Teenage Fertility in Portugal: Exposure to risk and the effects of contraceptive use*

J. M. C. Santos Silva
ISEG, Universidade Técnica de Lisboa

M. G. Magalhães
Instituto Nacional de Estatística

Abstract

Teenage fertility is widely perceived as having important social and health consequences. Although teenage fertility in Portugal has steadily declined in the past twenty years, it is still one of the highest in Europe. In this paper duration and binary data models are used to study this phenomenon and the factors contributing to it. Particular attention is paid to the effects of early contraception, and to the fall in the age at which women become sexually active.

JEL classification code: C25; C41; J13.

Key Words: Binary data models; Contraception; Duration models; Exposure to risk.

*This paper was prepared while João Santos Silva had a consultancy position at Instituto Nacional de Estatística, whose support is gratefully acknowledged; we are specially grateful to M. J. Carrilho for making this work possible. We are also grateful to Maria Melkersson, Jan Ondrich and the participants at the ESPE 2k, Bonn, for detailed and heplful comments on a previous version of the paper. The usual disclaimer applies. Address for correspondence: João Santos Silva, ISEG, R. do Quelhas 6, 1200 Lisboa, Portugal. Fax: +351 213922781. E-mail: jmcss@iseg.utl.pt.

1. INTRODUCTION

Despite some conflicting evidence with respect to its consequences (see, for example, Ribar, 1999, and the references therein), teenage fertility is widely perceived as having important social and health consequences (see Social Exclusion Unit, 1999).

Although teenage fertility in Portugal has been substantially reduced in the past twenty years, it is still one of the highest in Europe. As table 1 shows, teenage fertility in Portugal soared in the late sixties, peaking in 1980 at 41 (per 1000 women aged 15 – 19), and then started to decline to about 21 in the late nineties. This reduction of teenage fertility was especially fast after 1984, a year in which the parliament passed laws revising and reinforcing the provision of family planning services and sexual education in schools, as well as legalizing abortion in some cases. The mid and late eighties also saw the appearance of AIDS prevention campaigns, which may have contributed to a reduction in teenage fertility. Despite all that, since 1996 there has been a slight increase in teenage fertility, accompanying an overall increase in fertility.

Table 1: Rate of teenage fertility in Portugal*

Year	1960	1965	1970	1975	1980	1985	1990
Fertility	26.6	25.8	29.8	37.0	41.0	33.0	24.1
Year	1991	1992	1993	1994	1995	1996	1997
Fertility	23.5	22.6	22.5	21.2	20.5	20.9	21.3

* Number of births per 1000 women aged 15 – 19.

This situation rises two interesting and related questions: why did the rate of teenage fertility decline, and why is it still so high? In this paper, standard duration and binary data models are used to try to answer these questions. This research may also shed some light on the possible effects on teenage fertility of recent legislation approved by the Portuguese government which purports to provide better sexual education in schools and to facilitate the access of the young to contraception.

The remainder of the paper is organised as follows. Section 2 describes the data set available for this study. Section 3 presents the econometric model used, and estimation results are presented in section 4. Finally, section 5 discusses the results obtained and presents the main conclusions.

2. THE DATA

The data used in this study is taken from the 1997 Portuguese Fertility and Family Survey. This survey was carried out by Instituto Nacional de Estatística and is based on a version of the questionnaire proposed by the Fertility and Family Surveys project of the United Nations Economic Commission for Europe. In total, there is information on 5954 women aged between 15 and 49 at the time of the survey. However, for this study, only data on women aged 20 or over is used. After discarding from the sample observations for women less than 20 years old and observations with incomplete records, 4855 observations remain. A complete description of the variables used can be found in table A1 in the appendix.

