Contraception during the life course in Switzerland

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Abstract

The aim of our analysis is to investigate the relationship between the adoption of a specific method of contraception and the passage through the reproductive life cycle for women living in Switzerland. We are especially interested in the transition in principal motivation for contraceptive use from the control of child spacing to the termination of childbearing, which in Switzerland commonly corresponds to the adoption of the IUD or male or female sterilization. Our hypothesis is that this change in contraceptive behavior depends strongly on institutional factors, such as the advice and contraceptive prescriptions given in family planning centers or by gynecologists. To test this hypothesis, we use data from the three Swiss health surveys of 1992, 1997 and 2002. We focus our analysis on women living in a couple and born between 1958 and 1967, who experienced the transition in primary motive for contraceptive use between 1992 and 2002.

1. Introduction

The aim of this paper is to investigate the use of contraceptives in Switzerland in the context of 1990s and beginning of the 21st century. We seek to develop a life course perspective by assuming that the adoption of a specific contraceptive is related to the position of a woman in her reproductive life cycle. We also suppose that contraceptive choices are related to the context in which women live, especially the cultural context associated with the different linguistic areas. In order to test these hypotheses, we use data from the three Swiss health surveys of 1992-93, 1997 and 2002. Information on contraceptive use was collected in each of these three surveys from a representative sample of men and women living in different parts of Switzerland. This allows us to analyze contraceptive choices of a cohort of women living in the three major linguistic areas at different points of their life course.

In Section 2 we detail our hypotheses on contraceptive choices in Switzerland. In the third Section, we present the data and methods used, and in the fourth Section, we summarize our results. In the last section (Section 5) we present our conclusions.

2. Hypotheses

Forrest (1988 and 1993) proposed the division of a woman's reproductive life cycle into five stages. The first starts at the menarche and ends at first sexual intercourse. This stage

corresponds to the onset of the ability to bear children. The second stage, from first intercourse to marriage, corresponds to a phase during which pregnancy is usually avoided. In the case of countries in which marriage has lost its importance as a frame for procreation, the upper limit of this second stage could be the beginning of a co-residential consensual union. During the third stage, starting from marriage (or beginning of the union) and ending at the conception of the first child, contraceptives may be used in order to postpone childbearing. In most cases, this postponement corresponds to the pursuit of higher education, professional career considerations, or the establishment of a suitable and stable home life. The fourth stage starts at the birth of the first child and ends when the desired family size is reached. During this stage, contraceptive methods are used for pregnancy spacing considerations. In the fifth stage, which runs from family completion to the menopause, contraceptives are used with the aim of avoiding childbearing.

In this paper, we focus on the last three stages of the reproductive life cycle. Each of them can be characterized by a specific strategy of birth control. From a strategy of postponement, women switch to a strategy of spacing pregnancies after they have had their first baby. Later, when they have reached their desired number of children, they adopt a strategy to prevent childbearing. The two phases of postponement and spacing of pregnancies may be dealt with differently to the last phase, since the preservation of childbearing abilities is no longer considered necessary in this last stage. In this case, contraceptive choices can change between the fourth and the fifth stage of the reproductive life cycle.

The choice of contraceptives is very wide in Switzerland. Among modern methods, the hormonal pill was introduced onto the market in 1961 and spread quickly, especially at the end of the 1960s and during the 1970s (Bassand and Kellerhals 1975, Kühne 1984). The diffusion of the pill was in parallel to the creation and development of family planning centers in almost all Swiss *cantons*. Condoms were promoted very extensively after the middle of 1980s, as a response to the AIDS epidemic. Voluntary sterilization became a topic of discussion in the media, especially in the German speaking area of Switzerland, during the first half of the 1970s (Hoffman-Nowotny 1975). Previous studies on contraceptive choices show that male and female sterilization are frequently adopted in Switzerland (Kühne 1984, Le Goff 2005). This high prevalence of voluntary sterilization is a peculiarity in this region of Europe. Data from the Family and Fertility Surveys show that voluntary sterilization is rare in the neighboring countries of Austria, Germany, France and Italy. It does not seem to

correspond to a pill scare, as was the case, for example, in Great Britain and the USA (Murphy 1993).

