

# UNEXPLAINABLE DEMOGRAPHIC PHENOMENA OF MULTIPLE BIRTHS IN HUNGARY

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*The decrease trend of multiple births temporarily broke off in Hungary in 1970, with an increase from 18.18‰ (1968) to 20.94‰ (1970), i.e., about 400 cases of excess.*

*The male preponderance in twin births is lower than in single births, and triplets actually show a female excess.*

*There are more boys than girls among the first-born of multiple births.*

*According to the 1959 and 1968 figures, both DZ and MZ twin births were significantly more frequent in mothers aged 16 or less than in mothers aged 17-19 years.*

*The monthly distribution of DZ twins is characteristic, while the monochorial MZ twins did not show seasonal variations.*

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In general, the purpose of scientific papers is to answer some unanswered questions. But sometimes it may be useful to take into consideration unanswered questions as well, as it happens in the present paper, that lists five unanswered questions in the demography of multiple births in Hungary.

1. In Hungary the frequency of multiple births has shown a decreasing tendency. In 1920 the rate of multiple births was 2.4‰; by 1968 this rate decreased to 1.8‰, i.e., only 77% of the 1920 data. It is well-known that about 70% of all twins are DZ and that the frequency of DZ twin births increases with maternal age, as opposed to MZ. The rate of DZ also increases with birth order. In the last decades the rate of total births has considerably decreased in Hungary. Thus, the decrease of twinning can be ascribed to the reduced fertility of mothers over the age of 30. But the decreasing trend of multiple births broke in 1970, with an increase to 2.1‰, an unexpectedly high value (Fig. 1). In 1970 the number of twins exceeded by about 300 that of 1969 (Table 1). It is sure that this increase is not connected either with the change of maternal age or birth order. But the role of growing use of oral contraceptives does not seem absolutely improbable.

2. The male preponderance is a general rule in singletons (Fig. 2); e.g., from 1959 to 1970 the sex-ratio was 107 males to 100 females. At the same time the ratio of males to females in twins was 103 : 100, and in triplets 90 : 100. Consequently the male preponderance in twins is lower than in single births and there is a female preponderance in triplets, undoubtedly with a considerable fluctuation. What is the cause of this difference? (The higher prenatal mortality of male twins seems to be a plausible explanation, but recently the higher

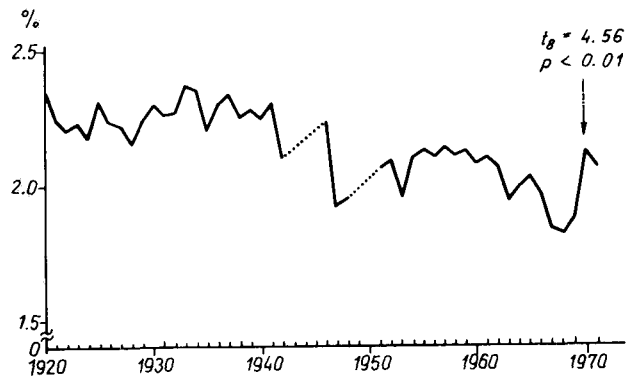


Fig. 1. The frequency of multiple births in Hungary, 1920-1971

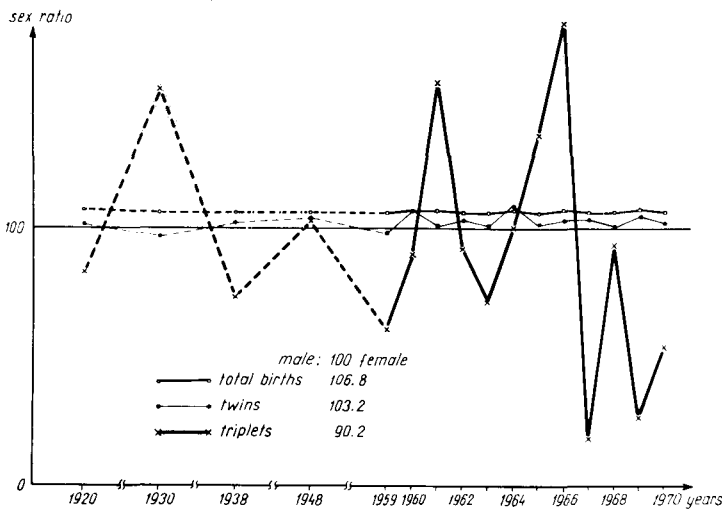


Fig. 2. Sex ratio of multiple births in Hungary, 1959-1970

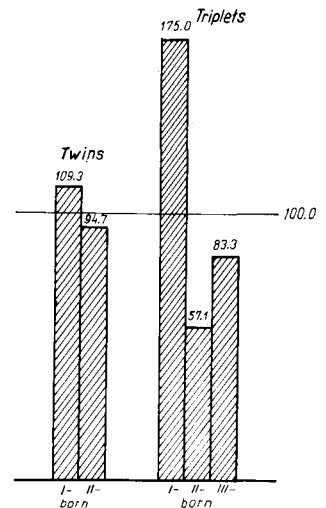


Fig. 3. Sex rate of birth order within multiple births

Table 1. *Multiple Births in Hungary, 1960-1971*

Year	Total births	Twin births	Triplet births	Multiple births		Maternal age over 30 years (%)	Average birth order	Oral-contraceptive users (thousands)
				N	%			
1960	148,418	3026	57	3083	20.77	23.1	2.19	—
1961	142,105	2954	36	2990	21.04	22.7	2.17	—
1962	131,650	2676	48	2724	20.69	21.5	2.15	—
1963	133,986	2568	36	2604	19.43	21.4	2.14	—
1964	133,690	2624	42	2666	19.94	20.6	2.06	—
1965	134,525	2690	45	2735	20.33	19.7	2.01	—
1966	140,004	2716	42	2758	19.69	19.0	1.98	—
1967	150,465	2750	19	2769	18.40	18.8	1.95	1 — 15
1968	155,966	2804	33	2837	18.18	18.2	1.93	20 — 50
1969	155,848	2896	24	2920	18.73	18.0	1.92	60 — 110
1970	153,339	3160	51	3211	20.94	17.2	1.90	120 — 170
1971	152,159	3074	36	3110	20.43	16.9	1.88	160 — 200

