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# An International Survey of Recent Fertility Trends

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THE disturbed period of fertility during the depression, the Second World War and the early postwar years seems to have ended in the economically developed countries. Economic conditions have, in recent years, been stable and hardly any changes have taken place in birth rates. The repercussions of the disturbed period may not have ended, and all adjustments made since the marriages which contributed largely to the war and postwar baby boom have not yet completed their reproductive history. But sufficient time has passed for an appraisal. The United Nations has recently published a survey of fertility trends in the industrialized countries up to 1954.<sup>1</sup> More recent data and a summary of some of the findings with regard to recent trends in countries in western Europe, North America, and Oceania are given below.

## *Trends in the Crude Birth Rate*

The declining trend in the birth rate which began in most of the industrialized countries around the 1880's continued generally until the middle of the 1930's, only temporarily interrupted by a brief period of recuperation after the slump during the First World War. The downward trend in the birth rate was halted in northern Europe and Oceania in 1933-1935 and in most other countries in 1936-1937; only in Belgium, France, Portugal, and Spain did the birth rate continue to decline up to the outbreak of the Second World War or longer.

While the timing of the check in the birth-rate decline was fairly similar in the various countries, there were important differences in the levels of the birth rate at which the turn took place. Around the middle of the 1930's, the birth rate was 13-17 per 1,000 population in north-western Europe and Oceania, except in Finland, Ireland, and the Netherlands where the lowest recorded birth rates were 18-20 per 1,000. In Canada and the United States, the minimum rates were 16 and 18, respectively. However, in the southern European countries the decline in the birth rate came to an end at a level of about 20 or more per 1,000.

<sup>1</sup> United Nations, *Recent Trends in Fertility in Industrialized Countries*, New York, 1958 (ST/SOA/Ser. A.27, October 1957).

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These marked differences in the prewar level of the birth rate were not merely due to differences in the sociological backgrounds of the countries. The timing of the long-term fertility decline varied from country to country; in the southern European countries the decline did not reach major proportions until the middle of the 1920's. Furthermore, the depression, which contributed to the decline in the birth rate in the early 1930's by discouraging marriage and encouraging postponement of births, did not have the same impact in countries with different levels of development and industrialization.

After the decline was halted, the birth rates remained relatively stable or began to increase slightly in the late 1930's. Although in some countries the birth rate dropped in the early years of the Second World War there was no such substantial decline as that experienced during the First World War. The recovery began in most countries in 1942 or 1943 and the rise accelerated toward the end of the war and in the early postwar years. The average birth rate during the war years 1940-1944 generally exceeded the prewar level of 1935-1939 (Table 1).

The rise in the birth rate came to an end in most countries in 1946 or 1947, one or two years earlier in countries which had remained neutral during the war. Peak rates generally exceeded the prewar level by 20-50 per cent.

Subsequent declines in birth rates in the late 1940's were rather modest. In the majority of countries, the birth rate declined less than 25 per cent in the years following the postwar peak. The magnitude of the decline varied considerably from country to country, but, generally speaking, in countries where the war and postwar rise in the birth rate had been comparatively large, the subsequent decline was most pronounced. This seems to indicate that the recovery in the birth rate to a considerable extent was related to the postponement of births.

The decline in the birth rate after the recuperation was of only short duration. In most countries, it stopped around 1950. Since then, a remarkable stability in the birth rate has prevailed. In thirteen of the nineteen countries for which data are presented in Table 1, the birth rate has varied less than 1 point per 1,000 population during the years 1953-1957. A modest increase has taken place in Austria and the Federal Republic of Germany since 1953 amounting to around 2 points per 1,000. On the other hand, a slight decline amounting to 1-2 points per 1,000 has occurred in Denmark and Finland.

In a number of countries the present level of the birth rate is in the neighborhood of the low prewar level of 1935-1939 or has declined below

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**TABLE 1**  
**Crude Birth Rates**

