COMPARATIVE STUDIES

ECE ANALYSES OF WFS SURVEYS IN EUROPE AND USA

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Family Size Preferences in Europe and USA: Ultimate Expected Number of Children

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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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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 yet in print, several short papers summarizing the main findings of the study are being published in the *WFS Comparative Studies* series as a separate subseries 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 for 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
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 (Sales No. E.76.XIII.2) (1976).

[2] For a more detailed outline of this report see Berent, J. (1977). 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

1.1 BACKGROUND

This is the fourth paper in the WFS series of comparative studies presenting some preliminary results of analyses carried out by the UN Economic Commission for Europe using data derived from fertility surveys undertaken around 1975 in the context of the World Fertility Survey. The paper deals with one specific aspect of family size preferences in Europe and the USA, namely the total number of children expected by the respondents. The final report on the ECE/WFS comparative study foresees a chapter which, in addition to the expected number of children, will also consider other variables related to respondents' attitudes to family size, especially those concerning the ideal number of children and the number of children expected by the respondents at the time of their marriage.

The concept and derivation of the total expected number of children is described in some detail in the following section of this paper. As the sum of the number of live births the respondent had had at the time of the interview and the number she expected to have in the future, the derived total closely approximates – at least in the developed countries of Europe – the 'ultimate' or 'complete' family size, the best-known measure of levels, differentials and trends in cohort fertility. In this paper, this measure is referred to as 'ultimate expected number of children' or 'ultimate expected family size'.

The purpose and usefulness of the concept were stressed briefly in the preceding ECE report on fertility and family planning in Europe.[3] Since then, its validity as a predictor of future fertility trends has been widely discussed, particularly in the United States. This is not the place to review in any detail the literature available on the subject; some recent contributions are listed in the bibliography. One piece of research has concluded that the euphoria over the use of birth expectations may have led to some exaggerated claims,[4] but there is no doubt that this tool is of capital importance for a better understanding of the direction of future fertility trends. The official population projections prepared in the mid- and late 1960s would have been quite different in many countries of Europe had the governments and the responsible agencies had at their disposal replies from a small sample of women to the question of how many children they expected to have in the future. Instead, they usually relied on mechanical extrapolations of past fertility trends, often with disastrous results. It was this usefulness of questions on family size preferences which was mainly responsible for the support European governments gave to WFS-type surveys in the 1970s.

1.2 THE LAYOUT

The ultimate expected number of children is first used in this paper to compare current fertility levels in various countries and regions of Europe and in the USA. This is done by reference to relative frequency distributions of respondents by the ultimate expected number of children and to the main characteristics of these distributions, such as averages and dispersions. Inter-country comparisons of levels are also studied for various marriage-duration and age at marriage groupings of respondents (section 2).

This is followed in section 3 by analysis of socio-economic differentials in ultimate expected family size, focussing on four categories of 'explanatory' (or 'background') variables: (i) residence; (ii) socio-cultural variables; (iii) living standards of the family; and (iv) wife's employment characteristics.

The *residence* variables include the 'present' type of residence, both in the urban/rural dichotomy and in the 'locality size' classification, as well as the type of residence experienced by the respondent in her childhood.

Socio-cultural differentials consider the educational levels attained by wives and husbands, the socio-occupational status of husband (which is treated as an indication of the couple's social class), wife's religion and her intensity of religious feeling.

Living standards are measured by reference to total family income, to husband's and wife's income and to the number of rooms in the household. In this subsection the analysis is restricted to urban residents.

For the analysis of differentials related to various apsects of *respondent's employment*, the following background variables were selected: wife's work history, the index of her employment since marriage (expressed as the ratio of the length of time worked to the length of marriage), the place of work (home, away from home) and the nature of work (full time, part time).

The main purpose of this section is to search for associations between the dependent variable and the selected explanatory variables, and to compare them between countries.

Section 4 attempts to provide data on changes in ultimate family size over time. These are studied in two ways. First, some indication of trends is obtained from examination of the ultimate number of children expected by women married before 1955, between 1956 and 1960, 1961 and 1965, 1966 and 1970, and after 1970. Secondly, the latest ('around 1975') data are compared with those col-

[3] *Fertility and Family Planning in Europe around 1970: a Comparative Study of Twelve National Surveys* (1976). UN Department of Economic and Social Affairs Population Studies no 58, New York (see pp 97–98).

[4] Long, John F. and Sione I. Wetrogan (1979). Predicting Fertility: Demographic Studies of Birth Expectations. Paper presented at the 1979 meeting of the Population Association of America.

lected in the earlier ('around 1970') surveys. The previous ECE study revealed that couples married in the 1960s were likely to have fewer children than those married earlier. Section 4 explores the question whether this downward trend continued into the early and mid-1970s. A related working hypothesis is that large families have become a rarity in Europe and that nowadays overwhelming proportions of married couples expect to have only one or two children altogether.

Some information is also gathered to indicate changes over time in the association between ultimate expected family size and several explanatory variables, by showing the relevant cross-tabulations for five successive marriage cohorts, and also by comparing them with corresponding inter-relationships found in the earlier ECE study. The conclusions of this section throw some light on the causes of recent fertility declines in the region and on likely future trends.

Finally, appendix A provides some examples of the application of multiple classification analysis in measuring the relative strength and contribution to total variance in ultimate expected fertility of a few selected explanatory variables.

1.3 THE DEFINITION AND INTER-COUNTRY COMPARABILITY OF THE CONCEPT OF ULTIMATE EXPECTED NUMBER OF CHILDREN

As mentioned earlier, the ultimate expected number of children is defined for the purpose of this study as the sum of the number of past live births reported by the respondent at the time of the interview and the additional number of children she said she expected to have in the future. Since expectations are strongly associated with desires, there would be some logic in combining in one measure the number of additional children expected with the number of children alive at the time of the interview, rather than with the total number of past live births. However, the somewhat wider definition was adopted, because it is closer to the conventional practice of treating the 'total number of ever-born children' or its equivalent – 'the total number of live births' as a measure of the ultimate or 'complete' family size.

Questions on expectations were not formulated uniformly in the 16 countries covered by this analysis. It will be seen in the table below that only 5 countries asked about the additional number of children *expected* in the future, whereas 5 other countries asked about the *total number of expected children.* In 4 countries, the relevant question referred to the additional number of *wanted* children, whereas in Poland it focussed on the number additionally *planned* and in Spain on the number additionally *intended.* In Romania, the relevant tabulations supplied to the ECE Secretariat (and reproduced in part in this paper) appear to be based on replies to a question on the total desired number of children (first preference).

These differences in definition have some effect on the inter-country comparisons, but one can only speculate on their possible impact. The sum of the past live births and of the additionally expected children can be taken to be somewhat greater than the total number of expected children provided as a reply to a single question, because the latter would probably tend to exclude children who died before the interview. The sum of past live births and of the additionally wanted children is probably smaller than the sum of past live births and of children additionally expected for women who know that they do not control their fertility well, or for those who do not want to control it (for instance for religious reasons), but it will tend to be greater for the less than fully fecund couples. The possible relations between the last two concepts seem even more complex. Such divergences are ignored in the analysis which follows, but the reader should bear in mind that some of the inter-country differences in what is invariably

Country	Additionally expected number of children	Total expected number of children	Additionally wanted number of children	Other formulations
Bulgaria	X			
Belgium		X		
Czechoslovakia			X	
Denmark		X		
Finland	X			
France			X	
Great Britain		X		
Hungary			X	
Italy	X			
Netherlands		X		
Norway		X		
Poland				X[a]
Romania	X			
Spain				X[b]
USA	X			
Yugoslavia			X	

[a] Number of children additionally planned.
[b] Number of children additionally intended.

referred to as the ultimate expected number of children may indeed be due to differences in the definition of the dependent variable.

The geographical coverage of the analysis has been reduced by the exclusion of Yugoslavia, whose questionnaire pre-coded the replies to the question on the number of additional children wanted, restricting them to only three categories – one, two and three or more; this did not permit the calculation of meaningful averages.

In this paper, inter-country comparisons are also affected by some differences in age or marital status of the national samples which could not be eliminated at the data processing stage. The main survey characteristics were described in the first paper published in this subseries of *WFS Comparative Studies*.[5] It is necessary to repeat here briefly the main impediments the reader needs to be aware of when examining the comparative tables. The most seriously affected data are those for the Netherlands, where the sample consists of women married in the years 1963–73, irrespective of age. Because of this incompatibility, the Dutch data have been presented only in the tabulations broken down by marriage cohort or marriage duration. The Hungarian 1977 data cover only women below the age of 40 rather than those below the age of 45, as is the case for all other countries, and this meant that for this country different marriage-duration standards had to be adopted. Since the excluded women (those in the 40–44 age bracket) certainly had higher fertility than the overall average, the Hungarian means are generally understated in comparison with other countries, in all tabulations except those broken down by present age of the respondents. Finally, as in other parts of the ECE/WFS comparative study, the Belgian data are restricted to the country's Dutch-speaking population.

Further difficulties arise for comparisons between the earlier fertility surveys (those analysed in the previous ECE study) and the 'around 1975' inquiries undertaken in the context of the World Fertility Survey, although most of these have been eliminated by adjusting (for age or region) either the earlier or the recent samples. It was not possible, however, to manipulate the Dutch data satisfactorily, and the Netherlands had to be left out of this part of the analysis altogether.

Finally, the reader must be warned that explanatory variables do not always have identical meaning across countries. Some references to the main departures were made in the preceding papers in this series and reminders are made in this paper wherever they are thought to be absolutely necessary; but full and systematic exposition of these problems must await the publication of the final ECE report.

[5] Berent, Jerzy, Elise F. Jones, M. Khalid Siddiqui (1982). Basic Characteristics, Sample Designs and Questionnaires. *WFS Comparative Studies* no 18 (ECE Analyses of WFS Surveys in Europe and USA).

2 Inter-Country Comparisons of Overall Fertility Levels and the Impact of Demographic Factors

2.1 AVERAGES AND DISPERSIONS

Table 1 shows the relative distributions of respondents by the ultimate expected number of children and some characteristics of these distributions, such as non-standardized averages and measures of dispersion (standard deviations and coefficients of variation). It also shows the standard errors multiplied by 1.96 to provide confidence limits at the 5 per cent level of significance.

It is worth while to look first (in rows 2 and 3) at the response rates, as these vary considerably between countries for this variable. In Italy and Finland the percentage of respondents who did not answer the question on expected family size was quite high at around 20 per cent, and might easily have influenced the frequency distributions if the incidence of no reply were associated with the fertility level. Four intermediate countries (Belgium, Czechoslovakia, Hungary and Spain) had around 10 per cent of non-response. All other countries show a negligible proportion of missing cases; somewhat surprisingly there were no non-responses in Bulgaria, France and Poland.

The average number of ultimately expected children varied from 2.13 children per woman in Bulgaria to 2.80 in Spain. The Hungarian average of 2.08 would certainly be somewhat higher had the 40–44 age groups of respondents not been missing.

At this point the question may be asked whether the observed differences in overall averages are statistically significant, or whether they could be due to sampling fluctuations. Standard errors have been calculated on the assumption of simple randomness of all sample designs,[6] and confidence limits at the five per cent level are shown

[6] This assumption is not correct for any country except Finland. However, all samples in Europe were stratified, and this tends to reduce the standard error (the effect is contrary in cases of clustering) so that the confidence limits shown are over-generous rather than understated.

Table 1 Relative distributions of respondents by ultimate expected number of children; averages, standard deviations, coefficients of variation and confidence limits

	B	BG	CS	DK	SF	F	GB	H	I	N	PL	R	E	USA
All respondents	4010	6352	2932	3129	5349	2290	3682	3658	5359	2824	9799	8771	4618	5545
Number of responses	3792	6352	2643	3073	4430	2290	3640	3350	4200	2740	9799	8598	4236	5471
No answers (percentage)	9	–	10	2	18	–	1	8	22	3	–	2	8	1
Ultimate expected number of children														
All responses	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Zero	4	11	1	3	3	3	4	2	1	4	1	3	1	4
One	19	21	8	9	10	13	12	15	13	7	10	9	6	10
Two	43	51	55	50	45	41	50	64	49	45	50	59	43	43
Three	21	11	27	26	28	28	21	15	25	30	26	18	28	25
Four	9	3	6	8	10	8	9	3	7	11	8	11	12	10
Five or more	4	3	3	3	4	7	4	1	5	3	5		9	8
Average per woman	2.25	2.13	2.40	2.36	2.46	2.54	2.32	2.08	2.40	2.49	2.50	2.22	2.80	2.60
Standard deviation	1.23	..	.91	1.02	1.14	1.30	1.15	.85	1.10	1.07	1.15	.98	1.33	1.44
Coefficient of variation	55	..	38	43	46	51	50	41	46	43	46	42	53	55
1.96 × Standard error	.04	..	.03	.04	.03	.05	.04	.03	.03	.04	.02	.02	.04	.04

NOTE: In this and the following tables:
- Data for Belgium refer to the Dutch-speaking respondents only, and those for Hungary only to women below the age of 40.
- The meaning of conventional symbols is as follows:
  .. = Not available, not pertinent or not applicable
  – = Nil or negligible
  ( ) = Less than 10 respondents
  * = Figure based on 10–49 respondents
- For reasons of space, names of countries have, in some tables, been replaced by letters appearing on car registration plates: B = Belgium, BG = Bulgaria, CS = Czechoslovakia, DK = Denmark, SF = Finland, F = France, GB = Great Britain, H = Hungary, I = Italy, NL = Netherlands, N = Norway, PL = Poland, R = Romania, E = Spain, YU = Yugoslavia.

in the last row of the table. Simple visual tests can be carried out for any pair of countries by seeing whether the relevant averages augmented or diminished by these limits overlap or not.[7]

A characteristic feature of frequency distributions of respondents by the ultimate expected number of children is an overwhelming concentration of respondents in the categories of one, two and three children, which together are responsible for some 80–90 per cent of all respondents, ranging from 77 per cent in Spain to 94 per cent in Hungary. In all countries, the modal value is two children. In eight countries, 50 or more per cent of respondents expected to have two children. In no country was the proportion of respondents expecting three children more than 30 per cent, although it was very near this figure in Czechoslovakia, Denmark, Finland, France, Norway and Spain. For most countries the percentage of large families, defined as those expecting four or more children, was around 10–15 per cent of all respondents, lower figures being registered for some eastern European countries. Also, coefficients of variation (representing standard deviations as percentage of the average) were lowest in eastern Europe.

