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**Impact of
Family-Planning
Programs
on the Birth Rate**

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TWO of my country's leading demographers, both associated with the same department of the same university, view through two quite different pairs of spectacles the progress made by the world in dealing with excessive population growth.

Philip Hauser looks at the family-planning programs in progress throughout the world and suggests that it is mighty premature for those in the business to congratulate themselves on the success of their programs. Where, he asks, has it been demonstrated that organized family-planning programs in developing countries have actually brought down the birth rate?

Hauser's colleague, Donald Bogue, looks at the same phenomena and finds, on the other hand, eight revolutionary new developments that "promise hope in coping with the population crisis in Asia and throughout the world." These include:

- the "burgeoning field of family planning research and experimentation";
- the "discovery that tradition-based resistance to family planning among the masses is only minor";
- the "discovery that privation is a powerful motivating force for fertility control";
- "the incorporation of family planning as a part of the official program of national health and family welfare in nations around the world."

But when he has completed his optimistic recital of factors that promise to bring fertility under control, Bogue properly concedes that these "discoveries and developments are too new to permit an accurate evaluation of the impact they will have upon the world's population problem."

Hauser and Bogue really are in basic agreement. Except for the extraordinarily well-documented case of Taiwan—and cases that can be made for Hong Kong, Singapore, and South Korea—it is too early to measure effects of national family-planning programs on the fertility of nations. At the same time, enough real progress has been made to suggest hope, rather than despair.

CONCLUSION 8

The Need for Evidence

A nation that determines to invest substantial quantities of such scarce resources as administrative energy, trained personnel, and foreign exchange in a nationwide program of fertility control is eager to see, at the earliest possible moment, some tangible evidence of return for its investment. Unfortunately, it is exceedingly difficult to demonstrate incontrovertibly that a given program has, in fact, been responsible for a given decline in fertility. This difficulty is compounded because reliable measures of fertility are scarce in developing countries. Even more scarce are any that are sensitive to small changes. The effect of a given family-planning program, regardless of how vigorous or "successful" within its own terms of reference, cannot be expected in the first few years to make more than a small difference in the fertility of its immediate clientele, let alone a measurable difference in the fertility of a nation. Most national family-planning programs are very new. As my colleague, Lyle Saunders, remarks, large-scale efforts by national governments are "newer than nuclear fission."

The Difficulty of Finding It

Those who devote their energies to the operations of family-planning programs, no less than the governments which sponsor them, are eager to find some statistical indicator of falling fertility. But it is dangerous for the administrator prematurely to claim a cause and effect relationship between his program activities and the fall in the fertility rate. The next time the figures are published, the fertility rate may rise, to the acute discomfort of those who have taken credit for the fall.

There are usually many factors affecting fertility other than family-planning that may completely vitiate effects of a given program. A recent publication of the Demographic Training and Research Centre of Chembur in India illustrates the hazards involved in explaining a low birth rate by the prevalence of contraceptive practice. Bombay has had a vigorous family-

planning program for many years. And as the home of a large, urban, middle-class population, one would expect its birth rate to reflect the contraceptive habits of its citizenry. The birth rate in Greater Bombay, based on registered births, has ranged between twenty-six and thirty-one per thousand since 1951, while the best estimates of the actual birth rate for all India have remained above forty. But while the birth rate is low, the over-all fertility level for Bombay's married women aged 15 to 44, as corrected for underregistration, is 184.6, higher than that of India as a whole, which is estimated at 177.9. Thus the prevalence of contraceptive practice cannot be claimed as the cause of Bombay's reported low birth rate.

There are two major reasons for Bombay's low birth rate according to the Demographic Centre's calculations. Neither is related to family planning. One is the relatively large proportion of Bombay's women in the 15-44 age group who are unmarried—25 per cent, compared to 14 per cent for India as a whole. The other is the relatively low proportion of women in the reproductive age in Bombay's total population. Immigrating men, who have left their families behind as they came to work in Bombay's industry, result in a ratio of 150 males for every 100 females compared to a ratio of 106 to 100 for the whole of India.

