

Abortion, Illegitimacy, and the American Birth Rate

Legalized abortion had a dramatic effect on the number of illegitimate babies born during 1971.

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Abortion is one of society's oldest and most effective fertility control mechanisms. Although historically it has been associated with considerable censure and medical risk, abortion nonetheless has been sought even under the most adverse circumstances. The United States recently marked the first anniversary of the Supreme Court decision that removed virtually all statutory barriers to abortion. With that decision this country joined a growing number of nations permitting couples to control their fertility completely. Controversy has been mounting, however, and movements currently exist not only to prohibit public medical care expenditures for abortion services, but to overturn the Supreme Court decision through a constitutional amendment. The issues for public policy thus are critical but a relative lack of evidence on the impact of legal abortion on fertility in the country as a whole has so far hampered informed decisions.

Laws making abortions easier to obtain were first passed in 1967 in California, Colorado, and North Carolina. By 1970, 15 states in all had adopted similar laws (1) and, during that year, approximately 200,000 women in the United States obtained legal abortions. In 1971, the number of women obtaining such operations more than doubled to about 500,000. In both years approximately three-fifths of the abortion patients were under age 25 and two-thirds were unmarried—single,

divorced, separated, or widowed. Legally, the Supreme Court decision in 1973 made it unnecessary for a woman to seek an abortion outside of her state of residence; until that time, however, an increasing number of women were going outside their states of residence to obtain legal abortions in states where abortion laws were already liberalized, such as New York; in 1971 approximately 35 percent of the 500,000 abortions performed in states where abortion was legal were for nonresident women.

At first, when states began legalizing abortion, the birth rate reversed a previous decline and began to rise. It rose in 1969 and again in 1970. Then in 1971 it dropped suddenly and dramatically. The striking conjunction of widespread legalized abortion and the renewed drop in the birth rate naturally raises the question of the role of abortion in this drop. This role is not easy to determine, however, both because of other concomitant changes and because illegal abortion has always been used to a considerable but unknown extent. The extent to which pregnancies had been carried to term simply because obtaining an illegal abortion involved difficult arrangements and expense—pregnancies of "borderline wantedness"—was unknown. In such cases the continuation of the pregnancy would hinge on the ease of access to abortion, rather than such other considerations as the unacceptability of abortion or the underlying wish to have a child.

Enough time has now elapsed since the legalization of abortion for us to get at least a preliminary assessment of the impact of the new laws on the trend in fertility. For this purpose we have used data from various states. In Cali-

fornia, where we have studied the matter most intensively, we have shown that in 1971 the increased availability of abortion due to legalization reversed a previous upward trend in the rates of illegitimate births (2) and thus appeared to prevent the birth of a substantial number of children whose life chances would have been poor (3). Legalized abortion also enabled women who might have had illegitimate births to start their childbearing later under potentially more favorable circumstances. To assess the role of legal abortion in the 1971 decline in legitimate fertility in California was much more difficult. Unlike illegitimate reproduction, legitimate birth rates in California had declined during the period 1966 to 1970, and there was a much lower ratio of abortions to births. In our studies of California, therefore, we were able to estimate the number of illegitimate, but not the number of legitimate, births that had been prevented by legalization of abortion.

Interstate Comparisons

In view of California's experience, this article is specifically concerned with the influence of legal abortion upon illegitimate and legitimate fertility in the country as a whole. Since legal abortion was not widely available in any state until about the middle of 1970, our focus was on the period 1965 to 1971. Using birth information by legitimacy status from states in which abortion had and had not been legalized, we asked whether the decline in illegitimacy in 1971 was larger in states where abortion was legal, and largest in those in which the rate of legal abortion use was highest. We also attempted to find out if the downward trend in legitimate fertility was greater in "abortion states" than in "nonabortion states."

At the inception of this study, nationwide data on births by legitimacy status were available only through 1968, and it appeared there would be continued delay in the publication by the National Center for Health Statistics (NCHS) of data for 1969 to 1971. We therefore obtained the more recent data for this study by communicating directly with all states reporting births by legitimacy status in 1968. States that did not officially have a specific legitimacy question on the birth certificate, but nonetheless used the information reported on the birth certificate to infer

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apparent legitimacy status, were also contacted. Of the states responding to our inquiry, 44 provided adequate information for detailed tabulation. These states accounted for 95.8 percent of all births occurring in the United States in 1968. On the basis of the data from these 44 states, we developed estimates of birth rates by legitimacy status for the United States as a whole cross-classified by age, race, and geographical region (4). The data are further differentiated by states in which abortion was legal and widely used between 1970 and 1971, and states in which abortion either was illegal or, despite legalization, was not widely used.

Our estimates of birth rates are not directly comparable with the data compiled by the NCHS (5). We have used the inferentially derived birth data by legitimacy status for a number of large states including California, New York, and Massachusetts. This yields a larger estimated number of illegitimate births for the entire United States than the NCHS method because the NCHS deals only with data from states which have a legitimacy item on the birth certificate; it extends the experience of these states to other states in the same region where the birth certificate asks no direct questions about legitimacy (6). Another difference between our method and that of the NCHS is that in calculating illegitimate birth rates we have considered separated women as unmarried and have included them with single, widowed, and divorced women as exposed to the risk of out-of-wedlock childbearing (7).

Illegitimacy's Rise and Decline

In the postwar baby-boom years, when legitimate fertility was rising rapidly, illegitimate fertility was rising even more rapidly. The total fertility rate for all births in the United States (an age-standardized rate that mainly reflects trends in legitimate fertility) increased about 60 percent between 1940 and 1960 (8). The age-standardized rate for illegitimate births tripled during the same period (9, p. 384). In the next 5 years the legitimate birth rate fell but the illegitimate rate continued to rise, although more slowly than previously. A number of explanations have been advanced for the rise in illegitimacy between 1940 and 1965 (9, pp. 375-433; 10), but in this article we will not attempt further analysis of that trend; instead, we will look in some detail at what happened in the subsequent 6 years.

