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## Abortion Trends in France, 1990-2005

In France, induced abortion was legalized in 1975. The Veil Act on voluntary interruption of pregnancy allowed women to terminate a pregnancy before 12 weeks of amenorrhea (i.e. 10 weeks after conception). Despite the efforts made since the act was passed to provide termination services across France, some problems accessing abortion still persisted in the late 1990s (Nisand, 1999). The administrative procedure for obtaining a termination was still complicated and waiting lists were long; the administrative obstacles were especially numerous for the most vulnerable categories, such as minors, for whom parental consent was required, and for foreign-born women, less familiar with the health system. In 2001, lawmakers sought to remedy these problems by amending the Act. Several new provisions were added to facilitate access to abortion for all women: consultation with a family counsellor was made optional; the legal limit for elective terminations was extended from 10 to 12 weeks of gestation (from conception), i.e. from 12 to 14 weeks of amenorrhea (since the start of the last menstrual period); parental consent could be replaced by consent from another adult for minors; and foreign-born women were no longer required to show proof of legal immigration status in France. Moreover, general practitioners were also permitted to perform medical abortions in their surgeries on condition that they were registered with an abortion clinic (the implementing order for this provision was not published until 2004).

Several years after their introduction, have these new provisions indeed made it easier for women to obtain an abortion? Using data from abortion notifications, we analyse the trend in gestational age at termination between 1990 and 2005 according to women's sociodemographic characteristics. Assuming that gestational age at termination is an indicator of difficulty of access to termination services, this analysis aims to shed light on the impact of the 2001 amendments to the law, for all women and for particularly vulnerable categories (minors, foreign women, economically inactive women).

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Medical methods of contraception were legalized in France in 1967, and their use spread over the subsequent two decades. The replacement of traditional methods with medical methods (the pill and IUDs) was completed by the early 1990s (Toulemon and Leridon, 1992). As a consequence, the number of unplanned pregnancies declined until the late 1980s (Leridon, 1995) before levelling off in the 1990s (Régnier-Loilier, 2005). The downward trend in abortion corresponds to the decrease in the number of unplanned pregnancies: the total abortion rate<sup>(1)</sup> fell from an average of 0.66 abortions per woman in 1976 to 0.49 in 1990, and has remained stable since then (Appendix 1) (Blayo, 1996; 1997; Rossier and Pirus, 2007). The decline in abortions reflects the effective diffusion of medical methods of contraception in France (Leridon et al., 2002), although terminations of unplanned pregnancies have started rising again in recent years (Bajos et al., 2004). Many difficulties with contraceptive use persist, however (Bajos and Ferrand, 2002): the abortion rate was 14.3 terminations per 1,000 women aged 15-49 in 2005, a high level compared with other western European countries (Vilain, 2008a).

Three aspects of difficulties with fertility control are examined using data from induced abortion notifications. First, we seek to determine whether the increase in the abortion rate among young women, observed since abortion statistics were first compiled from abortion notifications, is due to a greater propensity to terminate pregnancy at those ages (Blayo, 1996; Prioux, 2000; Kafé and Brouard, 2000) or to a slackening of preventive efforts, in particular in the last few years. Second, foreign women have also been identified in the past as having particular difficulties adopting contraception: in the 1970s and 1980s they had a greater propensity to abort than French women (Blayo, 1996). Their current situation is reviewed on the basis of available statistical information for the 1990s and 2000s. Third, the proportion of repeat abortions is steadily increasing. How should this rise be interpreted?

The aim here is to use the data from abortion notifications to clarify two issues: the effect of the 2001 amendments to the abortion act on ease of access to abortion; and current trends in the difficulties experienced by young women, foreign women and women having more than one abortion in their lifetime.

## I. Sources of information on abortion

### *Abortion notifications*

The analyses here are based on data from abortion notifications, supplemented by hospital statistics. Abortion notifications, introduced by the 1975 Act, have theoretically been collected for all abortions since 1976, a legal obligation that was confirmed by the 2001 Act. A substantial under-recording of notifications has been observed, however, since statistical collection was introduced

(1) This is the average number of abortions that would occur per woman over her lifetime if she experienced the current age-specific abortion rates for each of her childbearing years.

(Appendix 1). For recent years, collected notifications covered an estimated 79% of terminations in 1997, 67% in 2002, and 81% in 2005. A recent article provides a detailed analysis of the causes of this under-recording (Rossier and Pirus, 2007). The notifications are nevertheless representative of the sociodemographic characteristics of women who present for abortion (Rossier et al., 2006). Since medical practice varies between different hospital sectors, and notifications are rarely completed in the private sector, the risk of bias is reduced if the medical data from the notifications are adjusted for all hospital sectors when calculations are performed. This adjustment is carried out for analysis of gestational age at termination by type of abortion – surgical or medical (Section II).

Until 2002, abortion notifications contained detailed information: date and location (*département*) of the procedure, status of the abortion facility (public or private), gestational age and date of last menstrual period, elective or therapeutic termination, type of abortion, type of anaesthesia, any perioperative complications, length of hospitalization, the woman's year of birth, her *département* or country of birth (plain text), her *département* of residence, her nationality (plain text), her marital status (de facto and legal), her year and country of marriage (if married), her employment status and occupation (in plain text) as well as those of her spouse or partner, and the number of previous pregnancies with their outcomes (spontaneous or induced abortion, stillbirth, live birth) and years in which these events occurred.

The notification form was simplified in 2005 (a highly simplified notification form was used for several months in 2004). The new form contains only the following information: date and *département* of the procedure, the status of the facility (public or private), place of procedure (hospital or doctor's surgery), date of last menstrual period, gestational age, elective or therapeutic termination, termination technique (with simplified type of anaesthesia), woman's age at procedure, *département* or country of birth (with pre-coded responses by world region), *département* of residence, employment status, number of previous births and number of previous abortions. The 2005 notifications leave out important information: the woman's year of birth,<sup>(2)</sup> her legal and de facto marital status, her occupation, her nationality, her partner's employment status and occupation, the dates and outcomes of previous pregnancies. With the new notifications, analysis of abortions by socio-occupational category is no longer possible (Toulemon and Leridon, 1992b); analysis of repeat abortions (Blayo, 1996) poses problems of comparability, as shown in Section V, and analysis by age and nationality is also problematic because the classification criteria no longer match those generally used in published statistics (census, civil records) (Sections III and IV).

The statistics from abortion notifications are published by INED, in coordination with INSERM.<sup>(3)</sup> The series were published from 1976 to 1997,

(2) The woman's year of birth was used to calculate the age reached in the year of the procedure, whereas the new notifications indicate the woman's (completed) age on the date of the procedure.

(3) Information available at [www.ined.fr/statistiques\\_ivg/](http://www.ined.fr/statistiques_ivg/)

then suspended for eight years, with only data for 2002 being made available. Publication resumed in 2005. Following the introduction of optical scanning, the data from 1998 were considered to be of low quality because the forms were not designed for optical data entry. The notifications from 1999, 2000 and 2001 were not entered either. A new attempt at optical data entry was made on the 2002 notifications, using improved optical scanning technology (Rossier et al., 2006). The quality of the 2002 notifications was lower than that of the 1997 notifications (slightly more incorrect and missing values), but this additional statistical noise does not prevent observation of expected trends, as demonstrated by a comparison with hospital statistics. The 2003 data were not entered and those of 2004 were not published because three different forms were used in that year: the old notification, the highly simplified notification that circulated for a few months, and the new notification. The 2005 notifications, designed for optical data entry, were optically scanned. However, some hospitals and clinics continued to use the highly simplified notification form of 2004 (10,684 notifications), which contains very little information.

### *Data from hospital statistics*

New statistical sources on abortions became available in the mid-1990s, with the computerization of annual hospital statistics (Statistique annuelle des établissements de santé – SAE) in 1995 and the introduction of computerized records of medical procedures (Programme de médicalisation des systèmes d'information – PMSI) in 1997 (Vilain and Mouquet, 2003; Vilain 2004; 2005; 2006; 2008a; 2008b). These hospital databases provide information about the total number of terminations (elective or therapeutic) in France by *département*, as well as individual case data on hospital status (public or private), type of abortion (medical or surgical), type of anaesthesia, length of hospitalization and the woman's age (at the time of the procedure). After a progressive introductory period, hospital statistics appear to be exhaustive from 2002 onwards (Rossier and Pirus, 2007).

## **II. Has the 2001 amendment facilitated access to abortion?**

The extension of the legal limit for abortion might be expected to lengthen the average interval between conception and abortion, i.e., to increase the average gestational age at termination. At the same time, the diffusion of medical abortion, recommended only for early terminations,<sup>(4)</sup> might be expected to reduce the average gestational age at termination.

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(4) The national medical certification and evaluation agency (Agence nationale d'accréditation et d'évaluation en santé - ANAES), recommends both techniques for pregnancies of 7 weeks of amenorrhea (WA) or less; medical abortion can also be used at 8 or 9 WA, but the agency indicates a preference for surgical abortion at those gestational ages; after 10 WA only surgical abortion is recommended (ANAES, 2001, p. 9).

The average gestational age is higher for surgical abortions (8.6 weeks of amenorrhea (WA) on average in 1990) than for medical abortions (6.7 WA in 1990, Table 1). These figures changed little between 1990 and 1997 (8.6 WA for surgical abortions in 1997 and 6.8 for medical abortions). The diffusion of medical abortions, which rose from 16% of total terminations in 1990 to 20% in 1997, was too low to reduce the average gestational age of total abortions between 1990 and 1997, and the duration of amenorrhea remained stable over the period, at around 8.2 to 8.3 weeks.