Contraceptive methods available in Switzerland can be divided into two classes. The first class includes the pill, injectables, condoms and all the traditional methods (e.g. withdrawal, rhythm methods). All these methods can be considered as *short term methods*, since their contraceptive power is limited in time, from the duration of coitus, in the case of condoms and most of the traditional methods, to the duration of a few months in the case of injection. By contrast, methods such as the intrauterine device (IUD) and female and male voluntary sterilization can be considered as *long term methods*, since their contraceptive duration runs from a few years in the case of IUDs to irreversibility in the case of sterilization. This classification of contraceptives also corresponds to the distinction between methods which preserve the ability to conceive a child (short term methods) and methods which stop this ability (long term methods). Male and female sterilization are, by definition, irreversible methods. The IUD is commonly recommended by physicians to couples who have reached their desired number of children, but as an alternative to sterilization in order to prevent premature sterilization (Hubacher 2002). In this sense, the IUD can be considered as a long term contraceptive method even if it normally does not diminish the subsequent reproductive capacity of a woman.

The effect of the number of children on the choice of sterilization has been described in other developed countries such as the USA and Canada (Forste *et al*. 1995, Martin and Wu 2000). We can suppose that the switch from no contraceptive use or the adoption of a short term method to the use of a long term method is associated with having reached the desired number of children. In the specific case of Switzerland, Kühne (1984) mentioned that physicians more often agreed to a request for female sterilization when applicants were women with at least two children. The observations of this author indicate that the adoption of female sterilization is largely institutionalized, if we consider here that the term 'institution' does not refer to the State, as currently applied in life course studies (Elder 1995, Kohli 1985), but rather it corresponds to medical and family planning institutions. A similar process of institutionalization can be expected in the case of other contraceptives, especially in the case of male sterilization and the IUD.

We will assume another life course effect linked with the marital status of couples. In Switzerland marriage remains the general frame of fertility. Extra-marital births were still fewer than 10% of total births during the 1990s, with this rate being one of the lowest in Europe, despite many marital unions beginning with a spell of extra-marital cohabitation with the partner (Rossier and Le Goff 2005). This preservation of marriage as the status for becoming a parent, despite the diffusion of consensual unions, reflects the maintenance of the traditional model of the man as the bread-winner in Swiss society, especially in the domain of family policies. We can thus suppose that living in a non-conjugal union is associated with the third phase of pregnancy postponement in the reproductive life cycle. This phase will therefore generally correspond to a higher contraceptive prevalence, in comparison with the fourth phase of spacing childbearing associated with married couples who have not yet reached their desired number of children. We also expect that this phase corresponds generally with the use of short term methods.

Our third main hypothesis is that the institutional effects differ according to the linguistic area in which couples are living. Switzerland has four official national languages, of which three of them – German, French, and Italian – are spoken widely in distinct areas of the country[4]. A study of the services provided by family planning centers of these three regions shows that sterilization is more often recommended in the German speaking area, while the IUD is proposed more often in the French and Italian speaking areas (So-Barazetti *et al.* 1996). This result seems to indicate that institutional effects differ between the German and the French and Italian speaking areas of Switzerland. We would thus expect that sterilization to be more widespread in the German area while the adoption of the IUD would be more frequent in the other linguistic areas of Switzerland.

Our fourth and final hypothesis is related to the characteristics of individuals or couples, such as their level of education or their degree of religious practice. We assume that these characteristics play a minor role in contraceptive choice during the reproductive life cycle. The significance of this hypothesis is two-fold: first, differences are expected to be more related to institutional effects than heterogeneity across social groups; second, there are no longer inequalities in access of contraceptive methods, as also described for the case of

[4] German is the most widely spoken language (63.7% of the population). French and Italian are spoken respectively by 20.4% and 6.5% of the population. The fourth language is Romanche, which is spoken by only 0.5% of the Swiss population. Non-official foreign languages are the first language of almost 10% of the people living in Switzerland (Source: SFSO 2003)

France, where inequalities in the access to the different contraceptives disappeared during the 1990s (Bajos *et al*. 2004)[5].

