DUDLEY KIRK

THE EFFECTIVENESS OF FAMILY PLANNING PROGRAMS IN LESS DEVELOPED COUNTRIES: THE EVIDENCE FROM SURVEY DATA*

The air is filled with polemics about the world population "explosion." Enchantment with dramatic exposition of the phenomenon has tended to obscure reasoned discussion of what is actually happening, why it is happening and what is being done about it. Some 25 countries, all in the less developed world, have adopted national family programs designed to promote the practice of birth control and thereby to reduce birth rates and to slow population growth. The following article briefly reviews world population growth, its causes, and the existing family planning programs. The main focus is on evaluation of these efforts as measured by the results of sample surveys on family planning, which have now been conducted in many countries.

RAPID POPULATION GROWTH AND ITS CAUSES

Rapid population growth is occurring chiefly among the two-thirds of the world's people living in the poorer countries. All population estimates and forecasts show the bulk of present and prospective world population growth occurring in these areas. These are of course the areas least able to provide for massive increase in numbers. The population of the world is currently growing by about 70 million a year. Sixty million of these are in less developed areas. The United Nations' "medium" projections for the less developed areas show a growth from 2.5 billion in 1970 to 4.7 billion in the year 2000. This would account for 85 per cent of the total increase in world population to the end of the century (*29*).

Such population growth must be unique whether one looks backward or forward in time. Current rates of growth could not have prevailed far into the past and obviously cannot persist long into the future. Any monotonic rate of growth ultimately leads to astronomical absurdities, and population is no exception. Continuation of present rates of increase in the less developed areas (2.3 per cent per annum) would double their population every 30 years and would in future centuries lead to those dramatic figures on population density so beloved by

* Adapted from paper presented at the London Conference of the International Union for the Scientific Study of Population, September 3–11, 1969.

alarmists writing on this subject. Such long range extrapolations have no predictive value, but they are useful for illustrating the problem. It is quite clear that in the long run present rates of population growth cannot be maintained and that in the short run social and economic progress would be facilitated by lower rates of population growth.[1]

Discussions projecting present rates of growth into an indefinite future ignore the origin and transience of the present situation. The population "explosion" is not the result of a "spiraling birth rate" as it is so often described in the press. It is a consequence of perhaps the most important material success of modern science and technology, the achievements in dramatically reducing death rates and in making these achievements increasingly available to all mankind. This success is the result of controlling epidemic disease through immunization, environmental sanitation and antibiotics; of eliminating famine, except temporarily in areas disorganized by war or internal strife; and of extension of the peace area through the establishment of more effective civil order by the modern state. The last is admittedly controversial; suffice it to say here that the media give an exaggerated picture of the extent of disorder in the world by highlighting tragic events such as those in Vietnam, Nigeria, and East Bengal, affecting only a small fraction of the world population. Overlooked is the fact that the great majority of people in the less developed areas live in a more orderly situation with more effective police power and fewer fatalities from internecine strife than existed in most of man's history. Aside from the temporary effects of natural or man-made disasters, it is doubtful if there is any country in the world that has not made significant progress in reducing mortality. Achievements are greatest in the more developed nations where average life expectancy has been doubled in modern times (e.g., from 35 to 70 years). In the latter, great progress has also been made in voluntary control of births, so that almost all of these countries, including the United States, now have low rates of population growth, generally 1 per cent or less per year. In terms of generation replacement rates, which correct for the concentration of population in the young adult ages, the United States is already at zero population growth.[2]

In the world at large the only acceptable resolution of the world population problem is reduction of birth rates and thus of population growth primarily in the less developed areas.[3] This has happened and is happening spontaneously without large-scale government intervention in the more developed areas. A great deal has been said about the need for government measures to reduce birth rates in both the more developed and less developed countries. Some proposals involve gross violation of personal liberties and equality of opportunity as these are now viewed in our society. These include such measures as putting sterilizing agents in the water supply, compulsory sterilization of parents after a given number of children, and punitive measures against large families (parents *and* children). Fortunately, most coercive measures are not possible or practical under

[1] For a full discussion of these points, see *21* and *8*.

[2] At present birth rates by age of mother (e.g., 15–19, 20–24 . . . 40–44) and at present mortality rates women in the United States are having just about enough daughters to replace themselves at their present ages. More technically this is referred to as a net reproduction rate of 1.0. During the baby boom in the 1950s the figure got as high as 1.8, i.e., on the average and at then existing fertility and mortality rates 1,000 women would have produced 1,800 successors.

[3] The only alternative is a return to higher death rates, from whatever cause.

present conditions; in any case, as has been pointed out, most coercive measures would be more likely to bring down governments than birth rates (*3*).