**Table 1. Average duration of amenorrhea at termination, in weeks, by type of abortion, metropolitan France, 1990-2005 notifications**

Year	Weeks of amenorrhea			Number of notifications	Medical abortions (%)
	Surgical abortion	Medical abortion	Total abortions		
1990	8.6	6.7	8.3	170,428	16.0
1991	8.5	6.6	8.2	172,152	13.9
1992	8.4	6.6	8.2	167,777	11.3
1993	8.4	6.7	8.3	167,921	14.5
1994	8.4	6.6	8.2	163,328	15.1
1995	8.5	6.7	8.2	156,181	16.4
1996	8.6	6.8	8.3	162,792	18.5
1997	8.6	6.8	8.2	163,985	19.6
2002	9.4	7.2	8.6 <sup>(a)</sup>	137,497	35.6 <sup>(b)</sup>
2005	9.5	6.7	8.3 <sup>(a)</sup>	166,985	43.1 <sup>(b)</sup>

**Note:** The figures from notifications include elective and therapeutic abortions.

<sup>(a)</sup> The average period of amenorrhea for all abortions was adjusted on the basis of exhaustive figures for surgical and medical abortions by hospital sector in the 2002 and 2005 annual hospital statistics (SAE).

<sup>(b)</sup> The percentage of medical terminations is taken from the 2002 and 2005 annual hospital statistics (SAE).

**Sources:** INED, SAE and authors' calculations.

Between 1997 and 2005, two factors had contrasting effects on the average number of weeks of amenorrhea at termination. First, the percentage of medical abortions doubled in those eight years, increasing from 20% in 1997 to 36% in 2002 and 43% in 2005.<sup>(5)</sup> That development was not immediately accompanied by an increase in early terminations (7 WA or less), since 39.7% of terminations were early in 1997 and 38.4% in 2002. The percentage of early terminations did increase between 2002 and 2005, however (45.1% of terminations in 2005).

Second, the average gestational age of surgical abortions increased by almost a week between 1997 and 2005, from 8.6 to 9.5 weeks of amenorrhea. This increase is largely attributable to the 2001 amendment, because the

(5) Medical abortions were quite rare in the private sector until prices (regulated prices) were aligned on prices for surgical abortions.

percentage of terminations performed at more than 12 WA increased: just 1.9% of surgical terminations were performed at more than 12 WA in 1997 compared with 8% in 2002 and 7.4% in 2005 (Table 2). The growing use of the medical technique for early abortions is lowering the percentage of surgical abortions, but also increasing the gestational age of surgical abortions: 29% of all surgical abortions were performed at less than 8 WA in 1997 compared with just 13.3% in 2005 (Table 2).

Last, the gestational age of medical abortions increased in 2002 due to an increase in the percentage of terminations in the eighth or ninth week of amenorrhea, probably after the publication of the 2001 report of the national medical certification and evaluation agency (Agence nationale d'accréditation et d'évaluation en santé - ANAES), which recommended the technique up to the ninth week, in accordance with international guidelines. In 2005, the average gestational age for medical abortions returned to its 1997 level.

**Table 2. Distribution of pregnancy terminations by weeks of amenorrhea, by technique used, metropolitan France, 1997, 2002 and 2005 notifications**

Weeks of amenorrhea	Medical terminations			Surgical terminations		
	1997	2002	2005	1997	2002	2005
4	1.8	3.0	1.5	0.6	1.1	0.2
5	14.0	11.4	15.0	1.9	1.2	0.7
6	41.4	34.5	41.9	8.0	4.2	2.9
7	26.4	26.3	28.6	18.5	11.5	9.5
8	7.6	11.6	7.1	24.3	22.1	20.8
9	3.5	4.4	2.0	20.4	19.6	21.2
10	2.0	2.6	0.8	13.7	15.5	17.7
11	1.1	1.7	0.5	8.0	10.4	11.7
12	0.4	1.1	0.4	2.7	6.5	7.9
13	0.2	0.8	0.4	0.7	4.3	4.9
14	0.1	0.3	0.2	0.3	1.3	1.8
15+	1.5	2.4	1.5	0.9	2.4	0.7
Overall	100.0	100.0	100.0	100.0	100.0	100.0
Number of abortions <sup>(a)</sup>	40,572	73,548	91,607	166,428	133,048	120,938

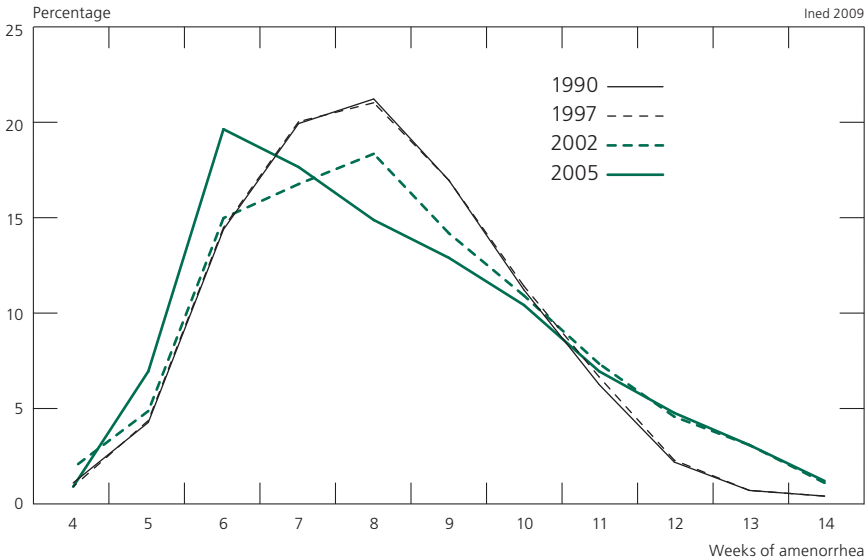
**Note:** The figures from the notifications include elective and therapeutic terminations.  
<sup>(a)</sup>The numbers are based on the percentage of medical abortions in the notifications and the total number of notifications adjusted for under-recording in 1997, and on the percentage of medical abortions and total abortions in the 2002 and 2005 annual hospital statistics (SAE).  
**Sources:** INED, SAE and authors' calculations.

The combination of these factors initially led to a slight increase in the average gestational age at termination – from 8.2 WA in 1997 to 8.6 WA in 2002 (three days more on average) – then to a decrease in 2005 (8.3 WA). Figure 1 illustrates the changes in the distribution of gestational age at termination between 1997 and 2005: while the average remained relatively

stable, the percentages of abortions at late and early gestational ages both increased.

One might think that the extension of the legal limit of abortion in 2001 was intended to absorb the strong demand for abortion at the twelfth week of pregnancy. The analysis above shows that there was no peak in terminations just before 12 weeks in 1997, a peak that would have been distributed between 12 and 14 weeks from 2002 onwards. On the contrary, the regular distribution of terminations by gestational age in 1997 is simply extended along the horizontal axis towards later ages in 2002. The extension of the curve suggests that the later limit did not serve to manage critical cases of women who were at risk of going over the legal limit; rather, the new limit enabled abortion services to schedule the total number of terminations over a longer timeframe.

**Figure 1. Distribution of terminations by weeks of amenorrhea, metropolitan France, 1990, 1997, 2002 and 2005**



Source: INED.

We will now look at changes in the characteristics of women by gestational age at termination between 1997 and 2005. Regardless of the year, the youngest women or those with 0 or 1 child have abortions at a later average gestational age; this is also the case for single women, unemployed women and “homemakers”<sup>(6)</sup> (Table 3). These later gestational ages might be due to the fact that women with fewer resources and less experience have particular difficulties accessing abortion services. By contrast, foreign women do not present a higher gestational age at termination than French women: if gestational age is an

(6) We use the term “homemaker” (*femme au foyer*) which was used in the notifications to describe these women’s employment situation.

Table 3. Distribution of pregnancy terminations (%), average weeks of amenorrhea at termination, percentage of early and late abortions by woman's sociodemographic characteristics, metropolitan France, 1990, 1997, 2002 and 2005 notifications

Characteristics	Distribution of terminations (%)				Average period of amenorrhea (in WA)				Percentage of early abortions ( $\leq 7$ WA)				Percentage of late abortions ( $\geq 11$ WA)			
	1990	1997	2002	2005	1990	1997	2002	2005	1990	1997	2002	2005	1990	1997	2002	2005
<b>Age</b>																
Below 18	3.6	4.2	4.6	6.8	8.8	8.5	8.8	8.4	28.8	33.5	32.7	41.6	15.8	14.2	21.3	19.6
18-19	6.8	7.3	7.4	8.6	8.7	8.5	8.9	8.5	29.4	32.5	32.0	41.0	15.5	13.5	21.7	19.6
20-24	23.2	23.4	26.3	26.5	8.5	8.4	8.7	8.3	32.6	34.9	34.9	44.8	13.4	12.6	19.5	16.9
25-29	23.8	22.4	21.3	20.7	8.3	8.2	8.5	8.1	37.8	39.1	38.1	48.4	10.8	10.9	17.0	14.7
30-34	20.7	20.2	19.2	18.0	8.1	8.1	8.4	8.0	42.7	42.3	40.7	50.1	8.9	9.3	15.7	13.7
35-39	14.8	15.3	14.0	13.1	7.9	8.0	8.4	8.1	46.0	44.2	41.1	48.3	7.5	7.9	14.5	13.5
40-44	6.5	6.4	6.3	5.6	7.9	8.0	8.3	8.0	47.1	44.1	41.0	49.5	7.3	7.8	13.2	12.6
45+	0.6	0.7	0.8	0.7	7.9	8.1	8.4	7.7	44.6	41.4	44.7	55.5	7.3	8.2	14.4	9.0
<b>Legal marital status</b>																
Single	53.6	63.8	68.5		8.4	8.3	8.6		35.5	37.1	36.2		12.2	11.6	18.4	
Married	36.3	27.1	24.2		8.1	8.1	8.5		42.5	43.1	40.9		8.8	8.9	15.2	
Other	10.0	9.1	7.3		8.2	8.0	8.3		41.4	42.7	41.5		10.2	8.9	15.4	
<b>De facto marital status</b>																
Living alone	44.1	51.1	54.6		8.4	8.2	8.6		35.9	37.7	36.6		12.2	11.4	18.4	
Living with partner	55.9	48.9	45.4		8.2	8.2	8.6		40.8	40.8	38.8		9.7	9.9	16.6	
<b>Nationality</b>																
French	87.2	90.1	84.1		8.3	8.2	8.6		38.6	39.3	37.8		10.9	10.6	17.6	
Foreign	12.8	9.9	15.9		8.2	8.3	8.6		38.0	37.8	36.3		9.8	10.8	17.8	