3. Data and methods

The ideal data set to investigate our hypotheses on contraceptive choices during the life course would be panel or retrospective surveys providing individual data on contraceptive usage. Unfortunately, this kind of data does not currently exist in Switzerland. A less precise, but still a useful strategy would be to use data from regularly repeated surveys with a renewed sample each time. The methodology then consists of decomposing the sample into different birth cohorts and analyzing the contraceptive choices at the time of each survey for each cohort.

In this present study, we use data from the three Swiss health surveys of 1992-93, 1997 and 2002. These surveys were supervised by the Swiss Federal Office of Statistics with a common methodology of sampling and interviews. Samples are representative of the three major linguistic regions of Switzerland. The general aim of these surveys is to analyze the state of health of the Swiss population. However, each survey also included questions about the use of contraceptives (Zemp and Kessler 2000). These questions allow us to differentiate long term and short term methods. In the case of the sterilization, the health surveys of 1992 and 1997 did not differentiate between male and female sterilization. For this reason, we will limit our study to the adoption of sterilization *per se*, without gender distinction. However, for the 2002 survey we are able to differentiate between male and female sterilization. We are also able to analyze the use of each of the short term methods at the time of each survey, including the hormonal pill, condom and the less commonly used methods such as the traditional methods (rhythm methods, withdrawal, etc.), injections and implants[6].

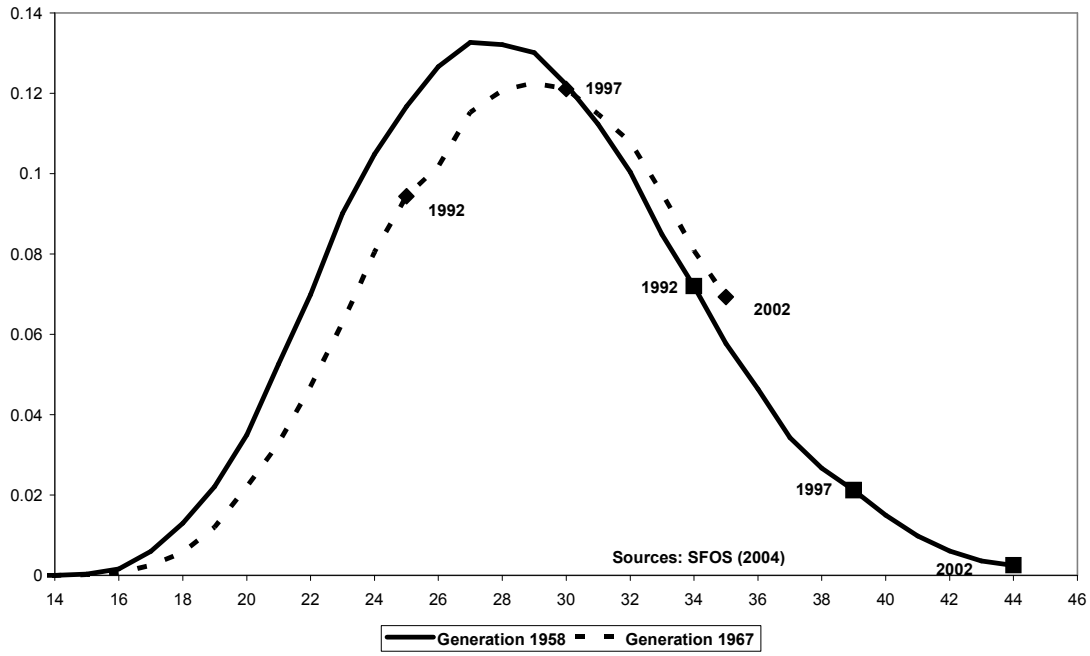
In this study, we focus for each survey on the responses given by women born between 1958 and 1967. In 1992, these women were 25 to 34 years old. During the 1990s in Switzerland, the highest fertility rates were for women in this age group. Figure 1 shows that in 1992,

[5] However, new types of inequalities have appeared, for example in access to the latest generation of the pill (Bajos *et al*., 2004).

