

6. TECHNICAL ANNEX

The survey's target population included the total resident population of Switzerland aged between 20–49. The reference date is 31 December 1994, so the respondents were born between 1945–74. The survey was conducted at two levels. To minimize costs and make the interviewers' work more efficient, samples were first drawn by 123 clusters, made up of 3,000 Swiss communes. Households were randomly selected in the chosen communes from the electronic telephone directory (TERCO). The sampling plan is described in detail in Hulliger (1996).

Sampling procedure

For selecting the communes, we stratified the country by major regions (Western, North-Western (including Bern), North-Eastern, Central and Southern Switzerland) and by the size of communes in terms of number of households. The 1990 Census served as a basis for estimating the number of households in each commune. The largest communes in each region (3 per cent automatically represented) were all selected. In each stratum, we then made a selection with an inclusion probability in proportion to the size of the commune, still expressed in the number of households. This draw was done independently for the female sample and for the male sample.

In each commune drawn by lot, a simple random selection by telephone number was made on the basis of the electronic telephone directory. Initially, 16,995 telephone numbers were selected at random for the female sample and 7,306 for the male sample. The participation refusal rate and neutral losses were higher than expected, so we had to fall back on the reserve samples which, for practical reasons, were only taken in automatically represented communes. In all, 19,960 addresses were drawn by lot for the female sample and 11,850 for the male sample. Each household selected at random was then telephoned to ascertain whether it contained a Swiss resident aged between 20–49. In households with several eligible persons, the person invited to participate in the survey was drawn by lot.

Neutral losses were substantial, on the one hand because it was impossible to contact certain households or because the telephone numbers did not correspond to a main residence or a private household. On the other hand, because of the criteria (age, nationality/residence permit) for the choice of respondents, some of the households did not contain a target person. All these cases represent 51.7 per cent of the addresses selected for the female sample and 48.2 per cent for the male sample. Lastly, less than 1 household in 5 (19.5 per cent for the female sample and 17.6 per cent for the male sample) contained a target person who was willing to be a respondent.

Data was collected in three stages: a preliminary telephone conversation, a face-to-face interview and an additional questionnaire. The questionnaires were produced in the three official languages (German, French and Italian) and the interviews were conducted in all Swiss language regions. The preliminary telephone conversation made it possible to obtain information about the composition of the

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household (age, relationship to the respondent, etc.) – information which was necessary to pinpoint and designate the target person. If a person satisfying the criteria lived in the household and agreed to participate in the survey, an appointment was made for a face-to-face interview in his/her home.

The face-to-face interviews were conducted using laptops and lasted one hour on average. Interviews with women were conducted by female interviewers only, while men were interviewed by persons of either gender. The use of a computer made it possible to do some of the validity tests on-line, thus improving the quality and reliability of the information collected. The interviews were conducted by a survey institute commissioned by the Swiss Federal Statistical Office. At the end of the interview, the interviewer handed over an additional questionnaire for completion by the respondent and return by mail. This questionnaire mainly comprised questions about values and beliefs.

The questions asked were mainly derived from the FFS standard questionnaire, the objective being to collect information about the main events in the respondents' family, fertility and working life. The topics addressed were as follows:

- childhood and the parental home: place of residence during childhood, composition of parental household and any divorce of parents, level of education and religious affiliation of parents, mother's participation in the workforce and number of children;
- biography of the person interviewed: education and main periods of employment/unemployment, inter-commune or international migration, pregnancies and biological children, other children belonging to, or which once belonged to, the household;
- present situation: employment, housing, partnership and sharing of household tasks, organisation of care and education of children;
- family planning and number of children wanted;
- social life, values and attitudes.

Non-response

After subtraction of the neutral losses, 5,726 addresses remained for men and 10,331 for women, all of whom were contacted by telephone (hereafter, we will refer to this sample as "net sample"). At the telephone contact stage, several types of problems were encountered, these included problems related to health or language problems, either with the person contacted by phone or the target person, if they were not one and the same. These cases account for 7 per cent of the net male sample and 8 per cent of the net female sample. As participation in this survey was optional, there were other losses also.