Country	1930- 1934	1935- 1939	1940- 1944	1945- 1949	1950- 1954	1953	1954	1955	1956	1957
Australia	17.6	17.3	19.5	23.1	23.0	22.9	22.5	22.6	22.5	22.9
Austria	15.1	14.7	19.1	16.7	15.0	14.8	14.9	15.6	16.6	16.8
Belgium	17.6	15.6	13.8	17.3	16.7	16.7	16.8	16.8	16.8	16.9
Canada	22.2	20.3	23.0	26.8	27.7	28.1	28.5	28.2	28.0	28.2
Denmark	17.9	17.9	20.3	21.6	17.9	17.9	17.3	17.3	17.2	16.7
Finland	20.0	20.2	20.1	27.0	22.8	21.9	21.4	21.2	20.7	20.1
France <sup>a</sup>	17.3	15.1	14.9	20.1	19.3	18.7	18.9	18.6	18.4	18.5
Germany <sup>b</sup>	16.3	19.4	—	16.6 <sup>c</sup>	15.9	15.5	16.1	16.0	16.5	17.0
Great Britain:										
England and										
Wales	15.3	14.9	15.5	18.0	15.5	15.5	15.2	15.0	15.6	16.1
Scotland	18.6	17.7	17.7	19.3	17.9	17.8	18.0	18.0	18.5	19.0
Ireland	19.5	19.4	20.9	22.5	21.4	21.2	21.2	21.2	21.0	21.2
Italy	24.5	23.2	20.6	21.2	18.3	17.6	18.2	18.1	18.1	18.2
Netherlands	21.7	20.3	21.8	25.9	22.1	21.8	21.6	21.4	21.2	21.2
New Zealand	17.5	17.4	21.4	25.1	24.5	24.1	24.7	24.9	24.7	25.1
Norway	15.7	15.0	17.7	20.8	18.7	18.8	18.5	18.5	18.5	18.2
Portugal	29.3	27.1	25.0	25.4	24.0	23.5	22.7	23.9	22.9	23.7
Spain	27.7	22.0	22.0	22.2	20.3	20.6	20.0	20.6	20.7	21.7
Sweden	14.4	14.5	17.7	19.0	15.5	15.4	14.6	14.8	14.8	14.6
Switzerland	16.7	15.4	17.9	19.4	17.3	17.0	17.0	17.1	17.4	17.7
United States	19.7	18.8	21.2	24.1	24.9	25.0	25.3	25.0	25.3 <sup>d</sup>	25.4 <sup>d</sup>

<sup>a</sup> Data exclude infants born alive but dying before registration.

<sup>b</sup> Beginning 1946, data relate to the Federal Republic of Germany, excluding Berlin.

<sup>c</sup> 1946-1949 average.

<sup>d</sup> Provisional.

Source: For this and all subsequent tables, United Nations Statistical Office and official publications of the countries concerned.

it (in the three southern European countries). On the other hand, several countries have recorded a birth rate in recent years substantially above the prewar level (in Australia, Canada, New Zealand, and the United States the average birth rate in 1955-1957 was 34-43 per cent, and in France and Norway 23 per cent, above the prewar level).

Important changes have taken place within the last twenty years in the grouping of countries according to the level of the birth rate. Table 2 presents the countries listed in order of their birth rate before the war as well as their birth rate in recent years. The three Catholic countries in southern Europe which before the war had the highest prewar birth rates among the industrialized countries have been replaced in the top positions by Canada, New Zealand, and the United States. Little change, however, has taken place at the other end of the scale. Austria, England

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TABLE 2

Ranking of Countries according to Average Birth Rates 1935-1939 and 1955-1957

1935-1939		1955-1957	
Position	Country	Country	Position
1	Portugal	Canada	1
2	<i>Italy</i>	UNITED STATES	2
3	<i>Spain</i>	NEW ZEALAND	3
4	Canada	Portugal	4
5	Netherlands	AUSTRALIA	5
6	Finland	Netherlands	6
7	Ireland	Ireland	7
8	UNITED STATES	<i>Spain</i>	8
9	<i>Denmark</i>	Finland	9
10	Scotland	Scotland	10
11	NEW ZEALAND	France	11
12	AUSTRALIA	Norway	12
13	Belgium	<i>Italy</i>	13
14	Switzerland	Switzerland	14
15	France	<i>Denmark</i>	15
16	Norway	Belgium	16
17	England, Wales	Austria	17
18	Austria	England, Wales	18
19	Sweden	Sweden	19

and Wales, and Sweden are still, as before the war, the three countries with the lowest birth rates.

### *Trends in the Gross Reproduction Rate*

Birth rate trends are affected by factors such as the composition of the population by age and sex, the number of married persons, the proportion married at various ages, and the distribution of the married population according to number of years married, number of children born previously, and time elapsed since last birth. The effect, if any, of changes in the sex and age distribution upon fertility will become apparent by following the trend in the gross reproduction rate, which is independent of the sex and age composition of the population. The gross reproduction rates for recent years are presented in Table 3.

