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COMPARATIVE STUDIES

ECE ANALYSES OF WFS SURVEYS IN EUROPE AND USA

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JERZY BERENT, ELISE F. JONES
AND M. KHALID SIDDIQUI

**Basic Characteristics, Sample Designs
and Questionnaires**

INTERNATIONAL STATISTICAL INSTITUTE
Permanent Office, Director: E. Lunenberg
428 Prinses Beatrixlaan, PO Box 950
2270 AZ Voorburg
Netherlands

WORLD FERTILITY SURVEY
Project Director:
Dr Dirk J. van de Kaa
35-37 Grosvenor Gardens
London SW1W 0BS, UK

The World Fertility Survey (WFS) is an international research programme whose purpose is to assess the current state of human fertility throughout the world. This is being done principally through promoting and supporting nationally representative, internationally comparable, and scientifically designed and conducted sample surveys of fertility behaviour in as many countries as possible.

The WFS is being undertaken, with the collaboration of the United Nations, by the International Statistical Institute in co-operation with the International Union for the Scientific Study of Population. Financial support is provided principally by the United Nations Fund for Population Activities and the United States Agency for International Development. Substantial support is also provided by the UK Overseas Development Administration.

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JERZY BERENT

ELISE F. JONES

M. KHALID SIDDIQUI

Population Activities Unit
UN Economic Commission for Europe
Palais des Nations, Geneva

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Preface

The World Fertility Survey itself is mainly concerned with the developing countries of the world. Nevertheless, around 1975 a number of developed countries undertook fertility surveys, broadly on the lines recommended by the World Fertility Survey. The main responsibility for the promotion of WFS-type surveys in Europe (and some developed countries outside Europe), and for comparative analyses of their findings, was entrusted to the Secretariat of the UN Economic Commission for Europe. This was partly due to the interest shown by the ECE Conference of European Statisticians in WFS and partly to the experience in comparative fertility studies gained by ECE's population experts in the course of preparing an earlier report which compared 12 national fertility surveys taken around 1970.¹

The final report of the new comparative project, undertaken in the context of the World Fertility Survey, will focus on the causes of recent fertility decline in the ECE region, and will also use data derived from sources other than the WFS-type surveys in Europe and North America.² Since this report is not likely to appear in print before 1983, several short papers summarizing the main findings of the study will be published 1982, appearing in the *WFS Comparative Studies* series, as a separate sub-series under the title 'ECE Analyses of WFS Surveys in Europe and USA'.

The preface to the WFS series of comparative cross-national summaries draws readers' attention to the difficulty of maintaining inter-country comparability of data collected for the developing countries. This difficulty is

even greater with regard to the developed countries, many of which had had fertility surveys before and were more inclined to ensure internal than external comparability. The final report devotes a whole chapter to exploration and explanation of inter-country comparability problems, but the preliminary papers can only draw attention to the more serious deviations from proposed standards. The papers are necessarily limited in scope and their nature is somewhat less analytical than foreseen in the final report.

This preface would not be complete without acknowledgement of the contribution of various UN agencies to the ECE/WFS project. The Conference of European Statisticians devoted two meetings to WFS, and approved a model questionnaire and basic tabulation plan for the countries in the ECE region. The UN Working Group on Social Demography held several meetings of experts involved in the national fertility inquiries to assist the ECE Secretariat in the preparation of the comparative study, and its members played a crucial role in securing the supply of national data for the project. Altogether 16 national individual data tapes were received by ECE and two countries prepared sets of tables listed in the preliminary tabulation plan for the comparative study.

Last but not least, UNFPA provided financial assistance to the project.

JANEZ STANOVNIK
Executive Secretary
UN Economic Commission for Europe

¹ *Fertility and Family Planning in Europe around 1970: a Comparative Study of Twelve National Surveys*, UN Department of Economic and Social Affairs, New York, 1976 (Sales No. E. 76. XIII.2).

² For a more detailed outline of this report, see J. Berent, 'Directions and Methods of Analysis of World Fertility Survey Data in Low Fertility Countries', IUSSP International Population Conference, Mexico City, 1977 (1.2.2).

1 Introduction

This is an introductory paper to a series of articles summarizing the main findings of a comparative study of fertility and family planning in developed countries, undertaken by the United Nations Economic Commission for Europe in the context of the World Fertility Survey. The paper refers to 17 surveys taken in the following countries: Belgium, Bulgaria, Czechoslovakia, Denmark, Finland, France, Great Britain, Hungary, Italy, Netherlands, Norway, Poland, Portugal, Romania, Spain, Yugoslavia and USA.³

Like other surveys of a sociological nature, fertility surveys tend to differ with regard to sample universe, sample size, contents of the questionnaire, sample design, choice of interviewers, length of interview, rate of non-response and a number of other less important characteristics which can be found listed in relevant textbooks.⁴ The WFS recommendations covered most of these characteristics, and one of the purposes of this paper is to indicate

the major departures from these recommendations for the countries included in the ECE/WFS Comparative Study.

Had these departures been uniform between countries, ie had the main characteristics of the relevant surveys been very similar, the need for an introductory paper would be greatly diminished. However, this was not the case, and the purpose of this paper is to inform the reader, first, about the measures taken at the data-processing stage of the comparative study to eliminate at least some of these differences and, secondly, to note the remaining differences in so far as they may affect the inter-country comparability of data.

In what follows, a few remarks on some general survey characteristics will lead to a more detailed analysis of the main aspects of sample designs and to a summary discussion of the contents of the questionnaires. The conclusion will focus on the effect of the differences noted on inter-country comparability.

³ Some data are also available for two other developed countries, Israel and Japan, but, for a number of reasons including that of maintaining homogeneity of analysis, these countries are not included in the present series; they will be referred to in the final report.

⁴ See, for instance, *A Manual for Surveys of Fertility and Family Planning*, The Population Council, New York, 1970.

