
Review Lecture: Recent and Prospective Trends in Fertility in Developed Countries

D. V. Glass

Phil. Trans. R. Soc. Lond. B 1976 **274**, 1-52

doi: 10.1098/rstb.1976.0037

Email alerting service

Receive free email alerts when new articles cite this article - sign up in the box at the top right-hand corner of the article or click [here](#)

To subscribe to *Phil. Trans. R. Soc. Lond. B* go to: <http://rstb.royalsocietypublishing.org/subscriptions>

REVIEW LECTURE

RECENT AND PROSPECTIVE TRENDS IN FERTILITY
IN DEVELOPED COUNTRIES

BY D. V. GLASS, F.R.S.

(Lecture delivered 1 May 1975 – MS. received 28 July 1975)

For many European nations, as also for North America, Australia and New Zealand, the period around World War II saw a discontinuity with what had appeared to be a firmly established demographic situation. What Hajnal has called the European marriage pattern had been characteristic of West and Central Europe, with a high age at first marriage and substantial proportions of men and women – especially women – remaining unmarried. The emergence of that pattern dates back at least to the seventeenth century and possibly earlier.[†] And all industrialized countries were characterized by a history of declining marital fertility – a decline which in most cases dated from the 1870s or 80s, but in the United States and France went back to the beginning of the nineteenth century. A fall of 50% or more in marital fertility since the 1870s was a common feature. But during the past thirty years marriage patterns have changed in many countries and so has the trend of marital fertility. There are interconnections between these changes, but one type of change is not an adequate explanation of the other.

Before the war relatively little attention was paid to marriage as a variable in fertility analysis. This is not quite so unrealistic as it might appear at first sight, for the long period decline in fertility was not explained to any serious extent by a fall in nuptiality. But since the 1930s in most countries marriage changes have had a direct effect upon the level of overall fertility and in some countries they have been of major significance (tables 1 and 2). Eastern Europe, with its more natural pattern of low age at marriage and a probability of women marrying by the end of the childbearing period of over 90%, was less affected than Western. Nevertheless, even there the proportions of young women marrying generally rose – in Czechoslovakia and Hungary quite sharply. In the West the changes were still more marked, both because their point of departure was much lower and also because in some cases what happened amounted to a transformation of earlier habits. England is a particularly striking example. In 1931, only 26% of women in the 20–24 age group were or had been married; in 1971 the proportion was 63%. In the United States, too, though it was traditionally a country of relatively early marriage, there were similar developments: the comparable proportions were 54% in 1930, but 72% in 1960, falling again to 64% in 1970. Even the Irish Republic, categorized before the war as a nation of elderly bachelors (and to a lesser degree spinsters, too) was affected. By 1971 the proportions of young women who had married were higher than they had been in England in 1931. France was the least involved in the changes, but it already had a pattern of fairly early marriage and high marriage propensity, going well back into the nineteenth century. Indeed, it has been suggested that it was because of the early adoption of fertility

† Notes 1–70 appear on pages 26–37.

TABLE 1. MALES AND FEMALES. PROPORTIONS (PERCENTAGES) SINGLE (NEVER-MARRIED) IN SELECTED AGE-GROUPS AND RATIO OF MEN AGED 25-49 TO WOMEN AGED 20-44 YEARS

country	year	men age (years)			women age (years)		ratio: (per 1000)
		20-24	25-29	45-49	20-24	45-49	$\frac{M\ 25-49}{F\ 20-44}$
Austria	1971	74	34	7	45	12	959
Belgium	1930	80	38	11	60	13	936
	1961	71	27	9	44	9	998
	1970	65	22	8	40	8	980
Denmark	1930	90	51	10	71	16	847
	1960	77	32	10	46	9	986
	1965	74	29	9	45	8	944
Finland	1930	90	60	28	76	26	875
	1960	75	37	10	54	14	927
	1970	72	32	12	52	12	908
France	1930	—	57	—	10	12	—
				(40-49)	(20-29)	(40-49)	
	1962	—	60	—	11	9	—
				(40-49)	(20-29)	(40-49)	
	1962	84	38	11	56	9	989
	1968	79	33	10	56	9	992
West Germany	1933†	90	54	6	74	12	841
	1946	88	52	6	73	13	709
	1961	79	36	5	55	9	844
	1966	82	38	4	50	10	960
Ireland	1936	96	82	35	86	26	961
	1961	93	67	31	78	22	1010
	1971	85	49	28	69	18	954
Netherlands	1930	90	49	11	75	15	866
	1960	83	37	8	59	11	952
	1967	77	29	7	53	9	939
Norway	1930	94	65	15	81	23	837
	1960	79	41	13	50	13	1053
	1970	72	31	13	46	8	984
Sweden	1935	94	66	17	78	23	917
	1960	82	41	15	57	11	1045
	1970	83	41	14	60	8	994
Switzerland	1930	93	60	15	82	19	833
	1960	86	46	12	65	15	981
	1970	81	37	10	55	12	979
England & Wales	1931	86	47	11	74	17	835
	1961	69	29	10	42	11	1020
	1971	63	26	10	40	8	977
Greece	1928	83	52	7	56	4	821
	1961	89	57	(7)	65	(6)	—
	1971	87	53	6	53	7	—
				(45-54)		(45-54)	
Italy	1931	88	49	10	67	13	792
	1961	89	55	9	61	14	974
	1966	89	52	9	63	13	923
Portugal	1930	83	44	12	69	17	756
	1960	81	39	12	62	16	865
	1970	80	31	8	61	12	855
Spain	1940	93	63	9	79	14	816
	1960	93	53	7	73	15	904

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES

3

TABLE 1 (*contd.*).

country	year	men age (years)			women age (years)		ratio: (per 1000)
		20-24	25-29	45-49	20-24	45-49	$\frac{M\ 25-49}{F\ 20-44}$
Bulgaria	1934	56	20	3	35	1	868
	1956	61	19	2	27	2	957
	1965	63	20	2	25	2	949
Czechoslovakia	1930	88	43	6	62	10	810
	1961	74	26	5	33	6	974
	1970	66	22	6	35	5	934
Hungary	1930	81	39	5	52	6	822
	1960	71	23	5	31	7	938
	1970	68	23	4	32	5	952
East Germany	1946	82	40	4	68	10	604
	1950	71	(24)	(4+)	60	(9+)	763
	1971	67	20	2	35	11	939
Poland	1931	83	41	4	61	7	760
	1960	72	29	4	41	(9)	858
	1970	75	28	4	46	7	—
Romania	1956	71	22	(40-49) (3-)	34	(40-49) (4-)	866
	1966	68	21	3	24	4	915
	1971	68	25	4	37	6	914
Canada	1931	86	52	14	63	10	1008
	1961	69	30	10	40	9	982
	1971	68	26	9	44	7	929
USA	1930	71	37	12	46	9	934
	1960	53	21	7	28	7	959
	1970	56	20	7	36	5	889
Australia	1933	87	56	15	69	14	961
	1971	64	26	9	36	5	982
New Zealand	1936	90	56	14	72	14	932
	1961	73	30	9	41	8	1011
	1966	68	27	9	39	7	985
Japan	1930	80	29	2	38	2	932
	1960	92	46	1	68	2	838
	1970	90	47	2	72	4	876
USSR	1926	51	18	2	28	4	759

† Whole of Germany, 1933 frontiers.

Source: Various issues of the United Nations *Demographic yearbook*, and national census reports.

control that this pattern could be maintained.² At the other end of the industrialized world an exceptional reverse movement took place in Japan. But that was part of Japan's progress through the demographic transition, which had begun late but had proceeded very rapidly after World War II.³

Changes in the sex ratio of the population in the marriageable ages contributed to these developments and help to explain why the increase in marriage propensity has been greater for women than men. In turn the sex ratio has been affected by migration, by war losses, by the ratio of male to female civil mortality, and by the numbers of births in different calendar years. In Ireland, for example, the unusually small differences between male and female

mortality, coupled with the equally unusual excess of women in the emigration streams, created a relative shortage of women in the marriage market and there were proportionately more elderly bachelors than spinsters.⁴ But the sex ratio was certainly not the sole element, and there were unfavourable ratios in Eastern Europe with its very different marriage pattern. Social and economic factors are involved – in any case they influence the effective sex-ratio, which is determined not only by the factors already mentioned – factors which affect the biological sex ratio – but also by what is considered by a given society or stratum as the normal or acceptable difference between the ages of husband and wife. But that itself may be affected by the demographic factor since, in order to satisfy an increase in the demand for marriage, formerly accepted age differences may have to change, as they have changed, for example, in England

TABLE 2. SCHEMATIC ANALYSIS OF PERCENTAGES SINGLE (NEVER-MARRIED) WOMEN, 20–24 AND 45–49 YEARS, AROUND 1930 AND 1970

percentage single			
20–24 years	45–49 years	<i>ca.</i> 1930	<i>ca.</i> 1970
20–29	20–29	—	—
	10–19	—	—
	5–9	—	—
	under 5	U.S.S.R.	Bulgaria, Romania
30–39	20–29	—	—
	10–19	—	E. Germany
	5–9	Yugoslavia	Czechoslovakia, Hungary, Yugoslavia, U.S.A., Australia, New Zealand
	under 5	Bulgaria, Romania, Japan	—
40–49	20–29	—	—
	10–19	—	Austria
	5–9	U.S.A.	Belgium, Denmark, Norway, England & Wales, Poland, Canada
	under 5	—	—
50–59	20–29	—	—
	10–19	—	Finland, W. Germany, Switzerland
	5–9	Hungary	France, Netherlands, Greece
	under 5	Greece	—
60–69	20–29	—	—
	10–19	Belgium, Italy, Portugal, Czechoslovakia, Canada, Australia	Ireland, Italy, Portugal
	5–9	Poland	Sweden
	under 5	—	—
70–79	20–29	Finland, Sweden	—
	10–19	Denmark, Germany, Netherlands, England & Wales, New Zealand	Spain
	5–9	—	—
	under 5	—	Japan
80–89	20–29	Ireland, Norway	—
	10–19	Switzerland	—
	5–9	—	—
	under 5	—	—

Source: based upon table 1.

since the 1930s⁵ And when, with the aid of demographic and other factors, an increase in marriage frequency has reached highly visible proportions, this may help to generate an epidemic effect as the unmarried try to catch up with their married peers.⁶ Being ‘left on the shelf’

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES

5

at the age of 19 or 20 may be quite distasteful if many of one's friends in the same age group have already married or are at least about to be married.

When there are more and earlier marriages, the overall level of fertility (and the crude birth rate) will rise, other things being equal, simply because a larger proportion of the population will consist of recently married couples. But overall marital fertility itself is also likely to increase, for women who marry younger tend to have larger numbers of births. Taking the data for England and Wales by way of illustration, and comparing the marriage cohorts of 1931 and 1956, some 30% of the increase in the average number of live births per married women at 10 years duration of marriage could be accounted for by the fall in age at marriage, and that fall continued after 1956. But the remaining 70% could not be so explained, and was the

TABLE 3. CRUDE BIRTH RATES: LIVE BIRTHS PER 1000 TOTAL POPULATION

	approximate periods									
	1930-34	1935-39	1950-54	1955-59	1960-64	1965-69†	1970†	1971†	1972†	1973†
Austria	15.1	14.7	15.0	16.8	18.5	17.3	15.2	14.6	13.9	12.9
Belgium	17.6	15.5	17.3	17.5	17.1	15.4	14.7	14.6	14.0	13.3
Denmark	17.9	17.9	17.9	16.8	17.0	17.8	14.4	15.2	15.2	14.3
England & Wales	15.3	14.9	15.5	15.9	17.9	17.2	16.1	16.0	14.8	13.8
Finland	20.0	20.2	22.8	19.9	18.1	16.1	14.0	13.2	12.8	12.2
France	17.2	15.1	19.5	18.4	18.0	17.1	16.7	17.2	16.9	16.4
West Germany	16.3‡	19.4‡	16.1	16.9	18.3	16.8	13.4	12.7	11.4	10.2
Ireland (Eire)	19.5	19.4	21.4	21.1	21.9	21.5	21.8	22.7	22.4	22.5
Netherlands	21.7	20.3	22.1	21.3	20.9	19.2	18.3	17.2	16.1	14.5
Norway	15.7	15.0	18.7	18.1	17.3	17.7	16.6	16.8	16.3	15.5
Sweden	14.4	14.5	15.5	14.5	14.5	15.0	13.7	14.1	13.8	13.5
Switzerland	16.7	15.4	17.3	17.5	18.5	17.7	16.3	16.2	15.0	13.9
Greece	(30.0)	(26.5)	(19.5)	(19.3)	18.1	18.0	16.5	15.9	15.5	—
Italy	24.5	23.2	18.3	18.0	18.9	18.3	16.8	16.8	16.3	16.0
Portugal	29.3	27.1	24.1	24.2	24.1	21.3	20.0	21.9	20.3	20.1
Spain	27.5	22.0	20.3	21.3	21.6	20.7	19.6	19.7	19.4	19.2
Yugoslavia	33.0	27.9	28.8	24.8	22.0	19.7	17.8	18.3	18.2	18.0
Bulgaria	30.3	24.1	21.7	18.7	16.9	15.5	16.3	15.9	15.3	16.3
Czechoslovakia	19.7	17.1	22.0	18.5	16.3	15.5	15.9	16.5	17.4	18.8
Hungary	23.2	20.1	21.1	17.8	13.6	14.3	14.7	14.5	14.7	15.0
Poland	(28.9)	(25.4)§	30.1	27.1	20.1	16.6	16.8	17.1	17.4	—
Romania	32.9	24.1	21.7	18.7	16.7	21.3	21.1	19.6	18.8	18.1
East Germany	—	18.4	17.0	16.3	17.4	15.7	13.9	13.8	11.8	10.6
U.S.S.R.	—	37.6	26.4	25.3	22.3	17.8¶	17.4	17.8	17.8	17.7
Canada	22.2	20.4	27.7	27.8	25.2	23.7	17.4	16.8	15.9	15.5
U.S.A.	17.6	17.2	24.5	24.6	22.4	18.2	18.3	17.2	15.6	15.0
Australia	17.6	17.2	23.0	22.6	21.9	19.6	20.6	21.7	20.5	18.9
New Zealand	18.1	18.8	25.8	26.3	25.9	22.6	22.1	22.7	21.8	20.5
Japan	31.8	29.2	23.7	18.2	17.2	17.7	19.0	19.3	19.4	19.4

Source: United Nations *Demographic yearbook* for 1965, 1969 and 1973.

† Many of the rates for 1965-69 and later years are provisional.

‡ Pre-war territory.

§ 1935-38.

|| 1938-39.

¶ 4-year average.

result of an increase in fertility at almost all ages at marriage. And this must reflect a rise in the number of children wanted by couples for, as will be seen later, it occurred while increasing proportions of couples were using birth control, initiating that use at an earlier stage in married life, and shifting from less to more effective techniques of contraception.

For England and Wales the absolute increase in the average number of live births per married woman at 20 years duration (uninterrupted first marriages, women married at under 45 years of age) has been from 2.05 for the marriages of 1931 to about an estimated 2.4 for the marriages of 1960 – that is about 0.4 children per woman.⁷ The frequency of childless and one-child marriages has fallen, and there has been a rise in the proportions of 2 and 3 child marriages. There has been no return to large families. This kind of shift supports Ryder's contention, in respect of fertility trends in the United States during a comparable period, that there had not been a change in family size targets or norms, but rather a fulfilment of the norms which, had there not been a massive economic depression, would also have been achieved by the marriages of the 1930s.⁸ If this is so, then two inferences might appear to follow. First, that at least tem-

TABLE 4. LIVE BIRTHS PER 1000 WOMEN AGED 15–49 YEARS FOR
SELECTED PERIODS

	approximate periods				
	1935–39	1950–54	1955–59	1960–64	1965–69
Austria	—	58	67	80	76
Belgium	60	68	72	76	67
Denmark	66	73	71	72	71
England & Wales	54	62	67	77	76
Finland	74	88	80	74	64
France†	60	80	82	82	74
West Germany‡	68	60	64	75	73
Ireland (Eire)§	84	94	96	103	102
Netherlands	77	90	90	89	81
Norway	55	76	78	76	79
Sweden	54	64	61	62	64
Switzerland	55	68	70	76	72
Greece	—	—	—	69	70
Italy	90	70	—	73	72
Portugal	105	90	91	94	87
Spain	90	72	—	84	81
Yugoslavia	132¶	106	94	88	76
Bulgaria	(95)	76	72	66	61
Czechoslovakia	(60)††	87	78	70	64
Hungary	(75)	—	70	55	56
Poland	90‡‡	109	106	84	66
Romania§§	(161)	—	(90)	(60)	83
East Germany	—	61	64	76	69
Canada	80	113	118	109	79
U.S.A.	71	98	104	97	78
Australia	65	95	97	94	84
New Zealand	66	104	116	116	100
Japan	134	92	68	63	62

† It is not clear whether live-born children who died before registration are included.

‡ Single year rates for 1936, 1951, 1956 and 1961. 1936 – pre-war territory of Germany.

§ Single year rates for 1936 and 1951.

|| Single year rates for 1940, 1950, 1960 and 1969.

¶ 1931.

†† 1937.

‡‡ Single year rates for 1936 and 1951.

§§ Single year rates for 1931 and 1956.

||| 1935.

Sources: United Nations, *Recent trends in fertility in industrialized countries*, New York 1957; and various issues of United Nations, *Demographic yearbook*; and relevant national statistics.

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES

7

porarily the long-term decline in fertility had more or less exhausted itself by the 1930s, with family size targets at least roughly fitting in with the circumstances of the period; and secondly, that, as in the case of France in the nineteenth century, marriage rates could rise substantially, and that rise be maintained, just because norms of small family size had become firmly established, with more effective means of achieving them and a social climate in which the use of those means had become fully legitimate. It might also seem plausible that those populations which had most markedly undershot their already low norms in the depression of the 1930s would experience the largest proportionate increases in fertility after the War. But that would be too simple and superficial a generalization and would disregard the specific circumstances of the different countries.

Nevertheless, it is the case that a number of countries with low overall fertility in the 1930s, experienced post-War developments similar to those of England. By contrast, countries like the Netherlands, Italy, Greece and Yugoslavia, with relatively high pre-War levels have shown a fairly steady and continuing decline since the War. And this has also generally been so in

TABLE 5. LEGITIMATE LIVE BIRTHS PER 1000 MARRIED WOMEN UNDER 50 YEARS OF AGE

	approximate year				recent rates
	1930	1950	1960	1965	
Austria	—	84	(116)	—	85 (1971)
Belgium	108	104	106	—	87 (1970)
Denmark	119	106	98	103	105 (1965)
England & Wales	102	90	102	105	92 (1971)
Finland	166	155	122	120	87 (1970)
France	100	116	(119)	119	105 (1968)
West Germany	—	96	111	113	103 (1967)
Ireland (Eire)	210†	—	195	214	196 (1966)
Netherlands	166	154	139	132	119 (1968)
Norway	125	121	110	—	105 (1970)
Sweden	107	94	80	93	78 (1970)
Switzerland	125	120	117	—	97 (1970)
Greece	205‡	—	(100)	—	85 (1971) §
Italy	171	120	119	—	113 (1967)
Portugal	197	154	149	—	129 (1968)
Spain	—	—	142	—	—
Yugoslavia	190	162	122	—	—
Bulgaria	(160)	—	(90)	—	71 (1965)
Czechoslovakia	128	—	92	101	86 (1967)
Hungary	169	110	79	(71)	76 (1970)
Poland	189	—	130	—	—
Romania	—	—	—	—	—
East Germany	—	—	—	—	85 (1967)
Canada	161	155	155	—	95 (1971)
U.S.A.	104	123	137	—	105 (1970)
Australia	111	142	—	—	118 (1971)
New Zealand	110	146	145	—	130 (1966)
Japan	191	183	107	—	109 (1965)

† 1936.

‡ 1928.

§ Rate based on married women 15–54.

Rates based on census or estimated populations.

|| Estimated.

Source: United Nations, *Demographic yearbook*, various issues, and relevant national census reports.

Eastern Europe and the Soviet Union. Hungary is an example of a persistent fall – except in 1953–55 and 1967–69 – and a steep one. Looked at in terms of period rates, the number of legitimate live births per 1000 married women (aged 15–49 years) was around 111 in the early post-War years; by 1973 the rate had fallen to 78, lower than that of England and Wales. In the 1930s, the period total fertility rate, based upon women of all marital conditions, was around 2.8 live births per woman, and in the early post-War period it was about 2.6. By 1971–73 it was around 1.93, a fall of almost 25%, to a level below replacement. The fall in total fertility in Yugoslavia was even sharper – from 3.7 live births per woman in 1950 to 2.3 in 1970.

TABLE 6. PERCENTAGES OF MALES AND FEMALES ILLITERATE (IN SPECIFIED AGE GROUPS) AND RATIO OF FEMALE TO MALE ILLITERACY IN SELECTED COUNTRIES

country	date	age group 20–29 years			age group 20–34 or 20–39 years		
		males	females	ratio F/M	males	females	ratio F/M
Greece	1928	—	—	—	18	55	3.1
	1951	—	—	—	6	18	3.0
	1971	2	4	2.0	4	11 (20–44)	2.8
Italy	1931	13	18	1.4	—	—	—
Portugal	1940	—	—	—	38	54	1.4
	1960	—	—	—	22	31	1.4
Spain	1940	—	—	—	11	22	2.0
	1970	2	5	2.5	3	7 (20–44)	2.3
Bulgaria	1934	—	—	—	15	34	2.3
	1965	—	—	—	2	14	2.0
Hungary	1941	—	—	—	4	4	1.0
	1970	0.8	1.0	1.3	—	—	—
Poland	1931	13	20	1.5	—	—	—
	1970	0.3	0.2	0.7	—	—	—
Romania	1956	—	—	—	2	5	2.5
Yugoslavia	1931	—	—	—	27	54	2.0
	1948	—	—	—	7	24	3.4
	1971	2	9	4.5	2	9	4.5

Source: United Nations, *Demographic yearbook*, various issues. (See also the general survey of literacy and education in R. B. Dixon, *Women's rights and fertility, Reports on population/family planning*, New York, January 1975).