Trends in the gross reproduction rate have generally been fairly parallel to the trends in the crude birth rate. Gross reproduction rates increased from the middle of the 1930's to the early postwar period. In most countries, they followed closely the trend in birth rates, showing that the increase in the birth rate was not caused by changes in the sex and age composition of the population. In a few countries, the gross reproduction rate had a slightly higher incline, indicating that changes in the age and

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TABLE 3  
Gross Reproduction Rates

Country	1930- 1934	1935- 1939	1940- 1944	1945- 1949	1950- 1954	1953	1954	1955	1956
Australia	1.10	1.06	1.18	1.43	1.53	1.56	1.56	1.57	1.61
Belgium	—	—	0.95	1.21	1.14	1.13	1.15	1.17	1.18
Canada	1.48	1.30	1.42	1.64	1.77	1.82	1.87	1.83	1.83
Denmark	1.05	1.04	1.21	1.38	1.24	1.25	1.23	1.25	1.26
Finland	1.20	1.18	1.17	1.61	1.46	1.44	1.39	1.42	1.40
France	1.07	1.02	0.99	1.39	1.34	1.30	1.31	1.31	1.30
Great Britain:									
England and Wales	0.89	0.87	0.94	1.15	1.06	1.08	1.07	1.08	1.14
Scotland	—	—	1.10	1.31	1.20	1.18	1.21	1.23	1.28
Italy	—	1.46	1.30	1.32	1.16	1.12	1.15	1.15	1.16
Netherlands	—	1.26	1.37	1.68	1.49	1.47	1.46	1.48	1.48
New Zealand	1.10	1.07	1.28	1.59	1.69	1.70	1.76	1.81	1.70
Norway	—	0.89	1.03	1.25	1.25	1.28	1.30	1.34	1.30
Portugal	—	1.70	1.55	1.58	1.50	1.50	1.40	1.32	1.41
Sweden	0.88	0.87	1.07	1.22	1.09	1.10	1.05	1.08	1.11
Switzerland	—	0.88	1.08	1.24	1.23	1.25	1.17	1.13	1.16
United States	1.15	1.09	1.22	1.45	1.62	1.67	1.72	1.73	1.79

sex structure of the population tended rather to retard the increase in the birth rate.

After the peak around 1946 and 1947 the gross reproduction rates declined in many countries at a much slower rate than the birth rate. Consequently, changes in the sex and age composition of the population were to some extent responsible for the postwar decline in the birth rate. In several instances, a decreasing proportion of women in the reproductive ages to the total population tended to give an exaggerated picture of the fertility decline as measured by the birth rate.

Since 1950, several countries show both a stable birth rate and a stable gross reproduction rate. On the other hand, a marked increase in the gross reproduction rate has taken place in Australia, Canada, New Zealand, and the United States; the gross reproduction rate in these countries is now above the rate recorded at the peak of the baby boom in the early postwar period.

Considerable changes have also taken place in the ranking of the countries in level of gross reproduction rate since before the war. Italy, which had the second highest gross reproduction rate before the war, now has the fourth lowest, as shown in Table 4. Portugal, which had the highest rate before the war, is now found on a considerably lower level of the scale. The three countries with the lowest gross reproduction rates are still Switzerland, England and Wales, and Sweden as before the war.

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Some of the changes in the ranking of countries according to the birth rate (Table 2) appear to be due to changes in the sex and age structure of the population. This is the case, for example, in Denmark which dropped in rank by birth rate about one-third of the entire scale, but, ranked according to the gross reproduction rate, merely went down one place. On the other hand, Portugal, which lost only a little ground

TABLE 4  
Ranking of Countries according to the Average Gross Reproduction Rates  
1936-1939 and 1955-1956

1936-1939		1955-1956	
Position	Country	Country	Position
1	<i>Portugal</i>	Canada	1
2	<i>Italy</i>	UNITED STATES	2
3	Canada	NEW ZEALAND	3
4	Netherlands	AUSTRALIA	4
5	Finland	Netherlands	5
6	UNITED STATES	Finland	6
7	NEW ZEALAND	<i>Portugal</i>	7
8	AUSTRALIA	Norway	8
9	Scotland	France	9
10	Denmark	Scotland	10
11	Belgium	Denmark	11
12	France	Belgium	12
13	Norway	<i>Italy</i>	13
14	Switzerland	Switzerland	14
15	England, Wales	England, Wales	15
16	Sweden	Sweden	16

according to ranking by the birth rate, showed a substantial decline in the gross reproduction rate which moved it from the top to the middle of the scale.

Trends in the gross reproduction rate merely indicate the over-all effect of changes in fertility in the various age groups of women of all reproductive ages. A study of the recent trends in fertility within each age group shows that the war and postwar recovery in fertility, and the subsequent decline, are recorded among women of most ages. But the magnitude of these changes varies considerably from age group to age group. The increase in fertility during the war and the early postwar years was especially pronounced among younger women. Their fertility increased sharply during the period of recovery and the subsequent decline was small; fertility among women aged 15-19 years actually continued to increase in a number of countries even after the postwar peak in the birth rate. In most recent years, a considerable increase has

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taken place in fertility among women under 25 years of age. An all-time-high level of fertility among these women prevailed by 1957 in all countries except France, Portugal, and the Netherlands. On the other hand, women over 40 were affected only to a small extent by the recovery of the birth rate in the early postwar period. The level of fertility among these women has been declining rather steadily for a long period of time and this decline seems to have continued in recent years. Only in France did a marked increase in fertility occur among these women during the 1940's.