2 Some General Characteristics

It may be worthwhile mentioning at the beginning that the surveys differed with regard to the type of sponsoring organization. In most countries the national statistical offices played a central role, both with regard to the initiation of the survey and to its implementation. This was the case in Czechoslovakia, Norway, Poland, Portugal, Spain and Yugoslavia; moreover, in Bulgaria and Hungary, the surveys were undertaken by demographic research institutes attached to the central statistical offices. In other countries a distinction should be made between surveys sponsored by agencies under direct state control and those run by universities, as in Italy, or by university-related institutions, as in the Netherlands. The University of Helsinki was a co-sponsor of the Finnish Survey initiated by a population research institute. Almost everywhere statistical offices were involved in the data gathering stage, particularly in the selection of respondents.

The growing role of governmental agencies in Europe in fertility and family planning surveys can be attributed in the first instance to recognition of the usefulness of such surveys as a tool for analysis of past trends in fertility and, even more, for prediction of future trends and, secondly, to some concern caused by the direction of the recent trends in several countries of Europe and in the USA.

As can be seen in table 1, the surveys spanned a period of around five years, starting with those in Denmark and the Netherlands in 1975, and ending with Portugal in 1980. However, most surveys took place in 1976-8, as can be seen from the following frequency distribution:

<i>Year of survey (fieldwork)</i>	<i>Number of countries</i>
1975	2
1976	5
1977	5
1978	3
1979	1
1980	1

Thus the comparative study has a reasonably sharp focus in time. It will be noticed that the length of time required to complete fieldwork varied from a month or less in Denmark, Poland and Yugoslavia to about a year in France.

The WFS recommended that the target population of the surveys in developing countries could be best taken as all ever-married women below the age of 50. ECE advocated samples of women currently in their first marriage, below the age of 45, mainly to assure continuity with the ECE 1970 study. In the event, the eligibility requirements varied considerably in Europe, both with respect to marital status and age, as shown in columns 2 and 3 of table 1. Czechoslovakia, Finland and Romania accepted ECE's criteria for marital status, whereas most other countries

included ever-married women (ie they included widows and divorced women in addition to all currently married women).⁵ However, at least five countries — Belgium, Denmark, France, Great Britain and Norway — covered all women, ie single women also. The USA sample included, in addition to the ever-married women, those single women who had children living with them in the same household. The inclusion of single women was due partly to the increasing incidence of births among them in many countries, and partly to the inter-related rise in the numbers of women living in consensual unions or in the state of co-habitation rather than in formal marriage.

For the purpose of the comparative study it was possible to select currently married (once married) women for all countries except Denmark and Poland, for which the individual data tapes did not include information on the number of times the respondent had been married. The resulting bias was quite small in Poland, involving less than 200 women in a sample of around 9000, but probably more significant in Denmark. It should be added in this context that the meaning attached to the very concept of marriage was not necessarily the same among countries. Thus some countries referred only to formal marriage, but most others allowed the respondent to decide whether the relationship amounted to a marriage or not.

In most countries the upper age limit of eligibility was 44 years, but a few surveys went up to 49 years. Unfortunately, Hungary stopped at 40 years. The Dutch sample included all women married in the years 1963-73 irrespective of age; this resulted in serious under-representation of women above the age of 35. Differences between countries in the lower age limit were of less importance, except perhaps in France which excluded women aged less than 20 at the time of selection, introducing a bias particularly harmful for inter-country comparisons related to young ages and to short marriage durations. There was no difficulty in sorting out for the purpose of the comparative study respondents aged 45 or more at the time of the interview, but other departures from homogeneity of sample composition with respect to age remained.

Table 1 also shows, in columns 4 and 7, the number of women interviewed for the original sample and the number of women in the subsamples used for the comparative study. There were considerable differences in the size of the samples between countries. The subsamples varied from around 2000 to 3000 respondents in Czechoslovakia, Denmark, France and Norway, to as many as 9000 to 10 000 in Poland and Romania. These differences

⁵ Three countries, Belgium, France and Italy, covered also a small selection of respondents' husbands for direct interviews.

Table 1 Some Survey Characteristics

Country	Dates of interviews (1)	Original sample universe			Comparative Fertility Study Sample		
		Definition Marital status (2)	Age limits (3)	Number of interviewed women (4)	Definition Marital status (5)	Age limits (6)	Number of interviewed women (7)
Belgium	July 1975–May 1976	All (including single)	16–44	4 863	Currently married, married once	16–44	4 010
Bulgaria	November–December 1976	Ever married	15–44	6 911	„	15–44	6 352
Czechoslovakia	July–September 1977	Currently married, married once	18–44	3 041	„	18–44	2 932
Denmark	April 1975	All (including single)	18–49	5 240	Currently married	18–44	3 129
Finland	March–June 1977	Currently married, married once	18–44	5 449	Currently married, married once	18–44	5 349
France	December 1977–December 1978	All (including single)	20–44	3 018	„	20–44	2 290
Great Britain	May–June 1976	All (including single)	16–49	6 589	„	16–44	3 682
Hungary	May–June 1977	Currently married	< 40	4 009	„	< 40	3 658
Italy	May–December 1979	Ever married	18–44	5 499	„	18–44	5 359
Netherlands	March–May 1975	Currently married	^a	4 522	„	–	4 335 ^a
Norway	October 1977–February 1978	All (including single)	18–44	4 137	„	18–44	2 824
Poland	October 1977	Currently married	< 45	9 799	Currently married	< 45	9 799
Portugal	October 1979–March 1980	Ever married	15–49	5 148	„	–	–
Romania	June–July 1978	Currently married, married once	15–49	10 141	Currently married, married once	15–44	8 771
Spain	November–December 1977	Ever married	15–49	6 290	„	15–44	4 618
USA	January–September 1976	Ever married ^b	15–44	8 611	„	15–44	5 545
Yugoslavia	October 1976	Currently married	15–49	8 115	„	15–44	6 806

^a All women married between 1963 and 1973 irrespective of age.

^b Single women were also included if they had off-spring living in the household.

appear wide enough to affect the relative accuracy (in terms of statistical significance) of derived statistics (eg averages), not so much for the overall findings as for those resulting from cross-tabulation of two or more variables.

Survey characteristics usually refer also to various aspects of fieldwork, especially those concerning the interviews and the interviewers. There is no doubt that inter-country differences in such characteristics may to a certain extent affect the comparability of survey results. Such considerations are, however, in practice intangible and non-measurable. For the surveys in question, basically the same interviewing technique was used, in the sense that the questionnaire was answered by the respondent in personal contact with the interviewer throughout the interview.