The change in marriage habits in the West and the contrasting movements in fertility between Southern and Eastern Europe on the one hand, and the remaining developed countries on the other, resulted in a convergence in the regional levels of the birth rate and the marital fertility rate. In some cases there was a cross-over. Around 1965, for example, the legitimate fertility rate for England and Wales was higher than that for Czechoslovakia or Hungary. Even Yugoslavia, with one of the highest fertility levels in Europe in the 1930s (around 132 live births per 1000 women aged 15–49 years) was at about the same level as England and Wales in 1965–69 (around 76 per 1000). And more recent events have helped to maintain that convergence. In East Europe fertility has largely continued to remain low. Elsewhere in the United States, Canada and Australia, as well as generally in Western, Central and Southern Europe, the early

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES 9

post-War stabilization and rise has been succeeded by a new decline. Part of it appears to have been linked to changes in birth spacing. But the run of the data suggests that ultimate family size is also likely to be affected, and quite dramatically in some communities where hitherto family size had remained fairly high.

The convergence of regional levels has been accompanied and is partly explained by a convergence within countries. In Eastern and Southern Europe, this is associated with the process of industrialization and the spreading impact of urbanism.⁹ In some countries, the process has paralleled a major reduction of illiteracy. In Yugoslavia, for example, the proportion of illiterates among the population aged 10 years and over was 15% in 1971, as compared with 25% in 1948 and 45% in 1931.¹⁰ For women in the peak ages of childbearing, the reduction in illiteracy has been especially striking, as may be seen in table 6 – from 54% in Yugoslavia in 1931 to 9% in 1971. But even in Belgium, a highly urbanised and industrialized country, regional differences in fertility have been lessened, in spite of the sharper political conflict between the Flemish and Walloon groups.¹¹ In many countries the earlier socio-economic differences in marital fertility have generally been weakened. The available data suggest both a narrowing of the differences – though the farm population often still shows the highest fertility – and a tendency for the emergence of a U-shaped or J-shaped curve as best describing the relation between fertility and such variables as education and socio-economic status. This has been found in England, France and Sweden, as well as in the Netherlands. In the United States, too, among the white population, the upper socio-economic groups showed a higher completed fertility in 1970 than the intermediate groups of sales and clerical workers.¹² Religious affiliation is no longer quite so steeply linked to family size. Suitably controlled information is rather limited, but where official or survey data are available, they make it clear that Catholic fertility, like that of other religious groups, has been falling and that the gap between Catholic and non-Catholic family size has already narrowed in some countries and is likely to do so in future in others.¹³

What is evident from the fluctuations in family size and in the spacing of births since the 1930s is that fertility has come under fairly close control throughout the industrialized world. And one of the significant differences between the pre-War and the post-War situation is the context within which, and the means whereby, that control is exercised.

Everyone is aware of the prolonged decline of fertility in most industrialized countries between the 1870s and the 1930s but it is perhaps not quite so widely realized that this decline owed little to modern technology. The vulcanization of rubber and, later, the use of liquid latex, were important to the development of mechanical contraceptives. But the primary means of control was *coitus interruptus*, supplemented, to an extent which probably differed between different countries, by illegal abortions. This was still largely the case in the 1930s and 1940s.

Though there were in many countries organized movements advocating birth control – movements which all, directly or indirectly, derived from the pioneer Malthusian League founded in Britain after the Bradlaugh-Besant trial – birth control practice received no support from established authority. Both the Anglican and Roman Catholic churches were opposed to it. The medical profession was generally antagonistic and the State was at best indifferent, but usually hostile. In several countries laws were passed, prohibiting, or at least greatly restricting, the sale of contraceptives or the provision of birth control advice. This was the case in Sweden in 1910, for example, and in the Netherlands in 1911. In the United States, the 1873 Comstock Act had this effect. Those countries which adopted or intensified pro-natalist policies after

World War I passed similar legislation, often even more restrictive – in France and Belgium, in Italy under fascism and in Germany under nazism. Everywhere abortion as a means of fertility control was prohibited. Even the Soviet Union, which had originally legalized abortion in keeping with the aim of emancipating women, abandoned that position in 1936.

The situation did not begin to change until the 1930s and then in only a few countries. In Britain, some eminent members of the medical profession recognized the legitimacy of and the need for birth control advice, and birth control clinics began to receive governmental aid.¹⁴ The birth control movement itself, strengthened by the formation of the Family Planning Association, broke away from its earlier association with Malthusian population theory and by so doing increased its attractiveness to married couples in general. In Sweden, it was the Royal Commissions of 1935 and 1941, concerned with prospective depopulation, which adopted the premise of voluntary parenthood as the basis of their policy recommendations, and this was also the case with the British Royal Commission of 1944. But these changes took place at the end of the period of declining fertility. They did not account for the decline; rather they were accounted for by the decline – by the recognition and acceptance of the fact of fertility control. And this applied equally to the birth control clinics. In any case, they reached only a very small proportion of married couples and the contraceptive which they mainly sponsored – the diaphragm – was not a popular one. The decline itself had been achieved by techniques which, though inefficient at the individual level, were highly effective at the social level – how effective can be seen from the fact that in Britain, for example, some 17 % of the couples married in 1925 were still childless after 20 years of married life.

After World War II the situation changed radically. First, the control of fertility was recognized as a fact which had to be accepted as such by established authority. It was so recognized by the Protestant Churches, and the Catholic Church, too, accepted the principle of ‘responsible parenthood’, restricting the debate to the question of means. In Eastern Europe, officially anti-Malthusian, fertility control was regarded as relevant in respect of women’s rights and health and as an aid in dealing with an acute labour shortage. Even in France, still strongly pronatalist, a new birth control movement, divorced from Malthusian theory, helped to generate the pressure which finally led to the repeal of the repressive earlier legislation.¹⁵

Secondly, in the 1950s and 1960s, other factors contributed to increase the availability of more effective techniques of birth prevention. The mounting concern with rapid population growth in the Third World helped to give respectability to research into contraception and to the application of the results of that research.¹⁶ The manufacture of contraceptives was inevitably affected, but the immediate ‘pay off’ of the research went to developed rather than to developing countries. The pill in its various modifications soon became one of the more widely adopted means of birth limitation in many industrialized countries.

But concern for the so-called ‘population explosion’ in the Third World could scarcely fail to have repercussions elsewhere, both because of the rise in the crude birth rates in many Western countries in the 1950s and early 1960s and because a question of international ethics appeared to be involved. Public interest was also stimulated by the new ecological front, while demands for women’s right to control their reproductive destiny played a part in the pressure for a wider provision of birth control facilities and for the legalization of abortion. Those countries which still had laws restricting the sale of contraceptives or the provision of birth control advice now generally repealed them or relaxed their enforcement, so that only Spain, Portugal and Ireland remained outstanding.¹⁷ Birth control services were amplified – in Britain with a govern-

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES

11

ment take-over and in the U.S.A. with governmental support for special groups. Abortion laws were 'liberalized' in many countries, or practice allowed to go beyond the letter of the law.¹⁸ Japan was the first country to legalize abortion on wide grounds – not as a deliberate governmental initiative but in response to public pressure.¹⁹ Countries in the Soviet Zone greatly extended the grounds and facilities for abortion, following the repeal by the U.S.S.R. in 1955 of the restrictive legislation of 1936.²⁰ It was now the turn of the countries in the West – of Denmark, Finland, Norway, Britain, West Germany (though the repeal of the famous paragraph 218 of the Penal Code has been declared unconstitutional), France, Austria, Canada and the United States. Of these more recent changes, perhaps the most remarkable are those in France–

TABLE 7. LEGAL ABORTIONS PER 1000 LIVE BIRTHS IN RECENT YEARS

	country	date	ratio: abortions per 1000 live births
I. Eastern Europe	Bulgaria	1964	713
		1971	985
	Czechoslovakia	1964	298
		1971	398
	Hungary	1964	1393
		1971	1228
	Poland	1964	320
		1971	236
	Romania	1965	4040
		1967	98
U.S.S.R.	1967	3200	
II. Other countries	Denmark	1964	54
		1970–71	134
	England & Wales (residents)	1968	27
		1971	126
	Finland	1964	62
		1971	337
	Norway	1964	40
		1971	186
	Sweden	1964	38
		1971	171
	Yugoslavia	1964	363
		1968	642
	United States	1973	239
	Canada	1971	83
		1972	113
	Japan	1965	{ reported
{ estimated			1508
1970		{ reported	377
		{ estimated	1437

Sources: Except for U.S.A. and Japan, the rates are from C. Tietze & D. Dawson, *Induced abortion: a factbook*, Reports on population/family planning, New York 1973. For the U.S.A., see C. Tietze, F. S. Jaffe & J. G. Dryfoos, Legal abortions in the United States since the 1973 Supreme Court Decisions, *Family planning perspectives*, vol. 7, no. 1, January/February 1975, p. 26. The statistics are based upon a survey and it is suggested that the abortions missed by the survey may amount to 5–10% of the total reported (745 000), the problem being that there was no formal reporting mechanism in 1973. It is also estimated that the number of legal abortions in 1974 may have amounted to almost 900 000. For Japan – it is widely acknowledged that there is a very substantial under-reporting of abortions in that country – the data are from M. Muramatsu, An analysis of factors in fertility control in Japan – an updated and revised version, *Bulletin of the institute of public health*, 22, 4, 1973, pp. 228–236. (The estimates, which refer only to abortions to married women, are revisions of earlier estimates.) In a personal communication (28 May 1975), Dr Muramatsu stated that the evidence strongly suggests a decline in abortion rates in recent years, probably associated with improvements in the quality of condoms. The i.u.d. was only authorized in 1974 and the pill is still not available for general use.

	East Europe					other countries						
	Czecho-slovakia	Hungary	Poland	Belgium	Denmark†	England & Wales	Finland	France	Yugoslavia	U.S.A.	Australia (Melbourne)	Japan
ever-users as percentage of respondents	—	—	—	78	88	—	90	74	—	84	90	84‡
(a) as percentage of respondents	66	64	57	76	68	71	86	68	59	65	63	62‡
(b) as percentage of women exposed to pregnancy	79	70	—	83	85	86	92	71	62	85§	94	—
percentage of current users using certain main techniques												
the pill	4	—	4	8	37	19	23	15	9	34	41	2
condom	19	16	17	6	30	41	36	40	5	14	8	75
other appliances and chemicals	19	9	2	3	14	8	5	5	3	36¶	17	24
safe-period	3	4	23	34	2	5	4	16††	8	6	13	30
<i>coitus interruptus</i>	51	66	49	44	7	25	17	46	69	2	21	6
other methods‡‡	4	5	4	5	10	2	15	8	6	8	—	1
	100	100	99	100	100	100	100	100	100	100	100	138§§
date of survey	1970	1970	1972	1966	1970	1967	1971	1971	1970	1970	1970-71	1973
no. of respondents (women)	2548	7214	15 354	2972	2138	6097	785	2424	5215	5884	2652	3750

The data in this table relate to married women under 50 years of age except in Belgium (under 40) and Poland (up to 50), U.S.A. (under 45), France (under 45), and Australia (under 45).

† Excluding Copenhagen.

‡ Excluding 'no answer' and 'others' cases from the computations.

§ Excludes women who were pregnant, postpartum or trying to get pregnant.

|| Excludes women who were pregnant, wanting to become pregnant or infecund.

¶ Includes 16% of couples of whom the husband or wife had been sterilized.

†† Includes combination of safe-period and withdrawal.

‡‡ Including douche and abstinence.

§§ The total is over 100% because some women were using more than one method and each method was counted separately.

Sources:

France - information from M. G. Calot, Director of INED, Paris.
 U.S.A. - C. F. Westoff, 'The modernization of U.S. contraceptive practice', *Family planning perspectives*, vol. 4, no. 3, July 1972.
 Australia (Melbourne) - J. C. Caldwell, C. Young, H. Ware, D. Lavis & A. Davis, Australia: Knowledge, attitudes, and practice of family planning in Melbourne, 1971, *Studies in family planning*, vol. 4, no. 3, March 1973. The survey covered married women aged 15 and over, but the above analysis is restricted to women under 45. The authors consider Melbourne to be representative of Australia as a whole.
 Japan - The Population Problems Research Council, Mainichi Newspapers, *Summary of 12th national survey on family planning*, Tokyo 1975.
 Other countries - J. Berent, Fertility and family planning in Europe around 1970 . . . (1974 meeting of the Population Association of America); and Economic Commission for Europe, *Recent demographic trends in Europe and the outlook until the year 2000* (Report submitted to World Population Conference, Bucharest, August 1974).

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES 13

a country which had hitherto systematically engaged in tightening the legal and administrative measures aimed at suppressing abortion;²¹ and the United States, where in 1973 the Supreme Court decided that it was unconstitutional to deny women the right to abortion, and that during the first trimester of pregnancy the decision and the method should be a matter solely for women and their doctors. And with this legislation came the application of new, simpler and less expensive techniques of abortion.²²

TABLE 9. CHANGES IN BIRTH CONTROL PRACTICE IN RECENT YEARS IN ENGLAND AND WALES, GREAT BRITAIN AND THE U.S.A.

	England & Wales		Great Britain		U.S.A.	
	whole sample	women first married 1966-70	women first married 1951-60	women first married 1961-65	survey 1965	survey 1970
ever-users as % of respondents	95†	—	90	91	83	84
current users as						
(a) % of respondents	71†	—	—	—	64	65
(b) % of women exposed to pregnancy	93‡	95‡	86§	84§	89	90
percentage of current users using						
the pill	25	38	19	28	24	35
condom	36	31	47	40	22	14
other appliances and chemicals	16	15	20	18	26¶	35¶
safe-period	6	6	6	6	11	6
<i>coitus interruptus</i>	19	12	31	24	4	2
other methods	4	5	2	1	13	8
	106††	107††	125††	117††	100	100
date of survey	1970	1970	1967-68	1967-68	1965	1970
no. of respondents (women)	2440	399	460	237	4810	5884

† Sterile women are treated as non-users.

‡ Excluding pregnant women, those fecund women who were planning to become pregnant and sterile women.

§ Excluding women who had never used birth control or who were pregnant at the time of interview.

|| Excluding women who were sterile or sub-fecund, or who were pregnant, post-partum or trying to become pregnant.

¶ Including sterilization.

†† Total adds to over 100% because some women were using more than one method.

Sources:

England and Wales 1970 – M. Bone, *Family planning services in England and Wales*, London 1973, p. 18. Coverage: married women aged 16-40 years. (Response rate from women was 86%.)

Great Britain 1967/68 – C. M. Langford, *Fertility and contraceptive practice in Great Britain*, forthcoming. Total sample covered 2300 women, in uninterrupted first marriages until age 45 (at time of interview), British born with British husbands. The sub-samples analysed here are restricted to women married before the age of 35.

U.S.A. – C. F. Westoff, The modernization of U.S. contraceptive practice, *Family planning perspectives*, vol. 4, no. 3, July 1972, pp. 9, 10. Coverage: married couples, wife's age under 45, currently living together.

As a result of such post-War developments, and especially of those during the past ten or fifteen years, access to more effective methods for controlling fertility is now far easier than ever before, and such methods are also more widely used. In Eastern Europe and the U.S.S.R., there is a heavier emphasis on abortion than on contraception. When the abortion laws were liberalized by the countries in that region, modern contraceptives were in short supply. As in the case of Japan immediately after the War, recourse to abortion soon became common, and this very fact may have acted as a brake upon the switch from abortion to contraception. In

other countries, legal abortion on broad social grounds or on request came after the habit of preventing conception had been well-established and when chemical or appliance techniques of control were already fairly commonly used. Resort to abortion was thus more likely to act as a supplementary technique, where contraception had failed, though it appears to be the sole technique for a not insignificant proportion of young unmarried women. How far, in a country like Britain, legal abortions have simply replaced former illegal abortions is impossible to tell, for estimates of the numbers of illegal abortions before the changes in the law usually have a slender basis of reality. But it is not unlikely that there has been an increase in the resort to abortion by young unmarried girls and possibly also by older married women in respect of high parity conceptions.²³

TABLE 10. SUPPLEMENT TO TABLE 9: CHANGES IN BIRTH CONTROL PRACTICE IN JAPAN, 1950-71

	survey 1950†	survey 1959†	survey 1965†	survey 1971†	survey 1973†
ever-users as % of respondents	31	66	73	81	84
current users as % of respondents	21	44	56	59	62‡
percentage of current users using certain main techniques					
the Pill	—	—	0	2	2
condom	—	—	65	73	75
other appliances and chemicals§	—	—	31	26	24
safe-period	—	—	39	33	30
<i>coitus interruptus</i>	—	—	10	6	6
other methods	—	—	0	0	1
			145	140	138
no. of respondents (women)	—	—	3140	3223	3750

† In all the survey results, 'no answers' and 'others' have been excluded from the computations. The extent of contraceptive use may thus be slightly overstated.

‡ Of those ever-users not currently practising contraception, an increasing proportion had been sterilized — 3.9% in the 1965 survey, 19.4% in 1971 and 16.3% in 1973. Including those cases would raise the figures for current users substantially in 1965 and 1973.

§ Including i.u.d. and sterilization (the latter amounting to 5.7% in 1965 and 3.9% in 1971).

|| Total adds to over 100% because some women were using more than one method.

Source: S. Kono, *Social and economic correlates of fertility and family planning*, in M. Muramatsu, (ed.), *Japan's experience in family planning — past and present*. Tokyo 1967; and The Population Problems Research Council, Mainichi Newspapers, *Summary of eleventh national survey on family planning*, Tokyo 1972 and *Summary of twelfth national survey on family planning*, Tokyo 1975.

Table 7 shows the marked difference in abortion frequencies between the two groups of countries. In some of the East European countries, abortions have been more numerous than live births. The level of fertility has fallen very sharply, and it is not surprising that efforts have been made to reduce the propensity to use abortion. In Romania this has taken the form of a far more restricted range of grounds for legal abortion from late 1966.²⁴ In Hungary, too, since 1974, access to abortion has become more selective and, in addition, couples intending to marry have to obtain medical advice on contraception. Without a certificate showing that this has been done, the registrar must refuse to marry them.²⁵ Positive measures to encourage women to have children are also now to be found throughout East Europe.

So far as contraception is concerned, a broad comparative picture is given in tables 8-13, based upon the results of the sample surveys carried out in the 1960s and early 1970s. There are also other surveys which do not fit the pattern of the table but are nevertheless of interest in

extending the coverage of direct investigation. For the Netherlands, an investigation in 1969 was based upon samples of three marriage cohorts. Taking the 1963 marriage cohort, 64 % of couples had already used contraception and a further 21 % expected to use it in the future.²⁶ An inquiry in the Irish Republic, carried out in 1973, interviewed a sample of married women aged 15–44 years, of whom 54 % reported that they were using or had used some form of family planning. But when the non-users were asked ‘have you ever been careful or refrained from marital relations in order to avoid becoming pregnant’, 35 % said that they had done so. Including this fraction, the proportion of ever-users becomes 70 %.²⁷ Two surveys in Greece, in 1962–64 and 1966–67, showed a very extensive practice of limiting fertility, especially by illegal abortions.²⁸

TABLE 11. GREAT BRITAIN: DIFFERENTIALS IN BIRTH CONTROL PRACTICE
(Great Britain: percentage of couples who have ever used contraception.)

	date of marriage		
	1941–50	1951–60	1961–65
husband's occupation			
non-manual	88	95	93
manual	82	88	91
religion†			
non-Catholic	86	92	95
Catholic	72	84	80
wife's full-time education (t.e.a.)‡			
Up to 15 years	83	88	90
16 years and over	91	97	93

† Non-Catholic: neither partner Catholic; Catholic: either partner.

‡ Age at completion of full-time education.

Source: C. M. Langford (see table 9) ch. 6. Uninterrupted first marriages, women's age at marriage under 35 years.

TABLE 12. U.S.A.: DIFFERENTIALS IN BIRTH CONTROL PRACTICE
(U.S.A.: percentage of couples who have ever used contraceptives.)

wife's education	1955 survey	1960 survey	1965 survey	husband's occupa- tion (white)	1955 survey	1960 survey	1965 survey
white protestant							
all	75	84	87	all	70	81	84
college	90	93	90	upper white collar	81	86	88
high school (4)	80	86	88	lower white collar	76	84	87
high school (1–3)	70	80	86	upper blue collar	69	79	83
grade school	53	73	72	lower blue collar	62	76	81
				farm	63	81	78
white catholic							
all	57	70	78				
college	62	67	81				
high school (4)	61	73	82				
high school (1–3)	59	73	75				
grade school	41	54	55				
non-white							
all	—	59	77				
college	—	86	85				
high school (4)	—	67	83				
high school (1–3)	—	56	79				
grade school	—	42	58				

Source: N. B. Ryder & C. F. Westoff, *Reproduction in the United States 1965*, Princeton, N.J. 1971, ch. 5.

Where there were earlier investigations – in Britain and the U.S.A. – a comparison of the results shows a systematic increase in ever-use and current use, and a shift to more effective techniques, especially to the pill. This can also be seen from other surveys by an internal analysis – for example, by marriage cohorts. Thus a survey in Britain in 1967–68 showed an increase in the extent of ever-use from 84.6 to 91.4% between the marriage cohorts of 1941–50 and

TABLE 13. TIME OF INITIATION OF BIRTH CONTROL PRACTICE

(a) U.S.A. 1970: currently married white women, age at marriage 20–24 years

(percentage using contraception before first pregnancy)

date of birth of women	total	non-Catholic	Catholic
1931–35	41	52	20
1936–40	40	47	20
1941–45	58	69	36
1946–50	67	71	57

(b) Great Britain, 1967–68: uninterrupted first marriages, women under 35 at marriage

date of marriage	women who have never been pregnant: percentage who had ever used birth control	women who have had one or more pregnancies: percentage who used birth control before their first pregnancy
1941–50	51	44
1951–60	60	53
1961–65	86	49

(c) Japan 1950, 1965, 1971 and 1973 surveys: percentage distribution of current users of birth control by time of starting to use contraception

time of initiation	1950 survey	1965 survey	1971 survey	1973 survey
immediately after marriage	5.9	13.6	18.0	19.8
after 1st birth	18.9	31.0	36.0	34.6
after 2nd birth	21.4	26.9	26.7	28.0
total – not later than after 2nd birth	46.2	71.5	80.7	82.4

Sources:

U.S.A.: R. Rindfuss & C. F. Westoff, The initiation of contraception, *Demography*, **11**, no. 1, February 1974.