2.2 THE IMPACT OF DEMOGRAPHIC FACTORS

There are three purely demographic factors which are normally introduced into the analysis of fertility: marriage duration, present age of respondent and her age at marriage.

For analysis of achieved fertility in terms of past births, marriage duration and current age are important determinants because they reflect variations in the length of time during which the couple was exposed to the risk of pregnancy. By definition it should not be so for the analysis of completed fertility. However, if the latter is measured by the ultimate expected number of children, the exposure to risk element is not completely absent. The part of the ultimate expected number of children consisting of children already born increases, and that of children to come decreases, with marriage duration. Some of the children already born were probably not expected, so that the element of pure expectation varies in fact with marriage duration.

However, the main usefulness of data on the ultimate expected number of children, arranged by marriage duration, or age, is that they are indicative of trends over time in ultimate fertility. They are, therefore, analysed in section 4 below. Here they are shown for inter-country comparisons of levels obtained in various marriage duration and age categories. Table 2 also shows the overall averages standardized by marriage duration. The standard distribution is the same as the one used in the previous ECE study (25, 25, 20, 15 and 15, for marriage durations 0–4, 5–9, 10–14, 15–19 and 20+ respectively[8]). Standardization of overall averages is necessary because the distributions of respondents by marriage duration are different between countries. The overall impact of these differences is not very large, however, as can be seen by comparing the first two rows in table 2. In several countries, the standardized means are marginally greater than the non-standardized ones, indicating smaller proportions of respondents with short marriage durations. The opposite is true for Bulgaria where the standardized mean is slightly smaller.[9]

The ultimate expected number of children is shown to decline markedly and systematically with increasing age at marriage in all the countries except Belgium (see table 3). The gap between those married below the age of 18 and at 25 and over amounts, in certain countries, to about one child per woman, but it is no doubt exaggerated because the truncation effect leaves out some women with long

[7] For instance, for a comparison between the Bulgarian and Belgian averages, we obtain 1.86 ± 0.3 for Bulgaria and 2.25 ± 0.4 for Belgium. Since $1.89 < 2.21$, the difference between the two means is statistically significant at the five per cent level.

[8] For Hungary only four marriage-duration groups are used for standards (0–4, 5–9, 10–14, 15+) and the standards are 30, 30, 20 and 20.

[9] The standardized means used for the analysis of socio-economic differentials should be treated with caution for categories involving smaller numbers of respondents (for instance, for respondents with post-secondary education), especially so when data are cross-classified by another explanatory variable.

Table 2 Ultimate expected number of children, by duration of marriage and wife's age: average per eligible woman

Background variable	B	BG	CS	DK	SF	F	GB	H	I	NL	N	PL	R	E	USA
Non-standardized average	2.25	2.15	2.40	2.36	2.47	2.53	2.32	2.08	2.40	..	2.49	2.50	2.22	2.80	2.59
Standardized average	2.25	2.12	2.40	2.39	2.49	2.53	2.32	2.08	2.41	..	2.52	2.53	2.22	2.85	2.62
Duration of marriage															
< 5 years	2.11	..	2.33	2.16	2.37	2.26	2.04	2.08	2.08	2.20	2.34	2.17	2.05	2.27	2.17
5–9 years	2.04	..	2.38	2.19	2.36	2.36	2.11	2.09	2.29	2.18	2.26	2.35	2.23	2.57	2.22
10–14 years	2.24	..	2.39	2.34	2.32	2.59	2.31	2.06	2.41	..	2.51	2.58	2.37	2.95	2.58
15–19 years	2.48	..	2.40	2.61	2.51	2.77	2.57	2.09	2.64	..	2.74	2.76	2.33	3.14	3.09
30 or more years	2.61	..	2.55	2.93	3.10	2.97	2.93		2.95	..	3.06	3.11	2.18	3.83	3.65
Wife's current age															
< 20	1.98	..	2.41*	1.97*	2.59*	..	2.06	2.11	2.47*	..	2.68*	2.25	..	2.43*	2.40
20–24	2.13	..	2.39	2.25	2.45	2.35	2.09	2.09	2.17	..	2.40	2.23	..	2.31	2.21
25–29	2.13	..	2.41	2.22	2.45	2.36	2.15	2.17	2.25	..	2.35	2.33	..	2.54	2.21
30–34	2.17	..	2.38	2.31	2.35	2.63	2.31	2.06	2.43	..	2.40	2.47	..	2.77	2.62
35–39	2.38	..	2.43	2.49	2.38	2.68	2.43	2.00	2.52	..	2.58	2.73	..	2.91	2.92
40–44	2.51	..	2.38	2.57	2.69	2.63	2.63	..	2.53	..	2.80	2.83	..	3.26	3.34

See NOTE to table 1.

Table 3 Ultimate expected number of children, by wife's age at marriage (standardized and non-standardized averages)

Wife's age at marriage	B	BG	CS	DK	SF	F	GB	H	I	N	PL	R	E	USA
< 18														
Standardized average	2.38	..	2.68	..	2.85	3.00	2.83	2.22	2.81	2.75	2.90	..	3.19	2.85
Non-standardized average	2.11	..	2.76	..	2.92	3.26	2.86	2.22	2.95	2.79	3.11	..	3.21	3.07
18–19														
Standardized average	2.32	..	2.50	..	2.65	2.68	2.47	2.16	2.51	2.70	2.64	..	3.05	2.62
Non-standardized average	2.29	..	2.52	..	2.72	2.71	2.51	2.16	2.50	2.72	2.66	..	3.00	2.64
20–21														
Standardized average	2.15	..	2.37	..	2.48	2.53	2.25	2.01	2.49	2.51	2.48	..	2.87	2.61
Non-standardized average	2.15	..	2.37	..	2.48	2.55	2.28	2.01	2.52	2.49	2.45	..	2.79	2.57
22–24														
Standardized average	2.33	..	2.28	..	2.38	2.36	2.26	1.97	2.27	2.46	2.42	..	2.78	2.46
Non-standardized average	2.35	..	2.29	..	2.36	2.34	2.23	1.98	2.29	2.40	2.38	..	2.75	2.35
25 or more														
Standardized average	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Non-standardized average	2.28	..	2.11	..	2.17	2.14	1.97	1.89	2.17	2.21	2.18	..	2.64	2.06

See NOTE to table 1.

Table 4 Ultimate expected number of children, by wife's age at marriage and by marriage duration: average per eligible woman

Wife's age at marriage	Duration of marriage			
	< 5 years	5–9 years	10–14 years	15–19 years
Belgium				
< 18	1.92	2.22*	2.43*	3.02*
18–19	2.06	2.23	2.18	2.55
20–21	2.11	1.90	2.12	2.33
20–24	2.32	2.14	2.34	2.50
25 or more	2.30	1.89	2.35	2.56
Czechoslovakia				
< 18	2.77*	2.46*	2.78*	2.39*
18–19	2.36	2.52	2.54	2.52
20–21	2.35	2.41	2.38	2.33
22–24	2.27	2.33	2.22	2.36
25 or more	2.23	2.00	2.02	2.22*
Finland				
< 18	2.71*	2.70	2.77	2.90
18–19	2.42	2.55	2.55	2.70
20–21	2.38	2.39	2.36	2.48
22–24	2.42	2.30	2.17	2.44
25 or more	2.22	2.10	2.07	2.31
France				
< 18	2.15*	2.60*	3.09*	3.85*
18–19	2.28	2.40	2.97	3.24
20–21	2.38	2.35	2.97	2.92
22–24	2.27	2.46	2.25	2.30
25 or more	2.04	1.97	2.33	2.31

Table 4 (*cont*)

Wife's age at marriage	Duration of marriage			
	< 5 years	5–9 years	10–14 years	15–19 years
Great Britain				
< 18	2.21	2.48	2.63*	3.08*
18–19	2.06	2.27	2.53	2.86
20–21	2.06	2.11	2.30	2.47
22–24	2.09	2.02	2.21	2.46
25 or more	1.83	1.85	2.03	2.36
Hungary				
< 18	2.08	2.16	2.48	2.18
18–19	2.07	2.25	2.14	2.16
20–21	2.12	2.04	1.95	1.87
22–24	2.13	1.92	1.92	1.87
25 or more	1.86	1.88	1.98*	..
Italy				
< 18	2.34*	2.64	3.02	3.12
18–19	2.14	2.32	2.67	2.70
20–21	2.12	2.27	2.46	3.01
22–24	2.03	2.28	2.36	2.42
25 or more	2.01	2.21	2.17	2.33
Netherlands				
< 18	2.43*	2.39	2.76*	..
18–19	2.21	2.18	2.45	..
20–21	2.25	2.22	2.34	..
22–24	2.21	2.22	2.38	..
25 or more	2.01	2.02	2.28	..
Norway				
< 18	2.54*	2.32*	3.11*	3.04*
18–19	2.39	2.49	2.81	2.99
20–21	2.39	2.25	2.51	2.73
22–24	2.29	2.26	2.34	2.63
25 or more	2.27	1.95	2.33	2.47*
Poland				
< 18	2.40	2.69	3.06	2.99
18–19	2.25	2.50	2.69	2.90
20–21	2.16	2.31	2.58	2.83
22–24	2.15	2.31	2.54	2.64
25 or more	2.03	2.17	2.29	2.36
Spain				
< 18	2.27*	2.74*	3.55*	3.80*
18–19	2.44	2.71	3.33	3.33
20–21	2.17	2.68	3.00	3.23
22–24	2.30	2.53	2.88	3.08
25 or more	2.29	2.44	2.80	3.00
USA				
< 18	2.38	2.35	2.58	3.63
18–19	2.20	2.20	2.73	2.97
20–21	2.29	2.19	2.66	2.99
22–24	2.01	2.23	2.47	2.93
25 or more	1.89	2.14	2.05	2.58*

See NOTE to table 1.

marriage duration (ie relatively high fertility) in the 25 and over age at marriage category.

In several countries, women married before 18 years of age have considerably higher fertility than those married at ages 18 and 19. This is probably partly due to the high incidence of marriages following pre-marital conception at the youngest ages. Such women start their married life with one child already.

If marriage duration is introduced as a control variable (see table 4), the negative association between fertility and age at marriage appears to hold fairly systematically for all countries, but the impact of age at marriage is invariably stronger for the earlier than for the recent marriage cohorts. Inter-country comparisons of ultimate expected fertility for the same age at marriage and marriage duration groups can also be read from table 4, but these could be related to differences in the timing of births as well as to those in the final fertility level.

3 Socio-Economic Differentials in Ultimate Expected Family Size

3.1 TYPES OF RESIDENCE

This subsection shows the ultimate expected number of children classified by the type of current residence and by the type of residence the respondent lived in during her childhood. For both variables, broad rural/urban breakdowns are first distinguished, and then the urban classification is further subdivided according to the size of the locality.

The definitions of the two variables are not exactly the same between countries, and localities bearing the same description vary in size quite considerably from country to country (particularly in the case of large towns). The emphasis here, therefore, is on internal associations rather than on inter-country comparisons of levels.

In all the countries presented in table 5 current rural residents show higher expected fertility than urban residents. For a number of countries, however, the differences appear to be rather small, and this is somewhat surprising, particularly in such countries as Italy and Spain. The definitions have something to do with this, as in both countries there are many villages containing quite considerable numbers of inhabitants; in Italy localities having less than 20 000 inhabitants are counted as rural.

The current residence differentials in expected fertility still appear quite high in eastern European countries (Poland, Bulgaria and Czechoslovakia) and in Finland where they vary from 0.3–0.7 children per woman. Everywhere, ultimate family size declines systematically from small towns to cities. In Czechoslovakia and Poland, the average is as much as half a child lower in cities than in small towns.

The pattern is very similar for childhood residence, both for global urban/rural differentials and for towns classified by size.

There is some interest in cross-tabulating the two residence variables to compare the fertility of those who had lived most of their lives in villages with those who lived in towns; and such cross-classifications also indicate fertility levels of the 'migrants' between the two types of residence. The last panel of table 5 shows such averages for a few countries. It will be noticed that in all countries except Finland the fertility gap between the lifetime rural and urban residents is somewhat wider than between the current rural and urban residents, shown in the first panel. This is so because migrants occupy the intermediate levels of fertility. Characteristically, in all countries those who were brought up in rural areas but moved to towns have

Table 5 Ultimate expected number of children, by current and childhood type of residence: average per eligible woman standardized by duration of marriage

	B	BG	CS	DK	SF	F	H	I	N	PL	R	E	USA
Current residence													
Rural	2.35	2.33	2.63	2.57	2.72	2.67	2.22	2.46	2.64	2.97	2.30	2.92	..
Urban	2.23	1.98	2.31	2.33	2.34	2.48	1.95	2.32	2.39	2.24	2.14	2.83	..
Small town	2.25	..	2.54	2.54	2.59	2.48	2.18	2.46	2.53	2.59	..	2.99	..
Medium-sized town	2.35	..	2.27	2.32	2.41	2.49	1.99	2.39	2.43	2.29	..	3.01	..
Large town	2.21	..	2.22	2.33	2.23	2.50	1.92	2.24	2.18	2.05	..	2.81	..
City	2.07	..	2.02	2.20	2.20	2.37	1.87				..	2.60	..
Childhood type of residence													
Rural	2.27	2.15	2.51	..	2.50	2.61	2.14	..	2.61	2.77	..	2.89	2.71
Urban	2.24	2.08	2.30	..	2.44	2.38	1.96	..	2.37	2.17	..	2.78	2.60
Small town	2.27	..	2.48	..	2.44	2.34	..	..	2.40	2.37	..	..	..
Medium-sized town	2.31	..	2.23	..	2.53	2.48	..	..	2.47	2.20	..	..	..
Large town	2.28	..	2.14	..	2.37	2.38	..	..	2.27	1.99	..	..	..
City	2.07	..	1.97	..	2.38	2.32	..	..			..	..	
Current by childhood type of residence													
Rural–Rural	2.36	2.57	2.65	..	2.72	2.75	2.22	..	2.68	2.99	..	2.97	..
Rural–Urban	2.27	2.53	2.53	..	2.70	2.45	1.97	..	2.52	2.68	..	2.60	..
Urban–Rural	2.15	1.95	2.38	..	2.31	2.46	2.33	..	2.48	2.42	..	2.85	..
Urban–Urban	2.24	2.04	2.28	..	2.39	2.36	1.93	..	2.30	2.13	..	2.80	..

