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Carole BONNET\*, Anne SOLAZ\* and Elisabeth ALGAVA\*\*

## Changes in Labour Market Status Surrounding Union Dissolution in France

*Male and female occupational trajectories remain strongly differentiated, notably because domestic activities place heavier constraints on women than on men. With the birth of children, the divergences widen. But how does union disruption affect the labour market status of men and women? Using two retrospective surveys conducted in France in 1997 and 2005, Carole BONNET, Anne SOLAZ, and Elisabeth ALGAVA analyse the labour supply of men and women in the years surrounding union dissolution. To assess the share of occupational behaviour attributable to separation while avoiding selection bias and the effects of other life events, the authors concentrate their analysis on the year preceding separation and the two years following it, and employ matching methods. After a break-up, men's employment status becomes more precarious while women return massively to the labour force, particularly if they have children over two years old and have already worked before the separation.*

Union dissolutions (excluding widowhood) have been increasing in most developed countries for the past thirty years or so. The abundant international literature on the economic consequences of divorce has highlighted differences between separated men and women, particularly in terms of living standards. In France, the total divorce rate<sup>(1)</sup> per 100 marriages rose from 11 to 45.1 between 1950 and 2008, not counting dissolutions of non-marital unions, an increasingly common form of partnership. While France is no exception to this trend, studies on its economic effects are still rare.

(1) The total divorce rate gives the total number of divorces per 100 marriages that would be observed if the divorce rates by marriage duration remained identical to those of the year examined.

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The information available on France, based on European comparisons, shows that divorced women in France experience one of the sharpest falls in equivalent income<sup>(2)</sup> after separation, just behind the United Kingdom (Uunk, 2004). Women's median income decreases by an estimated 32% (36% in the United Kingdom) in the year following divorce. These results must be viewed with caution, however, given the small sample sizes for each country.

As pointed out by recent studies (van Damme et al., 2009; Covizzi, 2008), the literature has so far focused on the impact of union dissolution on living standards, but less often on the way it affects labour supply, although the two are obviously linked. Labour market participation makes it possible to make up, in part, for the loss of the partner's income and to reduce dependence on public transfers.

Studying changes in occupational trajectories after union dissolution, and comparing differences between men's and women's trajectories in particular, is important for two reasons. The first pertains to the occupational choices that may have been made during the relationship and to a possible withdrawal of one of the partners from the labour market. Unions often entail a growing specialization during the life cycle, with the career of one partner taking precedence as family constraints intensify. While such specialization can be justified for economic reasons, at least in theory, the end of the contract between spouses constituted by divorce raises the problem of the potential return to the labour market of the spouse who is partially or totally specialized in the domestic sphere. Owing to the unequal division of roles between spouses, it is still most often the woman who leaves the labour market or reduces her working hours. Divorced women could thus be doubly penalized. First, like other women, they experience greater difficulty in returning to the labour force due to breaks in their working careers during their marital life, such as maternity leave, parental leave, and part-time working. Second, they have weekday custody of their children more often and/or for a longer period after the separation, particularly when the children are young, and this can make it harder for mothers to find work if they are living alone.

The second reason – an extension of the first – concerns the persistent effect of occupational transitions on the rest of the life cycle. Choices made at a given moment affect the later stages of a career and, ultimately, pension rights. The impact of children on a working career is partly taken into account in the calculation of pension rights via a system of pension bonuses that compensates for certain gender inequalities (Conseil d'Orientation des Retraites, 2008). The way in which union dissolution alters occupational trajectories could also be examined in terms of its repercussions on pension rights and on gender equity. But this would require information on occupational changes caused by separations.

Our article aims to study the labour supply dynamics of persons undergoing a separation. We have chosen to concentrate on a narrow window of time: the year before separation and the two years following it. A longer post-separation horizon

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(2) Equivalent income takes household composition into account.

may cause other phenomena to interfere, such as repartnering (Dewilde and Uunk, 2008) or variations in economic conditions. It then becomes harder to isolate the specific effect of separation.

Does the occupational trajectory change in the two years after separation in France? If so, what changes are observed? To address this question we need to know the characteristics of the partners who separate. Persons who experience union dissolution probably differ from those who remain in partnerships, and these differences may affect the estimation of the impact of separation. One way to solve the problem is to use matching methods. Originally developed to assess health programmes and public policies, these methods are increasingly used in demography (Aassve et al., 2007; Ongaro et al., 2009). To obtain a large enough sample – a recurrent limit on many studies of the impact of union dissolution – we have combined two retrospective surveys with similar calendars. This enables us to analyse the transitions between different labour market statuses in greater detail than in most earlier studies.

This article begins with an overview of previous studies on the topic, notably in the international literature (Section 1). We then present the databases used (Section 2), contextual information on separations in France (Section 3), matching methods, particularly those based on the propensity score (Section 4), findings on male and female labour supply after separation (Section 5), and the determinants of return to the labour market (Section 6).

## I. Review of the literature

### *Few studies on French data*

There are few studies in France on the economic consequences of separation, apart from those of Villeneuve-Gokalp (1994). Using 1985 data, she showed that “one in five women was obliged to seek work either because she was not in paid employment before the dissolution (12%), or because she had to (or wanted to) change jobs (8%)”. In addition, job seeking proves harder for separated women than for separated men. Studies by the French National Institute of Statistics and Economic Studies (INSEE) (1994) indicate that, while the great majority of mothers (70%) who have experienced a union dissolution (without distinguishing between widowhood and separation) do not change their labour market status, the most common transition (43% of cases) remains a return to work.

More recent studies, not centred on our topic, offer an indirect assessment of the impact of union dissolutions. First, there are studies on the living standards of lone-parent families, although their situation only partly overlaps with that of separated persons.<sup>(3)</sup> The poverty risk for these families is twice as high on average

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(3) Three-quarters of lone-parent families are the consequence of separations, but not all persons who have separated necessarily live in lone-parent families, either because they had no children at the time of the break-up, or because their partner obtained child custody, or because they have since formed a new partnership.

as that of all households (Algava et al., 2005), with major disparities. The living standards of lone-parent families – and, more generally, of persons after separation – depend on several factors, and particularly on their resources: public transfers (lone-parent allowance), private transfers (alimony and compensatory allowance), and labour income. The latter represents the bulk of a lone-parent family's resources; working generally protects against the poverty risk. Labour market status after union dissolution and changes in occupational trajectory are therefore crucial issues.

Other studies have examined subjective assessments of financial status after separation. Bonnet et al. (2009), using INSEE's 2003 "Histoire de vie" survey, show that women link union dissolution to a worsening of their economic position far more often (15%) than men (10%), even though men have a greater propensity to describe their situation as worse in general. This subjective result is thus consistent with the objective results mentioned earlier.

#### *International studies focused on variation in living standards and changes in labour supply*

International studies have examined two types of indicators (see the review of the literature by Jeandidier and Bourreau-Dubois, 2005b): those directly measuring economic well-being, such as variation in living standards after separation, and those more centred on economic behaviour, such as changes in labour supply.

Hoffman (1977), Duncan and Hoffman (1985), Burkhauser et al. (1991), Smock (1993) on U.S. data, Poortman (2000) on Dutch data, Jarvis and Jenkins (1999) on British data, Finnie (1993) on Canadian data, and Uunk (2004) and Andress et al. (2006) comparing European data, all show a worsening of women's living standards after separation. Uunk (2004) emphasizes their greater dependence on public transfers, due to their lesser investment in human capital compared with men during the partnership and to their family duties after separation (on average, mothers have child custody more often and for a longer period)<sup>(4)</sup> which may reduce their labour force participation. Conversely, these studies show that separation produces a rise in living standards for men, whose magnitude varies between authors.

The results are less convergent regarding the effect of divorce on labour supply. Summarized in Table 1, the effects differ from country to country. The post-separation employment rate for women tends to rise in the United States and, on average, in Europe, except in the United Kingdom, Greece, and Finland. In Canada, recent data suggest stability (Mueller, 2005), whereas older data indicate an increase in women's employment rate after separation<sup>(5)</sup> (Finnie, 1993). It is important to

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(4) Only Uunk (2004) focuses exclusively on divorce. The other studies cover dissolutions of marital and non-marital unions.

(5) The differences in the conclusions drawn by Finnie (1993) and Mueller (2005) may also be due to their different definitions of activity rates.

Table 1. Results of studies on union dissolution (at date  $t$ ) and labour supply

Source	Period studied	(Country)	Sex	Size	Sample					Labour supply (activity rate or employment rate, $T$ ) <sup>(a)</sup>			Rate significantly different? <sup>(b)</sup> $T_{t-1} \neq T_{t+1}$ ?
					$t - 5$	$t - 2$	$t - 1$	$t + 1$	$t + 2$	$t + 3$	$t + 5$		
Johnson and Skinner (1986)	1969-1977	PSID (U.S.)	F	329	0.67	0.71	0.76	0.88	0.87	0.86			Yes
Duncan and Hoffman (1985)	1969-1975	PSID (U.S.)	F	349			0.67	0.82		0.85	0.85		Yes
Finnie (1993)	1982-1986	LAD (Canada)	M	2,150	0.91	0.90	0.89	0.89	0.85	0.73			No Yes
Jarvis and Jenkins (1999)	1991-1994	BHPS (U.K.)	M	135			0.74	0.68					No No
Mueller (2005)	1988-1990	LMAS (Canada)	M	180			0.74	0.68					No No
Jeandidier and Bourreau-Dubois (2005a)	1994-2001	ECHP (Europe)	M	1,917			0.86	0.84					No <sup>(c)</sup> No <sup>(c)</sup>
van Damme, Kalmijn, and Uunk (2009)	1994-2001	ECHP (Europe)	F	275			68.7	76.0					Yes at 10% No No Yes
		Germany	F	106			73.5	75.5					No No No No
		Austria	F	119			56.3	64.7					
		Belgium	F	152			64.5	76.3					
		Denmark	F	132			56.1	64.4					
		Spain	F	123			77.2	75.6					
		Finland	F	158			54.4	63.3					
		France	F	304			67.4	62.5					
		U.K.	F	52			65.4	63.5					
		Greece	F	46			41.3	45.7					
		Ireland	F	105			61.9	73.3					
		Italy	F	177			53.1	65.0					
		Netherlands	F	99			58.6	67.7					
		Portugal	F										Yes No

Note : BHPS: British Household Panel Survey, ECHP: European Community Household Panel, LAD: Longitudinal Administrative Database, LMAS: Labour Market Activity Survey,  
 PSID: Panel Study of Income Dynamics.