NATIONAL FAMILY PLANNING PROGRAMS

What is actually being done? In at least 25 countries, all in the less developed world, there are national family planning policies.[4] These cover more than half the world's population, including the giants—Mainland China, India, Pakistan, and Indonesia—as well as some of the pygmies, such as Mauritius, Barbados, and the Fiji Islands.[5]

It is not feasible here to discuss each program, but they have much in common. In this context family planning is a euphemism for birth control, which is promoted by clinics, by public education, and sometimes by using the marketing system and paramedical personnel (e.g., midwives) to bring materials and knowledge of birth control to the general public. In every instance participation is voluntary, though in some cases, notably for vasectomies in India, the patients and those recruiting patients may receive a small financial reward. In Pakistan, village midwives (*dais*) are given a fee for recruitment of women patients but the program has not been a success. As yet no economic sanctions are directed against large families in government services or in taxation. A common feature is the newness of the programs, no truly national programs having existed before 1964. In this area, even more than most, the word is often taken for the deed. A *pronouncement* favoring family planning by a leading figure in the government is not in itself a *policy* though it is often so interpreted by enthusiasts. A formal statement of *policy* does not in itself create a realistic *program*. The existence of a *program* does not assure that government family planning information and services are available to all or even to a sizable part of the country's population. A well-administered program is not necessarily well patronized by the public.

Situations in individual countries range from outright opposition to birth control to very effective services readily accessible to a high proportion of the population. But as a group they are moving along the continuum from opposition to cautious official approval; from favorable pronouncements to organized government programs; and finally to more effective implementation of such programs. For religious reasons Latin American countries are moving toward permissiveness rather than open advocacy of birth control. Asian countries, with fewer inhibitions in such matters, more openly promote birth control and are increasingly using mass media to advance this objective. Family planning programs have made less progress in tropical Africa than in other regions, though even here they have been adopted by several countries.

DIFFICULTIES OF EVALUATION

The effectiveness of such programs is the subject of many loose claims. The administrators are given to euphoric statements that exaggerate the impact, and

[4] As noted below what constitutes a national policy and program creates problems of definition. Countries with a policy and at least the beginnings of a family planning program include Ghana, Kenya, Mauritius, Morocco, Nigeria, Tunisia, and the United Arab Republic in Africa; Barbados, Dominican Republic, Jamaica, Puerto Rico, and Trinidad in the West Indies; Ceylon, Mainland China, India, Indonesia, Iran, South Korea, Malaysia, Nepal, Pakistan, Philippines, Singapore, Taiwan, Thailand, and Turkey in Asia.

[5] An up-to-date summary of all such programs is given in *20*.

these are countered by casual assertions on the part of alarmists that such programs have achieved nothing in the face of the staggering problem. Unfortunately, impartial observation is greatly hampered by the unreliability of official vital statistics in most of the less developed areas.

What the United Nations regards as "virtually complete" registration of births and deaths exists in 47 out of some 150 areas of the less developed world, but the majority of these are small and many have been considerably exposed to modernizing influences. Official vital statistics are almost useless for the largest countries including Mainland China, India, Pakistan, and Indonesia, and for major regions such as tropical Africa and much of tropical America.

In the absence of usable official vital statistics, other methods of evaluation must be sought. Furthermore, neither vital statistics nor administrative statistics from government programs provide needed information about the general population. Family planning programs are not being introduced and implemented in a vacuum. In even the most underdeveloped countries *some* couples are restricting family size independently of any government program, and in the most progressive of the developing countries this is a large part of the total population. In most countries the practice of birth control in one form or another is spreading quite independently of government intervention pro or con. In modern times the achievement of major social and economic development has always been accompanied by reduction in the birth rate. Thus it is not sufficient to know the statistical amount of services provided by the family planning program. For proper evaluation it is necessary to know changes occurring in the general population, and not just in birth rates, but also in attitudes about family size and in actual practice of birth control.

KAP STUDIES

A more or less standard family planning sample survey has been developed to supply such information. The family planning survey is one of the most rapidly burgeoning types of social inquiry. Such surveys have now been conducted in at least fifty countries in every region of the world.[6] In English such studies have come to be known by the acronym KAP, for Knowledge, Attitudes, and Practices related to family size and family planning. There has been a substantial effort to obtain representative samples, often with considerable sophistication in sampling procedures. Many are local studies, but a growing number are national in scope, as in Korea, Taiwan, Malaysia, Turkey, and the United States. For obvious reasons, the respondents are usually men and women in the reproductive ages. The studies are typically cross-sectional at one point in time; they are longitudinal only in the sense that in some cases they may be repeated at a later date (i.e., from a sample similarly drawn from the same population). Again the term *family planning* is commonly understood in this context to mean birth control, or, more narrowly, modern methods of contraception.

[6] Reviews of family planning surveys include *4*; *11*, pp. 226–62; *10*, pp. 973–1001; *17*; and *16*. Resumes of family planning surveys by region include, for Africa, *6*, pp. 598–619; for Asia, *28*; for Latin America, *18* and *19*; and for the United States, *14*, pp. 388–96.

There are two very important omissions, Mainland China and the USSR. The author is unaware of any family planning surveys in these countries.

The intellectual genesis of family planning surveys was a fusion of demography and opinion research. The initiative came from demographers, whose awareness of the inadequacy of census and vital statistics induced them to seek other means of determining trends in natality and the causes for the trends. Though not public opinion or marketing experts, many of the investigators nevertheless embarked on these studies with motivations similar to those of market researchers. They wanted to know, for example, what was the potential "market" of customers for contraceptive information and materials. To what extent was the population motivated and ready to accept family planning services and materials if these were conveniently provided through a government program?