The interviewers were uniformly female. Characteristically, in all countries of eastern Europe (and also in Finland), the interviewers were recruited from among public health workers, usually district nurses, who went through some sort of training for the purpose. In other parts of Europe (and in the USA), on the other hand, professional field staff were normally used, the exceptions being Belgium, Portugal and Spain, where social workers and students were apparently used, again after some training.

In most countries, the length of the interview was reported to be around one hour. In Czechoslovakia, Poland and Denmark, it took on the average only half an hour. At the other extreme, it lasted about one and a half hours in Belgium, Finland and Spain. There were considerable

differences between countries with respect to the number of interviewers, not always related to the number of respondents. There were less than 100 interviewers in Belgium, France and Portugal, against 500 in Hungary and Yugoslavia and 900 in Poland. The record was set by Finland, which reported as many as 1300 interviewers, due no doubt to the adoption of a non-stratified single-stage sample design. The Finnish figure results in an average ratio of 4 interviews per interviewer; at the other extreme, in Portugal, it was 130 per interviewer, resulting from some clustering in the sample design (see below).

Ideally, the interviews should follow the selection of respondents without delay, to avoid possible distortions in their age and marriage duration distributions.⁶ If married women aged, say, 15–45 are selected on 1 January 1975 but interviewed only on 1 January 1976, they are in fact aged 16–46 for the purpose of the survey. Such bias can be offset by selecting women aged 14–44 on 1 January 1975. But one cannot foresee on this date changes in marital status occurring in the course of 1975. In this example, women married for less than one year would not be interviewed.

As far as can be seen, the actual time-lag between selection and interview hardly ever exceeded a few months for the countries covered by the comparative study. A notable exception was Spain, where the delay was as much as two years. In England and Wales (outside London), the lag extended to some seven to eight months, but the delays were foreseen and accounted for at the time of selection, at least with respect to age.

⁶ Delay at this stage may also create problems of contact with the selected respondents.

3 Sample Designs

The preceding chapter described the criteria for eligibility of respondents, both for the original samples and for the subsamples selected for comparative study. The present chapter deals with the methods used by participating countries for selecting the original samples of women eligible for interview.

Since no attempt was made by the World Fertility Survey to impose standardization of sample design, it was natural that the actual sampling procedures varied from country to country according to local needs and past experience, so that the considerable differences found in various aspects of design were not unexpected. Here, some common features of these designs are first summarized (see tables 2 and 3), and this is followed by short country-by-country descriptions of the procedures adopted.

It can be said that all the samples were based on carefully thought out random designs, which appear to have been mainly influenced by the aims of precision and economy of cost. Thus all but two countries (Finland and Portugal) resorted to some stratification, at least at the primary stage. Other methods for reducing the variance of sample estimates included 'optimum allocation' in Spain (based on the hypothesis that variations in characteristics would not be the same across zones) and post-stratification in the USA. In a number of countries,

sampling units were chosen with probability proportional to size.

In some countries (Great Britain, Hungary, Portugal) costs were saved by making the fertility inquiry a part of a larger multi-purpose project. In Czechoslovakia, the sample was derived directly from a micro-census. Other ways of reducing fieldwork costs included the French procedure of applying different rates of selection for batches of dwellings formed on the basis of expected density of eligible women, and the procedure of the USA and Great Britain of examining only a subsample of non-contacts or non-responses.

Table 2, column 2 shows that Czechoslovakia and Finland employed a one-stage design while, at the other extreme, the United States utilized a five-stage selection procedure. A two-stage design was most popular.

The majority of the sample designs involved equal probabilities of selection of eligible women. Thus, in twelve inquiries the sample was self-weighting. In the remaining five surveys, in which disproportionate sampling was employed, weights were introduced to compensate for differences in sampling rates. In France, Italy, United States and Yugoslavia, these weights were simply based on the original probabilities of selection, but in Spain the weighting scheme included also the elevation ('raising')

Table 2 Some Features of Sample Designs

	Stratification (1)	Number of stages (2)	Use of weights for disproportionate sampling (3)	Other uses of weights (4)
Belgium	Yes	2	Self-weighting	
Bulgaria	Yes	2	Self-weighting	
Czechoslovakia	Yes	1	Self-weighting	
Denmark	Yes	2	Self-weighting	
Finland	No	1	Self-weighting	
France	Yes	2	Weighted by 1975 occupancy of dwelling	
Great Britain	Yes	2	Self-weighting	
Hungary	Yes	3	Self-weighting	
Italy	Yes	3	Weighted by communes and electoral sections	Yes
Netherlands	Yes	2	Self-weighting	Yes
Norway	Yes	2	Self-weighting	
Poland	Yes	2	Self-weighting	
Portugal	No	3	Self-weighting	
Romania	Yes	3	Self-weighting	
Spain	Yes	2	Self-weighting within stratum	Yes
USA	Yes	5	Weighted by area and race (blacks/non-blacks)	Yes
Yugoslavia	Yes	2	Weighted by region	

factor adjusted to correct sample representation by age, sub-stratum and stratum. In the United States, weights were also introduced as a post-stratification adjustment factor determined by the woman's age and race.

In six countries provision was made for the replacement of women who could not be contacted and sometimes also of those who refused the interview. Substitutes amounted to some 25–35 per cent of the original selection in Belgium, Italy, Netherlands and Spain, but there were relatively few in Czechoslovakia and Hungary. In most cases the replacements were drawn by the same procedure as the original sample; missing respondents were normally replaced by substitutes who resembled them in one or more characteristics. These procedures are discussed in more detail below in the country-by-country discussion.

