IUSSP XXIV General Population Conference
Salvador, Bahia, Brazil, 18-24 August 2001

S23 *Values orientations and reproductive behaviour* Chair: *Ron Lesthaeghe*

The structural characteristics and values of both partners in explaining marital and reproductive behaviour

Gianpiero Dalla Zuanna ([1]), *Department of Statistics, University of Messina, Italy*

Tel. ++39 049 661122 e-mail: gianpidz@hotmail.com

1. Introduction

Many authors emphasise the importance of considering structural characteristics and values of both partners in order to explain marital and reproductive behaviour (Thompson, Walker, 1982; Sen, 1990; Watkins, 1993; Mason, 1995; Pinnelli, 1997; Riley, 1998; Thomson, Hoem, 1998; Magure, 1999). Decisions are often the fruit of a negotiation between the two partners. The "prevalence" of male or female depends on the cultural organisation of society (particularly gender organisation), characters, structural characteristics (education, social class, religion…) and values of both partners. If only the female (male) characteristics are considered, some parts of the decision process could be forgotten or overemphasised.

The influence of both partners characteristics has been studied for some topics of family behaviour ([2]). But for other important topics, the literature is very poor. Introducing as guest editor the special issue of *Demography* "Men in families", Suzanne Bianchi (1998) underlines that most family demographic research on men has concentrated on the *absence* more than the *presence* of men in families. She concludes her introduction with this sentence:

> My hope for future research is that more attention will be devoted to men's family activities in two-parents family (…) and to men's participation in decision-making about childbearing and contraceptive use (1998, p. 133).

In a recent analysis, I have shown that data collection on fertility and intermediate variables of fertility is strongly gender biased (Dalla Zuanna, 2000).

In the *Official Statistics*, data on births referring to the characteristics of both partners are rare and not more common at the present day – when the gender perspective should be widespread – than in the past.

The situation is better for DHS (Demographic and Health Survey). Standard questionnaires are addressed to both men and women, and at least a third of all

[1] I thank dr. Chiara Furlanetto for her careful co-operation in the data processing. I thank also professor Paolo De Sandre for his suggestion. This research is financed by a grant of the Italian Ministry of University and Research, project "Explaining low fertility in Italy", co-ordinated by professor Massimo Livi Bacci.

[2] The balanced influence of both partners has been extensively studied for couple dissolution and quality of couple relationship (see *e.g.* Heckert *et al.*, 1998; Ono, 1998; Kurdek, 1998). Some attention has been devoted also to the influence of both partners fertility desires and plan on number of children (see Thomson (1997) and Thomson, Hoem (1998), also for a review). The (poor) literature concerning both partners' influence on fertility and contraception decision-making is examined by Corijn *et at.* (1996) and Dodoo (1998).

men in the household should be interviewed. Comparing the first and the following rounds of DHS survey, the number of countries where men and partners are interviewed has increased with time, but with perceptible geographical differences. In many African countries men and partners are interviewed during the last rounds, while they are usually ignored in Asian and Latin American countries (see table 1). These differences are not easy to justify by the hypothetical unimportance of men in fertility options in Latin America and Asia.

Also FFS (Family and Fertility Survey) is only partially gender balanced. For some topics, data on males and females are similar. While in the DHS project partners' samples are explicitly recommended, at the beginning of the FFS project the researchers decided of considering independent samples of men and women. Moreover, the Standard Country Reports reveal the persistence of a female-oriented perspective in analysing reproductive behaviours. Let us analyse the statistical tables contained in the appendix, almost identical for each country. All tables regarding the *partnership* and *household* are identical for men and women. Differences arise with fertility. The *timing of birth* is not listed for men (table 14), nor the cross-tables of *studying and having children* (table 30) and *working and having children* (table 31). The reason of this choice is explained in the opening pages of the Dutch Report:

> men were only included in the sample to obtain data on partnership formation, not on childbearing. Men were, however, asked how many children they have, the date of birth of the eldest child and whether they expect to have more children (Latten, de Graaf, 1997, p. 2).

Thus, gender segregation persists in the FFS, or rather the idea that to explain the couple's fertility choices, observation of woman's behaviour suffices.

What are the causes of this situation? There are some logistical problems. First of all, data on both partners are not always easy to collect. Moreover, dealing with step families, it is neither easy nor possible to connect births with previous partners' characteristics. Finally, if the budget is limited, it seems to be parsimonious to restrict the surveys to the "core questions". And – looking at fertility behaviours – the female characteristics seem to be more important, whereas the partner's characteristics seem to be only additional curiosities, like the quoted sentence of the Dutch FFS Standard Country Report shows. Obviously, these practical choices reflect some cultural viewpoints, *i.e.* a traditional female-oriented perspective when reproductive behaviour is considered.

The praxis of using the data of one partner in studying fertility could be justified if the level of homogamy between partners were high (Corijn *et al.*, 1996):

> Heterogamous couples (…) can be expected to agree less among themselves about the timing of the first childbirth than homogamous couples do. (…) But although couple homogamy with regard to religion and education is high, it is far from complete. (p. 118)

The same authors show that the explanatory power of data on woman are substantially added by data on her partner, dealing with the timing of the first birth, considering three characteristics of 1,400 Dutch and Flemish couples: union start (marriage or consensual union), religion, education.