Characteristics	Distribution of terminations (%)				Average period of amenorrhea (in WA)				Percentage of early abortions (≤ 7 WA)				Percentage of late abortions (≥ 11 WA)			
	1990	1997	2002	2005	1990	1997	2002	2005	1990	1997	2002	2005	1990	1997	2002	2005
<b>Place of birth</b>																
France	82.6			83.7	8.3			8.2	38.2			47.1	11.1			15.6
Outside France	17.4			16.3	8.1		8.2		39.8			45.8	9.3			15.6
<b>Employment status</b>																
Working	51.2	45.3	49.5	47.7	8.1	8.1	8.5	8.0	42.0	42.8	40.1	50.2	9.3	8.9	15.8	13.5
Unemployed	10.5	12.9	10.2	11.4	8.6	8.4	8.7	8.4	32.5	35.2	34.9	41.8	13.8	12.7	20.2	19.0
Homemaker	19.0	16.6	15.3	14.5	8.4	8.4	8.8	8.3	36.3	36.3	35.0	44.1	11.6	12.0	18.9	17.0
Student	14.6	19.8	18.6	19.9	8.4	8.2	8.6	8.2	35.6	38.2	37.3	46.5	11.9	11.0	18.1	15.9
Other	4.7	5.4	6.5	6.5	8.5	8.4	8.8	8.4	33.9	33.6	33.4	41.6	12.9	13.6	20.3	18.8
<b>Previous births</b>																
0	43.6	45.6	47.5	45.3	8.4	8.3	8.7	8.2	36.9	38.3	36.7	46.7	11.8	11.4	18.4	16.4
1	19.6	19.9	20.3	21.2	8.3	8.3	8.7	8.3	38.4	39.0	37.2	46.7	11.0	11.4	18.6	16.4
2	20.2	19.5	18.3	19.0	8.1	8.1	8.4	8.0	43.0	42.0	40.2	49.5	8.9	8.8	15.4	13.3
3 or more	16.6	15.0	13.9	14.5	8.3	8.2	8.6	8.2	37.2	38.0	37.3	45.3	10.6	10.0	16.7	15.9
<b>Previous abortions</b>																
0	77.5	75.3	73.0	66.7	8.3	8.2	8.6	8.2	38.3	39.2	37.7	47.0	11.0	10.7	17.5	15.8
1	17.7	19.1	20.7	24.0	8.3	8.2	8.6	8.2	38.9	39.2	37.2	46.9	10.3	10.7	17.9	15.7
2	3.6	4.1	4.6	5.9	8.3	8.3	8.6	8.2	38.6	37.3	37.1	45.5	11.1	11.2	18.7	16.2
3 or more	1.2	1.5	1.7	3.3	8.2	8.2	8.7	8.1	38.9	37.3	36.2	46.4	9.9	10.4	19.3	15.5
Overall	100	100	100	100	8.3	8.2	8.6	8.2	39.5	39.7	38.7	47.5	11.0	10.8	18.2	15.8
Number	170,428 163,985 137,497 166,985															
Source: INED and authors' calculations.																

accurate indicator, foreign women therefore do not seem to encounter any particular problems in accessing abortion. Similarly, women with previous experience of abortion have a gestational age close to the average, with the same frequency of late and early gestational ages as women having their first abortion.

The increase in the average gestational age between 1997 and 2002 occurred among women of all ages, so that the differences by age observed in 1997 were also observed in 2002, with the youngest women still presenting a slightly later gestational age at termination in 2002. The period of amenorrhea rose in a similar manner for French-born and foreign-born women, for the different categories of employment status, whatever the conjugal status, and at different stages in the reproductive life; the differences observed for each of these variables in 1997 are also observed in 2002 and in 2005.

Early abortions (7 WA or less) increased in a similar manner for the different categories of women, reflecting the same differences in access in 2002 and 2005 as in 1997. The same pattern is observed for late abortions (11 WA or more). In particular, minors and foreign women do not exhibit either a particular increase in the number of early abortions or a particular decrease in the percentage of late abortions. The provisions of the 2001 abortion act easing the administrative requirements for minors and women who arrived recently in France thus do not seem to have reduced gestational age at termination for those categories.

### **III. Why has the frequency of abortion increased among young women since the early 1990s?**

The upturn in the abortion rate among young women since the 1990s has raised concern among healthcare practitioners. It represents a reversal of the downward trend observed in the 1970s and 1980s, including among the under-25s (Blayo, 1996). The decrease in unplanned pregnancies at those ages had brought down the number of abortions, despite a concomitant increase in the propensity to abort in the event of conception, attributable to the postponement of first childbirth. Analysis of abortion and birth notifications from 1990 to 1997 reveals that the increase in the abortion rate at young ages is due to an increasing propensity to terminate pregnancies, even though the frequency of unplanned pregnancies is stabilizing (Prioux, 2000; Kafé and Brouard, 2000). Stabilization might indicate a bottoming out (although lower rates are observed in neighbouring countries), or may be linked to poor prevention. Even if the diffusion of condoms in response to the AIDS epidemic has not led to a decline in use of the pill (Rossier and Leridon, 2004), the frequent use of condoms, a less effective method of contraception, may have halted progress in preventing unplanned pregnancies among young women from the early 1990s.

What is the situation in the late 1990s and early 2000s? Hospital statistics indicate that the upward trend in abortions among young women is continuing

(Vilain, 2006; 2008b). Can the increase still be ascribed to a greater propensity to abort? Or has the frequency of pregnancy at those ages increased? With the broadening of access to emergency contraception in 1999 (distribution by pharmacies and secondary-school infirmaries), a decrease in unplanned pregnancies at young ages might have been expected, particularly given that emergency contraceptive use did actually increase. In 1999, 14.6% of women aged 15-24 had used emergency contraception at least one in their lifetimes; in 2004, the figure was 31.6% (Moreau et al., 2006).

Hospital data are incomplete before 2002 (Rossier and Pirus, 2007). The distribution of abortions by age from the notifications before 1997 and from the PMSI since 1998 was therefore applied to the total number of abortions estimated by Rossier and Pirus (2007) before 2002 and to the total number of abortions in the SAE after 2002. Since the data on the woman’s age collected in the PMSI since 1997 and in the notifications since 2005 is completed age, our calculations were harmonized to reason in terms of completed age for the whole period.

Our estimates (Table 4 and Figure 2) confirm the analysis of the crude hospital data: abortion rates for women aged under 25 increased between 1990

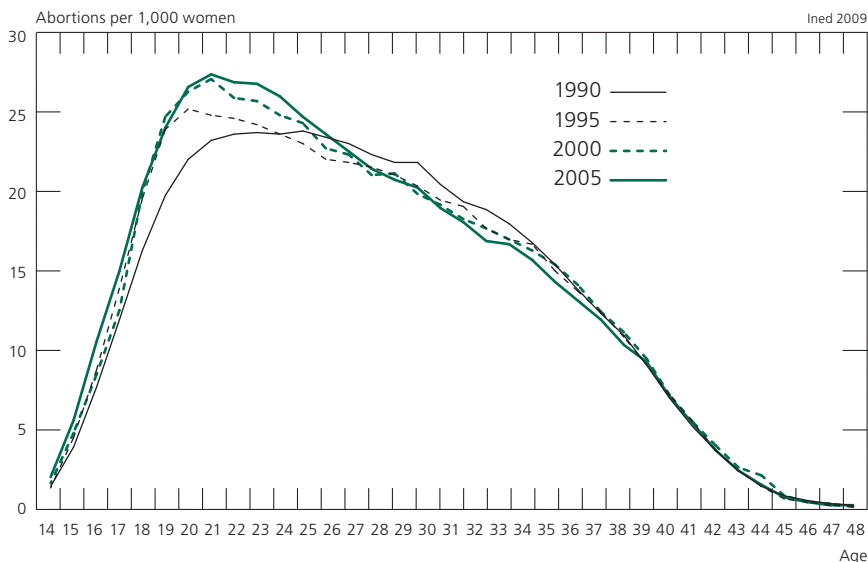
**Table 4. Abortion rates (per 1,000) by age group (completed age), notifications and hospital statistics, metropolitan France, 1990-2005**

Year	Age group								Total number
	15-17	18-19	20-24	25-29	30-34	35-39	40-44	45-49	
1990	8	18	23	23	20	14	5	1	209,000
1991	8	19	23	22	19	14	5	1	206,000
1992	8	19	23	22	19	13	5	1	206,000
1993	8	20	23	22	19	14	5	1	206,000
1994	9	21	24	22	19	14	5	0	207,000
1995	9	22	25	22	19	14	5	0	207,000
1996	9	23	25	22	19	14	5	0	207,000
1997	9	23	25	22	19	14	5	0	207,000
1998	9	22	25	22	19	14	6	0	207,000
1999	9	23	26	22	19	14	6	1	207,000
2000	9	22	26	22	18	14	6	1	207,000
2001	9	22	27	23	19	14	6	1	207,000
2002	9	22	27	23	19	13	6	1	207,000
2003	9	21	27	23	18	13	6	1	203,300
2004	10	22	27	24	19	14	6	1	210,664
2005	10	22	27	23	18	13	5	1	206,311

**Note:** The distributions of abortions by age are taken from the notifications for 1990-1997 and from the PMSI for the other years and were applied to the total number of abortions estimated by INED between 1990 and 2001 and to the number of abortions from the SAE from 2002 onwards (Appendix 1). Data from both sources are adjusted for under-reporting.

