

PN-ABL-445
13177510

Fertility, Contraception and Induced Abortion in Russia :
Some Recent Measures

Leonid Darsky and N. B. Dworak

The Futures Group

**One Thomas Circle, 6th Floor
Washington DC 20005
U.S.A.
(202) 775-9680**

April 1992

PA-NBL-445

ISN 77510

**Fertility, Contraception, and Induced Abortion in Russia:
Some Recent Measures**

Leonid E. Darsky^{*)} and *N. B. Dworak*^{**)}

Paper presented at the Meeting on *Population Activities in the NIS* conducted by the Office of Population, US AID, March 19, 1992, and for the working seminar at the Office of Population, US AID, April 24, 1992.

^{*)} The Demographic Unit, Research Institute of Statistics of the Russian State Committee on Statistics (Goscomstat), Moscow, Russia.

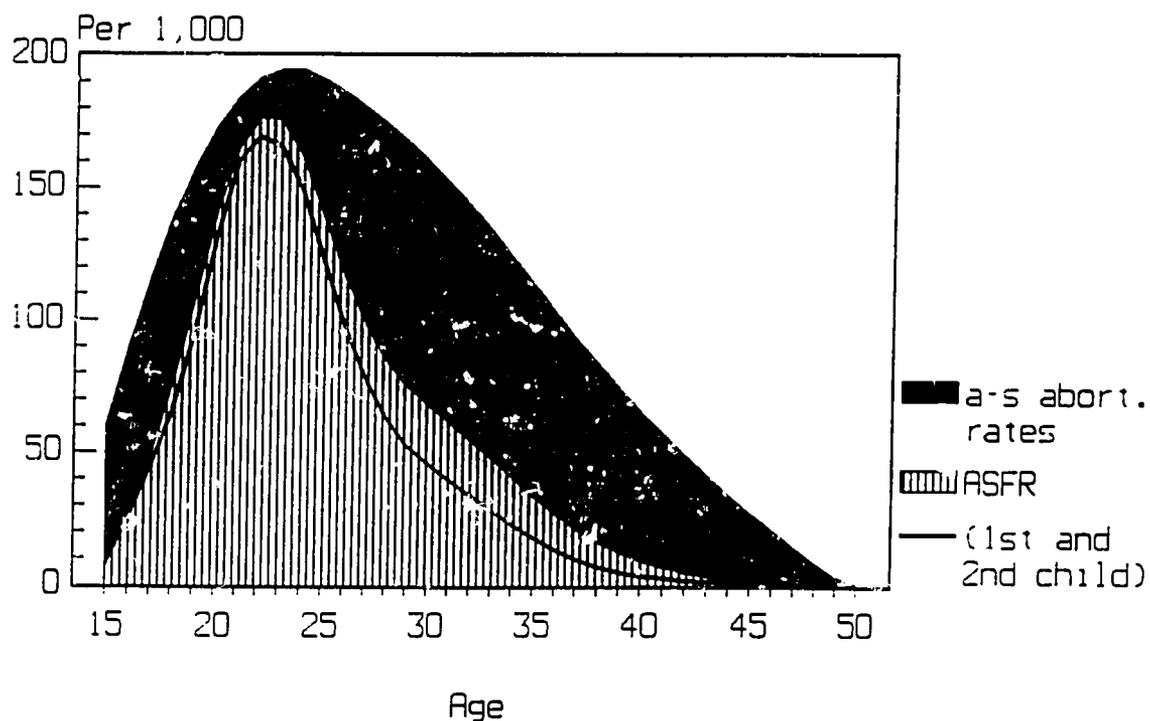
^{**)} The Futures Group, Washington D.C.

ABSTRACT

The overall fertility level is sustained below replacement. The age shape is very young. Childbearing is concentrated on parities 1 and 2, with unusually high frequency for the former. Overall contraceptive prevalence is high, but contraception is of extremely low effectiveness and quality. Modern methods are essentially limited to IUDs, used chiefly as a stopping method. Modern method prevalence is estimated as 24 percent, while age pattern of use is shifted towards older ages. Induced abortion is a major method of fertility control. The total abortion rate for reported abortions is as high as 3.9. The age pattern of abortions is relatively young. Abortions are practiced not only as a stopping method, but for birth spacing as well.

The measures of contraceptive prevalence, method mix, and age composition of induced abortion are based on the most recent demographic survey on contraceptive practice conducted by the Russian State Committee on Statistics (Goscomstat).

Age-Specific Fertility and Abortion Rates
Russia, 1989



Although available from national statistical publications, Russian fertility measures have been rarely discussed in the literature, being often replaced with average indicators for the Former Soviet Union. This highly heterogeneous population confounds the clear pattern of Russian fertility.

FERTILITY

Russia is a country with a relatively low fertility level. For 1990 the official estimate of the total fertility rate (TFR) is 1.887 [Table 1]. Based on the monthly registered number of births, the TFR for 1991 may be estimated as 1.75, and 1992 -- projected as low as 1.6.

Table 1. Recent Total and General Fertility Rates

year, quarter	number of births, 1,000	GFR	TFR
1987	2500	68.2	2.218
1988	2348	64.5	2.124
1989	2161	59.8	2.006
1990	1989	55.6	1.887
1991	I	476	53.3
	II	465	52.1
	III	446	50.0
	IV	415	46.5

Note: Measures for 1991 are based on data tabulated by date of registration, rather than occurrence.

Source: For 1987-1989 - Goscomstat. *Chislennost, Sostav i Dvizhenie Naselenia RSFSR, 1990*. For 1990-1991 - provisional tabulation of Goscomstat of Russia.