In this paper, using Italian FFS data, I have extended this approach to other marital and reproductive indicators. I have considered two sets of independent partners variables: the structural one's can be reported by the other partner, the value indicators must be directly asked to the two partners.

Table 1 – Samples of Demographic and Health Survey for some countries

Country	Year	Women	Men	Partner	(*)	(1)
Egypt	1988	8,911	--	--	10	--
	1992	9,864	--	3,027 (2)	13	33%
	1995	14,779	--	--	13	--
Morocco	1987	5,982	--	--	14	--
	1992	9,256	1,336	747	12, 137-141	-- (3)
	1995	4,753	--	--	11	--
Senegal	1986	4,584	--	--	6	--
	1992-93	6,310	1,436	802	6, 141-143	33%
Mali	1987	3,200	970	635	6, 116	33%
	1995-96	9,704	2,474	1,630	8, 29	33%
Malawi	1992	4,849	1,151	(4)	5	33%
	1996	2,683	2,658	(4)	6	100%
Uganda	1988-89	4,730	--	--	6	--
	1995	7,070	1,996	1,109	7, 44	33%
Tanzania	1991-92	9,238	2,114	(4)	5	25%
	1996	8,120	2,256	1,125	7,39	25% 50% (5)
	1999	4,029	3,542	1,820	7, 42	100%
Zambia	1992	7,076	--	--	9	--
	1996	8,021	1,489	822	8, 45	25%
Zimbabwe	1988	4,201	--	--	11	--
	1994	6,128	2,141	711	7, 40	40%
	1999	5,907	2,609	1,239	6, 59	50%
Colombia	1986	5,331	--	--	1	--
	1990	8,644	--	--	1	--
	2000	11,545	--	--	5	--
Brasil (6)	1991	6,222	--	1172 (2)	2	50%
	1996	12,612	2,950	(4)	6	25%
Bolivia	1989	7,923	--	--	3	--
	1994	8,603	--	--	6	--
	1998	11,187	3,780	1,727	6, 77	33%
Guatemala	1987	5,160	--	--	4	--
	1995	12,403	--	--	2	--
	1998-99	6,021	--	--	3-4	--
Haiti	1994-95	5,356	1,610	557	6, 52	33%
Turkey	1993	6,519	--	--	10	--
	1998	8,576	--	1,971 (2)	9-10	50%
Jordan	1990	6,461	--	--	7	--
	1997	5,548	--	--	6	--
Yemen	1991-92	5,687	--	--	11	--
	1997	10,414	--	--	10	--
Uzbekistan	1996	4,415	--	--	11	--
Kazakhstan	1999	4,800	1,440	933	10, 62	33%
Kyrgyz Republic	1997	3,848	--	--	9	--
Nepal	1996	8,429	--	--	9	--
India	1992-93	89,777	--	--	33	--
	1998-99	89,199	--	--	3-4	--
Bangladesh	1993-94	9,640	--	3,284 (2)	6-8	42%
	1996-97	9,127	3,346	3,028	6, 45	50%
Philippines	1993	15,029	--	--	9	--
	1998	13,983	--	--	5	--
Indonesia	1987	11,884	--	--	7	--
	1991	22,909	--	--	7	--
	1997	28,810	--	--	7	--

(*) Pages of the National Report where sample is described.

(1) Proportion of household where men too (usually aged 20-54) are interviewed, or proportion of married women whose husband is interviewed.

(2) Only husbands of married women of a sub-sample of household are interviewed.

(3) I did not find in the National Report the proportion of *households* where also men are interviewed.

(4) Data on couples are not published in the National Report, but only tables considering men and women separately. Nevertheless, these data could be easily reconstructed by micro-data.

(5) The proportion is 25% in the country, 50% in the towns.

(6) In 1991 the survey was performed only in the regions of North-east

Sources: Update of Dalla Zuanna (2000, table 6).

I want to test if the cost of collecting data on partners is paid by a substantive increase of the explanatory power, distinguishing between structural data – that can be reported by the other partner – and data on values, that should be asked directly to both partners, with a higher additional cost. Consequently, I am not going to test the decisional processes behind the here considered aspects of marital and reproductive behaviour. My approach is explorative, in order to measure the usefulness of gender balanced data collection and research in analysing some aspects of marital and reproductive behaviour.

2. Data and method

2.1 Data

In the Italian FFS ([3]) of 1996, both partners of 600 cohabiting couples were interviewed. For 300 of them, both partners answered a set of 21 items – tested by marketing surveys – useful to classify Italian people on three weakly intercorrelated factorial dimensions: tradition, consumerism-authoritarianism, subjectivity-involvement ([4]). Compared to other value scores, these three indicators take into account the polarisation of the Italian social context better (De Sandre, Dalla Zuanna, 1999) ([5]). As nowadays in Italy marital dissolution is not widespread, and in the past 30 years it was quite rare, for 278 women the partner living together at the moment of the interview has been their only cohabiting partner. These 278 couples – even if few numerous – are representative of the Italian stable cohabiting couples with woman 20-49 years old ([6]). This data-set is called A.

