by union order decreases when controlling for previous children*

The nature of children born before the union may vary, because children born before the first union were conceived outside a union. However, the existence of a child born previously, to the partner or to the respondent, is linked with a significant increase in the dissolution risk, in first as well as in second unions. This sticks with Erlangsen and Andersson (2001) results, that previous children have the same impact whatever the union order. One explanation could be that it is the presence of the child more than the parental behaviour that weakens the union. The authors mentioned before propose that women with children born outside a union belong to a "high risk" population concerning other family behaviours, like union dissolution, what would explain their higher instability.

Concerning the evolution of the dissolution risk, whereas 88% of first unions begin without previous children, this is the case for only 31% of second ones. Since less favourable circumstances dominate the second unions, at equivalent structure with first unions, they would be more stable. Thus, by controlling for previous children, the relative risk of separation in second partnerships compared to first unions decreases: it is the high number of second unions with previous children that makes them seem more unstable.

Otherwise, a part of the population having children in the second union is comparable with the population of first unions: among women with shared children in

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the second union, 65% were childless before. But the other part already had children, and thus do not have the same expectations. However, having a shared child is strongly linked with the union stability, whatever the direction of the relationship.

Table 5 : Risk of union dissolution, depending on shared children and children from the previous union, calculated separately for first and second unions

shared and previous children	second union
no previous, no shared children	1.02
no previous, shared children	0.23***
<i>previous, no shared children</i>	1
previous, shared children	0.77

If there were previous children, the fact of having children in the second union does not have any significant effect on the dissolution risk. But if there were no children before, it has a huge impact. These seams to confirm that the expectations concerning children are not the same when there were already some born previously. The behaviour of people is less linked to their births, as detailed before.

➤ *Some variables are more difficult to interpret or less significant*

Age difference with the partner does not only give the link between age difference and separation, but also helps to control for the age of the partner. The estimate for a large age difference with the partner is significantly lower than for equivalent ages. This may partly be due to the fact that the man has reached an age where dissolution risks are lower. So age difference with the partner is difficult to interpret and has to be considered more like a control variable.

It is interesting to note that in first unions, parents' separation has a link with respondents' dissolution risk, but that in second unions, this event is not significant any more. Moreover, religious practice is not significant in second unions, and birth country in first. People born in other countries, at least in Europe, are more likely to stay with their partner. We note that Catholics are the less likely to dissolve a union. The low structural differences and significance of these events would make their introduction ineffective in changing relative risk.

Risk of separation is more sensitive to father's occupational status in first than in second relationships. But their structures are quite similar, so controlling for it has no impact on the relative dissolution risk.

➤ *More advanced unobserved heterogeneity effects*

The unobserved heterogeneity term allows me, as explained previously, to identify type categories of individuals entering a second union: some with a tendency to separate

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quickly (“dissolution-prone”), and others with a history of more stable unions. If these different types are revealed by controlling for dissolution-prone individuals, the relative risk of second union disruption should lessen compared to first unions.

Let us take an example. Suppose there are more dissolution-prone persons in second than in first relationships. If we estimate the relative risk between these two categories, assuming that they have the same internal structure (=control for unobserved heterogeneity), this means that the relative proportion of “more dissolution-prone” will be artificially lower than before in the second union, and higher in the first union. Thus the relative risk of second union dissolution with regard to first union will be lower.

Thus finally, both our hypotheses are verified: structural effects as well as selectivity made second unions look more unstable than first ones.

4.3. Characteristics of first unions for more stable second unions

We showed in the first part that second unions are more stable than first, considering the introduction of different controls. However, we did not look at the characteristics of the first union and its impact on the second union stability.

Previous and current union’s familial events are highly important in the description of the stability of unions. Precocity of cohabiting life, implication in the relationships or experience are so many factors of frailty or stability in the conjugal life. We notably showed that it is insufficient to describe unions in a global model without doing some interactions with the union order. Leaving from a model without any controls for familial events, but all the contextual covariates, we describe more precisely the impact of the trajectories on dissolution behaviours. Are unions more stable after a first short union or if they follow a long one? Experience of which kind of unions is advantageous for the stability of second unions. Is any experience more beneficial than no experience at all?

➤ *Previous union duration*

Table 6: Relative risk of union dissolution, control for duration of the first union and interval between the unions, control for union cohort, individual specificities and unobserved heterogeneity

Union dissolution

Interaction duration first union	Relative risk
<i>first union</i>	1
Second union, first union ≤3 years	0.74*
Second union, first union 3 to 16 years	0.82
Second union, first union >16 years	0.62**

Interaction duration between unions	Relative risk
<i>first union</i>	1
Second union, inter <1.5 years	0.6***
Second union, inter 1.5 to 10 years	0.97
Second union, inter ≥10 years	0.3***

It is mainly after very long and short unions that second relationships are especially stable (Table 6). Otherwise the difference between first and second unions is not significant. The interval between the unions also has an effect on the second union stability. If the interval was very short, it is possible that the individual had already planned to form a new union before the end of the first one, and in that case it abandoned the first one for a “better” one. It is also possible that women who repartner quickly are more willing to live in a relationship, and in that case are less prone to separate.