Table 3 presents selection procedures at different

stages of sampling for each of the 17 surveys. Region, population size and extent of urbanization were the most popular stratification factors at the primary stage. Some countries introduced other factors of stratification, such as socio-economic and geographic characteristics. At the primary stage the sampling frame frequently consisted of the census records, but less so at the later stages of selection. At the final stage the frame consisted, in the order of frequency of use, of population registers, census records, electoral rolls, or specially prepared lists. In some cases the frames based on census records were brought up to date before the sample selection, either by utilizing a supplementary frame of new dwellings or by updating the frame itself. This was the case at least in France, Hungary, Italy, Spain and United States. The choice of the primary sampling units (PSUs) varied across surveys. Very frequently,

Table 3 Selection Procedures at Different Stages of Sampling

Country	Primary stage of selection			Number of units selected (4)
	Primary-stage stratification factors (1)	Sampling frame (2)	Sampling units (3)	
Belgium	Regions and degree of urbanization	Census records	Communes	106
Bulgaria	Regions and urban-rural dichotomy	Census records	Enumerated districts	300
Czechoslovakia	Regions	Microcensus records	Eligible women	3 000
Denmark	Urbanization and occupational groups	Census records	Municipalities	55
Finland	None	Population register	Once married women aged 18–44	6 200
France	Regions and locality size	Census records	Urban units and rural communes	98
Great Britain	Standard regions, socio-economic groups and population density	Electoral register	Parliamentary constituencies	105
Hungary	Population size and proportion of agricultural population	Census records	Settlements	257
Italy	Regions, population size, altitude and economic activity	Census records	Communes	236
Netherlands	Provinces	Specially compiled lists	Municipalities	187
Norway	Region, type and size of municipality	Census records	Municipalities	102
Poland	Regions and urban-rural dichotomy	Listing of census districts	Census districts	1 750
Portugal	None	Parishes	Parishes	500
Romania	Fertility level	Census records	Districts	9
Spain	Demographic and geographic characteristics	Census records	Census sections	572
USA ^a	Region and demographic and socio-economic characteristics	Census records	Counties or groupings of contiguous counties	79
Yugoslavia	Regions and urban/other dichotomy	Register of enumeration areas	Enumeration areas	500

^a For stages beyond the third one, see pp. 15–16.

however, they consisted of census enumeration districts or some other administrative units. In the majority of the surveys, the final sampling units were eligible women; a few countries used households or addresses as the final sampling units which subsequently led to the selection of eligible women.

A brief description of the procedures adopted in individual countries follows. The 1975-6 fertility survey taken in *Belgium* was designed to select about 5500 Flemish-speaking women aged 16-44 years. Some 106 communes were selected first from strata formed on the basis of geographic region and degree of urbanization. Within each selected commune, eligible women were chosen using voting lists or population registers as frames. About 35 per cent of all the interviewed respondents were replacements drawn from a list of substitutes established by the

same sampling procedure as that used for the original selection. Substitutes were chosen within the municipality of the women they were to replace. The sample was self-weighting.

In *Bulgaria* the fertility survey of 1976 was based on a stratified clustered two-stage probability sample design. At the primary stage, the 1975 census enumeration districts (clusters of an average of 250 persons) served as sampling units. Some 300 enumeration districts were selected with probability proportional to size from 56 strata formed on the basis of administrative counties and their urban/rural characteristics.

Within each selected primary unit, a fixed number of 45 households was selected in such a way that all households had equal probabilities of selection. All eligible women (ever married and within the age limit of 15-44) living

Secondary stage of selection			Tertiary stage of selection		
Sampling frame (5)	Sampling units (6)	Number of units selected (7)	Sampling frame (8)	Sampling units (9)	Number of units selected (10)
Voting lists	Eligible women	5 364	—	—	—
Census records	Households	13 413	—	—	—
—	—	—	—	—	—
Census records	Eligible women	5 938	—	—	—
—	—	—	—	—	—
Census records	Dwellings	14 050	—	—	—
Electoral addresses	Electoral addresses	13 965	—	—	—
Census records	Enumeration districts	720	Continuous registration	Dwellings	10 000
Electoral office records	Electoral sections	1 475	Electoral registers	Eligible women	5 685
Population register	Eligible women	5 000	—	—	—
Central Person Register	Women	5 047	—	—	—
Listings prepared for the survey	Eligible women	11 500	—	—	—
Parishes	Small areas	500	—	Dwellings	15 115
Census records	Communes	60	Census records	Women	10 500
Population register	Ever-married women aged 15-49	6 450	—	—	—
Census records	Enumeration districts or block groups	1 681	Census records	Area segments	1 702
Specially prepared list of married women	Married women	8 168	—	—	—

in the selected households were designated for interviews. Non-contacted women were not replaced. The sample was self-weighting.

In the 1977 fertility survey in *Czechoslovakia*, the sample goal was approximately 3000 once-married respondents between the ages of 18 and 44. Relative quotas were first assigned to 12 geographical regions for selecting about 3300 married women, using household lists from the 1977 micro-census. Of these, it was expected that approximately five per cent would be ineligible for the survey, having been married more than once, and the remainder constituted a reserve to compensate for non-response. Substitutes were chosen in sequence from the list available to each interviewer. The sample is considered to be self-weighting.

The *Danish* 1975 fertility survey was based on a two-stage stratified probability sample design. At the primary stage, some 55 municipalities were selected from strata formed on the basis of urbanization and occupational characteristics of municipalities. Within each selected municipality, census records were used to select eligible women married and between the ages of 18 and 49 with equal probabilities. Non-contacted women were not replaced and the sample was self-weighting.

The *Finnish* 1977 survey applied a one-stage probability sample design for selecting once-married women between the ages of 18 to 44 years. Some 6200 eligible respondents were drawn equidistantly (1:92) from the population register sequenced by age. Non-contacted women were not replaced, and the sample was self-weighting.

A stratified two-stage probability sampling procedure was adopted for the *French* survey of 1977-8 which focused on women between the ages of 20 and 44. At the primary stage, some 90 urban units and rural communes were selected from the strata established on the basis of region and locality size, while the eight largest urban units were selected with certainty.

At the secondary stage, dwellings were sampled from the selected primary units in such a way that an overall sampling rate of 1 in 1500 dwellings could be maintained for dwellings listed in the 1975 census, and that about 750 could be selected from new dwellings (occupied after 1975 census). In order to reduce the amount of fieldwork, the selected dwellings were first divided into four batches on the basis of presence of women of given birth cohorts and whether the dwelling was occupied after March 1975. Different rates of selection were then applied to these batches. Only one eligible woman in the selected dwelling was designated for interview. The sample was not self-weighting and the application of appropriate weights for disproportionate rates of selection is required.