Although the fertility level has been dropping particularly rapidly during the recent years [Fig. 1], it is unlikely to relate solely to the current economic crisis. Throughout the mid 1960s to early 1980s TFR was within the range 1.85-2.00. It then increased to reach a maximum of 2.218 (1987) and declined again. This modest increase is officially attributed to a substantial activation of the state pronatalistic policy, undertaken in the early 1980s.

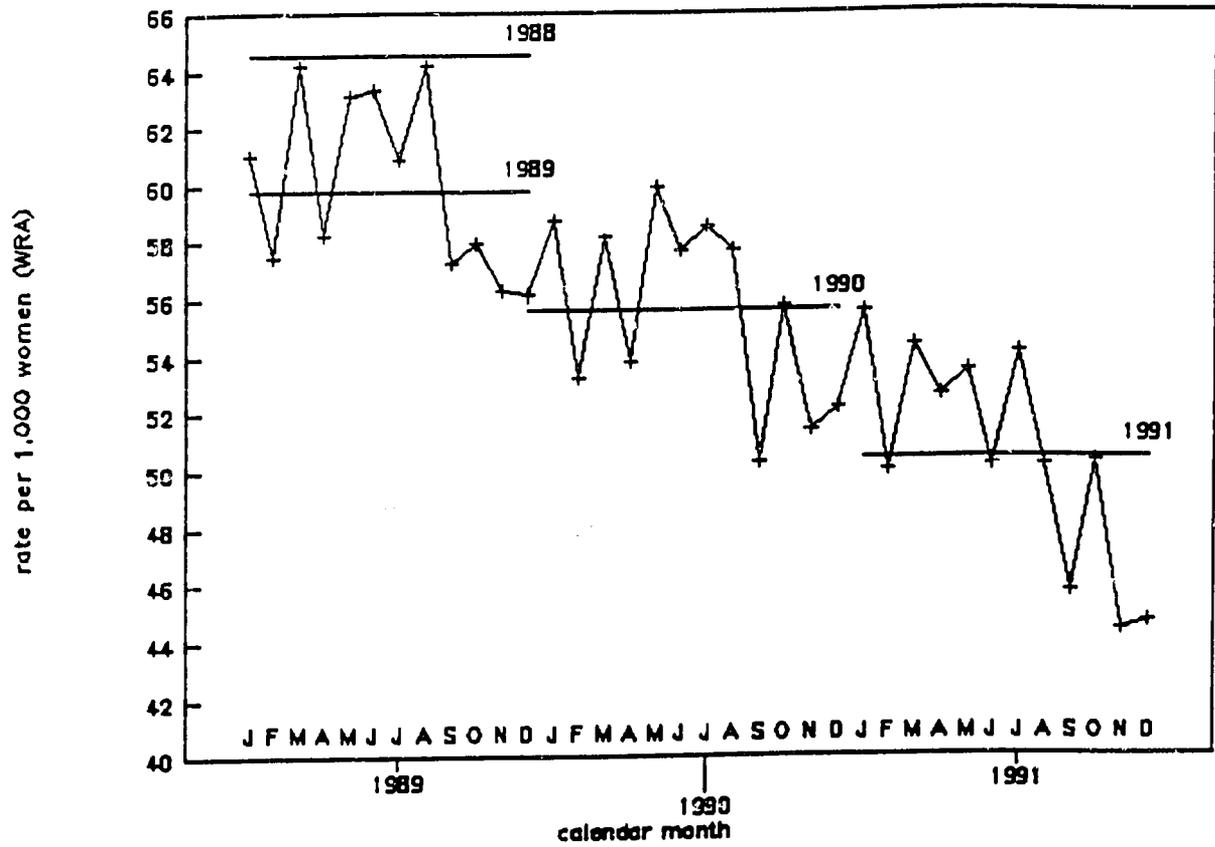


Figure 1. Dynamics of General Fertility Rate 1989-1991.

Based on monthly vital statistics tabulated by date of registration, not occurrence.

Source: Tabulation of Goscomstat of Russia.

The age pattern of Russian fertility closely resembles that of Eastern European countries, which is significantly younger (about 3 years in average) than that of the West [Fig. 2]. Childbearing is concentrated on the age range 18-36 (90 %) with a well-defined mode at 22-23 and mean age [Table 2] located close to the average for Eastern European countries (25.3). The major difference with developed countries of Western Europe is in the much higher age-specific fertility rates for ages 15-19 and 20-24.

Table 2. Age-Specific Fertility Rates 1989, 1990.
per 1,000 women

age	fertility rates by birth order,				1989 total	1990 total
	1	2	3	4+		
15-19	48.6	3.7	0.1	0.0	52.2	55.6
20-24	106.9	49.6	6.3	1.1	163.9	156.8
25-29	29.0	54.1	14.7	5.4	103.1	93.2
30-34	9.5	24.7	12.9	7.6	54.6	48.2
35-39	3.3	7.3	5.8	5.6	22.0	19.4
40-44	0.8	1.2	1.2	1.8	5.0	4.2
45-49	0.0	0.0	0.0	0.1	0.2	0.2
Total	0.990	0.703	0.204	0.108	2.006	1.887
Mean age	22.8	27.0	30.1	33.4	25.6	25.3

Notes: Birth order is based on number of live births. Age intervals and mean ages are computed after interpolation into single-year density.

Source: For 1989 - Goscomstat. *Demograficheski Yezhegodnik 1990*.
For 1990 - provisional tabulation of Goscomstat of Russia.

Singulate mean age at marriage (SMAM) in Russia was 20.5 according to the Census of 1979 -- the lowest in Europe from censuses circa 1980. The 1989 Russian census recorded SMAM = 20.7 with median age at first marriage at about 19.5 [Table 3]. The proportion of person-years in reproductive ages spent in marriage at the census year is 0.667, or weighted with current age specific fertility rates: $C_m = 0.630$ {1}.

