

# Vital Statistics and Census Tract Data Used to Evaluate Family Planning

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FROM September 1962 to the end of 1966, the Emory University Family Planning Program in Atlanta, Ga., provided for the contraceptive needs of about 12,000 to 15,000 new patients in a post partum clinic at Grady Memorial Hospital. The exact number is not known because records for late 1962, 1963, and early 1964 were not systematically kept. Because of the lack of past records, it was often difficult to separate the new client coming for a first visit from the old client returning for new supplies, or after failure.

The estimated total of new clients represented about 24–30 percent of the target female population eligible for services in the mid-1960's. The estimated total eligible population of 50,000 consisted of all disadvantaged women 15–45, mostly nonwhite, living in Fulton and De Kalb Counties (1). Because of large numbers of out-of-wedlock births, marital status was irrelevant to the definition of the target group and to the provision of services. Until the beginning of 1966, the Emory-Grady program was the only family planning service offering modern contraceptives to disadvantaged women in Atlanta.

The most popular method of contraception has varied through the years, and in mid-1963 and through 1964 traditional methods gave way to oral contraceptives. As occurred elsewhere, the introduction of oral contraceptives increased

clinic attendance. The intrauterine device (IUD), introduced in late 1964, was foremost in 1965, and first clinic visits increased by 25 percent over 1964. Because of increasing disenchantment with IUD's in 1966, oral contraceptives once again became popular and clients resumed the 1963–64 acceptance pattern. By the end of 1966, however, there had been slightly more than 5,700 first IUD insertions, or about 11–12 percent of the target group. From followup studies, it was estimated that 4,200 women were still wearing the loop, and at least a third of the rest were sterilized or using another method at the end of 1966 (2). From mid-1963 to the end of 1966, there were 7,700 first visits for oral contraceptives, of which an estimated 5,000 represented new acceptors. Continuation rates for this method are not known.

It was probable that a program of this scope among fertile post partum women would influence the birth rate, principally among the non-white population who made up 90 percent of the new clients. The goal of this investigation was to measure the changes, using available information from several sources, and to express them as birth rates, rather than in more approximate and immediate indexes of program performance.

## Method and Observations

In an effort to gain a more precise idea of changes in fertility attributable to the program, available vital statistics and population data were reviewed from 1960–67. Table 1 gives births, population estimates, crude birth rates,

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and percentage change by race for Fulton County, where 85–90 percent of the population eligible for the program's family planning service lived. Birth rates for whites for 1960–67 showed an overall but irregular decline. The average yearly decline was 2.8 percent. The birth rate for nonwhites in table 1, however, showed a continuous decline at an increasingly rapid pace after 1963. The average yearly decline of the nonwhite birth rate was 3.9 percent.

From 1965 to 1966, the decline in the nonwhite birth rate was greater than the decline in the white birth rate for Fulton County and more than twice the decline of 4.6 percent in the total U.S. crude birth rate over the same period (3, 4). A substantial decline in nonwhite live births in 1966 was also noted following 3 years of steady increases, despite a continued increase in the nonwhite population. White births also declined sharply beginning in 1965, although the total white population leveled off and then declined.

**Table 1. White and nonwhite live births, adjusted population estimates, crude birth rates, and yearly percentage change, Fulton County, Ga., 1960–67**

Year	Resident live births	Adjusted population	Crude birth rates	Percent change of crude birth rate
<b>White live births:</b>				
1960-----	8, 006	<sup>1</sup> 362, 923	22. 1	-----
1961-----	7, 718	364, 785	21. 2	-4. 1
1962-----	7, 544	368, 102	20. 5	-3. 3
1963-----	7, 753	370, 609	20. 9	+2. 0
1964-----	7, 848	372, 091	21. 1	+1. 0
1965-----	7, 179	372, 243	19. 3	-8. 5
1966-----	6, 759	372, 540	18. 1	-6. 2
1967-----	6, 546	370, 077	17. 7	-2. 2
<b>Nonwhite live births:</b>				
1960-----	6, 087	<sup>1</sup> 193, 403	31. 5	-----
1961-----	6, 317	199, 615	31. 6	+0. 3
1962-----	6, 104	203, 448	30. 0	-5. 1
1963-----	6, 206	209, 703	29. 6	-1. 3
1964-----	6, 226	213, 910	29. 1	-1. 7
1965-----	6, 252	222, 957	28. 0	-3. 8
1966-----	5, 797	229, 510	25. 3	-9. 6
1967-----	5, 372	234, 474	22. 9	-9. 5