(a) Activity rate in first three studies and Mueller (2005); employment rates elsewhere.  
 (b) Result of equality test for rates between ( $t - 1$ ) and ( $t + 1$ ).  
 (c) In this article, the number of persons of each sex is not available, but even for a high scenario of 1,200 men or 1,200 women, the proportions are not significantly different.

note that a substantial portion of these results, particularly those obtained on European data, are not significant owing to the small size of certain samples. Table 1 (last column) gives the significance tests on the differences in proportions. Male labour supply after separation has received less attention. On the whole, it seems to be less affected by separation, with male employment generally staying high. Most results find stability or a mild decline.<sup>(6)</sup>

Other more recent studies have specifically examined the impact of union dissolutions on unemployment. Covizzi (2008), using a Swiss household panel (1999-2004), shows that separated men are exposed to a higher risk of unemployment, even after controlling for health problems that can influence both divorce and unemployment risks. These risks also exist for women, but are less pronounced. Kalmijn (2005) obtains the same result: a higher risk of unemployment and downward occupational mobility (shift towards a lower-skilled job) for men, which remains significant even after controlling for problems existing prior to divorce such as job precariousness, health problems or difficult social relations (captured by the existence of conflicts with neighbours and colleagues at the start of the marriage). Kalmijn points out that the possible selection of men who separate cannot be ruled out, but that the estimated effect of this selection proves weaker than expected.

### *What are the links between labour supply and union dissolution?*

Several factors may influence changes in labour market participation and explain the differences between countries. Separation has three main effects. First, it tightens the budgetary constraint, and economies of scale linked to cohabitation disappear, except when a new cohabiting couple is formed immediately. The incentive to re-enter the labour market may then be all the stronger for individuals with modest personal resources before separation. However, the existence of means-tested public transfers and/or private transfers (such as alimony) may lessen the financial incentive to return to work.

Separation also results in new domestic and sometimes parental arrangements. The sudden end of marital specialization can have various consequences. The presence of children, particularly young children, generally deters people from re-entering the labour market or remaining in it. The spouse who is awarded child custody may therefore experience stronger domestic and parental constraints, which will be eased for the other partner. If child custody is equally shared, working hours will no doubt need to be rearranged, particularly for fathers who were not significantly involved in parental tasks while still living with their partner. They may reduce their working time to cope with the new constraints.

Owing to the stress that it generates, separation may also increase the frequency of physical or mental health problems and affect labour market status: 6% of

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(6) Except Mueller (2005), but, here as well, the small numbers give reason for caution in interpreting the results.



separated men and 7% of separated women mentioned this problem in an open question of the 1985 “Situations familiales” survey (Villeneuve-Gokalp, 1994).

It is therefore difficult to predict changes in labour market transitions (exit, entry, shift to part-time work, and so on) from the various transformations entailed by separation, whose impact is linked to the respective weights of financial and family constraints. This article analyses a selected set of transitions in detail. Do economically inactive women seek work after separation? Do economically active persons exit the labour market? Can we observe shifts between stable employment and precarious employment or unemployment? We also look at the forms of return to work and the conditions in which it occurs. Can we identify factors inhibiting a return, such as the presence of children?

Several problems need to be taken into account in studies on changes in labour supply following separation. The first concerns the order of events and the possible existence of reverse causality. People may anticipate a break-up, prompting them to change their labour supply before separation. Conversely, a change in occupational status – of an involuntary nature, such as transition to unemployment (Herpin, 1990, Solaz, 2000), or of a voluntary kind, such as a return to work for women – may heighten the risk of separation, with no prior intent on the part of either partner. Johnson and Skinner (1986) find an increase in female labour market participation<sup>(7)</sup> before union dissolution (Table 1). It is impossible, however, to separate the anticipation effect from the “windfall” effect: by offering new autonomy, the return to work may lead a partner to consider alternative life choices. Note that this increase in female activity before separation is not corroborated by Finnie (1993) or Poortman (2005).

The second problem is the difficulty of isolating the specific effects of separation from those of other events that may interfere. One solution is to choose a sufficiently short period for evaluating the consequences of union dissolution. This choice makes it possible to limit the effects of repartnering, as the formation of a new union – which occurs, on average, fairly soon after break-up – may counteract the negative consequences of the dissolution, either intentionally (if the new union results from a deliberate strategy) or otherwise (Dewilde and Uunk, 2008). We also need to determine whether the labour market behaviour of separated persons differs only because they are different from persons living in stable relationships, or because separation has a real impact on their trajectories. Matching methods, described in detail later, are a useful tool for addressing this selection problem.

## II. The data

One of the main reasons for the lack of studies in France on occupational transitions after separation is the absence of suitable data (Box 1).

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(7) However, these authors find no changes in the number of working hours for active women before separation.



**Box 1. A shortage of suitable data for studying effects of separations in France**

Panel data are usually the best suited for studying the effects of separation. However, post-separation occupational trajectories have two particular features. First, despite its growing frequency, separation remains a rare event when we observe individuals from year to year. The annual separation rate is about 1%-2%, and we need to observe a large number of couples over a long period to obtain an adequate sample. The samples of observed separated couples therefore remain modest (Table 1). In the French part of the European Common Household Panel (ECHP), only 60 women experienced divorce (approximately 150 a separation or divorce) during the observation period 1994-2001 (Uunk, 2004). These small sample sizes produce variable results from one study to another. Second, separation modifies the household's composition (by definition) and often its location, as the break-up nearly always involves a change of residence for one or both partners. Although interviewers are usually instructed to follow the two new households at their new addresses, the ex-partners in separated couples tend to be harder to track and perhaps also to interview. This not only reduces the sample of separated persons, but also creates a selection bias if the attrition is not random (if, for example, the most financially constrained couples leave the previously shared home more often than others).

The Labour Force Survey, sometimes used to explore topics related to separation (Piketty 2003), could be of sufficient size. However, it is based on a sample of dwellings and not of households. The problem, as noted earlier, is that the sample has a high risk of being non-representative owing to the non-random nature of the residential choices (to stay in the former dwelling or move elsewhere), often linked to financial constraints and hence to labour market status.

In the absence of panel data covering a large enough sample, we combined two cross-sectional surveys with a nearly identical retrospective calendars: "Jeunes et carrières" [young people and careers] and "Familles et employeurs" [families and employers] (Box 2). Each survey indicates the years of union formation and dissolution. A union is defined as a marital or non-marital relationship involving at least six months of cohabitation. Our study covers separations of all cohabiting couples, married or otherwise.

In the occupational section of the survey questionnaire, respondents were asked to report their occupational status(es) for each year since age 18. Both surveys systematically distinguish seven statuses: formal education, apprenticeships and internships, military service, long employment spells (over six months), long unemployment spells (over six months), inactivity spells and "alternating" spells, a category which groups together all the other statuses (unemployment spell of less than six months, short employment spell, etc.), and which we shall denote interchangeably as short employment spells or precarious employment spells. Each of the two surveys explores its central topic in slightly greater detail. The "Jeunes et carrières" survey distinguishes two types of education spells – return to formal education and training programmes – and, in the long-term employment category, it records changes in employers. The "Familles et employeurs" survey distinguishes parental leave from other types of inactivity spells, and separates part-time employment spells from other types of long-term employment.



### **Box 2. "Jeunes et carrières" and "Familles et employeurs" surveys**

The "Jeunes et Carrières" survey, conducted by INSEE in 1997, concerns slightly more than 20,000 people aged 19-45 (approximately 9,000 households), selected among the outgoing third of the 1997 Labour Force Survey sample. It is a retrospective survey that charts respondents' occupational, family, and residential histories by means of calendars. The sample consists of two groups whose calendars have different degrees of precision:

- "young people" under 30, born between 1968 and 1978, or who completed their education less than seven years before the survey: a total of 8,373 people.
- "careers" of persons aged over 30, born before 1968: a total of 12,397 people.

For our analysis, we use only the "career" data for the 30-45 age group, i.e. 12,397 persons, of whom 1,385 women and 900 men were no longer in their first union. In the case of multiple separations, we counted only the first.

The "Familles et employeurs" survey was conducted by INED in 2004. It examines the work-life balance from the employees' and employers' standpoints. Here, we use only the household survey, comprising 9,745 persons of whom 1,155 women and 853 men were no longer in their first union.

One novelty of our approach lies in the grouping of the two samples. While this reduces comparability to the common occupational statuses, i.e., the seven mentioned above, it allows us to double the size of our sample of separated persons obtained from a single survey, and so to raise the statistical power of our tests. There is always the additional option of conducting more detailed studies of sub-samples of a single survey to refine our analysis. The two surveys were not performed at the same date, but given that our topic of interest is past conjugal and occupational histories, there is a large overlap in observation periods for unions (Appendix Figure A.1).