**Sources:** INED, PMSI, SAE and authors’ calculations.

Figure 2. Abortion rate by completed age, metropolitan France, 1990-2005, data adjusted for under-recording



Sources: INED, PMSI, SAE and authors' calculations.

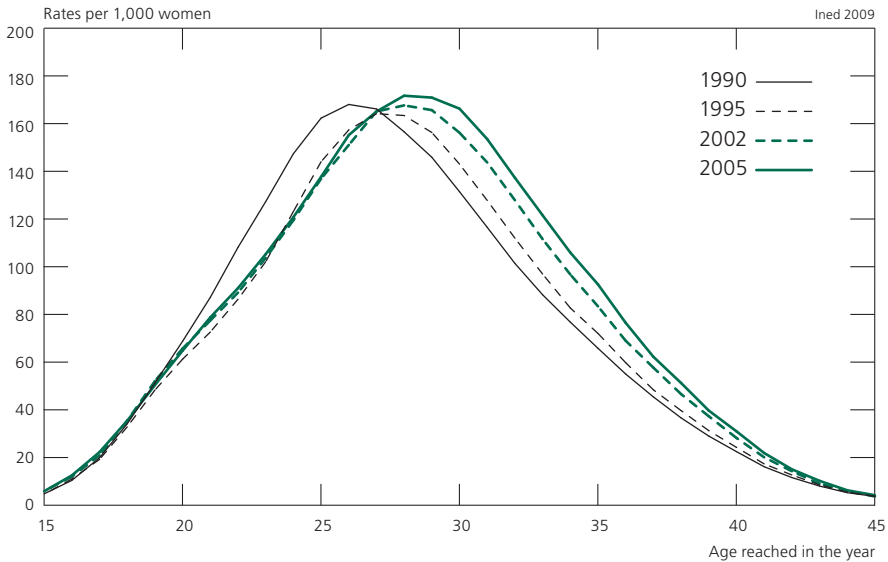
and 2005 (from 8 to 10 per 1,000 women aged 15-17, from 18 to 22 per 1,000 women aged 18-19, and from 23 to 27 per 1,000 women aged 20-24), whereas they remained stable in the other age groups. The increase in abortion frequency among women aged under 25 in the 1990s was logically accompanied by an increase in the percentage of abortions by women who are legally single (54% of terminations in 1990, 68% in 2002), women not living with a partner (44% in 1990, 55% in 2002), students (15% in 1990, 19% in 2002, 20% in 2005), and childless women (44% in 1990, 48% in 2002, 45% in 2005) (Table 3).

Between 1990 and 1995, abortion rates increased sharply at ages 18-22 (Figure 2). Between 1995 and 2005, abortion rates increased before age 20, but even more at ages 20-25. Abortion therefore increases among young women over the period under review, but mainly between the ages of 20 and 25. This trend is a first indication that increased abortions among young women can be attributed more to the trend towards later first childbirth than to an increase in the number of unplanned pregnancies due to a lack of prevention. Postponement of first childbirth has affected one reproductive age group after another. It was first observed in women aged under 20, then women aged 20-25, and is currently observed in women aged 25-30. However, another trend has been observed since 2000: the abortion rate is increasing again among women under 20. Is the recent rise in abortion among young women due, at least partly, to an increase in the number of unplanned pregnancies? In order to find out, the abortion rate has to be broken down into two components: the rate of conceptions, and the propensity to abort in the

event of conception. Ideally, we would need to have data on the frequency of unplanned pregnancies, which account for the vast majority of abortions (Rossier et al., 2007). Since these data are not available in the civil records, all conceptions were studied here.

Expanding on the analyses by Prioux (2000) and by Kafé and Brouard (2000), using data from civil records, we first calculated, for each year, a birth rate by aged reached that was brought forward by two-thirds of a year in order to calculate conceptions from the start of pregnancy rather than at the time of birth. These advanced birth rates were added to age-specific abortion rates, calculated on the basis of data from the notifications, adjusted for under-recording. “Age” here is age reached, because birth statistics are presented in this form. Data from the notifications are therefore used for the age distributions, and the year 2000 is replaced by 2002 in Figures 3 and 4.

**Figure 3. Conception rates (births and abortions) by age reached in the year, metropolitan France, 1990 to 2005, data adjusted for under-recording**

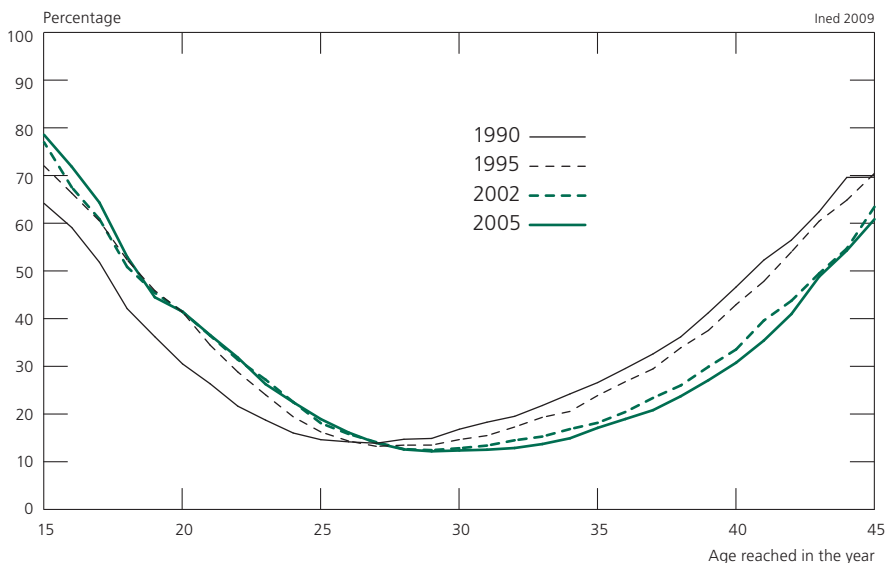


Sources: INED, SAE and authors' calculations.

The age-specific conception rates were stable overall before age 20 between 1990 and 2005, whereas they fell between ages 20 and 27 and increased from age 28 (Figure 3). This trend reflects the postponement of family formation. Conception rates remained stable at young ages in the 1990s, however, even though they should have decreased because of the postponement of childbirth. This might be due to the generalization of the use of condoms at those ages over that period. Subsequently, despite the availability of the morning-after pill in pharmacies and the increasing number of users in the late 1990s,

conception rates in young women did not fall.<sup>(7)</sup> This suggests that the rise in abortion rates among young women since the 1990s can be explained by the increasing propensity to terminate pregnancy at those ages (Figure 4), a trend also attributable to the postponement of first childbirth.

**Figure 4. Ratio of abortions to conceptions, metropolitan France, 1990-2005, data adjusted for under-recording**



Sources: INED, SAE and authors' calculations.

#### IV. Abortion trends among foreign women

The previous analyses of notifications show a higher frequency of abortions among foreign women from 1976, and an increase in the percentage of abortions by foreign women in the 1980s, reflecting the increase in the percentage of foreigners in the total population (Blayo, 1996). In 1990, 13% of abortions were performed on women with foreign nationality, among which half were performed on women from Africa, a region where medical methods of contraception are much less prevalent than elsewhere (Table 5).

In 2002, foreign women represented 15.9% of women presenting for abortion, according to the abortion notifications, and 11.4% of women who gave birth (Beaumel et al., 2007). The share of voluntarily terminated pregnancies is therefore higher among foreign women than among French women.<sup>(8)</sup> In 2005 12.2% of births were to foreign mothers. Examining abortion trends by

(7) A very slight increase in conceptions was even observed among the youngest women (aged under 18), although it is hard to see in Figure 3 because the curves overlap.

(8) However, some women might have become French before the birth, which skews the comparison slightly by reducing the percentage of foreign women among births.

**Table 5. Distribution of women presenting for abortion by nationality and place of birth, metropolitan France, notifications from 1990, 1996, 1997, 2002 and 2005 (%)**

	1990	1996	1997	2002	2005
<b>Nationality</b>					
French	87.2	88.1	90.1	84.1	
Foreign, of which:	12.8	11.9	9.9	15.9	
<i>African</i>	45.4	52.3			
<i>Other foreign</i>	54.6	47.7			
<b>Place of birth</b>					
France	82.6	83.6			83.3
Other, of which:	17.4	16.4			16.7
<i>Africa</i>	57.2	59.6			59.7
<i>Other foreign</i>	42.8	40.4			40.3
<b>Number</b>	<b>170,428</b>	<b>162,792</b>	<b>163,985</b>	<b>137,497</b>	<b>166,985</b>
<i>Note:</i> The figures from the abortion notifications include elective and therapeutic abortions. Some data were not available in 1997 and 2002 because the uncoded data on nationality and place of birth were not entered in those years. The nationality variable does not appear on the new notification form.					
<i>Source:</i> INED and authors' calculations.					

nationality between 1990 and 2005 is complicated by the fact that the “nationality” and “place of birth” variables, which required plain-text responses in the old notification, were only partially entered in 1997 and 2002. Moreover, the “nationality” variable does not appear on the new notification form; only the woman’s place of birth is entered. A reconstitution of the available data (Table 5) suggests that the percentages of abortions by foreign-born women did not increase between 1990 and 2005: 83% of abortions in 1990 were performed on women born in France, and the figure was practically the same in 2005. However, the data on place of birth are less accurate than the data on nationality collected earlier, owing to a high non-response rate. While the non-response rate to the question on nationality was always very low (1.2% in 1990, 0.9% in 1996, 3.1% in 1997 and 1.9% in 2002), 5.8% of notifications did not include the woman’s place of birth in 1990, 4.4% in 1996 and 13.5% in 2005.<sup>(9)</sup> In addition to the uncertainty about the true percentage of foreign-born abortion seekers, it is not possible to calculate abortion rates by place of birth, because there is no estimate of the foreign-born population by age group at the time of the censuses.<sup>(10)</sup> For this reason, the abortion trend among foreign women since 1990 is difficult to determine.