Another Italian FFS data-set is considered here. 1,583 women aged 20-49 living with a partner – statistically representative of the Italian population – were also interviewed about some structural characteristics of their present partner. For 1,502 women the partner living together at the time of the interview has been their only cohabiting partner. This new data-set is called B. The women of data-set A are a random sub-sample of data-set B, as the 300 interviewed men were the partners of 300 women extracted from the larger group of 1,583. This fact will be reconsidered dealing with the goodness-of-fit of some statistical models applied to data-set A and B.

I considered five dichotomous indicators of marital and reproductive behaviour (table 2), and three groups of explanatory variables (table 3). For both data-sets,

[3] For the characteristics and principal results of Italian FFS see De Sandre *et al.* (1999), De Sandre (2000), De Sandre *et al.* (2000).

[4] The first score is strongly related with the usual Inglehart indicator (tradition *vs.* progressivism).

[5] I report two items highly correlated with each social-cultural factors. *Tradition*: (1) The marriage is forever; (2) Our society became so violent and inhuman because people wandered away from religion. *Consumerism-authoritarianism*: (1) People will be able to better off, thanks to the development of the consumer society; (2) Death penalty should be admitted in particularly serious circumstances. *Subjectivity-involvement*: (1) I like feeling and living my body very intensely; (2) I deeply believe in values and ideals.

[6] In the text, I consider cohabiting couples, but 98% of them are married couples, as cohabitation – in Italy in 1996 – was not common. In the Italian FFS for 600 couples both partners were interviewed, but for only half of them 21 items on values were asked to both partners.

three variables – invariant with partner characteristics – are taken into account: place of residence of the couple, length of the union, woman's job before the beginning of the union. Also the second group of variables is the same for data-set A and B. It includes three structural individual characteristics, reported by the woman for herself and her partner (education, religion, number of children of mother). The last group of variables – available for the only data-set A – includes the value scores described above, asked to both males and females.

In the next parts, it will be clear that the independent variables here considered are not statistically related to all the five demographic indicators. Using FFS data other more theoretically founded explanatory variables could be tested. However, as the aim of this paper is not substantive, the variables considered in table 3 are rich enough to test the additional explanatory power of the partner structural characteristics and values, if several aspects of marital and reproductive behaviour have to be explained.

Before considering methods, it is useful to have an idea of the level of homogamy in the couples, considering the groups (ii) and (iii) of explanatory variables. The homogamy ([7]) is high for structural variables (particularly for education 79%, and religion 85%), while it is lower, but again relevant, for social-cultural indicators (66% for tradition, 58% consumerism-authoritarianism, 60% subjectivity-involvement). This simple information confirms that partners with similar characteristics are attracted to each other and/or each partner can influence the opinions and values of the other. Nevertheless, heterogamous couples are numerous enough to justify the analysis performed here.

2.2 Method

The association between the categorical explanatory variables and each of the five dichotomous demographic indicators is measured using logistic regression. First of all, the data-set A (278 couples) is considered. For each response variable, six logistic models are fitted to the data:

Model	**Partner(s) interviewed**	**Explanatory variables**
W(S)	Woman	Female structural variables (str. var.)
W(SV)	Woman	Female str. var., female values
M(S)	Man	Male str. var.
M(SV)	Man	Male str. var., male values
C(S)	Woman	Female str. var., male str. var. (reported by the female partner)
C(SV)	Two partners	Female and male str. var., males and females values

Data for models W(S) and M(S) are cheap to collect, C(SV) are more expensive, whereas W(SV), M(SV) and C(S) are in intermediate positions.

Some of these logistic models are nested, i.e. one model contains all the statistical information of the other. The nested relationships are the following:

$W(S) \subset W(SV) \subset C(SV)$ $W(S) \subset C(S) \subset C(SV)$ $M(S) \subset M(SV) \subset C(SV)$ $M(S) \subset C(S) \subset C(SV)$

[7] The homogamy is roughly calculated summing the cell percentages "Low-low" and "High-high" in table 3.

Table 2 – Frequency table of dichotomised response variables

Variables	*Categories* ([1])	*Column % sample A (n=278)*	*Column % sample B (n=1,502)*
Number of children	*Two or more = 0*	48	45
	One or none = 1	52	55
Timing of the first birth	*36 months or less = 0*	71	71
	37 months or more = 1	29	28
Age at cohabitation (woman)	*23 or less = 0*	51	47
	24 or more = 1	49	53
Pre-cohabitation conception	*Yes = 0*	13	13
	No = 1	87	87
Contraception ([2])	*Traditional = 0*	65	64
	Modern = 1	35	36

(1) Score 1 should identify modern behaviour, score 0 traditional behaviour.
(2) Contraceptive behaviour is classified as modern if woman has used – at least once during her life – pill or IUD, and if woman or man are sterilised for contraceptive purposes. This second topic is rare, in Italy. 95% of the modern contraceptor women used firstly pill or IUD during the union considered here.