### **III. Contextual information on separations in France**

Divorce has risen steeply in France as in most developed countries. The total divorce rate has climbed from 10% in 1975 to 45.1% today, not counting dissolutions of non-marital unions. In this article, we analyse all separations for all types of union (marital and non-marital) and take the separation date rather than the date of divorce as the end of conjugal life for married couples.<sup>(8)</sup>

In 1999, 18.5% of persons aged 18-73 who had lived at least once with a conjugal partner experienced the dissolution of their first union.<sup>(9)</sup> Break-ups of non-marital unions make up an ever larger share of total separations:

(8) The end of conjugal life is more significant, since the divorce may be pronounced several years after separation for reasons that may be independent of the spouses' behaviour. The delay may be due to backlog in the court system or to changes in legislation.

(9) In this background data section, unless otherwise indicated, we use the 1999 INSEE-INED "Étude de l'histoire familiale" [study of family history] survey, which is based on a large sample of over 300,000 people.



52% of women and 56% of men under 60 who separated from their partners in 1998-1999 were not married. They must therefore be taken into account. By contrast, few individuals have undergone several separations. Of 100 persons having experienced at least one separation, 15 have separated twice, and 5 have experienced three or more separations.<sup>(10)</sup> Consequently, to simplify further discussion and to ensure homogeneity,<sup>(11)</sup> we shall focus on first union dissolutions.

Members of the post-war cohorts, born between 1945 and 1965, and therefore aged 34-54 in 1999, are those who have most frequently experienced at least one separation or divorce: the percentage ranges from 22% to 24%. They also belong to the large baby-boomer cohorts, who will soon reach retirement age. By analysing the impact of union dissolution on occupational trajectories, we can also contribute to the study of how separation affects future living standards at retirement (Conseil d'orientation des retraites, 2008). Older cohorts have experienced periods of greater marriage stability. The younger ones will probably register far higher separation rates, judging from recent trends. We also observe this inter-generational difference when estimating the probabilities of separation by time elapsed since the start of the union. We find that, for a given union duration, the probability of separating is higher for the more recent birth cohorts (Figure 1).

After the first three years, during which the separation risk increases, the probability of separating declines, mainly for the most recent cohorts (born between 1967 and 1976). By contrast, the risk is stable for older cohorts. Their separations are distributed almost uniformly over the union duration after the initial three years, which can be interpreted as a trial period for the couple.

Another notable fact is that the break-up of the first union generally occurs at active ages: more than three-quarters of persons who separated in 1998-1999 were aged 25-54. The mean age at union dissolution in 1998-1999 was 34 for women and 37 for men.<sup>(12)</sup>

While age naturally influences the opportunities and conditions for a resumption, continuation or termination of employment, the presence of children at the time of separation is also decisive. Some 40% of persons who broke off their first union did not have children who were minors at that time (Table 2). The proportion varies significantly according to the age of the partners: it is only 17% for women and 26% for men aged 30-39. We also observe that 42% of men and 46% of women underwent their first separation at a time when they had children under 10 (14% of men and 17% of women did so at a time when they had a child under 3, usually not enrolled in school).

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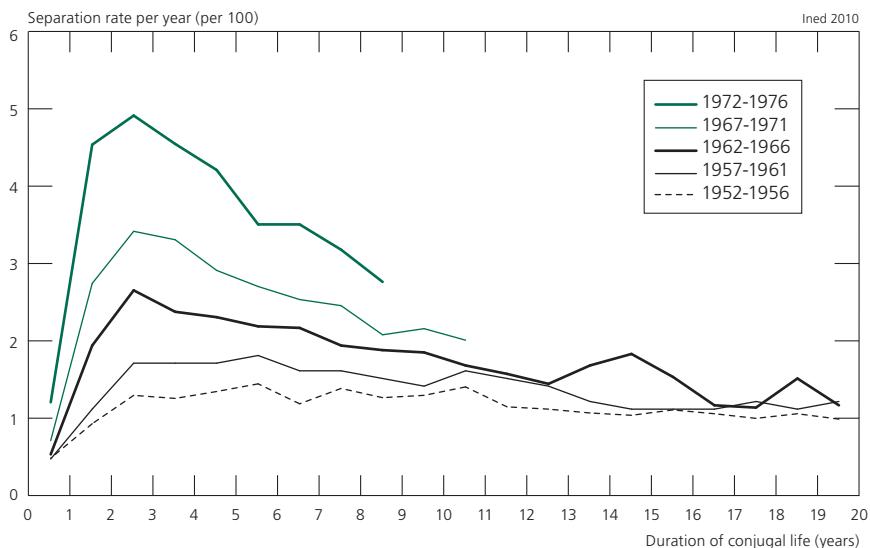
(10) "Enquête Histoire de vie" [life history survey], INSEE, 2003.

(11) Persons who have experienced two separations form a very special category. In their case, for example, it is harder to rule out anticipation effects concerning the second separation.

(12) Authors' calculations using the 1999 INSEE-INED "Étude de l'histoire familiale" survey.



**Figure 1. Separation rate by birth cohort in France (hazard function estimated by Kaplan Meier model)**



**Population:** All persons aged 18+ living in a union, born between 1952 and 1976.

**Source:** "Étude de l'histoire familiale" survey, INSEE-INED, 1999.

**Table 2. Proportions of men and women by age, presence of children, and age of children at time of first separation (%)**

Age of parent at time of separation	Proportion without children under 18		Proportion with a child under 10	
	Men	Women	Men	Women
Under 29	62	49	38	50
30-39	26	17	62	61
40-49	30	36	27	20
50-59	71	82	6	1
60+	93	99	2	0
Total	44	39	42	46

**Source:** "Étude de l'histoire familiale" survey, INSEE-INED, 1999.

The presence and age of children has a perceptible influence on occupational trajectories, especially for women, who usually obtain child custody after separation. In order for them to return to work, appropriate childcare solutions must be found.

A final factor that may affect post-separation occupational trajectories is the probability of forming a new union. A second income in the household (that of the new partner) modifies budgetary constraints (Dewilde and Uunk, 2008). The chances of forming a new union after a separation differ for the



two sexes (Cassan et al., 2001), with a lower probability for women than for men. Five years after a separation, 46% of women have formed a new union, versus 55% of men (Bonnet et al., 2009).

## IV. Method

### *Advantages of matching methods*

To evaluate the effect of separation on labour market status, we need to consider how this status would have evolved had there been no separation. For example, if we find a transition from inactivity to activity among women after separation, it is important to determine whether, had the event not occurred, their occupational trajectories would have been different. This simple question raises several difficulties, as we cannot observe both situations simultaneously for the same person. We shall therefore compare the situation of persons who separate with that of non-separated persons.

The first problem consists in choosing the date for comparing separated and non-separated individuals. Assuming these persons have identical characteristics, when should we observe partners in stable couples to compare them with separated persons after break-up? The second problem pertains to the non-independent (and non-random, in the statistical sense) character of separation. It can be argued that persons who separate are not the same as those who do not separate, and these differences in characteristics could also influence occupational trajectories. Directly comparing trajectories of separated and non-separated persons and attributing changes in the trajectories to separation could generate bias and lead us to misinterpret the effect of union break-up.

One possible way to solve this problem is to use matching methods.<sup>(13)</sup> They consist in constructing a non-separated population identical to the separated population with respect to a set of observable individual characteristics, so that separation becomes a random event once those characteristics have been controlled for. By comparison with linear regression, matching methods have the advantage of not assuming that estimation is parametric. There are other methods that capture the non-random nature of separation. The instrumental variables method could be used to correct for the potential endogeneity of divorce, or selection bias could be addressed (Heckman, 1979) to take account of the fact that people who divorce are “selected”. However, in these two-stage methods, the first step requires us to estimate the separation probability by means of an exclusion variable, i.e. an exogenous variable (instrument) that explains the separation but not the occupational trajectory. Such a variable is hard to find. The instrument often used in the literature on divorce – the fact that the person’s parents divorced – is not available in our databases. Mueller (2005), who studies the effect of divorce on labour supply, finds that the predictive power of the first-stage equation is weak.

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(13) For a detailed description of matching methods, see Brodaty et al. (2007) and Givord (2010).



Matching estimators have their own limitations as well. They are suitable if the characteristics that distinguish persons who separate from those who remain in stable unions are observable, such as education, age, union duration, and number of children, but less so if these characteristics are unobservable. However, unobservable characteristics can be captured by combining a difference-in-differences estimator with the matching procedure (Heckman et al., 1997).

Matching estimators require the use of a control group. The implicit assumption is that we have a group similar (for its observable and unobservable characteristics) to our separated group except that one of the groups experienced divorce between two observation dates, whereas the other – also called “control group” – did not. The observed differences, if significant, are thus attributable to separation.

### *Applying matching methods*

Let  $T$  be the separation (the “treatment”, by analogy with the epidemiological literature) and  $Y$  the outcome that we want to observe ( $Y_1$  if treatment,  $Y_0$  if not), in this case labour market activity. The causal effect of separation will thus be equal to  $Y_1 - Y_0$ . But situation  $Y_0$  is unobserved (it is designated as counterfactual); as is the effect that separation would have had on the activity of non-separated persons. We never observe both situations for the same person. Table 3 summarizes the possible scenarios:

**Table 3. Scenarios**

	Treatment $T$ (Separation)	
	Non-separated group (untreated)	Separated group (treated)
$Y_1$	$Y_1   T = 0$ (unobserved)	$Y_1   T = 1$ (observed)
$Y_0$	$Y_0   T = 0$ (observed)	$Y_0   T = 1$ (unobserved)

We generally seek to identify two parameters:

- the average treatment effect in the population,
- the effect of the treatment on the treated, written  $TT$ , which is equal to  $E(Y_1 - Y_0 | T = 1)$ , or  $E(Y_1 | T = 1) - E(Y_0 | T = 1)$ . If the first term is observed, the second is not (Table 3).