An important feature of this data set is that, besides some information on the woman's education, family background, and place of residence, it contains reasonably detailed information on the woman's history of contraceptive use. However, because of the way the survey is constructed, these data are only available for women who have had sexual intercourse by the time of the survey. Therefore, it is not possible to study the direct effects of contraceptive use on teenage fertility, simply because these data are not available for all women. Nevertheless, it will be shown in the next section that using a suitable model it is possible to estimate the effect of contraceptive use on teenage fertility using only data for women that had sexual intercourse before the age of 20. Imposing this restriction, a sub-sample of 2333 observations is obtained.

Simple summary statistics for all the variables used in the study, both for the complete and restricted samples, can be found in table A2 in the appendix. The relative frequencies for the dependent variable, Children, are displayed in table 2.

Besides the variables mentioned above, the data set also has detailed information on the marriage (legal and de facto) history of the women. Naturally, early marriage and early motherhood are strongly interrelated and it is clear that the fertility pattern of teenage wives is different from that of the women that remain single until later. However, the consequences of teenage motherhood for the woman's education and for the health of the mother and child are not very different if the birth occurs inside or outside marriage. For this reason, in this work the analysis is not conditional on marital status and age at marriage of the women. For completeness, table 3 gives the percentage of teenage marriages in the sample by age group.[1]

Table 2: Relative frequencies of Children

Counts	0	1	2	3	4
Complete Sample*	0.8412	0.1349	0.0206	0.0029	0.0004
Restricted Sample**	0.6738	0.2769	0.0424	0.0060	0.0009

* Sample size: 4855; ** Sample size: 2333

Table 3: Percentage of teenage marriages by age group

Age Group	20 − 24	25 − 29	30 − 34	35 − 39	40 − 44	45 − 49
Complete Sample*	16.049	23.245	30.339	32.904	26.300	22.813
Restricted Sample**	30.273	44.273	56.030	65.805	63.636	70.244

* Sample size: 4855; ** Sample size: 2333

Despite its richness, this data set has some important limitations. One problem is that some of the relevant variables are measured at the time of the survey and not at the time the woman was a teenager. This is the case of the variables giving

[1] In 1978 the minimum legal age for marriage in Portugal was set to 16, for both men and women. Before that it was 16 for men and 14 for women.

information on the woman's education and place of residence. In the case of the education variables, the problem can be mitigated by using information only on the lowest levels of education. As for the place of residence, there is little that can be done about it. Another limitation of the data set is that it has no information on variables that would be interesting to consider. In particular, the data set gives no information on the women's socio-economic status and ethnic origin, and on whether they are themselves daughters of teenage mothers.

3. THE MODEL

Let Y denote a binary indicator such that $Y = 1$ if woman becomes a mother before the age of 20, being zero otherwise. In this paper interest is focused on the probability $\Pr(Y = 1|x)$, where x is a set of conditioning variables. However, for reasons explained below, $\Pr(Y = 1|x)$ is not modelled directly and the analysis is split into two components. Let $\mathcal{A}$ be the minimum between 20 and the age of the woman at first sexual intercourse, and set $\mathcal{A} = 20$ for the women that did not have sexual intercourse by the time of the survey. Then, the probability of interest can be written as

$$\Pr(Y = 1|x) = \int_0^{20} \Pr(Y = 1|\mathcal{A}, x)\, g(\mathcal{A}|x)\, d\mathcal{A}, \tag{1}$$

where $\Pr(Y = 1|\mathcal{A}, x)$ is the probability that a woman becomes a mother before the age of 20, conditional on $\mathcal{A}$ and x, and $g(\mathcal{A}|x)$ is the conditional density of $\mathcal{A}$.

The reason why $\Pr(Y = 1|\mathcal{A}, x)$ and $g(\mathcal{A}|x)$ are studied separately is the following. As explained in the previous section, one feature of the data set used here is that information on the woman's history of contraceptive use is available only for women who have had sexual intercourse by the time of the survey. Therefore, it is not possible to estimate directly $\Pr(Y = 1|x)$ conditioning on the woman's history of contraceptive use. However, $g(\mathcal{A}|x)$ can be estimated, if it is assumed that it is independent of the woman's history of contraceptive use. On the other hand, $\Pr(Y=0|\mathcal{A}=20,x)=1$, and $\Pr(Y=1|\mathcal{A}<20,x)$ can be estimated using only data on women who have had sexual intercourse before the age of 20, for which data on contraceptive use are available. Therefore, by breaking up $\Pr(Y=1|x)$ into $\Pr(Y=1|\mathcal{A},x)$ and $g(\mathcal{A}|x)$ it is possible to study the impact of contraceptive use on teenage fertility.