Table 3 – Frequency table of explanatory variables

Variables	*Categories*	*Column % Sample B (n=278)*	*Column % Sample A (n=1,502)*
(i) Variables invariant with partner characteristics			
Place of residence	*North-Centre*	64	64
	South	36	36
Length of the union	*Less than 100 months*	32	35
	100 < length < 200	34	33
	More than 200 months	34	32
Woman's job before union	*Never*	41	44
	Blue collar	31	31
	White collar	28	25
(ii) Individual characteristics of both partners reported by woman			
Education ([1])	*Man low Woman low*	51	52
	Man high Woman low	12	12
	Man low Woman high	9	9
	Man high Woman high	28	27
Religion ([2])	*Man low Woman low*	47	49
	Man high Woman low	13	12
	Man low Woman high	2	2
	Man high Woman high	38	37
Number of children of the mother	*Man 1-2 Woman 1-2*	18	15
	Man 3+ Woman 1-2	22	18
	Man 1-2 Woman 3+	16	19
	Man 3+ Woman 3+	44	48
(iii) Social-cultural factors reported by each partner ([3])			
Tradition	*Man low Woman low*	33	---
	Man high Woman low	17	---
	Man low Woman high	17	---
	Man high Woman high	33	---
Consumerism-Authoritarianism	*Man low Woman low*	29	---
	Man high Woman low	21	---
	Man low Woman high	21	---
	Man high Woman high	29	---
Subjectivity-Involvement	*Man low Woman low*	30	---
	Man high Woman low	20	---
	Man low Woman high	20	---
	Man high Woman high	30	---

(1) Low education: 9 years of school or less; high education: 10 years of school or more
(2) "High religion" means the monthly or weekly frequency to the mass (almost all the people are catholic)
(3) Factor scores are divided in "low" and "high" using median value. That's why the sum of man (woman) high (low) score are always around 50%.

To test the goodness-of fit of a logistic model, I used the log-likelihood ratio G^2:

$$G^2 = 2\Sigma_i [N_i \ln(N_i/\tilde{N}_i)] \quad [1]$$

where i is the cell of the table, N is the observed frequency, Ñ is the theoretical frequency of fitted model. The asinthotical distribution of G^2 is a CHI^2, with degrees of freedom (DF) equal to the number of parameters to estimate ([8]).

When two logistic models are nested, the difference between the two indices G^2 is again a CHI^2, with DF equal to the difference between DF of the two G^2 (i.e. the number of new parameters to estimate). In order to evaluate the additional information of the new parameters, the p-value of the CHI^2 test on the differences between G^2 of the two models can be used. If the p-value is small (i.e. < 0.05) it means that the additional cost of collecting new data is well paid by additional explanatory information on the response variable.

Before using this procedure, three cautions should be taken into account:

(i) First of all, the convergence of G^2 to the CHI^2 distribution is guaranteed only if the theoretical frequencies Ñ are large enough. Using the data-set A (n=278), more convergence problems could subsist.

(ii) G^2 and G^2 difference tests are functionally related to the size of sample: the larger the sample, the larger both indicators. This result is obvious: if the sample is large, a difference between two nested models – even if small – is plausibly not due to the case. On the contrary, if the sample is small, the same difference can be considered as a random difference ([9]). I have recalled this well known characteristics of tests because it influences the comparisons between our nested models. As the women in our data-set A is a random sample of data-set B ($5N_A \cong N_B$), for any logistic model fitted to the data, $5\tilde{N}_A \cong \tilde{N}_B$, and (directly from formula [1]) $G^2_B \cong 5G^2_A$. Consequently, if two identical nested models $\alpha \subset \beta$ are applied to our two samples A and B, $(G^2_{B,\beta} - G^2_{B,\alpha}) \cong 5(G^2_{A,\beta} - G^2_{A,\alpha})$. As the DF are the same, the p-value is much smaller for B than for A. From the practical viewpoint, in our analysis it will be easier to find statistical relevant differences between models for data-set B than A, even if identical couples of models are compared.

(iii) Finally, even if the difference between G^2 suggests that the new explanatory variables do not add any information on the response variable, the statistical association between some of the new explanatory variables and the response variable can be significant. Moreover, introducing into the model new explanatory variables, some of the parameters of the variables already in the model can lose their importance. In other words, the comparison between G^2 test measures the *general difference*, but not the *local differences* between models. Consequently, in a logistic model, in order to compare the explanatory power of nested sets of variables, the G^2 difference should be put beside the analytical observation of coefficients of the categories of each variable.

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[8] The considerations on nested log-linear models are explained in all the classical books on the analysis of categorical data; see (e.g.) Bishop et al. (1975). For the relationship between G^2 and sample size, see Dalla Zuanna (1994). For the problems of convergence to CHI^2 of G^2 test see Contini, Lovison (1990).

[9] A simple example can better clarify this topic. Consider two samples of 10 persons. A difference of 5 cm between the mean height is likely not statistically significant, as it could be due to one particularly tall (or small) person. If the size of the two samples is 100, a difference between the means of 5 cm is surely significant, as few “exceptional” persons cannot palpably move the mean.