See NOTE to table 1.

lower fertility than those who remained in the countryside, but still somewhat higher than lifetime urban residents.

Changes in urban/rural fertility over time are taken up in the following section.

3.2 SOCIO-CULTURAL VARIABLES

This group of variables includes husband's and wife's educational attainment, husband's socio-occupational status and wife's religion and intensity of religious feeling. For these variables the ultimate expected numbers of children, standardized by marriage duration, are shown in the basic summary table 6, revealing the following main features.

The impact of husband's education on fertility is less clear than that of wife's. No influence of husband's education is apparent in Belgium, Denmark, Finland, Great Britain, Norway and Spain. A rather strong negative association comes to light in USA, Italy, Bulgaria, Hungary and Poland, but in the first three countries the most spectacular difference in fertility occurs between the lowest educational categories (ie between the less than elementary and elementary education groups), the impact weakening at the higher educational levels.

The gap between the expected fertility of wives with less than elementary education (of whom there are not many in Europe except at older ages and in rural areas) and those having entered post-secondary education is as much as one to one and a half children in Bulgaria, Czechoslovakia, France, Hungary, Italy, Poland and USA. This represents no doubt one of the most pronounced fertility differentials known. Except for Belgium and Denmark, this association also holds for other countries, but to a much lesser extent. As in the case of husbands, the impact of education peters out almost everywhere at the higher educational levels of wives.

The next variable, shown in table 6 without further cross-classification, is that of the socio-occupational status of husband, an indication of the social class of the couple. Generally, the highest fertility is found among agricultural labourers, for whom the average is about three children in France, Norway, Poland and Spain, and more than four children in the USA. On the whole, the non-manual workers show lower fertility than the manual, but the differences are not very large, except in Poland, where they amount to about one-half of a child. The expectation that the social prestige value of an occupation is inversely correlated with fertility is not decisively confirmed by these data. True enough, within the category of manual workers the skilled workers expect fewer children than semi-skilled or unskilled workers in every country where the distinction has been made, but the differences are small, and within the category of non-manual workers no clear pattern emerges.

Finally, table 6 also shows a few data on fertility by religion and intensity of religious feeling. In Great Britain and the USA, Catholics have an edge in fertility over Protestants by 0.3–0.4 children. In addition, fertility by intensity of religious feeling varies much more among Catholics than among the Protestants in these two countries. This differential is quite considerable among Catholics in all five countries for which data exist, and amounts to as much as half a child or more in France, Great Britain, Italy and Belgium.

Tables 7–9 show the impact of wife's education when some other explanatory variables are kept constant. The latter include urban/rural type of current residence (table 7), husband's education (table 8) and intensity of religious feeling (table 9). Furthermore, table 10 attempts to isolate the effect of husband's education from that of his socio-occupational status.

Negative association between wife's education and fertility appears to be very pronounced both in the rural and urban areas in the five east European countries shown in table 7. In other countries the association is generally much weaker, particularly in rural areas. It will be noted that in Poland, Hungary and Romania, the ultimate expected number of children is less than two among urban residents with post-secondary education, and is very near this figure in Italy and Czechoslovakia. This indicates that the continuation of the urbanization process in these countries, accompanied by further improvements in female education, would tend to reduce their overall fertility levels in the future. Table 7 shows also that urban/rural differentials are deeper and more systematic when controlled for wife's education.

It is interesting to examine the influence of the educational level of one spouse when that of the other is kept constant, and also the combined effect of both. This is attempted in table 8. However, educational levels of the spouses rarely differ very much, and this means that there are few respondents in the extreme categories (such as wives with post-secondary education married to husbands with less than elementary education). Again, the clearest patterns of association appear in Poland and, to a lesser extent, Hungary and USA. Almost everywhere the averages are highest among wives with the lowest educational standards married to husbands at similar levels. At the other end of educational attainment, however, fertility appears to be lowest only in Poland and in the USA.

In France, Italy, USA and among the Catholics in Great Britain, education of wife appears to be influential when the strength of her religious feeling is controlled, but this does not seem to apply to Belgium, Norway or to the Protestants in Great Britain (table 9). Looking at education as the control, one will observe that fertility is almost invariably highest among women with strong religious feelings, and that it tends to decline everywhere, in some countries (in France and for US Catholics) very steeply for women less concerned about religion. In Belgium, France and Italy, women with higher secondary and post-secondary education who are indifferent to religion show average numbers of expected children around only two or less.

Another cross-tabulation relevant to the study of the impact of education on fertility is presented in table 10, where husband's education is broken down by his socio-occupational status. These data suggest that inter-relations vary considerably between countries. In Hungary, Italy, Poland and USA, fertility declines steeply for the better educated husbands in each occupational category, but in other countries the pattern is not clear. For a given category of education, fertility is usually higher in agricultural than in non-agricultural occupations, but differentials between the manual and non-manual workers are far from systematic. It seems clear from these data that education is more of a determinant of fertility than social class, defined in terms of the occupation of husband.

Table 6 Ultimate expected number of children, by education of husband, education of wife, socio-occupational status of husband, wife's religion and intensity of religious feeling: average per eligible woman (standardized by duration of marriage)

	B	BG	CS	DK	SF	F	GB	H	I	N	PL	R	E	USA
Husband's level of education														
Elementary not completed	2.25	2.73	..	2.47	2.21	2.86	..	3.09	3.26	2.51	3.03	2.55	3.06	3.87
Elementary completed		2.05	..		2.53	2.51	2.40	2.29	2.49		2.82	2.34	2.70	2.90
Lower secondary	2.15	1.93	..	2.28	2.46	2.46	2.33	2.07	2.25	2.60	2.46	2.22	2.80	2.76
Higher secondary	2.23	1.90	..	2.27	2.34	2.24	2.22	1.93	2.13	2.50	2.16	2.11	2.69	2.59
Post-secondary	2.50	1.80	..	2.33	2.51	2.47	2.37	1.96	2.08	2.47	2.00	2.01	3.16	2.49
Wife's level of education														
Elementary not completed	2.17	2.84	3.82	2.46	..	3.01	..	3.43	3.13	2.84	3.09	2.41	3.05	4.03
Elementary completed		2.06	2.71		2.51	2.46	2.55	2.53	2.42		2.77	2.32	2.70	3.12
Lower secondary	2.29	1.88	2.47	2.29	2.43	2.38	2.32	2.06	2.18	2.51	2.40	2.13	2.78	2.85
Higher secondary	2.20	1.84	2.26	2.26	2.41	2.35	2.24	1.91	2.12	2.45	2.17	2.03	2.72	2.60
Post-secondary	2.36	1.72	2.13	2.39	2.32	2.35	2.32	1.93	..	2.42	2.00	1.99	3.03	2.38
Socio-occupational status of husband														
Outside agriculture														
Non-manual: Higher	2.34		..	..	2.40	2.51	2.22	1.92	2.30	2.43	2.08	1.97	2.80	2.52
Other	2.11	..	..	..	2.40	2.31	2.29		2.39	2.41		2.02	2.77	2.51
Manual: Skilled	2.19		..	..	2.45	2.59	2.31	2.01	2.30	2.57	2.55	2.25	2.85	2.66
Semi-skilled and unskilled	2.26	..	..	..		2.98	2.50	2.31	2.57			2.39		2.77
Agriculture:														
Owners	2.65	..	..	..	2.89	2.57	2.35	..	2.62	2.82	3.11	2.48	2.81	2.88
Other		..	..	..	2.55	2.83*	2.47*	2.25	3.12		2.86		3.17	4.14*
Intensity of religious feeling														
Catholics														
All	2.29	..	..	..	..	2.58	2.66	..	2.42	..	..	..	2.85	2.86
Strong	2.45	..	..	..	..	2.83	2.90	..	2.66	..	..	..	..	3.09
Moderate	2.21	..	..	..	..	2.57	2.70	..	2.34	..	..	..	..	2.89
Weak	2.04	..	..	..	..	2.08	2.37	..	2.18	..	..	..	..	2.75
Protestants														
All	3.25	..	..	..	..	..	2.27	..	..	..	..	..	..	2.56
Strong	..	..	..	..	..	..	2.45	..	..	..	..	..	..	2.62
Moderate	..	..	..	..	..	..	2.23	..	..	..	..	..	..	2.61
Weak	..	..	..	..	..	..	2.26	..	..	..	..	..	..	2.47

See NOTE to table 1.

Table 7 Ultimate expected number of children, by education of wife and type of current residence: average per eligible woman (standardized by marriage duration)

Type of current Residence	Education of wife	B	BG	CS	DK	SF	F	H	I	N	PL	R	E
Rural	Elementary not completed	2.27	2.78	..	2.59	..	3.03	3.49	3.18	2.92	3.14	2.29	3.12
	Elementary completed		2.15	2.88		2.72	2.59	2.63	2.42		3.06	2.33	2.78
	Lower secondary	2.38	1.91	2.68	2.70	2.59	2.59	2.12	2.17	2.60	2.72	2.22	2.93*
	Higher secondary	2.38	1.96	2.40	2.36	2.69	2.47	2.08	2.42	2.56	2.63	2.18	..
	Post-secondary	..	1.89	2.26*	..	2.36	2.93*	2.09	..	..	2.45	1.95	..
Urban	Elementary not completed	2.15	2.92	3.88*	2.41	..	3.04	3.37*	3.01	2.62	2.94	2.64*	3.02
	Elementary completed		1.95	2.59		2.32	2.39	2.19	2.41		2.45	2.30	2.67
	Lower secondary	2.27	1.87	2.35	2.21	2.32	2.30	1.97	2.17	2.38	2.25	2.11	2.72
	Higher secondary	2.17	1.81	2.23	2.24	2.30	2.32	1.86	2.00	2.35	2.06	2.00	2.74
	Post-secondary	2.36	1.70	2.11	2.33	2.32	2.26	1.87	..	2.34	1.90	1.99	3.04

See NOTE to table 1.

Table 8 Ultimate expected number of children, by education of wife and by education of husband: average per eligible woman (standardized by duration of marriage)

Wife's level of education	Husband's level of education				
	Elementary not completed	Elementary completed	Lower secondary	Higher secondary	Post-secondary
Belgium					
Elementary or less	2.21		2.07	2.15	1.96*
Lower secondary	2.33		2.23	2.25	2.72
Higher secondary	2.27		2.14	2.17	2.26
Post-secondary	..		..	2.42	2.59
Denmark					
Elementary or less	2.52		2.31	2.21	2.53
Lower secondary	2.28		2.27	2.28	..
Higher secondary	2.30		2.25	2.24	2.19
Post-secondary	..		..	2.39	2.40
Finland					
Elementary not completed	..	..	..	..	..
Elementary completed	2.31	2.54	2.44	2.42	2.48*
Lower secondary	..	2.48	2.49	2.33	2.32
Higher secondary	..	2.45	2.46	2.32	2.64
Post-secondary	..	2.36*	1.89*	..	2.38
France					
Elementary not completed	3.13	3.15	2.85	2.32*	..
Elementary completed	2.54	2.47	2.41	2.16	1.87*
Lower secondary	2.87*	2.30	2.47	2.21	2.25*
Higher secondary	2.40*	2.32	2.24	2.22	2.63
Post-secondary	..	..	2.28*	2.32*	2.36
Great Britain					
Elementary not completed	..	..	..	..	..
Elementary completed	..	2.75	2.55*	2.39*	..
Lower secondary	..	2.25	2.36	2.19	2.13
Higher secondary	..	2.39	2.24	2.26	2.33
Post-secondary	..	2.22*	1.95*	2.15	2.50
Hungary					
Elementary not completed	4.10*	3.51*	2.67*	( )	..
Elementary completed	2.83*	2.14	2.57	( )	( )
Lower secondary	2.33*	2.20	2.06	1.96	1.89*
Higher secondary	..	1.94*	1.91	1.90	1.93
Post-secondary	..	..	2.17*	1.82	1.99
Italy					
Elementary not completed	3.22	3.23	2.60	( )	..
Elementary completed	3.17	2.39	2.38	2.15	2.43
Lower secondary	..	2.30	2.11	2.13	..
Higher secondary	..	2.29	2.05	2.10	2.20
Post-secondary	..	..	..	..	..
Norway					
Elementary or less	3.09		2.92	2.65	..
Lower secondary	2.36		2.55	2.53	2.50
Higher secondary	2.43		2.47	2.42	2.47
Post-secondary	..		..	2.32	2.43

Table 8 (*cont*)

Wife's level of education	Husband's level of education: Elementary not completed	Elementary completed	Lower High secondary	Higher secondary	Post-secondary
Poland					
Elementary not completed	3.14	3.14	2.93*	( )	..
Elementary completed	2.97	2.86	2.64	2.38	2.20*
Lower secondary	2.76*	2.58	2.38	2.22	2.27*
Higher secondary	..	2.50	2.22	2.10	2.00
Post-secondary	..	2.29*	2.35	1.97	1.91
Spain					
Elementary not completed	3.13	2.91	2.62	2.67	..
Elementary completed	2.81	2.64	2.88	2.70	2.84*
Lower secondary	3.17*	2.55	2.84	2.70	3.08
Higher secondary	..	2.46*	2.38*	2.72	3.25
Post-secondary	..	..	..	2.37*	3.65
USA					
Elementary not completed	4.39*	..	4.65*	..	..
Elementary completed	3.82*	3.11	3.21	2.70	..
Lower secondary	3.82*	2.73	3.03	2.76	2.72
Higher secondary	2.99	2.85	2.49	2.58	2.62
Post-secondary	...	2.41*	2.55*	2.43	2.35

See NOTE to table 1.