One way to estimate the effect might be to calculate  $E(Y_1 | T = 1) - E(Y_0 | T = 0)$ , known as a naive estimator. This involves calculating the difference in the outcome variable  $Y$  between the treated and untreated populations. However, a bias appears. We can rewrite the equation as follows:

$$E(Y_1 | T = 1) - E(Y_0 | T = 1) + E(Y_0 | T = 1) - E(Y_0 | T = 0), \text{ or } TT + \text{Bias}$$



The bias is due to the fact that, in the absence of treatment, the average situation of treated persons would not have been the same as that of untreated persons, because the groups of separated and non-separated persons are not identical. Matching methods assume that, conditionally upon a specific set of  $X$  variables, the fact of being “treated” is random (or at least independent of the outcome variable). This is known as the conditional independence assumption (CIA), which implies that:

$$E(Y_0 | T = 1, X) - E(Y_0 | T = 0, X) = 0$$

We thus assume that the selection in the treatment depends solely on the observed characteristics.<sup>(14)</sup> Conditionally upon  $X$ , the unobserved counterfactual  $E(Y_0 | T = 1, X)$  is estimated by  $E(Y_0 | T = 0, X)$ . The effect of treatment on the treated is given by  $E(Y_1 | T = 1, X) - E(Y_0 | T = 0, X)$ .

The aim of matching is thus to construct a control group of non-separated persons that, conditionally upon  $X$ , is comparable with the separated population. In our study, for each person who has experienced separation in year  $t$  (separated person), we seek a “twin” who, without having undergone a separation, would display the same characteristics in  $t$ , i.e. who, for example, would be in the same family configuration, at the same point in his or her working career, and in the same economic context as the separated person.

Conditionally upon a certain number of  $X$  variables, the outcomes are therefore independent, on average, of the treatment. But differences may persist between the separated and non-separated groups. One way to solve this problem is to combine a difference-in-differences estimator with the matching procedure (Heckman et al., 1997). The effect of the treatment is calculated as:

$$E(Y_1^{t+1} - Y_1^{t-1} | T = 1, X) - E(Y_0^{t+1} - Y_0^{t-1} | T = 0, X)$$

We use the time dimension and assume that while the levels of the counterfactuals may differ between the treated and the untreated, their variation over time is identical.

The advantage of such an estimator, based on the first difference of the outcome variables, is that it eliminates all systematic differences between the treated and the control group. We can thus control for selection in treatment caused by unobserved variables, provided that this unobserved heterogeneity is invariant over time.

### ***Matching with the propensity score method***

In practice, we can choose from several matching methods. One consists in associating each treated individual  $i$  with an untreated individual whose  $X$  characteristics are identical to those of  $i$ .<sup>(15)</sup> However, for the conditional independence

(14) Rosenbaum and Rubin (1983) initially spoke of the “ignorability” of the treatment.

(15) This method resembles a sequential hot-deck used to impute missing values. It is generally used for non-response adjustment. It consists in classifying the sample in a certain order according to the specified characteristics and then assigning for each missing value the value of the respondent preceding it.



hypothesis to be credible, we need a sufficiently large number of  $X$  characteristics. The drawback is that when the number of  $X$  variables is too large (or if some of them are continuous), matching becomes difficult.

A second method proposed par Rosenbaum and Rubin (1983) consists in matching persons not on the  $X$  characteristics but on a function of these variables: the propensity score. This is the likelihood of being assigned to treatment conditionally upon the values of  $X$ , i.e.  $P(T = 1|X)$ . Making the outcome conditional upon the propensity score becomes equivalent to making it conditional upon the chosen  $X$  variables (Rosenbaum and Rubin, 1983).

Various algorithms can then be used to choose the twin(s) whose propensity scores are closest to those of separated persons. We can choose the nearest neighbour(s) ( $k$ -nearest neighbour method), minimize a function of the sum of distances between twins and separated persons (Mahalanobis distance) or use a kernel estimator (Afsa and Givord, 2009).

After constructing the control population, we obtain the effect of separation on labour market trajectories by comparing the two sub-populations. We perform the estimations using the Stata psmatch2 procedure developed by Leuven and Sianesi (2003), which comprises several stages.

### Stage 1. Calculating propensity scores

We estimate the probability of separation according to a set of  $X$  characteristics (Appendix Table A.1). The goal is to use variables that explain both the probability of separation and the occupational trajectory. We thus specify variables describing family situation, i.e. number and age of children, union duration (two categories), marital status (married or not), age and level of education and a time variable (the year). Being in employment, for women especially, is synonymous with autonomy and financial independence. This hypothesis is often tested in the literature on determinants of divorce (Kalmijn and Poortman, 2006). In addition, introducing labour market status in  $t - 1$  provides a means to partially resolve a potential problem of inverse causality, i.e. the fact that labour market status in  $t - 1$  may influence the probability of separation in  $t$ . Unemployed persons might, for example, be more likely to experience separation than persons in stable jobs; inactive women might have a lower propensity to separate than active women. We therefore control for some of the unobservable characteristics of individuals. We observe persons in the same labour market situation, for example, being unemployed in  $t - 1$ . They are hence likely to possess other similar unobserved characteristics.<sup>(16)</sup>

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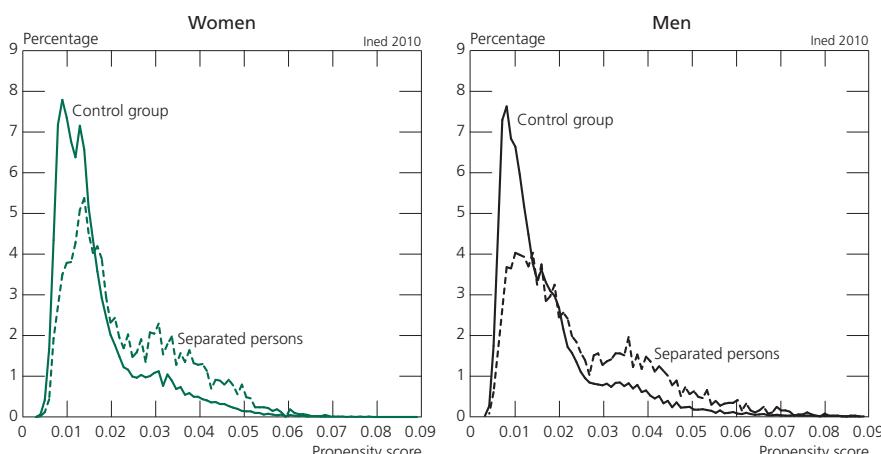
(16) In our case, where the dependent variable is qualitative, combining a difference-in-differences estimator with the matching procedure to take account of unobserved heterogeneity would require us to formulate hypotheses about the form of the heterogeneity. Indeed, we are no longer operating in a linear framework, such as the one described above (IV.1). See Givord (2010) for a more detailed explanation and Athey and Imbens (2006) for methods to overcome these difficulties.



We can thus calculate the probability of experiencing a separation for all persons in the sample (propensity score). The purpose of this estimation is not to be predictive but to obtain a score allowing us to match individuals.

Before performing the matching procedure, we need to make sure that the propensity score distributions partly overlap. In our case, this overlap is extensive (Figure 2). This guarantees that for nearly every separated person we are able to find a non-separated person with a similar propensity score.

**Figure 2. Distribution of propensity scores for separated and non-separated persons**



Source: Authors' calculations from 1997 "Jeunes et carrières" and 2005 "Familles et employeurs" surveys.

## Stage 2. Constructing the control group

Several algorithms can be used to find the counterfactual of each separated person. Here, we have chosen the kernel estimator.<sup>(17)</sup> This consists in selecting all the non-separated persons for each separated person, and in assigning them a weight inversely proportional to their "distance" from the separated person,<sup>(18)</sup> i.e. the propensity score difference. Our choice of kernel is a Gaussian kernel with a Silverman window given by  $1.06 \sigma_p n_0^{-1/5}$  (Silverman, 1986).  $\sigma_p$  is the estimated standard deviation of the propensity score calculated for the sub-population of non-separated persons in year  $t$ , and  $n_0$  is the size of this sub-sample.

(17) To test the robustness of our results, we also tried the " $k$ -nearest neighbour" method, which selects the  $k$  persons whose propensity scores are closest to that of the separated person. The results obtained by keeping two neighbours ( $k = 2$ ) are very similar to those obtained with the kernel method.

(18) Our population comprises all observation years for each person, which results in repeated observations for each person. To study the impact of this choice, we reiterated the entire estimation procedure by forming the population that could serve as control group with a single observation year (drawn at random) for each non-separated person. The results are quite similar and are available from the authors.



### Stage 3. Verifying the balanced distribution of X variables between separated and non-separated populations

We check that matching on the propensity score yields a control population similar to the separated population in terms of the distribution of the X variables selected in the propensity score. The balancing test of the psmatch2 procedure allows us to gauge the closeness of the two sub-populations. It is a test for equality of means that consists in comparing the means of the X characteristics in the two sub-populations.<sup>(19)</sup> We find that the estimated propensity score balances the distribution of the variables influencing the probability of separating (Appendix Table A.2).

### Stage 4. Calculating the effect of separation on occupational trajectories

The effect of separation on the occupational trajectory is obtained by calculating the mean of the distance between each separated person and the computed counterfactual. However, the standard deviation of this estimator must be recalculated, as the results obtained with the psmatch2 procedure do not allow for the fact that the propensity score is estimated. The estimation procedure is reapeated 50 times using the bootstrap method.<sup>(20)</sup> The results are reported below.

## V. Results: Separation and changes in occupational status occur at the same time

### *What are the changes in labour market status after separation?*

To study occupational trajectories after separation, we examine the activity status in the year preceding separation and in the two years following it.<sup>(21)</sup> We classify labour market statuses into four categories: long-term employment, short-term or precarious employment, unemployment, and inactivity<sup>(22)</sup> (Section II). We deliberately exclude students to avoid the “automatic” effects of labour market entry (and therefore of an increase in the activity rate) after completing education.