During the latter half of the 1960's, the rate of out-of-wedlock reproduction among American women of childbearing ages increased consistently. Starting from a rate of 22.2 births per thousand unmarried women aged 15 to 44 years in 1965, the incidence of illegitimate childbearing rose by an annual average of 3 percent during the next 5 years, reaching a peak rate of 25.7 in 1970 (Table 1).

Teen-agers accounted for most of this increase. Their rate climbed an average of 6 percent a year. The rate among unmarried women aged 20 to 24 years fluctuated during the 5-year period, with a slight overall increase of 0.2 percent

annually. By contrast, among women aged 25 to 34 and 35 to 44 years, the illegitimate rate dropped an average of 2 percent per year.

The rise in illegitimacy characterized both white and nonwhite women and, for both groups, teen-agers accounted for most of the increase during this 5-year period, but among whites the teen-age illegitimate birth rate rose 7 percent per year compared to 3 percent for nonwhites.

On the basis of this overall upward trend, illegitimacy could have been expected to continue to rise in the early 1970's, but data for 1971 do not bear out this expectation.

Between 1970 and 1971, the consistently upward trend of the previous 5 years was reversed, with all women in the childbearing ages experiencing sharp drops in the illegitimate birth rate. From a peak rate of 25.7 in 1970, the rate among women aged 15 to 44 dropped by 6 percent to 24.2 per thousand in 1971. Large declines occurred in all age groups, although women aged 20 to 24 years, with a 12 percent drop, showed the largest relative decrease. Teen-agers, whose illegitimate fertility had risen the most between 1965 and 1970, dropped the least of all age groups between 1970 and 1971.

The decline characterized women of both races, but it was much greater for whites (12 percent) than for nonwhites (1 percent). Among white women, those aged 20 to 24 showed the largest drop (21 percent); among nonwhite women, those aged 35 to 44 displayed the greatest decline (5 percent).

This sharp reversal of trend in illegitimate fertility in 1971 indicates that legal abortion was a significant factor. Without legal abortion a continued rise would have been expected. Not only had there been a sustained rise, but it presumably came from causes that apparently remained unabated. Evidence from various studies (11) indicates that the age of entry into premarital sexual unions declined while at the same time the incidence of such unions increased. Furthermore, the movement in the direction of total dependence on "female-oriented" contraceptives, such as the pill or the intrauterine device (IUD), continued, but so did the social pressures on young girls to be completely "spontaneous in the act of love," that is, to refrain from all contraceptive planning (12). The net effect of these changes and pressures was to absolve the male of contraceptive responsibility while leaving the female unprotected at a period

Table 1. Estimated illegitimate birth rates by age and race of mother in the United States, 1965 to 1971 (4).

Age (years)	Illegitimate births per 1000 unmarried women							Average annual percent change*	
	1965	1966	1967	1968	1969	1970	1971	1965 to 1970†	1970 to 1971
<i>All races</i>									
15-44‡	22.2	22.2	22.7	23.2	24.1	25.7	24.2	3.0	- 5.8
15-19	17.6	18.4	19.2	20.3	21.2	23.3	22.5	5.8	- 3.4
20-24	37.6	36.9	36.8	36.6	37.4	37.9	33.4	0.2	-12.0
25-34	31.0	29.2	27.5	26.3	26.5	27.7	26.1	-2.3	- 5.7
35-44	7.7	7.3	7.1	6.9	6.7	6.9	6.5	-2.2	- 5.0
<i>White women</i>									
15-44‡	11.7	12.0	12.6	13.1	13.8	14.5	12.7	4.4	-12.3
15-19	8.5	9.1	9.4	10.2	10.7	11.8	10.7	6.7	- 8.9
20-24	22.0	22.2	23.2	23.4	24.0	23.4	18.6	1.2	-20.6
25-34	17.3	17.1	16.8	16.7	17.3	17.8	16.0	0.6	- 9.8
35-44	4.2	4.2	4.2	4.1	4.1	4.3	3.9	0.1	- 7.5
<i>Nonwhite women</i>									
15-44‡	72.3	70.3	69.5	68.9	70.0	75.1	74.1	0.7	- 1.2
15-19	77.7	78.5	80.4	81.7	83.8	91.0	90.3	3.2	- 0.7
20-24	112.6	107.7	103.9	101.3	102.3	107.0	103.0	-1.0	- 3.8
25-34	68.8	62.4	56.7	52.5	51.5	54.6	53.3	-4.5	- 2.3
35-44	18.9	17.1	16.1	15.0	14.2	14.1	13.4	-5.7	- 4.5

* See (26). † See (27). ‡ See (28).

of history when the possibility of engaging in premarital sexual intercourse was perhaps greater than it had ever been before. Given such fundamental changes in sexual behavior, and given a lack of evidence of any recent reversal of these changes, one would have expected out-of-wedlock reproduction simply to continue its sharp rises of the late 1960's into the 1970's. That illegitimacy instead fell, and that this decrease occurred at a time when many states were "liberalizing" their abortion statutes strongly suggested that the increased availability of legal abortion was instrumental in this decline. Would interstate evidence confirm this conclusion?