The recent trends in fertility at various ages have tended to increase the relative contribution of younger women to total fertility. Women under 25 years of age contribute now almost one-half of the total fertility in the United States and almost two-fifths in the Scandinavian countries. The lowest relative contribution of women in this age group is made in the Netherlands, where women under 25 years account for only one-fifth. An even lower ratio undoubtedly exists in Ireland, although age-specific fertility rates are not available.

### *Trends in Annual Marital Fertility*

As the large majority of all births takes place in marriage, an important factor in the study of fertility is changes in the marriage rate. Changes in the annual number of marriages will affect the total number of married persons exposed to risk of childbearing in the future. Furthermore, such changes will alter the distribution of marriages according to duration of marriage at future dates.

Substantial variations have taken place in the marriage rate in recent decades. The depression caused a considerable decline in the marriage rate in the early 1930's, which was followed by a slow recovery until the outbreak of the Second World War brought about a marked rise. In a number of countries, it remained high during the war years as marriages which were postponed during the depression were contracted. At the end of the war, another pronounced rise in the marriage rate took place. After the peak in 1946 or 1947, it began to decline slowly—a decline which has continued up to the most recent years. The marriage rate by 1957 was below the prewar level in most countries.

The effect upon the birth rate of recent changes in the number of married persons and the distribution of married couples by duration of marriage becomes apparent by comparing the trend in the birth rate with the trend in the total marital fertility rate. The latter rate is the sum of fertility rates for successive durations of marriage per 100 marriages



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observed in a given calendar year. In Table 5 the courses of these two rates since 1939 are outlined for six selected countries.

It appears that the rise in the birth rate which took place in several countries in the early 1940's was due to a large extent to the increase in marriages. Marital fertility lagged considerably behind the upward trend in the birth rate in Australia, England and Wales, New Zealand,

TABLE 5  
Indexes of Total Marital Fertility Rates (A) and Crude Birth Rates (B)  
(1939 = 100)

Year	Australia		Belgium		England and Wales		Finland		New Zealand		Norway	
	A	B	A	B	A	B	A	B	A	B	A	B
1939	100	100	100	100	100	100	100	100	100	100	100	100
1940	99	102	91	87	94	95	82	84	108	113	98	102
1941	99	107	84	79	85	94	112	114	112	122	89	97
1942	96	108	92	85	95	105	76	78	108	116	97	112
1943	101	117	105	97	101	109	94	96	98	105	104	120
1944	104	119	110	99	112	119	96	100	108	115	124	129
1945	107	123	110	101	99	108	111	120	118	124	117	127
1946	115	134	121	118	120	130	114	131	128	135	133	144
1947	116	136	112	115	129	138	111	132	130	141	123	136
1948	111	131	109	113	112	120	108	130	125	136	116	130
1949	111	130	106	111	105	113	104	123	121	133	110	124
1950	116	132	105	109	101	107	100	115	121	132	109	121
1951	116	130	102	106	98	104	96	108	120	130	104	117
1952	120	132	105	108	95	103	98	109	123	132	107	119
1953	120	130	106	107	98	105	96	103	122	129	107	119
1954	120	128	108	108	98	102	95	101	127	131	107	117
1955	123	128	108	108	98	101	96	100	130	133	109	117
1956	—	—	109	108	103	105	96	98	130	132	—	—

and Norway. For example, in Australia, the birth rate by 1943 exceeded the prewar level by 17 per cent but the marital fertility rate was merely 1 per cent above it. In other countries, marital fertility was rising but contributed only in part to the increase in the birth rate. On the other hand, in Belgium the slump in the marriage rate during the war years was so considerable that the birth rate was below the 1939 level in all war years although marital fertility was considerably above that level since 1943.

The rise in the birth rate towards the end of the war and in the early postwar period was mainly caused by an increase in marital fertility. This factor was responsible in New Zealand and Norway for three-quarters, in England and Wales for two-thirds, and in Australia for half of the rise in the birth rate above the prewar level by 1946. The remaining

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part of the rise was due to the increase in the number of newly-wed couples. Similarly, declining marital fertility was mainly responsible for the decline in the birth rate after the peak in the early postwar period as indicated by the fairly parallel downward trend in the two rates.

It is interesting to note that, since 1951, total marital fertility rates have shown an upward trend in all the selected countries (except Finland), particularly in Australia and New Zealand. In this period the birth rate has remained fairly stable in these countries. The increase in marital fertility has been sufficient to offset the tendency toward a decrease in the birth rate caused by the declining marriage rate in recent years.

The recent changes in the number of married women and their distribution by duration of marriage, which are responsible for a considerable part of the recent rise in the birth rate, are associated with important changes in marriage customs.