As a matter of fact the registered birth rate for Bombay has *risen* from 28.2 in 1962 to 30.7 in 1965. But there is no more reason to attribute this apparently adverse trend to a slackening interest in birth control than to attribute Bombay's low registered birth rate to the effectiveness of its family-planning clinics. Birth registration may have been improved between 1962 and 1965. Even in Bombay, where 87 per cent of births occur in hospitals, it was estimated in a special study made in 1963 that only 86 per cent of these hospital births were registered, while less than half of home deliveries were registered. Furthermore, Bombay's birth register records only those births actually occurring in the city. But an estimated 20 per cent of babies born to Bombay residents are

delivered at their mothers' homes outside the city; this is only partially offset by babies born to visitors to Bombay. As traditional habits are abandoned, more of Bombay's mothers may well be having their babies in the hospitals of Bombay, instead of returning to their native villages, thus raising the registered birth rate.

An Illustrative Exception

The only country for which there is reasonably hard statistical evidence of a reduction in fertility brought about by organized, large-scale family-planning campaigns is Taiwan.* The deck is stacked in favor of Taiwan in this respect because of the effectiveness of its program and because its vital statistics are good; the operational statistics generated by the Taiwan Population Studies Center are complete, accurate, and useful for obtaining results that are meaningful to administrators.

While Taiwan began an islandwide family-planning program in 1964, the main experimental program for which extensive data are available is concentrated in the city of Taichung. The Taichung experiment can be divided into the following phases: (1) February to October, 1963—intensive educational campaign carried on; (2) October, 1963 to April, 1964—the educational program suspended but clinic services continued to be available; (3) April to January, 1965—some additional educational efforts made outside neighborhoods that had previously been subjected to the intensive program; and (4) beginning March, 1965—new effort made to recruit acceptors by offering free IUD services.

These activities resulted in a remarkably high level of "acceptances" of family planning. Of some 36,000 married women in Taichung in the 20-39 age bracket, about 7,500 or 20 per cent had "accepted" family planning by July, 1965. By removing from this population couples in which the husband or wife had been sterilized (9 per cent), those who were satisfied with their present contraception (20 per cent), and those

who wanted more children (8 per cent), fully 31 per cent of the remaining eligible population had been reached.

Of course "acceptance" of family planning—being fitted with an IUD or accepting supplies and/or instruction—is no guarantee of future reduced fertility of the acceptor. But it is significant that during 1963, the year of the intensive educational program, the total fertility rate in Taichung fell 6.4 per cent as compared with 3.1 per cent for other large cities in Taiwan and 4.7 per cent for Taiwan as a whole. But then when 1964 is compared with 1965—even though the cumulative number of acceptances kept climbing in Taiwan—it turns out that Taichung's decline in total fertility rate (-6.1 per cent) is less than that for other cities (-8.0 per cent) and only slightly more than for Taiwan as a whole (-5.5 per cent). (See Table on page 8.) One of the causes for this relatively "disappointing" performance compared to other cities is the apparent effectiveness of the islandwide IUD program begun in 1964.

IUDs in Particular

Among the many advantages originally attributed to the IUD was the expectation that it would at last be possible to calculate fairly easily and with a much greater degree of certainty the potential effect on the birth rate of a given number of insertions. This initial optimism is now somewhat dampened by the realization that a large percent of women who use the IUD shift from other methods of contraception (40 per cent in the case of Taichung), and it is extremely difficult to measure the difference between their potential fertility with the IUD in place and what it would have been with the complex of other methods they were using previously. It is also dampened by the realization that only about 50 per cent of IUDs remain in place after two years and that reinsertions probably do not raise this figure by much more than 5 per cent. One must have detailed data on subsequent contraceptive practice of ex-IUD users in order to calculate a given program's effect on fertility over time.

* Later evidence suggests that the same statement can now be made about South Korea.