Refusal to respond to the survey could crop up at any time. When the households drawn by lot were contacted, the person who answered the phone was asked a series of questions about the composition of the household. This person, who was not necessarily the target person (if, for instance, a man answered while the address contacted was part of the female sample), could refuse to answer the questions about the people living in his/her household. In this case,

we have no way of knowing whether the household included a person who could participate in the survey or not. Alternatively, any target person present in the house who was questioned on the phone might refuse to participate in a face-to-face interview. In all, these refusals during the phone conversation represented 34 per cent for the net male sample and 30 per cent for the net female sample.

Table 6.1
Sample productivity

	Women		Men	
	N	%	N	%
a. Addresses drawn by lot	19 960	100	11 850	100
b. Neutral losses (not reached, no target person, secondary residence, not a private number, technical problems, wrong address)	9 629	48.2	6 124	51.7
c. Net sample	10 331	100	5 726	100
d. Problems during telephone conversation (health/language problems)	803	7.8	422	7.4
e. Refusal to reply (contact person during phone conversation, target person during phone conversation or between phone conversation and face-to-face interview)	5 625	54.4	3 217	56.2
f. Face-to-face interviews conducted	3 903	37.8	2 087	36.4

A considerable number of refusals to reply occurred between the phone conversation and the face-to-face interview (22 per cent and 24 per cent for the net male and female samples respectively). Consequently, productivity was fairly low: an interview was conducted in 36 per cent of the households of the net male sample and in 38 per cent of the households of the net female sample. Of the 3,903 face-to-face interviews conducted with women, 3,881 are valid (99.4 per cent) and 2,083 of the 2,087 conducted with men (99.8 per cent). The additional written questionnaire handed out to the respondents by the interviewers was returned in 89 per cent of cases.

Weighting makes it possible to take the sampling plan into account and to make an initial correction of non-responses. The initial weights (sampling plan weights) take account of the different inclusion probabilities in the sample: commune inclusion probability (one-to-one for the biggest 3 per cent of communes in each NUTS region, in proportion to the size of the communes for the others), inclusion probability of the households in the communes selected and inclusion probability of persons in the household (depends on the number of eligible persons living in the household).

Weighting and post-stratification

The actual weights represent the actual probability of a person's belonging to the sample. They are the product of a person's inclusion probability in the sample and of response probability (probability of managing to contact the household and the target person, and probability of obtaining this target person's cooperation). To calculate these actual weights, it was assumed that the reply probability was the same for all women or all men living in the same commune.

The weights calculated were then corrected by post-stratification, which was done separately for the male and female samples, the aim being to improve sample representativity in terms of a reference population for which distribution is known according to a certain number of variables which were likewise collected by the survey. The various weighting and post-stratification stages are described in detail in Peters (1996).

The locking-in variables selected are: civil status (single, married, widowed, divorced) by age class, nationality (Swiss or foreign) by age class, and type of commune (urban or rural). The reference distribution of the population is the result of statistics on the annual status of the population in 1994 and of the 1990 Census for the type of commune. To reduce the effect of extreme weights on the variance of the estimators, the final weights were truncated to the 98th percentile.

Bias

Weighting makes it possible to reduce the under- or over-representativity of certain categories of persons in the sample (see tables 6.2 to 6.5). However, the choice of variables used for the correction is still arbitrary. It is implicitly assumed that the criteria adopted for post-stratification are correlated with the behaviour studied by the survey, and this is not necessarily true. Moreover, replies to the additional questionnaire were not specially weighted. This may result in bias because the 11 per cent of respondents who did not return this questionnaire may constitute a subpopulation with particular characteristics.

After weighting, distribution of the figures by level of education is still substantially different from that observed during the 1990 Census. The level of education was not used as a post-stratification variable because the Census data were not considered to be totally adequate (different reference period and collection method). These differences were also observed in other Swiss Federal Statistical Office opinion polls. Coding of the various types of education followed by the respondents in three levels also caused problems, particularly as regards comparability between older types of education and more recent courses. Thus, according to the coding, nearly 20 per cent of men aged 40–44 at the time of the survey have higher education (ISCED 5–6) compared to 10 per cent of men aged 30–34.