Great Britain: C. M. Langford (see table 9), ch. 4.

Japan: The Population Problems Research Council, (The Mainichi Newspapers), *Summary of eleventh national survey of family planning*, Tokyo 1972; and *Summary of twelfth national survey on family planning*, Tokyo 1975.

1961–65, and from 72.1 to 83.7% for current use (among non-pregnant ever-users), while the current use of the pill rose from 5.8 to 28.0% and exclusive dependence upon non-appliance techniques fell from 32.3 to 21.3%.²⁹ Taken together, the data in the tables certainly support the contention of a very substantial extent of fertility control, by contraception or by abortion, or by both together. And for Eastern Europe (including Yugoslavia) the rôle of *coitus interruptus* as the dominant form of contraception is in keeping with the earlier statement that the heavy dependence upon abortion has been associated – at least until very recently – with inadequate supplies of modern contraceptives.³⁰

The spread of contraception has also involved a narrowing of the gap in the extent of its use

between different sections of the population in the various countries. This can be especially well illustrated by the repeated surveys in the United States and by the cohort data of the 1967–68 study in Great Britain. Between 1960 and 1965 in the United States, the gap between white and non-white fell by 22 percentage points; and between 1955 and 1965 by 9 points between Protestant and Catholic, by 10 points between wives with college education and those with only a primary school education, and by 12 points between wives of upper white collar husbands and those of lower blue collar husbands.³¹ The more recent organization of programmes to facilitate access by poorer groups will probably have still further reduced these differences. In Britain the difference in extent of ever-use between the non-manual and manual groups had almost disappeared among the most recent marriage cohorts covered by the 1967–68 study: of the women married in 1961–65, over 91 % of the manual and almost 93 % of the non-manual groups had already used some form of contraception by the time of the survey. The relative difference between Protestants and Catholics was larger than in the United States, but the actual extent of ever-use among Catholics was not less in Britain than in the U.S.³²

The evidence from the United States and Britain shows that the spread in the extent of ever-use of contraception in those countries has been paralleled by the initiation of birth control practice earlier in married life. In the United States, taking women aged 20–24 when they married, the 1970 investigation reported the proportion using birth control before their first pregnancy at 64 % among the women born in 1946–50, in contrast to 43 % of those born in 1926–30.³³ For Britain the equivalent figures from the 1967–68 study are 55 % for the women married in 1961–65, as compared with 45 % for those married in 1941–50.³⁴ Further, these studies also show a greater dominance of appliance or chemical techniques among the more recent cohorts or in more recent years. Of current users in 1970 in the United States, 34 % were using the pill, and other chemical and appliance techniques accounted for 50 %. In Britain, among the current users in the 1961–65 marriage cohort, 28 % were using the pill, while other chemical or mechanical techniques accounted for about 40 % of the rest. Similar developments may be expected elsewhere, if there is a free choice in access to modern contraceptives.³⁵

Earlier in the discussion several factors were mentioned as having helped to promote the legal, administrative and technical changes which have given a new context for fertility control. Some of those factors were no doubt also significant in promoting the use of new facilities. The frequent discussions of birth control, abortion, world population problems and population problems and population policy in the newspapers, in women's magazines and on radio and television could hardly have failed to have some impact, if only by making it much easier than before for couples to talk about limiting the numbers of children. And it is probable that the debate generated by the promulgation of the encyclical *Humanae Vitae* in 1968 was highly effective in this respect, though certainly not by intent. It helped to split Catholic opinion, not only among laymen but also among the clergy, and drew attention to the existence of an important section of the clergy who could not accept the strictures of the encyclical on the legitimacy of artificial means of family limitation.³⁶ Moreover, the split may also have helped to reduce the degree of conflict between Catholic and non-Catholic groups in such countries as the Netherlands, where the relative rate of population growth of the different communities was a political issue. But legal and administrative action and the growing public debate were not independent of other major social changes, and without such changes it is unlikely that the use of the new possibilities would have been so extensive in many countries.

One factor has been the post-War expansion of secondary and higher education in all industrialized countries, capitalist and socialist. The practice of contraception is quite strongly linked to educational level, especially wife's education. In Britain, for example, it is associated with the point of initiation, with the rôle of professional advice and with the adoption of appliance and chemical techniques. The spread of secondary education and the raising of the

TABLE 14. PERCENTAGE OF MALES AND FEMALES ENROLLED IN 'SCHOOL' (FULL-TIME)
(Age groups 15-19 and 20-24 years)

			males	females	ratio: F/M
United Kingdom	1951	15-19	14.9	14.7	0.99
		20-24	3.8	1.8	0.47
	1971	15-19	35.8	35.2	0.98
France	1962	15-19	46.8	52.7	1.13
		20-24	9.7	8.2	0.85
	1968	15-19	54.4	61.1	1.12
Ireland	1961	15-19	28.0	31.8	1.14
		20-24	7.6	2.6	0.34
	1970	15-19	43.3	47.2	1.09
Netherlands	1960	15-19	34.8	24.6	0.71
		20-24	7.5	2.6	0.35
	1960	15-19	36.6	33.9	0.93
Switzerland	1960	15-19	29.6	28.5	0.96
		20-24	8.6	2.9	0.34
	Portugal	1950	15-19	(9.0)	(5.0)
20-24			(4.0)	(2.0)	0.50
1960		15-19	15.3	10.3	0.67
Yugoslavia	1961	15-19	32.0	24.2	0.76
		15-18	55.5	43.5	0.78
	1970	15-19	17.5	18.9	1.08
Hungary	1960	20-24	3.7	1.7	0.46
		15-17	30.6	41.6	1.36
	1970	18-24	11.4	11.8	1.04
Poland	1970	15-19	65.6	66.5	1.01
		20-24	15.1	14.1	0.93
	Canada	1951	15-19	40.8	40.1
20-24			6.4	3.3	0.52
1961		15-19	61.2	55.7	0.91
U.S.A.	1960	20-24	11.3	4.6	0.41
		15-19	71.6	67.3	0.94
	1970	20-24	19.5	9.9	0.51
Australia	1970	15-19	81.0	76.5	0.94
		20-24	26.0	16.2	0.62
	1961	15-19	28.4	24.0	0.85
Japan	1966	20-24	3.7	1.2	0.32
		15-19	21.7	28.1	0.89
	1970	20-24	3.7	1.4	0.38
Japan	1970	15-19	65.1	63.7	0.98
		20-24	17.7	6.1	0.35

Source: United Nations, *Demographic yearbook*, various issues. Department of Education and Science, *Education statistics for the United Kingdom 1972*, pp. 58-9.

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES 19

school leaving age is thus likely to have increased the proportion of women in a better position to take advantage of the new opportunities.³⁷

Secondly, the incentive to control births – at least in respect of spacing – is likely to have been affected by the increase in the employment of married women which has been characteristic of many countries since the War. The story is not a simple one. On the labour market side, the early post-War years of full employment provided opportunities which could only be seized, given the changes in age at and probability of marriage, by the continuance of women in employment after marriage and/or by their return to employment after childbearing and childrearing. In Eastern Europe, it was not just a question of full employment but one of acute post-War labour shortages in many countries, which could only be met by drawing very heavily upon married women. In the 1960s the proportions economically active among married women aged 20–44 were 85 % in Bulgaria and 66 % in Hungary. The figure was much lower, 37.5 %, in Poland, but in East Germany in 1964, the proportion was 65 % of married women aged 18–49 years.³⁸ In the West, too, the proportions have risen. In the U.K. in 1971, 44 % of the married women aged 20–44 were in the labour force, as compared with 29 % in 1951.³⁹

TABLE 15. THE EMPLOYMENT OF MARRIED WOMEN IN SELECTED COUNTRIES
(Economically active women aged 20–44 as percentage of all married women in that age group.)

country	date	percentage
Austria (21–49)	1950	36
Denmark	1950	36
France	1946	42
	1968	31
West Germany	1950	27
Ireland	1951	4
	1966	5
Sweden	1945	14
	1970	42
Switzerland	1950	11
	1970	37
United Kingdom	1951	29
	1971	44
Greece	1951	11
Bulgaria	1965	85
Hungary	1970	66
Romania	1966	77
U.S.A. (20–49)	1950	30
	1970	41
Canada	1951	12
Australia	1947	9
	1971	38
New Zealand	1951	11
	1966	21
Japan	1965	46

Source: United Nations, *Demographic yearbook*, various issues.

On the side of the demand for employment by married women, those in the poorer sections work because of necessity, often in unattractive jobs. Need, at least in relation to a standard of living established by married couples, is also a major factor in the middle sections, but employment is more generally of the white collar type. For those women with university or professional qualifications, independence and career are likely to be more important considerations.⁴⁰ But,

save when the employment is carried on in or adjacent to the home, or when finance allows comprehensive domestic assistance to be provided, the result in general is likely to be smaller families. There is an involuntary element in this result, in that some women continue to work because they do not become pregnant, instead of consciously avoiding pregnancy. The evidence from Britain, for example, suggests that of the women married between 1941 and 1965, about 24 % were infecund or sub-fecund, and that only 15 % of those women had not worked since marriage, as compared with 23 % of the fecund women. But taking the fecund women only, those who had not worked since marriage had an average of 2.57 live births, while for those who had worked the average was 2.09. Even if the type of birth control practice does not differ markedly between working and non-working wives, the data for Britain show that working wives are more likely to have used birth control than wives who have not worked since marriage.⁴¹ The possibility of losing a second income or of having to interrupt a career must provide fairly strong motivation for avoiding unplanned pregnancies. And this may be especially so in East Europe where a wife's employment is the primary means of increasing family income.

A third factor is the at least partial homogenization of the circumstances of the various sections of the population in the industrialized countries. The term is used here in a very general sense, applying to broad social strata as well as to different religious groups.⁴² Such changes as the expansion of education, the provision of more ample welfare services, in spite of their known deficiencies, and the raising of the levels of living of the poorest strata will have tended to reduce the degree of separation of such groups from the rest of the community. This is not to suggest that major differences do not still exist, or that the working classes in Western capitalist countries have become 'bourgeoisified'. The evidence does not support such contentions. But the working classes are less deprived, absolutely, in respect of education, levels of living and styles of life than was characteristic forty or fifty years ago. They are less of a 'fenced off', segregated sub-set of the population than they were in the 1930s. And this change should have helped to narrow the range of variation in family size norms and desires. In fact, of course, the long period fall in fertility had already provided the background for that development by virtually eliminating large families in many countries and by compressing fertility increasingly into the range of 1–4 or even 1–3 child families.⁴³

The breaking of the barriers which formerly marked-off the reproductive behaviour of one section of the community from another may occur quite rapidly, and one of the most interesting examples is that of Quebec. Very largely Catholic by religion, the population of Quebec was traditionally noted for its large families and for the influence of the Church. In 1941, Catholic women whose mother tongue was French and whose education was limited to the primary school stage, had a completed fertility of 7.8 live births (ever-married women aged 45–54 in 1941). Even those who lived in urban communities and had gone beyond the secondary stage in education had an average of over 4 (4.04). By 1961, the comparable figures had fallen to 6.50 and 2.40. The average for Quebec as a whole was 3.84 for women aged 45–49 and this had dropped only slightly – to 3.76 – by 1971.⁴⁴ But these older women reflected the past. By contrast, younger women were heavily involved in controlling their fertility. A survey undertaken in 1971 found that, among married women under 35 years of age, 82% had used birth control and 75% were using it currently (including in this figure 3% who had been sterilized).⁴⁵ And among those currently practising it, 43.5% were using the pill and a further 18% other chemical or appliance techniques (8.4% were using withdrawal and 29.2% either the safe period or total abstinence). Educational expansion may well have played a part in this

transformation, for 55% of the younger women (born 1931–35) had had a secondary or college education (over 12% had been to university) as compared with 37% of the oldest women (born 1906–1910). Moreover, married women of all ages had strong aspirations for the education of their children: 80% wanted their sons to go to university and 70% their daughters. Although 89% of the women were Catholics, few agreed with the doctrine of the church on artificial means of contraception: among the younger women (under 35), three-quarters disagreed with that doctrine, almost two-thirds wanted only two or three children and 62% expected to have only two or three children.⁴⁶ The authors of the report on the survey thought it likely that the youngest generation of Quebec women – women under 20 in 1971 – might perhaps have an average of around 2.5 children. If so, the level of fertility for all women in Quebec will fall to about that shown in 1961 only by those Catholic women who lived in urban communities and whose education had gone beyond the secondary stage.⁴⁷

Against the background of this discussion, it is appropriate to assess the way in which some of the main factors considered may influence the course of fertility in industrialized countries in general in the near future – that is, during the next ten years or so.

First, there is the question of marriage. Apart from Japan, which perhaps should be regarded as still at the tail end of its demographic transition rather than in the post-transition stage, few countries have seen a marked halt in the trend to earlier marriage, and of these few the break in the United States is the most marked, with that in Canada (among women) being less evident. In both countries there has been a worsening of the sex ratio in the marriageable ages – a fall in the ratio of men to women – though that is not necessarily the sole or even the primary cause.⁴⁸ In any case, during the next decade the sex ratio will improve in both countries, more so in the United States than in Canada. And that will apply to many other industrialized countries – again, with Japan as an exception, especially at the younger marriageable ages (see tables 16 and 17). Even where the sex ratios are moderately unfavourable, this may be counterbalanced, if there is a sufficiently strong demand to marry, by changes in the acceptable relative ages of brides and grooms.⁴⁹ We do not know how far marriage rates will respond to economic fluctuations in the near future. But in theory, at least, the much greater ability to control and limit fertility should make the marriage rates less responsive. Though marriage ages may rise again under economic pressure, there seems to be no reason for a return to the position of the 1930s in the Western countries, especially as many of the earlier restrictive customs have been abandoned or at least weakened in their influence.⁵⁰ Future employment opportunities for married women are likely to be important, since they facilitate marriage, though within marriage they are associated with lower fertility.⁵¹

Within marriage, the prospects may be considered under two headings – though the categories are by no means unrelated – namely, the mechanical factors in fertility control and the social and economic factors which may affect motivation in respect of the numbers of children desired.

On the mechanical side, the probabilities are strongly in favour of the spread of more effective techniques of control. This does not necessarily mean the universal and permanent use of the pill. That is improbable, and the drop-out rate for pill use is considerable. But couples who abandon the pill are unlikely to return to *coitus interruptus*; they are more likely to turn to other chemical and appliance techniques. And though these are theoretically less effective than the pill, the lower theoretical effectiveness may be counterbalanced by stronger motivation in actual use for the purpose of stopping rather than spacing births, and by the fall in fecundity

and coital frequency with age.⁵² Easy access to abortion may also serve to counteract failure rates in respect of the higher parity conceptions. The evidence from Britain and other countries for which the data are available shows much higher ratios of abortions to live births for women with two or three prior live births than for women with lower parities.⁵³ Further, sterilization may become a not insignificant terminal method of family limitation in a number of countries. It has already become so in the United States, where in 1970, among married couples with the wife under 45 years of age, there had been such sterilization in 11 % of the cases – that is, of either husband or wife.⁵⁴

TABLE 16. SEX RATIOS (1): MALES 25–29 PER 1000 FEMALES 20–24, 1970–85

	ca. 1970	ca. 1975	ca. 1980	ca. 1985	ratio: 1985 1970
Austria	1064	1032	910	917	0.862
Belgium	831	1023	973	1005	1.209
Denmark	907	1181	1062	989	1.090
Finland	689	1090	1107	1080	1.567
France	738	1015	1041	1004	1.360
West Germany	1210	989	959	932	0.770
Ireland	824	863	910	974	1.182
Netherlands	829	1106	1007	986	1.189
Norway	824	1102	1020	1040	1.262
Sweden	942	1252	1089	1011	1.073
Switzerland	873	1088	1005	1008	1.155
U.K.	856	1136	943	896	1.047
Greece	801	981	922	1040	1.298
Italy	948	1080	1006	935	0.986
Portugal	789	994	1002	—	(1.270)
Spain	874	950	883	947	1.084
Yugoslavia	840	862	1082	1069	1.273
Bulgaria	853	1045	1072	1081	1.267
Czechoslovakia	830	1010	1165	1056	1.272
Hungary	946	893	1212	1289	1.363
Poland	689	843	1028	1267	1.839
Romania	875	859	1040	1311	1.498
East Germany	1296	740	1036	960	0.741
U.S.S.R.	712	823	920	1071	1.504
Canada	817	895	924	—	(1.131)
U.S.A.	816	917	940	1028	1.260
Australia	880	1030	1019	1049	1.192
New Zealand	821	914	924	1000	1.218
Japan	1206	1201	997	833	0.691

Sources: For O.E.C.D. countries (including Japan), O.E.C.D. *Demographic trends 1970–1985 in OECD member countries*, Paris 1974 – projections excluding migration. For remaining countries, U.N. population projections as assessed in 1973 – country data supplied by U.N. Population Division, based upon medium variant projection. (The general results of the 1973 projections are given in U.N. Population Division, *World population prospects 1970–2000, as assessed in 1973*, ESA/WP.53, 10 March 1975. The age data for individual countries are from unpublished tables).

That there is considerable scope for improvement in the use effectiveness of contraception is evident from all the birth control surveys which have been undertaken. For Britain, for example, the 1967–68 survey found that, among the women married in 1951–60, 21 % of the pregnancies of working class wives were accidental and 14 % of those of middle class wives. For fourth pregnancies, the percentages were 44 and 19. There was also a considerable frequency

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES

23

of 'unwanted' pregnancies – that is, the women reported that, at the time the pregnancy occurred, they did not want the baby at all. For the same marriage cohort, the figures are 17 and 9 % for all pregnancies and 41 and 14 % for fourth pregnancies.⁵⁵ The analysis of the 1965 survey in the United States is based upon a somewhat different approach, but a roughly equivalent assessment may be obtained from the following statistics. Taking the women who wanted their last pregnancy, but did not want all pregnancies to occur as soon as possible,

TABLE 17. SEX RATIOS (2): MALES 20–54 PER 1000 FEMALES 15–49, 1970–85

	<i>ca.</i> 1970	<i>ca.</i> 1975	<i>ca.</i> 1980	<i>ca.</i> 1985	ratio: 1985 1970
Austria	1009	957	958	965	0.956
Belgium	949	993	989	1006	1.060
Denmark	976	994	985	985	1.009
Finland	894	942	965	970	1.085
France	948	998	996	998	1.053
West Germany	933	992	994	998	1.070
Ireland	939	923	920	932	0.993
Netherlands	955	978	975	985	1.031
Norway	1000	1005	989	968	0.968
Sweden	1022	1041	1019	1005	0.983
Switzerland	896	923	933	963	1.075
U.K.	995	1003	971	973	0.978
Greece	903	908	950	939	1.040
Italy	929	981	977	980	1.055
Portugal	818	851	856	—	(1.046)
Spain	923	929	932	946	1.025
Yugoslavia	739	930	976	998	1.350
Bulgaria	944	1008	1019	1018	1.078
Czechoslovakia	896	977	983	982	1.096
Hungary	881	931	974	1013	1.150
Poland	846	909	973	995	1.176
Romania	887	956	979	972	1.096
East Germany	833	920	957	1006	1.208
U.S.S.R.	804	857	935	959	1.193
Canada	912	916	929	—	(1.019)
U.S.A.	902	907	917	944	1.024
Australia	981	995	995	995	1.014
New Zealand	934	929	931	936	1.002
Japan	959	989	993	901	0.940

Sources: As in table 16.

62 % had had at least one accidental pregnancy, that is, there had been a failure in timing. As regards unwanted births, the proportion of women whose last pregnancy was unwanted was 32 %. These failure rates were higher for women with less education and higher for black women than for white.⁵⁶ Since 1965, the effectiveness of contraceptive practice has improved in the United States – partly through the wider adoption of the pill but also partly through the more efficient use by couples of the various techniques actually applied. Comparing the failure rates within the first year of exposure to the risk of an unintended pregnancy, the proportions fell between the 1951–55 and 1966–70 marriage cohorts from 34 to 17 % for couples who wanted to delay a further pregnancy and from 23 to 13 % between the cohorts of 1951–55 and 1961–65 for those who wanted to prevent a further pregnancy from occurring. In each case, about a half or slightly more of the reduction is attributed to the adoption of the pill.⁵⁷

It is probable that in the United States and Britain, the effectiveness of contraception will improve still further during the next decade and thus lower the proportion of accidental and unwanted pregnancies.⁵⁸ How far this actually happens will depend partly upon the rôle of appropriate advice on contraception, but no less upon the general educational and socio-economic levels of husbands and wives. In countries in which, at least until very recently, relatively crude techniques have been predominant – notably in Eastern Europe – the improvement in effectiveness may be quite marked if there is full provision of modern contraceptives.⁵⁹ But the effect on the overall control of fertility will also depend upon the extent to which contraception simply replaces abortion as a means of control. In turn, there may be – and have been – efforts to restrict access to abortion. The most striking example of such efforts is the case of Romania. It is clear that women in Romania used abortion as a primary means of limiting fertility and when, made anxious by the fall in the crude birth rate to very low levels – it was 14.3 per 1000 in 1966 – the government repealed the existing legislation and greatly restricted the use of abortion, the birth rate shot up to 27.4 in 1967. But thereafter, women obviously accommodated themselves to a substantial degree to the new situation and turned to other techniques. By 1972 the birth rate had fallen to 18.8. Whether those other techniques will be as effective as abortion had been, only time will tell. But if the main technique is *coitus interruptus* that is unlikely to be the case.⁶⁰

Given the availability of modern techniques, to what family sizes will married couples attempt to restrict their fertility? Here the evidence is far less secure. So far as the past is concerned, there is no doubt about the facts. In every country for which data are available there has been a systematic elimination of large families. Though the timing has differed between different countries, the data for Norway and Great Britain will suffice as an indication of the general tendency. Taking marriages of 20 years duration, in Norway, couples with not more than 3 live births (including childless couples) amounted to 33.1 % of all those who married in 1900, but 77.8 % of those who married in 1941. For Great Britain, (uninterrupted first marriages, women under 45 years of age at marriage) the comparable figures are 58.5% for the marriages of 1900–09 and 86.7 % for marriages of 1941. During the post-War rise in fertility, childless and one child marriages tended to diminish in frequency and there was sometimes a slight increase in the proportion of 4-child marriages. Even so, at 10 years duration of marriage, the proportion of couples in Britain with not more than 3 live births scarcely differed between the marriage cohort of 1931, with very low average fertility, and the cohorts of 1951 and 1962: the figures are 90.5, 90.7 and 90.0 % respectively.⁶¹ For none of the industrialized countries is there evidence suggesting a return to large families. It is in respect of the range from 0 to 3 live births that the uncertainty mainly lies.