During the last 20 or 30 years, a substantial increase has taken place in the proportion of women married, particularly at the younger ages where fertility is comparatively high. In a number of countries, the median age at marriage among women who ultimately marry declined by two to three years from around 1930 to 1950. Furthermore, there has been a tendency toward a smaller proportion of women remaining single.<sup>2</sup> These changes are not necessarily temporary shifts related to the conditions that existed during and immediately after the Second World War; the evidence suggests a long-term change in marriage patterns in response to changing social conditions.

The recent change from one level of age at marriage to another, and from one proportion ultimately marrying to another, has been an important factor contributing to the recent rise and decline in the birth rate. During a period when age at marriage is declining and the proportion ultimately marrying is increasing, the number of marriages will be inflated and the birth rate will increase. A decline in marriages and births will take place as soon as the trend levels off, although the marriage rate and the birth rate will not necessarily return to their former levels.

But another question is the ultimate effect upon fertility of a shift in the marriage pattern. An increase in the proportion of ever-married women will undoubtedly tend to raise the birth rate as more women become exposed to risk. Whether a lower age at marriage means a higher number of births will depend upon the circumstances and the causes for the decline. Women who marry earlier may not necessarily adopt the

<sup>2</sup> J. Hajnal, "Age at Marriage and Proportions Marrying," *Population Studies*, Vol. 7, no. 2, 1953.

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pattern of relatively large family size previously prevailing among women marrying young. They may have the same attitude toward family size as women who formerly married late, and be confident that they, in spite of earlier marriage, will be able to control the number of births efficiently. On the other hand, early marriage may be associated with a desire to have more children.

The ultimate effect upon the family size of the recent decline in age at marriage may be illustrated by the data available for England and Wales on family building in recent marriage cohorts. While the trend in family size has been the same at all ages of marriage for women married before the 1930's, the pattern of relationship between fertility and age at marriage has been subject to a change among women married since the middle of the 1930's. The difference in average family size of women marrying young and those marrying at older ages has declined substantially. For example, in the 1936-1940 cohorts, women married under 20 years of age had after ten years of marriage nearly 30 per cent more children than women married at 20-24 years, but in the 1946 cohort the difference was only 20 per cent. In the 1936-1940 cohorts the difference in family size between women married at 20-24 years and at 25-29 years amounted to 21 per cent, but in the 1946 cohort merely to 12 per cent. In view of the decline in age at marriage for recent marriage cohorts, it appears that women marrying younger have not accepted the pattern of relatively high fertility prevailing earlier in the group of women married at a young age.

### *Trends in Family Size*

The discussion in the previous section showed that only a part of the recent changes in the birth rate can be explained by the changes in marriage patterns. The important question arises whether the recent trends in marital fertility are explained merely by changes in the timing of the family building in marriages or indicate changes in the ultimate size of the families. This requires a study of family building over the entire or at least the major part of the childbearing ages of cohorts of women married or born in the same period.

Information on the trend in family size for marriage or birth cohorts may be obtained from census data on the number of children ever born to women at the census date. In a number of countries, data of this kind are available in a recent census. They show a continued decline in ultimate family size. However, this information is limited to cohorts originating in the 1920's or earlier. Investigation of more recent developments requires the study of cohorts of incomplete fertility. To obtain

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information on reproductive behavior of these women, it is necessary to have data from two or more censuses to provide a basis for comparing the family size obtained in a certain period of a recent cohort with the family size accomplished in a similar period of an earlier cohort.

TABLE 6  
Number of Children Born per 100 Marriages by Duration of Marriage  
at the Dates of Recent Censuses

Country	Year	Years of Marriage			
		Under 5	5-9	10-14	15-19
Belgium	1930	72	150	198	—
	1947	69	146	182	—
Norway	1930	88	205	295	376
	1946	82	167	211	244
	1950	81	174	217	240
Switzerland	1941	67	158	208	245
	1950	81	182	221	237
United States	1940	63	114	181	250
	1950	79	168	220	253

Table 6 shows the number of children born to married women who had been married a certain length of time at a recent census compared with the number of children born to women within a similar duration of marriage at a previous census for Belgium, Norway, Switzerland, and the United States.

The evidence is inconclusive as to whether a reversal in the declining trend in family size is indicated by the information on incomplete fertility from recent censuses. In Norway, Switzerland, and the United States an increase in the number of children per 100 married women has taken place between the two recent censuses for durations of marriage of 5-9 years and 10-14 years. In particular, the increase in the United States is remarkable. In 1940, women who had been married 5-9 years had borne 114 children per 100 marriages, while women at the same duration in 1950 had 168 children. But the latter women spent a major part of their married life during the postwar period when the employment situation was favorable, while the former group spent the same part of their marriage during the period of economic distress. It might be more conclusive that women who had been married 15-19 years in 1950 had about the same family size as women married the same number of years in 1940, in spite of the fact that the former group of women spent their most fertile years of marriage during the depression while the latter group

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were spending the similar period of married life under far more favorable economic conditions.