We would also emphasise that the numbers used to calculate certain tables are low and that, in this case, the figures should be interpreted with caution. There is a substantial variation in the weights assigned to each observation and the high weights may considerably influence the calculation of certain indicators, especially if these calculations are based on a small number of individuals. The female sample, which is twice as big as the male one, is more precise in this respect. It is generally acknowledged that percentages based on less than 30 sample observations are to be regarded with caution.

Table 6.2
Representativity of the sample before and after weighting: civil status

Gender	Variable	Age groups	N	Rate before weighting	Rate after initial weighting	Rate with final weighting	Rate before truncation to 98th percentile
Men	Single	20-24	170	0.61	0.66	0.95	1.00
		25-29	204	0.85	0.91	0.93	1.00
		30-34	121	0.86	0.76	1.03	1.01
		35-39	57	0.77	0.73	1.00	0.99
		40-44	32	0.68	0.53	0.93	0.93
		45-49	27	0.76	0.62	1.10	1.09
	Total		611	0.75	0.75	0.97	1.00
	Married	20-24	17	0.87	0.81	0.87	0.85
		25-29	130	1.08	1.05	1.05	1.02
		30-34	290	1.20	1.21	1.02	1.00
		35-39	364	1.35	1.28	1.03	1.00
		40-44	303	1.18	1.19	1.02	1.00
		45-49	264	1.01	1.09	1.02	1.00
	Total		1368	1.17	1.17	1.02	1.00
	Widowed	20-24	..	..	..	..	..
		25-29	..	..	..	..	..
		30-34	..	..	..	..	..
		35-39	1	1.52	1.87	1.67	1.63
		40-44	..	..	..	..	..
45-49		1	0.47	0.24	0.22	0.22	
Total		2	0.45	0.39	0.35	0.35	
Divorced	20-24	1	2.77	1.79	1.78	1.74	
	25-29	5	1.11	0.81	0.81	0.79	
	30-34	13	0.96	0.99	1.01	0.99	
	35-39	23	1.13	1.00	1.08	1.05	
	40-44	25	0.98	0.88	0.86	0.84	
	45-49	35	1.13	1.33	1.17	1.22	
Total		102	1.07	1.07	1.03	1.03	
Women	Single	20-24	262	0.58	0.66	0.95	1.00
		25-29	251	0.77	0.80	1.00	1.00
		30-34	126	0.72	0.67	1.03	1.02
		35-39	68	0.68	0.64	0.97	0.97
		40-44	56	0.81	0.75	1.11	1.12
		45-49	32	0.58	0.54	0.82	0.85
	Total		795	0.67	0.70	0.98	1.00
	Married	20-24	70	0.69	0.64	0.70	0.69
		25-29	386	1.10	1.06	1.11	1.09
		30-34	613	1.19	1.14	1.01	1.00
		35-39	634	1.26	1.24	1.01	1.00
		40-44	542	1.16	1.17	1.01	1.00
		45-49	479	1.03	1.10	0.99	1.00
	Total		2724	1.13	1.12	1.01	1.00
	Widowed	20-24	..	..	..	..	..
		25-29	3	1.93	1.90	1.39	1.37
		30-34	5	1.52	1.69	1.06	1.05
		35-39	6	1.11	1.05	0.92	0.90
		40-44	5	0.52	0.48	0.36	0.36
45-49		14	0.84	0.88	0.75	0.77	
Total		33	0.90	0.91	0.73	0.73	
Divorced	20-24	..	..	..	..	..
	25-29	17	0.87	0.92	0.74	0.73	
	30-34	51	1.26	1.20	0.99	0.97	
	35-39	84	1.54	1.43	1.18	1.17	
	40-44	85	1.25	1.26	1.12	1.10	
	45-49	92	1.20	1.21	1.04	1.04	
Total		329	1.25	1.23	1.05	1.04	