Table 3. Age-Specific Proportion Married. Census 1989.
per 1,000 women

age	15-19	20-24	25-29	30-34	35-39	40-44	45-49
ever	108.1	662.6	879.4	930.4	946.6	954.6	964.6
currently	104.3	621.6	801.1	823.6	805.4	773.6	738.5

Source: Goscomstat. *Demograficheski Yezhegodnik 1990*.

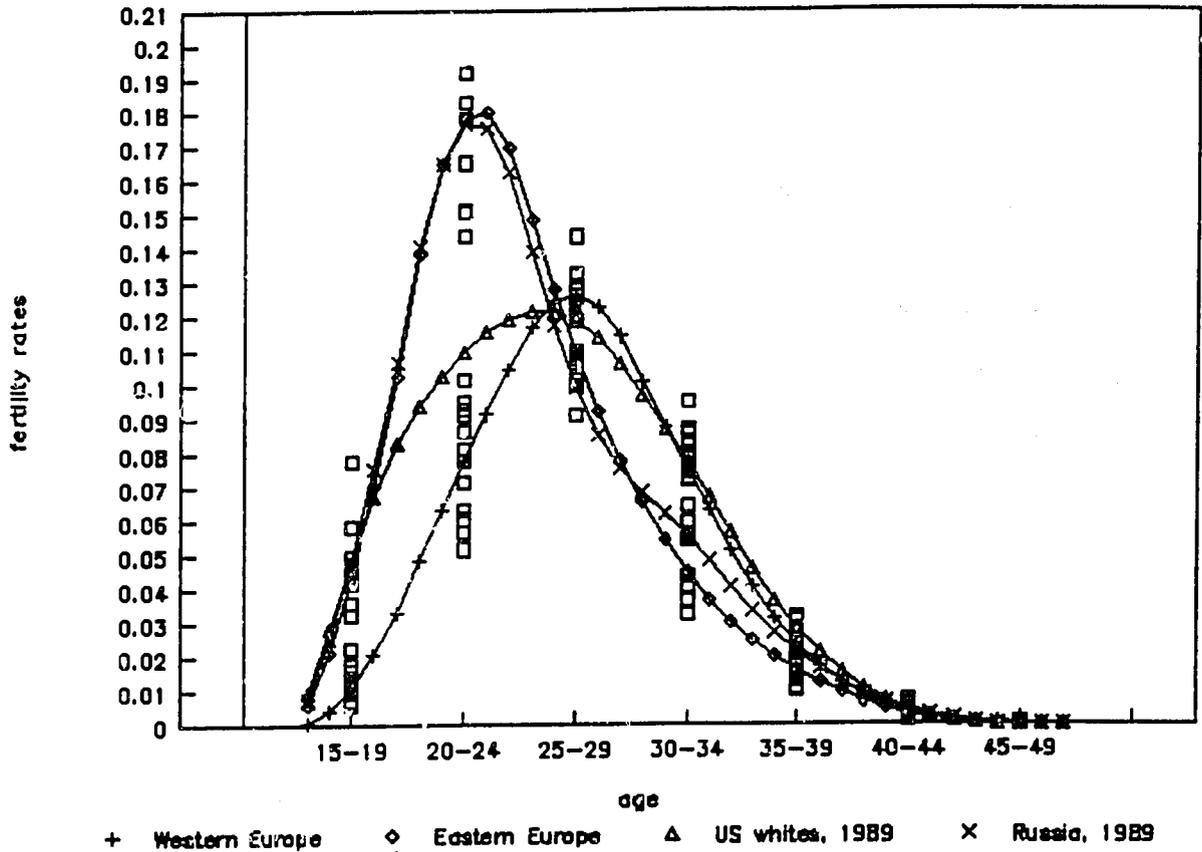


Figure 2. Age-Specific Fertility Rates for Selected European Populations.

Notes. Average curves represent unweighted average age-specific rates, interpolated into single-year densities by rational splines.

Western Europe includes the following populations: Austria, Belgium, Denmark, France, Finland, Germany, Italy, Luxembourg, Norway, Sweden, Switzerland, United Kingdom.

Eastern Europe – Bulgaria, Czechoslovakia, Hungary, Eastern Germany, Poland, Romania, Yugoslavia.

Data for the European populations are latest available from the United Nations. *Demographic Yearbook, 1989*.

Data for the US is for 1989. Source: NCHS. *Monthly Vital Statistics Report*. Vol. 40 (8), Supplement. December 1991.

Similar to some European populations, Russian childbearing is concentrated on parities 1 and 2. Cohort parity progression ratios [Table 4] reach a distinct minimum for the transition 2 -> 3 [Fig. 2]. Cohort probabilities to advance from the first child to the second and from the second to the third are among the lowest recorded. Respectively, Russian cohorts complete childbearing with a much higher proportion of single-child women (0.274 in 1989) than of parity-three women (0.130), which is unusual even for a low fertility Western European population. Proportion of childless women, however, is within the normally observed range.

Table 4. Cohort Parity Progression Ratios.
Census years 1979, 1989

parity	1979	1989
0 -> 1	0.905	0.921
1 -> 2	0.743	0.703
2 -> 3	0.440	0.328
3 -> 4	0.466	0.388
4 -> 5	0.543	0.550
5 -> 6	0.520	0.489
6 -> 7	0.564	0.556
cohort TFR mean number of siblings	2.171 3.302	1.954 2.808

Notes. Based on the distribution of female cohorts aged 45-49 by number of children ever born. Cohort TFR equals the simple mean. Mean number of siblings measures the variance of cohort distributions by number of children ever born.^{2}

Source: For 1979. Goscomstat. *Itogi Vsesoyuznoy Perepisi Naselenia 1979*. For 1989 - tabulation of Goscomstat of Russia.