Table 9 Ultimate expected number of children, by intensity of religious feeling and by education of wife: average per eligible woman (standardized by duration of marriage)

Intensity of religious feeling	Wife's level of education			
	Elementary or less	Lower secondary	Higher secondary	Post-secondary
Belgium				
Strong	2.31	2.50	2.44	2.70
Moderate	2.15	2.43	2.12	..
Weak	2.10	1.91	2.01	1.68*
France				
Strong	3.01	2.98*	2.74	..
Moderate	2.60	2.43	2.34	..
Weak	2.53	2.05	2.16	2.13
Great Britain				
Catholics				
Strong	3.04*	3.13*	2.37*	3.01*
Moderate	2.74*	2.68	2.20	..
Weak	..	2.54	2.02*	..
Protestants				
Strong	..	2.28	2.47	2.62
Moderate	2.54	2.26	2.13	2.22
Weak	2.21	2.26	2.22	2.17
Italy				
Strong	2.80	2.33	2.34	..
Moderate	2.44	2.21	2.10	..
Weak	2.39	1.99	1.85	..
Norway				
Strong	..	2.48	2.81	..
Moderate	2.88	2.53	2.47	2.52
Weak	2.79	2.47	2.30	2.21
USA				
Catholics				
Strong	..	3.70*	3.12	2.96
Moderate	3.73*	2.86*	2.95	2.46
Weak	3.50	2.91	2.70	2.45
Protestants				
Strong	3.05	2.95	2.58	2.42
Moderate	3.66	3.03	2.46	2.48
Weak	3.05	2.73	2.41	2.25

See NOTE to table 1.

Table 10 Ultimate expected number of children, by socio-occupational status and by education of husband: average per eligible woman (standardized by duration of marriage)

Socio-occupational status of husband	Husband's level of education				
	Elementary not completed	Elementary completed	Lower secondary	Higher secondary	Post-secondary
Belgium					
Agricultural	——— 2.29	———	3.00	..	..
Non-agricultural	——— 2.10	———	2.03	2.24	2.48
Non-manual	——— 2.27	———	2.14	2.13	..
Manual					
Finland					
Agricultural	2.16*	2.75	2.61	2.63	2.65*
Non-agricultural	..	2.37	2.37	2.31	2.51
Non-manual	..	2.47	2.45	2.30	..
Manual	..	2.62*	..	..	..
France					
Agricultural	2.43*	2.37	2.60*	..	..
Non-agricultural	2.70	2.26	2.36	2.19	2.45
Non-manual	2.91	2.73	2.56	2.77	..
Manual					
Great Britain					
Agricultural	..	2.01*	2.45*	2.19*	..
Non-agriculatural	..	2.25	2.26	2.16	2.36
Non-manual	..	2.49	2.35	2.39	..
Manual	..	..	..	..	..
Hungary					
Agricultural	2.83	2.32	2.14	2.21	2.04*
Non-agricultural	..	..	1.95	1.89	1.94
Non-manual	3.26	2.30	2.06	1.90	1.77*
Manual					
Italy					
Agricultural	3.39	2.63	2.44*	..	..
Non-agriculatural	3.18*	2.57	2.36	2.13	2.08
Non-manual	3.14	2.43	2.12	2.18	..
Manual					
Norway					
Agricultural	——— 2.89*	———	2.64	2.88	..
Non-agricultural	——— 2.13*	———	2.48	2.38	2.48
Non-manual	——— 2.51	———	2.62	2.56	..
Manual					
Poland					
Agricultural	3.14	3.09	2.80	2.48	2.10
Non-agricultural	..	2.74*	2.81	2.10	1.96
Non-manual	2.96	2.69	2.41	2.26	2.15*
Manual					
Spain					
Agricultural	3.25	2.64	( )	( )	..
Non-agricultural	2.81	2.59	2.85	2.74	3.16
Non-manual	3.06	2.75	2.65	2.54	..
Manual					
USA					
Agricultural	4.47*	3.97*	3.59*	2.91*	2.60*
Non-agricultural	3.99*	2.81	2.54	2.54	2.48
Non-manual	3.74	2.88	2.79	2.62	2.54
Manual					

See NOTE to table 1.

3.3 LIVING STANDARDS

The next stage of the analysis examines a few variables which are related to the living standards of the family. These include three types of income (combined family income from all sources, husband's and wife's income from employment and the number of rooms in the household). All income classifications refer to distributions of respondents arranged by quintiles, so that in principle the 'very low' income group encompasses the lowest 20 per cent of respondents, and that of 'very high' incomes the top 20 per cent. These groupings are of some inter-country comparative interest, but the reader will bear in mind that they are only approximative, since countries normally provided information on income groups rather than on exact income, and also that they refer to urban residents only (except for Bulgaria and the USA).

The basic summary table 11 provides the basic data in one-way classifications. Total family income appears to be negatively correlated with fertility in Bulgaria, France, Poland and USA. In Belgium, Denmark and Norway, fertility declines somewhat for higher income but the trend changes for the top incomes, for which fertility tends to increase. No systematic association is noticeable for Hungary and Czechoslovakia.

When husbands' and wives' incomes from employment are examined in isolation for the few countries for which data are available, no consistent results emerge. Husbands' incomes are positively correlated with fertility in Belgium and Finland, but negatively in France and the USA. Wife's income has a negative influence on her fertility in Poland, Norway, USA and Denmark, the range between the lowest and the highest incomes amounting to around half a child.

The last panel of table 11 shows that, outside eastern Europe, the average number of children goes up with the size of the dwelling, and the cause and effect of this association is rather obvious in terms of supply and demand. In Hungary and Poland, however, the association appears more complex and requires the introduction of other variables, particularly that of income. Dwelling size and income are cross-tabulated in table 12. It can now be seen that, outside eastern Europe, fertility is strongly correlated with size of dwellings for each income level. This is also largely true in Czechoslovakia, Hungary and Poland, but the association is less systematic and weaker there than in most other countries.

Fertility tends to decline for higher incomes when wife's education is held constant (table 13), but the pattern is not systematic and conclusions are difficult to draw because averages in the marginal cells are subject to wide standard errors.

3.4 WIFE'S EMPLOYMENT

The questionnaires of the countries covered by the comparative study contain a variety of questions pertaining to the employment characteristics of the respondents. For

Table 11 Urban residents: ultimate expected number of children, by total family income, husband's income, wife's income and number of rooms in the dwelling: average per eligible woman (standardized by duration of marriage)

Background variable	B	BG	CS	DK	SF	F	H	I	N	PL	USA
Total family income											
Very low	2.39	2.22	2.51	2.46	2.47	3.08	2.02	2.62*	2.73	2.58	3.10
Low	2.28	2.03	2.29	2.46	2.34	2.56	2.07	2.51	2.55	2.34	2.71
Medium	2.27	1.93	2.29	2.32	2.23	2.47	1.89	2.23	2.45	2.25	2.64
High	2.06	1.81	2.38	2.12	2.25	2.14	1.96	2.31	2.14	2.21	2.48
Very high	2.24	1.80	2.21	2.19	2.32	2.13	1.79	2.27	2.26	2.07	2.36
Husband's monthly income											
Very low	2.07	..	..	2.51	2.25	2.82	..	..	2.47	2.35	2.86
Low	2.13	..	..	2.22	2.27	2.57	..	..	2.35	2.36	2.78
Medium	2.18	..	..	2.34	2.34	2.44	..	..	2.38	2.09	2.54
High	2.31	..	..	2.19	2.29	2.38	..	..	2.32	2.26	2.57
Very high	2.40	..	..	2.29	2.41	2.35	..	..	2.37	2.15	2.49
Wife's monthly income											
Very low	2.09	..	..	2.44	2.37	2.40	..	..	2.51	2.46	2.60
Low	1.74	..	..	2.21	2.26	2.20	..	..	2.52	2.21	2.67
Medium	1.77	..	..	2.39	2.20	2.24	..	..	2.25	2.21	2.39
High	1.70	..	..	2.08	2.18	2.17	..	..	2.18	2.05	2.25
Very high	2.09	..	..	1.97	2.27	2.04	..	..	1.90	1.96	2.19
Number of rooms in dwelling											
No room	..	..	2.05	..	..	..	2.35	..	..	2.23	..
1 room	..	1.90	..	..	..	..	1.89	3.39*	..	2.18	..
2 rooms	..	1.98	2.19	1.77	2.06	1.90	1.90	2.53	2.00	2.27	..
3 rooms	..	1.86	2.25	2.12	2.17	2.15	2.08	2.36	2.08	2.18	..
4 rooms	..	1.83	2.33	2.28	2.29	2.43	..	2.28	2.36	2.32	..
5 or more rooms	..	1.93	2.49	2.53	2.61	2.80	( )	2.25	2.50	2.52	..

See NOTE to table 1.

Table 12 Urban residents: ultimate expected number of children, by total family income and by number of rooms in the dwelling: average per eligible woman (standardized by duration of marriage)

Total family income	Number of rooms in dwelling				
	1 room	2 rooms	3 rooms	4 rooms	5 or more rooms
Czechoslovakia					
Very low	. .	2.56	2.50	2.53	2.48*
Low	. .	2.17*	2.21	2.31	2.63*
Medium	. .	2.10*	2.22	2.28	2.60*
High	. .	2.26*	2.27	2.41	2.61*
Very high	. .	2.06*	2.17	2.26	2.27
Denmark					
Very low	. .	. .	2.22	2.48	2.87
Low	. .	1.76*	2.16	2.49	2.67
Medium	. .	1.61*	2.05	2.26	2.57
High	. .	. .	2.04	1.98	2.41
Very high	. .	. .	1.92*	1.99	2.32
Finland					
Very low	. .	2.17	2.21	2.54	2.73
Low	. .	2.27	2.21	2.44	2.40
Medium	. .	1.79	2.01	2.28	2.70
High	. .	2.01	2.01	2.17	2.55
Very high	. .	1.94*	2.11	2.18	2.57
France					
Very low	. .	2.41*	2.61	3.02	3.97
Low	. .	1.80*	2.29	2.65	2.84
Medium	. .	2.07*	1.95	2.39	2.70
High	. .	1.78*	1.92	2.16	2.50
Very high	. .	. .	1.83	2.12	2.29
Hungary					
Very low	1.89	2.08	2.17*	( )	. .
Low	2.09	2.03	2.34	( )	. .
Medium	1.78	1.87	2.02	( )	. .
High	1.94	1.85	2.20	( )	. .
Very high	1.62*	1.70	1.92	( )	( )
Italy					
Very low	. .	. .	. .	( )	. .
Low	. .	2.87	2.61	2.39	2.44
Medium	. .	2.61	2.28	2.21	2.14
High	. .	2.16*	2.18	2.45	2.22
Very high	. .	. .	2.14*	2.18	2.24
Norway					
Very low	. .	. .	. .	. .	2.87*
Low	. .	. .	2.11	2.68	2.64*
Medium	. .	. .	2.33	2.45	2.63
High	. .	. .	1.70	2.07	2.29
Very high	. .	. .	1.94*	2.03	2.36
Poland					
Very low	2.37	2.68	2.49	2.76	. .
Low	2.23	2.31	2.31	2.48	2.54*
Medium	2.35	2.20	2.17	2.46	2.52*
High	2.01	2.22	2.19	2.20	2.60
Very high	1.94	1.97	1.97	2.13	2.40

See NOTE to table 1.