➤ *Previous union status*

Table 7: Relative risk of union dissolution, control for unions' statuses, control for union cohort, individual specificities and unobserved heterogeneity

Interaction previous union status	Relative risk
<i>first union</i>	1
Second union, marriage in first union	0.69**
Second union, cohabitation in first union	0.8*

Interaction current and previous union status	Relative risk
<i>Marriage in first union</i>	1
Cohabitation in first union	6.95***
Cohabitation in 2nd union after cohabitation in 1st	1.81**
Cohabitation in 2nd union after marriage in 1st	5.17***
Marriage in 2nd union after cohabitation in 1st	4.29***
Marriage in 2nd union after marriage in 1st	1.42

Marriage choice is very different in first and second unions. According to Catherine Villeneuve-Gokalp, people marry in the second union when they feel more secure; they postpone their marriage in these relationships, with regard to first ones. Moreover, some people do not marry in their second union, because they want to preserve their autonomy, or because they do not have shared children that would give them a reason to. So we could think that...

Second relationships are even more stable than firsts when they follow a marriage (Table 7). Other union shapes are all less stable than first marriages. However, the estimate is not significant if we compare second marriages to first marriages. It seems

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that when they decide to remarry, people are already in a better dynamic than when they never married before. Maybe they acquired experience from the first marriage ().

➤ *Previous union children*

Table 8: Relative risk of union dissolution, control for children in the previous union, children in each union, control for union cohort, individual specificities and unobserved heterogeneity

Interaction previous children	Relative risk
<i>first union</i>	1
Second union, no previous child	0.48***
Second union, previous children	0.85

Interaction current and previous union status	Relative risk
<i>No child in first union</i>	1
Child(ren) in first union	0.51***
No child in 2nd union, no previous child	0.72*
No child in 2nd union, previous children	0.57***
Child(ren) in 2nd union, no previous child	0.14***
Child(ren) in 2nd union, previous child	0.54***

In the second union, if there is no child from a previous union, the dissolution risk is lower than in any first union (Table 8). Even with previous children, second unions' dissolution risks remain at the same level than first unions'. It is only when the second union has offspring that the children born before have a very negative impact on the dissolution risk.

As length or marital status, having children seems to be an indicator of greater individual implication in the unions. This means that whatever the direct impact of children in the stability of each union, it seems that people who are implied in a relationship in touch with children have a higher stability potential.

➤ *Previous union status and children*

Table 9: Relative risk of union dissolution, control for children and union status in the two relationships, control for union cohort, individual specificities and unobserved heterogeneity

Interaction current and previous union events	Relative risk	Relative risk
<i>Marriage in first union</i>	1	0.26***
<i>Cohabitation in first union</i>	3.9***	1
Cohabitation 2nd union, cohab in 1st, no prev. children	2.26***	0.58***
Cohabitation 2nd union, cohab in 1st, prev. children	3.6***	0.92
Cohabitation 2nd union, marriage in 1st, no prev. child	1.78	0.46**
Cohabitation 2nd union, marriage in 1st, prev. Children	2.39***	0.61***
Marriage 2nd union, cohab in 1st, no prev. Child	0.31***	0.08***
Marriage 2nd union, cohab in 1st, prev. Children	1.04	0.27***
Marriage 2nd union, marriage in 1st, no prev. Child	0.17*	0.04***
Marriage 2nd union, marriage in 1st, prev. Children	0.84	0.21***

The marriage in a second union has a lower divorce risk if it follows a childless cohabitation than without previous relationship. A second marriage has a dissolution risk equivalent with a first one, whatever the number of children of the previous marriage, also if it looks a little bit more stable if there were no children before (no significant diff with other second marriage). If there were previous children, a marriage in second union is not more stable than the marriage in first union.

Cohabitations in second unions are globally more stable than in first, unless when they follow a fertile cohabitation. We can notice that after a marriage, no matter if there were children or not, cohabitations are more stable than without previous experience.

5. Discussion and conclusion

Throughout this study, the comparison of union dissolution risks appears to vary greatly depending on the formulation of the model. The relative risk changes mainly according to a structural effect and to a selection effect. The structural effect emerges when we add covariates to the model. They do not all have the same impact, which depends on their significance and on the weight of the categories in each union. The selection effect is established by the significance of the unobserved heterogeneity term.

The introduction of the covariates is a key point in the comparison between first and second union dissolution risk. The ones we introduced all lessen the relative risk of separation in the second relationship, or have no impact. Initially, second unions are less stable than first ones. If they are formed in an equivalent year, their risks are equivalent however. If we control for children and union status, their very different structure by union order makes second unions more stable than first unions.

How can we explain these results? The selection process of people “not opposed to divorce” in second union described by Castro-Martin and Bumpass (1989) does not appear to be prevalent in France. Also, although it certainly exists, it appears to be counteracted by some opposite process. The other selection, of a dissolution-prone category with unobserved characteristics, is proved to exist by the significance of the unobserved heterogeneity term and the decrease in the associated relative risk. Finally, controlling for observed heterogeneity, through status and children variables, reinforces the relative stability of second unions. However, it seems that the progression in strategic family choices between first and second unions partly explains the high impact of controls on relative risk.

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A process that strengthens second unions is clearly counteracting these various selection processes. The description of the previous trajectories seems to show that marriage, children, long length of a previous union and short interval between the unions, are indicators of a global greater commitment in the relationships than the other situations, including no union at all. Previous experience of dissolution makes people more cautious about involvement in second relationships (Guibert-Lantoine, 2002). Maybe this cautiousness favours stability after the choice of a second start. Lehrer and Chiswick (1993) proposed the explanation that people gain abilities in a first union that they can transfer to the second union. These acquired skills may have a stabilizing effect. It is finally possible that partners learn from their previous relationship, that their conception of the union evolves (sharing responsibilities, tasks...), as could their choice of the partner. And thus finally, that many second unions have a more solid starting point.

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