Attempts have been made to use attitude questions to serve as indicators of prospective trends in fertility, but they have not proved to be good predictors. Questions on ‘ideal family size’ serve to illustrate the stereotypes of the period and of the country concerned but almost invariably report very much smaller proportions of childless and one-child families than obtain in reality.⁶² Questions on expected total or additional numbers of births are largely tautological so far as older women are concerned; for they do not differ greatly from numbers already borne. For younger women they are an insecure basis for prediction, for it is probably rare for ultimate family size to be firmly planned at the point of marriage or for attitudes to additional births to be entirely unaffected by marital experience and by changes in circumstances. Perhaps the combined use of information on the desired number of births and on whether each specific

birth was definitely wanted or unwanted may yield more realistic results. As applied by Ryder & Westoff to their 1965 and 1970 surveys of fertility and birth control practice in the United States, the technique suggested that as between 1965 and 1970 the fall in fertility had two components of about equal magnitude – a decline in the rate of unwanted fertility and a decline in the number of wanted births. These developments, they found, had been shared by all sections of the population.⁶³ The analysis is persuasive and is important in showing that the recent fall in fertility in the United States cannot be explained solely by changes in birth spacing or by the wider and more effective use of contraception. It is not unlikely that the combination of tighter means of control of fertility and of motivation to have smaller families applies to many other industrialized countries whose fertility has also fallen since the 1960s.⁶⁴ But this again relates to the past, albeit to the recent past.

As for the future, we can only speculate, and my own speculations would run along the following lines. There is room, in the next ten or fifteen years, for further convergence of family sizes between and within the various countries in the group considered. And such a convergence is probable, not because of the diffusion of ‘middle class values’ but because of the continuation of general social and economic changes influencing the attitudes and behaviour of married couples. Those changes not only include easier access to more effective techniques for controlling fertility, but also expanded education and decreased educational inequality between males and females, a further shift in occupational structure towards skilled manual and white collar jobs, greater employment opportunities for women in general and for married women in particular, and the continued swing, in the less industrialized countries in Southern and Eastern Europe, from agricultural to industrial employment and from rural or urban living. Convergence is likely to result in some further decline in fertility. But unless there is acute economic distress comparable to that of the early 1930s, it is doubtful if the overall decline would be very large. In practice there is likely to be a lower boundary, set by the fact that childlessness is not attractive to many married couples and that the one-child family is also unpopular.⁶⁵ Since some childless and one-child families are inevitable, the average number of children per couple is likely to be considerably nearer to two than to three. But there will be fluctuations. With much greater ability to control fertility, birth-spacing may well be very responsive to changes in economic circumstances, and this in turn may affect mean family size. In an interesting paper on population projections, Brass opted for the assumption of cyclical movements in period fertility in England and Wales on the grounds that this assumption best fitted the experience of the past forty years.⁶⁶ But there is likely to be an interaction between period fertility fluctuations – as revealed in birth spacing – and the ultimate mean family size of marriage or birth cohorts. The postponement of births in response, say, to a rise in unemployment, may mean that some births, especially to older women, will be postponed indefinitely.⁶⁷ Conversely, if ‘good times’ or prospects persuade couples who want two children to reduce the interval between marriage and the first birth, or between the first and second birth, their action, by extending the period of exposure to risk beyond the target of two children, and at the still highly fecund ages, might well produce some additional accidental pregnancies, not all of which are likely to be aborted. After all, apart from the terminal method of sterilization, no contraceptive technique at present available is completely effective in practice.⁶⁸

No allowance has so far been made for the possible impact on family size of explicit population policies. For many countries this seems less important now than might have been expected a few years ago. When, with the still fairly high birth rates of the 1950s and 1960s, public concern

with population growth increased, it was often assumed that in industrialized countries, as well as in the Third World, there should be policies designed to reduce growth rates. But though that view is still quite frequently expressed, official interest has tended to be what has been called in Britain, 'low profile' in nature. With the recent fall in fertility this is likely to continue to be the case. In such circumstances, the measures which may be expected will be of the type which are considered desirable in their own right, irrespective of their demographic impact, but which may also reduce fertility. The generalization of family planning services in Britain and the legalization of abortion on comprehensive grounds are examples. By contrast, in Eastern Europe, the measures are more likely to be – and already are – pro-family and pro-natalist.⁶⁹ In general, a mixture of both types is a not unrealistic possibility. Thus to increase the opportunities for married women to work, more creches and day nurseries may be established, with the object of reducing the conflict between employment and child-rearing. But unless the measures are radical – such as the denial of access to contraception and the restriction of legal abortion to narrowly therapeutic grounds – the effects would probably be marginal, as indeed they have been (at most) in respect of pro-natalist policy in France and Belgium. And even radical restrictions may fail to produce the desired results if there is a powerful counter motivation on the part of husbands and wives.⁷⁰

NOTES

1 J. Hajnal, 1965 European marriage patterns in perspective, In *Population in history* (ed. D. V. Glass & D. E. Eversley), pp. 101–143. London:

There have also been differences within Eastern Europe – as between the Baltic provinces and Czechoslovakia, with lower probabilities of, and a higher age at marriage, and Romania and the Balkan areas with low age at marriage and extremely high marriage probabilities. On the factors associated with these differences, see June L. Sklar, The role of marriage behaviour in the demographic transition: the case of Eastern Europe around 1900, *Population Studies*, 28, no. 2, July 1974, pp. 231–247. It is unfortunate that published census statistics for the U.S.S.R. do not show the proportions of ever-married or never-married men and women, the most recent figures available to me being for 1926. However, Mr J. Berent, of the Economic Commission for Europe, drew my attention to, and sent me a copy of, some data in *Vestnik Statistiki*, 1967, no. 8, purporting to be a nuptiality table for females 1949–59, based upon information obtained in 1960 in a fertility survey undertaken by the Central Statistical Board. The survey covered the families of workers, employees and collective farmers involved in regular family budget inquiries. (The table appears to be of gross nuptiality – that is, excluding mortality, which in any case would be light between the ages of 15 and 50, covered by the table.) With a radix of 10 000 single women at age 15, the probability of remaining single was 0.679 by age 20, 0.274 by age 25 and 0.080 by age 50. Though these figures imply a quite high marriage propensity, it is not extraordinarily high as compared with nuptiality in England and Wales in the 1960s. It should, however, be remembered that a current nuptiality table may well give unrealistically high marriage probabilities, the result of splicing together the experience in a short period of different generations of women.

2 E. van de Walle, 1972, Marriage and marital fertility. In *Population and social change* (ed. D. V. Glass & R. Revelle), pp. 137–151. London:

3 I am using the term 'demographic transition' in a purely descriptive sense, referring to a country which has moved from a situation of high fertility and high mortality to one of low fertility and low mortality. I do not regard as valid the conventional view which explains the historical fall in fertility as a lagged response to a fall in mortality. My comments on that view will be found in M. C. Sheps & J. C. Ridley, eds, *Public health and population change*, Pittsburgh 1965. Recent research has shown that there are no simple generalizations which offer a satisfactory explanation of the transition, and that it is necessary to take account of the specific historical circumstances in the particular countries concerned. See A. J. Coale, The demographic transition reconsidered, I.U.S.S.P., *International population conference, Liège 1973*, vol. I, pp. 53–71.

4 The most comprehensive study of trends in marriage and fertility in Ireland is that of R. E. Kennedy Jr, *The Irish. Emigration, marriage, and fertility*, Berkeley, Los Angeles, London 1973. For a discussion of more recent trends see B. M. Walsh, Ireland's population prospects, *Social Studies*, 3, no. 3, June 1974, pp. 254–260; also two other papers by him, namely Ireland's demographic transition, 1958–70, in *The Economic and social review*, 3, no. 2, January 1972; and Trends in age at marriage in postwar Ireland, *Demography* 9, no. 2, May 1972.

Walsh believes that the change in marriage patterns in Ireland has been at least in part associated with the adoption of birth control. The rôle of a supportive society of single males in facilitating the maintenance of lay celibacy in Ireland in the past is discussed in J. Newman (ed.), *The Limerick rural survey 1958-64*, Tipperary 1964, especially pp. 218-219 and 235-236.

5 In 1926-30 the difference between the mean age of spinsters marrying bachelors and bachelors marrying spinsters was 2.08 years (it had been 1.74 years in 1901-5). By 1960 this had increased to 2.64 years. It then narrowed - in 1972 it was 2.17 years. (*Registrar General's statistical review of England and Wales . . . 1972*, Part II, Tables, Population, London 1974, p. 63, Table L.)

6 Data from the 1959/60 Population Investigation Committee national sample survey of marriage and birth control practice in Britain show that, leaving aside the exceptional war years, the percentage of couples whose length of acquaintance before marriage was less than 2 years was substantially greater for the marriages of 1950-59 than for those of 1930-39. For women marrying at under 25 years of age, the percentage in 1950-59 was 31, as compared with 16 in 1930-39, and the change was relatively more marked for older women - for women aged 25-34 at marriage, 25% for the 1950-59 marriages, as compared with 11% for those of 1930-39. Though these results are not categorical evidence of pressure, they do suggest that, during the marriage boom, there was less hesitation in marrying after meeting. For some general findings on marriage in Britain, derived from the 1959-60 survey, see E. Grebenik & G. Rowntree, Factors associated with age at marriage in Britain, *Proc. R. Soc. B* **159**, 974, 10 December 1963.

7 The data are derived from Table QQ(b) in the *Registrar General's statistical review of England and Wales . . . 1972*, p. 176.

8 N. B. Ryder, The time series of fertility in the United States, I.U.S.S.P., *International population conference, London 1969*, vol. 1.

9 United Nations estimates of the percentage of total population in localities with 20 000 or more inhabitants are as follows:

	1930	1950	1970	projected 1980
N. Europe	56	58	62	63
W. Europe	43	45	52	55
S. Europe	28	34	43	46
E. Europe	26	29	35	37
U.S.S.R.	13	28	43	51

Source: United Nations, *Growth of the World's urban and rural population, 1920-2000*, New York 1969, Table 56, p. 124.

10 Demographic Research Centre, Belgrad, *The development of Yugoslavia's population in the post-war period*, Belgrad 1974, p. 37. The highest fertility in 1970 was in the province with the highest percentage of illiterates - Kosovo in Serbia. It was also the province with the highest proportion of agricultural employment and the lowest proportion of women in the active population.

11 See G. Masuy-Stroobant, *ABC de la Démographie Belge*, Brussels 1974, pp. 34-35.

12 Several tables showing the relation between fertility and socio-economic status (and also of religion) were included in an earlier survey of fertility trends in Europe (D. V. Glass, Fertility trends in Europe since the Second World War, *Population Studies*, **22**, no. 1, March 1968, pp. 103-146). For further discussion see: E. Bernhardt, *Trends and variations in Swedish fertility - a cohort study*, Stockholm 1971; G. Calot & J.-C. Deville, 'Nuptialité et fécondité selon le milieu socio-culturel', *Economie et Statistique*, no. 27, October 1971; L. Tabah, *Rapport sur les Relations entre la Fécondité et la Condition Sociale Économique de la Famille en Europe*, Council of Europe, 2nd European Population Conference, Strasbourg 1971; C. V. Kiser, W. H. Grabill & A. A. Campbell, *Trends and variations in fertility in the United States*, Cambridge, Mass., 1968. On trends in Australia see (W. D. Borrie) *Population and Australia* (First Report of the National Population Inquiry), Canberra, 1975, vol. 1, pp. 55-57.

13 On the changing position in the Netherlands, see H. G. Moors, *Child spacing and family size in the Netherlands*, Leiden 1974. Some data on Britain and the U.S.A. are given later in the section on contraceptive practice. An interesting discussion, based on surveys of ideal family size in the U.S.A., will be found in J. Blake, 'The Americanization of Catholic reproductive ideals', *Population Studies*, **20**, July 1966, pp. 27-43. On Britain, see additionally, R.-C. Chou & S. Brown, A comparison of the size of families of Roman Catholics and non-Catholics in Great Britain, *Population Studies* **22**, part 1, March 1968, pp. 51-60.

14 On the attitude of the medical profession in Britain, see J. Peel, Contraception and the medical profession, *Population Studies* **18**, part 2, November 1964, pp. 133-145. On the general development of birth control facilities in Western Europe, see my paper on Family planning programmes and action in Western Europe, *Population Studies* **19**, no. 3, pp. 221-238.

15 The law and its changes in France are discussed in J. Doublet & H. de Villedary, *Law and population growth in France*, Tufts University, Medford, Mass, 1973. Under the previous repressive 1920 law, the condom was not

prohibited, for it was defined as a protection against venereal disease and not as a contraceptive. But perhaps this association with VD helps to account for the fact that it did not – and does not now – appear to be popular with married couples in France – far less so than *coitus interruptus*. It should, however, be noted that in France in the 19th century the Catholic Church played an important part by ‘accepting’ the reality of the situation and refraining from questioning couples on their use of *coitus interruptus*. The movement towards greater rigorosity in the application of Catholic doctrine occurred with the use of artificial contraceptives and the threat of depopulation. The new drive, initiated in Belgium by Father Vermeersch and Cardinal Mercier in 1909, finally led to the 1930 encyclical, *Casti connubii*. See J. Stengers ‘Les pratiques anticonceptionnelles, dans le mariage au XIX^e et au XX^e siècle: problèmes humains et attitudes religieuses’ *Revue belge de philologie et d’histoire*, XLIX, parts 2 and 4, 1971.

16 Perhaps the first modern contraceptive produced in Britain before World War II was ‘Volpar’. It was the result of research undertaken by J. R. Baker, F.R.S., with the support of the Birth Control Investigation Committee. Baker began his research in the Department of Zoology, Oxford University, but was later denied the use of the laboratories when it was found that his research was on contraception. He was then taken into the Department of Pathology by Professor Howard Florey, F.R.S. (later President of the Royal Society) and completed his research there. (J. Peel, see note 14.)

17 It is said that both *coitus interruptus* and illegal abortion are fairly common in Spain; and that the pill has also come into use increasingly in recent years. There have been no surveys of birth control practice in Spain, but several surveys of attitudes to contraception, all showing fairly conservative views. Thus a survey in 1969–70 reported the views of housewives regarding the use of the pill, if the Church were to allow its use – even then only 16% said that they would use it. Nevertheless, given the level of fertility and the differences between regions and social strata, the control of fertility is evident. (C. F. Gallagher, *Religion, class, and family in Spain*, Part II, American Universities Field Staff Reports, West Europe Series, vol. 8, no. 7, 1973.) A new sample survey of knowledge of, and attitudes to, family planning was undertaken in Spain in 1972 by Professor Juan Díez Nicolás, but the main results had not yet been published at the time of writing. Portugal has a Family Planning Association linked to the I.P.P.F., with services through 16 family planning clinics. An interministerial commission on population policy has been set up in the Ministry of Social Affairs and is stated to have the task of promoting family planning in Portugal (*I.P.P.F. News*, 4/75).

In Ireland, the sale, import and advertising of contraceptives are prohibited under the 1935 Criminal Law Amendment Act. In 1973 the Supreme Court ruled that the ban on imports violated private rights and was unconstitutional. There are family planning clinics in Dublin and birth control devices are distributed by mail. But so far, attempts to amend the 1935 Act have failed. (K. Wilson-Davis, The contraceptive situation in the Irish Republic, *J. biosocial Sci.* 1974, 6, pp. 483–492).

18 This is said to be the case in the Netherlands and to a considerable extent in Switzerland. In France, before the recent change in the law, illegal abortion was acknowledged as widespread. In Greece, illegal abortion has been – and is – a major means of limiting fertility. A sample survey of married women in 1966–67 (under representing upper socio-economic strata and over representing the urban population), found that 2266 of the 6502 women interviewed admitted having had induced abortions; the overall ratio was 34 abortions per 100 live births and 216 abortions per 100 women who had admitted recourse to abortion. At the same time, the authors recognize that their study – and this appears to be generally the case of surveys which ask women about their use of abortion, even surveys in countries with laws allowing abortion on demand – underestimated the frequency of abortion (V. Valaoras, A. Polychronopoulou and D. Trichopoulos. Abortion in Greece in *Social demography and medical responsibility*, (Proc. 6th Conf. of International Planned Parenthood Federation, Budapest 1969), London 1970, pp. 31–44.)

19 Under the 1948 Eugenic Protection Law, as amended in 1952. Public health insurance, covering some 70% of the population, allowed very cheap abortions for health reasons (J. van der Tak, *Abortion, fertility, and changing legislation: an international review*, Lexington, Mass., 1974, pp. 30–34).

20 On the U.S.S.R. see H. P. David, *Family planning and abortion in the socialist countries of Central and Eastern Europe*, Tufts University, Medford, Mass., 1972; and H. P. David, Abortion and family planning in the Soviet Union: public policies and private behaviour, *J. biosocial Sci.* 1974, 6, pp. 417–426.

21 The history of systematic efforts to suppress abortion in France goes back to the 16th century, when the registration of pregnancy was made compulsory as a device for deterring women from resorting to abortion or infanticide. In the 19th and early 20th century, abortion was treated as a crime, under the Penal Code. But this involved trial by jury and few defendants were found guilty. Later, to increase the probability of a verdict of guilty, abortion was defined as a misdemeanour, subject to trial by magistrate alone. ‘Flying squads’ were organized, with the object of catching professional abortionists *in flagrante* and during the Petain administration professional abortionists were liable to the death penalty. In the inter-war period it was widely believed that midwives were the main professional abortionists, but that there was also a considerable amount of self-induced abortion.

The new French law, which came into force in January 1975, is supposed to guarantee the right to abortion to women during the first 10 weeks of pregnancy. However, access to abortion is by no means easy. Senior obstetricians, who appear to control access, are often conservative and hostile to abortion except for strictly therapeutic

reasons; there is a shortage of available hospital beds; the referral system gives rise to delays; and costs are at present high and are not covered by health insurance. But it is hoped to bring down costs to a maximum of 400 francs for a 12 h stay in hospital, without anaesthesia (*People* 2, no. 2, 1975, pp. 37–38 and 42).

22 In this case it was the Third World which was responsible for the innovation – the vacuum-aspiration technique, now widely used in the West, was invented and developed in China. On the rôle of abortion in limiting fertility see C. Tietze and J. Bongaarts *Fertility rates and abortion rates: simulations of family limitation*, *Studies in family planning*, Vol. 6, No. 5, May 1975. The authors allow for contraception but not for abstinence.

23 In Britain in 1971, the ratio of abortions to live births was 81% for unmarried women and around 30% for married women with 4 or more previous live births. (IPPF Europe, *Legal abortion in Britain*, October 1973, ed., p. 7, Table 4.10). For the latter women, abortion was followed by sterilization in a substantial proportion of cases – for the wives of skilled manual workers, this ranged from 52% of cases of women with 4 children to 70% for women with 7 or more children. See also R. Leete, *Some comments on the demographic and social effects of the 1967 Abortion Act*, M.Sc. Dissertation, London School of Economics, 1974. Post-abortion sterilization rates have also been high in Finland and Denmark. So far as young unmarried women are concerned, there is evidence of a considerable amount of ‘unprotected’ intercourse. In the United States, for example, some four-fifths of the sexually experienced girls aged 15–19 had had experience of intercourse without the use of contraception. Only 15% of black girls and 21% of white had ‘always’ used contraception. (M. Zelnik & J. F. Kantner, *Sexuality, contraception and pregnancy among young unwed females in the United States*, Commission on Population Growth and the American Future, *Research Reports*, ed. C. F. Westoff & R. Parke, Jr., vol. 1, *Demographic and social aspects of population growth*, Washington D.C., 1972, pp. 359–374.) For England, it was estimated that between 15 and 21% of single women are ‘from time to time, exposed to a high risk of conception through unprotected intercourse’ – especially the daughters of manual workers. (M. Bone, *Family planning in England and Wales*, London 1973, p. 62. The single women in the survey were in the age range of 16–35 years.)

24 M. S. Teitelbaum, *Fertility effects of the abolition of legal abortion in Romania*, *Population Studies* 26, part 3, November 1972, pp. 405–417, and J. van der Tak (note 19), p. 45. In addition, the import of i.u.ds and the pill was stopped. See also I. Ceterchi *et al.*, *Le droit et la croissance de la population en Roumanie*, Bucharest 1974, ch. 3.

25 Decision of the Council of Ministers, October 18, 1973. The decision still allows abortion on socio-economic grounds and provides for the widespread teaching of knowledge concerning family planning.

26 H. G. Moors (note 13), p. 105.

27 The survey covered 766 married women. Not surprisingly, a major part of current contraceptive practice consists in the use of the safe-period (62%), while the pill accounted for 16.5% and *coitus interruptus* for 13%. ‘Prohibited techniques’ accounted in total for 38% of current use. K. Wilson-Davis, *Irish attitudes to family planning*, *Social Studies* 3, no. 3, June 1974, pp. 261–275. The International Health Foundation sponsored several birth control surveys in 1970 – in Italy, Belgium, France, Britain and West Germany. They appear to have been based upon quota sampling, and they greatly overrepresent married women under 25 years of age. The percentages of married women (under 45 years of age) currently using contraception ranged from 65% in Italy to 81% in Belgium – with Britain reported at 77%, France at 75% and West Germany at 73%. The most extensive use of the pill was reported for West Germany (34%), of the safe period for Belgium (24%), and of *coitus interruptus* for Italy (32%) and France (30%). Condom use was most frequent (29%) in Britain. (International Health Foundation, *Family Planning*, Geneva, 1971, p. 35.)

28 See note 18.

29 C. M. Langford, *Fertility and contraceptive practice in Great Britain*, forthcoming. The survey, a project of the Population Investigation Committee, was based upon a sample of 2309 married women born in the U.K. in 1907 or later, married to their first husbands at least until the age of 45, their husbands also having been born in the U.K. The main analyses – including that referred to above – are based upon the women whose age at marriage was under 35 and whose first marriages took place between 1941 and 1965 inclusive. (These restrictions were necessary in order to minimize bias in age at marriage as between different cohorts.)