Abortion and Nonabortion States

By 1970, 15 states had adopted liberalized abortion legislation (1). Data compiled by the Center for Disease Control in Atlanta enabled us to estimate legal abortion rates for resident women in these 15 states. In addition, we were able to calculate these rates according to whether the abortion was performed within or outside of the women's state of residence. We were able to obtain birth data by legitimacy status through 1971 for all of the 15 states having liberalized abortion laws. Seven were in the Western region of the country (Alaska, California, Colorado, Hawaii, New Mexico, Oregon, and Washington); six were in the South (Maryland, Delaware, North Carolina, South Carolina, Arkansas, and Virginia); one each were in the North-

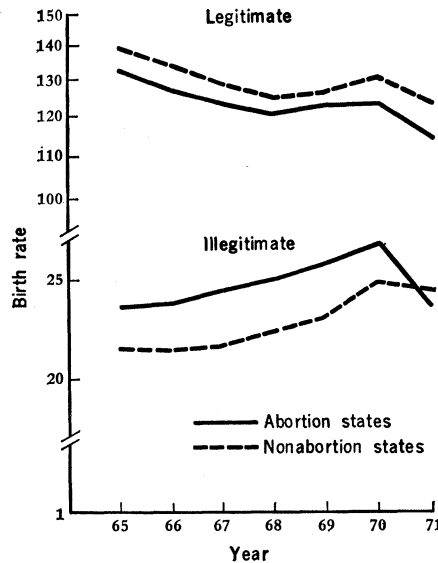


Fig. 1. Trends in estimated birth rates by legitimacy in abortion and nonabortion states in the United States, 1965 to 1971. Birth rates are per 1000 married (legitimate) and unmarried (illegitimate) women aged 15 to 44 years.

east and in the North Central regions (New York and Kansas, respectively).

As shown in Fig. 1, during the 5 years preceding 1970 a comparison of the trend in out-of-wedlock reproduction shows no important difference between states with liberalized abortion legislation and all other states (13). Although the abortion states had slightly higher illegitimate birth rates than the nonabortion states, both groups of states averaged an annual 3 percent increase in the rate of nonmarital reproduction (Table 2). Between 1970 and 1971, however, there was a marked divergence between the abortion and

nonabortion states: both groups showed a decline in illegitimacy, but the decline in the abortion states was by 12 percent, or six times the decline of 2 percent in the nonabortion states. In view of the earlier similarity, the subsequent disjunction between the two groups of states indicates that legal abortion was of pivotal importance in the nationwide declines in illegitimacy between 1970 and 1971.

The role of legal abortion is further verified when women of different ages and different races are considered. As Table 2 shows, at all age levels consistently larger declines in illegitimacy occurred in abortion than in nonabortion states. In both racial groups unmarried women were strongly attracted to legal abortion as a means of controlling their fertility. In 1971, illegitimacy declined in abortion states for all age groups by at least 11 percent for white women, and by about 8 percent for nonwhite women (see Fig. 2 and Table 2) (14, 15). In nonabortion states, illegitimacy among white women in all age groups declined by at least 5 percent, but for most nonwhites, it did not decline. In fact, illegitimacy among nonwhite women under age 35 actually increased slightly or remained unchanged in the nonabortion states. The larger declines for white women living in nonabortion states probably point to their greater use of out-of-state abortion.

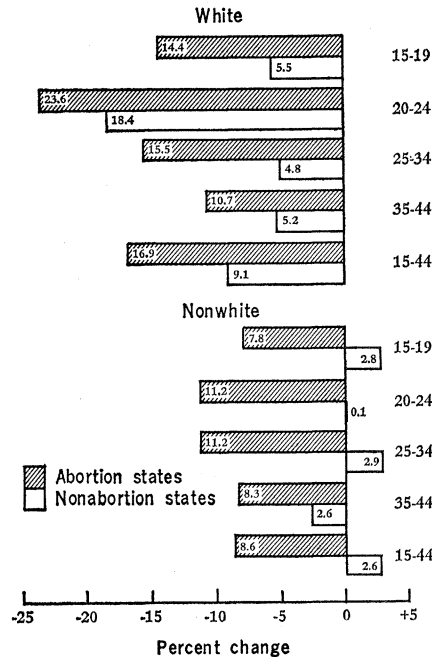
Further evidence of the impact of legal abortion is provided by an analysis of regional differences. Table 3 shows that the regions differ in the use of abortion when it is legalized and in the

Table 2. Estimated illegitimate birth rates by age and race of mother in abortion (A) and nonabortion (N) states (4) in the United States for 1965, 1970, and 1971. For identification of the abortion states, see Table 3.

States	Illegitimate births per 1000 unmarried women									Average annual percent change*					
	All races			White			Nonwhite			All races		White		Nonwhite	
	1965	1970	1971	1965	1970	1971	1965	1970	1971	1965 to 1970†	1970 to 1971	1965 to 1970†	1970 to 1971	1965 to 1970†	1970 to 1971
<i>Women aged 15 to 44 years‡</i>															
A	23.5	27.1	23.7	13.7	17.1	14.2	65.9	67.2	61.4	2.9	-12.4	4.5	-16.9	0.4	- 8.6
N	21.5	24.9	24.5	10.6	13.1	11.9	76.2	79.9	82.0	3.0	- 1.9	4.4	- 9.1	1.0	2.6
<i>Women aged 15 to 19 years</i>															
A	18.7	24.7	22.2	9.8	13.7	11.8	69.5	80.3	74.1	5.7	-10.2	6.9	-14.4	2.9	- 7.8
N	17.1	22.6	22.7	7.8	10.8	10.2	82.7	97.4	100.1	5.8	0.3	6.6	- 5.5	3.3	2.8
<i>Women aged 20 to 24 years</i>															
A	40.3	39.9	32.8	25.9	27.0	20.7	101.4	95.6	84.8	-0.2	-17.7	0.9	-23.6	-1.2	-11.2
N	36.2	36.8	33.6	20.0	21.4	17.5	119.6	114.3	114.5	0.3	- 8.5	1.4	-18.4	-0.9	0.1
<i>Women aged 25 to 34 years</i>															
A	32.0	30.0	25.9	20.4	21.8	18.4	63.9	52.4	46.5	-1.3	-13.6	1.3	-15.5	-3.9	-11.2
N	30.4	26.2	26.2	15.4	15.2	14.5	71.7	55.9	57.5	-3.0	- 0.1	-0.3	- 4.8	-4.9	2.9
<i>Women aged 35 to 44 years</i>															
A	7.7	6.9	6.3	4.8	5.0	4.5	16.6	12.0	11.0	-2.1	- 9.0	0.7	-10.7	-6.3	- 8.3
N	7.7	6.8	6.7	3.9	3.8	3.6	20.2	15.3	14.9	-2.3	- 2.6	-0.5	- 5.2	-5.4	- 2.6