More revealing information is available for England and Wales by using the data available in the 1946 Family Census and 1951 Population Census on family size for marriage cohorts, not merely at the time of the census but also at any earlier date, and linking them with the vital statistics registration data on births which occurred to women in these cohorts in post-census years.<sup>3</sup> This material, which is limited to first marriages, seems to indicate that the decline in average completed family size has slackened considerably and for cohorts originating in the late 1930's and early 1940's the decline has been brought to an end.

After ten years of marriage, women who married in the year 1920 had borne 197 children per 100 marriages, women married in 1930 164 children, and women of the 1935 cohort 160 children. Women who married in the year 1940 had after ten years of marriage approximately the same live births as women who married in 1930. For the cohorts 1945 and 1946 the average family size was 180, which is a larger family size than recorded for any previous cohort of married women almost twenty-five years back. It should be noted, however, that the 1945 and 1946 cohorts may give an exaggerated impression of the level of fertility in the early years of marriage, which for these women coincided with the postwar years.

Instead of census data, current vital statistics may be used to obtain information on the behavior of fairly recent cohorts. In a number of countries, a series of annual statistics on births by duration of marriage or age of mother is available which makes it possible to reconstruct the family building in cohorts of married women or cohorts of women born in the same period by allocating all births occurring in a year to the year of marriage or year of birth of the mother. The number of births which occurred to women at various durations of marriage or ages within each cohort are related to the number of women at risk. In the case of birth cohorts, the population at risk is easily available through census data and intercensal estimates of the composition of the population by sex and age. But for marriage cohorts, annual data on the number of married women at various durations of marriage are seldom available and often difficult to construct. Instead, the birth data may be related to the number of women which constituted the original size of the marriage cohort. The fertility rates obtained in this way give the net fertility of marriages, as

<sup>3</sup> United Kingdom, *The Registrar General's Statistical Review of England and Wales*, 1955, part III, and 1956, part II.

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no allowance is made for marriages which are dissolved owing to death, divorce, or separation.

Table 7 shows, for five selected countries, the total number of births which took place within a specified number of years of marriage, per 100 marriages of a cohort(s). For women married in the 1920's and 1930's, the cumulative rates are given for five-year groups of cohorts only. Information is given on fertility within the first twenty years of marriage (except in the case of France where information is only available for the first fourteen years of marriage). The cumulative fertility for women married at twenty years may be considered as a reasonably good indication of the ultimate family size as only a few births occur later in marriage.

It is brought out clearly in this table that the decline in the ultimate family size which has taken place during many decades has been brought to an end at least temporarily. The average family size after twenty years of marriage was about 5 to 10 per cent lower in marriages contracted in the late 1920's than in those contracted in the early 1920's. But the family size at this duration was about the same in marriages originating in the 1930's as in marriages from the late 1920's. Only in Norway did the decline seem also to continue for the cohorts originating in the early 1930's.

For later cohorts, no statistics are available on cumulative fertility at twenty years of marriage. But in view of the fact that the majority of births (around four-fifths of all births) takes place within the first ten years of marriage, the gap in information on reproduction at higher duration of marriage has been filled for some recent cohorts by estimates (shown in brackets in the table). The pattern of family building at the upper durations has been estimated by assuming that the proportionate additions to the ultimate family size experienced in the cohorts of the early 1920's will apply to later cohorts of incompleting fertility above duration of ten years.

The decline in ultimate family size for women married in the late 1920's may to some extent be associated with the depression. But the fact that this group since very early in marriage lagged behind the preceding cohorts seems to indicate that the main factor was a desire to have a smaller number of children.

As for women married in the 1930's, the depression continued to slow down the rate of family building in the earlier years of marriage. In these cohorts, the cumulative fertility rates at similar durations of marriage are considerably below the rates experienced among women

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TABLE 7  
Cumulative Fertility Rates in Selected Marriage Cohorts 1920-1950