The aim of the 1976 *British* survey was to select a sample of about 6500 women aged between 16 and 49 living in England, Wales and Scotland. A stratified two-stage sample was adopted for this purpose. At the primary stage, parliamentary constituencies were first stratified by region, socio-economic group and population density, and then a sample of 105 constituencies was selected with probability proportional to the size of the electorate in 1975.

A systematic random sampling procedure was employed at the secondary stage to select addresses from the register of electors of the sampled constituencies. On the average,

about 133 addresses per constituency were selected, but this figure varied between constituencies to achieve equal probability of selection. Information on name, date of birth, sex and marital status of each resident of the selected address was collected through a postal form. About 84 per cent of the addressees responded and all eligible women entered on the postal forms were designated for interviews. In addition a random sample of half of the addresses from which no replies had been received were visited by interviewers and identified eligible women were interviewed. There was no replacement of non-responses in the British survey and the sample was self-weighting.

The 1977 *Hungarian* fertility survey was based on a 0.3 per cent sample of the Standard Population Survey System (ELAR). The sample was drawn in three stages. At the primary stage, all settlements (villages and towns) were stratified by population size, except for villages with less than 5000 persons which were stratified by the proportion of agricultural employees. Some 257 settlements were selected from these strata with probability proportional to size.

Enumeration districts served as secondary sampling units and were stratified on the basis of the proportion of persons employed in industry, agriculture and other sectors. A total of 720 enumeration districts were selected, with probability proportional to size within each settlement of 5000 or more persons, while two districts were selected within each of the remaining settlements.

At the tertiary stage, approximately 10000 dwellings were selected at random from the sampled districts. Every currently married Hungarian woman below 40 years of age and living with her husband in the sampled dwelling was selected for interview. About 4000 women were initially drawn and some 201 women were subsequently selected as substitutes for non-contacted women. The sample was self-weighting.

The 1979 *Italian* fertility survey utilized a three-stage stratified random sampling design. Communes served as the primary sampling units while the frame consisted of census records and current official statistics. The communes were first stratified into six geographical areas and within each area they were stratified by population size. The communes with less than 20000 inhabitants were further stratified by their altitude and economic activity. A total of 96 strata were so formed and 236 communes were selected from them with probabilities which varied between strata.

Within each sample commune, electoral sections were systematically selected with varying selection probabilities. At the tertiary stage, ever-married women between 18 and 44 years of age were systematically selected within each sampled section. The frame at the secondary stage consisted of lists and related information obtained from the electoral register's office of each sample commune, while at the tertiary stage updated electoral registers were used.

The sample was not self-weighting and weights were introduced to adjust for variable selection probabilities of communes, electoral sections and women within electoral sections. All of the non-contacted women as well as those contacted but not eligible were replaced using a supplementary random list of addresses. The replacements amounted to 35 per cent of the original sample.

The 1975 fertility survey in the *Netherlands* is not entirely comparable with the other surveys because its universe was defined in terms of marriage cohorts rather than age, and only women married in the years 1963–73 were covered. The sample selection utilized a two-stage stratified random sampling design. From eleven provinces a total of 187 municipalities were selected, utilizing specially compiled lists. Municipalities which had a total population of eligible women no less than 20 times the sampling fraction were self-selecting. All smaller municipalities had a probability of selection proportional to the size of the target population.

At the secondary stage, the population register was used to select eligible women within each selected municipality; self-selecting municipalities had probabilities of selection proportional to size of the target population, while all other municipalities contributed 20 eligible women each. Non-contacted women were replaced by others who resembled them as to year of birth, year of marriage and place of residence. The complementary selection amounted to 23 per cent of the original selection. In principle the sample was self-weighting.

A two-stage stratified sampling design was employed in the 1978 *Norwegian* fertility survey. Municipalities were chosen to be primary sampling units and were stratified as follows: municipalities with 3000 to 30 000 inhabitants were grouped together according to region and type; municipalities with more than 30 000 inhabitants were to be primary sampling units in their stratum and were selected with certainty; the rest of the small municipalities were grouped together with neighbouring municipalities to form a cluster with at least 3000 inhabitants.

The central population register served as the secondary stage frame for selecting women aged 18 to 44 from 102 selected municipalities. The selection probabilities at the secondary stage were varied to obtain a self-weighting sample. Non-contacted women were not replaced.

The 1977 *Polish* fertility survey was based on a two-stage stratified sampling procedure. Poland is divided into 195 000 permanent census districts of an average of 200 inhabitants. At the primary stage, these districts were divided into 98 strata on the basis of voivodships (region) and urban/rural dichotomy. From each stratum, one per cent of districts was sampled at random.

At the secondary stage, interviewers were sent to the sampled districts to list all married women up to 45 years of age and to select randomly 25 per cent of them for interview. The sample was self-weighting and non-contacted women were not replaced.

The 1980 *Portuguese* fertility survey utilized a three-stage sample design for selecting ever-married women aged 15–49. Parishes were selected at the primary stage by systematic sampling, with probabilities proportional to size. Within each sample parish, small areas were selected with probabilities proportional to size. At the final stage, dwellings were selected within each sample small area with probabilities inversely proportional to size of the area. All eligible women in the selected households were included in the sample. The sample was self-weighting and non-contacted women were not replaced.

The *Romanian* fertility survey of 1978 utilized a three-stage sample design, and stratification was used at the primary and secondary stages of selection. At the primary

stage, nine districts were randomly selected from strata formed according to their levels of fertility. Within each sample district, communes were stratified into urban/rural dichotomy and some 60 communes were selected with probabilities proportional to size. Census records were used as sample frames at the second and third stages.

Women in their first marriages aged 15–49 having permanent residence in the selected commune were designated for interviews. The sample is self-weighting and non-contacted women were not replaced.

For the 1977 *Spanish* fertility survey, a two-stage stratified sample design was used, involving disproportionate selection which aimed at optimum allocation. Census section (a precisely defined geographical area with a population of less than 2500 persons) served as the primary sampling unit. An elaborate procedure was used to form 65 homogeneous sub-strata of sections: first, 21 strata (regions) were formed by grouping provinces by their geographic characteristics, birth rate and share of agricultural population. Within each region, sub-strata were defined as rural, intermediate, urban and large metropolitan zones according to the size of the municipalities of the stratum. The sections in each sub-stratum were selected with probability proportional to the population with replacement.