The content of family planning surveys is rather stereotyped, though, as noted below, with less comparability than at first appears. The core list of subject matter includes marital and pregnancy history of married women under 45 years of age; their attitudes toward family size and child spacing; their attitudes toward family limitation; their knowledge of birth control, with emphasis on the specific methods used or intended; how they acquired such information; their actual practice of birth control; and the social and economic background characteristics of the couples interviewed. The last includes census-type information about education, rural or urban residence and background, economic activity and occupation of husband *and* wife, household composition, and religion, language, and other major cultural characteristics of respondents (see, for example, *12*).

Methodological Problems

Family planning surveys tend to reflect the interest in objectivity and behaviorism of those who initiated this type of study. The investigators have generally been more interested in the "what" of the situation as it exists rather than in the more subtle aspects of the "why," which involve subjectivity often very difficult to quantify. The surveys have been surprisingly successful in eliciting plausible responses on sensitive matters formerly thought to be much too delicate for such door-to-door surveys. In every country members of the establishment have said "You can't do such surveys here." Everywhere they were wrong. Questions concerning the practice of birth control, for example, have evoked replies of unexpected candor and consistency almost everywhere they have been tried. Nevertheless it is obvious that such replies must be interpreted with caution, notably those dealing with attitudes.

The questions relating to "ideal" family suggest the difficulties of interpretation and comparability. Questions intended to elicit such information have been quite variable, for example: (1) Generalized ideal—India (Mysore)—"How many children make an ideal-sized family?" (2) National ideal—United States—"What do you think is the ideal number of children for the *average* American family?" (3) Ideal for the respondent—Korea—"What would be the ideal number of children if you could control the number as you wished?" (4) Retrospective—Jamaica—"If you could live your life over how many children would you like to have?" (5) Advisory in the third person—Lebanon—"Suppose you have a very close friend in the same circumstances as yourself and she asked you for advice on the convenient number of children for her. What is the number of chil-

dren you would advise her to have if she could?" In these and numerous other examples one sees ambiguity in the concept: ideal for whom, when, and under what circumstances.

There is also inconsistency in the responses over time. The relatively few studies that have interviewed the same respondents at successive intervals have found a disturbing lack of correspondence between views on preferred family size expressed by the same individuals at different times and at different stages in the family cycle. Also, the response to a given inquiry will be influenced by the context in which the question is posed. The response may be influenced by motivation to give the response the respondent believes the interviewer wishes to evoke. Or the respondent may give different replies to the same question placed in different substantive contexts. Nearly two-thirds of the women in a field survey in Jamaica were inconsistent in replying to such questions made at different points in the same interview (*1*, pp. 25–26). For some purposes they desire a large family and for others a small family; conflicting motivations are everywhere at work. Most of the studies do not derive plausible information on the *intensity* of motivations and attitudes. There is, of course, a gap between verbal response and behavior. These and other questions have been raised as to the reliability and validity of the results of KAP investigations (*9*).

Nevertheless, with all the failings of KAP surveys, it is difficult to deny the validity of the very general and consistent conclusions from their findings. More striking than their deficiencies has been the extent to which well-planned KAP surveys have proved methodologically feasible and scientifically valid in all cultures. Their conclusions may be summarized as follows.

Everywhere in the less developed world some need is felt for more contraceptive information, services, and supplies. In every survey in the less developed countries a substantial proportion of the respondents state that their ideal or desired family size is smaller than the actual average of completed family size in the country concerned; that they do not want another child; that they approve of family planning and/or contraception; and that they are interested in learning methods of contraception. Each study reveals an unsatisfied "market" for contraceptive services (*4*).

The size of this market varies. There are great differences in specific knowledge and practice of contraception, which are clearly related to differences in level of social and economic development, not only between countries but between classes within any given country. In fact the filtering-down process is nowhere complete, even in Europe and the United States.

A striking feature of the family planning studies in technologically developed countries is their failure to determine any very significant association between size of family, or use of contraception, and measurable psychological and social characteristics of individuals, other than religious, racial, and socio-economic class differentials. Norms for childbearing and family size are decisive in determining group averages. In some of the more developed countries such as the United States there appears to be a homogenization of class differences in norms with a reduction of variance in numbers of children. There has been a reduction in both childless and one-child families and in larger families, as, for example, four children and over. However, national family planning programs are pres-

ently confined to the less developed countries, and these are the main concern in the following discussion.

Application to Evaluation of Family Planning Programs

The purposes of family planning programs and experiments are normally twofold: to reduce national birth rates and to promote the welfare of individual families. Theoretically one should give at least equal attention to the latter objective, but this is more difficult to measure. Evaluation of family planning programs through surveys has been oriented toward the first objective.

The immediate objective of most family planning programs has been to promote the practice of contraception, usually through clinical facilities and by methods advanced by the health service of the country concerned. The progress of the program is therefore commonly evaluated in terms of numbers of "acceptors." These numbers are usually reported month by month through administrative service statistics indicating, for example, the number of insertions of intrauterine devices (IUDs) and the number of oral contraceptives, and other contraceptives such as condoms, distributed through clinics or with government subsidy through regular marketing channels. These data provide information of the greatest importance for the administration of the program. They show the extent to which the program as a whole and each of its components down to the individual workers are performing and meeting targets.