Following the long-term trend, the proportion of women who ever bear 3 or more children is likely to decline even more. The last Large-Sample Demographic Survey (which covered 5 percent of the total population) conducted by Goscomstat in 1985 [Table 5] shows that the parity progression ratio 2 -> 3 may fall as low as 0.2, while for 1 -> 2 -- as low as 0.65 for the generation born 1960-64. During the six years following the Large-Sample Survey, the proportion of women who expect to stop childbearing after the first or second child may only increase.

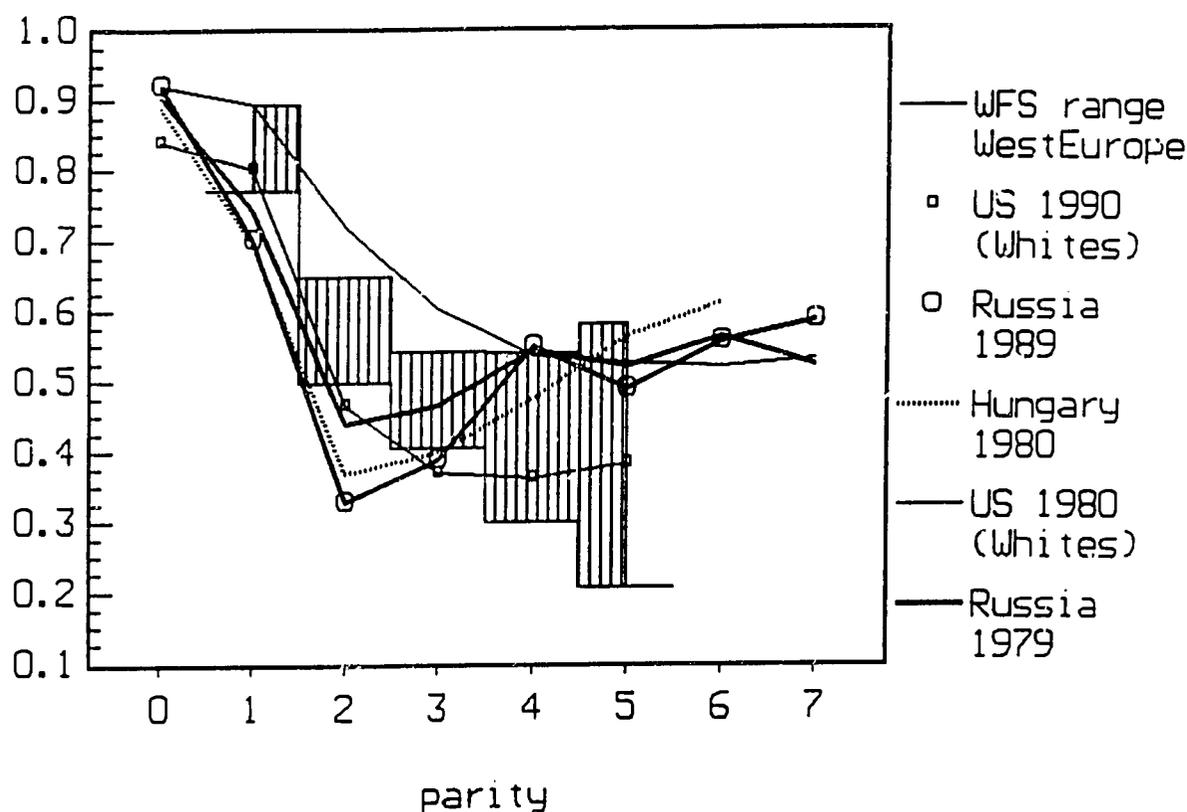


Figure 3. Parity Progression Ratios for Cohorts with Completed Fertility.

Notes. Average curves represent unweighted averages.

Russia. Women aged 45-49 at the census dates – January 1979, or January 1989.

Western Europe range based on the World Fertility Survey data (the mid 70s) for the following populations: Belgium, Denmark, France, Finland, Norway, United Kingdom. The data relate to ever-married women aged 40-49. The parity progression ratio 0 -> 1 for ever married women may not be compared with the overall average, and thus is not shown on the graph. Source: W. Lutz (1990). Comparative analysis of completed parity distributions. *Population Bulletin of the United Nations*. No. 28.

United States. The female cohort at exact age 45 at mid 1980, and the female cohort aged 40-44 at the survey date June, 1990. Source: For 1980 – T. Pullum, L. Tedrow, J. Herting (1989). Measuring change and continuity in parity distributions. *Demography*. Vol. 26 (3). For 1990 – US Bureau of the Census. *Fertility of American Women*. June 1990. Population Characteristics, Series P-20 No. 454.

Hungary. The female cohort aged 45-49 at the census date January 1980. Source: United Nations. *Demographic Yearbook, 1986*.

The Goscomstat sample survey of 1989 recorded that only 26.2 percent of married women aged 18-29 agreed that the *ideal* number of children in a family may exceed 2, while only 4.4 percent accept 4 or more children. With the mean ideal number of children at 2.18, Russia may be well regarded as a country with the strongest long-term orientation towards lower fertility {³}.

Table 5. Expected Average Number of Children Ever Born
According to the Large-Sample Survey, 1985.
per 1,000 currently married women

age	children already born	total expected	proportion who want no more children for women with		
			1 child	2 children	total
18-19	522	2010	217	683	137
20-24	978	2005	254	713	290
25-29	1478	2052	361	799	542
30-34	1792	2070	588	891	764
35-39	1890	2011	832	955	896
40-44	2002	2057	932	980	953

Source: Tabulation of Goscomstat of Russia.