The design of the sample at the second stage was such that the number of women selected within a stratum (region) was proportional to the total number of ever-married women aged 15–49, but optimum allocation was achieved through the application of disproportionate rates of selection between sub-strata. Before the selection of sections with probability proportional to size, the 1975 census population was updated to the 1977 level.

The sample is self-weighting within strata (regions); however, weights are used as raising factors derived as the ratio between the target population of a sub-stratum and its real or effective sample by age. Non-responses were substituted by other women qualifying as eligible respondents; about 30 per cent of those interviewed were replacements.

In the *United States*, the 1976 fertility survey utilized a multi-stage stratified design to represent all ever-married women (and single women with own children in the household) aged 15–44 in the conterminous states and the District of Columbia. The stages of selection for most of the sample were: (1) primary sampling units consisting of individual counties or groupings of contiguous counties; (2) 1970 census based block groups or enumeration districts (EDs); (3) area segments within block groups or EDs; (4) households within segments; (5) eligible women within the households. Extensive stratification was used in the first two stages of selection. About seven per cent of the sample came from a supplementary sample of new housing units (built in 1970 or later).

At the primary stage, the 18 largest SMSAs (Standard Metropolitan Statistical Areas) were made self-representing and they contributed 25 PSUs. The remaining 54 PSUs were selected from 35 strata formed on the basis of region, population growth, degree of urbanization, per cent employed in manufacturing and a socio-economic index. Census enumeration districts (EDs) were then identified for each of the selected primary units and, during the second stage, these EDs were stratified according to the

percentage of population that was black; a systematic sample was subsequently drawn. At the third stage, each sample ED was conceptually divided into the number of area segments allotted during sample selection. One area was then selected within each ED with probability proportional to size and included in the sample. Households within sample segments were selected at the fourth stage. In sample segments from EDs with a ten per cent or greater black population, all selected black households were included in the sample, but white and other households were included only if they were found in the subsampled units. In the remaining sample segments, all selected households were included in the sample irrespective of race. All sample households were then screened at the fifth stage for identifying and interviewing eligible women. In sample households with several women one was selected at random.

The sample is not self-weighting and weights are employed for unequal probabilities of selection by area and race, and for post-stratification by age and race. Non-

contacted women were not replaced, but a 50 per cent systematic cluster sample of non-response cases was drawn for examination by experienced interviewers.

A two-stage stratified sample design was utilized in *Yugoslavia* to select the sample of married women between the ages 15 and 49 for the 1976 fertility survey. At the primary stage, each of the eight republics and autonomous regions were divided into urban and other areas to form 16 strata and then census enumeration areas were selected with systematic random sampling within each stratum. The sampling fraction varied between strata and 500 enumeration areas were so sampled from a total of 83 584. Within each sample area, all households and eligible women were listed at the second stage and eligible respondents were selected by systematic random sampling. Non-contacted women were not replaced. As the design was not self-weighting, weight factors have been worked out for urban and rural areas within regions for obtaining national estimates.

4 The Questionnaires

WFS developed a model questionnaire for the national fertility surveys which was prepared in two variants, one for the high and one for the low-fertility countries. It was recognized that the low-fertility variant would not necessarily be adopted word for word in the countries for which it was intended; the aim was rather to indicate the essential minimum scope of the topics to be covered and to serve as a guide as to how they could be approached. This variant differed from the high-fertility variant mainly in that it called for a detailed report of contraceptive practice, including the methods used in each pregnancy interval and the circumstances surrounding the pregnancy that closed the interval. More emphasis was given to family size preferences, and more detailed information was sought on the respondent's employment history and on certain background variables. The WFS draft of this variant was approved in 1974 by a meeting of experts on fertility surveys, convened under the auspices of the Conference of European Statisticians. Responding to interest expressed at that meeting, the Secretariat of the ECE, in consultation with the IUSSP Committee on the Comparative Analysis of Fertility, prepared a special supplementary set of questions entitled 'A Module on Family Size Preferences and Motivations in Low-Fertility Countries'. These components together constitute the WFS/ECE recommendations for the survey questionnaire.

However, there were a number of factors tending to promote diversity in the actual form and content of the individual national questionnaires. The countries represented in the comparative study usually had reasons of their own for undertaking a fertility inquiry in the mid-1970s, apart from their participation in WFS. There was universal recognition of the desirability of achieving maximum international comparability of data on the agreed upon topics. However, in countries where there had been previous fertility surveys, there was also justifiable concern about comparability with their own earlier data. Moreover, the WFS and ECE recommendations were not finalized until 1975, by which time several surveys were already under way. Lastly, as mentioned earlier, in some countries the scope of the inquiry was in the event wider than conceived by the WFS, and this may have led to some changes in the questions recommended for the surveys on fertility alone.

The content of the 17 national questionnaires is reviewed here under two headings: (1) The nature and scope of national questionnaires; (2) The coverage of topics recommended by WFS and ECE. The first indicates broadly inter-country differences in the nature and scope of the questionnaires. The second concentrates in some detail on the availability of national information for the ECE/WFS Comparative Study. No systematic attempt is made here, however, to evaluate the inter-country comparability of questions asked.

4.1 NATURE AND SCOPE OF THE QUESTIONNAIRES

The differences among the country questionnaires, in terms of subject matter that may have been added to or subtracted from the WFS and ECE recommendations, are by their very nature difficult to summarize. Only the Bulgarian, Portuguese and Spanish questionnaires were patterned closely on the WFS/ECE recommendations and covered no other major topics. The Italian questionnaire was also similar but had some additional questions on motivations for parenthood, sharing of household tasks, child care and household composition.

Apart from Bulgaria, the surveys in other east European countries and also in Yugoslavia were focussed directly on fertility and fertility control but differed substantially in the amount of material covered and the way it was derived. The Czechoslovak and Polish questionnaires were quite short, although in Poland questions were included on household composition and housing conditions. The Romanian questionnaire had a final section on household composition, housing and child care arrangements, and the respondent's time budget. In Hungary a complete employment history was obtained as well as information on household composition and equipment, reasons for non-use of contraception, and child care.