(9) The sharp increase in non-response in 2005 is partly due to the use of the highly simplified notifications from 2004 (6.4% of the total), which did not include that question.

(10) Neither is it possible to calculate abortion rates by nationality for 1996, 1997 and 2002, because only the 1999 census gives numbers of women with foreign nationality and the notification data were not published in that year. In 1990, the total abortion rate was estimated at more than 1 abortion per woman for foreigners, versus 0.53 for all women (Blay 1995).

However, two observations suggest that foreign women present slightly more frequently for abortion and that their reasons for seeking abortion differ from those of women born in France:

- The proportion of second or subsequent abortions is significantly higher among foreign-born women: in 2005, slightly over 41% had already aborted at least once, compared with under 32% of women born in France (Table 8).
- At the ages where conception is the most frequent (ages 25-35), foreign-born women terminate their pregnancies more often; by contrast, the youngest and oldest foreign women are less likely to terminate their pregnancies than women born in France. Indeed, when the number of abortions is divided by the number of live births in each age group according to the woman's place of birth, the ratio is slightly higher among foreign-born women in the 25-29 and 30-34 age groups, even though this ratio is probably underestimated for foreign-born women<sup>(11)</sup> (Table 6). Among women aged under 20 and over 40, however, the difference is so large – with much higher ratios for French-born women – that it cannot realistically be attributed to the under-recording of foreign-born women's place of birth in abortion statistics. It reflects fertility timing that is both earlier (foreign-born women start childbearing at a younger age) and later (foreign women more often have large families).

**Table 6. Ratio of abortions to live births in 2005  
by woman's age and woman's place of birth**

Age group	Place of birth	
	France	Abroad
Under 20	1.68	0.97
20-24	0.47	0.39
25-29	0.16	0.21
30-34	0.14	0.18
35-39	0.26	0.20
40+	0.63	0.29
<b>Overall</b>	<b>0.27</b>	<b>0.25</b>

*Sources:* INED, abortion statistics; INSEE, register of births made temporarily available by INSEE.

## V. Repeat abortions

An average number of 0.5 abortions per woman can represent quite different situations in terms of behaviour. It might signify, for example, that half of all women have just one abortion in their lifetime. In this case, the total abortion rate breaks down as 0.5 first abortions per woman and 0 subsequent abortions. Another possibility is that a smaller percentage of women have repeat abortions,

(11) Non-response to place of birth probably mainly concerns foreign-born women.

say, one woman in four having an average of two abortions in her lifetime. In this second case, the same total abortion rate breaks down as 0.25 first abortions per woman and 0.25 second abortions.

An abortion can be an opportunity for a woman to receive information about birth control or a prescription for a medical method of contraception. A traumatic abortion experience can encourage a woman to be more careful about falling pregnant again or to carry a subsequent unplanned pregnancy to term. These abortion-related effects – indistinguishable in the data – will be grouped together under the term “learning effect”, which is assumed to reduce the risk of a subsequent abortion.<sup>(12)</sup> Bajos et al. (2007) thus show that if abortion occurs at a high-risk time (precarious employment situation, change in contraception, marital instability, financial difficulties), it can represent a turning point towards adoption of a more effective contraceptive method.

Conversely, if a small number of women use contraception infrequently, are at especially high risk of abortion and do not change their subsequent behaviour, this group, although representing a small percentage of women who abort for the first time, will be more represented among women who have had two or three abortions. This selection effect generates a risk of subsequent abortion that appears to increase with the number of previous abortions.

The breakdown of abortions by abortion order thus sheds light on the reasons for seeking abortion and on the role of abortion in relation to other birth control methods. Three indicators are examined below: the breakdown of abortions by number of previous abortions; the breakdown of women by number of abortions in their lifetime; and the probability of having an abortion by number of previous abortions and age at last abortion.

### *The share of repeat abortions has increased since 1990*

The percentage of abortion seekers who have had at least one previous termination is growing: it rose from 22% in 1990 to 27% in 2002, then increased sharply to 33% in 2005 (Table 7), a trend partly attributable to the new notification format. Whereas the old notification form asked for the dates and outcomes of all previous pregnancies (spontaneous abortion, induced abortion, still birth, live birth), the new form only asks for the number of previous births and the number of previous abortions, with the answers to both questions (0, 1, 2, etc.) to be entered in check boxes. The much higher percentage of missing answers about the number of previous abortions (9.2% in 2005,<sup>(13)</sup> compared with 4.9% in 1990, 2.5% in 1995 and 4.4% in 2002) demonstrates the need for a filter question “has had a previous abortion: yes/no” to obtain better quality information about this variable. Non-response probably mainly

(12) This learning effect would not exist if women were not made to feel guilty about having an abortion and/or if doctors did not provide any information about contraception at the time of the abortion.

(13) This percentage is calculated only from notifications that used the new 2005 form, because the question did not appear on the 2004 form.

**Table 7. Distribution of women presenting for abortion by number of previous abortions, metropolitan France, notifications from 1990-2005 (%)**

Previous abortions	1990	1991	1992	1993	1994	1995	1996	1997	2002	2005
0	77.5	77.5	76.8	76.7	76.3	76.1	76.2	75.3	73.0	66.8
1	17.7	17.6	18.2	18.2	18.6	18.6	18.5	19.1	20.7	24.0
2	3.6	3.6	3.7	3.7	3.8	3.9	3.9	4.1	4.6	5.9
3+	1.2	1.2	1.3	1.3	1.2	1.4	1.4	1.5	1.7	3.3
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Number	170,428	172,152	167,777	167,921	163,328	156,181	162,792	163,985	137,497	166,985

*Note:* The figures from the notifications include elective and therapeutic abortions. The question on previous abortions is worded differently in the 2005 notification from previous years.  
*Source:* INED and authors' calculations.

concerns women who have not had a previous abortion. However, even attributing all non-response to women presenting for a first abortion, the percentage of first abortions would be 69.9% in 2005, a significant decrease on 2002. The most likely explanation for the apparent huge decrease in first abortions is that spontaneous abortions were also counted as previous abortions. The 2005 data should therefore be interpreted with caution, and are not used in the second section of this analysis.

### *This increase concerns all categories of women*

To understand the increase in the share of repeat abortions observed over the period, we must first examine the characteristics of the women who most frequently abort more than once. Can the increase be explained by a rising share of repeat abortion seekers among women presenting for abortion? The probability of having had at least one previous abortion increases with age (Table 8); consequently, repeat abortions are slightly less frequent among single women and students, and slightly more frequent among foreign women, unemployed women and homemakers. However, the increased proportion of repeat abortions cannot be attributed to a change in the age structure of abortion seekers, because, as indicated above, the proportion of young abortion seekers increased between 1990 and 2005 (Table 3), a change that would tend to favour a decrease in repeat abortions. Similarly, since the percentage of abortions among foreign-born women did not increase, the rise in repeat abortions in the total cannot be attributed to them. Lastly, the share of homemakers among abortion seekers fell between 1990 and 2005, a change that, here too, would tend to push up the percentage of first abortions in the total.

The increase in repeat abortions cannot, therefore, be attributed to a change in women's characteristics, but only to an increase in the proportion of repeat abortions, regardless of the characteristic considered (age, marital status, employment status, etc.) (Table 8).

**Table 8. Percentage of women who had already aborted at least once before the current abortion, by sociodemographic characteristics, metropolitan France, notifications from 1990, 2002 and 2005**

Characteristics	1990	2002	2005
<b>Age group</b>			
17 and under	2.8	5.5	7.5
18-19	5.6	11.2	15.4
20-24	16.0	22.8	30.3
25-29	25.9	31.3	38.7
30-34	28.9	32.6	40.6
35-39	28.9	34.1	41.1
40-44	27.0	33.7	41.6
45+	24.6	32.0	39.5
<b>Legal marital status</b>			
Single	20.2	26.4	
Married	22.8	26.2	
Other	33.7	36.8	
<b>De facto marital status</b>			
Living alone	21.2	26.0	
Living with a partner	24.4	28.7	
<b>Nationality</b>			
French	21.6	26.1	
Foreign	28.5	32.4	
<b>Place of birth</b>			
France	21.2		31.6
Other	28.7		41.2
<b>Employment status</b>			
Working	23.4	28.0	34.5
Unemployed	27.0	32.8	40.9
Homemaker	27.5	35.6	44.5
Student	9.2	12.3	15.4
Other	25.3	30.9	37.9
<b>Previous births</b>			
0	15.3	18.2	21.2
1	27.8	33.7	41.3
2	25.5	32.2	40.7
3+	30.1	38.5	46.6
<b>Total</b>	<b>22.7</b>	<b>27.0</b>	<b>33.3</b>
<i>Source:</i> INED, authors' calculations.			