* See (26). † See (27). ‡ See (28).

effect of abortion on illegitimacy. Women in abortion states in the West and Northeast clearly used legal abortion more frequently than women in abortion states in the South and North Central regions. In the West and Northeast, six of the eight abortion states had rates of 16 or more legal abortions per 1000 women aged 15 to 44 years; in four states—New York, California, Hawaii, and Washington—the rates were 20 or more. In contrast, women living in abortion states in the South and North Central regions were obtaining legal abortions at much lower rates, ranging from 2.8 in Arkansas to 13.7 in Delaware. Further, it appeared that in those southern states where abortion was legal, many women must have found it difficult or undesirable to obtain an abortion locally. The data show that substantial numbers of legal abortions performed on women living in these states had in fact been obtained elsewhere. For example, in Virginia the overall rate of legal abortions for residents was 6.8 per 1000 women aged 15 to 44, but nearly half (3.1 per 1000) had been obtained in another state. The role of out-of-state abortion is even more striking in South Carolina, where almost two-thirds of all legal



abortions performed on South Carolina women were performed in another state.

Regional differences of abortion rates corresponded with the regional patterns of decline in out-of-wedlock reproduction between 1970 and 1971. Table 3 shows that decreases in illegitimate fertility between 1970 and 1971 generally

Fig. 2. Percent change in illegitimate birth rates in abortion and nonabortion states in the United States, 1970 and 1971. Age groups, in years, are shown at the right.

were larger in the regions with states of high abortion use than in those with states of low abortion use. Indeed, rates of illegitimate fertility in most of the abortion states in the West and Northeast fell anywhere from 15 to 19 percent, whereas in the North Central and South, the individual abortion states, with the exception of Delaware, showed relatively modest declines or small rises.

Among the obstacles that could have depressed abortion use in the South and North Central abortion states were a possible lesser interest on the part of the medical profession and the public in making abortion services widely available, particularly in regard to providing public financial assistance. Although data are not available concerning the extent of public payment for abortion services in most of the abortion states, we do know that 42 percent of all resident abortions performed in 1972 in New York City and 37 percent in California were publicly financed (16). In California the proportion publicly financed was 60 percent for black women and 32 percent for white women. It is unlikely that the extent of public assistance for abortion was anywhere nearly this high in abortion states of the South and North Central regions.

Since the highest legal abortion rates and the greatest illegitimacy declines occurred in the West and Northeast regions, it could be argued that regional differences rather than differences in the availability of legal abortion are responsible for the decline in illegitimacy. This is not the case, however, for our data show that in each region of the country, including the South and North Central, women living in nonabortion states showed less decline or more rise in illegitimacy than women living in abortion states.

If our conclusion is correct, legalized abortion has had a substantial effect on illegitimate fertility in the United States. Can the magnitude of this effect be measured?

Illegitimate Births Prevented

In 1971 there were an estimated 416,000 illegitimate births in the United States and an estimated 272,000 legal

Table 3. Estimated legal abortion rates for 1971; estimated illegitimate birth rates for 1965, 1970, and 1971; and average annual percent change in the illegitimate birth rate 1965 to 1970 and 1970 to 1971 in abortion states grouped by geographical region. Legal abortions and illegitimate births are related to women aged 15 to 44 years; ISR, in state of residence; OSR, outside state of residence. [Data from table 4 in (1); see also (4)]

State of residence	Legal abortions per 1000 women in 1971			Illegitimate births per 1000 unmarried women			Average annual percent change in illegitimate birth rates*	
	Total	ISR	OSR	1965	1970	1971	1965 to 1970†	1970 to 1971
Northeast								
New York	27.1	27.1		21.7	27.6	22.9	5.0	-16.9
West								
Hawaii	23.6	23.6		21.6	24.6	21.0	2.7	-14.5
California‡	23.5	23.5	0.1	22.6	26.8	22.2	3.4	-16.9
Washington	19.7	19.6	0.1	15.2	21.0	17.0	6.7	-18.9
Alaska	17.4	16.7	0.7	34.2	41.3	33.9	3.8	-18.0
Oregon	15.7	15.7		16.1	17.9	15.3	2.1	-14.9
Colorado	9.1	7.7	1.5	21.3	21.7	19.9	0.3	- 8.3
New Mexico§	7.1	6.9	0.2	27.6	31.2	33.0	2.5	5.9
South								
Delaware	13.7	8.8	4.9	33.7	37.2	32.6	2.0	-12.3
Maryland	11.4	9.3	2.1	33.3	30.8	28.7	-1.5	- 6.8
Virginia	6.8	3.6	3.1	27.7	27.9	26.4	0.1	- 5.3
North Carolina	5.5	3.9	1.6	29.9	30.6	29.5	0.5	- 3.5
South Carolina	3.6	1.3	2.3	38.2	37.3	38.1	-0.5	2.4
Arkansas	2.8	1.7	1.1	29.6	31.5	32.3	1.2	2.7
North Central								
Kansas	8.8	8.1	0.7	14.9	18.9	17.7	4.8	- 6.4