Table 6.3
Representativity of the sample before and after weighting: urban/rural

Gender	Variable	Age groups	N	Rate before weighting	Rate after initial weighting	Rate with final weighting	Rate before truncation to 98th percentile
Men	Urban	20-24	137	0.58	0.53	0.79	0.82
		25-29	261	0.97	0.85	0.9	0.95
		30-34	315	1.25	1.05	1.11	1.09
		35-39	341	1.49	1.22	1.16	1.13
		40-44	281	1.19	1.02	1.01	0.99
		45-49	241	1.06	0.98	1.04	1.02
	Total		1576	1.09	0.94	1.00	1.00
	Rural	20-24	51	0.50	0.73	0.94	0.99
		25-29	78	0.70	1.07	0.99	0.98
		30-34	109	0.96	1.31	1.10	1.07
		35-39	104	0.96	1.28	0.99	0.98
		40-44	79	0.74	1.04	0.84	0.82
		45-49	86	0.93	1.38	1.16	1.17
Total		507	0.80	1.14	1.00	1.00	
Women	Urban	20-24	228	0.50	0.52	0.80	0.84
		25-29	437	0.86	0.82	1.05	1.04
		30-34	516	1.10	1.00	1.12	1.10
		35-39	488	1.11	1.03	1.05	1.04
		40-44	442	0.97	0.94	0.98	0.98
		45-49	402	0.93	0.93	0.97	0.99
	Total		2513	0.91	0.87	1.00	1.00
	Rural	20-24	104	0.58	0.71	0.80	0.80
		25-29	220	1.06	1.12	0.95	0.94
		30-34	279	1.34	1.40	1.07	1.05
		35-39	304	1.62	1.69	1.13	1.12
		40-44	246	1.35	1.43	1.00	0.98
		45-49	215	1.35	1.54	1.12	1.10
Total		1368	1.22	1.31	1.01	1.00	

Table 6.4
Representativity of the sample before and after weighting: by nationality

Gender	Variable	Age groups	N	Rate before weighting	Rate after initial weighting	Rate with final weighting	Rate before truncation to 98th percentile
Men	Swiss	20-24	158	0.68	0.73	0.97	1.01
		25-29	278	1.02	1.06	1.01	1.02
		30-34	313	1.10	1.11	0.99	0.97
		35-39	351	1.32	1.26	1.00	0.98
		40-44	294	1.17	1.17	0.99	0.97
		45-49	271	1.05	1.16	1.06	1.05
		Total		1665	1.06	1.09	1.01	1.00
	Foreign	20-24	30	0.47	0.46	0.86	0.92
		25-29	61	0.66	0.65	0.83	0.96
		30-34	111	1.00	0.88	1.10	1.08
		35-39	94	0.97	0.86	1.10	1.07
		40-44	66	0.82	0.76	0.98	0.97
		45-49	56	0.78	0.65	0.96	0.94
Total			418	0.81	0.73	0.98	1.00
Women	Swiss	20-24	295	0.69	0.77	0.99	1.00
		25-29	554	1.05	1.05	1.01	1.00
		30-34	692	1.21	1.16	1.00	0.99
		35-39	729	1.36	1.33	1.06	1.05
		40-44	634	1.25	1.25	1.04	1.02
		45-49	564	1.08	1.13	0.95	0.93
		Total		3468	1.12	1.13	1.01	1.00
	Foreign	20-24	37	0.28	0.28	0.62	0.73
		25-29	103	0.60	0.57	1.14	1.16
		30-34	103	0.63	0.58	1.06	1.05
		35-39	63	0.50	0.44	0.83	0.83
		40-44	54	0.50	0.49	0.94	0.97
		45-49	53	0.57	0.65	1.14	1.27
Total			413	0.52	0.50	0.96	1.00

Table 6.5
Representativity of the sample before and after weighting: type of household