*Frequency of abortion, 1976-2002*

To complete the analysis of previous abortions among women presenting for abortion, the total abortion rate is used (average number of abortions that would occur per woman over her lifetime if she experienced the current age-specific abortion rates for each of her childbearing years), divided into two components according to abortion order. The breakdown by abortion order presented in Table 9 and Figure 5 provides a measure of the percentage of women

**Table 9. Mean number of abortions per woman and distribution by abortion order, metropolitan France, 1976-2005**

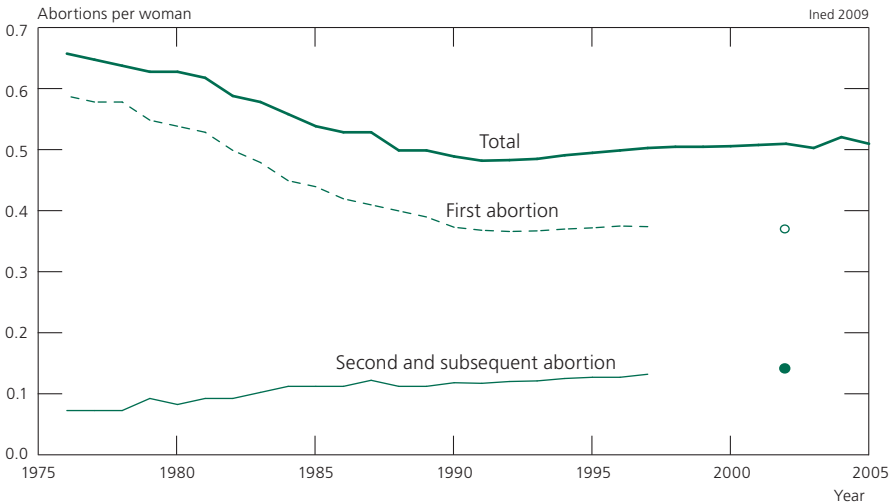
Year	Mean abortions per woman	Components	
		First abortion	Second and subsequent abortion
1976	0.66	0.59	0.07
1977	0.65	0.58	0.07
1978	0.64	0.57	0.07
1979	0.63	0.55	0.08
1980	0.63	0.54	0.09
1981	0.62	0.53	0.09
1982	0.59	0.50	0.09
1983	0.58	0.48	0.10
1984	0.56	0.45	0.11
1985	0.54	0.43	0.11
1986	0.53	0.42	0.11
1987	0.53	0.41	0.12
1988	0.50	0.39	0.11
1989	0.50	0.39	0.11
1990	0.49	0.38	0.11
1991	0.48	0.37	0.11
1992	0.48	0.37	0.11
1993	0.49	0.37	0.12
1994	0.49	0.37	0.12
1995	0.50	0.37	0.13
1996	0.50	0.38	0.12
1997	0.50	0.37	0.13
1998	0.51		
1999	0.51		
2000	0.51		
2001	0.51		
2002	0.51	0.38	0.13
2003	0.50		
2004	0.52		
2005	0.51		

Sources: INED, SAE and authors' calculations.

who have had at least one abortion (first-order component) then, by subtraction, the average number of repeat abortions per woman. These indicators are sensitive to changes in average age at event and should be interpreted with caution (Rallu and Toulemon, 1993), but they provide useful orders of magnitude by making the distribution of abortions by order over women’s lifetimes more visible.

The total abortion rate decreased between 1976 and 1990, due mainly to a drop in the percentage of women having at least one abortion in their lifetime from 59% to 38%. This means that the proportion of women who have never had an abortion in their lifetime increased from 41% in 1976 to 62% in 1990. Since 1990, the rate has remained stable at around 50 abortions per 100 women (over their lifetime), with a relatively stable distribution by abortion order. According to the 2002 notifications, an estimated 38% of women have had at least one abortion.

**Figure 5. Total abortion rate by abortion order, metropolitan France, 1976-2005**



Sources: INED, SAE and authors’ calculations.

**The probability of a second abortion has increased**

The trend in abortions by abortion order can also be measured through the probability of having a first abortion and the probability of having a subsequent abortion after 1, 2 or 3 previous abortions. Based on the 2002 notifications, it is possible to calculate the probability of a repeat abortion in the 2000s.<sup>(14)</sup> This can be compared to the probabilities of a second, third or

(14) Since behaviour, measured by abortion rates by age and order, has been practically stable for more than ten years, the distribution of abortions by order in a given year is similar to that which would be observed in actual lifetimes (Calot, 1993).

fourth abortion after a first, second or third abortion in 1976 and in 1985, as estimated by Blayo (1995) on the basis of the series of old notifications, which contained information about the year of previous abortion(s) and made it possible to sequence the events recorded in the following years. Since the average period between two abortions is 4-5 years, a comparison was made between first abortions in 1980 and repeat abortions after an abortion in 1976 (in the following years) and between first abortions in 1990 and repeat abortions after an abortion in 1985.

The probability of a second abortion increased over a 20-year period (Table 10). Among women who had a first abortion in 1985, 18% had a subsequent abortion. According to 2002 data, this proportion increases to 28%. This strong increase in the probability of a second abortion is found at all durations since the first abortion. The probability of a second abortion nevertheless remains lower than the probability of having at least one abortion.

Among women who had already aborted two or three times, the probability of another abortion changes only slightly: according to 2002 data, the percentage of women having a subsequent abortion is 23% after a second abortion and 25% after a third abortion, compared with 22% and 28% after an abortion in 1985. The probability of a repeat abortion fell in 2002 with the number of abortions, which was not the case 20 years earlier.

**Table 10. Probability of having an abortion in a lifetime, by number of previous abortions**

Number of previous abortions	Year		
	1980 (1976 abortion cohort)	1990 (1985 abortion cohort)	2002
0	0.54	0.38	0.38
1	0.15	0.18	0.28
2	0.22	0.22	0.23
3+	0.28	0.28	0.25

*Sources:* Blayo, 1995 (repeat abortions by abortion cohort); INED (repeat abortions in 2002); SAE and authors' calculations based on abortion rates by age and abortion order.

By combining the two indicators, we can estimate the distribution of women by number of abortions in their lifetime – a more accurate indicator than the distribution of abortions by abortion order used above – by including the number of previous abortions at each age in the calculation of rates. By assimilating the probability of a repeat abortion after an abortion in 1976 and in 1985 to the “conditions” of the 1980s and 1990s, a summary of trends for 20 years is obtained (Table 11). The proportion of women who have never had a abortion increased, as did the proportion of women who have had two or more abortions. The percentage of women who have more than one abortion

**Table 11. Distribution of women by number of abortions in a lifetime, metropolitan France, 1980, 1990 and 2002 (%)**

Number of abortions	Year			2002 simulated
	1980	1990	2002	
0	46.0	62.0	61.6	60.0
1	45.9	31.1	27.8	30.7
2	6.3	5.3	8.2	7.8
3+	1.8	1.5	2.4	1.5
Overall	100	100	100	100

*Sources:* Calculations based on data in Table 10.

in a lifetime remained low: 11% in 2002, versus 7% in 1990 and 8% in 1980. Although repeat abortions increased between 1990 and 2002, the number of women concerned is small.

The distribution of women by number of abortions can be compared to the distribution that would be observed if the probability of having an abortion at each age did not depend on the number of previous abortions (see Appendix 2). A “multi-state table” can thus be constructed, in which the probability of a repeat abortion depends only on age. Under this hypothesis, we obtain the distribution shown in the last column of Table 11, which is very similar to the actual distribution observed in 2002. In other words, the number of previous abortions seems to have had very little influence on the probability of having an abortion at each age.

***Probability of subsequent abortion by age***

The selection and learning effects therefore seem to have disappeared in 2002. They could vary, however, depending on the age at which women have an abortion. To identify selection effects in abortions at certain ages, Blayo (1995) calculated, for women who had an abortion in 1979, the probability of a repeat abortion in the next 12 years, i.e. between 1979 and 1991, according to the number of previous abortions and age at last abortion. The main result is that the probability of a repeat abortion increases with the number of previous abortions, regardless of age at abortion. Whatever the number of previous abortions, women who terminate a pregnancy at the youngest ages are more likely to do so again. According to Blayo, “selection is obvious here: women who have a first abortion at age 15-17, or two abortions before age 20, belong to the categories of women more likely to use this method of birth control”.

This analysis was then extended in three directions. First, the probabilities calculated by Blayo were refined to take account of abortions occurring more than 12 years after the first abortion. Figures 6 and 7 thus show the probabilities

of a repeat abortion over a lifetime, not just in the 12 years after an abortion.<sup>(15)</sup> Next, the probability for women of each age who have not had an abortion of aborting for the first time at a later age was calculated on the basis of age-specific first abortion rates in 1984.<sup>(16)</sup> Last, the same calculations were performed on the data from 2002, still assuming a stability of rates over time.<sup>(17)</sup>

The selection effect demonstrated by Blayo is even more visible when all subsequent abortions are described, including those occurring more than 12 years after the previous one (Figure 6). The comparison of the risk of a first abortion with the risk of a repeat abortion provides additional information, and gives a measure of the learning effect: in the 1980s, the probability for women who had already had one abortion of terminating a pregnancy later in their lives was lower than the probability of doing so for women of the same age who had never had an abortion. For example, 30% who had an abortion in 1979 before age 18 had a second abortion at a later age, whereas women of the same age in the same period who had not had an abortion had a more than 40% probability of seeking an abortion in their lifetimes. The same phenomenon is observed at every age. We can thus conclude that, in the late 1970s, an abortion was probably an opportunity for women to access an effective method of contraception. Among women who had already had an abortion, the probability of a subsequent abortion increased with the number of previous abortions, and exceeded 50% for women who had already had three abortions before age 24. The selection effect identified by Blayo was considerable, but it only concerned a small number of women: in the 1980s, 45% of women had at least one abortion, but only 8% had two abortions, and fewer than 2% had three or more abortions. The decrease in the risk of a repeat abortion after a first abortion (learning effect) was the most significant result.