Actually the success of a program in recruiting acceptors is an intermediate goal. The broader goal is reduction of the birth rate. In the absence of better data, service statistics are sometimes converted into such demographic measures as "couple years of protection" and "births prevented" usually by quite optimistic formulae, and these in turn are converted into measures of program achievement in reducing the birth rate. Such procedures are unreliable. First, there is the danger that reports are inflated in order to meet targets and to make a good showing; that doctors may falsify records on insertions of IUDs and other services to obtain the monetary rewards; that supplies distributed will not be used at all, or will not be used correctly, or will be used for quite different purposes.[7] Second, conversion of service statistics to demographic impact involves assumptions about contraceptive effectiveness often based on clinical experience rather than experience in a general population. Until recently, contraceptive research was done chiefly by clinicians and was sponsored by manufacturing companies interested in the safety and use-effectiveness of specific products under favorable conditions. These commonly ignore patients who abandon the products and fail to determine long-term use-effectiveness of the product in a general population. Very troublesome in this regard is the fact that *all* contraceptive methods (leaving aside sterilization) experience attrition in use. The level of attrition can be determined only by follow-up studies of acceptors and by KAP surveys.

Outstanding follow-up surveys of contraceptive practice have been conducted in recent years, especially with reference to retention of intrauterine devices.

[7] In Pakistan, for example, condoms available in local shops at very low prices subsidized by the government are reported to be purchased by children as cheap balloons.

These reveal disturbingly high rates of attrition as the result of expulsion, removal, and pregnancy. First insertion loss rates reported by such field surveys range from 17 to 43 per cent after 12 months and from 31 to 56 per cent after 24 months (*27*, pp. 931–40). Loss rates are not higher for the IUD than for other methods; they are simply better documented. Highly sophisticated means have been devised to measure the "life expectancy" for the use of specific contraceptives from such survey data (*23*).

The demographic effectiveness of a family planning program may be measured in several ways: (1) the reduction of births in the general population below the number expected on the basis of previous experience; (2) the ratio of expected to actual births among acceptors (a) who continue to use program methods and (b) who have discontinued the program method (including those who became pregnant).

The first is clearly the most relevant, but it is also elusive. In most countries with population programs, national vital statistics are much too incomplete or too inaccurate to give satisfactory measures of year-to-year changes in the birth rate. In any case the use of national birth rates to document effectiveness of a family planning program can be misleading. National birth rates are affected not only by trends in contraceptive practice but also by changes in the age and sex distribution of the population, by changes in age at marriage, and by changes in the practice of abortion. The hazards of the approach are suggested by the record for Taiwan, which is almost unique in the accuracy of its vital statistics. The effects of the family planning program have been estimated by comparing the rate of decline in the birth rate before and after the institution of the family planning program. An examination of Taiwanese birth rates from 1951 to 1963 (before the program) shows an annual average decline of 2.5 per cent (Table 1).

TABLE 1.—BIRTHS PER 1,000 POPULATION IN TAIWAN 1951–70*

Year	Birth rate	Average annual change	
		Amount	Per cent
1951	50.0	—	—
—	—	−1.1	−2.4
1959	41.2	—	—
1960	39.5	−1.7	−4.1
1961	38.3	−1.2	−3.0
1962	37.4	−0.9	−2.3
1963	36.3	−1.1	−2.9
1964	34.5	−1.8	−5.0
1965	32.7	−1.8	−5.2
1966	32.4	−0.3	− .9
1967	28.5	−3.9	−12.0
1968	29.3	+0.8	+2.8
1969	28.3	−1.0	−3.4
1970	28.1	−0.2	− .7

* The above are birth rates as officially reported by Taiwan for United Nations statistical publications. Inclusion of military personnel in the base population would slightly reduce all birth rates. In addition, the rate for 1966 was inflated and for 1967 deflated by earlier registration of births associated with the 1966 census. Births are reported by year of registration rather than year of occurrence.

From 1963 to 1968 the average decline in the birth rate was 4.2 per cent per annum. Since the program was initiated in 1964, it may thus be estimated that the program has resulted in an acceleration of some 70 per cent in the rate of decline. But minor modifications of the assumptions can make major differences in the comparison. If one uses years immediately before the program the comparison is less favorable. The average annual decline for 1959–1963 was 3.2 per cent rather than 2.5 per cent for the longer period. If, in turn, one projects linear rather than geometric declines[8] and omits the reduction of the birth rate from 1963 to 1964[9] the average annual reduction in the birth rate was 1.2 points before the program (1959–1963) and about the same (1.3 points) after the program (1964–1968). After 1968 reduction of the birth rate was slowed by the large numbers of young people entering the reproductive ages who were born after World War II.

From these data one might conclude that the program induced an acceleration in the decline of the birth rate somewhere between 0 and 70 per cent, but without further evidence there is not much basis for choice within a wide range.

More refined measures of reproduction are even less available and can also lead to confusing results. According to data for Taiwan, total fertility of *all* women fell more than twice as much as the total fertility of *married* women between 1963 and 1967. This suggests that changes in marital status (notably a rise in age at marriage) was a major factor in reduction of fertility in this period, and this was indeed the case. In Korea about 40 per cent of the reduction in fertility during the period 1960–68 was due to rising age at marriage and hence not directly related to the family planning program (*30*).