Table 13 Urban residents: ultimate expected number of children by wife's education and by family income: average per eligible woman (standardized by duration of marriage)

Wife's education	Total family income				
	Very low	Low	Medium	High	Very high
Belgium					
Elementary or less	2.34	2.17	2.20	1.97	1.76
Lower secondary	2.41	2.40	2.24	2.13	2.21
Higher secondary	2.30*	2.22	2.36	2.02	2.25
Post-secondary	..	..	..	..	2.47
Czechoslovakia					
Elementary or less	2.88	2.64	..	3.02	..
Lower secondary	2.55	2.28	2.21	2.34	2.55
Higher secondary	2.39	2.20	2.24	2.24*	2.16
Post-secondary	..	..	2.22*	2.24	1.97
Denmark					
Elementary or less	2.53	2.54	2.39	2.04	2.22
Lower secondary	2.17	2.41	2.08	2.07	2.07
Higher secondary	..	2.29	2.41	2.10	2.05
Post-secondary	..	..	..	2.41*	2.30
Finland					
Elementary or less	2.44	2.32	2.13	2.19	2.48
Lower secondary	2.46	2.33	2.27	2.16	2.24
Higher secondary	2.25	2.36	2.27	2.29	2.32
Post-secondary	2.34*	..	..	2.14	2.30
France					
Elementary or less	3.15	2.56	2.36	2.09	2.17*
Lower secondary	2.60*	2.81	2.42	1.98	1.93
Higher secondary	..	..	2.55	2.35	2.14
Post-secondary	..	..	..	..	2.09
Hungary					
Elementary or less	..	..	..	..	..
Lower secondary	..	..	..	..	..
Higher secondary	..	..	..	..	..
Post-secondary	..	..	..	..	..
Italy					
Elementary or less	2.82*	2.69	2.39	2.53	2.41*
Lower secondary	..	2.23	2.05	2.31	2.12*
Higher secondary	..	1.90	2.00	2.07	2.25
Post-secondary	..	..	..	..	..
Norway					
Elementary or less	..	..	..	..	..
Lower secondary	2.73	2.34	2.53	1.87	2.04*
Higher secondary	..	2.51	2.54	2.14	2.17
Post-secondary	..	..	2.37*	..	2.40
Poland					
Elementary or less	2.68	2.48	2.44	2.38	2.36
Lower secondary	2.47	2.11	2.34	2.18	2.19
Higher secondary	2.20	2.24	2.03	2.10	1.95
Post-secondary	..	2.05	2.03	1.89	1.86

Table 13 (*cont*)

Wife's education	Total family income				
	Very low	Low	Medium	High	Very high
USA					
Elementary or less	3.53	3.12	3.34*	3.03*	..
Lower secondary	2.94	2.87	2.80	2.70	2.60
Higher secondary	2.89	2.62	2.63	2.57	2.32
Post-secondary	2.77	2.48	2.37	2.42	2.30

See NOTE to table 1.

Table 14 Ultimate expected number of children, by wife's work history, employment since marriage, current place of work, nature of work: average per eligible woman (standardized by duration of marriage)

Background variable	B	CS	DK	SF	F	GB	H	I	N	PL	E	USA
Wife's work history												
Working, also worked before marriage	2.00	2.35	..	2.37	2.21	2.15	1.93	2.24	2.40	2.48	2.59	2.35
Working, did not work before marriage	2.18	2.40	..	2.71	2.43	2.85	1.99	2.26	2.67	2.48	2.64	2.53
Not working, worked since and before marriage	2.36	2.60	..	2.61	2.66	2.49	2.31	2.25	2.63	2.52	2.75	2.65
Not working, worked since but not before marriage	2.57	..	..	2.67	2.76*	3.07*	2.39	2.35	2.70*	2.63	2.83	2.89
Worked only before marriage	2.57	2.99	..	2.89	2.86	2.66	2.43	2.44	2.88	2.65	3.04	3.02
Never worked	2.48	3.92*	..	2.93	3.18	2.84*	2.81	2.72	..	2.91	2.92	3.19
Index of Employment since marriage												
One-third	..	2.71	..	2.77	..	..	2.33	2.33	2.72	2.63	2.82	..
One to two thirds	..	2.54	..	2.46	..	..	2.15	2.24	2.41	2.42	2.68	..
More than two thirds	..	2.24	..	2.31	..	..	1.86	2.30	2.17	2.49	2.56	..
Current place of work												
At home	2.30	..	2.53	2.77	..	..	..	2.30	..	..	2.44	..
Away from home	1.92	..	2.27	2.34	..	..	..	2.23	..	..	2.66	..
Nature of work												
Part time	2.20	..	2.41	2.53	..	2.29	..	2.38	2.66	..	2.68	2.64
Full time	1.92	..	2.25	2.40	..	2.02	..	2.18	2.32	..	2.60	2.39

See NOTE to table 1.

the present paper the following few variables have been retained.

(i) Wife's work history was retained, full classification of which covers six categories, ranging from women working at the time of the interview who also worked before marriage to those who had never worked; for more complex cross-tabulations these categories have been reduced to three, distinguishing between women who were currently working or not working, the latter being further subdivided into those who had done some work while married, and those who had either never worked or had worked only before marriage.

(ii) Information on the duration of employment since marriage (available for seven countries) was related to the duration of marriage. The resulting ratios were classifed into three groups, employment occupying less than one-third of marriage duration, one to two-thirds, and more than two-thirds. The variable is referred to as the 'index of employment since marriage'.

(iii) Five countries provided information on the place of work (at home or away from home).

(iv) Eight countries made a distinction between women currently working full time and those working part time.

The introductory table 14 shows the average expected number of children for these explanatory variables.

It can immediately be seen that fertility is strongly associated with the employment profile of the respon-

Table 15 Ultimate expected number of children, by wife's work history and by current residence: average per eligible woman (standardized by duration of marriage)

Wife's work history	Belgium		Czechoslovakia		Finland		France		Hungary	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Currently working	2.21	1.99	2.58	2.27	2.64	2.27	2.34	2.18	2.05	1.86
Worked since marriage but not currently	2.40	2.38	2.73	2.55	2.87	2.46	2.71	2.65	2.41	2.14
Worked before marriage or never worked	2.65	2.47	3.16*	3.17	3.13	2.69	3.19	2.94	2.63	2.30
Wife's work history	Italy		Norway		Poland		Romania		Spain	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Currently working	2.32	2.06	2.56	2.28	2.94	2.18	2.28	2.11	2.56	2.63
Worked since marriage but not currently	2.27	2.26	2.70	2.58	2.91	2.41	2.38	2.41	2.73	2.76
Worked before marriage or never worked	2.68	2.57	2.87	2.75	3.23	2.53			3.12	2.92

See NOTE to table 1.

dents. Women currently working have fewer children than those who were not working at the time of the interview, and the average tends to go up gradually depending on respondents' degree of involvement in employment. The gap between the extreme groups varies from about one half of a child in Belgium, Finland, Italy, Norway, Poland and Spain to about one or more than one child in Czechoslovakia, France, Hungary and USA.

Among women who have worked since marriage, the index of employment is inversely correlated with fertility, the differences between the two extremes amounting to about one half of a child in Czechoslovakia, Finland, Hungary and Norway.

Fertility appears also to be affected by the place and nature of work. Women working at home have distinctly higher fertility than those working outside their homes in all countries except Spain, and those working part time have more children than those working full time.

Because of the different nature of women's employment in and outside agriculture, it is of interest to test the strength of association between work history and fertility in urban and rural areas separately, and this is attempted in table 15. For the countries shown in this table, the association under study appears to apply both to rural and to urban residents, but the differences do not seem to be significant, except perhaps in Czechoslovakia and, to a lesser extent, Italy, where the gap is wider in towns than in villages. It will be noticed that rural fertility is always above that recorded in urban areas for each work history status, and that in most countries the average total number of expected children falls below replacement level among currently working women resident in towns.

Is work history more important than education as a determinant of fertility? Some light is thrown on this question by the data presented in table 16, the answer being that these inter-relations appear to be different in different countries. Almost without exception, there is an association between fertility and work history for each educational category, but the impact of work history is much stronger in the lower than in the higher educational categories.

In several countries there is also a strong negative association between fertility and education for each of the three work history categories. This is true of Czechoslovakia, Hungary, Poland and USA. In Poland, it is clear that the impact of education is stronger than that of work history. Resort to multivariate analysis is called for, if other relevant factors are to be introduced, such as urban/rural residence (see appendix A).

Table 16 Ultimate expected number of children, by wife's work history and education: average per eligible woman (standardized by duration of marriage)

Wife's work history	Wife's level of education			
	Elementary or less	Lower secondary	Higher secondary	Post-secondary
Belgium				
Currently working	1.89	2.06	2.04	2.06
Worked since marriage but not currently	2.30	2.39	2.36	2.71
Worked before marriage or never worked	2.47	2.61	2.33	. .
Czechoslovakia				
Currently working	2.62	2.44	2.23	2.13
Worked since marriage but not currently	2.94	2.58	2.59	2.22*
Worked before marriage or never worked	3.61*	3.12*	. .	. .
Finland				
Currently working	2.42	2.38	2.35	2.28
Worked since marriage but not currently	2.60	2.49	2.73	2.37
Worked before marriage or never worked	2.96	3.17	2.50	. .
France				
Currently working	2.23	2.15	2.20	2.26
Worked since marriage but not currently	2.74	2.53	2.61	. .
Worked before marriage or never worked	3.19	3.13	2.73	. .
Great Britain				
Currently working	2.53	2.16	2.07	2.15
Worked since marriage but not currently	2.48	2.54	2.40	2.50
Worked before marriage or never worked	3.17*	2.73	2.61	2.61*
Hungary				
Currently working	2.57	1.94	1.87	1.87
Worked since marriage but not currently	2.72	2.24	2.03	. .
Worked before marriage or never worked	3.32	2.22	2.21*	. .
Italy				
Currently working	2.35	2.18	2.02	. .
Worked since marriage but not currently	2.31	1.95	2.27	. .
Worked before marriage or never worked	2.78	2.29	2.16	. .
Norway				
Currently working	2.53	2.40	2.33	2.30
Worked since marriage but not currently	3.08*	2.57	2.72	2.49
Worked before marriage or never worked	3.07*	2.77	2.76	. .
Poland				
Currently working	2.80	2.38	2.15	2.00
Worked since marriage but not currently	2.69	2.44	2.23	. .
Worked before marriage or never worked	2.96	2.46	2.31	. .
Spain				
Currently working	2.62	2.59	2.47	2.41*
Worked since marriage but not currently	2.75	2.68	3.06*	. .
Worked before marriage or never worked	2.98	2.88	2.84	3.61*
USA				
Currently working	2.76	2.58	2.42	2.23
Worked since marriage but not currently	3.38	2.90	2.68	2.50
Worked before marriage or never worked	3.69	3.33	2.86	2.71

See NOTE to table 1.

4 Trends

4.1 CHANGES IN FERTILITY LEVELS OVER TIME

One way of obtaining a picture of fertility trends is to compare the ultimate fertility of respondents married during different periods preceding the date of the interview. As already mentioned in the introduction, the ultimate expected number of children as defined in the present study only approximates the concept of ultimate family size. Moreover, the concept is subject to a bias for the purpose of comparisons over time, because the expected part of the total increases for the more recently married couples, and that due to achieved fertility declines. The ultimate expected number of children for the more recently married couples is thus probably closer to their actual (and better controlled) wishes than that of the earlier marriage cohorts, whose total is likely to include a higher proportion of unwanted children. It follows that the completed fertility of the recently married respondents, when measured against the ultimate expected number of children, might be somewhat understated in relation to that of the earlier cohorts. This bias is aggravated by the absence from the samples of respondents whose marriages lasted more than 20 years and who married after the age of 25, leading to some overstatement of fertility of pre-1955 cohorts.

Table 17 shows averages by marriage cohorts, starting with respondents married before 1951 and finishing with those married in 1976 or later. The surveys were taken in different years and the extreme cohorts are rarely adequately covered at both ends of the distribution.

Subject to these qualifications, the general directions of the trends are unmistakable. Ultimate expected fertility appears to have declined systematically everywhere, except in Romania,[10] at least among women married before 1971. Since then it has stabilized or even increased slightly in several countries (Belgium, Finland, Great Britain, Hungary, Norway). There were considerable differences in the steepness of this decline between countries. Among women married between 1951 and 1971, the average number of expected children went down by about one half of a child in most countries, and by more than one child in Spain and the USA. The drops were much more spectacular in the countries having statistically significant data for all the cohorts shown, ie for those married before 1951 and after 1976.

At least two further observations should be made. First, it will be seen that in most countries covered by the table (Belgium, Bulgaria, Great Britain, Hungary, Italy, Poland, Romania, Spain and USA), the averages are definitely indicative of replacement levels falling below one. Secondly, it is known that period birth rates increased in the early and mid-1970s in several east European countries, and it was thought by many that this was a reflection of a genuine up-turn in long-term trends in fertility.[11] The survey data do not confirm this at all. In Bulgaria, Czechoslovakia and Poland, ultimate family size appears to have continued its decline in the 1970s, whereas the Hungarian figures show little change over the period starting in the mid-1950s.

The observed decline in marital fertility in the 1960s and 1970s was entirely due to the virtual disappearance of families with four or more children. Relative distributions of respondents by the number of expected children in five marriage cohorts are shown in table 18. The earliest cohorts had, in most countries, some 20–40 per cent of couples with four or more children. This percentage declined dramatically over time, and among the latest cohorts it oscillates between 5 and 10 per cent.

Another feature of these distributions is an increasing

[10] Long-term fertility trends in Romania were strongly influenced by changes in abortion laws introduced in the late 1960s, which caused a dramatic rise in current birth rates and must have also affected the ultimate family size of several cohorts. It is, nevertheless, worth noting that couples married after 1973 expect to have one of the lowest fertility levels in Europe.

[11] See Berent, J., (1980). Fertility Trends and Policies in Eastern Europe in the 1970s, in A.A. Campbell, Ed. *Social, Economic and Health Aspects of Low Fertility*, Bethesda, MD National Institutes of Health, pp 31–46.

Table 17 Ultimate expected number of children, by marriage cohort: average per eligible woman

Marriage cohort	B	BG	CS	SF	F	GB	H	I	NL	N	PL	R[a]	E	USA
Before 1951	2.47*	2.38	( )	( )	( )	4.29*	. .	( )	. .	( )	4.05*	2.14	4.63*	4.64
1951–1955	2.66		2.55	3.24	3.07	2.85	2.43*	3.11	. .	3.17	3.28	2.18	4.01	3.51
1956–1960	2.45	2.18	2.44	2.63	2.77	2.60	2.08	2.84	. .	2.85	2.81	2.33	3.31	3.10
1961–1965	2.22	2.13	2.39	2.35	2.67	2.34	2.06	2.56	2.35	2.67	2.65	2.37	3.03	2.61
1966–1970	2.06	2.07	2.38	2.33	2.44	2.12	2.08	2.40	2.17	2.29	2.42	2.23	2.74	2.23
1971–1975	2.10	1.92	2.36	2.36	2.30	2.03	2.09	2.16	2.19	2.24	2.23	2.05	2.33	2.18
1976 or later	( )		2.32	2.43	2.27	2.09*	2.08	2.11	. .	2.51	2.15		1.94*	2.00

See NOTE to table 1.
[a]The cohorts refer, in turn, to women married before 1953, between 1958 and 1962, 1963 and 1967, 1968 and 1972, and in 1973 or later.