This approach has an added benefit. In fact, in this way it is possible to study whether the covariates x affect $\Pr(Y=1|x)$ by changing the woman's exposure to risk, that is, through $g(\mathcal{A}|x)$, or through $\Pr(Y=1|\mathcal{A},x)$, the probability that a teenager becomes a mother, conditional on $\mathcal{A}$ and x.

To proceed, it is necessary to specify $g(\mathcal{A}|x)$ and $\Pr(Y=1|\mathcal{A}<20,x)$. Because the age at which a woman first had sexual intercourse is registered in years,[2] $g(\mathcal{A}|x)$ has to be estimated using a grouped data (or ordered) model (see, for example, Pudney, 1989 and Lancaster, 1989). Specifically, in this study $\mathcal{A}$ takes integer values between 13 and 20, being 13 if the woman was 13 or younger at first sexual intercourse.

In the model adopted here, it is assumed that for a proportion π of the women the probability of having sexual intercourse as teenagers is 0, whatever the value of x, while for the remaining women the distribution of the age at first sexual intercourse is described by a piecewise-constant hazard model with baseline-hazard $h(a)$, where $a = 13, 14, \ldots, 19$ (see Lancaster, 1989).[3] The individual contribution for the likelihood function in this model is given by

$$\begin{aligned}\Pr(\mathcal{A}=a|x) &= \left[\pi + (1-\pi)\left[\exp\left(-\psi(x)\sum_{i=13}^{19} h(i)\right)\right]\right]^{1(a>19)} \\ &\times \prod_{j=13}^{19}\left\{(1-\pi)[1-\exp(-\psi(x)\,h(j))]\left[\exp\left(-\psi(x)\sum_{i=1}^{j-1} h(i)\right)\right]^{1(a\neq 13)}\right\}^{1(j=a)}\end{aligned}$$

[2]See the variable AGE1ST in tables A1 and A2 in the Appendix.

[3]Notice that $h(a)$ is not identified for $a = 20$.

where $1(\cdot)$ is an indicator function, $\psi(x) = \exp(x\delta)$, δ is a vector of parameters, and the hazard function for $\mathcal{A} = a$ is given by $\psi(x) h(a)$.

The model for $\Pr(Y = 1|\mathcal{A} < 20, x)$ used here is akin to the one used by Santos Silva and Covas (2000). In particular, for women with $\mathcal{A} < 20$, we consider a model where $\Pr(Y = 0|\mathcal{A} < 20, x)$ is defined by the so-called restricted generalized Poisson regression (RGPR) used by Wang and Famoye (1997), Famoye (1993) and Consul (1989). From here, $\Pr(Y = 1|\mathcal{A} < 20, x)$ can be written as

$$\Pr(Y = 1|\mathcal{A} < 20, x) = 1 - \exp\left(-\frac{\exp(\nu)}{1 + \alpha \exp(\nu)}\right), \tag{2}$$

where $\nu = x\gamma + \theta \ln(20 - \mathcal{A})$, α and θ are parameters and γ is a vector of parameters. Notice that $\Pr(Y = 0|\mathcal{A} < 20, x)$ is bounded from below by $\exp\left(-\frac{1}{\alpha}\right)$ and therefore the probability of a woman becoming a teenage mother has an upper bound of $1 - \exp\left(-\frac{1}{\alpha}\right)$. This is interesting since, for a variety of reasons, some women will never become teenage mothers, whatever the values x may assume. There are several reasons for this. The first is that there is an obvious problem with the way exposure is measured. In fact, a woman may have had sexual intercourse as a teenager without having a regular sexually active life until much later. Therefore, the exposure to risk may be overstated in many cases. Furthermore, some women may simply prefer to have an abortion rather than becoming a teenage mother.