Nevertheless age-specific birth rates for women do seem to show the effects of the family planning program in Taiwan and Korea. Acceptors were disproportionately older women and there are precipitous declines in the age-specific birth rates of women over 30. These might have occurred without the program (the downward slopes for each age resemble the historic experience for Japanese women at the same levels of fertility), but this seems unlikely given the relative stability of birth rates for younger married women (in contrast with Japan).

The indeterminate nature of such measures has led to efforts, through surveys, to obtain more direct measures of demographic impact. A better evaluation of demographic effectiveness must include follow-up data to determine the selectivity of acceptors in the general population. Repetitive national surveys on these subjects are new, and most data for such analysis have been drawn from the outstanding surveys and analyses conducted in Taiwan and South Korea.

A highly sophisticated methodology has been developed to measure births averted by family planning programs. Initially rules of thumb were used which postulated, for example, that every four or five IUDs inserted would prevent one live birth in the year following insertion and that over the full reproductive history one IUD insertion would on the average prevent one birth. These initial

[8] An assumption of linear progression (i.e. equal absolute rather than equal percentage declines) is in fact more in keeping with the experience of other countries passing through the demographic transition.

[9] The reduction of the birth rate from 1963 to 1964 could not have been the direct result of the island-wide program, which was not in full swing before mid-1964.

computations proved to be optimistic, partly because of unexpectedly high attrition of the IUD in use and partly because they sometimes assumed that in the absence of the program the acceptors would not have used other methods of birth control. For the IUD much more complicated models have been created which estimate couple-years of effective contraception, taking account of monthly retention probabilities over time, accidental pregnancies while using the IUD, ratios of pregnancies to births, overlap between postpartum amenorrhea and practice of contraception, risk of marriage being interrupted by death or divorce, and increasing sterility with age (*23*).

A crucial determinant in the measurement of births averted is what the acceptors would have done in the absence of the program. Acceptors are selected in that they usually have higher fertility than the general population, and therefore have greater risk of another pregnancy. For this and other reasons acceptors are almost by definition more highly motivated to restrict family size than other comparable persons in the community. In any case the practice of birth control was spreading before adoption of the government program, and there is no reason to suppose this trend would have stopped.

Many acceptors in a government program could therefore have been expected to use birth control in the absence of a program. Some evidence on this is given by the behavior of acceptors who discontinued use of the IUD. Data from the first follow-up study of IUD acceptors in Taiwan show 72 per cent of these women currently practicing other methods of contraception successfully or aborting all pregnancies (*7*, p. 231). After thirty months or more over half the women terminating the IUD were practicing contraception or had been sterilized and "more than 50 per cent" of pregnancies occurring to this group were aborted (*24*, p. 852).

The above discussion suggests (a) that present methodology, though rapidly gaining in sophistication, is still inadequate to provide a reliable measure of the direct effects of a family planning program, and (b) that the demographic impact is probably exaggerated by methods of analysis now widely used. The demographic impact of family planning programs rests on estimates of "what might have been" in the absence of the program. This is not subject to precise measurement. Improving methodology can do more than give successfully more plausible approximations.

The preceding discussion focuses on methodological problems in measuring the demographic effectiveness of family planning programs. This is their severest test. Their success may also be measured in less developed countries by changes *antecedent* to effective practice of birth control, for example, changes in "ideal" family size; in knowledge of the idea of family planning; in knowledge of specific methods of birth control; in attitudes toward birth control and family planning; in reasons for favoring or opposing birth control; in amount of contraceptive practice; and in methods used. KAP surveys provide abundant information on these subjects, though relatively few studies give comparability by repeated studies of the same population over time. The effects of family planning programs on some of these factors are discussed below.

RESULTS FOR EVALUATION OF FAMILY PLANNING PROGRAMS

Despite methodological limitations KAP studies provide a wealth of information for the measurement of the extent of family planning and for the evaluation of family planning programs. These results may be generalized as follows:

(1) All populations surveyed are moving toward more awareness, more approval, and more practice of birth control. This is true of areas of as great diversity in culture and degree of technological development as Nigeria, Turkey, Japan, and the United States. It is especially true of countries with successful family planning programs such as Taiwan and South Korea but also of countries with apparently less successful programs such as Turkey and India. Nevertheless in some areas the proportion of married couples reporting current practice of contraception was still quite low as reported in surveys (see Table 2). When the data are strictly comparable there is clearly a relationship with socio-economic development. In India, for example, the Punjab, a relatively developed state, shows 25 per cent of women using contraception while Orissa, a less developed state, reports only 6 per cent.

(2) The surveys confirm the expectation that where programs have been successful in recruiting large numbers of acceptors there are large numbers currently using methods promoted by the program. Thus, national sample surveys in 1970 report some 14 per cent of married women 20–44 years of age in Taiwan and 19 per cent of married women under age 50 in South Korea were wearing the IUD, which was the principal method promoted in the family planning programs since 1964. The programs have surely raised the amount of contraceptive practice in the countries concerned.