Gender	Variable	Age groups	N	Rate before weighting	Rate after initial weighting	Rate with final weighting	Rate before truncation to 98th percentile
Men	One-person households	20-24	34	0.69	0.55	0.82	0.80
		25-29	74	0.89	0.69	0.78	0.76
		30-34	60	0.98	0.79	1.03	1.00
		35-39	45	1.00	0.90	1.15	1.15
		40-44	42	1.02	0.84	1.12	1.12
		45-49	34	0.91	0.79	1.16	1.14
	Total		289	0.91	0.75	0.98	0.96
	Non-family households	20-24	6	0.25	0.42	0.58	0.71
		25-29	12	0.46	0.91	0.72	1.00
		30-34	7	0.49	0.54	0.81	0.79
		35-39	3	0.32	0.35	0.57	0.56
		40-44	2	0.27	0.25	0.45	0.44
		45-49	3	0.47	1.31	0.98	1.35
	Total		33	0.38	0.63	0.68	0.82
	Childless couples	20-24	42	1.00	1.01	1.41	1.41
		25-29	129	1.22	1.12	1.21	1.18
		30-34	119	1.48	1.36	1.43	1.41
		35-39	61	1.16	0.99	0.87	0.85
		40-44	42	0.85	0.75	0.71	0.69
		45-49	60	0.98	0.94	0.91	0.89
	Total		453	1.16	1.06	1.12	1.10
	Couples with children	20-24	84	0.46	0.54	0.73	0.79
		25-29	113	0.78	0.89	0.87	0.86
		30-34	232	1.16	1.19	1.03	1.00
		35-39	331	1.49	1.42	1.18	1.15
		40-44	271	1.15	1.17	1.01	0.99
		45-49	223	1.08	1.20	1.12	1.10
	Total		1254	1.05	1.09	1.00	1.00
	Father/mother with children	20-24	22	0.67	0.66	1.06	1.04
		25-29	11	0.61	1.08	0.70	1.43
		30-34	6	0.56	0.93	0.94	0.96
		35-39	5	0.52	0.78	0.68	0.66
		40-44	3	0.27	0.28	0.34	0.34
		45-49	7	0.63	0.61	0.73	0.72
	Total		54	0.58	0.73	0.81	0.94

Table 6.5 (Cont.)
Representativity of the sample before and after weighting: type of household

Gender	Variable	Age groups	N	Rate before weighting	Rate after initial weighting	Rate with final weighting	Rate before truncation to 98th percentile
Women	One-person households	20-24	60	0.55	0.50	0.76	0.76
		25-29	96	0.78	0.75	0.90	0.89
		30-34	77	0.98	0.89	1.29	1.27
		35-39	53	0.90	0.81	1.07	1.06
		40-44	49	0.85	0.78	1.10	1.11
		45-49	54	0.84	0.79	0.87	0.86
	Total		389	0.79	0.73	0.97	0.97
Non-family households	20-24	17	0.37	0.55	0.80	0.86	
	25-29	15	0.42	0.72	0.89	0.88	
	30-34	2	0.12	0.15	0.22	0.22	
	35-39	2	0.2	0.18	0.27	0.26	
	40-44	1	0.11	0.07	0.08	0.07	
	45-49	3	0.30	0.44	0.69	0.90	
Total		40	0.31	0.48	0.65	0.68	
Childless couples	20-24	121	0.79	0.76	1.05	1.04	
	25-29	233	1.10	1.05	1.28	1.27	
	30-34	135	1.11	1.05	1.14	1.13	
	35-39	95	1.14	1.12	0.98	0.97	
	40-44	86	0.93	0.91	0.81	0.79	
	45-49	129	0.96	0.90	0.82	0.81	
Total		799	1.00	0.96	1.05	1.04	
Couples with children	20-24	118	0.45	0.57	0.74	0.81	
	25-29	299	0.95	0.95	0.96	0.97	
	30-34	541	1.27	1.22	1.09	1.08	
	35-39	574	1.33	1.29	1.07	1.06	
	40-44	482	1.14	1.15	1.00	0.99	
	45-49	378	1.13	1.24	1.12	1.13	
Total		2392	1.09	1.11	1.01	1.02	
Father/mother with children	20-24	16	0.38	0.43	0.71	0.74	
	25-29	14	0.45	0.46	0.45	0.44	
	30-34	40	1.10	1.08	0.99	0.97	
	35-39	68	1.43	1.40	1.32	1.31	
	40-44	70	1.18	1.20	1.11	1.10	
	45-49	53	0.98	1.05	0.99	1.00	
Total		261	0.96	0.99	0.97	0.97	