* See (26). † See (27). ‡ The rates shown differ slightly from those previously published (2) because in the study described herein we used somewhat different methods for estimating the numbers of unmarried women. The rate for 1965 was assumed to be equal to the rate in 1966 since California birth data by legitimacy are not available prior to 1966. § Abortion rates shown for New Mexico are based on revised figures for resident and nonresident women obtained from the Center for Disease Control.

abortions performed for unmarried women (17). Thus about 40 percent of the recorded pregnancies (births plus legal abortions) were terminated through legal abortion. However, it cannot be assumed that every pregnancy terminated by abortion would have resulted in an illegitimate birth if abortion had not been legalized. Some would undoubtedly have ended as illegal abortions, others would have been legitimized by a "forced" marriage, and still others would have ended as fetal deaths. An important question, therefore, is, What proportion of the pregnancies currently being terminated by legal abortion would have resulted in an illegitimate live birth or one of the other three possibilities? Although there is no certainty as to what would have happened without legal abortion, we have estimated the number of illegitimate births that would have occurred based on what we believe are reasonable and conservative assumptions. To make these estimates, we have compared the actual number of out-of-wedlock births with the number that would have occurred if the previous upward trend had continued. Projecting the trend during 1965 to 1970 in age-race-specific illegitimate birth rates to the population of unmarried women in 1971 (18), we arrive at an expected 455,000 illegitimate births in 1971. However, the actual number fell 39,000 short of this estimate. Presumably, then, the difference between the expected and actual number of illegitimate births represents approximately the number of those births averted by legal abortion. The abortions that prevented these births comprised about 14 percent (19) of the total legal abortions performed on unmarried women in the period affecting 1971 births. Of the remaining 86 percent of the abortions, we estimated that most would have ended as illegal abortions or as legitimate births (20, 21).

Since abortion was legal in only certain states in 1971, and since there was considerable variation in the use of out-of-state abortion by different groups of women, we have also estimated how many more illegitimate births would have been averted if abortion had been legal and easily available in all states. We assumed for the nonabortion states the same relative decline in age-race illegitimate birth rates as occurred in the abortion states between 1970 and 1971. By making such an assumption we found that there would have been approximately 389,000 illegitimate births in the United States in 1971, or

27,000 fewer than actually occurred. Most of this additional saving would have come from nonwhite women who apparently used out-of-state abortion less than did white women. Of the 27,000 additional illegitimate births that could have been prevented in 1971, 18,000 would have occurred to nonwhite women and 9,000 to white women.

Legitimate Fertility

Since most births in the country are legitimate, the general trend in overall fertility is influenced mostly by the reproductive trends among married women. Legitimate birth rates reached their highest postwar peak in 1957, and then began to fall. In the period considered here, 1965 to 1971, legitimate birth rates continued to decline through 1968, rose slightly in 1969 and 1970, and then, like illegitimate birth rates, dropped sharply in 1971 (Table 4), reaching their lowest level since the downturn started in 1957. As Table 4 shows, there were decreases for every age group, with the rate for women aged 35 to 44 years decreasing the most. Teen-agers who were the only women with rising legitimate fertility between 1965 and 1970, had the least decline between 1970 and 1971 (2 percent).

Both white and nonwhite women participated virtually evenly in the 1971 drop. While white and nonwhite women of every age group contributed to

the decline, the greatest reduction for both groups occurred in the oldest age group, 35 to 44 years.

Although in 1971 legitimate and illegitimate fertility declined equally (6 percent), it was not readily apparent that legal abortion had played a major role in the decline in legitimate births. The ratio of abortions to births for married women is so low that it alone could not explain the 6 percent drop in the legitimate birth rate. Consequently, a separate examination of the trend in marital fertility for abortion and nonabortion states is a more feasible method for measuring the impact of legalized abortion on legitimate birth rates.

Figure 1 shows that up to 1970 the two groups of states showed similar trends in legitimate birth rates (average decline of 1.4 percent per year in abortion and nonabortion states) but that they diverged in 1971. Although both groups showed a substantially greater drop in birth rates than for the previous 5 years, the drop was somewhat larger in abortion than nonabortion states (8 percent as opposed to 5 percent; see Table 5). This differential is much smaller than that for illegitimate birth rates in 1971 (a decline of 12 percent in abortion compared to 2 percent in nonabortion states). Thus, although legal abortion evidently had some impact on the decline in marital fertility between 1970 and 1971, it was considerably less than on nonmarital fertility.

Table 4. Estimated legitimate birth rates by age and race of mother in the United States, 1965 to 1971 (4).

Age (years)	Legitimate births per 1000 married women							Average annual percent change*	
	1965	1966	1967	1968	1969	1970	1971	1965 to 1970†	1970 to 1971
<i>All races</i>									
15-44‡	136.6	131.0	126.1	123.5	124.9	127.4	120.0	-1.4	- 5.8
15-19	424.1	433.5	411.9	404.6	410.6	435.9	428.2	0.5	- 1.8
20-24	293.3	283.3	269.7	260.5	262.1	263.9	243.9	-2.1	- 7.6
25-34	147.3	137.2	131.3	129.6	131.0	132.0	123.4	-2.2	- 6.6
35-44	33.1	30.2	27.5	25.1	23.3	22.3	19.9	-7.6	-10.5
<i>White women</i>									
15-44‡	131.3	126.3	121.9	119.9	121.6	124.2	116.9	-1.1	- 5.9
15-19	407.1	416.7	392.2	386.3	394.1	424.0	420.3	0.8	- 0.9
20-24	285.4	276.6	264.2	255.8	257.1	258.8	238.6	-1.9	- 7.8
25-34	142.7	133.4	128.4	127.5	129.4	130.2	121.3	-1.8	- 6.9
35-44	31.0	28.3	25.7	23.5	21.8	20.8	18.6	-7.7	-10.8
<i>Nonwhite women</i>									
15-44‡	186.0	174.7	164.4	155.9	154.8	156.3	147.8	-3.4	- 5.4
15-19	549.4	555.3	551.0	531.6	524.2	517.4	482.2	-1.2	- 6.8
20-24	365.1	342.9	319.3	303.5	307.6	310.1	290.9	-3.2	- 6.2
25-34	187.4	170.0	156.7	147.9	145.3	148.6	142.4	-4.5	- 4.2
35-44	53.4	48.9	44.4	40.2	37.0	35.7	32.3	-7.8	- 9.4

* See (26). † See (27). ‡ See (28).