[6] Although implants could be considered as a long term method, we will place them in the "other methods" category for two reasons. The first is that this method was not enumerated in the first heath survey. The second is that their use, as seen in the latest health survey of 2002, is very rare (less than ten persons total) and so it is difficult to classify their use into a particular stage of the reproductive life cycle.

when the survey took place, the fertility of women born in 1958 (and hence aged 34) was past its peak and was decreasing, while for women born in 1967 (aged 25) it was still increasing. We presume that at this point women were generally in the third or fourth stage of their reproductive cycle with very few of them having reached the last stage. At the time of the third survey in 2002, they were 35 to 44 years old. At that stage, most women had low fertility rates (figure 1), and so we conclude that most of these women were entering the fifth and final stage of their reproductive cycle. In 1997, when the second survey was done, it could be considered an intermediate stage, with some women still in their third or fourth reproduction life stage while others had already transited on to the fifth stage.

Figure 1 : Fertility rates of women born in 1958 and 1967



In parallel with the transit of these women through their reproductive life cycle, the changes in contraceptive prevalence can be observed, as well as the different types of contraceptive used (table 1). The contraceptive prevalence was lowest in 1992 and short term methods were the most commonly used methods at that time. In contrast, the contraceptive prevalence was highest in 2002 and the frequency in the use of long term methods was increasing. The results for 1997 were intermediate in comparison to those of 1992 and 2002. These overall observations support our general hypothesis that the adoption of a particular contraceptive method by a woman or a couple depends on her position in the reproductive life cycle.

Table 1: Contraceptives used by women born between 1958 and 1967 in 1992, 1997 and 2002 (in %)

	1992	1997	2002
Pill	38.2	23.8	16.5
Condom	15.3	19.2	13.3
IUD	9.3	10.3	13.7
Sterilization	3.3	18.3	26.4
Other method	3.1	6.3	6.0
No contraceptive	30.6	22.1	24.1
N	1017	963	1259

Source: Swiss Health Surveys (1992, 1997 and 2002)

Male and female sterilization represent respectively 61% and 39%. These proportions are not definitive since all women of this cohort do not have reach theirs desired number of children. However, results of the Swiss Family and Fertility of 1994 survey indicate that women who were aged 35 to 45 years old (born between 1950 and 1959) and living in couple were in proportion more numerous to have been sterilized, than their partner (Le Goff, 2005). The male sterilization seems to have spread during the recent years.

The effect of different factors on the contraceptive choices of a woman at the three different survey dates will be tested by applying multinomial logistic models. The aim of these models is to analyze the effect of different causative influences on the choice of IUD, of sterilization (male or female), or no contraceptive use, versus the use of a short term method (pill, condom or a traditional method). We will thus compare firstly the use of each long term method to the use of a short term method, and secondly compare no contraceptive use to the adoption of a short term method. Note that we will restrict our analyses to women living in a couple, on the assumption that these women have regular sexual activity. Moreover, women who had been sterilized for a medical reason are excluded from our analysis. Models are estimated both by taking the results of the three surveys together (general model) and also looking at each survey separately (specific models). Covariates taken into account are classified into four categories (table 2 shows the distribution of these covariates):

Life course covariates: The first covariate is the status of the couple – married or cohabitant. As we have already mentioned in the preceding section, we propose that women living in a consensual union are likely to have a higher contraceptive prevalence, and a higher use of short term methods. However, some cohabiting unions occur after a marriage, and it has been highlighted that, in the case of the USA, single

or cohabiting women who were formerly married were more often sterilized in comparison to never married women (Godecker *et al*., 2001). We will thus distinguish between women who are divorced or separated from a former union and never married women. A second covariate is the number of children living in the household. It should be noted that in case of some stepfamilies, children would not necessarily be those of the woman. As health surveys do not distinguish between them, we will suppose, as mentioned in the preceding point, that the more numerous the children, the higher the probability that the woman or her partner will be sterilized. In particular, since in Switzerland there is a strong norm of two children (Rossier and Le Goff 2005), we can consider this size as a proxy of family completion and assume that having at least two children increases the probability of adopting sterilization.