Application of the multiple decrement life table technique with data derived from detailed follow-up surveys offers the most promising approach to this problem, I am assured by Professor Robert Potter of Brown University, an expert in this kind of calculation.

One preliminary finding from Potter's analysis of the Taiwan data might be mentioned in passing. It is more efficient in terms of potential reduction in fertility to provide IUDs to older women than to the younger. This seemingly paradoxical conclusion results from the fact that younger women, in Taiwan at least, are much more likely to expel their IUDs or have them removed—to have another child or for medical reasons—than are older women. Women in the 35 to 39 age group are about 50 per cent as fecund as those in their 20s, but this is more than offset by their decreased propensity to remove or expel the IUD. The mean duration of IUD retention by women aged 35-39 is fifty-six months as extrapolated by Potter from Taiwan data, compared with seventeen months for those in the 18-24 year old group and twenty-six months in the 25 to 29 year old group.

Really major declines in a nation's rate of population growth, as well as optimum health and welfare of the family, will await the acceptance of child spacing by younger women, in addition to the cessation of child bearing by older women of higher parity. But Potter's finding should give pause to those who feel family-planning programs that have so far just reached the latter group are a waste of effort in terms of over-all fertility reduction.

The Problem of Time

Can the Taichung performance be compared with that of national family-planning programs? The Taichung experiment reached some 20 per cent of its target population of women in reproductive ages in two and a half years of operation. But as we go down the roster of national family-planning programs, we find that few of

them have been in operation that long:

Country	Year Program Started
India	1951
Pakistan	1960
Taiwan	1964
South Korea	1961
Turkey	1965
Malaysia	1965
Ceylon	1965
Tunisia	1966
U.A.R.	1966
Morocco	1966
Singapore	1966

Family-planning activities are also supported and/or encouraged by governments of countries such as Thailand, Hong Kong, Kenya, Barbados, Trinidad, and the United States.

The "effective" starting date of a program may not coincide at all with its "official" starting date. It may be years before an effective administrative network is established to provide information and service to the entire population. Furthermore, it may well be argued that effective program action should be dated from the official adoption of IUDs and/or oral as the contraceptives of choice. Thus India's official program dates back to 1951, but effective action by this standard may be considered to have begun in July, 1965 with official approval of the IUD. Pakistan adopted the IUD as part of a nationwide research and action program in 1964 and South Korea also began large-scale insertions in that year.

Hong Kong and Singapore are two other "countries" that have had family-planning programs in operation long enough and on a large enough scale in terms of their entire population to expect an effect on the birth rate.

The table on page 8 gives some indication of the impact of the program in terms of proportion of the population reached for countries with large-scale programs that have been in "effective" operation for at least two years. The measures of program accomplishment indicated in column (4) of this table are rough

(1) Country	(2) Est. Population Mid-1965 (In Millions)	(3) Est. Number of Couples in Reproductive Age (In Millions)	(4) Estimated Number of Couples Reached by Program	(5) Rough Estimate Percent of Eligible Couples Researched
India	482.5	82.0 (a)	Cumulative through August, 1966: (b) 980,000 IUD insertions 1,600,000 sterilizations (4 million "contraceptors") (c)	5
Pakistan	115.0	16.5	Cumulative through 1966: 522,000 IUD insertions (d) 36.3 million units, conventional contraceptives distributed (e) (1 million "contraceptors") (f)	6
South Korea	28.4	4.6	Cumulative through 1966: 737,000 insertions (d) (20.1% "currently practicing family planning") (g)	20
Taiwan	12.5	2.0	Cumulative through 1966: (d) 260,000 IUD insertions	13
Hong Kong	3.8	0.5	Cumulative through 1966: 53,000 IUD insertions (h)	11
Singapore	1.8	0.25	1965: 27,000 "1st clinic visits," (i) Old and new patients Cumulative through 1966: (d) 28,000 IUD insertions	11