The relatively lesser influence of legal abortion upon marital fertility for both white and nonwhite women, as seen in Table 5 and Fig. 3, characterized virtually all age groups. The only exception is married white teenagers. Their fertility necessarily reflects the influence of pregnancy before marriage (22); they were the only group of married women to experience rising birth rates in the previous 5 years. For this group, marital fertility in 1971 continued to rise in nonabortion but declined in abortion states. This indicates that legal abortion had a depressive influence not only on white teen-age marital fertility but on the incidence of pregnancy-related marriages as well.

Differences between abortion and nonabortion states in the decline of marital fertility permit us to estimate the number of legitimate births prevented by legal abortion (23). While legal abortions equaled in number about 40 percent of the recorded pregnancies among unmarried women, this was not true for married women. In 1971 there were 3,137,000 legitimate births in the United States, but only 134,000 legal abortions for married women. Thus, legal abortions equaled about 4 percent of the recorded pregnancies among married women. Not all these aborted pregnancies would necessarily have ended as live births if abortion had not been legal: some would have ended in legitimate births, others in illegal abortions, and still others in fetal deaths. An estimate of the number of legitimate births

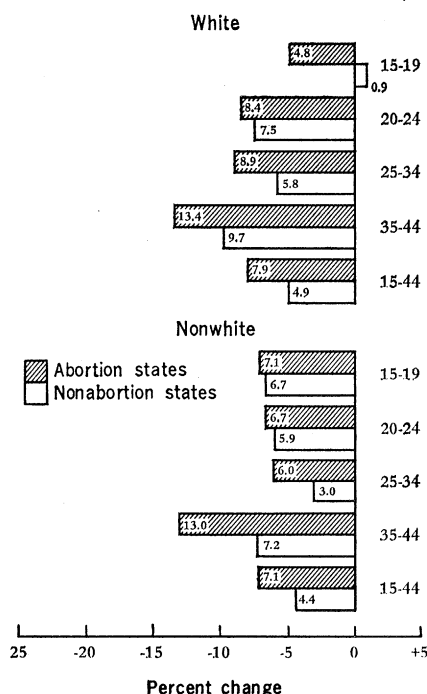


Fig. 3. Percent change in legitimate birth rates in abortion and nonabortion states in the United States, 1970 and 1971. Age groups, in years, are shown at the right.

that would have occurred in the absence of legal abortion can be obtained by assuming that the abortion and nonabortion states experienced the same relative fertility decline between 1970 and 1971. By making this assumption we find that there would have been 3,165,000 legitimate births in 1971, or 28,000 more than actually occurred. It thus appears that while about one-fifth

of the 134,000 legal abortions to married women would have ended as live births, most of the remaining four-fifths would have ended as illegal abortions (24). Since legitimate births declined by 164,000 between 1970 and 1971, and since we estimate that 28,000 of this decline can be attributed to the availability of legal abortion, it is clear that most of the decline in legitimate fertility resulted from influences other than legal abortion.

Summary and Conclusion

In sum, it appears that legal abortion depressed overall fertility, but particularly illegitimate fertility, by giving women an opportunity to terminate their pregnancies when other means of birth control either had not been used or had failed. If legalized abortion had not been available, an estimated additional 39,000 illegitimate babies and 28,000 legitimate babies would have been born in 1971 in the United States. While this makes up a small part of total births (3,500,000), the illegitimate births prevented represent almost one-tenth of all out-of-wedlock children born in the country in that year. In addition to preventing these births the legalization of abortion appears to have reduced the incidence of pregnancy-related marriages and thereby may have helped to limit subsequent marital disruption. Finally, legal abortion prevented large numbers of illegal abor-

Table 5. Estimated legitimate birth rates by age and race of mother in abortion (A) and nonabortion (N) states (4) in the United States, 1965, 1970, and 1971. For identification of the abortion states, see Table 3.