Geographic context: Swiss health surveys provide details of the context of where a couple lives. The first characteristic we take into account is the linguistic area of their residence. As mentioned earlier, we propose that the choice of sterilization is more frequent for women in the last phase of their reproductive cycle in the German speaking area of Switzerland than in the French or the Italian speaking areas. The choice of IUD, however, is expected to be more frequent in the latter two regions than in the former. The second geographic distinction concerns the urban/rural status of place of residence, with a distinction between rural, urban, or large urban agglomeration (conurbation). This last category includes the five biggest metropolitan areas of Switzerland which are Zurich, Basle and Berne in the German speaking area and Geneva and Lausanne in the French speaking area.

Survey year and cohorts: two other independent variables in our study are the year of survey in the case of the general models and the distinction between women born in 1958-62 and those born in 1963-67. We suppose that the contraceptive behavior of the younger cohort corresponds more frequently to a postponement or spacing strategy than to a prevention strategy. We therefore expect less sterilization and less adoption of the IUD in the younger cohort. As for the year of the survey, a positive significant effect of this variable - other things being equal - on the adoption of long-term contraceptives would indicate that the age of a woman plays a role in the adoption of these methods.

Table 2: Percentage distribution of different covariates

	Combined	1992	1997	2002
Year of the survey				
1992	**31.4**			
1997	**29.7**			
2002	**38.9**			
Sub-cohort				
1958-62 cohort	**38.7**	**44.3**	**38.7**	**34.2**
1963-67 cohort	**61.3**	**55.8**	**61.3**	**65.8**
Marital Status				
Cohabitant	**11.5**	**20.6**	**11.4**	**9.9**
Married	**84.7**	**74.5**	**85.5**	**86.8**
Separated/divorced	**3.7**	**4.9**	**3.1**	**3.3**
Number of children				
No children	**24.3**	**35.7**	**21.5**	**17.2**
1 child	**19.9**	**23.2**	**19.6**	**17.6**
2 children	**38.6**	**29.2**	**42.4**	**43.3**
3 children and more	**17.2**	**11.9**	**16.5**	**22.0**
Linguistic area				
German speaking area	**66.8**	**69.1**	**66.0**	**65.5**
French speaking area	**26.9**	**26.0**	**27.6**	**27.2**
Italian speaking area	**6.3**	**4.9**	**6.4**	**7.3**
Place of living				
Conurbation	**25.3**	**27.5**	**27.5**	**21.7**
Urban area	**54.0**	**51.9**	**55.7**	**54.3**
Rural area	**20.8**	**20.6**	**16.8**	**24.1**
Nationality				
Swiss	**86.1**	**89.0**	**81.6**	**87.1**
Foreign	**13.9**	**11.0**	**18.4**	**12.9**
Level of education				
Obligatory school	**12.4**	**10.4**	**13.7**	**13.0**
Secondary school completion	**72.7**	**72.1**	**71.8**	**73.9**
University degree	**14.9**	**17.5**	**14.5**	**13.1**
Religious practice				
Regular practice of religion	**10.5**	**12.5**	**10.5**	**8.8**
Irregular practice of religion	**47.2**	**49.0**	**29.5**	**59.3**
No practice or no religion	**42.3**	**38.5**	**60.0**	**31.9**
N	**3239**	**1017**	**963**	**1259**

Source: Swiss Health Surveys (1992, 1997 and 2002)