- Sources:
- B. L. Raina, "India," *Family Planning and Population Programs*, p. 111.
 - Centre Calling*, New Delhi, October 1966.
 - Estimate of S. J. Segal, in unpublished communication to World Bank, November 2, 1966.
 - P. Mauldin and D. Nortman, "Retention of IUD's," *Studies in Family Planning*, March 1967 (preliminary).
 - "Annual Report on Working at Pakistan's Family Planning Programme, 1965-66," p. 3.
 - Author's estimate. 36.3 million units/100 = 0.4 million couple years of protection. (See Parker Mauldin, "Measurement and Evaluation of National Family Planning Programs," April, 1966, p. 10.)
 - "The Findings of the National Survey on Family Planning, 1966," Ministry of Health and Social Affairs, Republic of Korea, December, 1966, p. 161.
 - Ronald Freedman, Memorandum on Research and Evaluation to Family Planning Association of Hong Kong, February 2, 1967.
 - 16th Annual Report, Family Planning Association, Singapore, 1965, p. 13.

estimates as reported by a number of official and unofficial sources and are only roughly comparable as among countries. Those expressed only in terms of cumulative IUD insertions do not, of course, consider use of other contraceptives, but this omission is at least partially offset by the failure to correct cumulative insertions for expulsion and removals. Nor do they take into account contraceptive practice of couples not participating in organized family-planning programs.

Allowing for great margins of error, the figures suggest that family-planning programs in the four smaller countries are reaching about twice the proportion of their eligible population that are reached by the India and Pakistan programs. As in the case of Taiwan, fertility rates in Hong Kong and Singapore have been falling over the years. Ronald Freedman calculates that about 40 per cent of Hong Kong's 10 point fall in birth rate from 1961 to 1966 is due to the decline in the proportion of women aged 20-29, a cohort decimated by low births and high infant deaths during World War II. But his recent study of the Hong Kong census data convinces him that a major part of the decline can properly be attributed to the work of the Hong Kong Family Planning Association.

Preliminary results of Korea's 1966 census indicate that its rate of population growth has declined; its average growth rate was 2.7 over the past six years, as compared with a rate of 2.9 per cent calculated on the basis of the 1960 census. It is plausible to believe that the rate was lower in the latter years of the six-year period than in the earlier and that the development of a vigorous family-planning program which is asserted to have reached 20 per cent of the target population has made a material contribution to this decline.

It is premature to seek declines in national fertility that can be attributed to the family-planning programs of India and Pakistan. The organizational problem involved in providing information and service to a large enough proportion of the target population in India

and Pakistan is of a different order of magnitude from the other countries in the table. It is well to recall that 8 out of India's 15 states have populations that exceed that of South Korea. Furthermore, each state has great autonomy in matters of health and family planning, and there is a great range of attitude, policy, and performance among the responsible officials of the several states. As of June, 1966, more than half of India's total IUD insertions were performed by the three states of Punjab, West Bengal, and Maharashtra, while Madras, Orissa, and Kerala performed the highest number of sterilizations per capita, and together with Maharashtra accounted for more than 50 per cent of those performed in India during 1965-1966. An analysis of insertions during the first eight months after official adoption of IUDs for the national family-planning program showed that the rate of insertion per 1000 women for five states of India exceeded that of Taiwan and Korea at similar stages of their development. Unfortunately, these high initial acceptance rates have not continued as the program has matured. It is to be hoped that with reinforced educational programs and improved medical follow-up, the trend of insertions will regain its upward course.

Conclusion

This paper has recited some of the hazards involved in using a nation's birth rate as a measure of success in family planning. It is indeed too early to claim at this time in history that national family-planning programs are sure to bring world population growth under control. But it is also entirely too early to make gloomy predictions as to the ultimate impact of these programs which, after all, are still in their infancy. We must hope that family planning programs of five years from now will represent substantial improvement over those of today: better methods of contraception, more effective administration; more imaginative educational programs, and more sensitive methods of evaluation.