30 This has been changing. In Hungary, for example, the annual sales of the pill at pharmacies rose from 1.79 million cycles in 1970 to 4.53 million in 1974, in which year they amounted to 149 per 1000 women aged 17–49 years. The adoption of the pill may help to account for the fall in the number of abortions from 170 000 in 1973 to 103 000 in 1974. (Information from Dr E. Szabady, 6 April 1975.) The series of surveys for Japan (table 10) shows a continuing increase in ever-use of contraception, but not a swing to the pill, which is not generally available. It is the condom which has been mainly involved in the spread of contraceptive practice – associated with improvements in quality and an intensification of ‘marketing’. A further survey by the Mainichi Press of birth control in Japan (the 13th in the biennial series) was carried out in May/June 1975, covering 3750 married women under 50 years of age. A preliminary report indicates that the proportion of women who had never used contraception had fallen still further to 13.3%, and the proportion currently using contraception was over 60%. The condom was still the main contraceptive, followed by the safe period. The i.u.d. accounted for 8.6% of methods, sterilization for 4.7% and oral contraceptives for 3%. (*Mainichi Daily News*, 26 June 1975, pp. 1 and 4 – kindly sent to me by Dr Toshio Kuroda, Director of the Institute of Population Problems, Ministry of Health and Welfare, Tokyo.)

31 N. B. Ryder & C. F. Westoff, *Reproduction in the United States 1965*, Princeton N.J., 1971, ch. 5. In 1970, the proportion of couples (wives under 45) who had never used contraception was 15.9%, compared with 17.1% in 1965. For blacks there was some increase in never-use, from 24.3 to 25.2%, accounted for by a decline in ever-use among the younger couples (C. F. Westoff, The modernization of U.S. contraceptive practice, *Family Planning Perspectives* 4, no. 3, July 1972, pp. 9–12).

32 C. M. Langford (see note 29), ch. 6. In 1965, U.S.A., 78% of Catholics had used contraception and 87% of Protestants. In Britain, in the 1961–65 marriage cohort, the comparable proportions were 80 and 94.5%. Moors' study in the Netherlands found that, in the 1963 marriage cohort, the proportions of couples using or expecting to use contraception, classified by wife's religion, were 73% for Calvinists; 78% for Catholics and 76% for Dutch Reformed. The 1958 cohort also showed very small differences, though at a lower overall level (see p. 110). The largest differences were by residence – as between rural areas and the three big cities.

33 R. Rindfuss & C. F. Westoff, The initiation of contraception, *Demography* 11, no. 1, February 1974, pp. 75–87. The percentages, which are slightly different from those in table 13, appear to relate to all ever-married women, white and black.

34 C. M. Langford (see note 29). The figures cover all the women in the cohorts, whether or not they had ever been pregnant by the time they were interviewed. (Women under 35 years of age when they married.) For France the proportions appear to be much lower, according to the 1971 study. Taking the women who married in 1951–60, of those under 27 years of age at marriage only 26% used contraception before their first pregnancy. This may reflect a difference in birth-spacing patterns.

35 But there may be a virtual embargo on (or lack of availability of) particular contraceptives in some countries. In Japan, for example, the pill has not been available for general use, and the i.u.d. was banned until 1974 – though it is reported that about a million Japanese women are using the Ota ring.

36 In the U.S.A., a survey in 1969–70 of the opinion of Catholic clergy found that those who regarded all artificial contraception as morally wrong, or who were uncertain but nevertheless believed that the faithful were bound to follow the teaching of the Church, amounted to only 38% of the respondents (M. J. Moore, *Death of a dogma? The American Catholic Clergy's views of contraception*, Chicago 1973). The use of the pill by Catholic couples in the U.S.A. does not seem to have been reduced by the publication of the encyclical. (N. B. Ryder, Time series of pill and i.u.d. use: United States, 1961–1970, *Studies in family planning* 3, no. 10, October 1972.) For the history of Catholic teaching on birth control, see J. T. Noonan, Jr, *Contraception. A history of its treatment by the Catholic Theologians and Canonists*, Cambridge, Mass. 1965; and J.-L. Flandrin, *L'Église et le contrôle des naissances*, Paris 1970.

37 The relationship between women's education, divorce and abortion is examined by D. P. Mazur, Social and demographic determinants of abortion in Poland, *Population Studies* 29, no. 1, March 1975, pp. 21–35. The relationship between women's education and abortion is likely to be different as between countries with a choice of modern contraceptives and with abortion as a 'back-up' technique on the one hand, and countries with low availability of contraceptives and in which abortion is the primary technique for controlling fertility.

38 J. Berent, Some demographic aspects of female employment in Eastern Europe and the U.S.S.R., *International Labour Review* 101, no. 1, January 1970, pp. 175–192; and J. Berent, Causes of fertility decline in Eastern Europe and the Soviet Union, *Population Studies*, 24, nos. 1 and 2, March and July 1970, pp. 35–38 and 247–292.

39 In England and Wales, 1971, the activity rates for married women by age were: under 25, 46%; 25–34, 40%; and 35–44, 56%. See K. E. Gales & P. H. Marks, Twentieth century trends in the work of women in England and Wales, *J. R. statist. Soc., A*, 137, part I, 1974, p. 67.

40 See J. Morsa & G. Julemont, Une enquête nationale sur la fécondité, IV, *Population et famille*, nos. 26–27, December 1972, pp. 15–70, especially pp. 55–62. On the question of professional employment for women, see R. S. Cooney, Female professional work opportunities: a cross-national study, *Demography* 12, no. 1, February 1975, pp. 107–120.

41 The data for Britain are from the 1967–68 survey of the Population Investigation Committee. Taking only 'fecund' women (the assessment of infecundity was on the basis of information given by the women), the relation between ever-use of contraception and employment since marriage is shown in the following table.

PERCENTAGES OF MARRIED WOMEN WHO HAD EVER USED BIRTH CONTROL

years worked since marriage	date of marriage		
	1941–50	1951–60	1961–65
never	84	91	90
0–5	93	95	95
6–10	96	98	—
11 and over	86	—	—

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES

31

Save for the category of 11 years or more for the women who married in 1941–50, the relation is consistent throughout the sample.

In the case of Belgium, the national survey did not appear to find much difference between working and non-working wives. However, Professor Jean Morsa kindly carried out a special tabulation for me, based only on fecund women and comparable with the table for Britain given above. The results are summarized in the following table.

BELGIUM: PERCENTAGES OF MARRIED WOMEN WHO HAD EVER USED BIRTH CONTROL

years worked since marriage	duration of marriage (years)			
	under 5	5–9	10–14	15 and over
never	81	92	94	95
less than 2 years	85	92	97	97
2 and less than 5 years	90	98	96	98
5 years or more	—	95	97	95

For Belgium, too, the results are generally consistent with the conclusion that married women who work are more likely to use contraception to space or limit their births. (Letter from Professor J. Morsa, 22 May 1975.) And the Belgian data offer additional support in that the numbers of expected births were consistently lower for women who had worked than for those who had not, or who had worked for only a short period. (J. Morsa & G. Julémont (see note 40, pp. 56–60).) It was not possible to obtain comparable tabulations from the 1970 U.S. Survey, for there were no questions on years of employment after marriage. Instead a chapter in the forthcoming report on the survey analyses the relation between wanted fertility and employment patterns (wanted fertility = live births + additional intended births – unwanted births) for currently married women under 45 years of age. The findings are that although fertility differences are generally in the expected direction in relation to current employment variables, they vary considerably as between different sub-groups, and are not very large for whites. (On the other hand, female rôle attitudes appear to be significantly linked to fertility orientations among recently married whites.) The study of the relations between fertility and the employment of married women obviously needs a more detailed exploration and Ruder & Westoff propose to do this in a follow-up investigation of a sub-sample of the women in the 1970 Survey (personal communication from Professor Westoff).

42 Religious groups, like ethnic minorities, may find themselves in 'ghetto' situations, sometimes partly self-imposed. Even if they are not physically segregated, they may be socially and economically 'separated' by having different school systems, using different social services and having differential access to employment opportunities. In this sense, Catholics and Protestants were certainly 'separated' in the past in the Netherlands. In the United States, too, there has been differential employment of Catholics. See H. J. Abramson, *Ethnic diversity in Catholic America*, New York, London, Sidney, Toronto 1973, especially p. 39, though it is difficult to judge the change during the present century in terms of the data presented there, which compare the national labour force statistics of 1910 and 1960 with 1964 sample survey data for Catholic male respondents and their fathers. The data for the fathers constitute a biased sample, over-representing the more fertile fathers (and, of course, completely excluding never-married and childless males). What the data do show, however, is a marked increase in the proportion of males in white collar employment in the filial generation – 43% in the latter case as compared with 24% in the parental generation.

43 I am not here concerned with the possible correlation with socio-economic developments of this kind and the timing and speed of the 'demographic transition'. As mentioned earlier in the discussion, there is no close correlation. For example, literacy was low both in Spain and Greece, but in the latter country both abortion and *coitus interruptus* brought down fertility to a lower level than in Spain. Similarly, the historical initiation of fertility control in substantial sections of the population can be traced in communities with very different socio-economic circumstances – in parts of rural France, among the Genevan bourgeoisie, in Vienna, in parts of Hungary. Some correlations do emerge – see, for example, the interesting analysis of the decline of fertility in Germany in J. E. Knodel, *The decline of fertility in Germany, 1871–1939*, Princeton, N.J. 1974, ch. 7. The point emphasized here, however, is that in general fertility is at present relatively low in cities, among the more educated groups, in families in which wives are employed for a sizeable fraction of their married lives, where groups are integrated in the wider society so that common norms can spread, where there is not a high degree of religiosity, where changes in the occupational structure have resulted in a major shift from primary to tertiary employment. In so far as these circumstances are likely to affect increasing proportions of the population of industrial societies, fertility differences within societies will tend to converge.

44 J. Henripin, *Tendances et facteurs de la fécondité au Canada*, Ottawa 1968, pp. 196, 52; and 1971 Census of Canada, *Population*, Catalogue 92–718, vol. 1, part 2 (bulletin 1.2–6) 1973, Tables 24, 27 and 28.

45 J. Henripin & E. Lapierre-Adamcyk, with the assistance of P. Festy, *La fin de la revanche des berceaux: qu'en pensent les Québécoises?*, Montreal 1974. The investigation covered a stratified random sample of 1745 ever-married women in Quebec, born 1906–1955.

46 The mean expected number for those women was 2.96 children, but this number is inflated, for only 2.2% of the women expected to be childless. Assuming, more realistically, childless marriages at around 10%, the mean number of children would fall to about 2.7.

47 J. Henripin, *Tendances*, p. 196. Ever-married women 45–54 in 1961: Urban French-speaking, 2.40 live births; English-speaking 2.38. A further analysis of the 1971 survey data has examined trends in the employment of married women. Considering only women who worked ‘regularly’ since marriage (defined as having worked from marriage until the time of the survey, without interruption save for periods not exceeding 4 months in connection with pregnancy), there was a marked increase in the proportion of such women between the generation born 1906–35 and that born 1936–55. (However, this conclusion is affected by the fact that the marriage duration of the two groups must be substantially different.) Taking the 1936–55 generation, the proportion who had worked regularly was highest (40%) for the women who had had a university education. The extent of ‘regular’ employment generally correlated positively with education and negatively with the number of children. The complexity of the relation again needs to be stressed. Women with a more prolonged education are more likely to be efficient contraceptors and are also more likely to want to work. (See D. Grainger and E. Lapierre-Adamcyk, Les taux d’activité chez les Québécois francophones, *Population et famille* 1975, 1, 34, pp. 1–27.) On the other hand, a Danish study, based on a survey in 1970 of 1749 married women 15–34 years of age, found that the influence of women’s employment on the number of children expected was operative only at the level of the large family – that is, 4 or more children. The family of 2 or 3 children was so much the norm that there was little variation with such factors as education, social background or family income (O. Bertelsen & J. Ussing, *Familiestørrelse og livsstil*, Copenhagen 1974, English Abstract, pp. 83–88 and also pp. 22–27.

48 On the interrelation of economic and demographic fluctuations, see R. Easterlin, *The American baby boom in historical perspective*, New York 1968 (National Bureau of Economic Research, Occasional Paper No. 79). Easterlin’s work – and other similar work – is considered by R. Lee. The formal dynamics of controlled populations and the echo, the boom and the bust, *Demography* 11, no. 4, November 1974, pp. 563–585. He constructs models which examine the fluctuations arising in a ‘controlled population’ whose fertility is affected by economic factors, by relative cohort size which determines the labour force potential or by labour force size affecting period fertility. He finds that the latter influence is more in keeping with 20th century United States experience. But there may also be an interaction resulting from the possible effect on the economic situation of demographic fluctuations. An early attempt to examine that relationship will be found in A. Lössch, *Bevölkerungswellen und Wechsellagen*, Jena 1936. On the recent rise in age at marriage in the U.S.A., see P. C. Glick, *Some recent changes in American families*. Current population reports, Series P-23, No. 52, Washington DC [1975], pp. 3–4.

49 In the past, the age difference between husband and wife was probably influenced by both economic and biological considerations – by the need of the man to have reached a point in his occupation at which a wife and family could be supported, and by the desire of the man to have a wife young enough to bear children. (In theory, at least, apprenticeship systems should have helped to set a minimum age for the man – that is, the age at completion of the apprenticeship.) There is evidence of at least one country in which poorer men chose older women just because their age would probably have set an upper limit to their fertility – Norway in the 19th century (see M. Drake, Fertility controls in pre-industrial Norway in D. V. Glass & R. Revelle (eds), *Population and social change*, London 1972, p. 185).

We do not know how common such a custom was in pre-industrial times. Today there is still a strong tendency to believe that the husband should be older than the wife – or, at least, not younger. In the 1959–60 survey undertaken by the Population Investigation Committee, respondents were asked about ‘ideal’ age differences between husband and wife. The results were as follows

	percentage distribution	
	male respondents	female respondents
husband should be older	51.8	57.3
husband should be same age as wife	38.3	31.0
husband should be younger than wife	2.4	1.8
no answer and don’t know	7.5	9.9
	100.0	100.0
	(N = 1136)	(N = 1200)

Of those who considered that the husband should be older than the wife, the mean difference regarded as desirable was 3.3 years as reported by the male respondents and 3.5 years as reported by the females.

The economic and demographic factors supporting this tradition are presumably less important today. Economic assistance is given by the wife’s employment in a substantial proportion of marriages, and with the targets of small families (and with very low maternal and infant mortality) wife’s age is also less critical to the achievement

of desired family size, at least up to the age of 30 or so. This can be illustrated from the fertility data of the 1961 census of England and Wales. The following table shows the average number of live births per marriage at 15–19 and 20–24 years duration in 1961, in marriages with varying differences in the relative ages of husband and wife, and for two age-groups at marriage of the wife.

	wife's age at marriage	average no. of live births per marriage† duration (years)	
		15–19	20–24
wife younger than husband by:			
13 years or more	20–24	2.17	2.20
	25–29	1.63	1.55
8–12 years	20–24	2.11	2.15
	25–29	1.58	1.65
3–7 years	20–24	2.11	2.10
	25–29	1.73	1.65
Wife 2 years younger to 2 years older	20–24	2.17	2.16
	25–29	1.78	1.68
wife older than husband by:			
3–7 years	20–24	2.38	2.44
	25–29	1.83	1.79
8–12 years	25–29	1.90	2.19

† Uninterrupted first marriages, wives enumerated with their husbands.

The differences are small. Some are in an unexpected direction – that is, the older wives show a higher fertility. If those higher averages are significant, they may perhaps be associated with pre-marital pregnancies.

Of course, the economic and biological factors are by no means the only factors affecting the popularity of relative age differences. (*Census 1961, England and Wales, Fertility tables*, London 1966, Table 15.) In fact, marriages in which the wife is older than the husband are not rare in England nowadays. They are less common in bachelor/spinster marriages – in 1973 in England and Wales, 6.3% of the brides were older than their husbands by at least one 5-year age group. But where either the bride or groom had been married before, the comparable proportion was 19.6%. ‘Remarriages’, in which at least one partner had been married before, constituted 28% of all marriages in England and Wales in 1973, as compared with 15% in 1960 and 9% in 1938, the increase since the 1930s being associated with the rise in divorce rates and with the change in the attitude to divorce. (Computations based upon data in the *Registrar General's statistical review for England and Wales . . . 1973*, Part II, Tables, Population, pp. 59–60; 1960, Part II, Tables, Population, p. 64; and 1938, Tables, Civil, p. 49. Age has been treated in 5-year groups, and I have regarded brides as older than their husbands when they were in the next higher and all other older age groups.) Though this non-traditional age relation at marriage was much more frequent among remarriages in 1973, the increase in remarriage since 1938 does not seem to have raised the overall frequency of such non-traditional marriages. Taking all marriages, regardless of prior marital status, the proportion in which the bride was older than the groom was 10.4% in 1938, and 10% in 1973. The explanation appears to be that men aged 20–24 at marriage were much less likely to marry older women in 1973 than in 1938, the reverse being the case at the higher ages. In fact, the figures given above understate the frequency of non-traditional age relation, since the analysis is based upon differences of at least one five-year age group. A more accurate assessment in respect of bachelor-spinster marriages can be obtained from a special study undertaken by the Population Investigation Committee, based upon a national sample drawn from the General Register Office files of certificates for the marriages of England and Wales in 1951. There were 4108 first marriages in the sample. In 10.4% the groom was approximately the same age (that is, less than a year's difference) as the bride; in 72.7% he was older; and in 16.9% of the marriages he was younger.

50 Before World War II there were often customs which hindered marriage. In Britain, for example, women teachers generally had to give up their employment on marriage and this was even more widely the case in the Civil Service. The Bank of England and most Clearing Banks did not employ married women and this also applied to the railways, the British Broadcasting Corporation, Unilever, I.C.I. and Rowntree. In the banks, too, there were restrictions affecting the age at marriage of male employees. See Royal Commission on Population, Meeting, 9 November 1945 (RC 59) and ‘Marriage bar in the Civil Service: Letter and Memorandum from the Council of Women Civil Servants’, 27 April 1946. These barriers were largely removed during or after World War II. The 1969 Family Law Reform Act, which lowered the age of majority to 18, also facilitates early marriage.

51 The possibility of providing alternative ‘careers’ to marriage has sometimes been suggested as a component of policy for controlling the rate of population growth in developed countries. But the most likely alternative to marriage is extra-marital cohabitation. It is probable that this is already considerably more common than was the case thirty or forty years ago, and the popularity of marriage does not thereby appear to have been reduced. And the increase in divorce has been paralleled by an increase in remarriage rates.

A series of random sample surveys of men and women aged 18–50 years carried out in Denmark in 1973 provides some evidence of the extent of cohabitation (marriage rates have been falling in Denmark in recent years). Of the single persons, 27% were living together; of the men and women who become divorced in 1972, 34% were living with someone; and of the couples who married in 1972 about 80% had lived together before marriage (about two thirds had lived together for over 6 months). See Inger Koch-Nielsen, *Aegteskabet og loven*, Copenhagen 1975, English abstract, pp. 94–104. In developing countries, education and employment opportunities for women are associated with a higher age at marriage.

52 The U.S.A. 1970 Survey also found that contraception was used more effectively for terminating child-bearing and coital frequency was also lower when birth control was used for that purpose (C. F. Westoff, The yield of the imperfect: the 1970 national fertility survey, Presidential address to the Population Association of America).

53 See C. Tietze & D. Dawson, *Induced abortion: a factbook*, Reports on Population/Family Planning, Population Council, New York, December 1973; I.P.P.F. Europe (see note 23); R. Leete (see note 23). In England and Wales, 1971, the ratio of abortions to births for married women of all ages was 12% for women with 2 previous births, but 24% for women with 3 and 33% for women with 4. In some countries the ratio declines at the very high parities, suggesting that there is a small sub-universe of women who for various reasons reject or are unable to resort to abortion.

54 H. B. Presser & L. L. Bumpass, Demographic and social aspects of contraceptive sterilization in the United States: 1965–1970, in the Commission on Population Growth and the American Future, Research Reports, vol. 1, *Demographic and social aspects of population growth* (ed. C. F. Westoff & R. Parke Jr), Washington D.C. 1972, pp. 533 and 537; 11% for whites and 12% for blacks, the proportions increasing with age. With wives aged 35–39 and 40–44 in 1970, the proportions were: whites 18 and 16%; blacks 20 and 21%. (Among blacks, it was largely female sterilization.) In 1971, the American Public Health Association endorsed sterilization as a terminal method of birth control, and the 1973 National Survey of Family Growth found that among couples who already had as many children as they wanted, 29% of the husbands or wives had had contraceptive sterilizations (*International family planning digest*, vol. 1, no. 2, June 1975, p. 7.) For England and Wales, the 1970 Survey found that, taking all the married women covered, there had been sterilization of either wife or husband to prevent further pregnancy in 4% of the cases. For women of parity 4, the proportion was 12%, and for women of parity 5 or higher, the proportion was 24% (Margaret Bone (see note 23), p. 23, Table R3.17).

55 C. M. Langford (see note 29), ch. 6.

56 N. B. Ryder & C. F. Westoff, *Reproduction in the United States 1965*, Princeton, N.J. 1971, Table IX-2 p. 228.

57 N. B. Ryder, Contraceptive failure in the United States, *Family planning perspectives*, vol. 5, no. 3, summer 1973, p. 142. See also F. S. Jaffe's Commentary in the same issue.

58 Illegitimacy rates, which are now often considerably higher than they were in the 1930s, may be affected by access to better techniques and especially to abortion (in England and Wales, 1971, for example, the ratio of abortion to births for resident unmarried women was 78%). Many of the illegitimate births in Britain and the U.S.A. were 'unplanned' but not 'accidents' – they were not the result of contraceptive failure but of the fact that contraception was not used. See the reference in note 23 and also P. Cutright, Illegitimacy in the United States: 1920–1968, in C. F. Westoff & R. Parke Jr (note 23, pp. 390–391 and 366–371).

59 But if there is a substantial increase in the contraceptive practice (by whatever means) by poorer and less educated sections of the population, there may initially be a fall in overall use effectiveness.