Table 18 Distribution of respondents by ultimate expected number of children, by marriage cohort

Marriage cohort	Number of expected children (maximum)					
	Total	0	1	2	3	4+
Belgium						
Before 1956	100	6	23	29	18	25
1956–1960	100	5	21	30	22	21
1961–1965	100	5	22	37	22	14
1966–1970	100	5	18	48	23	6
1971 or later	100	2	15	57	21	6
Bulgaria						
Before 1956	100	12	14	50	11	12
1956–1960	100	12	13	53	13	9
1961–1965	100	8	13	59	15	6
1966–1970	100	8	17	61	11	3
1971 or later	100	17	44	34	4	1
Czechoslovakia						
Before 1956	100	0	11	48	26	15
1956–1960	100	1	13	48	24	14
1961–1965	100	1	12	52	26	10
1966–1970	100	0	6	59	28	7
1971 or later	100	0	4	62	29	5
Finland						
Before 1956	100	2	9	27	26	35
1956–1960	100	3	12	36	28	21
1961–1965	100	3	14	43	27	13
1966–1970	100	4	11	47	28	11
1971 or later	100	2	7	50	33	9
France						
Before 1956	100	3	18	24	21	35
1956–1960	100	3	16	33	24	25
1961–1965	100	4	13	33	29	21
1966–1970	100	2	11	44	30	12
1971 or later	100	2	12	49	29	8
Great Britain						
Before 1956	100	5	12	31	20	32
1956–1960	100	4	12	38	25	21
1961–1965	100	4	12	46	26	11
1966–1970	100	4	13	57	20	6
1971 or later	100	5	11	64	16	4
Hungary						
Before 1956	100*	..	17*	46*	23*	14*
1956–1960	100	1	25	51	16	7
1961–1965	100	2	20	57	15	5
1966–1970	100	2	14	64	15	4
1971 or later	100	1	8	75	15	2
Netherlands						
1961–1965	100	4	9	49	27	11
1966–1970	100	4	8	62	21	5
1971 or later	100	4	7	63	20	6

Table 18 (*cont*)

Marriage cohort	Number of expected children (maximum)					
	Total	0	1	2	3	4+
Norway						
Before 1956	100	2	7	23	33	36
1956–1960	100	3	9	31	30	28
1961–1965	100	3	6	38	33	20
1966–1970	100	4	8	51	29	8
1971 or later	100	4	7	53	29	7
Poland						
Before 1956	100	1	7	33	22	36
1956–1960	100	2	10	37	27	23
1961–1965	100	1	12	41	28	19
1966–1970	100	1	10	51	27	11
1971 or later	100	0	10	63	23	3
Spain						
Before 1956	100	0	6	21	21	52
1956–1960	100	2	6	27	27	37
1961–1965	100	2	7	31	29	31
1966–1970	100	1	5	41	33	20
1971 or later	100	1	7	61	25	7
USA						
Before 1956	100	3	4	22	26	45
1956–1960	100	4	7	26	29	33
1961–1965	100	5	7	39	31	18
1966–1970	100	4	11	53	22	10
1971 or later	100	5	11	53	23	8

See NOTE to table 1.

concentration on one or two-child families. In most countries there were some 40–50 per cent of respondents in these two categories in the earliest cohort, and this percentage rose to some 70–80 per cent for the recent cohorts.

Comparison of data derived from WFS surveys with those from the surveys undertaken around 1970 is another way of getting a glimpse of trends in completed fertility in the early 1970s. As indicated earlier some country data had to be adjusted to make comparisons over time possible. However, certain inter-country comparability problems remain. Thus, the Hungarian data refer to women below the age of 40 rather than 45; the earlier Danish data omit some parts of Copenhagen; and the 1967 figures for England and Wales were based on the 'minimum' variant of expectations, whereas the 1976 data refer to the 'maximum' variant.

Subject to these qualifications, comparisons between the two surveys can be made on the basis of table 19, which shows the relative distributions of respondents by the ultimate expected number of children, and also such characteristics of these distributions as the standardized and non-standardized averages, the coefficients of variation and the confidence limits at the 5 per cent significance level.

Looking first at averages standardized by marriage duration, one will note that there is only one country (England and Wales) where the average increased over the

Table 19 Ultimate expected number of children around 1970 and 1975: relative distributions, averages, coefficients of variation and confidence limits

Country	Year	Total number of expected children (percentages)						All	Average	Standardized average	Coefficient of variation	1.96 x standard error
		0	1	2	3	4	5+					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Belgium[a]	1966	4	20	33	21	13	8	100	2.50	2.50	58	.07
	1976	4	19	43	21	9	4	100	2.25	2.25	55	.04
Czechoslovakia	1970	1	9	58	23	5	4	100	2.37	2.40	44	.04
	1977	1	8	55	27	6	3	100	2.40	2.40	38	.03
Denmark	1970	3	8	43	31	11	4	100	2.55	2.55	42	.05
	1975	3	9	50	26	8	3	100	2.36	2.39	43	.04
England and Wales	1967[b]	8	19	41	18	8	5	100	2.21	2.16	62	.04
	1976	4	12	51	21	9	4	100	2.31	2.31	49	.04
Finland	1971	3	10	47	23	10	5	100	2.55	2.58	51	.01
	1977	3	10	45	28	10	4	100	2.46	2.49	46	.03
France	1972	3	14	40	25	11	7	100	2.55	2.54	54	.06
	1978	3	13	41	28	8	7	100	2.54	2.53	51	.05
Hungary[c]	1966	2	20	53	16	5	3	100	2.14	2.12	50	.03
	1977	2	15	64	15	3	1	100	2.08	2.08	41	.03
Poland	1972	1	9	43	27	11	8	100	2.71	2.65	66	.03
	1977	1	10	50	26	8	5	100	2.50	2.53	44	.02
USA	1970	4	7	35	26	16	13	100	2.95	2.95	54	.04
	1976	4	10	43	25	10	8	100	2.60	2.62	55	.04

[a]Dutch-speaking population only.
[b]The 'minimum' variant.
[c]Women below the age of 40.

period indicated. In all other countries there was decline or stability. In most countries the decline was rather small and not always significant at the five per cent level. Statistically significant declines took place in Belgium, Denmark, Finland, Poland and USA. For the countries for which comparisons can be made, these trends are not inconsistent with the results of analysis based on comparisons of ultimate expected family size of several marriage cohorts as shown earlier. Once again no increase in ultimate fertility is indicated for Czechoslovakia, Hungary and Poland, where current fertility rates went up in the early and mid-1970s.

Table 19 also shows, as did table 18, a diminution over time in the proportion of respondents having four or more children. There has also been a gradual increase of respondents with one or two-child families. At the same time the spread of the respondents tended generally to narrow (as shown by the coefficients of variation in col. 12), except in Denmark and the USA where there was no change between the two points in time.

4.2 CHANGES IN FERTILITY DIFFERENTIALS OVER TIME

Study of trends by reference to the fertility performance (past and expected) of successive marriage cohorts can also be applied, numbers of respondents permitting, to changes over time in demographic and socio-economic differentials. In this paper, attention is drawn to only a few explanatory variables, such as current residence, wife's education, religion and work history.

Table 20 shows that ultimate family size has generally been declining in both rural and urban areas of residence, but the decline was considerably faster in the former than in the latter. Consequently, the fertility differential between villages and towns has become very small for couples married after 1970 in all the countries covered, except Poland where it still approaches one half of a child.

Somewhat similar patterns of development appear to hold for the differentiating impact of wife's education, as shown in table 21. Generally, fertility tends to decline over time for each educational category, but the downward trend appears to affect the lower more than the higher educational echelons, leading to a narrowing of the educational differential. There are quite a number of exceptions to this, but the absence of a systematic pattern is often due to the small numbers of respondents in the relevant cells of the tables, so that the averages are subject to wide sampling fluctuations. The observed trend over time has resulted in the very low fertility recorded in many countries for recently married women with higher secondary

Table 20 Ultimate expected number of children, by current residence and by marriage cohort: average per eligible woman

Current Residence	Marriage cohort				
	Before 1956	1956–1960	1961–1965	1966–1970	1971 or later
Belgium					
Rural	2.91*	2.59	2.22	2.16	2.21
Urban	2.62	2.42	2.22	2.04	2.08
Bulgaria					
Rural	2.71	2.44	2.34	2.27	2.04
Urban	2.17	1.98	2.00	1.95	1.85
Czechoslovakia					
Rural	2.80	2.61	2.71	2.66	2.53
Urban	2.45	2.37	2.27	2.30	2.29
Finland					
Rural	3.67	2.90	2.64	2.51	2.53
Urban	2.88	2.44	2.16	2.23	2.30
France					
Rural	3.57*	2.99	2.84	2.52	2.37
Urban	2.91	2.67	2.59	2.40	2.28
Hungary					
Rural	2.50*	2.27	2.33	2.23	2.14
Urban	2.33	1.82	1.83	1.97	2.02
Italy					
Rural	3.26*	2.87	2.58	2.44	2.19
Urban	2.87	2.77	2.51	2.32	2.05
Netherlands					
Rural	..	..	2.53	2.27	2.35
Urban	..	..	2.29	2.14	2.15
Norway					
Rural	3.31	3.00	2.80	2.39	2.41
Urban	2.95*	2.69	2.48	2.18	2.21
Poland					
Rural	3.99	3.40	3.21	2.88	2.45
Urban	2.78	2.44	2.29	2.16	2.05
Romania[a]					
Rural	2.26	2.46	2.46	2.30	2.08
Urban	2.08	2.19	2.28	2.15	2.04
Spain					
Rural	4.46*	3.34	3.12	2.72	2.40
Urban	3.89	3.29	3.00	2.76	2.30

See NOTE to table 1.

[a]The cohorts refer, in turn, to women married before 1958, between 1958 and 1962, 1963 and 1967, 1968 and 1972, and in 1973 or later.

Table 21 Ultimate expected number of children, by education of wife and by marriage cohort: average per eligible woman

Wife's education	Marriage cohort				
	Before 1955	1956–1960	1961–1965	1966–1970	1971 or later
Belgium					
Elementary completed or less	2.62	2.41	2.16	2.00	1.93
Lower secondary	3.01	2.51	2.13	2.08	2.03
Higher secondary	2.01*	2.35	2.38	2.03	2.27
Post-secondary	( )	2.69*	2.56	2.30	2.45
Czechoslovakia					
Elementary not completed	( )	( )	( )	( )	( )
Elementary completed	2.85	2.75	2.61	2.47*	2.86*
Lower secondary	2.67	2.54	2.35	2.61	2.36
Higher secondary	2.13	2.12	2.27	2.31	2.33
Post-secondary	2.36*	2.04*	2.03	2.12	2.23
Finland					
Elementary not completed	( )	( )	( )	. .	( )
Elementary completed	3.34	2.76	2.50	2.27	2.32
Lower secondary	2.94	2.57	2.27	2.43	2.33
Higher secondary	3.10*	2.43	2.15	2.31	2.42
Post-secondary	( )	2.22*	2.34	2.33	2.41
France					
Elementary not completed	3.78*	3.67	3.30	2.80	2.51
Elementary completed	2.93	2.64	2.63	2.36	2.28
Lower secondary	2.38*	2.50*	2.59	2.57	2.12
Higher secondary	2.81*	2.28*	2.42	2.30	2.33
Post-secondary	( )	2.19*	2.16*	2.36	2.34
Great Britain					
Elementary not completed	( )	( )	( )	( )	. .
Elementary completed	3.13	2.64	2.68*	2.45*	2.17*
Lower secondary	2.87	2.64	2.37	2.10	2.04
Higher secondary	2.65	2.53	2.22	2.07	2.01
Post-secondary	3.00*	2.51	2.27	2.20	2.01
Hungary					
Elementary not completed	( )	4.15*	3.44*	3.90*	2.65*
Elementary completed	( )	2.38	2.46	2.82*	2.52*
Lower secondary	2.33*	1.92	2.06	2.10	2.07
Higher secondary	( )	1.67	1.81	1.90	2.06
Post-secondary	. .	1.92*	1.70*	1.99	2.06
Italy					
Elementary not completed	3.23*	3.81	3.44	3.18	2.80
Elementary completed	3.03*	2.63	2.52	2.41	2.27
Lower secondary	( )	2.14	2.30	2.12	2.11
Higher secondary	( )	2.35*	2.18	2.17	1.94
Post-secondary	. .	( )	2.26*	2.36*	2.05
Netherlands					
Elementary completed or less	. .	. .	2.42	2.13	2.16
Lower secondary	. .	. .	2.35	2.19	2.19
Higher secondary	. .	. .	2.34	2.18	2.20
Post-secondary	. .	. .	2.09*	2.11	2.22

Table 21 (*cont*)

Wife's education	Marriage cohort				
	Before 1955	1956–1960	1961–1965	1966–1970	1971 or later
Norway					
Elementary completed or less	3.54*	3.17	2.94	2.16*	2.82*
Lower secondary	3.04	2.78	2.70	2.35	2.26
Higher secondary	2.68*	2.69	2.62	2.23	2.32
Post-secondary	( )	2.88*	2.36*	2.34	2.29
Poland					
Elementary not completed	4.45	3.90	3.25	2.80	2.40*
Elementary completed	3.37	3.11	2.97	2.71	2.41
Lower secondary	2.84	2.46	2.49	2.37	2.22
Higher secondary	2.44	2.21	2.12	2.15	2.09
Post-secondary	1.95*	2.03	2.06	2.04	1.97
Romania[a]					
Elementary not completed	2.38*	2.70*	2.36*	( )	2.13
Elementary completed	2.22	2.40	2.50	2.39	2.05
Lower secondary	2.14	2.28	2.15	2.07	2.03
Higher secondary	1.87	2.04	2.11	2.04	1.98
Post-secondary	2.09	1.95	2.01	1.99	1.93
Spain					
Elementary not completed	4.32	3.54	3.20	3.03	2.43
Elementary completed	3.72	3.06	2.85	2.61	2.28
Lower secondary	4.16*	2.93	3.11	2.70	2.19
Higher secondary	( )	3.33*	3.02	2.43	2.45
Post-secondary	..	4.32*	2.94*	2.53*	2.40
USA					
Elementary not completed	4.66*	4.55*	4.55*	4.12*	3.03*
Elementary completed	4.49	3.82	2.98	2.78	2.43
Lower secondary	3.97	3.44	2.78	2.51	2.36
Higher secondary	3.47	3.08	2.62	2.22	2.22
Post-secondary	3.35	2.70	2.38	2.08	1.99

See NOTE to table 1.
[a]See footnote a to table 20.

and post-secondary education. For such respondents the ultimate expected family size is not more than around 2.00 in such countries as Great Britain, Hungary, Italy, Poland, Romania and USA.