<sup>1</sup> Census population, April 1, 1960. Figures for other years are an average of the estimates of the Georgia Department of Public Health for July 1, and the Atlanta Metropolitan Planning Commission for April 1 (Fulton County census tracts 1–116).

**Table 2. Cumulative percentage change, crude birth rates, United States and Fulton County, by race, 1960–67**

Year	White		Nonwhite	
	United States	Fulton County	United States	Fulton County
1960–61--	-2. 2	-4. 1	-1. 6	+0. 3
1960–62--	-5. 7	-7. 2	-5. 0	-4. 8
1960–63--	-8. 8	-5. 4	-7. 5	-6. 0
1960–64--	-11. 9	-4. 5	-9. 0	-7. 6
1960–65--	-19. 4	-12. 7	-14. 0	-11. 1
1960–66--	-23. 3	-17. 6	-18. 7	-19. 7
1960–67--	-26. 0	-19. 9	-22. 1	-27. 3

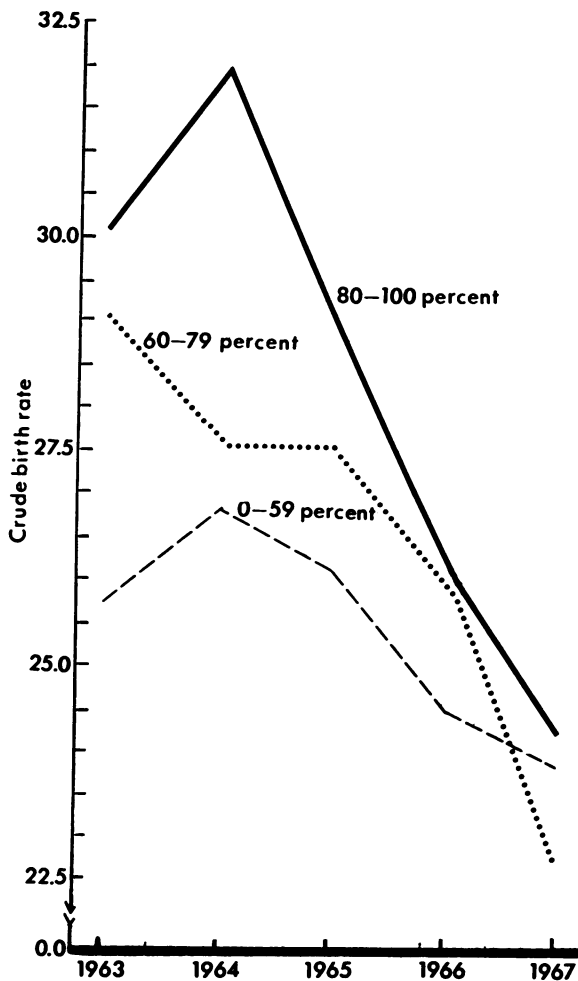
The cumulative decline of crude birth rates by race for the United States and Fulton County is seen in table 2. In the United States, 1960–67, cumulative declines for whites were greater than for nonwhites. The situation was reversed in Fulton County, mainly because of the acceleration of the decline in the nonwhite birth rate between 1965 and 1966. By 1967, the cumulative birth rate decline for nonwhites in Fulton County was clearly higher than for whites. Cumulative declines among nonwhites also were greater in Fulton County than for the United States, 1960–67. Until 1965, however, the cumulative decline among nonwhites in the United States had exceeded the decline among Fulton County nonwhites.