Individual characteristics: a number of individual characteristics are taken into account, essentially as control variables. These characteristics include the level of education (obligatory schooling only, completed secondary education, or university degree), the distinction between Swiss citizens and foreigners, and the degree of religious practice (no religion or no practice, irregular practice, or regular practice)[7]. As already mentioned in the previous section, we expect these covariates to have a lower effect than life course position or geographic covariates. However, we can make

[7] Unfortunately, the religion of respondents was not asked in the Swiss health surveys.

some hypotheses about the effect of these covariates. We suppose that sterilization is adopted less by foreigners than Swiss citizens since the popularity of sterilization is higher in Switzerland than elsewhere in continental Europe. We also expect a negative relationship between the degree of religion practice and sterilization.

4. Results

The results of our analysis are reported in table 3. We can see that the more recent the year of the survey, the higher the probability of use of one of the long-term contraceptive methods, and in particular sterilization, with respect to short term methods. Regarding this result, which confirms the distribution of contraceptive choices in the different years of survey detailed in table 1, one should remember that in our analysis the more recent years correspond to more advanced ages for the cohort of women. Thus we can say that there is a strong effect of age on the propensity to adopt a long-term contraceptive method, even when controlling for other individual characteristics related to position in the life course, in particular the number of children (and thus position with respect to family completion) and marital status. This result is also confirmed by the effect of the covariate "cohort", introduced in both the general and the specific models, which distinguishes between the two sub-cohorts of 1958-62 and 1963-67. As could be expected, belonging to the older sub-cohort makes the probability of having adopted sterilization significantly higher. This is, however, less true in the case of the IUD, as there is no significant difference between the two cohorts of women in the proportion adopting this method in comparison to the adoption of a short term method. Results also show that contraceptive prevalence[8] diminished between 1997 and 2002, everything else being equal. The overall contraceptive prevalence is also higher in the youngest cohort, but only in the first year of the survey. We suppose that some women belonging to this cohort were still in the phase of postponement of childbearing.

[8] By contraceptive prevalence, we mean here the use of a short term method versus no contraceptive use.

Table 3: Multinomial logistic regression on the choice of sterilization (male or female), IUD, or no contraceptive use versus use of a short term method. Analyses done on the three surveys combined and each survey separately (odds ratio)