There were only six countries, all outside eastern Europe, for which the association between fertility and intensity of religious feeling could be tested over time. For two of these countries, Great Britain and the USA, it was also possible to distinguish between Catholics and Protestants, and to draw statistically significant conclusions. Even so, and in spite of inter-country differences in measures of intensity of religious feeling, the results shown in table 22 are of considerable interest.

It will be seen, first, that fertility tended to decline over time quite systematically for each group of believers. As was the case for other differentials, the decline was generally faster, at least in absolute terms, for those categories of respondents who earlier had the highest fertility, ie women with strong religious feelings. The only notable exception seems to be that of Norway. Among those married in the 1970s and professing indifference to religion, the average ultimate number of children is not expected to exceed 2 in Belgium, Great Britain, Italy and some 2.1–2.2 in other countries, and in most countries religious feelings appear to be much less important as a determinant of fertility for recent marriages than for those concluded in the early 1960s or before.

Comparisons between Catholics and Protestants in Great Britain and the USA are also of interest. In both countries, fertility of Catholics went down from around 4 children per woman for the before-1956 cohorts to as little as 2.2–2.3 for the 1970 cohorts. This can be adduced from the changing attitudes of Catholics to family planning, although the fertility decline among Protestants was also significant. Among the latter, however, the impact of religious feelings was much weaker than among the Catholics, particularly in the USA.

Finally, the rather strong association found between wife's work history and her ultimate family size makes it worth while examining it further for successive cohorts, and

Table 22 Ultimate expected number of children, by wife's intensity of religious feeling and by marriage cohort: average per eligible woman

Intensity of religious feeling	Marriage cohort				
	Before 1956	1956–1960	1961–1965	1966–1970	1971 or later
Belgium					
Strong	2.89	2.66	2.46	2.22	2.36
Moderate	2.74	2.42	2.08	2.06	2.03
Weak	2.39	2.10	1.99	1.96	1.95
France					
Strong	3.46*	3.12	3.16	2.86	2.65
Moderate	3.17	2.82	2.64	2.43	2.26
Weak	2.91*	2.41	2.38	2.27	2.25
Great Britain					
Catholics	3.72*	3.13	2.65	2.36	2.25
Strong	4.13*	2.91*	2.91*	3.00*	2.25*
Moderate	3.58*	3.18*	2.68*	2.37	2.31
Weak	( )	3.27*	1.90*	2.00*	2.13*
Protestants	2.83	2.51	2.28	2.07	1.99
Strong	2.93*	2.73	2.32	2.43	2.15
Moderate	2.80	2.41	2.27	2.07	1.98
Weak	2.84	2.59	2.29	2.00	1.98
Italy					
Strong	3.18*	3.34	2.88	2.66	2.30
Moderate	2.93*	2.66	2.46	2.32	2.13
Weak	( )	2.31	2.11	2.10	2.00
Norway					
Strong	( )	2.86*	2.91*	2.58	2.72
Moderate	3.31	2.86	2.68	2.28	2.34
Weak	2.84*	2.82	2.56	2.22	2.16
USA					
Catholics	4.04	3.51	2.76	2.49	2.32
Strong	4.67*	3.86	2.73	2.73	2.40
Moderate	3.96*	3.34*	2.83*	2.53	2.41
Weak	3.64	3.27	2.76	2.39	2.28
Protestants	3.57	2.97	2.61	2.12	2.16
Strong	3.70	2.90	2.63	2.18	2.29
Moderate	3.75	3.09	2.68	2.21	2.11
Weak	3.35	2.98	2.55	2.03	2.12

See NOTE to table 1.

the relevant data are shown in table 23. It must, however, be noted immediately that wife's working status at the time of the interview is hardly relevant for the fertility of the early marriage cohorts. It is more meaningful to explore fertility changes over time for those respondents who never worked or worked only before marriage. This last category appears to have experienced a very rapid fertility decline from one cohort to the next, the total difference between the extreme cohorts being in the region of one to two children per woman in all countries for which the earlier data were available. Another interesting feature of table 23 is the weakness of the association between working status and fertility for marriages contracted in the 1970s. For this cohort, fertility gaps between those currently working and those who never worked or worked only before marriage varies only from 0.1 of a child (in Belgium, Czechoslovakia, Poland) to about 0.3 of a child (in Finland, Hungary, Italy and Norway). These cohorts have ultimate expected family size below the full reproductive level in almost all countries covered.

Table 23 Ultimate expected number of children, by wife's work history and by marriage cohort: average per eligible woman

Wife's work history	Marriage cohort				
	Before 1956	1956–1960	1961–1965	1966–1970	1971 or later
Belgium					
Currently working	2.08	2.16	1.95	1.92	2.09
Worked since marriage but not currently	2.88	2.52	2.38	2.30	2.08
Worked before marriage or never worked	3.11	2.80	2.67	2.18	2.18
Czechoslovakia					
Currently working	2.52	2.38	2.32	2.32	2.33
Worked since marriage but not currently	( )	3.13*	2.78	2.60	2.35
Worked before marriage or never worked	( )	( )	( )	3.13*	2.47
Finland					
Currently working	3.20	2.59	2.28	2.24	2.30
Worked since marriage but not currently	3.06*	2.62	2.69	2.56	2.49
Worked before marriage or never worked	4.14*	3.27*	2.60*	2.57	2.67
France					
Currently working	2.50	2.24	2.26	2.15	2.21
Worked since marriage but not currently	3.08*	3.03	2.85	2.71	2.35
Worked before marriage or never worked	4.17*	3.49	3.22	2.91	2.48
Great Britain					
Currently working	2.72	2.56	2.19	1.84	1.92
Worked since marriage but not currently	3.48	2.68	2.51	2.25	2.12
Worked before marriage or never worked	3.43*	2.67*	2.78*	2.66	2.23
Hungary					
Currently working	2.33*	1.90	1.92	1.91	1.99
Worked since marriage but not currently	( )	2.42	2.46	2.31	2.14
Worked before marriage or never worked	( )	2.78	2.53	2.81	2.31
Italy					
Currently working	2.53*	2.54	2.41	2.24	2.01
Worked since marriage but not currently	( )	2.65	2.36	2.34	2.01
Worked before marriage or never worked	3.99*	3.14	2.75	2.59	2.34
Netherlands					
Currently working	. .	. .	2.02	1.95	2.03
Worked since marriage but not currently	. .	. .	2.32	2.21	2.29
Worked before marriage or never worked	. .	. .	2.63	2.27	2.32
Norway					
Currently working	3.13	2.73	2.57	2.19	2.18
Worked since marriage but not currently	3.25*	3.16	2.77	2.36	2.39
Worked before marriage or never worked	3.55*	3.21*	3.11	2.63	2.46
Poland					
Currently working	3.27	2.76	2.61	2.35	2.18
Worked since marriage but not currently	3.56	2.76	2.59	2.46	2.24
Worked before marriage or never worked	3.38	3.34	3.00	2.81	2.29
Spain					
Currently working	4.06*	2.93	2.82	2.49	2.16
Worked since marriage but not currently	3.19	3.34	3.08	2.70	2.30
Worked before marriage or never worked	4.42	3.48	3.10	2.84	2.40
USA					
Currently working	3.49	2.84	2.30	1.96	2.02
Worked since marriage but not currently	3.36	3.17	2.78	2.35	2.34
Worked before marriage or never worked	5.00	3.72	3.12	2.55	2.28

See NOTE to table 1.

5 Summary and Conclusions

The WFS core questionnaire contains two variables which are appropriate for measuring fertility levels and differentials in developed countries: the number of past live births (or achieved fertility) and the ultimate expected number of children, the latter being the sum of past live births and the number of children expected in the future by the respondents.[12]

The preceding paper in this subseries of *WFS Comparative Studies* was devoted to the analysis of differentials in achieved fertility.[13] The objective of the present paper is to extend the analysis of fertility trends and differentials in Europe and the USA, by reference to the ultimate expected number of children as the dependent variable. The validity of this concept as a measure of ultimate family size has been questioned, but there is no doubt of its usefulness in the study of determinants of fertility and in predicting future trends in general terms.

In spite of considerable improvements introduced at the data processing stage, some inter-country comparability problems have remained. On the whole, the association found between the dependent and the explanatory variables are valid for individual countries and can be compared between countries, but ultimate fertility measures obtained for specific subgroups of the given classification are not always comparable, even if they refer to the same classification breakdown of the explanatory variable. For instance, the meaning of 'urban residence', or of 'post-secondary education' is not always the same for all the countries appearing in a table.

The average ultimately expected number of children varies from 2.13 children per woman in Bulgaria to 2.80 in Spain, but for an overwhelming majority of the countries covered the variation is roughly between 2.30 and 2.60 children. In all countries, 2 children represented the mode of the frequency distribution of respondents by the number of children, and some 80–90 per cent of all respondents expected ultimately one, two or three children.

Wife's age at marriage was shown to be strongly associated with ultimate family size, particularly large differences in fertility appearing between women married below the age of 18 and those married at ages 18 or 19.

Rural residents show somewhat higher fertility than urban residents and this applies also to the type of residence experienced in childhood. When these two variables are cross-tabulated, families who moved from rural to urban communities had a fertility level somewhat below those who remained rural throughout their lives, but higher than those who appear to have always lived in towns.

Among the socio-cultural variables, the impact of wife's education on fertility appears somewhat stronger than that of the husband. A strong negative association between wife's education and fertility was found in eastern Europe, also in France, Italy and USA, but the impact of education tends to diminish or even disappear for higher educational attainment levels.

No clear pattern of association between fertility and social class (denoted by the socio-occupational status of husband) comes to light, although non-manual workers have lower fertility than manual workers, and within the latter group skilled workers tend to have slightly fewer children than less skilled ones.

Intensity of religious feeling plays an important role in determining family size. Unfortunately, information on religion was not collected in the countries of eastern Europe, where it probably also plays an important part. Both in Great Britain and in the USA, Catholics have more children than Protestants, with the strength of religious feeling more important among the former than among the latter.

Total family income appears to be negatively associated with fertility in Bulgaria, France, Poland and USA, but no clear pattern of association emerges for other countries; the latter is also true of husband's and wife's income from employment, treated separately.

Outside eastern Europe, the ultimate expected family size goes up with the size of the dwelling, measured by the number of rooms. This association also holds in eastern Europe when the influence of family income is kept constant.

There is a strong suspicion that the wife's gainful employment has played a decisive role in the post-war decline of fertility in Europe. The data put together in this paper confirm that working women everywhere have fewer children than non-working women, and that the strength of this association varies positively with the length of employment since marriage in relation to marriage duration. It has also been found that employment is somewhat less of an impediment to fertility for women working at home, compared with those working outside the home, and for women working part time compared with those working full time. These are not unexpected discoveries, but it is expected that further analysis will evaluate the impact of these characteristics of wife's employment in relation to other determinants of fertility.

This paper ends with some information on trends over time, both with respect to overall fertility levels and for socio-economic differentials. Trends in levels are shown first by reference to data arranged in marriage cohorts. This technique is subject to some reservations, but a general conclusion is that there are no signs of ultimate family size going up among recently married couples compared

[12] The questionnaires also normally contain information on current births, which can be used for calculation of period fertility measures. There is, however, little interest in that in the developed countries, where detailed statistics on current births are regularly available.

[13] Jones, Elise F. (1982). Socio-economic Differentials in Achieved Fertility, *WFS Comparative Studies* no 21 (ECE Analyses of WFS Surveys in Europe and USA).

with those who married earlier. This conclusion appears to be confirmed by comparison of frequency distributions of respondents by the ultimate number of expected children obtained from fertility surveys undertaken around 1970 with those undertaken around 1975 in the context of the World Fertility Survey. This finding is of particular interest for eastern European countries, where a rise in period rates in the early 1970s was often interpreted as a symptom of an upward change in long-term fertility trends.

Our data also indicate a clear-cut tendency for many socio-economic differentials to diminish in importance over time. This is shown for current type of residence, educational attainment of wife, her intensity of religious feeling and work history.

The more complex cross-tabulations shown in this paper serve as an introduction to and justification for application of multivariate analysis. Appendix A introduces some coefficients calculated to measure the strength of association between a few selected variables (in isolation and in combination) and expected fertility, and the contribution of these factors to total variance. This provides examples of the type of multivariate regression analysis which will be applied in the final report on the ECE/WFS Comparative Fertility Study.