3. Results

Table 4 shows the goodness-of-fit of logistic model applied to data-set A and B. In the first sub-table, the degrees of freedom of G^2 test are reported for both the six models and the seven differences between couples of models. The degrees of freedom do not change for the five response variables. In the following five sub-tables, the G^2 tests are reported (for both the six models and the seven differences between couples of models), for the five response variables. The finally five sub-tables show the p-values of CHI^2 (for both the six models and the seven differences between couples of models), obtained combining the G^2 values with degrees of freedom.

The 30 G^2 test on models fitted to data-set A (n=278) are all significant ($p<0.05$), except in the case when response variable is the modern contraception and only men's data are processed (table 4). This result shows that even if data on partners are not taken into account, a relevant part of the variability of our five indicators of marital and reproductive behaviour is managed.

This idea of redundancy of partner data is confirmed by the analysis of the differences between G^2, as the 10 distances between women and couples models are never statistically significant. The results are different starting from men's data: 4 times out of 10 the distance is statistically significant, i.e. when the response variables are age at cohabitation of woman and modern contraception. The first result is rather obvious, as it could be strange that characteristics of men are able to explain the age at first cohabitation of the women. The second result is more interesting: evidently, in the Italian case, use of modern contraception is more related to women's than men's characteristics.

Generally speaking, these results contrast the idea that study of interaction among partner characteristics is useful to explain marital and reproductive behaviour. The traditional strategy of interviewing women seems to be reinforced.

These conclusions are reversed when data-set B (n=1,502) is considered. The five G^2 distances between the two models for women and couples are always statistically significant ($p<0.05$), with the partial exception of number of children. However, also in this last case the p-value (0.107) is more than four times smaller than p-value (0.467) associated to the G^2 difference between the same two models applied to data set A.

In order to decide which strategy is really suggested by these results, it is useful to examine analytically the parameters of some pairs of models applied to women an couples, for both data-set A and B (tables 5 and 6). For both data-sets, some important results appear only if data on male and female partners are jointly considered. Let us consider two examples.

The first one concerns the value dimension Subjectivity-Involvement (from both physical and emotive viewpoints, return to note 5) for data-set A. When women's data are considered, this explanatory variable is statistically significant only for modern contraception: following our theoretical expectations, the users of pill and IUD have the highest scores. Dealing with data for couples, some coefficients are significant for two response variables: timing at first birth and – again – modern contraception. The previous result is only partially confirmed: the highest levels of the response variable (i.e. the most modern behaviours) do not characterise the women with the highest scores, but the couples where the scores of both partners are over the median level of the value indicator.

Table 4 – Goodness-of-fit of logistic models and comparison between couples of nested logistic models. Data-set A (n=278) and – in brackets – data set B (n=1,502).

DEGREES OF FREEDOM

W(S) 8	3	W(S,V) 11
5		11
C(S) 13	9	C(S,V) 22
8		13
M(S) 5	4	M(S,V) 9

G^2 Number of children

W(S) 98.4	5.5	W(S,V) 103.9
4.6		8.9
C(S) 103.0	9.8	C(S,V) 112.8
4.4		14.1
M(S) 98.6	0.1	M(S,V) 98.7

G^2 Timing at the first birth

W(S) 41.2	2.1	W(S,V) 43.3
2.3		3.5
C(S) 43.5	3.3	C(S,V) 46.8
5.3		5.1
M(S) 38.2	3.5	M(S,V) 41.7

G^2 Age at cohabitation of the woman

W(S) 77.9	4.5	W(S,V) 82.4
2.4		6.3
C(S) 80.3	8.4	C(S,V) 88.7
58.0		64.7
M(S) 22.3	1.7	M(S,V) 24.0

G^2 Pre-cohabitation conception

W(S) 21.8	2.5	W(S,V) 24.3
7.4		12.9
C(S) 29.2	8.0	C(S,V) 37.2
7.6		12.5
M(S) 21.7	3.1	M(S,V) 24.8

G^2 Modern contraception

W(S) 18.9	18.6	W(S,V) 37.4
8.2		9.0
C(S) 27.1	19.4	C(S,V) 46.5
16.6		34.6
M(S) 10.5	1.4	M(S,V) 11.9

p-value Number of children

W(S) 0.000	0.139	W(S,V) 0.000
0.467 (0.107)	← data-set B	0.631
C(S) 0.000	0.367	C(S,V) 0.000
0.819		0.367
M(S) 0.000	0.999	M(S,V) 0.000

p-value Timing at the first birth

W(S) 0.000	0.552	W(S,V) 0.000
0.806 (0.000)	← data-set B	0.982
C(S) 0.000	0.951	C(S,V) 0.000
0.725		0.973
M(S) 0.000	0.478	M(S,V) 0.000

p-value Age at cohabitation of woman

W(S) 0.000	0.212	W(S,V) 0.000
0.791 (0.009)	← data-set B	0.853
C(S) 0.000	0.494	C(S,V) 0.000
0.000		0.000
M(S) 0.001	0.791	M(S,V) 0.004

p-value Pre-cohabitation conception

W(S) 0.005	0.475	W(S,V) 0.011
0.193 (0.034)	← data-set B	0.300
C(S) 0.006	0.534	C(S,V) 0.022
0.473		0.487
M(S) 0.001	0.541	M(S,V) 0.003

p-value Modern contraception

W(S) 0.016	0.000	W(S,V) 0.000
0.146 (0.024)	← data-set B	0.622
C(S) 0.012	0.022	C(S,V) 0.017
0.035		0.001
M(S) 0.104	0.844	M(S,V) 0.235