4. ESTIMATION RESULTS

This section presents the estimation results for the model described in section 2. Starting with the model for the exposure to risk, table 4 presents the estimation results for $\Pr(\mathcal{A} = a|x)$. For comparison, table 4 also presents the results obtained with the traditional Kaplan-Meier estimator of the hazard function, which is obtained setting $\pi = 0$ and $\psi(x) = 1$ (see Lancaster, 1989). The estimate for π suggests that about 15 percent of women will not experience sexual intercourse before the age of 20, regardless of their socio-economic and demographic characteristics. For the remaining part of the population, the coefficients of AGE and AGE^2 show that women's age at first sexual intercourse has declined. The hazard function depends positively both on the number of times the teenager moves house before being 15 and on the number of siblings. On the contrary, these results suggest that education and a stable familiar environment have the effect of delaying the occurrence of the first sexual intercourse. It is interesting to notice that there are important regional differences, with women living in the north and in the islands of Azores and Madeira becoming sexually active later in life. For the remaining variables (LAW, CATHOLIC, URB1 and URB2) it was not possible to precisely identify their effect, and the hypothesis that they have no impact on the age at first sexual intercourse cannot be rejected.

To check the adequacy of the specification adopted, a simple RESET-type test was performed (see Neumann, 1997). This is a test for the significance of ξ in the respecified model $\psi(x) = \exp\left(x\delta^* + \xi\left(x\hat{\delta}\right)^2\right)$, where $\hat{\delta}$ denotes the maximum likelihood estimates of δ under the null, and δ^* is a set of parameters that under the null is equal to δ. The score test statistic for the null hypothesis $H_0 : \xi = 0$ is 0.28065, to which corresponds a p-value of 0.5963.[4] Therefore, this test provides no evidence against the chosen model.

In a previous version of the paper, a Weibull model (see Lancaster, 1989) was used instead of the piecewise-constant hazard model now used. Although that specification was clearly rejected by the RESET-type test, it lead to qualitatively similar results. This suggests that conclusions drawn here are relatively robust.

Turning now to the estimation of $\Pr(Y = 1|\mathcal{A} < 20, x)$, the results in table 4 show that, as expected, the length of exposure to risk has a huge impact on the probability of becoming a teen mother. However, the estimate obtained for α indicates that about

[4]Under the null, the test statistic is asymptotically distributed as a $\chi^2_{(1)}$ variate.

Table 4: Estimation results

	$\psi(x) = \exp(x\delta)$		Kaplan-Meier		$\Pr(Y=1 \mid \mathcal{A} < 20, x)$	
Variable	Estimates	S. Errors	Estimates	S. Errors	Estimates	S. Errors
Constant	1.13031	0.68844	—	—	−7.78453	2.11023
AGE	0.07232	0.03502	—	—	0.29330	0.11204
AGE^2	−0.00180	0.00047	—	—	−0.00363	0.00152
LAW	−0.10363	0.10364	—	—	−0.12943	0.31494
EDU1	−0.59551	0.05844	—	—	−0.64686	0.17452
SIBLINGS	0.01802	0.00827	—	—	−0.50095	0.25955
MOVE15	0.04642	0.02178	—	—	−0.82910	0.25088
BOTHP	−0.25182	0.07188	—	—	0.06479	0.02770
NODIVORCE	−0.59097	0.09180	—	—	−0.01391	0.06145
CATHOLIC	−0.09572	0.09251	—	—	−0.30206	0.22336
REGION1	−0.58251	0.06750	—	—	−0.12234	0.25784
REGION2	0.10770	0.06802	—	—	0.14283	0.28836
REGION3	−0.46007	0.08222	—	—	0.77090	0.21090
URB1	0.06427	0.07408	—	—	0.33524	0.20845
URB2	0.04980	0.06510	—	—	0.66494	0.27163
$h(13)$	0.00641	—	0.00641	0.00115	—	—
$h(14)$	0.01388	0.00302	0.01378	0.00170	—	—
$h(15)$	0.03964	0.00771	0.03857	0.00287	—	—
$h(16)$	0.07754	0.01460	0.07246	0.00405	—	—
$h(17)$	0.13995	0.02606	0.12252	0.00553	—	—
$h(18)$	0.24503	0.04596	0.19488	0.00756	—	—
$h(19)$	0.30160	0.05927	0.21072	0.00870	—	—
π	0.15298	0.03695	—	—	—	—
CONTRA1ST	—	—	—	—	−0.53519	0.23993
EARLYCNTR	—	—	—	—	−0.85493	0.21406
$\ln(20 - \mathcal{A})$	—	—	—	—	3.14834	0.25789
α	—	—	—	—	0.66803	0.06177
Log-likelihood	−6993.89		−7250.62		−1060.46	
Sample size	4855				2333	