A possible transition to the Western European fertility pattern might mean postponing the first child for 2-3 years (which in turn, would probably increase the proportion remaining childless), further postponing and negating a second child, while keeping unchanged probabilities to progress to higher parities.

CONTRACEPTION

The available data on contraceptive prevalence and practice in Russia are very poor. The few demographic research surveys carried out in arbitrarily selected geographical areas (mostly in Moscow) in the 1970s and early 1980s are virtually irrelevant, as the supply and availability of modern contraceptives (primarily IUDs) increased very rapidly in recent years. The large-sample official survey on Family, Maternity and Childhood (1990) did not measure contraceptive prevalence per se, and did not specify contraceptive use by method. Some clinical studies were undertaken sporadically by physicians working for the Ministry of Health. Standard World Fertility Survey (WFS) or Demographic and Health Surveys (DHS) questionnaires were never applied.

The measures of contraceptive prevalence and method mix presented here are based on the most recent population survey on contraceptive practice with the largest sample size available. The sample of 1813 women aged 18-49 were randomly selected from the populations of the cities of St.Petersbourg and Kaluga, whose age composition, fertility pattern and ethnic structure are closely similar to those of the entire country. The survey was carried out and finalized in December of 1989 by the Demographic Unit (Research Institute of Statistics) of the State Committee on Statistics of Russia -- the official conductor of Russian censuses and sample surveys {4}.

The survey also includes a separate sample (N=1428) of women currently obtaining induced abortions, drawn independently from the same population.

Overall contraceptive prevalence in Russia is found to be high. The proportion of person-years using any method is estimated as 0.679 for all women aged 15-49 [Table 6] [Fig.4]. Prevalence is distributed evenly by age, essentially corresponding to a reasonable growth curve of sexual activity with age, and precedes the expansion of proportion married as defined by the Census.

Table 6. Estimated Contraceptive Prevalence.
Survey 1989.

age	all methods	pill or IUD
18-19	0.565	0.083
20-24	0.724	0.187
25-29	0.784	0.318
30-34	0.772	0.363
35-39	0.729	0.322
40-44	0.680	0.263

Note. Contraceptive prevalence is measured for all, rather than for only currently married women.

Source: The 1989 Sample Survey.

However, the Russian contraceptive method mix is characterized by poor effectiveness. Virtually, the only modern methods used are IUDs and (to a much lesser extent) hormonal pills [Table 7]. The overall prevalence of modern methods is only 24.1 percent, while it is as low as 15.8 percent for the group 18-24 where a desire to postpone childbearing may easily exist. IUDs are used primarily as a stopping method after the first or a second child. Given the absence of sterilization, the share of IUDs even in older ages is still insufficient to avoid many induced abortions. The prevalence of pill usage is very low, although it is slightly higher among younger ages. For the age group 18-19 pill usage strongly dominates over IUD.

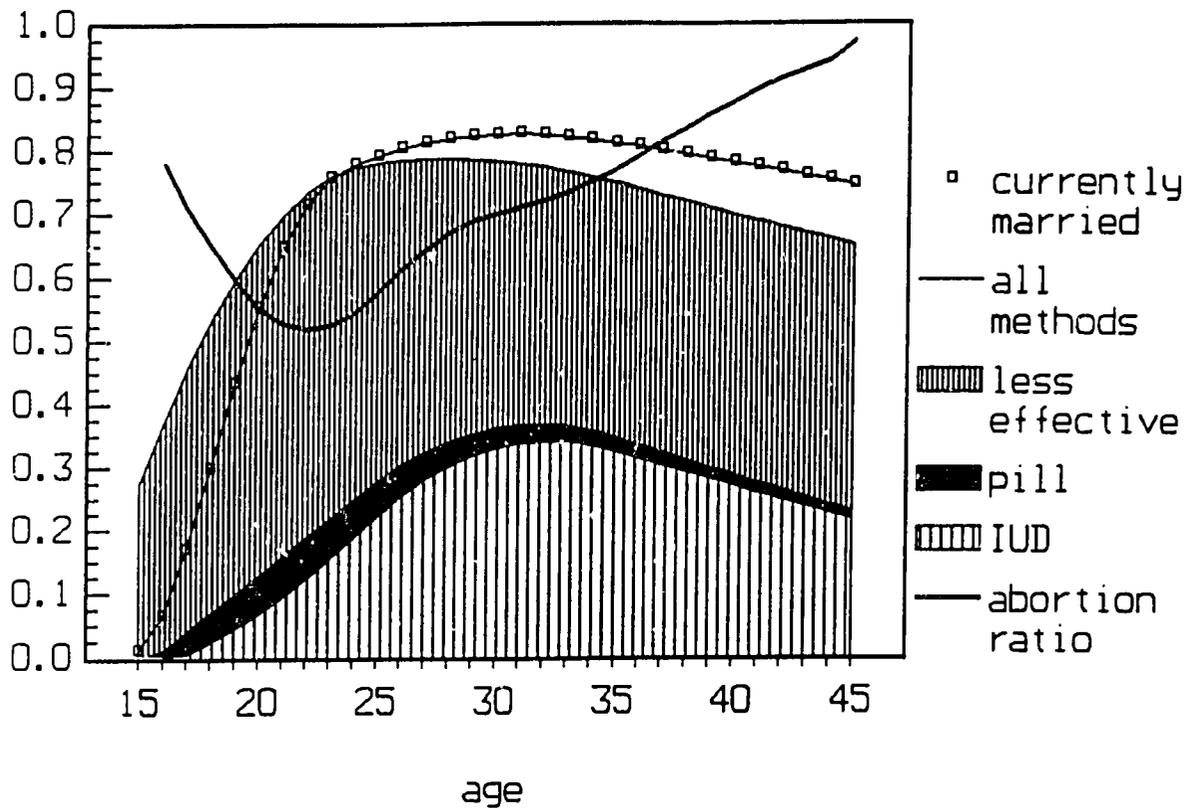


Figure 4. Proportion Currently Married, Contraceptive Prevalence, and Abortion Ratios. 1989.