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(19) “If the test is not verified for one of the X variables, we must change the logit specification [...] and repeat the procedure with the new specification” (Afsa and Givord, 2009).

(20) The standard deviations are only recalculated for the kernel estimator method. The bootstrap is not appropriate for the nearest neighbour method (Abadie and Imbens, 2008).

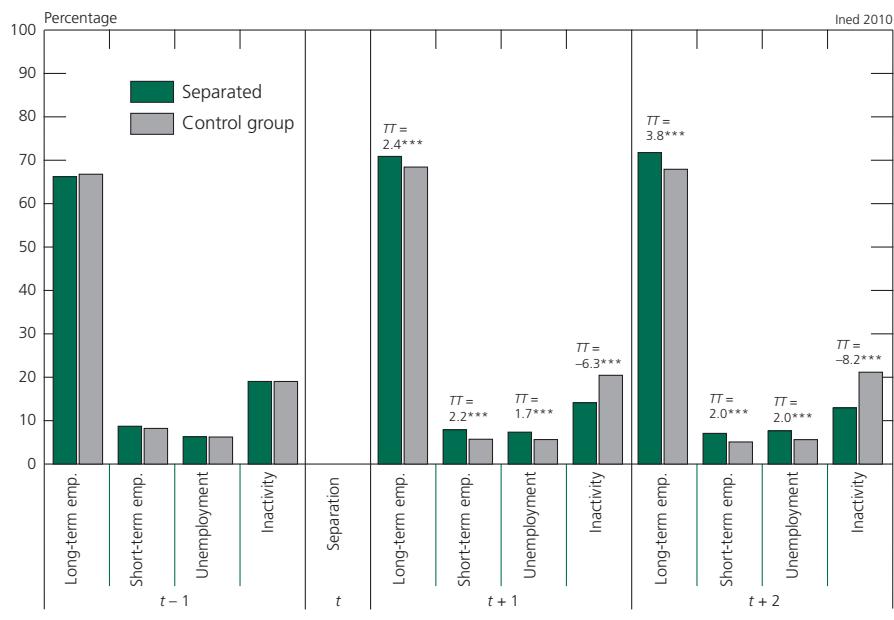
(21) Labour market status in the separation year is not studied, because it is generally impossible to place the occupational and partnership-related events in chronological order for that year. Information on the month is not available. Moreover, the separation year is probably subject to too many changes (the separation itself, relocation, occupational changes) to be truly informative about the occupational outcomes of the separated partners.

(22) A person may have several statuses in the same year. We have generally given precedence to occupational instability or inactivity so as to ensure that we identify changes occurring around the separation. If a person reports a spell of short-term employment and a spell of long-term employment in the same year, his or her status becomes short-term employment.



When we compare the status of women one year before and one or two years after separation, we find a drop in the inactivity rate from 19% before separation to 14% in the year after and 13% two years after (Figure 3). This phenomenon is not replicated in the control group, whose inactivity rate actually rises during the observation period. The proportion of unemployed separated women increases.

**Figure 3. Distribution (%) of separated women by labour market status before and after break-up, compared with non-separated women (Kernel matching)**



Note: TT is the effect of separation on labour market status after separation.

Interpretation: The inactivity rate in ( $t + 1$ ) is significantly lower for separated women than for non-separated ones, whereas it is identical in ( $t - 1$ ). The difference is 6.3 points.

Statistical significance: \*\*\*:  $p < 0.01$ ; \*\*:  $p < 0.05$ ; \*:  $p < 0.1$ .

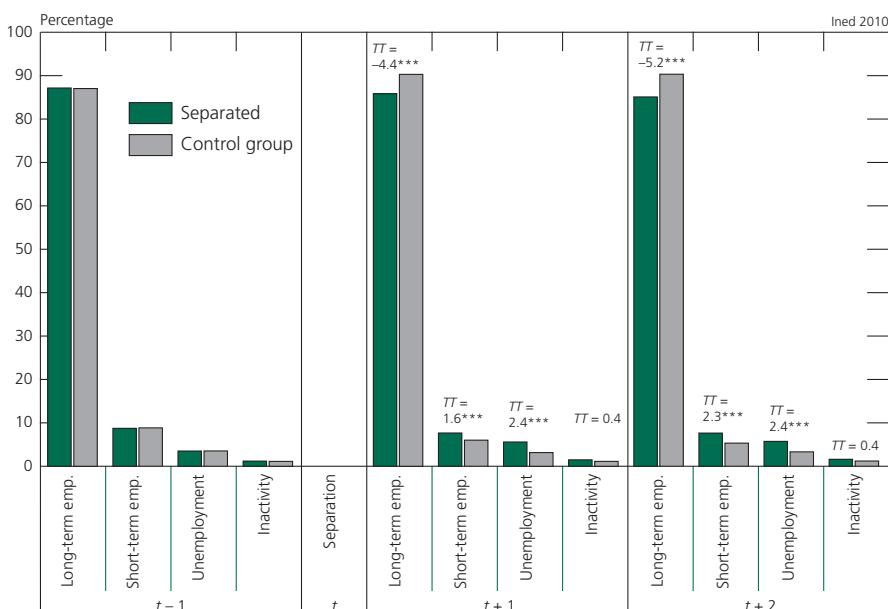
Population: Women separated in  $t$  (first separation); N = 2,428 separated women, weighted rates.  
Source: Authors' calculations from 1997 "Jeunes et carrières" and 2005 "Familles et employeurs" surveys.

For men, the effect of separation on labour market status is less visible because of the lesser diversity of situations: 95% of men hold jobs (long-term or short-term) before separation (Figure 4). Nevertheless, we observe a positive effect of separation on unemployment: the proportion of separated men who are unemployed rises from 3.5% to 5.6%, whereas for non-separated men the proportion remains stable over the period.

In Section I we discussed the fact that persons may adjust their labour supply before separation. Inactive women, for example, may return to work before separating, which could be a case of inverse causality. To control for this effect, which could bias our estimates, we matched the twins for their



**Figure 4. Distribution (%) of separated men by labour market status before and after separation, compared with non-separated men  
(Kernel matching)**



*Note:* TT is the effect of separation on occupational status after separation.

*Interpretation:* The proportion unemployed in ( $t + 1$ ) is significantly higher for separated men than for non-separated men. The difference is 2.4 points.

*Statistical significance:* \*\*\*:  $p < 0.01$ ; \*\*:  $p < 0.05$ ; \*:  $p < 0.1$ .

*Population:* Men separated in  $t$  (first separation);  $N = 1,692$  separated men, weighted rates.

*Source:* Authors' calculations from 1997 "Jeunes et carrières" and 2005 "Familles et employeurs" surveys.

occupational and family statuses two years before separation. In the studies that identify this phenomenon, the activity increase begins a few years before separation and continues up to the separation date (Table 1). If return to work in anticipation of separation occurs in France, we should observe a different pattern in the labour market a year before separation between the population of (future) separated women and that of non-separated women. Our results do not corroborate this hypothesis, as the trajectories for separated and non-separated women are quite similar. There appears to be no evidence, therefore, of anticipation or preparation of separation in France. On this point, our findings are consistent with those of Finnie (1993) and Poortman (2005).

### **Occupational mobility and separation**

The changes in activity rates observed earlier may be due to different types of transition between activity statuses. To better identify these, we build matrices for occupational mobility between ( $t - 1$ ) and ( $t + 1$ ). This type of investigation is made possible by pooling the two surveys, which gives us a



large enough sample. To construct the matrices, we stratify the separated and non-separated populations by labour market status in  $(t - 1)$ . This involves constructing four control groups for the separated population by labour market status in  $(t - 1)$ : long-term employment, short-term employment, unemployment, and inactivity. The methodology is identical to that used in the previous section. It is similar to combining the matching procedure with a difference-in-differences estimator, which allows us to capture some of the unobserved heterogeneity.

Of the separated women in long-term employment the year before separation, nearly 90% remain in that status in the following year (Table 4), 4% leave the labour market, and 3.5% become unemployed. These proportions do not differ from those found for non-separated women. By contrast, separated women in long-term jobs have a higher risk of moving to short-term or precarious employment (2.7% versus 1.6%). The careers of employees in short-term jobs having experienced separation do not differ significantly from those of the non-separated group. They are less likely to leave the labour market: 5% have left the market in  $(t + 1)$  versus 9% for non-separated women with the same activity status. For women unemployed before separation, only 2.6% leave the labour market afterwards, compared with almost 12% among non-separated women. The figures indicate a greater willingness or need among separated women in precarious jobs to stay in the labour market. For non-separated women, a discouraged worker effect or lesser financial constraints may explain their more frequent exits from the labour market. But the most massive effect concerns inactive women. While 56% remain inactive after separation, 44% enter the labour market and 37% actually work in the year after separation. Three-quarters of the latter group hold long-term jobs (Table 4). The significant post-separation influx of inactive women into the labour market is not replicated in the control group, with 82% of inactive women in the non-separated population remaining inactive during the observation period.

For a fuller examination of this return to the labour market of a large percentage of women who were inactive before separation, we can track them in  $(t + 2)$ , i.e. observe their activity status two years after separation. We find that the women who had entered the labour market to take up a long-term job still held that job in  $(t + 2)$ . One-quarter of inactive women who had taken up short-term employment held a long-term job in  $(t + 2)$  but nearly 60% were still in short-term or precarious employment. Inactive women who re-entered the labour market as unemployed persons experienced greater difficulties. Nearly eight in ten were still jobless in  $(t + 2)$ . Lastly, although the flow is smaller, we do observe a return to the labour market in  $(t + 2)$ , which involves 20% of women who were inactive in  $(t + 1)$ . Returns to inactivity after re-entry into the labour market in  $(t + 1)$  are relatively rare. The most likely cause appears to be the rapid formation of new unions (in the year of separation or in the following year), but the sample is too small to confirm this hypothesis.