The Belgian, French and USA questionnaires were particularly lengthy, including very detailed questions on pregnancies, fecundity and contraceptive practice. They also made rather extensive use of filtering procedures. The Belgian questionnaire contained additional special sections on sexual behaviour, communication between partners, the division of household tasks, child care arrangements, women's employment, and the meaning of having children. The French questionnaire probed into how the contraceptive methods used had been selected and the way the couple functioned in making fertility decisions. In the United States a section of the questionnaire was devoted to sources of family planning services, reflecting concern with the provision of services as a public issue.

The British and the Dutch looked at fertility from the perspective of the family-building process. Consistent with the inclusion of women of all marital statuses in the British sample, the questionnaire gave considerable attention to the formation of the couple relationship and to the couple's housing and economic circumstances at that time. Continuous employment histories were also obtained for both husband and wife. Motivations were stressed in the Netherlands; there was a group of questions on motivation for parenthood, including the Fawcett and Arnold scale on values and costs of children, and another group of questions on the respondent's reasons for working or not working. Both the British and the Dutch explored family size preferences in depth.

In the remaining north European countries, Denmark, Finland and Norway, the surveys covered selected background topics in considerable detail. The Danish questionnaire included an extensive series of questions on the respondent's employment, the division of household tasks and child care between the partners, and abortion. The Finnish and Norwegian surveys were explicitly designed to provide an explanation of their low fertility. The Finnish questionnaire went into housing conditions, standard of living, consumer behaviour, the employment of women, inter-personal relationships, child care arrangements and the social climate of the respondent's childhood home. In Norway attention was given to migration, household composition, sexual behaviour, child care arrangements and the respondent's childhood home situation.

Thus the surveys were quite varied in content despite the extent of common ground among them. Moreover, there were major differences in the order and sequence of questions on the recommended topics and in the placing of sections that were added. The general character of each individual country questionnaire was largely determined by the particular policy interests of the country and the priorities established for the use of the resources allocated to the project.

4.2 COVERAGE OF TOPICS RECOMMENDED BY WFS AND ECE AND RELEVANT TO THE ECE/WFS COMPARATIVE STUDY

Table 4 presents a list of relevant recommendations topic by topic, and shows which countries collected information on each one. The list was drawn up in terms of subject matter rather than individual questions (or variables) in order to facilitate comparisons. In contrast to the topics, the list of 32 individual questions is not complete but it should provide a good general orientation on the potential scope of the Comparative Study and on its geographical

coverage.⁷ The order and grouping of the topics differ somewhat in the table and the model questionnaire itself, since the logic imposed by the strategy of the interview does not necessarily provide an appropriate approach for descriptive purposes.

Concerning *respondent's background*, all countries asked for information on age and educational level attained. Only Czechoslovakia omitted husband's education and occupation. The question on religion was optional and it was not asked in any eastern or northern country. Current (urban/rural) place of residence was not asked in Great Britain and the USA. Four countries (Great Britain, Italy, Spain and Yugoslavia) did not ask about combined family income.

A fairly complete *marital history* of the wife was covered by the WFS questionnaire for low-fertility countries which referred to ever-married women. The comparative study, on the other hand, has been restricted to currently married women in their first marriage. For this it was essential to know the respondent's current marital status, the number of times she had been married, and the date of her first marriage. In every case, current marital status is known either from the definition of the sample universe (if it refers to currently married women in their first marriage) or through a direct question. For Denmark and Poland, however, the supplementary item of information on the number of marriages is missing, and only the date of the present marriage is known for Denmark.

The *pregnancy history* is the core of a fertility survey. All countries provided the number of live births, their dates and the current pregnancy status; the survival status of each child was recorded everywhere as a part of the

⁷ A more detailed list containing about 70 questions was submitted by the ECE Secretariat to a meeting of the UN Working Group on Social Demography which took place in Varna (Bulgaria) in 1978, under the title 'Availability in National Questionnaires of Data Required for the Comparative Study'.

Table 4 Coverage in the Country Questionnaires of Basic Topics Recommended by WFS and ECE and Relevant to the ECE/WFS Comparative Study

Country	Respondent's and family's background							Marriage history		Pregnancy history					
	Current residence	Childhood residence	Age	Wife's education	Religion	Husband's education	Husband's occupation	Family income	Current status	Date of first marriage	Number of live births	Dates of live births	Number of pregnancies	Whether currently pregnant	Number of induced abortions
Belgium	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Bulgaria	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Czechoslovakia	X	X	X	X				X	X	X	X	X	X	X	X
Denmark	X		X	X		X	X	X	X	X	X	X	X	X	X ^a
Finland	X	X	X	X		X	X	X	X	X	X	X	X	X	
France	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X ^a
Great Britain			X	X	X	X	X		X	X	X	X	X	X	X
Hungary	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Italy	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Netherlands	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Norway	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Poland	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Portugal	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Romania	X	X	X	X		X	X	X	X	X	X	X	X	X	
Spain	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
USA		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Yugoslavia	X	X	X	X		X	X		X	X	X	X	X	X	X

^a Refers only to the period since abortion was legalized in the country.

sequence, so that the number and ages of children living at the time of the survey is also known. Only Denmark did not report on the total number of pregnancies. Eleven questionnaires included a question on the number of induced abortions; the omissions are not unexpected seeing that abortions are not legal everywhere in Europe and in some countries have been legalized only recently. Information on unwanted fertility can be derived from questions on the circumstances of each birth or pregnancy, that is, whether or not the respondent was using contraception at the time she became pregnant.

Information on *fertility regulation* was considered essential for the explanation of low fertility in Europe and other developed societies. An extensive contraceptive history, covering each pregnancy in turn, was incorporated into the low-fertility variant of the WFS questionnaire, and further questions on induced abortion were recommended in a special module. Questions on birth control refer usually to methods known, 'ever used', and currently used. All countries asked about current use. Denmark, Great Britain and Norway did not inquire about knowledge, whereas Bulgaria, Czechoslovakia and Yugoslavia were not interested in the past uses. Denmark, Poland and Yugoslavia did not consider sterilization a method of birth control. Only Czechoslovakia did not ask the wife's opinion about the couple's fecundity, and only five countries included a question on attitude towards induced abortion.