22.3 percent of the women will not become teenage mothers, whatever the length of the exposure to risk and the value of the other covariates.[5]

Conditional on exposure, the probability of having a child before the age of 20 has a maximum for women aged about 40 at the time of the survey, declining sharply for women below 30. This probability is further reduced for women using contraception at, or soon after, the first sexual intercourse. This effect is reinforced for more educated women, and for women living in areas with a higher degree of urbanization. On the other hand, conditional on exposure, the probability of having a child before the age of 20 increases with the number of siblings. As for the regional differences, it is found that, conditional on exposure, women living in the north, Azores and Madeira have a higher probability of becoming teenage mothers. However, it was found that women on these regions have, on average, shorter periods of exposure to risk. Therefore, as it can be seen from (1), the overall effect of the regional differences on the probability of becoming a teenage mother cannot be determined without further investigation.

For the variables related to family background (MOVE15, BOTHP and NODIVORCE), religion (CATHOLIC), and the changes in legislation (LAW), it was not possible to precisely identify their effect, and the hypothesis that they have no impact on the probability of becoming a teenage mother, conditional on the exposure, cannot be rejected. Notice that, however, the variables MOVE15, BOTHP and NODIVORCE have an impact on the probability of becoming a teenage mother through their influence on the length of the expected exposure to risk.

To check the adequacy of the specification adopted, a RESET-type test was again performed. In this case, this is a test for the significance of the added regressor $\hat{\nu}^2$, where $\hat{\nu}$ denotes ν evaluated at the maximum likelihood estimates (see equation (2)). The score test statistic for this hypothesis is 0.46276, to which corresponds a p-value

[5] A 95 percent confidence interval for this upper bound is given by [16.09; 27.56].

of 0.4963. Therefore, this test provides no evidence against the chosen model. As an alternative to this specification, a simple logit model was tried. However, that model was clearly rejected by the RESET-type test.[6]

5. DISCUSSION AND CONCLUSIONS

This paper tries to explain why the teenage fertility rate in Portugal, albeit declining, it is still so high. As the results presented in section 4 confirm, a major determinant of teenage fertility is the length of exposure to risk, which is essentially determined by the age at which women become sexually active. The evidence presented above suggests that there has been a decline in the age at which Portuguese women become sexually active. However, this decline is very slow, and it parallels what is happening in other countries with much lower teenage fertility rates (Santow and Bracher, 1999, present some evidence for the Swedish case). Of course, the effect of increased periods of exposure to risk on teenage childbearing can be offset by more and better contraception, as well as by an increase in the demand for induced abortion.