Table 4. Occupational mobility matrix for women (percentage)

	Occupational status in (t + 1)						
		Long-term employment	Short-term employment	Unemployment	Inactivity	Total	
Occupational status in (t - 1)	Long-term employment	Separated (N = 1,604)	89.7	2.7	3.5	4.2	100
		Control	90.2	1.6	3.1	5.1	100
		Difference	-0.5	+1.1***	+0.4	-0.9	
	Short-term employment	Separated (N = 211)	41.7	44.1	9.0	5.2	100
		Control	36.0	48.8	5.8	9.4	100
		Difference	+5.7	-4.7	+3.2	-4.2***	
	Unemployment	Separated (N = 152)	39.5	10.5	47.4	2.6	100
		Control	37.9	6.2	43.6	12.3	100
		Difference	+1.6	+4.3*	+3.8	-9.7***	
	Inactivity	Separated (N = 461)	28.4	8.5	6.7	56.4	100
		Control	14.0	1.9	2.4	81.7	100
		Difference	+14.4***	+6.6***	+4.3***	-25.3***	

*Interpretation:* 43.6% (100% – 56.4%) of women who are inactive one year before separation enter the labour market in the year after separation. Only 18.3% in the control group do so.

*Statistical significance:* \*\*\*: p < 0.01; \*\*: p < 0.05; \*: p < 0.1.

*Population:* Separated women in t (first separation); N = 2,428 separated women.

*Source:* Authors' calculations from 1997 "Jeunes et carrières" and 2005 "Familles et employeurs" surveys.

In addition to exits from and entries into the labour market, and transitions between long-term employment, precarious employment, and unemployment, another possible change arising from separation is a change of working hours. For example, the return to part-time employment could be a means of reconciling work and family life. The information is not available in the "Jeunes et carrières" survey but is provided in the "Familles et employeurs" survey for persons holding long-term jobs. We therefore perform the same analyses as before by breaking down the "long-term employment" variable into two distinct variables: full-time and part-time employment. Union disruption does not appear to affect the share of women in part-time employment after separation. The share is slightly smaller in the control group than among separated women (12.8% and 13.3%, respectively) but the difference is not significant. We have also established – using mobility matrices not described here – that the small size of this gap is not due to transitions between full-time and part-time work that cancel each other out.



Regarding men, we observe a stronger and significant inertia in long-term employment for the control group. A larger proportion of separated men leave long-term employment for unemployment (4% versus 2% for the control group), short-term employment (2.9% versus 1.4%) or inactivity (Table 5).

**Table 5. Occupational mobility matrix for men (percentage)**

		Occupational status in ( <i>t</i> + 1)					
			Long-term employ- ment	Short- term employ- ment	Unemploy- ment	Inactivity	Total
Occupational status in ( <i>t</i> - 1)	Long-term employment	Separated (N = 1,466)	92.4	2.9	3.8	0.8	100
		Control	96.5	1.4	1.8	0.3	100
	Difference		-4.1***	+1.5***	+2.0***	+0.5***	
	Short-term employment	Separated (N = 147)	38.8	53.1	5.4	2.7	100
		Control	46.7	47.9	4.2	1.3	100
	Difference		-7.9*	+5.2	+1.2	+1.4	
Unemploy- ment	Separated (N = 59)	42.4	6.8	50.8	0.0	100	100
		Control	49.1	9.1	40.1	1.7	100
	Difference		-6.7	-2.3	+10.7*	-1.7***	

**Note:** Men who are inactive one year before separation cannot be shown here, as the sample is too small (20 individuals).

**Interpretation:** 3.8% of men in long-term employment one year before separation are unemployed in the year after separation. In the control group, only 1.8% experience the same transition.

**Statistical significance:** \*\*\*: p < 0.01; \*\*: p < 0.05; \*: p < 0.1.

**Population:** Separated men in *t* (first separation); N = 1,692 separated men.

**Source:** Authors' calculations from 1997 "Jeunes et carrières" and 2005 "Familles et employeurs" surveys.

Unemployed men experiencing separation are more likely to remain jobless: the probability is comparable to that of women. Although there are fewer studies on the consequences of union dissolution for men than there are for women, our findings converge with those of the literature (Kalmijn, 2005; Covizzi, 2008; Section I). Kalmijn and Covizzi offer three reasons why divorce may impact the occupational trajectories of men, particularly their exposure to unemployment. The first is the end of specialization in the partnership caused by separation. The man's loss of his role as main provider could weaken his tie to the labour market. A second reason is his loss of access to his partner's social capital (social network, advice, information, support, etc.), which would allow him to find work again sooner if he were not alone. Thirdly – and this is the reason that Kalmijn (2005) and Covizzi (2008) view as most important – union dissolution is a stressful event. It can have psychological consequences (anxiety, depression,

tension) that affect work, notably through worsened health. We can add a fourth reason derived from microeconomic theory. The end of specialization means that the man, now without a partner, must perform new domestic tasks previously handled by the woman. These new constraints are liable to decrease his paid working time, which may raise his unemployment risk if he reduces his investment in the occupational sphere. He may also decide to take a less demanding job and thus experience a transitional period of unemployment.

### **The effects of separation differ by period and education**

So far, we have estimated an average effect of separation on occupational status. However, we may assume that the impact of separation differs according to personal characteristics (such as educational attainment) or the period in which it occurs. We have applied the same methodology as before, this time with a distinction between two periods (before and after 1990)<sup>(23)</sup> and two educational levels (with or without the *baccalauréat* high school exit examination). In all instances, we made sure that our sample was large enough for accurate matching.

While post-separation occupational trajectories are affected in the same way regardless of whether the separation occurred before or after 1990, the rise in the proportions of men and women in unemployment after separation is significant only for the post-1990 period (Tables 6 and 7). The economic downswing, aggravated by the 1993 crisis, seems to have made it harder to hold on to a job or to return to work.

**Table 6. Change in women's labour market status around the time of separation (percentage) (Kernel matching)**

	Period		Educational attainment		Total
	Before 1990	After 1990	Without <i>baccalauréat</i>	With <i>baccalauréat</i>	
Long-term employment	2.6*	1.7**	3.4***	1.1	2.4***
Short-term employment	3.6***	1.2**	2.3***	1.6**	2.2***
Unemployment	1.1	2.2***	1.9***	1.1	1.7***
Inactivity	-7.3***	-5.1***	-7.6***	-3.7***	-6.3***

*Interpretation:* In the post-1990 period, the proportion of women unemployed after separation is significantly higher than for non-separated women. The difference is 2.2 points. For the pre-1990 period, the difference is a non-significant 1.1 points.

*Statistical significance:* \*\*\* p < 0.01; \*\* p < 0.05; \* p < 0.1.

*Source:* Authors' calculations from 1997 "Jeunes et carrières" and 2005 "Familles et employeurs" surveys.

(23) After a steady rise since the 1970s, the divorce rate levelled off in the second half of the 1980s before moving up again (Prioux, 2007).

**Table 7. Change in men's labour market status around the time of separation (percentage) (Kernel matching)**

	Period		Educational attainment		Total
	Before 1990	After 1990	Without baccalauréat	With baccalauréat	
Long-term employment	-3.6***	-5.1***	-5.5***	-1.9*	-4.4***
Short-term employment	2.3***	1.5***	2.1***	0.7	1.6***
Unemployment	0.6	3.4***	3.1***	0.8	2.4***
Inactivity	0.8	0.1	0.3	0.4	0.4

*Interpretation:* In the post-1990 period, the proportion of men unemployed after separation is significantly higher than for non-separated men. The difference is 3.4 points. For the pre-1990 period, the difference is a non-significant 0.6 points.

*Statistical significance:* \*\*\*: p < 0.01; \*\*: p < 0.05; \*: p < 0.1.

*Source:* Authors' calculations from 1997 "Jeunes et carrières" and 2005 "Familles et employeurs" surveys.

Educational attainment also has a strong influence on return to work or continuation in employment. The occupational trajectories of persons holding the *baccalauréat* or higher qualifications are distinctly less impacted by separation than those with a lower educational level (Tables 6 and 7). Men and women who do not hold a *baccalauréat* face a greater risk of unemployment than those who do. Low-educated men are also more at risk of holding precarious jobs.<sup>(24)</sup> For women with the *baccalauréat*, more frequently active than women without the *baccalauréat*, separation entails fewer occupational changes than for their low-educated counterparts.

## VI. The determinants of return to work

We have shown that the most common post-separation transition is a return to work by economically inactive women who have recently separated: approximately half of the category is concerned. But what are the characteristics of these job-seeking women by comparison with those who remain inactive? The financial incentives to return to work vary according to the level of private transfers (e.g. alimony, compensatory allowance, and non-labour income) and public transfers, the cost of childcare arrangements, and other factors. Unfortunately, we have no information of this kind in the retrospective section of the surveys used. The proportion of inactive women in year ( $t - 1$ ) who

(24) The proportion of women in precarious employment after separation is significantly higher than for non-separated women, for holders and non-holders of the *baccalauréat* alike. In terms of level, the difference in proportions is greater among non-holders, but the calculation of the logistic contrast (expressed as the log odds ratio) yields similar results for both sub-populations.



return to work depends on a number of family-related and occupational factors. To identify them, we used a logistic regression to estimate the probability that an inactive woman will enter the labour market at a given date (Table 8).