Data on births to residents occurring in Fulton County and the section of De Kalb County in the city of Atlanta were available by census tract for 1960–67. Corresponding population estimates were also available on a yearly basis as of April 1. Because about 90 percent of the program's clients were nonwhite, the data for white births were excluded from further analysis. The census tracts (Fulton 1–116 and De Kalb 1–9) were ranked according to the proportion of births to nonwhite residents of each tract occurring at Grady Hospital in the first half of 1965. The tracts were then grouped to form three areas, using the following proportions of nonwhite births occurring at Grady—0–59, 60–79, and 80–100 percent. The effect was to set up a socioeconomic scale based on eligibility for care at Grady. Nonwhites living in tracts where 80–100 percent of the babies were delivered at Grady would tend to be more dis-

advantaged and more affected by the post par-tum program than nonwhites living in tracts with smaller proportions of nonwhite births.

Available evidence suggests that the post par-tum program was reaching the grouped tracts differentially. If IUD insertions are tabulated by census tract of residence in 1965, the crude insertion rate (insertions divided by popula-tion) for the 80-100 percent tracts was double the rate for the 0-59 percent tracts. Because of the relative residential stability of poverty, it was assumed that the groupings of tracts on the basis of 1965 hospital data also reflected a socio-economic and program impact scale for 1963, 1964, 1966, and 1967.

**Figure 1. Crude birth rates, Fulton County census tracts 1-116 and De Kalb County census tracts 1-9, by proportion of non-white births at Grady Hospital, 1963-67**



Since census tract boundaries were changed between 1960 and 1963, table 3 and figure 1 begin with 1963. The pattern of birth rates was at first upward for two grouped sets of tracts, 1963-64, but then downward in all three, with the greatest initial decline in the tracts where 80 percent or more of nonwhite births occurred at Grady. The differences between the birth rates for the three groups were much smaller by 1967, suggesting that there was more similarity of nonwhite birth rates by socioeconomic group than in 1963. Cumulative percentage changes in nonwhite birth rates, 1963-67, Fulton County census tracts 1-116 and De Kalb County census tracts 1-9 by proportion of nonwhite live births at Grady Hospital, first half of 1965, were as follows:

Year	59 percent or less	60-79 percent	80 percent or more
1963-64	+4.3	-5.2	+6.0
1963-65	+1.2	-5.2	-4.3
1963-66	-5.0	-11.0	-13.9
1963-67	-7.4	-21.7	-19.9

Clearly the major decline occurred between 1965 and 1966, corresponding in time (given a year's lag) with an active IUD program and significantly increased clinic attendance (5). By 1967 the 60-79 percent grouping had the largest cumulative decline and the lowest birth rate.

#### Discussion

The live birth totals for residents of Fulton County used in table 1 are the official statistics of the Georgia Department of Public Health. They represent all live births to Fulton County residents, regardless of the place of birth. Nonwhite live births in table 3, however, represent only live births to residents of Fulton County occurring in Fulton County. Births to residents elsewhere are not coded by census tract. The true totals then are greater than those used in table 3. Fortunately, the error is not great. The following table shows the results if a ratio is calculated between births occurring in Fulton County and assigned to census tracts and the State total for births to Fulton County residents.

Year	White	Nonwhite
1963	0.91	0.96
1964	.90	.98
1965	.90	.99
1966	.91	.98
1967	.91	.99

The discrepancy in nonwhite births was consistently small, suggesting that few births to nonwhite residents of Fulton County occur (or are recorded as occurring) outside the county. The discrepancy for white births is greater, presumably because of the availability to whites of hospital services in adjoining counties. The use of nonwhite birth data by census tract thus introduces a small error tending to depress the crude birth rates appearing in table 3. Judging from the ratios for nonwhite births, the difference between the two numbers may have decreased between 1963 and 1967. The effect of this trend would be to make the observed birth rate decline smaller than it really was.

The population estimates presented different and more difficult problems. Those used in table 1 represent an average of the two available estimates for Fulton County for each year. The yearly estimates of the Georgia Department of Public Health for July 1 depend upon birth and death registration and an adaptation of method 2 of the U.S. Bureau of the Census to measure migration. The Atlanta Metropolitan Planning Commission (AMPC) estimates for April 1 of each year are based upon buildings erected and destroyed and an estimate of incremental growth based on actual growth between 1950 and 1960.