(3) The surveys further demonstrate that programs are reaching women of high potential natality (despite selection for higher age and more children); that they are progessively reaching younger women; and that they are indeed making headway among the rural and the illiterate. In countries having comprehensive national programs like Taiwan and South Korea the direct demographic impact of the programs has almost certainly been greater in the rural than in the urban populations. Thus, between 1963 and 1967 in South Korea, total contraceptive practice among married couples in the reproductive ages was raised from 6 to 17 per cent in rural areas but only from 19 to 26 per cent in the urban populations (in each case leaving aside abortion and sterilization, which also

TABLE 2.—PER CENT OF MARRIED WOMEN AGED 15–44 CURRENTLY PRACTICING FAMILY PLANNING, SELECTED COUNTRIES*

Region and country	Per cent	Region and country	Per cent
Asia:		Middle East:	
India, Punjab	25	Iran	10
India, Orissa	6	Turkey	27
Indonesia	1	Africa:	
Thailand	10	Kenya	3
		Ghana	1

* As reported in surveys for various years, 1968–1971 (*20*, pp. 42–43).

increased in use). In the same period the current users of IUDs rose from 0 to 12 per cent in rural areas and from 0 to 11 per cent in urban areas. In other words, the program must have accounted for more of the net gain in the rural than in the urban areas. This is an encouraging sign for the potential impact of family planning programs in less developed countries in which the bulk of the population dwells in the countryside.

(4) Despite these encouraging evidences of progress, the surveys show that the *direct* effects of program efforts in reducing births are commonly exaggerated. First, follow-up surveys and KAP surveys show that new methods of contraception, like all methods (leaving aside sterilization), have high rates of discontinuation. Arbitrary measures of births prevented, based on clinical rather than general experience, have proven overly optimistic. Second, it is sometimes overlooked that acceptors of program methods may be substituting one method for another, or in the absence of the program method would have used another method of birth control, often quite as effective, such as abortion. Program acceptors are by definition persons more highly motivated to practice family limitation than others of similar circumstances. The demographic effectiveness of a program is not the number of births prevented but rather the *additive* effect of more births prevented than would have been averted in the absence of the program. As noted above, sophisticated efforts to determine the expected versus the actual births among program acceptors have resulted in lower estimates of the net effects of program methods. Even these lower estimates seem questionable in that they commonly ascribe all of the reduction in the birth rates of acceptors to the program even though a large part of this reduction was achieved after discontinuation of the program method and by nonprogram and sometimes illegal means (i.e., induced abortion). Third, and related to the second point, there is a tendency to assume that family planning programs are occurring in a static situation in which program effects are the only source of change. Even where programs have been very successful their direct effects may have been less than the effects of other influences on the birth rate. As noted earlier in both Taiwan and South Korea rise in age at marriage accounted for a substantial part of the reduction in birth rates.[10] Again, in these countries only about one-third of married women "protected against pregnancy" were using the IUD, the program method, and this excludes the effects of abortion, which is widely used in both countries. Furthermore the 1970 KAP survey in Taiwan showed less than half the *gain* in contraceptive practice since 1965 to be in adoption of the IUD, the remainder being in greater use of oral contraceptives, Ota rings (an older form of the IUD widely known in Japan, commonly made of metal), sterilization, and conventional methods mostly obtained outside the family planning program. In addition the reported practice of abortion had increased by about half. Taiwan and similar countries are in a period of very rapid social and economic change which is affecting marriage patterns and motivations for family limitation quite independently of the family planning program.

(5) The *indirect* effects of national family planning are of great interest and

[10] This was also true in Hong Kong, Singapore, Malaysia, Ceylon, and probably a number of other countries in which birth rates have been falling rapidly in recent years.

importance. Do "nonacceptors" practice birth control more than they otherwise would because of the activities and publicity of the program? Do acceptors practice more effective birth control even after discontinuation of the program method because they have become "users," i.e., did they primarily accept the *idea* of birth control or the particular *method*? There is little doubt that programs do promote the *general* practice of family limitation, but in the absence of control populations it is impossible to determine precisely how much of such change is attributable to a program and how much to the "natural" but very rapid and dynamic forces of social and economic change.

Some clues are available, however. Yoshio Koya, in his pioneering family planning surveys in Japan, found that the first response of a community to an action program was to use more intensively methods already familiar, in this case abortion (*15*). The birth rate in the communities studied went down rapidly, but initially as the result of more abortions rather than through use of the contraceptive methods recommended. Apparently there was a similar response, on a larger scale, to the initiation of family planning programs in Taiwan and South Korea. The island-wide Taiwan IUD program began in 1964 but too late to have affected the birth rate in that year. Nevertheless the birth rate in Taiwan dropped as much between 1963 and 1964 (1.8 points) as it did between 1964 and 1965. The only possible major program effect was increase in the number of induced abortions, even though these were not advocated by the program and in fact were opposed by it. Survey data also clearly indicate that a rapid rise in abortion accompanied the early phases of the family planning program in South Korea, where induced abortion is also illegal. Presumably the salience of birth control, promoted by the inauguration of a family planning program, stimulated many persons to use more diligently methods already familiar to them and thus to accelerate trends toward adoption of birth control. Family planning programs may have quite different effects and operate through quite different means from those anticipated. The total demographic effect of family planning programs is a combination of the direct and the indirect. The latter has received too little attention.