Experiencing separation in the previous year multiplies the chance of entering the labour market by almost four. Return to the labour market is influenced by children's ages: women with a child under two years old are less likely to go back to work. Piketty (2005) has shown that the parental leave allowance (*Allocation parentale d'éducation*, APE) may have enabled certain women to remain inactive. The lone-parent allowance (*Allocation de parent isolé*, API) may also act as a disincentive for separated parents. But eligibility for the benefit is limited: one year for lone parents of children aged over 2 at the time of separation, and up to the child's third birthday for parents who separated earlier. As a result, the API serves mainly as a transitional income source for separated mothers. Having children is a stronger incentive for women to enter the labour market than not having children. This seemingly counter-intuitive finding may be due to the specificities of childless inactive women, whose characteristics may differ from those of other women because of poorer health, for example.

Marriage is a more financially protective form of union than consensual union in the event of separation, owing to the existence of a compensatory allowance. However, there are no observable differences in inactive women's labour market behaviour by status of the dissolved union.

The likelihood of inactive women returning to work also depends on their human capital and earlier working experience. The least educated women are less likely to return than others; the opposite is true for the best educated. Women who have remained inactive for a long time are also less likely to return, whereas those who have been inactive for less than half of the period since completing education find a job again more easily.

Last, the probability of re-entering the labour market has been rising over time, a reflection of the uptrend in female activity since the 1970s.

In the first model, we estimated the global effect of all variables, regardless of whether the women are separated or not. However, we want to explore whether certain individual characteristics have a stronger impact in the event of separation. For this purpose, we introduce interaction effects into the regression (Model 2). By crossing the "age of children" and "separation" variables, we identify an additional handicap (negative coefficient) for inactive women with young children who have recently separated. Custody and problems of the work-life balance are more acute for lone mothers. By contrast, the number of children does not seem to have a greater influence on the return to the labour market for separated mothers than for unseparated ones. Similarly, level of education does not have a differentiated effect.

Lastly, we can assess the chances that women returning to the labour market will actually find work and, if so, we can examine the type of job



**Table 8. Probability of (re)entering the labour market for women who were inactive before separation (logit model)**

	Model 1		Model 2	
	Coefficient	Standard deviation	Coefficient	Standard deviation
Separation	1.447***	0.125	1.561***	0.417
Age <sub>(t-1)</sub> (age <sub>(t-1)</sub> - 30 years)	-0.055***	0.013	-0.054***	0.014
Marital status <sub>(t-1)</sub>				
Unmarried		Ref.		Ref.
Married	-0.154	0.149	-0.164	0.150
Number of children <sub>(t-1)</sub>				
No children		Ref.		Ref.
One child	0.888***	0.231	0.769**	0.306
2 or more children	0.725***	0.226	0.770***	0.295
Number of children <sub>(t-1)</sub> × Separation				
One child and Separation			0.490	0.472
2 or more children and Separation			-0.096	0.431
Age of children <sub>(t-1)</sub>				
Under 2	-1.009***	0.132	-0.885***	0.149
2 and older		Ref.		Ref.
Age of children <sub>(t-1)</sub> × Separation				
Under two and Separation			-0.454*	0.265
Education				
No qualifications	-0.531***	0.132	-0.455***	0.163
Below baccalauréat		Ref.		Ref.
Baccalauréat	0.445**	0.175	0.374*	0.200
Above baccalauréat	0.541***	0.178	0.532***	0.198
Education × Separation				
No qualifications and Separation			-0.209	0.279
Baccalauréat and Separation			0.421	0.450
Above baccalauréat and Separation			-0.017	0.448
Year at risk				
1967-1984		Ref.		Ref.
1985-1989	0.409**	0.197	0.405**	0.199
1990-1994	0.517***	0.198	0.507**	0.200
1995-1999	0.740***	0.222	0.734***	0.224
2000-2004	0.799***	0.230	0.803***	0.232
Inactivity ratio since completing education				
Under 50%	0.944***	0.171	0.971***	0.173
50%-100%	0.184	0.171	0.215	0.174
100%		Ref.		Ref.
Intercept	-2.678***	0.323	-2.746***	0.369
Number of observations <sup>(a)</sup>	2,218		2,218	

<sup>(a)</sup>The population here comprises separated persons and an observation year (drawn at random) for each person who has not separated.

*Statistical significance:* \*\*\*: p < 0.01; \*\*: p < 0.05; \*: p < 0.1.

*Source:* Authors' calculations from 1997 "Jeunes et carrières" and 2005 "Familles et employeurs" surveys.



obtained. We have shown that when separated women return to work, almost 20% find short-term jobs compared with only 10% for non-separated women (Table 4). This difference may reflect tighter financial constraints for separated women that force them to accept work quickly, irrespective of the job security level.

## Conclusion

Separation entails many changes in labour market status for both men and women, although there are differences by sex. For women, the most common labour market transition concerns those who are inactive before separation: more than half (re)enter the labour market after the break-up. Some factors reduce the propensity to (re)enter, such as having a young child. This may signal problems in finding suitable childcare arrangements, as women obtain primary custody more often than men after separation. Among men, separation generates occupational instability for some, with more frequent transitions from a long-term job to a precarious job or unemployment. The effects of separation on occupational trajectories also intensify as access to the labour market becomes more difficult. In particular, men and women with higher educational attainment (*baccalauréat* and above) are better shielded from the effects of separation than their less educated counterparts, who experience a combination of partnership-related and occupational instability.

In terms of occupational consequences, separation tends to produce convergence between female and male employment rates. However, the return of separated women to the labour market is also a sign that separation generates financial constraints for some women, particularly those who stopped working during the relationship. This corroborates the many earlier international studies that found a post-separation decline in living standards for women. Could this mean that public or private transfers are inadequate in certain cases? For both women and men, the specialization typical of traditional couples is a perilous strategy in the present context of high separation risk.

Our study is limited, however, by the lack of variables describing economic conditions in the data. We have no information on income or retrospective indicators of asset ownership. The findings reported here warrant further investigation, particularly to cover a longer period. The first question to examine is whether the effects of separation on occupational trajectories persist over time. We need to find out whether the impacts observed extend beyond the two years after separation, i.e. the period examined in this article. To do so, we need to pay special attention to the formation of new unions, which may be a means – deliberate or not – to offset the negative consequences of break-up.

Also worth exploring are the future levels of retirement income for separated men and women. Activity choices made during the relationship – such as exit



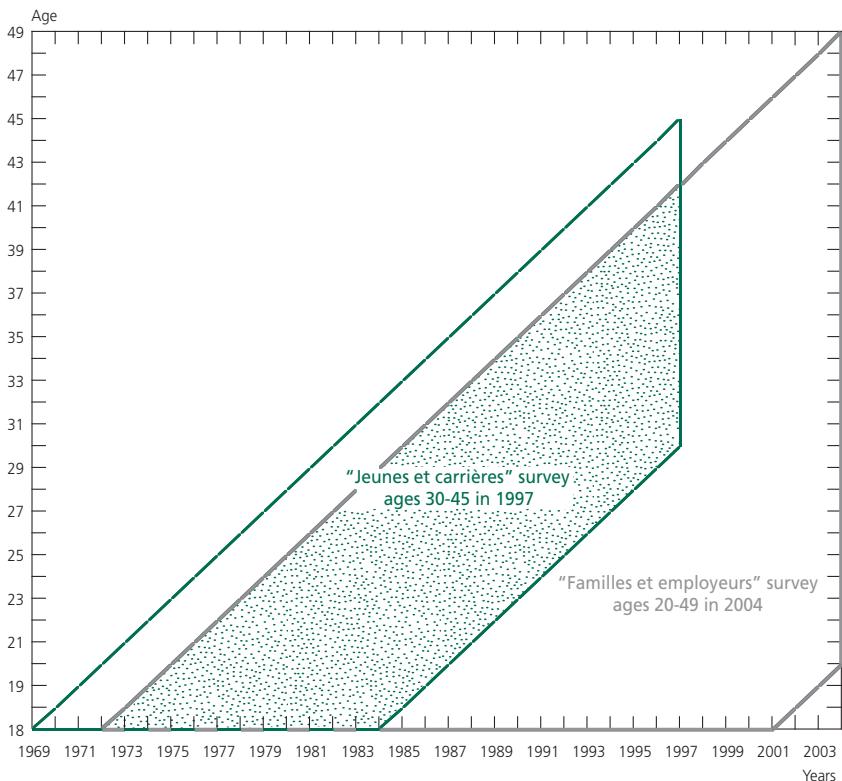
from the labour market or transition to part-time work – may lessen retirement benefits for one or other partner. But, in stable unions, the loss is offset by the presumed sharing of resources in the household during working years and in retirement. Union dissolution disrupts this arrangement, and a partial or total exit from the labour market will have repercussions at the time of retirement. Current developments in France – the reform of pension rights for spouses, and the recurrent questions about gender equality in retirement (Conseil d'Orientation des Retraites, 2008) – are an invitation to continue the studies begun in this article on the occupational trajectories of separated persons.

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## STATISTICAL APPENDIX

**Figure A.1. Retrospective calendar covered by each survey. Lexis diagram**



*Source:* 1997 "Jeunes et carrières" and 2005 "Familles et employeurs" surveys.

Although the two surveys were conducted seven years apart, their retrospective character and the slight age-group lag (20-49 years in 2004 and 30-45 years in 1997) make a large share of partnership and occupational trajectories observable in both surveys. This applies to cohorts born between 1955 and 1967 (aged 30-42 in 1997 and 37-49 in 2004). Cohorts born three years earlier are observable only in the "Jeunes et carrières" survey, while those born after 1967 are observable only in the "Familles et employeurs" survey.