Notes. Contraceptive prevalence is based on 1989 Sample Survey data. It is computed for all, rather than for only currently married women. The prevalence curve is interpolated into a single-year density using the rational spline function. For the ages 15-18 an extrapolation is employed.

Less effective contraceptive methods are defined as traditional methods or condoms.

The abortion ratio is the number of abortions per known pregnancy (defined as number of abortions plus live births). The computation is based on reported national age-specific fertility rates, and the age-specific abortion rates obtained from the Sample Survey 1989.

Source: Goscomstat. *Demograficheski Yezhegodnik 1990*. The Sample Survey 1989.

The effectiveness of modern contraceptives is limited by their quality. Almost all IUDs are manufactured domestically. They often are of the wrong size for the recipients, or maybe inserted by poorly trained physicians. The discontinuation rates and the failure rates are probably much higher than those in other low fertility countries. The latter is possibly as high as 0.25 for women aged 18-24. Until recently, Russia did not produce hormonal pills domestically.

**Table 7. Contraceptive Method Mix. (Per Cent of Women Currently Using).
Survey 1989**

age	18-24	25-34	35+	All ages
douche	17.7	10.9	11.1	12.2
rhythm	23.1	18.8	20.5	20.2
withdrawal	19.9	15.1	13.4	15.3
condom	16.1	11.3	16.2	14.0
pill	8.9	4.7	2.3	4.5
IUD	14.3	39.1	36.4	33.8

Source: The 1989 Sample Survey.

The effectiveness of traditional methods is also expected to be significantly less than that experienced in Western populations. The quality of domestically manufactured and some imported condoms is remarkably low. Appropriate training or explanatory publications for methods based on the calendar (periodic abstinence) virtually do not exist. Also during the recent economic crises and accompanying unavoidable shortages of basic needs, one may not expect menstrual periods to be regular, which makes the calendar method even less reliable.

There is a clear gap between the desire to avoid conception, reflected in the high overall prevalence, and the low actual effectiveness of methods used. The gap is especially visible in the younger (18-24) ages.

INDUCED ABORTIONS

Induced abortions play a primary role of birth control in this country. Russian abortion rates are extremely high [Table 8] -- the highest among countries reporting abortion statistics. The level was stable throughout the 1980s (General Abortion Rate $\{^s\}$ = 122.8 in 1980), although the number of abortions dropped simultaneously with the number of births.

Table 8. Recent Levels of Induced Abortions

year	number of abortions 1,000	General Abortion Rate	abortion ratio
1988	4402	121	0.652
1989	4242	118	0.663
1990	3920	110	0.664

Notes. General Abortion Rate is computed for all women aged 15-49. Abortion ratio is number of abortions per known pregnancy (defined as number of abortions plus live births).

Source: For 1988-89 – Goscomstat. *Ohrana Zdorovya Naselenia RSFSR. 1990*. For 1990 – tabulation of Goscomstat of Russia.

The national vital statistics do not tabulate induced abortions by age. Therefore, the Total Abortion Rate (TAR) may not be computed directly {⁶}. Given the reported total number of abortions in 1989, it may be shown that TAR necessarily is limited within the range from 3.31 to 4.48 {⁷}. Based on the age composition of abortions from the 1989 sample survey, the total abortion rate of 3.883 is estimated.

Reported abortion statistics include induced abortions performed by vacuum aspiration (19.4 percent of the total in 1989, and growing). These measures include also so-called "illegal" abortions, officially defined in Russia as those initiated outside the medical establishments, however with the procedure completed in a clinic. The proportion of these cases is reported as 0.108 for 1988{⁸}. It is safe to assume that a significant share of early fetal deaths, or spontaneous abortions, is attributable to self-induced abortions. This makes the total number of abortions and the value of TAR underestimated.

There is no evidence, however, and no good reason to assume that the proportion of true illegal abortions -- those performed in medical clinics but not reported -- is very high in Russia.

Even the reported level of TAR implies that about 65-75 percent of women obtain 3 or more abortions, while at least 36 percent may have 5 or more during their lives {⁹}. This suggests, that the fecundity level may be significantly lower than is expected from a low mortality population. An average induced abortion, therefore, possibly averts more than a single birth.

The age pattern of abortions in Russia [Table 9] is younger than in Eastern European countries whose pattern of fertility is similar to the Russian [Fig.5, 6].