60 In Eastern Europe it is not unlikely that access to abortion will tend to become more restricted – this has already been the case in Romania, Hungary and Czechoslovakia. In the West, there will be pressure for 'liberalization' in those countries in which the older, 'illiberal' laws still apply. There is, for example, a campaign in Italy to repeal the existing clauses in the Penal Code, and certain provisions have already been declared unconstitutional. Illegal abortion is believed to be quite common. Spain will probably be the last stronghold of conservation in respect of the law relating to abortion. On the other hand, various groups will continue to press for more restrictions in countries which have 'liberalized' the law – as, for example, the campaign in Britain and the White Bill for amending the 1967 Act. The Lane Committee made various recommendations to prevent abuses and to improve the existing services – including the development of day care abortion, which would be relatively inexpensive (*Report of the committee on the working of the abortion act*, Cmnd 5579, London 1974). The 1975 White Bill proposes changes (especially clauses 1, 3 and 5) which might make it more difficult to obtain an abortion or to obtain advice, and at least would be likely to delay access to abortion. (See *Memorandum on the bill from the trustees of the British pregnancy service*, March 1975).

61 D. V. Glass, Fertility trends in Europe since the Second World War, p. 117; *Registrar General's statistical review of England and Wales . . . 1972*, part II, Tables, Population, London 1972, Table QQ(c), p. 182. The data for the 1931 marriages are for Great Britain, while those for 1951 and 1962 are for England and Wales.

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES

35

62 For example, in October 1973, the British Gallup Poll asked a question on ideal family size (that is, husband and wife and how many children?). The distribution of answers was as follows: 0 children, 2%; 1 child, 4%; 2 children, 59%; 3, 18%; 4, 12%; 5 and over, 3%; Don't know, 2%. Excluding the 'don't knows' and assuming that 5 and over is 6, the average is 2.5 children. But both the 0 and 1 child answers are far from normal reality. If we assume 10% of 0 child families, the resultant average would be 2.25, and it would be still lower if allowance were also made for the 1-child families. (In the most recent surveys in several countries, the proportions reporting 0 as ideal have increased quite substantially.) This is not to suggest that questions on ideal family size are useless. On the contrary, they are useful in indicating the stereotype in the given country at the particular time and a time series may provide a useful indication of the way in which that stereotype is changing. It is not uninteresting, for example, that the primary concentration of the 'ideal' is on the 2-child family, and the 0-3-child span, covering 83% of respondents is not markedly out of keeping with reality. But fluctuations in the stereotype are not good predictors of reproductive behaviour.

There is now a considerable number of reports on 'ideal family size' for various countries. For Eastern Europe, for example, there are data for Hungary for 1966; Poland for 1972; and the Soviet Union for 1969. The averages are

	Hungary	Poland	U.S.S.R.†
urban	2.31	2.65	2.74
rural	2.50	3.24	3.47

† Excluding cooperative farm workers.

(The data are from I. Frenkel, Attitudes towards family size in some East European countries, *Population Studies*, forthcoming. Frenkel believes that, except in the Asian region of the U.S.S.R., most families want relatively small families, especially the better educated women, those living in towns and those gainfully employed, especially in white collar work, and that this attitude appears to be spreading rapidly, particularly among the younger generations.)

For Western countries, the most recent international Gallup series dates from May 1968, as far as I have been able to ascertain. The results are given below.

mean ideal numbers of children

Austria	2.5
Finland	2.6
Britain	2.8
Netherlands	2.9
Sweden	2.7
Switzerland	2.6

For the United States, there is a long series of poll data on ideal family size and several studies based upon them, e.g. by Judith Blake. See, for example, Family size in the 1960s - a baffling fad?, *Eugenics Quarterly* 14, no. 1, March 1967, pp. 60-74. (There has also been a long series for Britain, but the data have not been widely used. See, however, my paper in C. V. Kiser (ed.) *Research in family planning*, Princeton, N.J., 1962.)

In recent years attention in the U.S.A. has been given to 'expected births' and surveys of those expectations are nowadays undertaken by the Bureau of the Census. The most recent publication compares the results of a 1967 survey, in which married women were asked how many children they expected to have by 1972, with the numbers actually reported in 1972 by currently married women (first married 5 or more years before). In almost all broad categories the expected numbers were larger than the actual numbers, the gap being wider for the younger women (all races).

age in 1967	(a)	(b)	(c) ratio b/a
	1967 survey expected numbers of children per 1000 wives by 1972	1972 survey actual numbers of children per 1000 currently married women	
15-19	1984	1839	0.927
20-24	2336	2145	0.918
25-29	2891	2791	0.965
30-34	3248	3236	0.996
35-39	3287	3219	0.979

In addition, the publication summarizes the results of the various surveys since 1967 on the total lifetime births expected by women. Taking only women aged 25–29 years at the time of the surveys, the results are as follows (all races):

date of survey	total births expected: percentage distribution			total
	not more than 2 (inc 0 births)	3	4 or more	
1967	36.6	33.5	29.9	100.0
1971	54.1	27.6	18.3	100.0
1974	65.9	22.3	11.9	100.1

In so far as these expectations are realistic, they certainly suggest a continuing fall in fertility (U.S. Department of Commerce, *Current Population Reports*, series P-20, no. 277, *Fertility Expectations of American Women*: June 1974, Washington D.C., February, 1975).

For Japan, the most recent comparable information was collected by the 1973 survey of birth control practice (already cited), the report on which also contains the results of the 1969 and 1971 surveys. The averages are 'inflated' because of the unrealistically low proportions of women recording 0 and 1 as their ideal numbers of children (0.7% and 2.5% respectively in the 1973 survey). The averages for 1969, 1971 and 1973 (excluding not stated and counting 8 or more children as 9) are: 2.79, 2.75 and 2.76 respectively. Perhaps more meaningful is the proportion of women who saw the ideal number as falling within the range of 1–2 or 1–3 children. The proportions, classified by age of the women, are given below for the 1973 survey

ideal number of children	wife's age (years)					
	20–24	25–29	30–34	35–39	40–44	45–49
1–2	51.8	41.8	40.6	36.6	30.8	21.6 ⁵
1–3	92.5	90.6	86.0	82.4	78.2	66.5

The data show a consistent negative association between age and ideal number of children. If the stereotype of the youngest women is an indication of their intentions, fertility will certainly continue at a low level. At the same time, however, it should be noted that the 'ideal number' is not only an inverse function of age but also a direct function of actual number of children – strongly suggesting the rationalisation of the real into the ideal. Hence it is a time comparison rather than an age comparison which would be relevant in assessing changes in the stereotype.

Judith Blake (Can we believe recent data on birth expectations in the United States? *Demography* 11, no. 1, February 1974, pp. 25–44) has expressed doubts on the reality content of surveys of ideal numbers of children and birth expectations. In particular, she draws attention to the lack of congruence in specific attitudes which might be expected if low fertility had become a fully accepted norm. But see also L. L. Bumpass 'Comment', *Demography* 12, no. 1, February 1975, pp. 155–156. For a general discussion of the limitations and usefulness of the 'ideal family size' concept, see H. Ware, *Ideal family size*, World Fertility Survey, Occasional Paper no. 13, The Hague, October 1974.

63 N. B. Ryder & C. F. Westoff, Wanted and unwanted fertility in the United States: 1965 and 1970, in C. F. Westoff & R. Parke Jr (eds) (see note 23, especially pp. 484–485).

64 As far as I am aware, this kind of analysis has not so far been undertaken for any other industrial country. For several countries, however, the adoption of more effective techniques can be documented by internal analysis of birth or marriage cohorts, or by repeat surveys. For Belgium, for example, the reinterview in 1971 of a subsample of the women interviewed in 1966 showed that whereas 12% of the women had used the pill by the end of 1966, the corresponding proportion by the beginning of 1971 was 26%. In addition, the difference in the extent of pill use between the French and Walloon regions had been greatly reduced. The comparable proportions of ever-use in 1966 were 8% and 15% respectively in the two regions, but 23% and 28% in 1971. (J. Morsa & G. Julémont, Une enquête nationale sur le fécondité, *Population et famille* no. 25, 1974, pp. 147–148.)

65 In a letter of 'despair' (*The Times*, 14 May 1975), Professor Ivor Mills wrote: 'One of the most sensitive indices of the health of a society is the birth rate. It is now going down so fast that our population is no longer replacing itself. Yet our infertility clinics are swamped with desperate would-be parents'. I do not propose to argue with Professor Mills about the social significance of the declining birth rate – there are, of course, those who would see a much greater danger to society in the high birth rates in the Third World. But his remarks on 'desperate would-be parents', constitute no quantitative indication of an increase in involuntary infecundity. And so far as statistics are concerned, childlessness as such is much less frequent now than among the marriages of the 1930s. In England and Wales, 1973, at 12 years duration of marriage (first marriages only), of the women who married in 1961 and were under 45 years of age at marriage, only 8.7% were childless, while of those aged 20–24 years at marriage only 6.3% were childless. The proportions for the women who married in 1953 are 12.6% and 10.5%

(Registrar General's statistical review . . . 1973, part II, Tables, Population, pp. 168 and 170; 1965, Part II, Tables Population, pp. 176 and 178).

In the last few years these proportions have increased slightly. But the increase has occurred while the pill has been coming into general use. The two may well be related. In any case the increase is more likely to be the result of deliberate changes in birth spacing or/and ultimate family size than in biological factors. As for the demands for the assistance of infertility clinics, these are probably not simply a reflection of the extent of involuntary infertility but also of couples' awareness of the availability of treatment and of their willingness to seek such treatment – including the willingness of husbands to recognize their own possible contribution to infertility.

66 W. Brass, Perspectives in population prediction: illustrated by the statistics of England and Wales, *J.R. Statist. Soc. A*, **137**, part 4, 1974, pp. 532–570. The difficulty with the assumption is that, in itself, it offers no explanation of, or justification for, a continuation into the future. Like many other quantitative formulations, it is a post hoc, one-way hypothesis which may break down in the future, as other hypotheses have done. Of course, for very short-run projections, any reasonable hypothesis would give useful results. For the longer term – and I have in mind only periods of up to 30 years – I should be reluctant to adopt hypotheses which are not explicitly based upon an 'explanation' of the assumed course of fertility – e.g. based on the kind of mechanisms considered in R. Lee (see note 48).

67 In England and Wales, for example, duration specific legitimate fertility rates (for uninterrupted first marriages) have been falling consistently at the later durations of marriage and for the marriages of 1951 and more recent years. But at the earlier durations the rates continued to rise, and it was with the 1962–64 cohorts that mean fertility by 5 years duration began to fall. The earlier fall at the later durations cannot be made up.

68 C. F. Westoff, in his previously cited Presidential address to the Population Association of America, noted that in the United States 'important and perhaps sufficient demographic change could be effected by the prevention of unwanted births . . .' and that 'It seems curious if not ironic that if unwanted fertility were non-existent today, . . . that U.S. period fertility would be considerably below replacement'. He does not, however, conclude that all unwanted fertility is likely to be eliminated by the use of modern contraceptive techniques – and, indeed, that is unlikely. In particular, not all 'accidental' pregnancies are entirely accidental, nor are all conceptions likely to be the result of rational decisions.

Using the 1967/68 PIC survey of birth control in Britain, we may take the marriage cohort of 1941–50, whose fertility would have been virtually complete by the time of interview. The women with at least 1 pregnancy had had an average of 2.9 pregnancies. Accidental pregnancies were reported as amounting to 16% and unwanted pregnancies to 10% of all pregnancies. Total elimination of unwanted pregnancies would have reduced the average to 2.6 and, assuming that 10% of married women in the cohort would have no pregnancies, the overall mean would be about 2.34. But this is not a realistic calculation, though it is not improbable that the women under-reported the numbers of unwanted pregnancies. Similarly, elimination of all accidental pregnancies would have reduced the mean to 2.16 pregnancies and, with an allowance of 10% for women with no pregnancies, still further to 1.94. But this is even more unrealistic, since some of the accidents were only accidents of timing. Nevertheless, if all timing accidents were avoided, completed fertility might also be affected.

69⁹ Information on Romanian policy is given in I. Ceterchi *et al.* (see note 24). On Hungary, Decision No 1040/1973 of the Council of Ministers, covers a wide range of measures, including family allowances, maternity benefits, preferential holiday facilities, as well as those concerning abortion and contraception. The measures in force in Czechoslovakia are discussed in M. Kučera *et al.* *Population policy in Czechoslovakia*, Prague 1974. The outlines of Bulgarian population policy are given in N. Naomov *et al.* *La population de la Bulgarie*, Sofia 1974, ch. 7 (CICRED series). A survey of policies in Eastern Europe as a whole (excluding the U.S.S.R.), together with an interesting discussion of the social and economic factors affecting fertility trends, will be found in E. Szabady, Interdependence between changes in fertility and the socio-economic development of Eastern European countries, *Population Review* 1972, nos. 1 and 2, January–December.

References to studies of trends in particular countries – other than those noted in the present paper, will be found in my earlier paper in *Population studies*, already cited. In addition, the volumes in the CICRED series provide useful information: see in particular R. Pressat *et al.* *La population de la France* (Paris) 1974 (this was a special issue of *Population*, June 1974); H. Schubnell (ed.) *The population of the Federal Republic of Germany*, Wiesbaden 1974; E. Szabady, *The population of Hungary* (N.P.), 1974 and J. Cipriani *et al.* *La population de la Suisse* (Berne?) 1974. On West Germany see also H. Schubnell, *Der Geburtenrückgang in der Bundesrepublik Deutschland*, Stuttgart, Berlin, Köln, Mainz 1973. Comparative material is often contained in the annual reports by INED on the demographic situation in France – see, for example, *Rapport sur la situation démographique de la France en 1973* (Paris) 1974. For an interesting, recent general study of trends in industrialised countries, see A. A. Campbell, Beyond the demographic transition, *Demography* **11**, no. 4, November 1974, pp. 549–561. A longer and more general study of European countries, prepared for the Council of Europe, is that by L. Tabah, already cited.

70 I am indebted to Dr Savitri Thapar, Mrs Christine McIlroy and Mrs Stella Wilks for their help in preparing many of the tables included in this paper.

APPENDIX

The tables in this Appendix provide three different sets of measures of fertility. Table A1 presents a collection of conventional gross reproduction rates from the early 1930s to the 1960s or 1970s. The gross reproduction rate is a synthetic index, like the current life table, splicing together in a single figure the fertility observed in a year (or other short period) of different generations of woman. It abstracts from changes or differences in age structure and thus allows greater comparability over time and space than the crude birth rate. Expressed as the number of daughters born to a woman surviving throughout the reproductive period, it is meaningful sociologically. But it is affected by, and tends to reflect in an exaggerated way, temporary changes such as short-term fluctuations in birth-spacing. The year-to-year movements in the gross reproduction rate do not necessarily imply changes in completed fertility. Over the long period, however, the gross reproduction rate offers a useful initial indication of the trend in fertility.

Table A2 brings together a series of birth cohort or generation total fertility rates. Like the gross reproduction rate, the total fertility rate sums the fertility shown at successive stages of the reproductive period, but in terms of total births and not solely of daughters. The generation rate is far more realistic than the conventional period rate, for it is based on the actual experience of a group of women as they pass through the childbearing period, instead of splicing together the fertility experience of different groups of women. The implicit assumption in the computation of the rate is that the women who survive through the successive age groups of the childbearing period are not 'selected' for or against fertility. In periods of high mortality, that assumption may be unrealistic. Today, however, female mortality between 15 and 50 years is very low and any selection must be slight.

The generation total fertility rate is based upon women of all marital conditions and covers both legitimate and illegitimate births. The rate may be affected by changes in marriage patterns – correctly so – but does not show how far a given increase or decrease is the result of such changes. On the other hand, changes in birth spacing can be inferred by computing, as in table A2, the proportion of completed fertility achieved by specified ages. In the case of England and Wales, for example, the compression of childbearing into the earlier part of the reproductive period is evident. While total fertility rose from 1.8 births per woman for the 1901–10 generation to 2.4 births per woman for the 1931–40 generation, an increasing proportion of that fertility occurred before age 30, the accompaniment of the fall in the age at marriage during the period.

Because it sums actual experience, the generation rate is influenced by the circumstances of the not so recent past. It is not 'up-to-date' in the sense that is the case with the conventional period rate. But it is possible to bring the rates closer to the present by fairly realistic projection – certainly realistic beyond age 35, by which age over 90% of ultimate fertility will have been achieved, and not too arbitrarily by projection beyond age 30.

The third measure of fertility – the cumulative duration-specific marital fertility rate – is shown in table A3. Like the generation fertility rate, the third measure – the mean number of live births by specified durations of marriage – is based upon actual experience, namely the fertility of women who, marrying before the end of the reproductive period, have lived in uninterrupted marriage. (The dates of marriage in the table are the dates of first marriage, and only the experience of uninterrupted first marriages should be taken into account.) The result

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES

39

is a measure of marital fertility, automatically standardized for duration of marriage. The fertility of any two marriage cohorts can be compared at identical durations of marriage. The data can be shown separately for each age at marriage (usually in 5-year groups) and the effects of changes in age at marriage can be demonstrated and distinguished from those of changes in the fertility of the different age-at-marriage groups. Changes in birth spacing patterns can be inferred from the variations in the fraction of total fertility achieved by specified marriage duration, or by variations in the duration-specific fertility rates.

Duration-specific marital fertility rates, and their cumulated averages, are realistic and sociologically meaningful measures of marital fertility. Like generation fertility rates, they are weighted by the past – but not so heavily, for nowadays the great bulk of total marital fertility is achieved by 10 year duration of marriage. The rates derived from current vital statistics can be fitted into a common framework with census data on marital fertility if the questions on fertility asked at a census include the date of birth of each live-born child. On the other hand these cumulative marriage cohort rates have disadvantages.

First, to derive such rates from current vital statistics requires detailed estimates of the population exposed to risk, and this means not only asking additional questions at birth registration, but also at divorce and at death, while it is also necessary to distinguish first marriages from

TABLE A1. PERIOD GROSS REPRODUCTION RATES FOR APPROXIMATE POINTS OF TIME,
1931–3 TO 1973

(Numbers of female live births per woman surviving throughout the reproductive period, up to age 50.)

	1931–3	1934–6	1937–9	1940–2	1943–5	1946–8	1949–51	1952–4	1955–7	1958–60	1961–3
Austria	0.89	—	0.75	—	—	—	—	1.008	1.15	1.257	1.363
Belgium	—	—	1.025	0.855	1.022	1.201	1.137	1.135	1.18	1.24	1.281
Denmark	1.051	1.036	1.051	1.126	1.366	1.391	1.238	1.238	1.246	1.226	1.256
Finland	1.167	1.138	1.213	1.142	1.302	1.676	1.537	1.456	1.413	1.324	1.296
France	1.073	1.020	1.040	0.95	1.087	1.459	1.415	1.325	1.310	1.327	1.382
W. Germany	(0.83)*	(1.03)*	—	—	—	0.988	1.016	1.014	1.078	1.148	1.203
Ireland	—	1.427	—	1.414	—	1.627	1.602	—	1.677	1.817	1.886
Netherlands	1.37	1.271	1.265	1.289	1.459	1.784	1.53	1.482	1.487	1.523	1.554
Norway	0.969	0.875	0.913	0.953	1.15	1.283	1.20	1.273	1.356	1.383	1.402
Sweden	0.866	0.822	0.879	0.959	1.224	1.217	1.108	1.073	1.099	1.072	1.097
Switzerland	—	0.881	0.865	1.006	1.223	1.285	1.15	1.12	1.15	1.18	1.26
England & Wales	0.884	0.858	0.887	0.873	1.027	1.225	1.068	1.066	1.138	1.248	1.335
Scotland	1.13	1.063	1.060	1.062	1.144	1.343	1.195	1.19	1.278	1.369	1.446
Greece	1.87	—	—	—	—	—	—	—	1.125	1.084	1.043
Italy	(1.59)	1.425	—	—	—	1.37	1.156	—	1.147	1.136	1.202
Portugal	1.87	1.73	—	1.495	1.565	1.575	1.52	1.475	1.414	1.511	—
Spain	1.739	1.589	1.219	1.300	1.387	1.329	1.229	1.228	1.285	1.355	—
Yugoslavia	—	—	—	—	—	1.80	2.023	1.779	1.444	1.338	1.308
Bulgaria	—	—	1.47	—	—	1.44	1.34	1.217	1.141	1.101	1.086
Czechoslovakia	1.190	—	0.961	—	—	—	1.444	1.399	1.362	1.189	1.172
E. Germany	—	—	—	—	—	—	—	1.146	1.084	1.156	1.18
Hungary	1.385	—	—	1.194	—	1.238	—	1.320	1.238	1.008	0.895
Poland	1.650	—	—	—	—	—	—	1.749	1.708	1.534	1.324
Romania	—	—	1.81	—	—	—	—	—	1.416	1.203	0.978
U.S.S.R.	—	—	2.15	(1.70)	(0.99)	(1.49)	(1.43)	(1.41)	(1.41)	1.377	1.313
Canada	1.482	1.341	1.298	1.386	1.466	1.69	1.686	1.812	1.881	1.898	1.835
U.S.A.	1.14	1.092	1.095	1.189	1.261	1.512	1.538	1.677	1.793	1.801	1.696
Australia	1.084	1.042	1.075	1.136	1.294	1.466	1.478	1.554	1.621	1.674	1.669
New Zealand	1.10	1.044	1.11	1.317	1.292	1.64	1.638	1.723	1.85	1.95	1.951
Japan	2.32	—	2.0	—	—	2.182	1.813	1.316	1.074	0.998	0.959

TABLE A 1 (*cont.*)

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Austria	1.352	1.306	1.297	1.273	1.253	1.218	1.120	1.088	1.046	0.943
Belgium	1.318	1.268	1.227	1.173	1.223	1.091	1.091	—	—	—
Denmark	1.259	1.266	1.271	1.144	1.025	0.966	0.948	0.987	0.990	—
Finland	1.235	1.171	1.141	1.091	1.047	0.940	0.893	0.833	—	—
France	1.416	1.380	1.353	1.288	1.26	1.231	1.20	(1.21)	(1.17)	(1.12)†
West Germany	1.236	1.216	1.231	1.208	1.159	1.07	0.980	0.932	0.833	—
Ireland	1.955	1.933	1.909	1.858	1.825	1.851	1.873	1.939	—	—
Netherlands	1.546	1.476	1.414	1.369	1.326	1.336	1.255	1.153	1.06	0.936
Norway	1.425	1.412	1.394	1.360	1.332	1.308	1.216	1.214	1.163	1.078
Sweden	1.206	1.172	1.147	1.105	1.014	0.938	0.943	0.957	0.933	0.913
Switzerland	1.31	1.27	1.23	1.18	1.12	1.07	1.02	0.99	0.93	—
England & Wales	1.399	1.365	1.329	1.276	1.235	1.189	1.156	1.154	1.056	0.981
Scotland	1.492	1.440	1.395	1.378	1.347	1.268	1.216	1.199	1.107	1.208
Greece	1.091	1.087	1.116	1.172	1.156	1.128	1.077	1.147	—	—
Italy	1.300	1.297	1.223	1.177	1.038	1.036	1.034	1.033	—	—
Portugal	—	1.487	1.447	1.39	1.391	1.345	1.307	1.383	1.414	1.218
Spain	—	1.400	—	—	—	1.360	1.373	—	—	—
Yugoslavia	1.281	1.315	1.283	1.256	1.20	1.178	1.11	1.14	1.14	—
Bulgaria	1.057	1.004	0.969	0.975	1.110	1.129	1.051	1.020	0.983	—
Czechoslovakia	1.220	1.151	1.082	1.014	1.000	0.993	1.011	1.050†	1.090†	—
East Germany	1.218	1.198	1.177	1.135	1.114	1.084	1.067	—	0.867	—
Hungary	0.872	0.875	0.907	0.970	0.997	0.984	0.949	0.927	0.931	0.937
Poland	1.242	1.217	1.174	1.127	1.084	1.065	1.064	1.094	1.082	1.094
Romania	0.951	0.924	0.90	1.78	1.77	1.565	1.402	—	1.25	—
U.S.S.R.	1.212	1.196	(1.19)	1.179	(1.16)	(1.16)	(1.18)	(1.20)	(1.20)	—
Canada	1.72	1.552	1.369	1.267	1.184	1.22	1.132	1.060	0.982	0.937
U.S.A.	1.564	1.428	1.336	1.255	1.206	(1.20)	(1.20)	(1.10)	(0.98)	—
Australia	1.529	1.447	1.4	1.385	1.402	1.402	1.389	1.441	1.334	1.214
New Zealand	1.753	1.624	1.579	1.566	1.541	1.52	1.461	1.47	1.4	—
Japan	0.918	1.042	0.769	1.082	1.03	1.03	1.03	1.04	1.04	—

* Germany, pre-war territory. † Provisional.