A striking feature of the results obtained here is that it was not possible to identify any significant effect on teenage fertility of the 1984 changes in the legislation about abortion, family planning and sexual education. This can be interpreted as a result of the extremely slow pace at which many of these laws are being implemented. In fact, many aspects of the 1984 legislation on sexual education in schools and family planning never came to effect. Also, the Portuguese legislation on abortion is quite

[6] A zero inflated logit model is not rejected by the RESET-type test and leads to results that are indistinguishable from the ones reported here.

restrictive and therefore the changes introduced in 1984 had little or no effect on the number of teenage pregnancies.[7]

On the other hand, the results show that the early use of contraception has a very important negative effect on the probability that a sexually active teenager will become a mother. These results suggest that the sharp decline in teenage fertility after 1980 can be largely attributed to the rapid increase in the use of early contraception. Table 5 shows the percentage of women in the sample that used contraception at first sexual intercourse, as well as the contraceptive method used. From these results, it is clear that the major change it the pattern of contraceptive use at first sexual intercourse is the rapid popularization of the condoms. Although this change can be attributed to the above mentioned 1984 law on family planning and sexual education, it is more likely to be a result of the AIDS prevention campaigns.

Table 6: Relative frequencies of CONTRA1ST, by method and age group*

Age Group	20 – 24	25 – 29	30 – 34	35 – 39	40 – 44	45 – 49
Condom	0.30664	0.12555	0.07421	0.05172	0.02546	0.03415
Pill	0.15820	0.13656	0.11317	0.11494	0.12000	0.06342
Other methods	0.06445	0.07930	0.09462	0.05747	0.08364	0.06829
Total	0.52930	0.34141	0.28200	0.22414	0.22909	0.16585

* Sample size: 2333

Despite its rapid increase, the use of contraceptive methods by teenage women in Portugal is still relatively low. In this survey, for the women aged between 20 and

[7] In Portugal, the legislation on abortion dates back to 1975, although it has been revised in 1984 and 1997. Under this law, induced abortion is generally illegal. Abortion can only be performed during the first 24 weeks of gestation if there is a serious risk to the physical or mental health of the pregnant woman, or if there are substantial grounds for believing that the child would be born with a serious or incurable disease or malformation. If the pregnancy resulted from rape, abortion is allowed during the first 16 weeks of gestation. In any case, the physician may refuse to perform the abortion on moral grounds.

24 that where sexually active as teenagers, less than 65% had used contraception before the age of 20.[8] Therefore, it can be conjectured that providing better sexual education and facilitating the access of the young to contraception can significantly contribute to a reduction of the teenage fertility rate in Portugal. That is precisely the purpose of a law passed by the Portuguese government in August 1999 which, if effectively implemented, may have a significant impact on the number of teenage pregnancies.

Besides exposure to risk and contraception, some other variables were found to play an important role in explaining teenage childbearing. Most notably, education has an unequivocal negative effect on the probability that a teenager becomes a mother. Also, a stable family environment tends to delay the start of sexual activity, thereby reducing the risk of a teenager becoming a mother. On the other hand, having a larger number of siblings has the opposite effect. Notice that having many siblings may indicate that the woman is herself a daughter of a young, possibly teenage, mother. This is in accordance with the results of Kahn and Anderson (1992) and Dean (1997) who have emphasized the importance of intergenerational factors in the evolution of teenage fertility.

REFERENCES

Consul, P.C. (1989). *Generalized Poisson Distributions: Properties and Applications*, Marcel Dekker, Inc., New York.

Dean, A.L. (1997). *Teenage Pregnancy: The Interaction of Psyche and Culture*, The Analytic Press, New Jersey.

Famoye, F. (1993). "Restricted Generalized Poisson Regression Model". *Communications in Statistics – Theory and Methods*, 22, 1335-1354.

[8] In contrast, Riphagen and von Schoultz (1989) report that in 1987 only 10% of sexually active Swedes aged 15 – 19 were not using a contraceptive method.

Johnson, N. L., Kotz, S. and Kemp, A.W. (1992) *Univariate Discrete Distributions*, 2nd Ed., John Wiley & Sons, Inc., New York.

Kahn, J.R. and Anderson, K.E. (1992). "Intergenerational Patterns of Teenage Fertility". *Demography*, 29, 39-57.