Table 5 – Relative risk for data-set A (n=278)

Variables	Categories		Number of Children (0-1 = 1)		Timing of the first birth (37+ months = 1)		Age at cohabitation (woman) (24+ = 1)	
			Woman	*Couple*	*Woman*	*Couple*	*Woman*	*Couple*
Place of residence	*North-Centre*		1.00	1.00	1.00	1.00	1.00	1.00
	South		0.36**	0.38**	0.41*	0.67	0.74	0.70
Length of the union	*200+ months*		1.00	1.00	1.00	1.00	1.00	1.00
	100 < < 200		2.13*	2.04*	3.64**	3.31	3.05**	3.40**
	<100 months		18.45**	20.64**	3.94**	3.03	9.73**	11.02**
Woman's job before union	*White collars*		1.00	1.00	1.00	1.00	1.00	1.00
	Blue collars		1.36	1.29	0.78	0.75	0.40*	0.38*
	Never		0.84	0.92	0.51+	0.29*	0.42*	0.37*
Education	*M low*	*W low*	1.00	1.00	1.00	1.00	1.00	1.00
	M high	*W low*		2.15		0.47		0.66
	M low	*W high*	1.08	1.22	1.21	1.11	1.60+	1.31
	M high	*W high*		1.15		0.71		1.83+
Religion (1)	*M low*	*W low*	1.00	1.00	1.00	1.00	1.00	1.00
	M high	*W low*						
	M low	*W high*	0.97	1.72	1.16	3.76*	2.35**	3.36*
	M high	*W high*		0.91		0.93		2.50*
Children of mother	*M 1-2*	*W 1-2*	1.00	1.00	1.00	1.00	1.00	1.00
	M 3+	*W 1-2*		0.69		1.16		1.26
	M 1-2	*W 3+*	0.52*	0.45++	0.68	1.05	0.63+	1.21
	M 3+	*W 3+*		0.46*		0.76		1.07
Tradition	*M low*	*W low*	1.00	1.00	1.00	1.00	1.00	1.00
	M high	*W low*		0.69		1.16		1.50
	M low	*W high*	0.52*	0.45++	0.68	1.05	0.63+	0.73
	M high	*W high*		0.46*		0.76		0.72
Consumer.- Authoritarian.	*M low*	*W low*	1.00	1.00	1.00	1.00	1.00	1.00
	M high	*W low*		1.60		0.505+		2.22++
	M low	*W high*	1.27	2.08++	0.87	0.66	0.70	0.79
	M high	*W high*		1.17		0.56		1.23
Subjectivity- Involvement	*M low*	*W low*	1.00	1.00	1.00	1.00	1.00	1.00
	M high	*W low*		1.16		0.96		1.09
	M low	*W high*	0.98	0.77	1.29	1.57	0.74	0.78
	M high	*W high*		1.10		1.93+		1.14
-2 Log Likelihood			103.9	112.8	43.3	46.8	82.4	88.7
Degrees of freedom			11	22	11	22	11	22
p-value			0.0001	0.0001	0.0001	0.0003	0.0001	0.0001

(1) In the couple model, categories (M low - W low and M high - W low) are collapsed as (M high - W low) are too few.

**p<0.01 *p<0.05 ++p<0.10 +p<0.20 M: man W: woman

(continue)

Table 5 – (Continue)

Variables	Categories	Pre-cohabitation conception (No = 1)		Contraception (Modern = 1) With value Indicators		Without value indicators	
		Woman	*Couple*	*Woman*	*Couple*	*Woman*	*Couple*
Place of residence	*North-Centre*	1.00	1.00	1.00	1.00	1.00	1.00
	South	2.34++	2.95++	0.81	0.95	0.70	0.78
Length of the union	*200+ months*	1.00	1.00	1.00	1.00	1.00	1.00
	100 < < 200	1.87+	1.83	1.05	1.10	1.00	1.00
	<100 months	5.03**	5.29*	1.08	1.10	1.13	1.11
Woman's job before union	*White collars*	1.00	1.00	1.00	1.00	1.00	1.00
	Blue collars	0.92	0.97	1.62	1.63	1.34	1.35
	Never	0.51+	0.41+	1.01	1.06	0.91	0.98
Education	*M low W low*	1.00	1.00	1.00	1.00	1.00	1.00
	M high W low		0.85		2.92*		2.67*
	M low W high	2.15+	0.90	1.11	1.94+	1.17	1.97+
	M high W high		4.23++		1.06		1.13
Religion (1)	*M low W low*	1.00	1.00	1.00	1.00	1.00	1.00
	M high W low						
	M low W high	1.51	0.66	0.51*	0.54	0.47**	0.53
	M high W high		1.61		0.53++		0.47*
Children of mother	*M 1-2 W 1-2*	1.00	1.00	1.00	1.00	1.00	1.00
	M 3+ W 1-2		1.66		0.71		0.51+
	M 1-2 W 3+	1.44	0.98	0.56*	0.42++	0.51*	0.35*
	M 3+ W 3+		2.58		0.41*		0.34**
Tradition	*M low W low*	1.00	1.00	1.00	1.00		
	M high W low		0.56		1.18		
	M low W high	0.76	0.43+	0.40**	0.39*		
	M high W high		0.68		0.42*		
Consumer.- Authoritarian.	*M low W low*	1.00	1.00	1.00	1.00		
	M high W low		0.43		0.85		
	M low W high	0.58+	0.33+	1.77*	1.45		
	M high W high		0.34+		1.67		
Subjectivity- Involvement	*M low W low*	1.00	1.00	1.00	1.00		
	M high W low		1.15		1.15		
	M low W high	1.26	0.71	1.74*	1.28		
	M high W high		1.85		2.03++		
-2 Log Likelihood		24.3	37.2	37.4	46.5	18.9	27.1
Degrees of freedom		11	22	11	22	8	13
p-value		0.0100	0.0222	0.0001	0.0017	0.0156	0.0121