States	Legitimate births per 1000 married women									Average annual percent change*					
	All races			White			Nonwhite			All races		White		Nonwhite	
	1965	1970	1971	1965	1970	1971	1965	1970	1971	1965 to 1970†	1970 to 1971	1965 to 1970†	1970 to 1971	1965 to 1970†	1970 to 1971
<i>Women aged 15 to 44 years‡</i>															
A	132.4	123.6	114.0	127.5	121.0	111.5	171.5	143.1	132.9	-1.4	-7.8	-1.0	-7.9	-3.6	-7.1
N	138.8	129.5	123.2	133.2	125.8	119.6	195.3	165.2	157.9	-1.4	-4.9	-1.1	-4.9	-3.3	-4.4
<i>Women aged 15 to 19 years</i>															
A	411.5	415.9	394.4	394.2	406.0	386.4	536.3	482.6	448.2	0.2	-5.2	0.6	-4.8	-2.1	-7.1
N	430.6	445.7	444.7	413.6	432.8	436.8	556.3	534.8	499.1	0.7	-0.2	0.9	0.9	-0.8	-6.7
<i>Women aged 20 to 24 years</i>															
A	286.9	254.5	233.6	279.0	249.7	228.6	349.1	292.1	272.5	-2.4	-8.2	-2.2	-8.4	-3.5	-6.7
N	296.6	268.8	249.1	288.5	263.4	243.5	374.8	321.1	302.1	-1.9	-7.3	-1.8	-7.5	-3.0	-5.9
<i>Women aged 25 to 34 years</i>															
A	142.8	129.5	118.4	138.5	127.8	116.4	174.8	142.4	133.9	-1.9	-8.6	-1.6	-8.9	-4.0	-6.0
N	149.6	133.4	126.0	144.8	131.4	123.8	195.6	152.9	148.4	-2.3	-5.5	-1.9	-5.8	-4.8	-3.0
<i>Women aged 35 to 44 years</i>															
A	30.3	21.2	18.4	28.2	19.6	17.0	47.9	32.7	28.5	-6.9	-13.2	-7.0	-13.4	-7.3	-13.0
N	34.5	22.9	20.8	32.4	21.4	19.4	57.0	37.7	35.0	-7.9	-9.2	-8.0	-9.7	-7.9	-7.2

* See (26). † See (27). ‡ See (28).

tions from occurring. Our data indicate that well over half—most likely between two-thirds and three-fourths—of all legal abortions in the United States in 1971 were replacements for illegal abortions.

Further declines in illegitimate birth rates for the country as a whole will depend, in considerable part, on the extent to which legal abortion becomes more readily available and more widely used. Theoretically, greater use of efficient contraception could also cause illegitimate fertility to decline. But there are many reasons why women do not use efficient contraception even when they know about it and have access to the materials (25). Even though the use of abortion throughout the nation is now legalized by the Supreme Court decision, this does not necessarily mean that services will in fact be everywhere more readily available. Our interstate analysis suggests that should the liberalization of abortion laws be reversed, not only would there be an upturn in illegal abortions and pregnancy-related marriages, but also a marked rise in illegitimacy, particularly among women who do not have the means to obtain an illegal abortion.