Note: Because this table is based on a variety of sources – even in respect of rates for a particular country – there are inevitable inconsistencies between rates, especially because of differences in the estimated basic populations but also with regard to distributions of births by maternal age. Nevertheless the inconsistencies do not seriously damage the value of the table as a general survey of trends in gross reproduction rates.

Sources. United Nations, *Demographic yearbook* for 1948, 1948–9, 1954, 1965 and 1969; *Population index*, April 1974; and relevant volumes of annual statistics for individual countries. In addition (1) for Spain, the rates for 1931 to 1960 are from INE, *Tasas de reproducción*, Madrid 1966, cited in J. Diez Nicolás, ‘Evolución y previsiones de la natalidad en España’, Centro de Estudios Sociales, *La Familia Española*, (*Anales de moral, social y económica*) Madrid 1967; (2) for France, the rates for 1971–73 are from INED, *Rapport sur la situation démographique de la France en 1973*, Paris 1974, assuming 488 females per 1000 live births; (3) for Switzerland, the rates for 1950 and later years are from J.-J. Senglet (ed.), *La population de la Suisse* (Berne 1974?); (4) for the U.S.S.R. the rates, which assume a ratio of 488 females per 1000 live births are based upon (a) for 1940–2 to 1955–7, D. P. Mazur, Reconstruction of fertility trends for the female population of the U.S.S.R., *Population Studies*, 21, 1, July 1967, Table 1, and (b) for the remaining rates in parentheses, B. Uralis, *Problems of population dynamics in the USSR*, Moscow 1974, p. 85 (in Russian) and *Vestnik Statistiki*, 1973, no. 12 and 1974, no. 12 (the data were provided by the United Nations Population Division); (5) for the U.S.A. the rates in parentheses are based upon surveys by the Statistical Bureau of the Metropolitan Life Insurance Company (*Statistical Bulletin*, September 1972 and October 1974) and sex ratios at birth as given in *Statistical abstract of the United States 1974*, p. 53.

remarriages. Relatively few countries so far have constructed the necessary estimates, which would in any case need to be corrected periodically by the inclusion of suitable questions in the census. In table A 3, several of the calculations are ‘net’ estimates, arrived at simply by relating the legitimate births, classified by calendar year of occurrence and calendar year of marriage,

to the number of marriages contracted in a specified calendar year. This is less satisfactory, since some of the original marriages may have been dissolved by death or divorce. Fertility at the later durations of marriage may therefore be underestimated, and the error will not be consistent between marriage cohorts if there have been substantial changes in mortality and divorce frequency.

Secondly, if divorce frequency is high – if, say, 25 % of marriages end in divorce – a measure based upon the fertility of uninterrupted first marriages will not be itself by a sufficient indicator of fertility changes in the society. It would be desirable to have an additional index, measuring the fertility of ‘interrupted’ marriages. Given the problems of estimating the relevant population exposed to risk, this additional index might best be derived from data obtained by censuses. For example, such data were obtained at the 1961 Census of England and Wales, the fertility of interrupted marriages being tabulated by duration, as at the census date, from the first marriage. The results suggested that the fertility of interrupted marriages was hardly different from that of uninterrupted marriages, the explanation being that it was the marriages at the younger ages which had the highest probability of divorce but that it was also the younger divorcees who had the highest probability of remarriage.

Thirdly, while the calculation of replacement is simple and straightforward with either period gross reproduction rates or generation total fertility rates – using current or generation life tables – that is not so with marriage cohort fertility rates. The women concerned are the survivors of a substantial number of generations (that is, of birth cohorts). In addition, allowance has to be made for illegitimate births. And, finally, nuptiality – the probability of marriage by various ages up to the end of the reproductive period – has to be taken into account. But these difficulties should not be overstated. And in any case it is necessary to deal with them, for in industrialized countries marriage is still the dominant institution through which fertility is expressed. The realistic assessment of fertility in such countries involves the study of marriage patterns, of motivation within marriage and of the translation of motivation into the control of marital fertility. It is therefore to be hoped that marriage cohort fertility rates, in the publication of which the Registrar General of England and Wales has been a pioneer, will become available for many more countries than is the case at present. The relevant tables in the *Statistical Review* of England and Wales (Part II, Tables, Population, Tables QQ(a)–QQ(d) inclusive) might well serve as models.

TABLE A2. GENERATION FERTILITY RATES FOR SELECTED COUNTRIES

(The age-specific fertility rates for the period 1926 to 1946 used for the calculations are partly estimates.)

country	period of birth	cumulative rates per 1000 women per year					percentage of total fertility by					total fertility by age 50 (cumulative x 5)
		to age 30	to age 35	to age 40	to age 45	to age 50	age 30	age 35	age 40	age 45		
Belgium	1916-25	258.7	358.9	412.4	427.4	428.6	60.4	83.7	96.2	99.8	2143	
	1921-30	286.4	385.9	436.4	447.6	448.5*	63.9	86.0	97.3	99.8*	2243*	
	1926-35	298.9	400.8	441.2	—	453.4†	65.9	88.4	97.3	—	2267†	
	1931-40	334.9	419.9	—	—	475.0‡	70.5	88.4‡	—	—	2375‡	
	1936-40	339.5§	—	—	—	481.6	70.5	—	—	—	2408	
Denmark	1901-10	253.3	347.5	411.6	433.0	434.0	58.4	80.1	94.8	99.8	2170	
	1906-15	253.4	367.7	433.4	448.7	449.6	56.4	81.8	96.4	99.8	2248	
	1911-20	290.0	403.9	452.0	464.1	464.7	62.4	86.9	97.3	99.9	2324	
	1916-25	323.4	417.1	458.5	468.5	468.9	69.0	89.0	97.8	99.9	2345	
	1921-30	335.4	423.7	462.3	468.8	469.2*	71.5	90.3	98.5	99.9*	2346*	
England and Wales	1926-35	351.5	439.1	468.6	—	475.7†	73.9	92.3	98.5†	—	2379†	
	1931-40	370.9	444.1	—	—	481.1‡	77.1	92.3‡	—	—	2406‡	
	1936-45	355.7	—	—	—	461.3	77.1	—	—	—	2307	
	1901-10	210.7	290.5	343.8	360.9	361.8	58.2	80.3	95.0	99.8	1809	
	1906-15	204.9	295.0	352.4	365.4	366.2	56.0	80.6	96.2	99.8	1831	
Finland	1911-20	226.5	329.8	374.4	386.9	387.8	58.4	85.0	96.5	99.8	1939	
	1916-25	265.0	352.2	397.9	411.3	412.0	64.3	85.5	96.6	99.8	2060	
	1921-30	285.8	379.6	428.2	438.5	439.0	65.1	86.5	97.5	99.8	2195	
	1926-35	314.0	418.7	458.9	465.5	466.0*	67.4	89.8	98.5	99.9*	2330	
	1931-40	361.2	450.1	477.2	—	484.5†	74.6	92.9	98.5†	—	2423†	
	1936-45	373.0	440.8	—	—	474.5‡	78.6	92.9‡	—	—	2373‡	
	1941-50	346.0§	—	—	—	440.2	78.6	—	—	—	2201	
	1846-55	397.0	632.3	834.2	948.9	967.6	41.0	65.3	86.2	98.1	4838	
	1851-60	398.2	635.6	822.5	936.5	952.7	41.8	66.7	86.3	98.3	4764	
	1856-65	403.3	644.0	838.9	950.1	966.3	41.7	66.6	86.8	98.3	4832	
1861-70	372.2	605.4	795.3	902.3	917.1	40.6	66.0	86.7	98.4	4586		
1866-75	400.2	631.7	826.6	929.8	943.1	42.4	67.0	87.6	98.6	4716		
1871-80	404.9	628.5	798.8	882.4	894.0	45.3	70.3	89.4	98.7	4470		
1876-85	391.8	591.2	732.1	806.1	815.6	48.0	72.5	89.8	98.8	4078		
1881-90	358.4	524.0	651.3	712.6	719.4	49.8	72.8	90.5	99.1	3597		
1886-95	318.5	472.9	579.4	625.7	630.8	50.5	75.0	91.9	99.2	3154		
1891-1900	296.2	430.2	517.0	561.7	567.1	52.2	75.9	91.2	99.0	2836		
1896-1905	277.8	389.0	468.2	510.0	515.0	53.9	75.5	90.9	99.0	2575		
1901-10	242.4	349.1	437.5	480.8	484.7	50.0	72.0	90.3	99.2	2424		
1906-15	234.2	358.5	459.0	494.1	496.9	47.1	72.1	92.4	99.4	2485		

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES

43

TABLE A 2 (cont.)

country	period of birth	cumulative rates per 1000 women per year					percentage of total fertility by					total fecundity by age 50 (cumulative × 5)
		to age 30	to age 35	to age 40	to age 45	to age 50	age 30	age 35	age 40	age 45	age 50	
Finland	1911-20	260.2	407.7	488.7	516.2	518.4	50.2	78.6	94.3	99.6	99.6	2592
	1916-25	309.8	434.8	502.3	524.8	526.2	58.9	82.6	95.5	99.7	99.7	2631
	1921-30	339.0	447.1	502.6	516.3	517.7*	65.5	86.4	97.1	99.7*	99.7*	2589†
	1926-35	342.9	440.7	480.0	—	494.3‡	69.4	89.2	97.1†	—	—	2472†
	1931-40	341.6	416.9	—	—	467.4‡	73.1	89.2†	—	—	—	2337‡
	1936-45	304.4	—	—	—	416.4	73.1	—	—	—	—	2082
	1846-55	363	515	610	648	654	55.5	78.7	93.3	99.1	99.1	3270
	1856-65	351	485	571	604	607	57.8	79.9	94.1	99.5	99.5	3035
	1866-75	321	440	509	532	534	60.1	82.4	95.3	99.6	99.6	2670
	1876-85	307	399	451	473	475	64.6	84.0	94.9	99.6	99.6	2375
1886-95	239	341	395	412	413	57.9	82.6	95.6	99.8	99.8	2065	
1891-1900	238	331	379	394	396	60.1	83.6	95.7	99.5	99.5	1980	
1896-1905	277	362	407	427	429	64.6	84.4	94.9	99.5	99.5	2145	
1901-10	279	360	416	442	444	62.8	81.1	93.7	99.5	99.5	2220	
1906-15	277	369	444	465	467	59.3	79.0	95.1	99.6	99.6	2335	
1911-20	282	412	475	494	495	57.0	83.2	96.0	99.8	99.8	2475	
1916-25	317	430	488	506	507	62.5	84.8	96.3	99.8	99.8	2535	
1921-30	344	451	506	521	522*	65.9	86.4	96.9	99.8*	99.8*	2610*	
1926-35	354	464	512	—	528†	67.0	87.9	96.9†	—	—	2640†	
1931-40	363	463	—	—	527‡	68.9	87.9‡	—	—	—	2635‡	
1936-45	361	—	—	—	524	68.9	—	—	—	—	2620	
Netherlands	1911-20	263.8	453.4	558.8	594.2	596.6	44.2	76.0	93.7	99.6	99.6	2983
	1916-25	299.4	460.1	553.8	582.3	583.8	51.3	78.8	94.9	99.7	99.7	2919
	1921-30	298.7	454.0	535.2	552.6	553.2	54.0	82.1	96.7	99.9	99.9	2766
	1926-35	314.6	464.5	521.0	530.4	530.9*	59.3	87.5	98.1	99.9*	99.9*	2655*
	1931-40	339.2	456.4	490.4	—	499.9†	67.9	91.3	98.1†	—	—	2500†
	1936-45	343.3	426.1	—	—	466.7‡	73.6	91.3‡	—	—	—	2334‡
	1941-50	320.1	—	—	—	434.9	73.6	—	—	—	—	2175
	1906-15	185.4	298.7	388.5	417.0	419.4	44.2	71.2	92.6	99.4	99.4	2097
	1911-20	203.1	336.5	408.9	433.7	435.0	46.7	77.4	94.0	99.7	99.7	2175
	1916-25	237.8	354.6	422.1	440.8	441.8	53.8	80.3	95.5	99.8	99.8	2209
1921-30	262.9	380.5	438.6	452.7	453.2	58.0	84.0	96.8	99.9	99.9	2266	
1926-35	314.9	427.6	476.2	484.8	485.3*	64.9	88.1	98.1	99.9*	99.9*	2427*	
1931-40	358.9	457.3	492.3	—	501.8†	71.5	91.1	98.1†	—	—	2509†	
1936-45	369.5	448.6	—	—	492.4‡	75.0	91.1‡	—	—	—	2462‡	
1941-50	359.9¶	—	—	—	479.9	75.0	—	—	—	—	2400	
Norway	1911-20	185.4	298.7	388.5	417.0	419.4	44.2	71.2	92.6	99.4	99.4	2097
	1916-25	203.1	336.5	408.9	433.7	435.0	46.7	77.4	94.0	99.7	99.7	2175
	1921-30	237.8	354.6	422.1	440.8	441.8	53.8	80.3	95.5	99.8	99.8	2209
	1926-35	262.9	380.5	438.6	452.7	453.2	58.0	84.0	96.8	99.9	99.9	2266
	1931-40	314.9	427.6	476.2	484.8	485.3*	64.9	88.1	98.1	99.9*	99.9*	2427*
	1936-45	358.9	457.3	492.3	—	501.8†	71.5	91.1	98.1†	—	—	2509†
	1941-50	369.5	448.6	—	—	492.4‡	75.0	91.1‡	—	—	—	2462‡
	1906-15	185.4	298.7	388.5	417.0	419.4	44.2	71.2	92.6	99.4	99.4	2097
	1911-20	203.1	336.5	408.9	433.7	435.0	46.7	77.4	94.0	99.7	99.7	2175
	1916-25	237.8	354.6	422.1	440.8	441.8	53.8	80.3	95.5	99.8	99.8	2209

TABLE A2 (cont.)

country	period of birth	cumulative rates per 1000 women per year					percentage of total fertility by					total fertility by age 50 (cumulative × 5)
		to age 30	to age 35	to age 40	to age 45	to age 50	age 30	age 35	age 40	age 45		
Sweden	1856-65	313.7	522.5	694.9	782.7	792.7	39.6	65.9	87.7	98.7	3964	
	1861-70	311.1	513.2	672.9	751.8	759.9	40.9	67.5	88.6	98.9	3800	
	1866-75	313.4	507.0	656.3	725.5	732.8	42.8	69.2	89.6	99.0	3664	
	1871-80	320.6	507.1	637.5	696.2	702.2	45.7	72.2	90.8	99.1	3511	
	1876-85	320.5	478.8	589.8	638.0	642.4	49.9	74.5	91.8	99.3	3212	
	1881-90	301.1	441.1	534.6	571.1	574.1	52.4	76.8	93.1	99.5	2871	
	1886-95	280.9	401.2	473.8	499.5	501.8	56.0	80.0	94.4	99.5	2509	
	1891-1900	257.2	352.2	408.3	430.1	432.0	59.5	81.5	94.5	99.6	2160	
	1896-1905	220.4	301.2	354.6	378.2	380.0	58.0	79.3	93.3	99.5	1900	
	1901-10	194.3	277.5	344.3	366.3	367.6	52.9	75.5	93.7	99.6	1838	
	1906-15	194.4	301.9	364.0	379.9	380.8	51.0	79.3	95.6	99.8	1904	
	1911-20	235.4	338.5	386.3	399.2	399.9	58.9	84.6	96.6	99.8	2000	
	1916-25	269.3	356.1	398.4	409.1	409.6	65.7	86.9	97.3	99.9	2048	
	1921-30	281.3	366.8	406.1	413.7	414.0	67.9	88.6	98.1	99.9	2070	
	1926-35	301.5	389.1	421.3	426.4	426.8*	70.6	91.2	98.7	99.9*	2134*	
1931-40	319.2	396.3	421.0	—	426.5†	74.8	92.9	98.7†	—	2133†		
1936-45	310.9	378.9	—	—	407.9†	76.2	92.9†	—	—	2040†		
1941-50	300.5¶	—	—	—	394.4	76.2	—	—	—	1972		
Switzerland	1911-20	227.5	353.9	412.9	430.8	432.0	52.7	81.9	95.6	99.7	2160	
	1916-25	259.2	372.9	428.7	445.2	446.2	58.1	83.6	96.1	99.8	2231	
	1921-30	267.7	379.2	432.6	445.1	446.0*	60.0	85.0	97.0	99.8*	2230*	
	1926-35	278.6	389.9	433.1	—	446.5†	62.4	87.3	97.0†	—	2233†	
	1931-40	308.1	402.6	—	—	461.2†	66.8	87.3†	—	—	2306†	
	1906-15	307.8	437.3	530.6	558.4	560.3	54.9	78.0	94.7	99.7	2802	
	1911-20	283.3	420.3	491.7	515.5	517.2	54.8	81.3	95.1	99.7	2586	
Italy	1916-25	285.9	398.8	464.4	485.6	487.1*	58.7	81.9	95.3	99.7*	2436*	
	1921-30	277.9	389.8	454.0	—	476.4†	58.3	81.8	95.3†	—	2382†	
	1926-35	274.1	393.9	—	—	481.5†	56.9	81.8†	—	—	2408†	
	1916-25	325.3	458.6	556.5	603.5	606.9	53.6	75.6	91.7	99.4	3035	
Portugal	1921-30	322.3	451.7	545.9	587.8	591.3*	54.5	76.4	92.3	99.4*	2957*	
	1926-35	323.8	452.2	535.3	—	580.0†	55.8	78.0	92.3†	—	2900†	
	1931-40	344.0§	455.7	—	—	584.2†	58.9	78.0	—	—	2921†	
Spain	1910-10	338.6	481.8	581.2	618.7	623.7	54.3	77.2	93.2	99.2	3119	
	1906-15	290.0	434.8	530.9	562.7	566.3	51.2	76.8	93.7	99.4	2832	

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES

45

TABLE A2 (cont.)