Table 2. *Twinning and Maternal Age in Hungary, 1959, 1960, 1968*

Maternal age	DZ twin pairs			MZ twin pairs		
	1959	1960	1968	1959	1960	1968
<i>Number</i>						
≤ 16	16	16	28	42	32	16
17-19	112	92	100	92	56	94
20-24	636	585	629	330	341	295
25-29	701	757	589	207	115	277
30-39	821	709	560	195	273	156
≥ 40	64	60	44	18	—	16
Total	2350	2219	1950	884	817	854
<i>%o births</i>						
≤ 16	9.91	9.64	16.78	26.01	19.29	9.59
17-19	6.05	5.05	4.81	4.97	3.08	4.52
20-24	11.04	10.35	10.07	5.73	6.03	4.72
25-29	17.44	19.45	13.88	5.15	2.95	6.53
30-39	24.62	23.01	20.98	5.85	8.86	5.84
≥ 40	30.72	—	23.32	8.64	—	8.48
Total	15.32	14.95	12.50	5.76	5.50	5.47

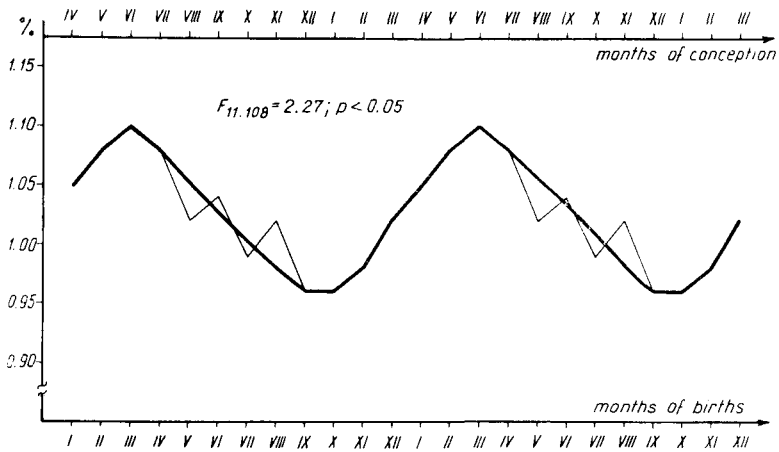


Fig. 4. Monthly distribution of twin births in Hungary, 1951-1960 and 1968-1970

death rate of male fetuses was denied on the basis of chromosome analysis in spontaneous abortions. Besides, these sex ratios concern multiple births presumably without prenatal loss.)

3. Studying the birth order *within* multiple births it is obvious that there are more boys than girls among the first-born of twins and mainly of triplets (Fig. 3). What is the cause of the hurry of boys? Is the clue of this hurry perhaps the higher birth weight of boys?

4. As I have already mentioned, the frequency of DZ's, as opposed to MZ's, increases with maternal age (Table 2). But, perhaps, it is worthwhile noting that lately MZ twins have been significantly more frequent in mothers aged 16 or less than in other age-groups. Besides, the rate of DZ's has also been higher in mothers aged 16 or less than in mothers

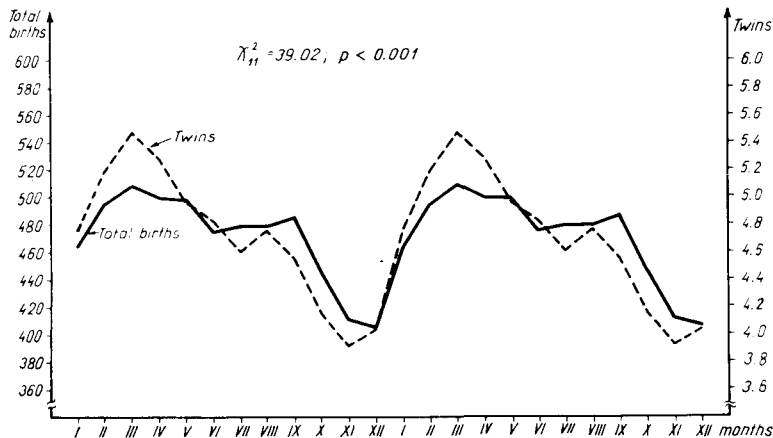


Fig. 5. Seasonal variation of twins and total births in Hungary

aged 17-19. (We have to think about the bias of relatively small figures. Illegitimate maternities lead to higher frequencies of multiple births and it is probable that the majority of these young mothers are unmarried. But we are not satisfied with these explanations, although we cannot offer better ones.)

5. There is a characteristic monthly distribution of twin births (Fig. 4). The seasonal variation shows a peak about February, March, and April, while the minimum occurs in September and October. According to these data in cases of conception in May, June, and July, a higher rate of twin births may be expected. On the basis of Fig. 5 it is reasonable to assume that the seasonal pattern of twin births is essentially the same as that observed in total births. But according to our calculation the seasonal fluctuation is significantly higher in twin births than in total births. What is the cause of it? The data of the Twin Register of Budapest show that the verified DZ twins have an obvious seasonal variation while the monthly distribution of monochorial MZ twins is probably due to chance.