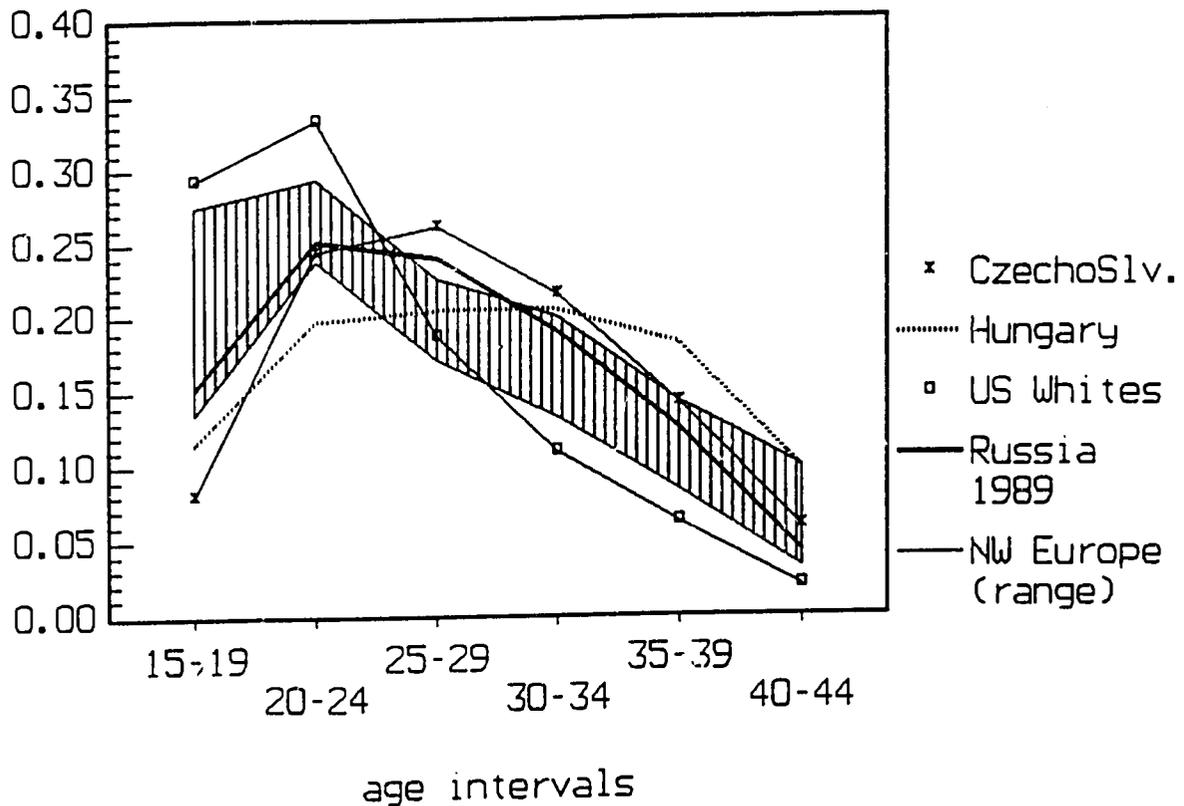


Figure 5. Normalized Age-Specific Abortion Rates for Selected Countries Circa 1987.

Notes. Normalized rates are computed as

$$\frac{asar(x)}{\sum_{(x)} asar(x)}$$

where $asar(x)$ is the age-specific abortion rate for the age interval x .

North Western Europe includes the following populations: Denmark, England and Wales, Finland, Netherlands, Norway, Scotland, Sweden.

Age-specific rates for Russia are based on the age composition of abortions from the 1989 survey and reported national general abortion rates. The density for ages 15-18 is extrapolated.

Source. S. K. Henshaw (1990). Induced Abortion: A World Review, 1990. *Family Planning Perspectives*. Vol. 22(2).

The 1989 Sample Survey.

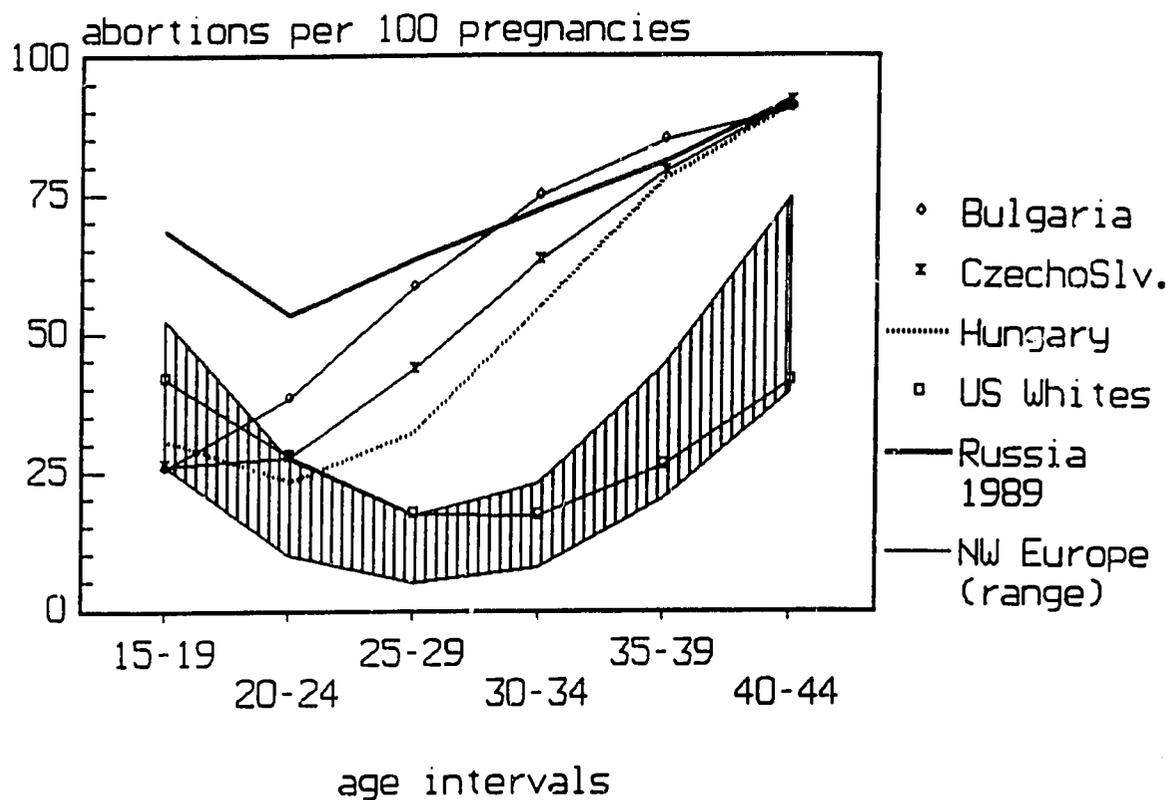


Figure 6. Age-Specific Abortion Ratios for Selected Countries Circa 1987.