(6) Surveys bear out the importance of *publicity* and *communication* in promoting family planning. Studies in India, for example, indicate returns from public education campaigns. An intensive campaign in the Hooghly District near Calcutta brought a major rise in information and awareness of contraception and a rise of over 40 per cent in practice reported by both husbands and wives. Even allowing for some possible effect of the campaign in inflated reporting, the gains were impressive, significant, not so much in immediate use of program methods as in general practice of birth control. The principal focus of publicity was the IUD and within two months 2 per cent of the women had accepted the method. But gains in other methods already known, notably condoms and sterilization, were more important (*2*).

(7) *New methods of contraception* have probably been as important in mobilizing support for and publicizing family limitation as in promoting adoption of the methods themselves. Older methods of birth control, such as the condom, sterilization, and abortion have often proved as widespread in actual practice,

the last perhaps because it is the only method available after the fact. A serious defect of family planning programs is their common reliance on one method, such as the IUD or the pill (*22*).

(8) The role of *abortion* has been underplayed both in family planning surveys and in the evaluation of family planning efforts. The reasons for this are obvious—the presumed sensitivity of survey respondents to questions on a socially disapproved and usually illegal method of birth control; and the sensitivity of governments and program personnel to admitting the role of an illegal method in meeting the objectives of the program. In fact a family planning program is often advocated as a way of replacing abortion. This presents a dilemma to policymakers and program leaders since abortion has demonstrably been a decisive factor in reducing birth rates in such areas as Eastern Europe, the Soviet Union, and Japan.[11] It is clear that abortion has been a very important "silent partner" in the success of programs in Taiwan and South Korea and probably elsewhere.

(9) The *concept of family planning* is ambiguous, or at least an oversimplification in either its literal or its euphemistic sense. Couples in most parts of the world do not set out to have a fixed number of children at set times. Most want children, but the exact number and spacing are not fixed and they change with the life circumstances of the couples concerned. In the less developed world the surveys clearly show that parents are more interested in closure than spacing, that is, more interested in family limitation than in family planning. Also as a euphemism for birth control, the term *family planning* leads to confusion as to what it means: i.e., use of contraceptives promoted by a government program; or contraceptive practice in general, including such methods as abstinence, withdrawal, and sterilization; or birth control, including abortion. The term is too well established to be replaced, but in research greater precision in terms would be desirable.

(10) The surveys suggest that *norms* concerning family size and composition are particularly resistant to change. In the short run norms are too deeply rooted to be moved by ephemeral influences. In fact in countries where comparable data are available "ideal" family size indicated in KAP surveys did not change rapidly over time though the reported knowledge and practice of contraception changed very rapidly indeed. This suggests that family planning programs in some countries may be slowed as the populations get down to an unchanged ideal family size, smaller than actual size in the past but too large for long range population stability. In the longer run, however, there is evidence that norms will change, partly because of the impact of the changing social environment on motivations and partly because of success in achieving family limitation. Norms and behavior interact, and it is clear that in the less developed world the trend is toward wider acceptance of the small family pattern.

The above discussion has not attempted to answer the question of whether

[11] The possible demographic impact of induced abortion was dramatically demonstrated when Rumania outlawed abortion in 1966. The birth rate rose from roughly 14 to 38 per thousand nine months later.

current programs will succeed either in their specific targets or in the broader sense of resolving world population problems as variously defined. Such appraisal is premature for many programs: they are too new, or are too modest in size, or we know too little about them, as in the case of Communist China. World generalizations do not seem justified at this point.

In one group of countries a majority of program targets will be met if present trends continue.[12] These are the countries in which reductions in the birth rate were in varying degrees and for various reasons already under way prior to the adoption of national programs (e.g., Taiwan, South Korea, Hong Kong, Singapore, Malaysia, Ceylon, and Trinidad and Tobago). Family planning programs are reinforcing, legitimizing, and accelerating trends set in motion by general development and in some cases spectacular economic growth. In these countries, and a number of others, birth rates are falling much faster than they did in Western Europe at a comparable stage in demographic transition. These rapid declines will be checked temporarily in some countries by the rapid increase in number of young adults entering the marriageable ages, a legacy of the rise in the birth rate after World War II. But as a group these countries are well on their way.

More important are the larger and poorer countries, such as China, India, and Pakistan. In the latter two, family planning surveys give limited grounds for optimism but certainly no assurance of success. Here both urban and rural populations are now much more "ready" for birth control than they were a decade ago. The isolation of rural life is being broken down by such influences as the transistor radio, the cinema, and the village school. In the most progressive states of India, such as the Punjab, family planning has made much headway. A major part of the family planning programs so far should be regarded as investment in social change—in creating the greater awareness of birth control and more favorable attitudes toward it that precede effective practice. Future progress in reducing birth rates depends partly on family planning programs but even more on the rapidity of general social change and development.[13]

[12] For example: Taiwan seeks to reach a birth rate of 24 in 1973; between 1963 and 1968 the birth rate fell from 36.3 to 29.3. South Korea seeks to reduce its rate of natural increase from 2.9 per cent in 1962 to 2.0 in 1971. This predicates a drop of 3–5 points from the present level of the birth rate (in the low thirties) in three years, a reasonable extrapolation of trends since the establishment of the national family planning program. Singapore aims to drop its birth rate from 30 in 1966 to under 20 in five years; in 1969 the reported birth rate had already dropped to 23. In Malaysia the objective is to reduce the growth rate from 3.0 to 2.2 per cent in 20 years; this seems modest in view of recent trends. Ceylon's target is to reduce its birth rate from 33 to 25 in 8 to 10 years; this is achievable with a modest acceleration of birth rate declines actually experienced in recent years. Trinidad and Tobago seek to reduce the birth rate from 38 to 19 in 10 years; this is ambitious, but the reported birth rate has already dropped below 30.