	Three surveys			1992			1997			2002		
	Steril	**IUD**	**No contra**	**Steril**	**IUD**	**No contra**	**Steril**	**IUD**	**No contra**	**Steril**	**IUD**	**No contra**
Year of the survey												
1992	**1**	**1**	**1**									
1997	**7.46** ***	**1.01**	**0.88**									
2002	**13.86** ***	**2.03** ***	**1.33** ***									
Sub-cohort												
1958-62 cohort	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
1963-67 cohort	**0.40** ***	**0.78** *	**0.60** ***	**0.34** *	**0.73**	**0.53** ***	**0.46** ***	**0.82**	**0.99**	**0.39** ***	**0.83**	**0.52** ***
Marital Status												
Cohabitant	**0.21** ***	**1.07**	**0.32** ***	**0.32**	**1.52**	**0.26** ***	**0.39**	**1.38**	**0.45** ***	**0.20** ***	**0.73**	**0.38** *
Married	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Separated/divorced	**1.66** *	**1.55**	**0.93**	**1.00**	**2.82**	**1.32**	**1.81**	**0.37**	**0.56**	**1.30**	**1.05**	**0.65**
Number of children												
No children	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
1 child	**1.06**	**2.55** ***	**0.63** ***	**1.00**	**3.79** ***	**0.63** **	**0.86**	**1.68**	**0.51** ***	**1.02**	**2.42** **	**0.68**
2 children	**2.75** ***	**3.23** ***	**0.33** ***	**5.88** **	**4.59** ***	**0.37** ***	**4.36** ***	**2.59** **	**0.28** ***	**1.81** ***	**2.68** ***	**0.28** ***
3 children and more	**6.87** ***	**3.61** ***	**0.54** ***	**26.54** ***	**7.28**	**0.92**	**10.06** ***	**3.84** ***	**0.54** *	**3.93** **	**2.09** *	**0.31** ***
Linguistic area												
German speaking area	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
French speaking area	**0.40** ***	**1.54** ***	**0.75** ***	**1.22**	**1.53**	**0.69** **	**0.39** ***	**1.97** **	**0.88**	**0.35** **	**1.39**	**0.80**
Italian speaking area	**0.27** ***	**1.33**	**1.02**	**0.91**	**2.60** *	**0.91**	**0.23** **	**1.84**	**1.44**	**0.26**	**0.85**	**0.93**
Place of living												
Conurbation	**0.60** ***	**1.13**	**0.96**	**0.74**	**1.61**	**0.94**	**0.51** **	**0.86**	**0.95**	**0.65** *	**1.11**	**1.08**
Urban area	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Rural area	**1.00**	**0.78**	**1.13**	**1.16**	**0.90**	**1.19**	**0.99**	**0.64**	**1.43**	**0.96**	**0.79**	**0.94**
Nationality												
Swiss	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Foreign	**0.54** ***	**1.29**	**1.19**	**1.19**	**0.95**	**1.24**	**0.61**	**1.28**	**1.06**	**0.49** **	**1.46** **	**1.24**
Level of education												
Obligatory school	**1.22**	**0.97**	**1.43** **	**2.08**	**1.08**	**1.68** **	**0.96**	**0.91**	**1.41**	**1.16**	**0.92**	**1.34**
Secondary school completion	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
University degree	**0.63** **	**0.82**	**1.03**	**1.96**	**0.91**	**1.00**	**0.53** *	**0.79**	**0.83**	**0.59** **	**0.77**	**1.23**
Religious practice												
Regular practice of religion	**0.83**	**0.91**	**1.20**	**0.96**	**0.46**	**1.29**	**1.02**	**0.99**	**0.94**	**0.68** *	**1.20**	**1.36**
Irregular practice of religion	**1**	**1**	**1**	**1**	**1**		**1**	**1**	**1**	**1**	**1**	**1**
No practice or no religion	**0.81**	**1.37** **	**0.88**	**1.28**	**1.27**	**0.94**	**0.86**	**1.28**	**0.99**	**0.72** *	**1.45** *	**0.73**
Intercept	**-2.74** ***	**-2.78** ***	**0.39** ***	**-4.18** ***	**-3.24** ***	**0.33**	**-1.18** ***	**-2.56** ***	**-0.09**	**0.36**	**-1.86** ***	**0.93** ***

*: significant at 10%; **: significant at 5%; ***: significant at 1%.

Source: Swiss Health Surveys (1992, 1997 and 2002)

The number of children plays the strongest role on the probability of adopting a long-term contraceptive method: the higher the number of children, the higher is the contraceptive prevalence, and also the higher the propensity of adopting the IUD or sterilization. These results underline the existence of an institutional effect, related to the fact that medical institutions or family planning centers are more likely to recommend sterilization when the woman already has at least two children. However, by comparing the role played by the variable "number of children" in each one of the three different surveys, we can observe that the effect (mainly on sterilization, but also on the adoption of IUD) was strongest in 1992 and decreased in 1997 and 2002.

This means that the fact of having two or more children makes the adoption of a long-term contraceptive method more likely, especially when the woman is relatively young (26-35 years old). As we pointed out before, at young ages the propensity of using of a long-term method is generally low. However, when a young woman has already reached the desired family size, her propensity to adopt a long-term method increases enormously, even more than for an older woman. As the survey of 2002 allows us to distinguish between female and male sterilization, a logistic regression of male sterilization versus female sterilization shows that the choice of one or other method does not depend on the number of children (table 4).