country	period of birth	cumulative rates per 1000 women per year					percentage of total fertility by					Total fertility by age 50 (cumulative × 5)	
		to age 30		to age 40		to age 50		age 30		age 45			age 45
		to age 35	to age 40	to age 45	to age 50	to age 30	to age 35	to age 40	to age 45	to age 50	to age 50		
Spain	1911-20	253.7	469.2	498.1	501.2	50.6	77.8	93.6	99.4	2506			
	1916-25	257.0	467.0	497.4	500.9	51.3	77.1	93.2	99.3	2505			
	1921-30	260.3	480.9	509.4	513.0*	50.7	77.5	93.7	99.3*	2565*			
	1926-35	277.5	429.4	—	546.9†	50.7	78.5	93.7†	—	2735†			
	1931-40	296.5	443.2	—	564.6†	52.5	78.5†	—	—	2823†			
Czechoslovakia	1900-09	280.7	403.7	426.9	428.5	65.5	83.6	94.2	99.6	2143			
	1905-14	260.9	408.7	428.2	429.2	60.8	78.9	95.2	99.8	2146			
	1910-19	255.9	430.3	442.4	442.8	57.8	84.7	97.2	99.9	2214			
	1915-24	305.6	409.3	461.3	461.7	66.2	88.6	98.2	99.9	2309			
	1920-29	356.9	439.6	467.7	473.2	75.4	92.9	98.8	100.0	2367			
	1925-34	380.1	445.6	472.5	472.5*	80.4	94.3	99.1	100.0*	2363*			
	1930-39	391.4	447.3	—	470.0†	83.3	95.2	99.1†	—	2350†			
	1935-44	367.0	420.2	—	441.4†	83.1	95.2†	—	—	2207†			
	1940-49	346.1¶	—	—	416.5	83.1	—	—	—	2083			
	1911-20	322.0	410.3	468.5	468.8	68.7	87.5	98.0	99.9	2344			
Hungary	1916-25	326.7	421.5	460.9	461.2	70.8	91.4	98.6	99.9	2306			
	1921-30	352.2	416.2	441.0	441.2	79.8	94.3	98.9	100.0	2206			
	1926-35	342.2	390.5	413.7	413.7*	82.7	94.4	99.0	100.0*	2069*			
	1931-40	320.7	372.9	390.6	394.5†	81.3	94.5	99.0†	—	1973†			
	1936-45	312.5	361.1	—	382.1†	81.8	94.5†	—	—	1911†			
	1941-50	309.7¶	—	—	378.6	81.8	—	—	—	1893			
	1890-94	432.0	692.0	984.0	1024.0	42.2	67.6	86.5	96.1	5120			
	1895-99	516.0	754.0	1006.0	1028.0	50.2	73.3	88.5	97.9	5140			
	1900-04	504.0	682.0	876.0	890.0	56.6	76.6	92.8	98.4	4450			
	1905-09	458.0	638.0	720.0	770.0	59.5	82.9	93.5	99.0	3850			
U.S.S.R.	1910-14	452.0	638.0	670.0	674.1	67.1	82.5	94.6	99.4	3371			
	1915-19	364.0	486.0	560.0	585.7	62.1	83.0	95.6	99.4	2929			
	1920-24	328.0	450.0	521.8	523.9	62.6	85.9	96.4	99.6	2620			
	1925-29	346.0	447.9	496.6	511.2	67.4	87.3	96.7	99.6*	2567*			
	1930-34	340.5	434.3	—	499.8†	68.1	86.9	96.7†	—	2499†			
	1935-39	322.4	406.8	—	468.1†	68.9†	86.9†	—	—	2341†			
	1940-44	321.5¶	—	—	466.6	68.9	—	—	—	2333			
	1906-15	297.6	427.7	518.1	549.6	53.9	77.4	93.8	99.5	2762			
	1911-20	315.0	458.8	546.9	576.4	54.5	79.3	94.5	99.6	2893			

♣ Canada

♠

TABLE A 2 (cont.)

country	period of birth	cumulative rates per 1000 women per year					percentage of total fertility by					total fertility by age 50 (cumulative x 5)
		to age 30	to age 35	to age 40	to age 45	to age 50	age 30	age 35	age 40	age 45		
Canada	1916-25	369.7	521.4	609.3	635.1	636.4	58.1	81.9	95.7	99.8	3182	
	1921-30	420.1	568.4	642.8	657.3	657.8	63.9	86.4	97.7	99.9	3289	
	1926-35	473.1	609.6	656.6	664.5	665.2*	71.1	91.6	98.7	99.9*	3326*	
	1931-40	486.3	575.9	605.3	—	613.3†	79.3	93.9	98.7†	—	3067†	
	1936-45	430.0	502.2	—	—	534.8†	80.4	93.9†	—	—	2674†	
United States	1941-50	344.9¶	—	—	—	429.0	80.4	—	—	—	2145	
	1916-25	354.7	466.3	524.4	538.6	539.3	65.8	86.5	97.2	99.9	2697	
	1921-30	426.0	540.8	592.0	602.6	603.2*	70.6	89.7	98.1	99.9*	3016*	
	1926-35	495.7	601.2	639.9	—	652.3†	76.0	92.2	98.1†	—	3262†	
	1931-40	523.7	603.7	—	—	654.8†	80.0	92.2†	—	—	3274†	
Australia	1936-45	464.0¶	—	—	—	580.0	80.0	—	—	—	2900	
	1901-10	276.6	374.9	441.2	463.9	465.4	59.4	80.6	94.8	99.7	2327	
	1906-15	263.4	377.7	450.0	470.5	471.9	55.8	80.0	95.4	99.7	2360	
	1911-20	286.8	413.4	478.4	497.4	498.6	57.5	82.9	95.9	99.8	2493	
	1916-25	334.4	457.9	521.8	539.3	540.3	61.9	84.7	96.6	99.8	2702	
New Zealand	1921-30	381.0	507.1	566.3	579.2	580.4*	65.6	87.4	97.6	99.8*	2902*	
	1926-35	437.3	559.7	606.8	—	621.7†	70.3	90.0	97.6†	—	3109†	
	1931-40	463.1	566.4	—	—	629.3†	73.6	90.0†	—	—	3147†	
	1936-45	436.2	—	—	—	592.7	73.6	—	—	—	2964	
	1901-10	261.0	369.8	444.5	470.7	472.7	55.2	78.2	94.0	99.6	2364	
Japan	1906-15	257.3	387.4	472.5	495.0	496.5	51.8	78.0	95.2	99.7	2483	
	1911-20	294.0	443.6	519.4	540.5	542.1	54.2	81.8	95.8	99.7	2711	
	1916-25	355.2	502.0	577.9	599.6 ^a	600.9 ^a	59.1	83.5	96.2	99.8 ^a	3005 ^a	
	1921-30	417.7	567.5	638.1 ^a	653.0 ^a	654.3 ^a	63.8	86.7	97.5 ^a	99.8 ^a	3272 ^{a*}	
	1926-35	486.8	628.1 ^a	678.5 ^a	—	695.9† ^a	70.0	90.3 ^a	97.5† ^a	—	3480† ^a	
Japan	1931-40	512.4 ^a	619.0 ^a	—	—	685.5† ^a	74.7 ^a	90.3† ^a	—	—	3428† ^a	
	1936-45	490.3 ^a	—	—	—	656.4 ^a	74.7 ^a	—	—	—	3282 ^a	
	1905-14	488.1	684.8	837.0	861.1	861.7	56.6	79.5	97.1	99.9	4309	
	1910-19	448.3	670.7	749.1	758.3	758.6	59.1	88.4	98.7	100.0	3793	
	1915-24	437.3	584.2	622.2	626.3	626.5	69.8	93.2	99.3	100.0	3133	
Japan	1920-29	391.0	486.6	506.9	509.7	509.9	76.7	95.4	99.4	100.0	2550	
	1925-34	327.5	407.7	426.9	429.6	429.6*	76.2	94.9	99.4	100.0*	2148*	
	1930-39	304.0	387.0	406.5	—	409.0†	74.3	94.6	99.4†	—	2045†	
	1935-44	303.1	390.0	—	—	412.3†	73.5	94.0†	—	—	2062†	
	1940-49	314.7¶	—	—	—	428.2	73.5	—	—	—	2141	

TABLE A 2 (cont.)

- * Total rate based on extrapolation beyond 40–44 years of age.
- † Total rate based on extrapolation beyond 35–39 years of age.
- ‡ Total rate based on extrapolation beyond 30–34 years of age.
- § Four-year average.
- || Total rate based on extrapolation beyond 25–29 years of age.
- ¶ Three-year average.
- ^a Data include Maori population.

Sources:

- Belgium – League of Nations, *Statistical yearbook for 1942–44*; United Nations, *Demographic yearbooks*.
- Denmark – League of Nations, *Statistical yearbook for 1942–44*; *Egteskaben, Født og Død. I Aarene 1926–30*; Denmark Statistik, *Befolkningens bevægelser. England and Wales – Registrar General's statistical review, 1946–50, Text-Civil*; 1973, Part II (advance copy).
- Finland – *Annuaire Statistique de Finlande, 1952 and 1966, Väestömuutokset*.
- France – P. Depoid, *Reproduction nette en Europe depuis l'origine des statistiques de l'État Civil (Paris 1941)*; *Annuaire Statistique de la France for 1966 and 1973*.
- Norway – J. E. Backer, *Ektekap Fødsler og Vandringer i Norge 1856–1960*, Oslo 1965; *Folkemængdens Bevægelse*; League of Nations, *Statistical Yearbooks*.
- Netherlands – League of Nations, *Statistical yearbook for 1937–38, 1942–44*; United Nations *Demographic yearbook, 1954, 1959, 1965, 1969, 1970*; *Maandstatistiek van bevolkingen Volksgezondheid*, Supplement 1970, 1971, 1973.
- Sweden – Sveriges officiella Statistik. Folkmängden och Dess Förändringar *Folkmängdens Förändringar*, 1965, p. 65; 1972, p. 74; 1973, p. 69.
- Switzerland – League of Nations, *Statistical yearbooks*; United Nations *Demographic yearbooks*; CIGRED Series, J. J. Senglet (ed.), *La population de la Suisse (World Population Year 1974)*, p. 136.
- Italy – M. Livi Bacci e A. Santini, *Tavole di Fecondità Della Donna Italiana Secondo le Generazioni di Appartenenza*. Dipartimento Statistico-Matematico Università Degli Studi Di Firenze, 1969, p. 33.
- Portugal – League of Nations, *Statistical yearbooks*; United Nations, *Demographic yearbooks*.
- Spain – Personal communication from Professor J. Diez Nicolás, Madrid.
- Czechoslovakia – CIGRED Series, *La Population de la Tchécoslovaquie (World Population Year 1974)*, p. 91.
- Hungary – Calculated from data sent by Dr E. Szabady, Budapest.
- U.S.S.R. – Official data published in *Vestnik Statistiki*, No. 8, 1967, p. 88, Table 2; No. 12, 1973, p. 75, Table 7; No. 12, 1974, p. 87, Table 7. Rates for 1957–58 to 1970–71 taken from B. Uralis, *Problems of population dynamics in the USSR*, Moscow: Nauka 1974, p. 85.
- Canada – Statistics Canada, *Vital statistics, 1970, 1973*.
- United States – United Nations, *Demographic yearbooks*.
- Australia – Commonwealth Bureau of Census and Statistics, Canberra, Australia, *Demography 1969*, and 1970, p. 150.
- New Zealand – League of Nations, *Statistical yearbooks*; United Nations, *Demographic yearbooks*; New Zealand, Department of Statistics, *Vital statistics*.
- Japan – *Japan statistical yearbook, 1954 to 1973/1974. Vital statistics*. The earlier rates for Japan are especially 'rough' because relevant data for the war years could not be located.

TABLE A3. CUMULATED DURATION-SPECIFIC MARITAL FERTILITY RATES BY MARRIAGE DURATION (EQUIVALENT TO AVERAGE NUMBER OF LIVE BIRTHS PER MARRIED WOMAN BY DATE OF MARRIAGE AND BY SPECIFIED DURATION OF MARRIAGE)

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
Austria (net rates)	1953	1.05	1.19	1.50	1.64	1.82	1.86	1.86
	1954	1.10	1.25	1.56	1.70	1.88	1.92	
	1957	1.19	1.34	1.66	1.78	1.94		
	1960	1.28	1.43	1.73	1.85			
	1963	1.29	1.43	1.69	1.78			
	1965	1.25	1.37	1.60				
	1966	1.24	1.36					
	1967	1.22	1.33					
	1968	1.18	1.29					
	1969	1.15						

Source: computed from data given in *Die Natürliche Bevölkerungsbewegung im Jahre 1973*, p. 36; United Nations *Demographic yearbook* 1958, 1968, 1969, 1970. All marriages, wife's age at marriage under 45 years. Calendar year duration.

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
Belgium (net rates)	1939	0.80	0.94	1.30	1.45	1.69	1.79	1.80
	1940	1.09	1.28	1.74	1.94	2.25	2.35	2.36
	1945	0.92	1.05	1.35	1.50	1.74	1.82	1.83
	1950	0.99	1.15	1.51	1.69	1.96		
	1955	1.06	1.24	1.64	1.81			
	1960	1.13	1.32					
	1961	1.15	1.33					
	1962	1.15	1.33					
	1963	1.16						

Source: J. Morsa, Note sur la conjoncture démographique, *Population et famille*, no. 16, pp. 90–91. All marriages, all ages at marriage, calendar year duration. Before 1961, children born alive but dying before registration were excluded from statistics of live births.

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
Denmark (net rates)	1945	1.32	1.47	1.77	1.89	2.05	2.10	
	1950	1.16	1.29	1.56	1.67	1.82	1.85	
	1955	1.29	1.43	1.72	1.84	1.97		
	1958	1.31	1.46	1.76	1.86			
	1960	1.33	1.48	1.74	1.83			
	1964	1.30	1.42	1.67				
	1965	1.24	1.36					
	1966	1.25	1.39					
	1967	1.22	1.37					
1968	1.21							

Source: Computed from data in *Befolkningens Bevaegelser* for the years 1940–72 inclusive. The rates are partly estimates. For 1949–53 interpolation was necessary to obtain single-year duration within the duration group 5–9 years. Similarly for the years 1959–70. Interpolation was necessary within the duration group 15–19 years. All marriages, wife's age at marriage under 45 years.

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES

49

TABLE A3 (cont.)

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
England and Wales (gross rates)	1931	0.96	1.10	1.45	1.61	1.91	2.04	2.05
	1937	0.87	0.99	1.39	1.62	1.92	1.99	2.00
	1940	0.79	0.95	1.43	1.63	1.87	1.96	1.97
	1945	1.06	1.24	1.62	1.79	2.06	2.15	2.16
	1950	1.06	1.25	1.67	1.84	2.12	2.21	2.22
	1955	1.08	1.29	1.78	1.99	2.24		
	1960	1.21	1.45	1.95	2.13			
	1961	1.24	1.47	1.94	2.11			
	1962	1.24	1.46	1.92	2.08			
	1963	1.24	1.46	1.91	2.06			
	1964	1.22	1.45	1.88				
	1965	1.20	1.42	1.84				
	1966	1.16	1.39					
	1967	1.14	1.36					
1968	1.11	1.32						
1969	1.07							

Source: Registrar General's statistical review . . . 1973, Tables, Population, Table QQ(b). Women married once only, integral marriage durations (exact years), wife's age at marriage under 50 years.

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
France (net rates)	1945	—	1.31	1.69	1.86	2.11	2.19	2.20
	1950	1.19	1.38	1.82	2.01	2.31	2.41	2.42
	1955	1.23	1.43	1.87	2.07	2.33		
	1960	1.26	1.47	1.90	2.08			
	1961	1.27	1.47	1.89				
	1962	1.27	1.47	1.88				
	1963	1.26	1.46					
	1964	1.25	1.44					
	1965	1.23	1.42					
	1966	1.20						

Source: 1945 – *Études et Conjoncture* No. 2, 1967, p. 63; 1950–66 – C. Blayo, Natalité, fécondité, in G. Calot (ed.), *La population de la France*, Special issue of *Population*, June 1974, p. 62. All ages at marriage under 50 years, all marriages. Births related to original cohort of marriages, corrected for the marriages of repatriated persons contracted outside France.

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
Finland (net rates)	1941	1.10	1.27	1.64	1.79	2.03	2.10	
	1945	1.12	1.24	1.51	1.64	1.82	1.88	
	1949	1.54	1.70	2.07	2.23	2.46	2.53	
	1950	1.48	1.64	1.98	2.13	2.36	2.42	
	1955	1.49	1.64	1.96	2.10			
	1959	1.50	1.64	1.93	2.02			
	1962	1.46	1.59	1.81				
	1963	1.45	1.57					
	1964	1.38	1.49					
	1965	1.30	1.40					
	1966	1.27						

Source: Computed from data in *Vital statistics (Väestönmuutokset)* for the years 1941–70 inclusive. All marriages, wife's age at marriage under 45 years.

TABLE A3 (*cont.*)

country	year of marriage	duration of marriage (years)						
		4-4½	5-5½	8-8½	10-10½	15-15½	19-19½	20-20½
West Germany (gross rates)	1951	1.10	1.25	1.55	1.69	1.88	1.93	
	1954	1.16	1.31	1.63	1.78	1.97	2.01	
	1957	1.21	1.38	1.73	1.87	2.04		
	1959	1.25	1.41	1.76	1.90			
	1961	1.26	1.42	1.74	1.85			
	1963	1.24	1.39	1.66	1.75			
	1965	1.21	1.33	1.57				
	1966	1.16	1.28					
	1967	1.12	1.24					
	1968	1.07	1.18					
1969	1.02							

Source: unpublished data kindly supplied by Dr Karl Schwarz.

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
Netherlands (gross rates)	1937	1.33	1.53	2.08	2.46	2.90	—	3.05
	1940	1.40	1.63	2.30	2.57	2.96	—	3.10
	1945	1.53	1.75	2.27	2.51	2.85	—	2.97
	1950	1.33	1.55	2.02	2.24	2.54	—	2.62
	1955	1.35	1.57	2.06	2.27	2.49		
	1960	1.40	1.62	2.03	2.18			
	1961	1.40	1.61	2.01	2.16			
	1962	1.39	1.60	2.00				
	1963	1.38	1.58	1.98				
	1964	1.36	1.57	(1.93)				
1965	1.35	1.56	(1.89)					
1966	1.34	1.53						
1967	1.29	(1.49)						

Source: *Huwelijksvruchtbaarheid, een cohortanalyse 1937-1971*, 's-Gravenhage, 1974, p. 29, and *Maandstatistiek van bevolking en volksgezondheid*, 1974, Supplement, 's-Gravenhage, 1975, p. 34. Based on confinements (covering live and stillbirths). Wife's age at marriage under 50 years.

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
Norway (net rates)	1951	1.27	1.45	1.83	1.99	2.22	2.28	2.29
	1953	1.30	1.47	1.86	2.02	2.25	2.30	2.30
	1954	1.32	1.50	1.89	2.06	2.29	2.34	
	1958	1.42	1.61	2.03	2.20	2.39		
	1963	1.49	1.68	2.03	2.15			
	1965	1.63	1.82	2.17				
	1966	1.43	1.60					
	1967	1.43	1.60					
	1968	1.39	1.55					
	1969	1.35						

Source: Computed from data in *Folkemengdens Bevegelse* for the years 1951-73 inclusive. All marriages, wife's age at marriage under 45 years.

TRENDS IN FERTILITY IN DEVELOPED COUNTRIES

51

TABLE A3 (cont.)

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
Sweden (net rates)	1951	1.13	1.25	1.52	1.62	1.76	1.79	1.79
	1952	1.14	1.27	1.52	1.63	1.86	1.79	
	1955	1.18	1.30	1.57	1.69	1.81		
	1958	1.18	1.32	1.62	1.72			
	1961	1.22	1.36	1.60	1.68			
	1963	1.29	1.41	1.64				
	1964	1.24	1.36					
	1965	1.23	1.36					
	1966	1.21	1.34					
	1967	1.25						

Source: computed from data in *Befolknings Förändringar* for the years 1951–71 inclusive. All marriages, wife's age at marriage under 45 years. Duration 20 years in the table represents '20 years and over'.

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
Switzerland (net rates)	1945	1.35	1.54	1.90	2.05	2.24	2.29	2.30
	1947	1.34	1.52	1.98	2.04	2.24	2.29	2.29
	1950	1.32	1.50	1.87	2.02	2.22	2.26	2.27
	1954	1.37	1.56	1.94	2.10	2.28	2.31	
	1956	1.41	1.60	2.00	2.16	2.32		
	1959	1.49	1.70	2.10	2.23			
	1961	1.61	1.80	2.17	2.30			
	1963	1.63	1.82	2.17	2.28			
	1965	1.52	1.70	2.02				
	1966	1.53	1.71					
	1967	1.46	1.64					
	1968	1.43	1.60					
	1969	1.35						

Source: computed from annual data published in *Mouvement de la Population en Suisse*, for the years 1945–73 inclusive. All marriages, wife's age at marriage under 45 years. Calendar year duration.

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
Italy (net rates)	1930	—	1.66	2.19	2.48	2.97	—	3.22
	1938	—	1.51	1.97	2.23	2.58	—	2.72
	1942	—	1.48	1.92	2.12	2.44	—	2.57
	1945	—	1.55	1.93	2.00	2.43	—	2.46
	1950	—	1.43	1.81	2.00	2.30	—	2.40
	1956	—	1.47	1.87	2.05	2.29		
	1960	—	1.52	1.90	2.07			
	1961	—	1.51	1.88	2.03			
	1962	—	1.50	1.86				
	1963	—	1.49	1.85				
	1964	—	1.48					
	1965	—	1.48					
	1966	—	1.48					

Source: D. Moriconi, 'La fecondità matrimoniale italiana nel decennio 1951–1961', *Statistica*, **24**, 3, 1964, Table VI, p. 40 and personal communication from Professor A. Santini, 27 March 1975. Coverage: all marriages, calendar year duration, all legitimate births, including stillbirths.

TABLE A3 (cont.)

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
Yugoslavia (net rates)	1950	1.40	1.58	1.93	2.09	2.33		
	1955	1.44	1.61	1.94	2.09	2.29		
	1957	1.37	1.52	1.82	1.96	2.15		
	1960	1.35	1.50	1.79	1.90			
	1962	1.36	1.50	1.77	1.88			
	1964	1.29	1.42	1.66				
	1965	1.30	1.42					
	1966	1.31	1.43					
	1967	1.29	1.41					
	1968	1.30						

Source: *Demografska Statistika*, 1950–72 inclusive. Some interpolation within duration groups was necessary and adds to the errors of the estimates. All marriages, wife's age at marriage under 45 years.

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
Czechoslovakia (net rates)	1956	1.23	1.35	1.60				
	1958	1.32	1.47	1.75				
	1960	1.37	1.50	1.74				
	1962	1.34	1.45	1.67				
	1964	1.33	1.44	1.68				
	1965	1.28	1.39					
	1966	1.26	1.38					
	1967	1.26	1.39					
	1968	1.29						

Source: computed from the data in *Statistická ročenka C.S.S.R.*, for the years 1957–74 inclusive. All marriages, wife's age at marriage under 45 years.

country	year of marriage	duration of marriage (years)						
		4	5	8	10	15	19	20
Hungary (net rates)	1954	1.08	1.19	1.40	1.49	1.60	1.62	
	1956	1.05	1.16	1.38	1.47	1.59		
	1958	1.01	1.12	1.36	1.47	1.58		
	1961	0.96	1.07	1.33	1.42			
	1963	0.99	1.11	1.35	1.44			
	1965	1.03	1.14	1.36				
	1966	1.03	1.14					
	1967	1.04	1.15					
	1968	1.06	1.17					
	1969	1.05						

Source: computed from data on legitimate births by year of marriage received from Dr E. Szabady. All marriages, wife's age at marriage under 45 years. Data on marriages taken from *Demográfiai Evkönyv* for the years 1954–72 inclusive. Calendar year duration.