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Appendix A - Some Multivariate Approaches

INTRODUCTION

This short addendum to the paper applies a method known as multiple classification analysis (MCA) which allows, within the context of an additive model, study of the adjusted effects of a set of explanatory variables on a given dependent variable. The adjustment of the effects in the MCA is similar to, but more efficient than, direct standardization. The MCA technique also provides for summary measures expressing the relative sizes of the effects, ie the strength of the associations between the independent and dependent variables.[14]

The present exercise is restricted to some uses of MCA made possible by the SPSS computer program, which has limitations as to the number of factors and covariates that can be introduced.[15]

In the light of the findings emerging from the cross-tabulations of data presented in the main body of this paper, the following five independent variables have been selected for further analysis: marriage duration, wife's age at marriage, wife's education level, current residence and wife's work history. Marriage duration and age at marriage (which are continuous variables) are treated as controls and the three socio-economic variables as explanatory predictors. The breakdowns of the latter were as follows:

Education Less than elementary, elementary, lower secondary, higher secondary and post-secondary;
Present residence Urban, rural;
Work history Currently working, not working but worked since marriage, worked only before marriage or never.

In the first instance, the ultimate expected number of children was computed for the various classes of each explanatory variable on the assumption that the remaining four independent variables are constant. For reasons of space, these standardized or 'adjusted' averages are not shown here. The tables of this appendix focus on the following coefficients.

(1) The values of *eta,* which show the extent of association between each explanatory variable and the ultimately expected number of children without standardization for other variables. Thus *eta* is analogous to a simple correlation coefficient, but is always positive between 0.0 and 1.0.
(2) The values of *beta,* which show the extent of association between each explanatory variable and the expected number of children when the other four variables are kept constant. This measure resembles a partial correlation coefficient, whereas the difference between *eta* and *beta* indicates broadly the effect of standardization.
(3) Values of R^2, show the combined percentage contribution of all five independent variables to the total variance, and are thus equivalent to the multiple correlation index.
(4) Added R^2 values, showing percentage contributions of each explanatory variable to the total variance, when the other four variables are kept constant.

The geographical coverage is 12 countries, but it will be remembered that the Belgian data refer only to the Dutch-speaking population and those for the Netherlands to women married between 1963 and 1973. No information on current residence was available for Great Britain and the USA.

INTERPRETATION

Table A1 shows that, among the control variables, marriage duration explains around 10 per cent of the total variance in the USA, Spain, and some 3–5 per cent in Great Britain, Poland and Norway, whereas the contribution of age at marriage oscillated around 2 per cent in most countries; the latter variable appeared unimportant only in Belgium.

Among the main effects, variation between countries and between the variables is quite marked. Considering the unadjusted data first, ie the *eta* values, association between education and ultimate expected family size appear particularly strong in Poland, Italy and Hungary, where the coefficients stand at around 0.30. This relationship also appears valid to a lesser extent in other countries covered by the table, except the Netherlands, Belgium and Finland. The *beta* coefficients tend to be somewhat smaller, except in Belgium and the Netherlands. The added R^2 values amount to some 3–6 per cent of the total variance in Italy, Hungary and Poland.

Urban/rural residence appears still to play an important role as a determinant of fertility in Poland and, to a much lesser extent, in Finland, Czechoslovakia, Norway and Hungary.

Wife's work history is of importance in France, Hungary, Belgium, Italy and the Netherlands, where it explains some 3–5 per cent of total variance. It will be noted that for this variable the *beta* values are hardly different from the *eta* coefficients.

[14] See Andrews, F.M., J.N. Morgan, J.A. Sonquist and L. Klem (1967). *Multiple Classification Analysis,* University of Michigan.

[15] For further details see Nie, N.H., C.H. Hull, J.G. Jenkins, K. Steinbrenner, D.H. Bent (1970–5). *SPSS (Statistical Package for Social Sciences).* McGraw-Hill. See especially section 22.1, Introduction to analysis of variance and covariance and section 22.2, Sub-program ANOVA.

The last row of table A1 indicates the combined effect of all five independent variables on the total variance. It appears to cover the range from 6 per cent in the Netherlands and Belgium to as much as 18–20 per cent in Poland and the USA. The impact is also quite large in Italy, France and Spain where it amounts to around 15 per cent.

R^2 values have also been computed for each of the four marriage cohorts separately, showing trends over time in that part of the variance which is explained by the effect of the four remaining variables combined (age at marriage, education, residence and work status) on the ultimate expected number of children (table A2). For most countries the strength of this association declines over time, particularly in France, Poland, Hungary, Italy and USA. In some countries the association changed little or even increased slightly among women married in the mid- and late 1960s, compared with those married earlier in this decade, but a steep decline set in again in the 1970s.

Tables A3, A4 and A5 show changes over time in the values of *eta*, *beta* and added R^2 for each of the three explanatory variables separately.

It will be seen in table A3 that in the countries where wife's education played an important role in the earlier period (ie among women married before 1961), such as Hungary, Italy, Poland and France, the strength of the association diminished greatly over time; and apart from Italy, Belgium and Czechoslovakia, the impact of education appears to be rather weak among women married after 1970.

No systematic trends over time can be detected in table A4 for the impact of urban/rural residence. In Poland, Hungary, Czechoslovakia and Finland, the *eta* values were quite high throughout the period under study, but added R^2 values exceeded five per cent only in Poland, and the trends over time were generally very irregular.

The impact of wife's work history was also rather unsystematic, except that in most countries it declined quite dramatically for the youngest cohort (table A5).

CONCLUSION

Application of MCA to our data confirms the importance of education, wife's working status and, to a lesser extent, of urban/rural residence for the ultimate expected family size. It also shows, as did the cross-tabulations presented in the main body of this paper, the tendency for the strength of these associations to decline over time, particularly for the most recent cohorts. These results hold good under the assumption of additivity of effects, and they could be affected by the presence of significant interaction. However, a systematic examination of possible interactions has indicated that in most cases they are small, and almost all of the statistically significant interactions involved the marriage duration variable only. Hence, the loss of information due to the assumption of additivity, if any, is likely to occur in fact only when all marriage cohorts are studied together.

Table A1 Values of *eta, beta* and added R^2 for marriage duration, age at marriage, education, current residence and work history

Variable	Coefficient	Belgium (Dutch-speaking)	Czecho-slovakia	Finland	France	Great Britain[a]	Hungary	Italy	Nether-lands	Norway	Poland	Spain	USA[a]
Covariates													
Marriage duration	Added R^2 (percentage)	1.4	(.0)	1.1	1.3	4.7	(.1)	1.3	.1	2.6	3.0	9.2	9.6
Age at marriage	Added R^2 (percentage)	.1	1.5	2.7	2.2	2.4	.8	1.7	2.0	1.9	.8	1.0	.5
Main effects													
Education	*Eta*	.05	.22	.10	.22	.15	.28	.33	.02	.17	.34	.18	.22
	Beta	.11	.17	.05	.15	.08	.23	.26	.06	.11	.20	.12	.13
	Added R^2 (percentage)	.9	2.4	.2	2.2	.6	4.9	6.2	.3	1.0	3.1	1.4	1.5
Residence	*Eta*	.03	.16	.18	.09	. .	.17	.05	.09	.13	.30	.05	. .
	Beta	.05	.11	.16	.06	. .	.09	.04	.08	.10	.24	.02	. .
	Added R^2 (percentage)	.2	1.2	2.5	0.4	. .	.7	.1	.6	1.0	4.9	(.1)	. .
Work history	*Eta*	.20	.12	.10	.27	.09	.24	.18	.17	.09	.06	.10	.13
	Beta	.18	.11	.11	.22	.14	.17	.14	.17	.12	.04	.12	.13
	Added R^2 (percentage)	3.1	1.1	1.1	4.6	1.9	2.5	1.9	2.8	1.4	.1	1.3	1.6
All 5 variables	R^2 (percentage)	6.0	8.9	9.3	14.7	11.4	13.1	16.5	5.7	10.1	20.7	15.1	17.2

NOTE: In this and the following appendix tables figures in parentheses are not statistically significant at 5 per cent level.
[a]Not adjusted for residence.

Table A2 Values of R^2 for combined effect of four variables (age at marriage, education, residence and work history), by marriage cohort

Marriage cohort	Belgium (Dutch-speaking)	Czecho-slovakia	Finland	France	Great Britain[a]	Hungary	Italy	Nether-lands	Norway	Poland	Spain	USA[a]
Before 1961	5.1	11.5	8.3	23.0	5.3	19.2	15.6	. .	7.1	20.1	8.7	9.2
1961–65	7.7	12.4	9.3	16.5	8.2	15.9	14.2	8.6	6.9	17.5	3.6	8.8
1966–70	6.1	13.5	10.1	11.5	12.8	17.8	12.9	4.5	7.6	17.7	6.3	7.9
1971 and later	5.9	7.2	7.6	4.4	4.0	6.3	10.4	6.9	5.1	10.4	4.3	3.9

[a]Not adjusted for residence.

Table A3 Education of wife: values of *eta*, *beta* and added R^2, by marriage cohort

Coefficient	Marriage cohort	Belgium (Dutch-speaking)	Czecho-slovakia	Finland	France	Great Britain[a]	Hungary	Italy	Nether-lands	Norway	Poland	Spain	USA[a]
Eta	Before 1961	.08	.27	.15	.30	.09	.35	.33	..	.18	.37	.15	.21
	1961–65	.11	.21	.13	.21	.10	.29	.30	.06	.11	.32	.11	.17
	1966–70	.09	.21	.06	.16	.10	.34	.28	.03	.07	.28	.19	.21
	1971 and later	.21	.21	.06	.12	.04	.18	.25	.02	.07	.21	.12	.15
Beta	Before 1961	.09	.21	.08	.21	.09	.29	.29	..	.14	.26	.15	.13
	1961–65	.13	.14	.09	.11	.14	.20	.26	.04	.09	.20	.11	.13
	1966–70	.15	.13	.09	.13	.13	.27	.27	.05	.11	.14	.18	.18
	1971 and later	.20	.19	.11	.13	.05	.15	.21	.11	.12	.13	.13	.10
Added R^2	Before 1961	.8	3.9	(.5)	4.2	.8	8.0	8.3	..	1.8	5.8	2.1	1.4
(percentage)	1961–65	1.6	1.9	(.8)	(1.2)	1.8	3.8	6.4	(.2)	(.8)	3.1	1.2	1.5
	1966–70	2.0	1.7	(.9)	1.8	1.6	6.3	7.4	(.2)	(.8)	1.7	3.3	3.0
	1971 and later	3.2	3.5	1.1	1.7	(.3)	2.0	4.3	1.1	1.3	1.5	1.7	0.9

[a]Not adjusted for residence.

Table A4 Current residence: values of *eta*, *beta* and added R^2, by marriage cohort

Coefficient	Marriage cohort	Belgium (Dutch-speaking)	Czecho-slovakia	Finland	France	Hungary	Italy	Nether-lands	Norway	Poland	Spain
Eta	Before 1961	.03	.11	.19	.12	.19	.04	..	.13	.33	.02
	1961–65	.01	.20	.21	.07	.25	.03	.11	.14	.35	.03
	1966–70	.06	.19	.14	.04	.15	.06	.06	.12	.36	.02
	1971 and later	.06	.15	.13	.03	.10	.09	.10	.11	.27	.05
Beta	Before 1961	.05	.06	.17	.11	.09	.03	..	.10	.22	.04
	1961–65	.03	.17	.21	.05	.16	.01	.09	.13	.28	.03
	1966–70	.06	.14	.14	.05	.05	.07	.06	.11	.30	.02
	1971 and later	.08	.12	.14	.03	.07	.06	.09	.11	.23	.05
Added R^2	Before 1961	(.2)	(.3)	2.8	1.1	.6	(.1)	..	.9	4.2	(.1)
(percentage)	1961–65	(.1)	2.8	4.2	(.3)	2.0	(.0)	.7	1.5	6.6	(.1)
	1966–70	(.4)	2.0	1.9	(.2)	(.2)	.4	.4	1.2	7.9	(.0)
	1971 and later	.6	1.3	1.9	(.1)	.5	.4	.9	1.1	5.0	(.2)

Table A5 Wife's work history: values of *eta*, *beta* and added R^2, by marriage cohort

Coefficient	Marriage cohort	Belgium (Dutch-speaking)	Czecho-slovakia	Finland	France	Great Britain[a]	Hungary	Italy	Nether-lands	Norway	Poland	Spain	USA[a]
Eta	Before 1961	.20	.20	.13	.35	.10	.28	.21	..	.13	.08	.13	.21
	1961–65	.24	.21	.13	.28	.17	.25	.15	.26	.14	.10	.09	.23
	1966–70	.18	.20	.15	.30	.28	.30	.16	.15	.15	.15	.13	.22
	1971 and later	.04	.07	.15	.11	.13	.18	.21	.16	.14	.06	.13	.14
Beta	Before 1961	.20	.18	.10	.29	.10	.17	.19	..	.12	.05	.16	.17
	1961–65	.25	.19	.12	.25	.18	.17	.11	.25	.13	.06	.11	.21
	1966–70	.20	.15	.15	.28	.28	.21	.16	.15	.15	.10	.12	.19
	1971 and later	.07	.04	.12	.10	.12	.14	.16	.16	.13	.02	.14	.12
Added R^2 (percentage)	Before 1961	4.0	3.0	1.1	7.9	1.0	2.4	3.7	..	1.4	.3	2.5	2.8
	1961–65	6.4	3.5	1.5	5.8	3.1	2.7	1.2	6.2	1.7	.4	1.1	4.2
	1966–70	3.8	2.3	2.2	7.8	7.6	4.0	2.3	2.1	2.2	.9	1.4	3.7
	1971 and later	(.5)	(.2)	1.5	.9	1.5	1.8	2.4	2.5	1.5	(.0)	1.8	1.3

[a]Not adjusted for residence.