Fertility expectations and preferences were among the principal topics proposed for analysis in the comparative study at the inception of the project. The ECE module was devoted largely to this subject, and the WFS and ECE recommendations ultimately included several types of questions related to it.

Family size ideals were covered by two questions suggested by the ECE module, one on the ideal number of children for the 'average family' in that country and another on the ideal number of children for a 'similar couple'. All the surveys except the French and the Dutch asked

at least one question on this topic; the question most frequently asked was that on the ideal for the country.

At the end of the marriage history section in the WFS questionnaire, the respondent was asked how many children she wanted to have when she first married; this question was included in 13 countries. The next question concerned the number of children she presently would want to have in all 'if she could now choose'; 12 surveys included a question of this type.

The number of children the respondent actually expected to have in addition to those already born was investigated in the WFS questionnaire in connection with current fertility regulation. This information is important because it can be used to estimate completed family size for women who are still in the process of family formation. Data on current expectations are available for every country, although the phrasing of the questions varied considerably. Some referred to children 'wanted', 'planned', or 'intended' rather than expected; some asked only about total family size rather than about children additional to the existing family.

A different type of question on family size was again a part of the ECE module and concerned the respondent's second preference. The recommended question was of the type: 'If you could not have the number of children you wanted (desired or expected) would you rather have one more or one less?'

The ECE module also included an inquiry into reasons for not having children or for having large families. The first group of questions, addressed to women who did not want (more) children, concerned their reasons for limiting family size and the conditions under which they might change their mind. The second group, addressed to women who already had at least two children and wanted to continue childbearing, went into the reasons why. In all, eleven countries explored motivations to some degree, but attention was usually focussed on only one side of the topic. In the eastern European countries, interest centred on the reasons for not wanting more children and on the

Fertility regulation								Family size preferences and expectations					Work history			
Unwanted fertility	Methods known	Methods ever used	Methods used currently	Fecundity of couple	Surgical sterilization	Attitude towards abortion	Ideal number	Number wanted at marriage	Number would now choose	Second preference	Number expected	Motivations	Current work status	Work since marriage	Occupation	Earnings
X	X	X	X	X			X	X			X	X	X	X	X	X
X	X		X	X	X		X	X	X		X	X	X	X	X	X
	X	X	X	X		X	X	X		X		X	X	X	X	X
X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
X	X	X	X	X	X		X	X	X		X	X	X	X	X	X
X	X	X	X	X	X		X	X	X		X	X	X	X	X	X
X	X	X	X	X		X	X	X	X		X	X	X	X	X	X
X	X	X	X	X	X		X	X	X		X	X	X	X	X	X
X	X	X	X	X	X		X	X	X		X	X	X	X	X	X
X	X	X	X	X	X		X	X	X		X	X	X	X	X	X
X	X	X	X	X	X		X	X	X		X	X	X	X	X	X
X	X	X	X	X	X		X	X	X		X	X	X	X	X	X
X	X	X	X	X	X		X	X	X		X	X	X	X	X	X
X	X	X	X	X	X		X	X	X		X	X	X	X	X	X
X	X	X	X	X	X		X	X	X		X	X	X	X	X	X
X	X	X	X	X	X		X	X	X		X	X	X	X	X	X
X	X	X	X	X	X		X	X	X		X	X	X	X	X	X
X	X	X	X	X	X		X	X	X		X	X	X	X	X	X

conditions under which the potential mother would change her mind. There was considerable inter-country variation in the way the questions on motivation were actually presented.

The association of women's work history with fertility was seen as an important subject for investigation in both the developed and the developing worlds, although experience has shown that it is not a topic that can be covered easily in terms of a few simple variables. All the low-

fertility countries represented here collected information as to whether or not the respondent was currently working, whether she had worked since she first married and her occupation. Other aspects of employment, such as whether the respondent worked full or part time, and whether she worked at home or away from home, were also frequently covered. Twelve countries provided some information on the respondent's own earnings.

5 Conclusions

The information put together in this paper throws some light on the possible impact of differences in the organization and execution of the national surveys on the inter-country comparability of the data collected. This impact is, however, hardly measurable, and can only be deduced in general terms. Moreover, the main comparability problems are certainly not due to what is normally associated with survey characteristics, but rather to inter-country differences in the way some specific questions were asked and the extent to which some variables were replaced by others in the comparative tables. The resulting distortions can only be tackled at the analytical stage, when the 'comparative' tables are shown and discussed.

Many differences in survey characteristics have been noted in the present paper. It would be wrong to claim that their existence invalidates comparisons between countries, as long as some moderation is exercised with respect to the exact meaning of the figures emerging from the tables. At national level, small sample fertility surveys often suffer because of the exaggerated significance attached to the data obtained. Such data are, in the first instance, subject to sampling fluctuations which in specific cases may be overwhelming; this can only be ascertained by tests of statistical significance which are not often made and, in some cases, can only be approximate. Secondly, it is often forgotten that fertility surveys of WFS-type are not purely statistical exercises, the main objective of which is to establish series of statistical data, but that they represent inquiries aiming at testing the existence of inter-relations between the demographic,

social, economic and cultural variables covered by the questionnaire. This is also true when national findings are compared between countries: the main purpose is not so much to compare the corresponding figures but to compare broad associations and differentials. If this is accepted, the problems of inter-country comparability do not disappear, and they certainly need to be faced and studied; but they become more manageable and less damaging in the final analysis.

To come back to the material presented in this paper, the following can be stated. Each of the 17 countries took a probability sample of several thousand women. For all countries except the Netherlands and, to a lesser extent, Hungary, this sample could be reduced to a subsample comparable for marital status and age. The surveys appear to have been well organized and executed. Everywhere the interviewers were competent and trained for this type of survey. Although the questionnaires differed quite substantially between countries in detail, they all focussed on the main subjects chosen for the ECE/WFS Comparative Study: achieved fertility (measured by the number of live births), birth spacing, family size preferences and family planning. The main background (or 'explanatory') variables proposed for the Comparative Study by WFS and ECE were available for most countries. Finally, the countries for which these data are available are representative of Europe and its main regions. There is no doubt that — subject to some qualifications — the bulk of the material collected lends itself to valid international comparisons.