Method 2 error has been described for Standard Metropolitan Statistical Areas (SMSA) between 1950 and 1960 by Zitter and Shyrock (6). Between these censal years, method 2 produced a consistently negative bias, with a smaller error for the SMSA, as opposed to its

component counties. The average deviation was 5.1 percent for total SMSA's and 5.6 percent for their central counties. Zitter and Shyrock concluded that the method worked best in the slower growing metropolitan counties. If this tendency could be established for the population estimates of Fulton County, the central county of the Atlanta SMSA, from 1960 to mid-decade, all crude birth rates presented may be too high.

According to Starsanic and Zitter, population estimates based on the housing unit method tend to be high (7). Estimates were prepared for 47 cities where special censuses were carried out between 1964 and 1966. The average error, excluding cities that had annexed large surrounding areas, was 3.6 to 5.8 percent. The effect of a positive error in the population estimate for Fulton County would be to falsely depress the birth rate. The question cannot be resolved without a special enumeration or by use of intercensal estimates using data from the census of 1970.

The estimates of population for Fulton County are presented in table 4 by source of estimate. If we ignore the difference in the annual dates of the estimates, it is evident that the estimates disagree on whether or not the white population has continued to increase. Both agree that the nonwhite population has increased, but there are steadily increasing differences between the two estimates. Without a reliable method of resolving this situation, the two estimates were averaged. The disagreement between the two estimates illustrates the difficulties encountered in working with intercensal population data for relatively small areas.

**Table 3. Live births, adjusted population estimates, and crude birth rate of nonwhites, 1963-67, for Fulton County tracts 1-116 and De Kalb County tracts 1-9, by proportion of births at Grady Hospital, first half of 1965**

Year	Tracts with 59 percent or less of births at Grady			Tracts with 60-79 percent of births at Grady			Tracts with 80 percent or more of births at Grady		
	Live births	Population estimates	Crude birth rates	Live births	Population estimates	Crude birth rates	Live births	Population estimates	Crude birth rates
1963.....	1, 323	51, 333	25. 8	2, 337	80, 598	29. 0	2, 713	89, 723	30. 2
1964.....	1, 502	55, 892	26. 9	2, 304	83, 651	27. 5	2, 824	88, 326	32. 0
1965.....	1, 800	68, 878	26. 1	2, 437	88, 628	27. 5	2, 490	86, 046	28. 9
1966.....	1, 873	76, 522	24. 5	2, 303	89, 119	25. 8	2, 212	85, 025	26. 0
1967.....	1, 912	80, 085	23. 9	2, 030	89, 623	22. 7	2, 069	85, 600	24. 2

**Table 4. Population estimates by race and source of estimate, Fulton County, 1961-67**

Year	Atlanta Metropolitan Planning Commission, April 1 yearly estimate			Georgia Department of Public Health, July 1 yearly estimate		
	Total population	White	Nonwhite	Total population	White	Nonwhite
1961.....	567, 100	369, 670	197, 430	561, 700	359, 900	201, 800
1962.....	578, 400	375, 104	203, 296	564, 700	361, 100	203, 600
1963.....	586, 223	379, 417	206, 806	574, 400	361, 800	212, 600
1964.....	588, 700	381, 081	207, 619	583, 300	363, 100	220, 200
1965.....	591, 100	376, 686	214, 414	599, 300	367, 800	231, 500
1966.....	593, 700	376, 980	216, 720	610, 400	368, 100	242, 300
1967.....	605, 700	382, 853	222, 847	603, 400	357, 300	246, 100

Fortunately, the direction of the nonwhite birth rate is the same using either set of denominators. The cumulative birth rate decline between 1960 and 1967 was 23.5 percent with the AMPC denominators and 30.8 percent with the State estimates. In both, the decline increased markedly between 1965 and 1966. The increase in rate of yearly birth rate decline between 1960 and 1964 and 1964 and 1967 was more than fivefold for the AMPC estimates and threefold for the State estimates.