As we can also see in table 3, the fact of living in the French or Italian speaking areas makes the probability of adopting sterilization significantly lower than for women living in the German speaking area. Women living in the French speaking area seem more likely to adopt the IUD, and for these women the overall contraceptive prevalence is higher than for women living in the German speaking area. Women living in the Italian speaking area do not seem to generally adopt any long term contraceptives. This difference is assumed to be related to the advice given by physicians and family planning centers, which are more likely to recommend the adoption of sterilization (for couples with at least two children) in the German speaking area of Switzerland. It is also important to underline that the divergence between the German and the French/Italian speaking areas increases between the different years of the surveys (table 3). We investigated introducing alternative territorial categories into the general model, such as the *canton* (in a multilevel model), or the "*seven territorial regions*", but the linguistic differentiation was found to account most effectively for the variations observed (results of this analysis not shown here). The logistic regression of male sterilization versus female

sterilization shows that men in the Italian or French speaking areas tend to avoid this method, in comparison with those living in the German speaking area (table 4).

Table 4: Logistic regression of male versus female sterilization (2002)

	odds ratio
Sub-cohort	
1958-62 cohort	**1**
1963-67 cohort	**0.92**
Marital-Satus	
Cohabitant Separated-divorced	**1**
Married	**0.33 ***
Number of children	
No children	**1**
1 child	**0.43**
2 children	**1.13**
3 children and more	**0.37 ***
Linguistic area	
German speaking area	**1**
French speaking area	**0.47 ****
Italian speaking area	**0.04 ****
Place of living	
Conurbation	**1.39**
Urban area	**1**
Rural area	**0.80**
Nationality	
Swiss	**1**
Foreign	**0.55**
Level of education	
Obligatory school	**0.36 ****
Secondary school completion	**1**
University degree	**1.60**
Religious practice	
Regular practice of religion	**1.43**
Irregular practice of religion	**1**
No practice or no religion	**1.04**
Intercept	**1.25 ****

*: significant at 10%; **: significant at 5%; ***: significant at 1%.
Source: Swiss Health Surveys (1992, 1997 and 2002)

We also note several minor effects related to the other characteristics introduced in our models. Being in a cohabiting relationship makes the probability of adopting sterilization significantly less compared to being married, despite an overall higher contraceptive prevalence. However, if the cohabitant woman has experienced separation or divorce, her probability of adopting sterilization is even higher than for a married woman. This distinction reflects the different roles of cohabitation. For non-separated/divorced women, cohabitation is generally a prelude to the marriage. In this case the contraceptive need with respect to childbearing is to postpone it and so the use of long-term contraceptive methods is rare. On

the contrary, when the woman is separated or divorced, cohabitation is generally seen as an alternative to marriage and so her choices about short or long-term contraceptive methods are more similar to the ones made by married women.

Sterilization seems to be less widespread in the metropolitan areas and for women with a high level of education. Foreign women and women who regularly practice their religion also tend to avoid sterilization. However, other differences regarding individual characteristics are much less strong, in comparison to those observed for parity and linguistic area, as expected in our hypotheses.

5. Conclusion

In this paper, we focused on the transition from a postponement or spacing contraceptive strategy to a prevention strategy during the reproductive life course in Switzerland. Results show a diversity of contraceptive choices during this transition across the different linguistic areas. In the German speaking area, couples often switch from no method or the use of a short term method to male or female sterilization. In the French speaking area, the overall contraceptive prevalence is higher during the period of spacing pregnancies and women subsequently keep to their favored short term method or adopt the IUD when they switch to a prevention strategy. Behavior in the Italian speaking area is similar except that the IUD is less commonly adopted than in the French speaking area. Sterilization, especially male sterilization, is rarely adopted in these latter two areas. These results seem to confirm our hypotheses of an institutional effect on contraceptive choices, since sterilization is advised less often by contraceptive providers in the French or Italian speaking areas than in the German area.

The adoption of sterilization or the IUD is directly correlated with the number of children. This result confirms our hypothesis of an institutional effect, since contraceptive counselors recommend adopting one of these methods when women have achieved their desired family size.

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