**Table A.1. Probability of separation at date  $t$ . Estimation of propensity score (logit model)**

Variables in $(t - 1)$	Men		Women	
	Coefficient	Standard deviation	Coefficient	Standard deviation
<b>Employment status</b>				
Long-term employment		Ref.		Ref.
Precarious employment	0.413***	0.091	0.320***	0.076
Unemployment	0.269**	0.136	0.222**	0.087
Inactivity	0.312	0.229	-0.102*	0.058
<b>Age</b>	-0.057***	0.007	-0.047***	0.005
<b>Year at risk</b>				
1967-1984	-0.238**	0.102	-0.173**	0.088
1985-1989	-0.250***	0.092	-0.067	0.078
1990-1994	-0.035	0.081	0.037	0.071
1995-1999	-0.099	0.086	-0.021	0.075
2000-2004		Ref.		Ref.
<b>Union duration</b>				
Less than 3 years	-0.340***	0.069	-0.382***	0.063
4+ years		Ref.		Ref.
<b>Education</b>				
No qualifications	0.063	0.068	0.034	0.056
Below baccalauréat		Ref.		Ref.
baccalauréat	-0.032	0.082	-0.115*	0.064
Above baccalauréat	0.036	0.068	-0.000	0.057
<b>Marital status</b>				
Unmarried		Ref.		Ref.
Married	-0.682***	0.058	-0.838***	0.049
<b>Number and age of children</b>				
No children		Ref.		Ref.
One child under 2	-0.969***	0.092	-0.425***	0.072
One child 2 or older	0.018	0.082	0.224***	0.072
More than two children, incl. one under 2	-1.150***	0.108	-0.596***	0.084
More than two children 2 or older	-0.348***	0.091	0.064	0.077
<b>Intercept</b>	-1.471***	0.224	-1.863***	0.184
Observations / year <sup>(a)</sup>	108,755		143,210	
Pseudo R <sup>2</sup>	0.0463		0.0304	

<sup>(a)</sup> See details on data in section II.*Statistical significance:* \*\*\*: p < 0.01; \*\*: p < 0.05; \*: p < 0.1.*Source:* Authors' calculations from 1997 "Jeunes et carrières" and 2005 "Familles et employeurs" surveys.

**Table A.2. Distribution of variables in sub-groups of separated and non-separated persons**

Variable	Sample	Women			Men		
		Average		t-test	Average		t-test
		Separated	Control	t	Separated	Control	t
<b>Employment status in (<math>t - 1</math>)</b>							
Long-term employment	Unmatched	0.660	0.659	-0.18	0.866	0.927	-9.43***
	Matched	0.660	0.667	-0.47	0.866	0.865	0.11
Short-term employment	Unmatched	0.087	0.049	8.52***	0.087	0.041	9.39***
	Matched	0.087	0.081	0.74	0.087	0.088	-0.11
Unemployment	Unmatched	0.062	0.046	3.98***	0.035	0.024	2.99***
	Matched	0.062	0.062	0.14	0.035	0.035	-0.03
Inactivity	Unmatched	0.190	0.247	-6.44***	0.012	0.008	1.49
	Matched	0.190	0.190	-0.04	0.012	0.012	0.01
<b>Age</b>	Unmatched	29.17	30.37	-9.15***	29.72	31.61	-12.80***
	Matched	29.17	29.20	-0.19	29.72	29.74	-0.08
<b>Year at risk</b>							
1967-1984	Unmatched	0.198	0.213	-1.73*	0.173	0.164	1.02
	Matched	0.198	0.200	-0.13	0.173	0.173	0.00
1985-1989	Unmatched	0.217	0.211	0.76	0.199	0.207	-0.80
	Matched	0.217	0.218	-0.08	0.199	0.200	-0.04
1990-1994	Unmatched	0.271	0.255	1.80*	0.294	0.280	1.27
	Matched	0.271	0.271	0.02	0.294	0.293	0.05
1995-1999	Unmatched	0.177	0.181	-0.52	0.185	0.199	-1.45
	Matched	0.177	0.176	0.10	0.185	0.185	-0.01
<b>Union duration below 3 years</b>	Unmatched	0.262	0.233	3.29***	0.350	0.262	8.10***
	Matched	0.262	0.261	0.06	0.350	0.351	-0.05
<b>Education</b>							
No qualifications	Unmatched	0.204	0.201	0.29	0.178	0.166	1.27
	Matched	0.204	0.202	0.06	0.178	0.178	0.02
Below baccalauréat	Unmatched	0.463	0.459	0.46	0.528	0.542	-1.08
	Matched	0.463	0.465	-0.09	0.528	0.529	-0.02
Baccalauréat	Unmatched	0.135	0.143	-1.18	0.108	0.110	-0.18
	Matched	0.135	0.135	0.01	0.108	0.108	0.00
Above baccalauréat	Unmatched	0.198	0.197	0.19	0.186	0.183	0.32
	Matched	0.198	0.198	0.05	0.186	0.185	0.01
<b>Married</b>	Unmatched	0.595	0.792	-23.66***	0.511	0.747	-22.18***
	Matched	0.595	0.604	-0.63	0.511	0.510	0.05
<b>Number and age of children</b>							
One child under 2	Unmatched	0.117	0.150	-4.52***	0.087	0.159	-8.03***
	Matched	0.117	0.117	0.06	0.087	0.090	-0.27
One child over 2	Unmatched	0.186	0.139	6.72***	0.171	0.134	4.42***
	Matched	0.186	0.186	0.03	0.171	0.167	0.27
More than two children, incl. one under 2	Unmatched	0.107	0.182	-9.59***	0.070	0.174	-11.24***
	Matched	0.107	0.104	0.27	0.070	0.073	-0.27
More than two children aged over 2	Unmatched	0.265	0.307	-4.49***	0.174	0.256	-7.72***
	Matched	0.265	0.269	-0.36	0.174	0.176	-0.14

Source: Authors' calculations from 1997 "Jeunes et carrières" and 2005 "Familles et employeurs" surveys.



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### Carole BONNET, Anne SOLAZ, Elisabeth ALGAVA • CHANGES IN LABOUR MARKET STATUS SURROUNDING UNION DISSOLUTION IN FRANCE

In France, as in many other countries, union dissolution has become increasingly common over the last few decades. While the economic consequences of separation have generated an abundant international literature, research on this question is still rare in France, doubtless for lack of suitable data. This article analyses the labour force participation of men and women in the two years following the first separation. To obtain a sample of sufficient size, two retrospective surveys based on similar occupational history calendars ("Jeunes et Carrières" 1997 and "Familles et Employeurs" 2005) were grouped together. Propensity score matching techniques were used to compare separated men and women with those still in a union. For separated men, the risk of unemployment increases after separation. Inactive women who separate return to the labour force more frequently than other inactive women. Their return to work is strongly influenced by the age of their children at the time of separation, much more markedly so than for women who remain in a union. The effects of separation are stronger when access to the labour market is difficult; the sharpest rise in unemployment after separation is observed in the period just after 1990. Last, high-educated men and women (who have completed upper secondary education or higher) are better protected against the effects of separation than the low-educated.

### Carole BONNET, Anne SOLAZ, Elisabeth ALGAVA • LES CHANGEMENTS PROFESSIONNELS EN FRANCE AUTOUR DE LA SÉPARATION CONJUGALE

En France, comme dans de nombreux pays, les séparations conjugales ont fortement augmenté durant les dernières décennies. Si les conséquences économiques de la séparation ont donné lieu à une littérature internationale fournie, les recherches sur ce thème restent encore rares en France, sans doute par manque de données adéquates. Cet article analyse l'offre de travail des hommes et des femmes lors des deux années qui suivent la première séparation. Afin de disposer d'un échantillon de taille suffisante, deux enquêtes rétrospectives au calendrier professionnel semblable (*Jeunes et Carrières 1997* et *Familles et Employeurs 2005*) sont regroupées. Le recours aux méthodes d'appariement par score de propension permet de comparer les hommes et les femmes ayant connu une séparation à ceux qui sont restés en couple. Pour les hommes séparés, le risque de chômage augmente après la séparation. Les femmes séparées inactives avant la séparation retournent davantage sur le marché du travail que les autres femmes inactives. Cette reprise d'activité est fortement influencée par l'âge des enfants au moment de la rupture d'union, de manière encore plus marquée que pour les femmes restées en couple. Les effets de la séparation sont d'autant plus forts que l'accès au marché du travail est difficile. Ainsi, la hausse de la part d'individus au chômage suite à la séparation s'observe principalement sur la période qui suit 1990. Enfin, les hommes et femmes diplômés (titulaires du baccalauréat et plus) s'avèrent plus protégés des effets de la séparation que les moins diplômés.

### Carole BONNET, Anne SOLAZ, Elisabeth ALGAVA • LOS CAMBIOS PROFESIONALES EN FRANCIA EN TORNO A LA SEPARACIÓN CONYUGAL

En Francia, como en numerosos países, las separaciones conyugales han aumentado fuertemente durante los últimos decenios. Si las consecuencias económicas de la separación han dado lugar a una literatura internacional importante, en Francia las investigaciones sobre este tema son todavía raras, sin duda por falta de datos adecuados. Este artículo analiza la oferta de trabajo de los hombres y de las mujeres durante los dos años que siguen a la primera separación. A fin de disponer de una muestra de tamaño suficiente, se han reunido los datos de dos encuestas retrospectivas con un calendario profesional similar (*Jeunes et Carrières 1997* y *Familles et Employeurs 2005*). El recurso a métodos de emparejamiento por score de propensión permite comparar los hombres y las mujeres que han conocido una separación a los que han permanecido viviendo en pareja. En los hombres separados, el riesgo de paro aumenta después de la separación. Las mujeres inactivas antes de la separación se presentan más frecuentemente al mercado del trabajo que las otras inactivas. Este comportamiento está fuertemente influido por la edad de los hijos en el momento de la ruptura de unión, y ello de manera más pronunciada que en las mujeres que han permanecido en pareja. El efecto de la separación aumenta con la dificultad del acceso al mercado del trabajo. Así, el alza de la proporción de individuos que están en paro después de una separación se observa principalmente después de 1990. En fin, los hombres y mujeres diplomados (titulares del bachillerato o más) aparecen más protegidos contra los efectos de la separación que los menos diplomados.

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