The AMPC estimates, unlike the department of public health estimates, were available by census tract, 1963-67. The adjusted nonwhite population estimates for the census tracts summarized in table 3 were constructed initially from the AMPC estimates by adding the nonwhite populations of the tracts as they were separated by the proportion of January-June 1965 births to nonwhites at Grady. One-half of the differences between the AMPC and the State estimate for the nonwhite population of Fulton County was prorated to the tract groupings (59 percent or less) by year, depending on the proportion of the total nonwhite population within that group for the year. This procedure always added people because the department of public health estimates of the nonwhite population of Fulton County were greater than the AMPC estimates. No adjustment was possible for the AMPC estimates for the nine De Kalb tracts within the city of Atlanta since State estimates were available only for all of De Kalb County. The nine De Kalb tracts were included because of their heavy and increasing dependence on Grady Hospital for maternity care.

For example, the 1966 average of the non-

white estimates for Fulton County was 229,043, or 13,257 more than the AMPC estimate of 215,786. The 13,257 was then prorated. If, for example, the 59 percent or less tract total was 30 percent of the AMPC total for 1966, then  $0.30 \times 13,267$  or 3,977 would be added to the population of that grouping. In this way, 15 adjustments were made, three for each year 1963-67. In no instance was the addition more than 6 percent of the AMPC total for the grouped tracts.

Crude birth rates are poor substitutes for more precise indicators of fertility. More specific denominators, for example, women in childbearing years, would have been desirable. Lacking reliable information on migration patterns, however, estimates of the number of women in the childbearing years appeared to be even more troublesome than estimates for the total population discussed previously. Based on special enumerations in 13 cities in the mid-1960's Farley and Taeuber have described migratory patterns for nonwhites, 1960 to mid-decade (8).

Although seven of the 13 cities experienced a total population decline, the numbers of nonwhites grew in all but one. There was significant outmigration of whites, but natural increase of nonwhites was more important than net immigration in the continued growth of the nonwhite population. The migration patterns of nonwhites were difficult to characterize. In the important age group 20-29, there was net immigration of nonwhites greater than the overall figure in six cities and net outmigration in five. In three of the cities where there was net outmigration of nonwhites 20 to 29 years old, the

net total suggested immigration. In two cities, the rate could not be calculated. Unfortunately, Atlanta was not among the 13 cities.

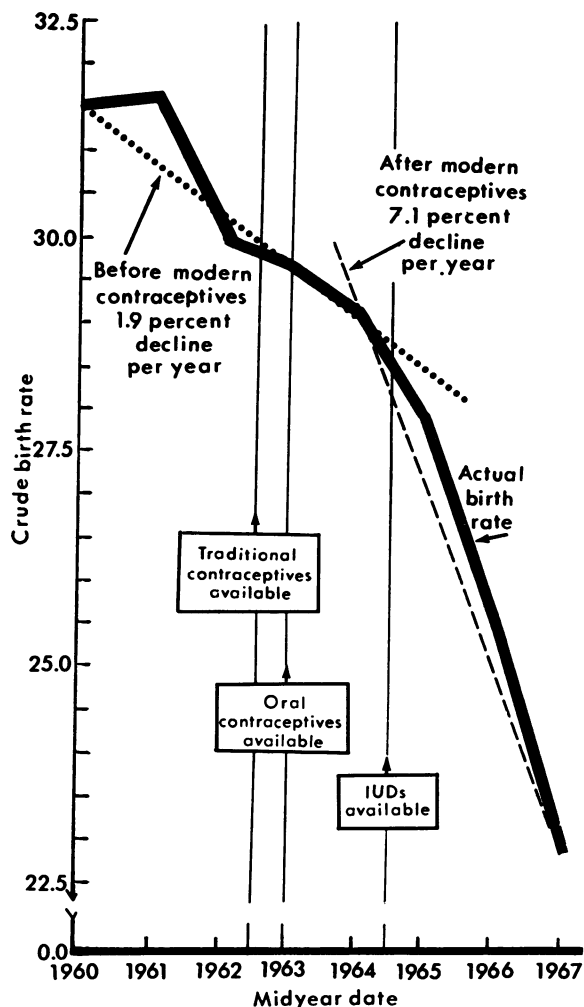
The aging of the white population of Fulton County, principally because of the exodus of its younger members to suburban counties, appears to be secure and has contributed to the decline of the white birth rate. Interpretation of the more rapid decline in the nonwhite birth rate is more difficult because of the lack of information on the age structure of the nonwhite population at mid-decade. Recent claims for decline in the nonwhite birth rate of Chicago have been challenged by Hauser (9). On the one hand, it is possible that the nonwhite population of Atlanta grew older from 1960 to mid-decade because of selective migration to northern cities. On the other hand, there has also been migration of younger nonwhites from the rural South to southern cities during the same period. On balance, it appears unlikely that the age structure of the nonwhite population of Atlanta changed significantly after 1960 because of migration. The effect of high birth rates in the late 1940's, however, probably began to expand the nonwhite population 15-19 years old by the mid-1960's. Women in this age group had 30 percent of all nonwhite babies at Grady Hospital in the first half of 1965.