Lancaster, T. (1989), *The Econometric Analysis of Transition Data*, Cambridge University Press.

Neumann, G.R. (1997) "Search Models and Duration Data", *in* Pesaran, M.H. and Schmidt, P. (eds) *Handbook of Applied Econometrics, Volume II: Microeconometrics*, Blackwell, Oxford.

Pudney, S. (1989). *Modelling Individual Choice, The Econometrics of Corners, Kinks and Holes*. Blackwell, Oxford.

Ribar, D.C. (1999). "The Socioeconomic Consequences of Young Woman's Childbearing: Reconciling Disparate Evidence". *Journal of Population Economics*, 12, 547-565.

Riphagen, F.E. and von Schoultz, B. (1989). "Contraception in Sweden". *Contraception*, 39, 633-642.

Santos Silva, J.M.C. and Covas, F. (2000). "A Modified Hurdle Model for Completed Fertility", *Journal of Population Economics*, 13, 2.

Santow, G. and Bracher, M. (1999). "Explaining Trends in Teenage Childbearing in Sweden". *Studies in Family Planning*, 30 169-182.

Social Exclusion Unit (1999). *Teenage Pregnancy* (Cm 4342), The Stationery Office, London.

Wang, W. and Famoye, F. (1997). "Modeling Household Fertility Decisions with Generalized Poisson Regression". *Journal of Population Economics*, 10, 273-283.

APPENDIX

Table A1: Definition of the variables

Children	Number of children born to a woman before the age of 20
Age	Woman's age
Law	1 if the woman was 16 after 1984
Edu0	1 if the woman did not complete more than the four years basic
	education (reference)
Edu1	1 if the woman completed more that the basic education
Catholic	1 if the woman is Catholic
Siblings	The number of siblings the woman has
BothP	1 if the woman lived with both parents most of the time before
	she was 15
NoDivorce	1 if the woman's parents did not divorce before she was 15
Move15	Number of times the woman moved house before she was 15
Age1st	Woman's age at first sexual intercourse
Contra1st	1 if the woman used contraception at first sexual intercourse
EarlyCntr	1 if the woman started using contraception at the age she became
	sexually active, or earlier
Urb0	1 if the woman lives in a rural area (reference)
Urb1	1 if the woman lives in a semi-urban area
Urb2	1 if the woman lives in a urban area
Region0	1 if the woman lives in Lisbon or surrounding area (reference)
Region1	1 if the woman lives north of the river Tagus
Region2	1 if the woman lives south of the river Tagus
Region3	1 if the woman lives on the islands of Azores or Madeira

Table A2: Descriptive statistics

Sample:	Complete			Restricted		
Variable	**Mean**	**Min.**	**Max.**	**Mean**	**Min.**	**Max.**
CHILDREN	0.18641	0	4	0.38320	0	4
AGE	33.17878	20	49	32.04844	20	49
LAW	0.34336	0	1	0.37462	0	1
EDU0	0.38311	0	1	0.40849	0	1
EDU1	0.61689	0	1	0.59151	0	1
CATHOLIC	0.93677	0	1	0.92670	0	1
SIBLINGS	3.42327	0	19	3.42735	0	19
BOTHP	0.86941	0	1	0.84055	0	1
NODIVORCE	0.92194	0	1	0.89198	0	1
MOVE15	0.53697	0	10	0.59623	0	10
AGE1ST	—	—	—	17.35234	10	19
CONTRA1ST	—	—	—	0.32276	0	1
EARLYCNTR	—	—	—	0.42306	0	1
URB0	0.18517	0	1	0.18131	0	1
URB1	0.22966	0	1	0.23103	0	1
URB2	0.58517	0	1	0.58766	0	1
REGION0	0.19073	0	1	0.22117	0	1
REGION1	0.38332	0	1	0.31805	0	1
REGION2	0.25644	0	1	0.30776	0	1
REGION3	0.16952	0	1	0.15302	0	1
Sample Size	4855			2333		