It is interesting to note that several Latin American countries not having national family planning programs are also experiencing very rapid fertility declines (e.g., Chile, Costa Rica, and Cuba).

[13] This point is discussed at length in the author's recent article on "A New Demographic Transition" (*13*, pp. 123–47).

CITATIONS

1 K. W. Back and J. M. Stycos, *The Survey Under Unusual Conditions: The Jamaica Human Fertility Investigation*, Soc. Applied Anthrop., Mono. 1, 1959.

2 T. R. Balakrishnan and R. J. Matthai, "Evaluation of a Family Planning Publicity Program in India," *Contributed Papers*, Intl. Union for the Scientific Study of Population, Conference, Sydney, 1967.

3 Bernard Berelson, "Beyond Family Planning," *Studies in Family Planning*, Feb. 28, 1969.

4 ———, "KAP Studies on Fertility," in *5*.

5 Bernard Berelson et al., eds., *Family Planning and Population Programs: A Review of World Developments* (Chicago, 1966).

6 J. C. Caldwell, "The Control of Family Size in Tropical Africa," *Demography*, 5, 2, 1968.

7 L. P. Chow, Ronald Freedman, R. G. Potter, Jr., and A. K. Jain, "Correlates of IUD Termination in a Mass Family Planning Program," *Milbank Mem. Fund Quart.*, XLVI, 2, Pt. 1, Apr. 1968.

8 A. J. Coale and E. M. Hoover, *Population Growth and Economic Development in Low Income Countries* (Princeton, 1958).

9 P. M. Hauser, "Family Planning and Population Programs" (Book Rev. Art.), *Demography*, 4, 1, 1967.

10 Reuben Hill, "A Classified International Bibliography of Family Planning Research, 1955–1968," *ibid.*, 5, 2, 1968.

11 ———, "Research on Human Fertility," *Intl. Soc. Sci. J.*, XX, 2, 1968.

12 Intl. Union for the Scientific Study of Population, *Variables for Comparative Fertility Studies* (London, 1967).

13 Dudley Kirk, "A New Demographic Transition," *Rapid Population Growth: Consequences and Policy Implications* (Rept. of Study Comm., Off. For. Sec'y Nat'l Acad. Sci., Baltimore, 1971).

14 C. V. Kiser, "The Growth of American Family Studies: An Assessment of Significance," *Demography*, 4, 1, 1967.

15 Yoshio Koya, *Pioneering in Family Planning* (Tokyo, 1963).

16 W. P. Mauldin, "Application of Survey Techniques to Fertility Studies," in *Public Health and Population Change: Current Research Issues*, ed. by M. C. Sheps and Jeanne C. Ridley (Pittsburgh, 1965).

17 ———, "Fertility Studies: Knowledge, Attitudes, and Practice," *Studies in Family planning*, 7, June 1965.

18 Carmen Miro and Walter Mertens, "Influences Affecting Fertility in Urban and Rural Latin America," *Milbank Mem. Fund Quart.*, XLVI, 3, July 1968.

19 Carmen Miro and Ferdinand Rath, "Preliminary Findings of Comparative Fertility Surveys in Three Latin American Cities," *ibid.*, XLIII, 4, Oct. 1965.

20 Dorothy Nortman, "Population and Family Planning Programs: A Factbook," *Reports on Population/Family Planning*, June 2, 1971.

21 Goran Ohlin, *Population Control and Economic Development* (OECD, Paris, 1967).

22 R. G. Potter, Jr., "Inadequacy of a One-Method Family Program," *Studies in Family Planning*, 2, 1, Jan. 1971.

23 ———, "The Multiple Decrement Life Table as an Approach to the Measurement of Use Effectiveness and Demographic Effectiveness of Contraception," *Contributed Papers*, Intl. Union for the Scientific Study of Population, Conference, Sydney, 1967.

24 R. G. Potter, Jr., Ronald Freedman, and L. P. Chow, "Taiwan's Family Planning Program," *Science*, 160, May 24, 1968.

25 B. L. Raina, R. R. Blake, and E. M. Weiss, "India: A Study in Family Planning Communication, Meerut," *Studies in Family Planning*, 21, June 1967.

26 H. C. Taylor Jr. and Bernard Berelson, "Comprehensive Family Planning

Based on Maternal/Child Health Services," *Studies in Family Planning*, 2, 2, Feb. 1971.

27 Christopher Tietze and Sarah Lewit, "Statistical Evaluation of Contraceptive Methods, Use-effectiveness and Extended Use-effectiveness," *Demography*, 5, 2, 1968.

28 United Nations, *Family Planning, Internal Migration and Urbanization in ECAFE Countries: A Bibliography of Available Materials* (Asian Pop. Ser. 2, 1968).

29 ———, *1969 Report on the World Population Situation.*

30 George Worth et al., "Korea/Taiwan 1970: Report on the National Family Planning Programs," *Studies in Family Planning*, 2, 3, Mar. 1971.