If the nonwhite population was significantly younger by mid-decade, the decline in their crude birth rate may be underestimated. It is less likely that the nonwhite population became older after 1960, but, if it did, the declines are less impressive. In any case, it is highly unlikely that the age composition of the nonwhite population changed significantly between 1965 and 1967 when the sharp decline in birth rate occurred.

### Conclusions

The decline in nonwhite fertility in Fulton County (Atlanta) appears to be real, despite the numerator and denominator problems I have discussed. The decline accelerated after 1963, coincidental with an active post partum family planning program, and parallels certain aspects of Chicago's experience (10). More recently, Beasley and Parrish have reported a reduction in fertility and illegitimacy following an inten-

**Figure 2. Nonwhite crude birth rate, Fulton County, 1960-67**



sive family planning program in a Louisiana County (11).

In Atlanta, the decline in nonwhite fertility was greatest in census tracts where a larger proportion of nonwhite women had babies at Grady Hospital and returned for care at the post partum family planning clinic. This observation supports the contention that the program significantly affected nonwhite fertility. Figure 2 indicates that the decline in the nonwhite crude birth rate was increased more than threefold after 1964. The selection of 1964 as the watershed year was due to the introduction of oral contraceptives into the program in mid-1963. It would be difficult to measure much effect on the birth rate until 1965. Ryder and Westoff have attributed the acceleration in the decline

of the birth rate in the United States between 1964 and 1965 to a surge in the use of oral contraceptives (12).

The IUD, first used in September 1964, could not have influenced the birth rate significantly until 1966 when an even larger decline in the fertility of the program's clients occurred. The proportion of southern nonwhite couples who had ever used contraceptives rose from 51 to 75 percent between 1960 and 1965 (13). This growing acceptance and use of birth control methods clearly led to a decline in the birth rate, but it seems most unlikely that fertility declines of the magnitude described among Atlanta nonwhites would have occurred over so short a period had it not been for the introduction of modern contraceptives, particularly the IUD, by the Emory University Family Planning Program.

### Summary

From 1962 to the end of 1966, the Emory University Family Planning Program in Atlanta, Ga., provided for the contraceptive needs of about 12,000 to 15,000 new patients in a post partum clinic at Grady Memorial Hospital. Available information on census tract of mother's residence and birth rate data were used to evaluate the progress of the family planning program.

Live births at Grady were identified by race and census tract of mother's residence. Census tracts were then grouped according to the proportion of nonwhite births occurring at the hospital. Calculations of birth rates in the grouped tracts demonstrated declines related to the proportion of births at the hospital. Differences among the birth rates of the grouped tracts decreased over the time period examined. Since the method of grouping may have socioeconomic implications (more or less persons eligible for charity care), this observation suggested that family planning services were reaching the disadvantaged among the target population.

The timing of the birth rate decline supported the proposed effect of the program on the target population. Following the introduction of modern contraceptives, particularly the intrauterine device, the birth rate decline among nonwhites increased threefold.

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### Tearsheet Requests

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