Number of years after marriage	YEAR OF MARRIAGE											
	1920/21-1924/25	1925/26-1929/30	1930/31-1934/35	1935/36-1939/40	1940/1941	1942/1943	1944/1945	1945/1946	1946/1947	1947/1948	1948/1949	1949/1950
	<i>Australia</i>											
3	119	114	109	103	95	95	104	110	118	119	120	120
5	158	147	142	137	133	133	143	153	161	164	165	165
7	185	171	167	166	161	161	172	185	193	197		
10	213	196	193	196	190	190	191					
15	237	219	221	218	211	(211)	(212)					
20	247	228	(231)	(227)	(220)	(220)	(221)					
	<i>New Zealand</i>											
3	121	113	107	106	98	102	121	128	127	125	125	127
5	158	147	141	145	141	145	162	173	171	170	170	175
7	184	171	167	175	176	175	192	205	203	204	204	
10	210	195	196	209	208	204	238					
15	231	218	225	(230)	(229)	(224)	(242)	(262)				
20	240	230	(234)	(239)	(238)	(233)	(251)	(272)				
	<i>Norway</i>											
3†	115	107	96	92	109	110	113	103	102	99	101	104
5†	151	141	127	126	146	146	150	136	135	133	135	141
7†	178	165	150	155	175	171	176	161	160	158		
10†	206	191	174	188	202	197	202					
15†	230	214	203	(210)	(225)	(220)	(225)					
20†	239	225	(218)	(218)	(234)	(229)	(234)					

(continued on next page)

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TABLE 7 (cont.)

Number of years after marriage	YEAR OF MARRIAGE													
	1925	1938	1943	1945	1946	1947	1948	1949						
				<i>Sweden</i>										
3	107	88	86	90	97	97	96	94	94					
5	133	112	114	119	122	122	121	120	120					
7	152	130	137	139	141	140	139							
10	171	152	160	156										
15	190	174	(178)	(173)										
20	198	(181)	(185)	(180)										
				<i>France</i>										
3	100	87	114	113	115	114	114	115	115					
5	127	112	147	145	148	146	147	149	149					
7	148	136	173	169	171	170								
10	168	167	199											
14	181	180	214											



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married early in the 1920's. Under more favorable economic conditions later on, the cohorts of the early 1930's stepped up family building, but the gap between fertility of these two groups of cohorts was never quite closed.

A substantial change in fertility in the earlier part of marriage appears to have taken place in cohorts of women married in the early 1940's. These women had, after five or ten years of marriage, a family size substantially above that of women married in the early 1920's. This was the case in all the selected countries except Australia. In France, the women married in 1943 had after five years of marriage borne 35 more children per 100 marriages, and after ten years of marriage 32 more children per 100 marriages, than women in the 1938 cohort. Fertility of the 1943 cohort in France even exceeded that of the 1925 cohort, which is the only cohort in the 1920's for which information is available. But, in the other countries, the family size in cohorts of the early 1940's generally fell short of the fertility pattern of the cohorts originating in the early 1920's.

As a large majority of births occurs within the first ten years of marriage, the increase shown in cumulative fertility for women married in the early 1940's might be interpreted as an indication of a beginning of an upward trend in ultimate family size, also indicated by the projected rates beyond ten years duration of marriage. However, women married in the early 1940's spent some of their most fertile years of marriage during the early postwar period when fertility was comparatively high for marriages of all durations. It is still difficult to say to what extent this increase is due to the advancement of births which normally would have occurred late in marriage, but in France and New Zealand the increase in family size at ten years of marriage is so substantial for recent cohorts that a rise in ultimate family size seems to be indicated.

The level of fertility at the earlier years of marriage increased further for the postwar cohorts in several countries. In Australia, New Zealand, and France more children had been born in these marriages after five or seven years of marriage than in all earlier cohorts since the First World War. In New Zealand, women married in 1945-1946 had after ten years of marriage given birth to approximately the same number of children as women married in the 1920's had borne after twenty years of marriage, and given birth to more children than women married in the 1930's had after fifteen years of marriage.

The previous discussion has been based upon the study of family building in groups of women married during specified years. The pattern

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of family building among groups of women born in the same period, that is, birth cohorts, is illustrated in Table 8. This line of analysis does not eliminate the influence of changes in the number of marriages and the distribution of marriages by duration, but it does give an indication of the reproductive capacity of the total population.

TABLE 8  
Cumulative Fertility Rates at Selected Ages in Birth Cohorts:  
Canada, Finland, New Zealand, and Sweden

Women born in:	Aged 15 in:	Live births per 100 women aged:						
		20	25	30	35	40	45	50
<i>Canada</i>								
1906/07	1922	16	86	163	223	266	281	283
1911/12	1927	15	73	146	212	255	270	(281)
1916/17	1932	13	75	159	229	271	(287)	(288)
1921/22	1937	15	92	194	271	(324)	(344)	(346)
1926/27	1942	17	107	208	(286)	(342)	(362)	(363)
1931/32	1947	23	129					
<i>Finland</i>								
1895/1896	1911	10	65	147	214	256	277	279
1900/1901	1916	8	65	138	193	232	253	255
1905/1906	1921	9	60	120	173	216	237	239
1910/1911	1926	8	53	117	180	231	249	(252)
1915/1916	1931	8	58	129	201	240	(259)	(262)
1920/1921	1936	9	64	160	224	(269)	(290)	(293)
1925/1926	1941	7	87	166	(239)	(287)	(310)	(313)
1930/1931	1946	13	88					
<i>New Zealand</i>								
1906/1907	1922	10	64	130	186	223	236	237
1911/1912	1927	10	57	132	200	241	252	(253)
1916/1917	1932	8	71	160	234	272	(288)	(289)
1921/1922	1937	11	76	186	260	(314)	(332)	(334)
1926/1927	1942	10	99	214	(308)	(372)	(394)	(396)
1931/1932	1947	15	122					
<i>Sweden</i>								
1895/1896	1911	10	62	129	176	204	215	216
1900/1901	1916	9	58	111	151	178	189	190
1905/1906	1921	9	50	96	137	170	182	183
1910/1911	1926	9	46	95	148	179	187	(188)
1915/1916	1931	8	50	117	169	193	(204)	(205)
1920/1921	1936	10	65	134	178	(206)	(218)	(219)
1925/1926	1941	14	76	142	(194)	(225)	(238)	(239)
1930/1931	1946	18	84					