Notes. Abortion ratios are computed as the number of abortions per known pregnancy, defined as the number of abortions plus live births.

North Western Europe includes the following populations: Denmark, England and Wales, Finland, Netherlands, Norway, Scotland, Sweden.

Age-specific ratios for Russia are based on the age composition of abortions from the 1989 survey and reported national general abortion rates. The density for ages 15-18 is extrapolated.

Source. S. K. Henshaw (1990). Induced Abortion: A World Review, 1990. *Family Planning Perspectives*. Vol. 22(2).

The 1989 Sample Survey.

Table 9. Age-Specific Abortion Rates (ASAR) and Abortion Ratios, 1989.

age	ASAR per 1,000	abortion ratio
18-19	148.8	0.620
20-24	187.4	0.533
25-29	179.0	0.635
30-34	141.6	0.722
35-39	92.6	0.808
40-44	48.8	0.907
Total	3.883	0.663
mean age	28.2	

Notes. Age-specific rates are based on the age composition of abortions from the 1989 survey and reported national general abortion rate. Total abortion rate is computed with an extrapolated density for age interval 15-18. Mean age is based on an interpolated single-year density.

Source: The 1989 Sample Survey.

As in Eastern Europe, abortion in Russia serves as a stopping method after childbearing is completed. In Russia it may be as early as ages 22-23 at parity one. The sample survey recorded that the highest proportion (46 percent) of induced abortions are obtained after the first live birth, followed by 38 percent at parity 2. The respective parity-specific abortion ratios (which roughly measures the probability to terminate a pregnancy by an induced abortion) are 0.712 at parity 1 and 0.868 at parity 2.

Unlike Eastern Europe however, the prevalence of modern contraception in Russia is shifted toward older ages, which leaves substantial room for abortions as a means of birth spacing. The mean birth interval is greater than 4 years (comparing with 2.5 under natural fertility). Partially this is explained by substantial contraceptive prevalence, but induced abortion plays a major role. The 1989 survey shows that 48 percent of women who deliver their second child, obtained at least one induced abortion after the first live birth. The abortion ratio for ages 18-19 is almost as high as for ages 25-29.

A possible transition to an older fertility pattern might principally require effective contraception to substitute for abortions as a spacing method for nulliparous and single-parity women aged 18-24.

If this transition is to happen, it is likely to happen during this decade, for in the 1990s Russia faces a complete replacement of the large baby-boom (born around 1960) female cohort now in their reproductive ages with a new relatively small cohort born in the mid 1970s.

FOOTNOTES

{1}. Similar to computing proximate determinants of fertility,

$$C_m = \frac{\sum_{x=15}^{49} asfr(x)}{\sum_{x=15}^{49} \frac{asfr(x)}{m(x)}}$$

where $asfr(x)$ is age-specific fertility rates, and $m(x)$ is proportion currently married. For age interval 15-19 the ratio $asfr(x) / m(x)$ is assumed equal to 0.75 of its level at ages 20-24. Russian censuses record actual rather than legally registered marriages.

{2}. As defined by S. Preston (1976, Family sizes of children and family size of women. *Demography*, vol.13 (1)) mean number of siblings equals

$$\frac{1}{TFR} \sum_{k=0}^{\infty} k^2 d_k = TFR + \frac{\text{variance}}{TFR}$$

where d_k is the density of cohort distribution by number of children ever born, and the cohort TFR is mean number of children ever born. The linear logit extrapolation is used for high parities.

{3}. The World Fertility Survey (1974-77) for 16 developed countries recorded the mean ideal number of children within the range from 2.21 (Italy, Bulgaria) to 2.76 (Spain).

Source: United Nations. *Fertility Behavior in the Context of Development. Evidence from the World Fertility Survey. 1987.*

{4}. The authorship is retained by L. Darsky, T. Kharkova, and N. Sneiderman -- Russian State Committee on Statistics.

{5}. General abortion rate (GAR) is the number of abortions per 1,000 women aged 15-49. Abortion ratio is number of abortions per known pregnancy (defined as the number of abortions plus live births).

{6}. Total abortion rate (TAR) is the sum of age-specific abortion rates. Its value equals the average number of abortions that would be experienced by a woman during her entire reproductive life, given age-specific abortion rates remain as present.

{7}. Let α_j be (unknown) normalized abortion rate for the age interval j :

$$\alpha_j = \frac{asar_j}{TAR} = \frac{asar_j}{\sum_{(j)} asar_j}$$

where $asar$ is age-specific abortion rate. Let P_j be the midyear population size for the age interval. Then the ratio

$$\frac{\text{number of abortions}}{TAR} = \sum_{(j)} \alpha_j P_j$$

is a linear function of α_j defined for a convex simplex. The true value of the ratio is therefore bounded with the minimal and maximal values of the finite sets of extreme values, which may be found directly.

The limits for TAR are obtained by assuming only that five-year age-specific abortion rates decrease monotonically starting from the age interval 35-39.

Given the limits for TAR are determined by these rather loose conditions, it is unlikely that the true solution lays close to either of the limits.

{8}. From the abortions performed in the system of the Ministry of Health; totally 3,832,000 in 1988. Source: A. A. Popov (1991). Family planning and induced abortion in the USSR. Basic health and demographic characteristics. *Studies in Family Planning*. Vol. 22(6).

{9}. Based on the truncated Poisson model.