References and Notes

1. *Abortion Surveillance Report—Legal Abortions, United States*, Annual Summaries (Center for Disease Control, Department of Health, Education, and Welfare, Atlanta, Ga., 1970 and 1971). The 15 states which we have characterized as having legalized abortion are those in categories V, VI, and VII of the 1970 report (table 21, p. 39). The 15 states exclude Georgia. Although Georgia had a liberalized law, this law had been invalidated in 1970 and thus Georgia was placed by the Center for Disease Control in a different category. In 1971, the number and rate of legal abortions performed in Georgia was low (1579 legal abortions or 1.5 per 1000 women aged 15 to 44 years).
 2. B. Berkov and J. Sklar, *The Impact of Legalized Abortion on Fertility in California* (International Population and Urban Research, Univ. of California, Berkeley, 1972); J. Sklar and B. Berkov, *Stud. Fam. Plann.* 4, 281 (1973).
 3. The following studies have shown that illegitimate children experience more social and health handicaps than do legitimate children: K. Davis, "The birth rate and public welfare in California," testimony before the State Social Welfare Board, 1972 (unpublished); E. Crellin, M. L. K. Pringle, P. West, *Born Illegitimate: Social and Educational Implications* (National Foundation for Educational Research in England and Wales, London, 1971); H. Forssman and I. Thuwe, *Acta Psychiatr. Scand.* 42, 71 (1966); B. Berkov, in *California's Twenty Million: Research Contributions to Population Policy*, K. Davis and F. G. Styles, Eds. (Institute of International Studies, Univ. of California, Berkeley, 1971).
 4. Methodological details of rate calculations and a list of specific sources of birth and population data are available on request.
 5. A. Clague and S. Ventura, *Trends in Illegitimacy: United States, 1940-1965*, National Center for Health Statistics, Series 21, No. 15 (Government Printing Office, Washington, D.C., 1968).
 6. The following is a comparison of our estimates of illegitimate births and total births with figures published by the National Center for Health Statistics (NCHS); NA, not available.
- | Year | Our study | NCHS |
|------|----------------------------|------------|
| | <i>Total births</i> | |
| 1965 | 3,726,448 | 3,760,358 |
| 1966 | 3,599,875 | 3,606,274 |
| 1967 | 3,517,128 | 3,520,959 |
| 1968 | 3,500,112 | 3,501,564 |
| 1969 | 3,590,427 | 3,600,206 |
| 1970 | 3,725,166 | 3,731,386 |
| 1971 | 3,552,698 | 3,559,000* |
| | <i>Illegitimate births</i> | |
| 1965 | 306,801 | 291,200 |
| 1966 | 320,081 | 302,400 |
| 1967 | 338,140 | 318,100 |
| 1968 | 357,267 | 339,200 |
| 1969 | 383,893 | 360,800 |
| 1970 | 424,958 | 398,700 |
| 1971 | 416,127 | NA |
- * Provisional.
7. This yields lower illegitimate and higher legitimate birth rates than shown by the NCHS data, particularly for nonwhite women over age 25. The reasons for considering separated women as exposed to the risk of illegitimate childbearing are discussed in B. Berkov and P. Shipley, *Illegitimate Births in California 1966-1967* (State of California Department of Public Health, Berkeley, 1971).
 8. National Center for Health Statistics, *Vital Statistics of the United States, 1968* (Government Printing Office, Washington, D.C., 1970), vol. 1, table 1-6.
 9. P. Cutright, in *Demographic and Social Aspects of Population Growth*, C. F. Westoff and R. Parke, Eds. (Commission on Population Growth and the American Future, Washington, D.C., 1972).
 10. K. Davis, in *ibid.*, pp. 235-265.
 11. —, in *Contemporary Social Problems*, R. Merton and R. Nisbet, Eds. (Harcourt Brace Jovanovich, New York, 1971), pp. 313-360; M. Zelnik and J. Kantner, *Soc. Sci. Res.* 1, 335 (1972).
 12. M. Diamond, P. Steinhoff, J. Palmore, R. Smith, *J. Biosoc. Sci.* 5, 347 (1973); K. Luker, thesis, Yale University (1974).
 13. There were some states in which abortion was legalized prior to 1970. The lack of apparent effect on illegitimacy by passage of abortion legislation during this period was due in part to the relatively short time during which the statutes had existed and in larger part to the fact that despite "legalization" many restrictions remained which prevented the widespread use of abortion at that time. It was not until 1970 that New York, Washington, Alaska, and Hawaii adopted the first laws with virtually no restrictive requirements. For an analysis of the effects of California's abortion law during 1967 to 1970, see E. Jackson, in *California's Twenty Million: Research Contributions to Population Policy*, K. Davis and F. G. Styles, Eds. (Institute of International Studies, Univ. of California, Berkeley, 1971).
 14. The lesser decline in illegitimacy in 1971 for nonwhite women in abortion states does not reflect a lesser use of legal abortion; in California and New York City legal abortion rates in the period 1970 to 1971 were higher for nonwhite than for white women. The lesser decline in illegitimacy for nonwhite women reflects their higher pregnancy rate [see our data in (2) and the paper by Tietze (15)].
 15. C. Tietze, *Fam. Plann. Perspect.* 5, 36 (1973).
 16. New York City Department of Health, Bureau of Maternity Services and Family Planning, unpublished data prepared in 1973; State of California Department of Public Health, special tabulations of reports of 1972 therapeutic abortions.
 17. We estimate that in the fiscal year period July 1970 to June 1971 (the period when a pregnancy would have had to be terminated to prevent a birth in 1971) there were 406,000 legal abortions performed in the United States. This estimate for the fiscal year period was derived from the total in calendar year 1971 [see Center for Disease Control (1)] by applying the ratio of fiscal to calendar totals available for New York State and California. It was assumed that the percentage of abortions performed on married and unmarried women was the same in the fiscal as in the calendar year period.
 18. This method yields a more conservative estimate of the number of nonwhite illegitimate births prevented, and a more realistic estimate of white illegitimate births prevented, than the method used for legitimate births prevented (if one applies the relative decline in nonabortion states to the abortion states). Since white unmarried women living in non-abortion states appeared to have made extensive use of out-of-state abortion, if one applies their fertility rates to women in abortion states one obtains an unrealistically low estimate of white illegitimate births prevented.
 19. The 14 percent assumes that one abortion is required to prevent one live birth. The figure rises to 17 percent if we apply to the United States Tietze's estimate for New York City that 1.2 abortions are required to replace one live birth. This takes account of the fact that a woman having an abortion is more quickly reexposed to the risk of pregnancy than a woman having a live birth [see Tietze (15)].
 20. Using data from the Health Insurance Plan of Greater New York (HIP) on fetal death probabilities adjusted for undetected fetal deaths [see Shapiro *et al.* (21)], and assuming that on the average legally aborted pregnancies had already progressed through the eighth week of gestation, we estimated that approximately 13 percent of the legally aborted pregnancies would, without interruption, have ended as fetal deaths. Although the HIP fetal death experience may be more favorable than that for the general population of unmarried women obtaining legal abortions, we have attempted to compensate for this by assuming a shorter average gestation period than is actually the case for legally aborted pregnancies. For selected states in the United States in 1971 (excluding California and New York), the median gestation period was 10.5 weeks. For California in the first quarter of 1971, the median gestation period was 11.2 weeks. Data for New York do not permit calculation of a median gestation period [see (1)]. Even if we assume that the 13 percent fetal loss is an underestimate, it remains true that if unmarried women currently using legal abortions were to try to carry their pregnancies to term, a relatively small part of these pregnancies would have ended as fetal deaths.
 21. S. Shapiro, H. S. Levine, M. Abramowicz, *Adv. Planned Parenthood* 6, 62 (1971).
 22. National Center for Health Statistics, *Monthly Vital Statistics Report 18* (supplement) (Government Printing Office, Washington, D.C., March 1970).
 23. This estimate includes legitimate births that were premaritally conceived. Unfortunately, data are not available that would permit us to estimate this group separately from legitimate births conceived after marriage.
 24. See (20) for discussion of fetal deaths.
 25. E. Sandberg and R. Jacobs, *Am. J. Obstet. Gynecol.* 110, 227 (1971); see also (12).
 26. The average annual changes were calculated by computer from unrounded estimated rates and will therefore differ slightly from average annual percent changes calculated from the rounded figures shown for the annual birth rates.
 27. To calculate the average annual percentage change, we assumed that the rate of change between 1965 and 1970 was constant; that is, we determined the value for r in the formula $e^{rt} = (\text{rate in 1970}/\text{rate in 1965})$.
 28. Rates were calculated by relating illegitimate (or legitimate, Tables 4 and 5) births regardless of age of mother to the estimated number of unmarried (or married, Tables 4 and 5) women aged 15 to 44 years.
 29. We acknowledge support from the Center for Population Research, National Institute of Child Health and Human Development (NIH-NICHD-73-2728). We thank Hazel Anderholm for graphic art work, Karen Corson for typing the manuscript, Arlene Guerriero for administrative and research assistance in preparation of the data, Sarah Lee Tsai for technical advice and the development of complex computer programs, Jan Seibert for editorial suggestions, and Kingsley Davis, who directed this study, for his invaluable guidance and encouragement. We also thank the National Center for Health Statistics and the many State Health Departments that provided data for this study.