Figures in parentheses are forecasts.

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The average number of live births per 100 women up to selected ages are presented for Canada, Finland, New Zealand, and Sweden for selected cohorts beginning around the turn of the century. For cohorts of incomplete fertility, the number of children to be born within the reproductive period still remaining has been estimated by assuming that these women had completed the same proportion of their ultimate family size as women born around the turn of the century.

The cumulative fertility rates for birth cohorts show not merely that the decline in the average number of children born has been discontinued but indicate also that there is an upward trend under way. At the age of 35, women born in 1921-1922 in New Zealand had borne 260 children per 100 women, while women born in 1906-1907 had borne only 186 children at that age. The women born in 1921-1922 had at the age of 35 actually about ten per cent more children than the women born in 1906-1907 had at the end of the reproductive ages. A similar trend is found in Canada and Finland. In Sweden, also, the decline in the average number of children seems to have been brought to an end, but the upward trend is not so marked as for the other countries.

The projected figures indicate a pronounced rise in family size for cohorts of completed fertility. Women born early in the 1930's would according to these estimates end up with an average number of children much higher than that of any cohort of women born earlier in this century. But these calculations undoubtedly give an exaggerated picture of the increase in fertility as they do not make allowance for the tendency towards concentration of childbearing at younger ages, which is only partly due to the decline in age at marriage.

In considering the level of reproduction of the population it is necessary to take mortality into account. Owing to the continuous decline in mortality, the reproduction of the population has increased more than indicated by the recent rise in fertility. The populations in all countries considered above appear to be reproducing themselves. This is even the case in England and Wales which has one of the lowest levels of fertility at present.<sup>4</sup>

### COMMENT

FRANK LORIMER

This paper is limited to a consideration of recent fertility trends in technically advanced countries. Even within this category, attention is

<sup>4</sup> Replacement rate calculated on the basis of cohort fertility rates of 1951-1955 and mortality experience 1950-1952 is 1.01 for females and 1.06 for males (*ibid.*).

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restricted to western European and overseas British areas. This limitation seems arbitrary, though omission of the Soviet Union and some other countries may be attributed to paucity of relevant data. But why omit Japan from a list of industrial countries that includes Spain and Portugal? Surely we can no longer assume that we live in a European world.

A first over-all view of recent variations in current fertility is provided by crude birth rates. Such rates are generally useful for this purpose, in contrast to crude death rates which are worthless in comparing levels of mortality in different populations. The picture thus presented is only slightly modified by the use of other period indexes of fertility. A brief reference to some of these modifications might have sufficed in place of the rather extensive discussion of these alternative indexes. On the other hand, one wishes that the treatment of cohort indexes of fertility could have been expanded. This approach is essential to a satisfactory analysis of changing trends; but adequate information is not yet available for developing this sort of analysis in a general international survey. Other papers of this conference may contribute to the development of this approach.

One of the major implications of the information reviewed in this paper is that a movement toward the control of fertility induces a progressive decline of fertility toward a lower "asymptotic zone" in the vicinity of two births per woman of completed fertility—with the actual level varying, under different economic and social conditions, from about 1.5 to about 3 births per woman. All known industrial cultures seem to have stabilizing factors which prevent a decline in cohort fertility to a point much below the replacement level.

The countries considered in this paper seem to fall, as regards fertility, into three major groups: (1) the transition from largely uncontrolled to relatively controlled fertility was still in full swing during recent years in some countries, for example, Spain, Portugal, Italy (and Japan)—with consequent progressive declines in fertility; (2) in the European countries in which control of fertility has been largely achieved, economic and social constraints check motivations to parenthood so as to hold fertility at fairly constant levels; (3) among British populations in the more spacious overseas areas, there has been a significant rise in fertility. The major factor in this upward shift seems to have been a trend in these abundant economies toward juvenile precocity and early parenthood.