(1) In the couple model, categories (M low - W low and M high - W low) are collapsed as (M high - W low) are too few.

**p<0.01 *p<0.05 ++p<0.10 +p<0.20 M: man W: woman

Table 6 – Relative risk for data-set B (n=1,502, data on partners reported by women)

Variables	Categories	Number of children (0-1 = 1)		Timing of the first birth (37+ months = 1)		Age at cohabitation (woman) (24+ = 1)	
		Woman	*Couple*	*Woman*	*Couple*	*Woman*	*Couple*
Place of Residence	*North-Centre*	1.00	1.00	1.00	1.00	1.00	1.00
	South	0.39**	0.42**	0.43**	0.46**	0.95	1.00
Length of the union	*200+ months*	1.00	1.00	1.00	1.00	1.00	1.00
	100 < < 200	1.60**	1.60**	1.47*	1.40*	2.02**	1.84**
	<100 months	13.97**	14.04**	2.25**	2.09**	4.57**	4.37**
Woman's job before union	*White collars*	1.00	1.00	1.00	1.00	1.00	1.00
	Blue collars	1.00	1.00	0.89	1.00	0.52**	0.54**
	Never	0.54**	0.58**	0.63**	0.73++	0.32**	0.34**
Education	*M low W low*	1.00	1.00	1.00	1.00	1.00	1.00
	M high W low		0.91		1.45++		1.83**
	M low W high	1.23+	1.22	1.20	1.06	3.09**	1.74**
	M high W high		1.16		1.36++		4.50**
Religion (1)	*M low W low*	1.00	1.00	1.00	1.00	1.00	1.00
	M high W low						
	M low W high	0.63**	0.72++	0.81++	0.83	1.16	0.72+
	M high W high		0.65**		0.82+		1.24
Children of Mother	*M 1-2 W 1-2*	1.00	1.00	1.00	1.00	1.00	1.00
	M 3+ W 1-2		0.86		0.74+		0.72
	M 1-2 W 3+	0.68**	0.88	1.01	1.12	0.88	1.03
	M 3+ W 3+		0.53**		0.69++		0.89
-2 Log Likelihood		537.4	546.5	363.2	392.7	104.6	120.0
Degrees of freedom		8	13	8	13	8	13
p-value		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

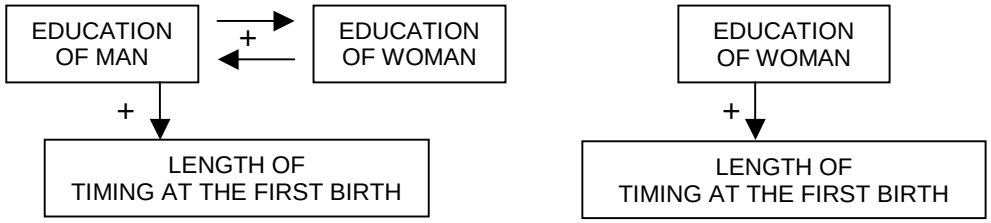
Variables	Categories	Pre-cohabitation conception (No = 1)		Contraception (Modern = 1)	
		Woman	*Couple*	*Woman*	*Couple*
Place of Residence	*North-Centre*	1.00	1.00	1.00	1.00
	South	1.15	1.17	0.57**	0.57**
Length of The union	*200+ months*	1.00	1.00	1.00	1.00
	100 < < 200	1.04	1.02	1.64**	1.57**
	<100 months	1.65**	1.58*	1.02	0.97
Woman's job Before union	*White collars*	1.00	1.00	1.00	1.00
	Blue collars	0.63++	0.70+	0.81+	0.85
	Never	0.48**	0.53**	0.96	1.01
Education	*M low W low*	1.00	1.00	1.00	1.00
	M high W low		1.44+		1.26
	M low W high	1.49*	1.07	1.19+	1.11
	M high W high		1.72*		1.34*
Religion (1)	*M low W low*	1.00	1.00	1.00	1.00
	M high W low				
	M low W high	1.15	0.72+	0.64**	0.84
	M high W high		1.24		0.59
Children of mother	*M 1-2 W 1-2*	1.00	1.00	1.00	1.00
	M 3+ W 1-2		0.72		0.94
	M 1-2 W 3+	1.13	1.03	0.92	1.00
	M 3+ W 3+		0.88		0.90
-2 Log Likelihood		29.2	41.3	61.6	68.8
Degrees of freedom		8	13	8	13
p-value		0.0001	0.0001	0.0001	0.0001

(1) In the couple model, categories (M low - W low and M high - W low) are collapsed as frequencies of (M high - W low) are too few.