Blayo's longitudinal analysis cannot be reproduced for recent years, because of a lack of continuous data since 1997. However, assuming a stable abortion rate since the 1990s, the probability of a repeat abortion by age at previous abortion can be calculated on the basis of 2002 data.<sup>(18)</sup> Figure 7 shows that the situation has changed considerably since the 1980s. At each age, the probability of a subsequent abortion is practically independent of the number of previous abortions. First, the probability of having a first abortion is lower

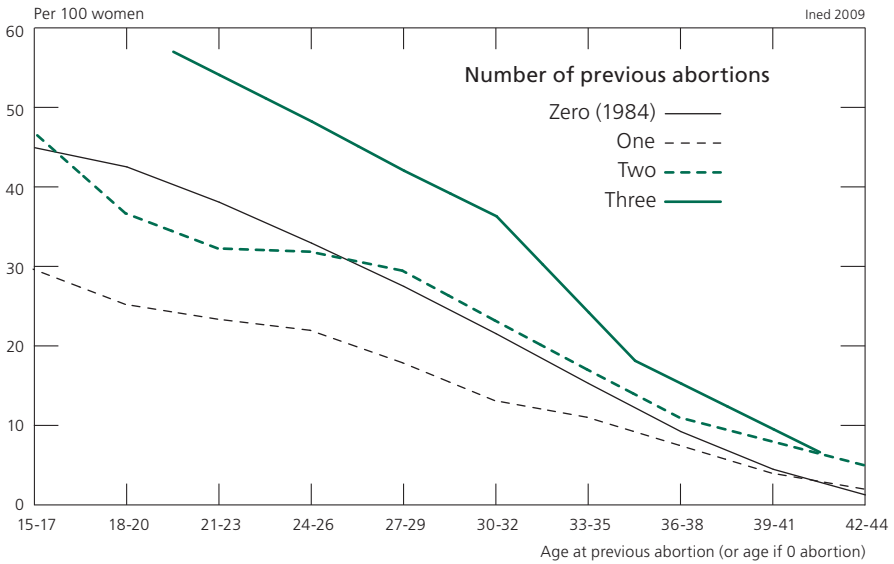
(15) These probabilities are estimated based on 2002 data. Among women who had an abortion at age 20, almost 13% of repeat abortions occurred after age 32; among women who had an abortion at age 30, 2% of repeat abortions occurred after age 42. These probabilities are assumed to be independent of the number of previous abortions.

(16) These probabilities were estimated less precisely than the previous ones. First, the numbers of abortions must be adjusted to reflect the under-recording of abortions, while the probability (numerator and denominator) of a repeat abortion is based on the numbers of abortions recorded and is therefore not biased by under-recording. Second, we use the incidence rates from 1984, for comparability with the period studied by Blayo, i.e. the 12 years after 1979.

(17) We verified that the 1997 data led to very similar results to the 2002 data, which strengthens our hypothesis here, beyond the stability of the estimated number of abortions.

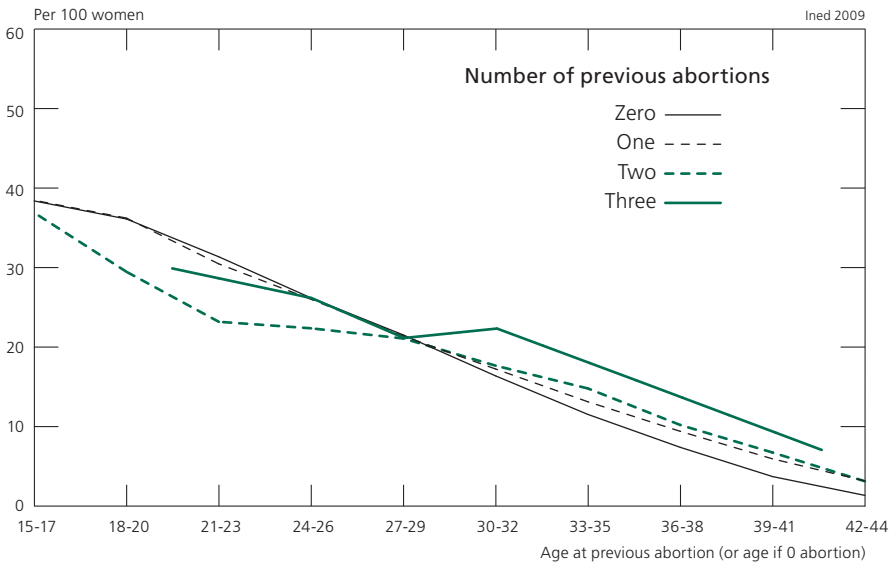
(18) The calculation method is shown in Appendix 3.

Figure 6. Probability of a subsequent abortion by number of previous abortions in 1979 and by age (%)



Sources: INED, SAE and authors' calculations.

Figure 7. Probability of a subsequent abortion by number of previous abortions in 2002 and by age (%)



Note: Given the small numbers of women having 3 or more abortions, they were grouped together for the 18-23, 33-38 and 39-44 age groups.

Sources: INED, SAE and authors' calculations.

in 2002 than in 1984, falling from 45% to 38%. Second, after a first abortion, the probability of a repeat abortion is not lower than the probability of a first abortion, as was the case in the 1980s. The learning effect (better access to contraception) of the first abortion has disappeared, except for women who had a second abortion at ages 18-25. But the effect is much lower than it was in the 1980s. Similarly, the selection effect now only concerns women aged 30 and over, among whom the risk of a repeat abortion is slightly higher for women who have already had an abortion, either because they are more at risk of an unplanned pregnancy or because they have a higher propensity to abort in the event of an unplanned pregnancy. But, here again, the effect is much smaller than in the 1980s.

The virtual disappearance of the learning effect, as well as the lower risk of a first abortion and the decrease in the selection effect can all be attributed to effective diffusion of medical contraception. The rise in the proportion of repeat abortions is therefore, paradoxically, the result of improved access to contraception. In other words, women now have an equal risk of abortion, regardless of whether they have had 0, 1 or 2 previous abortions. Previously, women who had never had an abortion had a higher risk than today of having a first abortion, and abortion was an opportunity for them to improve their subsequent contraceptive practice and reduce the risk of a second abortion to a level below that of the first, although similar to the current risk of having a first or a second abortion.

A possible interpretation of these findings is that abortion is now less stigmatized and less traumatic than in the past, and contraceptive methods are increasingly effective, with learning occurring in places other than abortion centres. Furthermore, the motives for terminating an unplanned pregnancy have changed, since the probability of having an abortion in the event of an unplanned pregnancy has increased (Bajos et al., 2004).

Note, however, that repeat abortions are rare: only one woman in nine has more than one abortion in her lifetime. The major changes in repeat abortion behaviour do not alter the key finding that, for the vast majority, abortion remains a single occurrence in a woman's lifetime.

## Conclusion

By analysing abortion notifications from 2002 and 2005, this study reviews recent abortion trends, notably the consequences of the 2001 amendment to the Abortion Act. The change in gestational age at abortion between 1997 and 2002 shows that the extension of the gestational limit from 12 to 14 weeks of amenorrhea has become a practical reality. This provision does not seem to have been used primarily to manage a critical backlog of women at risk of exceeding the 12-week time limit. Rather, it has mainly enabled abortion clinics to schedule abortions over a slightly longer timeframe. The extension of the

limit for termination of pregnancy has affected all categories of women equally. Minors and foreign women, targeted by measures to facilitate access, do not exhibit either a specific increase in the number of early terminations or a specific decrease in the number of late ones. The 2001 amendments have thus facilitated access to abortion for all women, but have not reduced inequality in access to termination services, of which gestational age is an indicator.

The increase in abortion rates among young women continued in the 2000s and, as in the 1990s, the phenomenon can be attributed to an increase in the propensity to terminate pregnancies at young ages, owing to the postponement of family formation.

Foreign women show a greater propensity to abort, although this propensity remained stable over the period. Foreign-born women do not seem to experience more difficulty accessing termination services (their gestational age at abortion is around the average). However, they have more repeat abortions and, at the ages where pregnancy is the most frequent (ages 25-35), they have a greater propensity to abort, which suggests less effective use of contraception.

Last, the proportion of repeat abortions increased between 1990 and 2002 due to the lowering of the risk of a first abortion and the disappearance of the learning effect after a first abortion. Women now have the same risk of abortion, whatever their previous abortion history.

This research highlights the value of notification statistics, alongside hospital data, in understanding abortion in France. The data analysed present gaps, however, because between 1997 and 2005 only the notifications for 2002 were recorded by the Directorate of research, studies, evaluation and statistics (DREES). While notifications are once again being recorded on a regular basis, their simplification nevertheless limits their potential for analysis.

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## APPENDICES

## Appendix 1. Frequency of abortion, metropolitan France, 1976-2005

Year	Number of elective and therapeutic terminations recorded in notifications <sup>(1)</sup>	SAE abortion statistics <sup>(2)</sup>	Number of abortions estimated by INED <sup>(3)</sup>	Abortions per 100 live births <sup>(4)</sup>	Annual abortion rate per 1,000 women aged 15-49 <sup>(5)</sup>	Mean abortions per woman <sup>(6)</sup>
1976	134,173		246,000	34.1	19.6	0.66
1977	150,931		245,800	33.0	19.5	0.65
1978	150,417		245,600	33.3	19.3	0.64
1979	156,810		245,400	32.4	19.1	0.63
1980	171,218		245,200	30.6	18.9	0.63
1981	180,695		245,000	30.4	18.8	0.62
1982	181,122		240,200	30.1	18.2	0.59
1983	182,862		235,400	31.4	17.7	0.58
1984	180,789		230,600	30.3	17.2	0.56
1985	173,335		225,800	29.4	16.7	0.54
1986	166,797		221,000	28.4	16.2	0.53
1987	162,352		218,000	28.4	15.8	0.53
1988	166,510		215,000	27.9	15.4	0.50
1989	163,090		212,000	27.7	15.1	0.50
1990	170,428		209,000	27.4	14.8	0.49
1991	172,152		206,000	27.1	14.4	0.48
1992	167,777		206,000	27.7	14.3	0.49
1993	166,921		206,000	28.9	14.3	0.49
1994	163,180		207,000	29.1	14.3	0.49
1995	156,181	179,648	207,000	28.4	14.2	0.49
1996	162,792	187,114	207,000	28.2	14.2	0.50
1997	163,985	188,796	207,000	28.5	14.2	0.50
1998		195,960	207,000	28.0	14.2	0.50
1999		196,885	206,000	27.7	14.2	0.51
2000		192,174	206,000	26.6	14.2	0.51
2001		202,180	206,000	26.7	14.3	0.51
2002	137,497	206,596		27.1	14.3	0.51
2003		203,300		26.7	14.1	0.50
2004		210,664		27.4	14.6	0.52
2005	166,985	206,545		26.6	14.3	0.51

<sup>(1)</sup> Notification statistics: elective and therapeutic terminations.