**p<0.01 *p<0.05 ++p<0.10 +p<0.20 M: man W: woman

A second example concerns education in data-set B, starting again from women data considered alone. Following our expectations, the most educated women are characterised by the less traditional behaviours. This result is only partially confirmed by the analysis of both partner's data. Two theoretical models emphasised by Thomson (1990, p. 137) and summarised by Corijn et al. (1996) are represented. The "power-egalitarian model" fits age at cohabitation and contraception, as modern behaviour prevails in couples where at least one partner is highly educated, apart from gender. The "patriarchal model" fits timing at the first birth and pre-cohabitation conception, as larger intervals and less pre-cohabitation conceptions characterise the most educated men, rather than women ([10]). This last result is particularly important, from our viewpoint. If only data for women were used, the influence of female education could seem to be substantially significant, as both partners' educational levels are strongly connected (return to table 3). Consequently, some female oriented decisional strategies (*e.g.* strategies based on growing opportunity costs for educated women) seem to be confirmed by data. In this case, only if interactions between educational levels of both partners are inserted into the model, this theoretically likely decisional process is properly falsified (figure 1) ([11]).

Figure 1 – Two alternative models fitted to FFS Italian data



The **true model**, fitted using data of both partners

The **false model**, appearing to be true if only female data are used

Source: table 6.

A last result regards the opportunity of adding questions on values, i.e. the more "expensive" data of our data-set A, as they cannot be reported by the other partner. The G^2 distances between models with or without the value scores are quite high for women and couples, lower for men (table 4). For women and couples, the p-values are particularly small for the response variables number of children and

[10] Thomson (1990) and Corijn et al. (1996) emphasise also the sphere of interest model, where each spouse is most influential in decision making issues that concerns his or her sphere of interest. Because fertility or childbearing are traditionally assumed to be in the female's sphere of interest, this rule suggest that females' characteristics should have a stronger impact. In table 6, this rule hold (e.g.) for the connections of religion with fertility, timing of the first birth, and contraception. In Italy also religion can be considered "in the sphere of interest of women", particularly in the Southern regions. For Flemish and Dutch women this rule manages the relationship between timing of the first birth and education, as education of woman is associated to the demographic indicator, whereas education of man is not, when a four categories variable – similar to that here used – belongs to the explanatory set (Corijn et al., 1996).

[11] For a more extensive discussion of the causal biases when some "crucial" variables are omitted from the analysis, see Wunsch (1988) and Wunsch, Thiltges 1995).

modern contraception. The relative risks are published for the models on contraception without value scores (see the last two columns of the second part of table 5) concerning women and couples, i.e. the ones whose G^2 distances from models with value scores are statistically significant ($p<0.05$). The additional parameters are all significant (for women) or rather high (for couples). Moreover, adding the value scores, the importance of the structural explanatory variables do not palpably decrease. That's why G^2 difference between models with or without G^2 scores is large enough to be statistically significant.

4. Conclusions

The Italian FFS group integrated the standard research pattern suggested by ECE/UN, performing a parallel survey on 600 couples. This strategy was followed also during the Italian FFS of 1979, when 845 couples were interviewed. These data sets are very rich, and several studies have been performed that could not be possible if only individual data had been available (see, e.g. De Sandre et al., 1999; Dalla Zuanna, 2000). However, for our purpose, data for only 278 couples have been processed. This low number of couples limits the possibility of drawing too general conclusions on the opportunity of interviewing both partners for the marital and reproductive research. The first problem is the unsure convergence problems for the goodness-of-fit tests. Moreover, for the same cause, the G^2 differences between logistic nested models are usually far from statistical significance. However, the analysis of the parameters into the models shows that some wrong decision-making of marital and reproductive choices can be considered as true, if data on partner are not taken into account. The explanatory importance of partners data is proved also when only data on structural variables are considered, and a sample of 1,502 couples can be processed.

Summing up, these results suggest gathering data on both partners. Moreover, a large enough sample should be interviewed, in order to emphasise – also using the usual statistical techniques – the separate contribution of man and woman characteristics and values in explaining marital and reproductive behaviour. The usual sample size of DHS (1,000-2,000 couples for each country, return to table 1) can reasonably guarantee the reliability of this kind of analysis, even if there are no clear rules on this topic, apart from the "rule of inch", i.e. the experience of the researcher. If the budget is severely restricted, it could be reasonable to ask one partner the structural characteristics of the other, interviewing only one partner for each couple. However, this choice stops the possibility of studying the influence of the partner values on the couple behaviours.

These results emphasise the exhortation of Suzanne Bianchi, quoted at the beginning of this paper. A genderly correct approach to the study of decision-making behind marital and reproductive behaviour is really useful for Italy, confirming the (few) empirical results so far obtained for both developing and developed countries.

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