*Source:* [http://ivg\\_statistiques.site.ined.fr/](http://ivg_statistiques.site.ined.fr/)

<sup>(2)</sup> SAE (induced abortions only).

*Source:* A. Vilain and M.C. Mouquet (2003), and A. Vilain (2004; 2005; 2008a).

<sup>(3)</sup> INED estimate (induced abortion). From 2002, the SAE is assumed to be exhaustive.

*Source:* C. Rossier and C. Pirus, (2007).

<sup>(4)</sup>, <sup>(5)</sup> and <sup>(6)</sup> On the basis of INED estimates up to 2001 and SAE from 2002 for the total number of induced abortions.

<sup>(6)</sup> On the basis of notifications up to 1997 and PMSI from 2008; calculated using completed age.

## Appendix 2. Calculating the distribution of women by number of abortions

### Abortion by order

#### Calculation based on incidence rates

Let  $P(x)$  be the women of age  $x$  (average population, age reached in the year).

$IA(r,x)$  the induced abortions of order  $r$  at age  $x$ .

$t(r,x)$  the abortion rates of order  $r$  at age  $x$  (incidence rates).

$a_r$  the probability of having another abortion for a woman who has had  $r$  abortions.

$N_r$  the mean number of abortions of order  $r$  per woman.

$P_r$  the proportion of women having exactly  $r$  abortions in their lifetime.

We obtain:

$$t(r,x) = \frac{IA(r,x)}{P(x)}$$

$$N_r = \sum_x t(r,x)$$

$$P_r = N_r - N_{r+1} \quad \text{with } N_0 = 1$$

$$a_r = \frac{N_{r+1}}{N_r}$$

#### Distribution under the assumption that the probability of abortion depends solely on age

In Table 11, we compare the distribution deduced from the incidence rates with the distribution simulated under the assumption that the probability of abortion does not depend on the previous number of abortions.

Assuming that only one abortion in the year is possible, we obtain

$$t(x) = \frac{IA(x)}{P(x)}$$

We construct a multi-state table:

Let  $P(r,x)$  be the population having already had  $r$  abortions by age  $x$ .

$$P(0,14) = 1$$

$$P(r,x+1) = P(r,x) + P(r-1,x) t(x) - P(r,x) t(x)$$

$$P(r,x+1) = P(r,x) + [ P(r-1,x) - P(r,x) ] t(x)$$

Step by step, we thus obtain the distribution at age 50.

Assuming that two abortions are possible in a year, the women who had an abortion in the year are again exposed to the risk of aborting a second time. The rates  $t(x)$  are replaced by annual probabilities  $q(x)$ :

$$t(x) = q(x) \left( 1 + \frac{q(x)}{2} \right) = q(x) + \frac{(q(x))^2}{2}$$

$$q(x) = \sqrt{2t(x) + 1} - 1$$

And, step by step:

$$P(r, x + 1) = P(r, x) + [ P(r - 1, x) - P(r, x) ] q(x) + [ P(r - 2, x) - P(r - 1, x) ] \frac{q^2(x)}{2}$$

### Appendix 3. Calculating subsequent abortions by age at abortion

#### First abortion

For first abortions, we first calculate the incidence rates of first abortions. Based on annual probabilities, we estimate the proportion of women who have not (yet) undergone an abortion at each age and then deduce the probability, for a woman who has never aborted, of having an abortion later in her lifetime.

Let  $P(x)$  be women of age  $x$  (average population, age reached in the year).

$IA(0, x)$  first abortions at age  $x$  (among women with 0 previous abortions). This number must be adjusted for under-recording of abortions.

$tx(0, x)$  the rates of first abortions (incidence rates, women with 0 previous abortions).

$U(0, x)$  the sums of first abortion rates (incidence rates) at or after age  $x$ .

$S(x)$  the proportion of women of age  $x$  who have never had an abortion.

$P(0, x)$  the average population of women of age  $x$  who have never had an abortion.

We wish to estimate  $tu(0, x)$  the probability of aborting over a lifetime, for women who have never had an abortion.

We have:

$$t(0, x) = \frac{IA(0, x)}{P(x)}$$

$$U(0, x) = \frac{tx(0, x)}{2} + \sum_{u=x+1}^{50} tx(0, u)$$

$$S(10) = 1$$

$$S(x + 1) = S(x) - tx(0, x)$$

$$P(0, x) = \frac{S(x) + S(x + 1)}{2}$$

$$tu(0, x) = \frac{U(0, x)}{P(0, x)}$$

Assuming that incidence rates by age remain constant over time,  $tu(0, x)$  estimates the probability of an abortion over their lifetime for women of age  $x$  who have never had a previous abortion. This calculation is used for abortions in 1984 and in 2002.

**Second and higher order abortions**

For women who have had an abortion of order  $r$  at age  $x$ , we wish to calculate the probability  $tu(r, x)$  of a subsequent abortion in their lifetime.

Assuming that under-reporting of abortions is independent of the number of previous abortions, there is no need to adjust the numbers of abortions in this case.

Let  $d$  be the time since previous abortion.

We observe abortions at the time  $d$  for women having had an abortion of order  $r$  at age  $x$ . These abortions take place at age  $x + d$ .

The size of the female cohorts is taken into account by calculating the abortion rate at time  $d$  in relation to the population of age  $x$  at time  $t - d$ .

Let  $P(x, t) = P(x)$  the average population of age  $x$  in  $t$ , the observation year omitted in the general notations, and  $P(x, t - d)$  be the average population of age  $x$  in  $t - d$ .

Let  $tu(r, x)$  be the probability of an abortion in their lifetime for women having an abortion of order  $r$  at age  $x$ .

$$tx(r, x, d) = \frac{IA(r, x, d)}{P(x, t - d)} = \frac{IA(r, x, d)}{IA(r - 1, x)} \frac{P(x, t)}{P(x, t - d)}$$

$$tu(r, x) = \sum_{d=0}^{20} tx(r, x, d)$$

The  $tu(r, x)$  are comparable for the different values of  $r$ . To facilitate comparison, the ages  $x$  are grouped in threes.

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**Clémentine ROSSIER, Laurent TOULEMON, France PRIOUX • ABORTION TRENDS IN FRANCE, 1990-2005**

Abortion was legalized in France in 1975. Several amendments to the Abortion Act were passed in 2001 aimed at facilitating women's access to pregnancy termination. In particular, the maximum gestational age at which elective termination may be performed (the legal limit) was extended by two weeks. Data from induced abortion notifications can be used to study the impact of these amendments, by using the gestational age at termination as an indicator of difficulty in accessing termination services. Following the legalization of medical methods of contraception in France in 1967, the decline in unplanned pregnancies and elective terminations up to the mid-1990s can be attributed to the effective diffusion of medical methods of contraception in the 1970s and 1980s. Abortion rates nevertheless remain high in France compared with other western European countries. This raises two issues that warrant investigation: the persistence or increase in unplanned pregnancies among the youngest women, and repeat abortions by some women in their lifetimes.

**Clémentine ROSSIER, Laurent TOULEMON, France PRIOUX • ÉVOLUTION DU RECOURS À L'INTERRUPTION VOLONTAIRE DE GROSSESSE EN FRANCE ENTRE 1990 ET 2005**

La loi autorisant l'avortement depuis 1975 en France a été modifiée en 2001 dans le but de faciliter l'accès des femmes aux services d'interruption volontaire de grossesse (IVG), en particulier par l'augmentation de deux semaines de la durée de gestation maximale autorisée. Les données provenant des bulletins d'IVG permettent d'étudier l'impact de ces modifications législatives, en utilisant la durée de gestation au moment de l'IVG comme indicateur des difficultés d'accès à ce service. Par ailleurs, la loi autorise la contraception médicalisée depuis 1967 en France ; la diminution des grossesses non prévues et des IVG jusqu'au milieu des années 1990 est attribuable au succès de la diffusion de ces méthodes dans les années 1970 et 1980. Le recours à l'avortement reste cependant élevé en France par rapport aux autres pays d'Europe de l'Ouest. Cela pose la question de la persistance ou de la recrudescence des grossesses non prévues chez les femmes les plus jeunes et celle du recours répété à l'avortement au cours de la vie de certaines femmes.

**Clémentine ROSSIER, Laurent TOULEMON, France PRIOUX • EVOLUCIÓN DEL ABORTO VOLUNTARIO EN FRANCIA DE 1990 A 2005**

La ley que autoriza el aborto voluntario en Francia desde 1975 ha sido modificada en 2001, con el fin de facilitar el acceso de las mujeres a los centros que practican el aborto, especialmente prolongando de dos semanas la duración máxima de gestación autorizada. Los datos de los boletines de aborto permiten estudiar el impacto de estas modificaciones legislativas, utilizando la duración de gestación en el momento del aborto como indicador de las dificultades de acceso a los citados centros. Por otra parte, desde 1967 la ley autoriza en Francia los anticonceptivos medicalizados; la disminución de los embarazos involuntarios y de los abortos hasta la mitad de los años 1990 es atribuible al éxito de la difusión de estos métodos durante los años 1970 y 1980. Sin embargo, el recurso al aborto es todavía elevado en Francia respecto a otros países de Europa del Oeste. Este hecho plantea la cuestión de la persistencia o del recrudescimiento de los embarazos involuntarios en las mujeres más jóvenes, así como el recurso repetido al aborto a lo largo de la vida fértil en el caso de ciertas mujeres.

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Translated by Madeleine Grieve.